SECTION M

EXPOSURE INFORMATION

Revision No.
5.0

SECTION M

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TABLE OF CONTENTS

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M-1 Introduction

M-1-1 Background and Purpose

In accordance with 40 CFR 270.10(j)(1) and ADEM Administrative Code Rule 335-14-8-.02(1)(j)1., this section provides reasonably ascertainable information on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the disposal of hazardous wastes within the facility's landfills.

M-1-2 Scope of This Report

The Facility is located approximately 3 miles east of the Mississippi state line and approximately 5 miles north of Emelle, Alabama. The Facility is a hazardous waste treatment, storage, and disposal facility managing Resource Conservation and Recovery Act (RCRA) waste under ADEM Hazardous Waste Permit Number ALD 000622464 and Toxic Substances Control Act (TSCA) PCB waste under an EPA Storage and Disposal Approval. RCRA and TSCA wastes are currently received and managed at the Facility by a variety of processes including landfill disposal.

Based on the USEPA's guidance document (USEPA, July 5, 1985), this Exposure Information Report (EI) has been prepared for the Facility to address potential exposures to contaminants in groundwater, surface water, air, subsurface gas, and soil. Releases during normal operations, releases resulting from accidents (both on-site and off-site during transportation), and the possible off-site explosion hazard created by methane migration are considered. Information is provided on the potential for releases in the future.

In providing information on these exposures, a number of basic premises and assumptions were adopted, the most important of which are itemized below.

1. The EI addresses both existing and future units at the Facility, but emphasis is placed heavily on the existing units in view of some of the uncertainties relating to reasonably expected future waste characterization and Facility operations.
2. The EI addresses the exposure potential of landfills and closed surface impoundments located within the boundary of the Facility as defined in the Part B Permit Application.

3. The EI addresses present or future exposures that may be associated with the past configuration of the Facility, the current operations, and the reasonably expected future configuration of the Facility through the closure and post-closure period.

4. This report does not duplicate relevant portions of the Part B Permit Application for the Facility, but instead provides references to the Application and provides an overview and brief summary sufficient to understand the content of the exposure information.

M-2 Facility Setting and Receptor Locations

M-2-1 Facility Setting

The Facility is situated in Sumter County, Alabama approximately 5 miles north of Emelle, Alabama on State Route 17 at mile marker 163. The Facility is located in a rural, sparsely populated region of Alabama consisting primarily of farm, pasture, and woodlands. A boundary survey map showing land uses for an area approximately 1 mile around the Facility is included in Appendix B-1 to Section B of the Part B Permit Application. The land use within a radius of four (4) miles of the Facility continues to be predominantly agricultural. There are no zoning ordinances in Sumter County that affect the area within 4 miles of the Facility (personal communication with Mr. Anthony Creer, Sumter County Engineer 8/29/94).

Per the 2010 Census data, the population of Sumter County is 14,798. The nearest towns are Emelle (population 31, 5 miles south), Geiger (population 161, 4 miles north), Gainesville (population 220, 9 miles east), and Livingston (population 3,297, 20 miles southeast). There are four residences within a 1-mile radius of the Facility and 15 residences within a 2-mile radius. More detailed information on the population within a 4-mile radius of the Facility is not readily available.

The prevailing wind directions in the area (as measured at Meridian, Mississippi, 38 miles southwest) are from the north and south as shown in Figure B-2 in Appendix B-2 to Section B of the Part B Permit Application. The average annual precipitation in Sumter County is 50 inches per year, and the average evapotranspiration rate is reported to be 33.4 inches per year, so that the net precipitation is approximately 16.6 inches per year.

The Facility is located on the drainage divide between Bodka and Factory Creeks. The western two-thirds of the Facility slopes toward Bodka Creek, which forms part of the northwestern boundary of the Facility. The eastern one-third of the Facility slopes southeast towards Factory Creek. Factory Creek is located approximately 3,250 feet from the Facility's fence line.

The surface waters within a 3-mile radius of the active area are Ballard Creek, Bodka Creek, Tifallili Creek, Shy Hammock Creek, Quilby Creek, and Factory Creek. Tifallili Creek, Shy

Hammock Creek, and Quilby Creek feed into Bodka Creek to the west (upstream) of the Facility, whereas Ballard Creeks feeds into Bodka Creek northeast (downstream) of the site. In addition, there is a small lake on the northeast boundary of the site and several smaller lakes and intermittent streams within the 3-mile radius. These are served by surface run-off and are primarily used for livestock watering. Bodka Creek is the only major surface water within 1,000 feet of the site.

Bodka Creek flows eastward and joins the Noxubee River about 5 miles from the Facility. The Noxubee River then flows about another 5 miles until it joins the Tombigbee River at Gainesville, Alabama. The nearest surface drinking water intake to the Facility is located on the Tombigbee River at Pennington, Alabama, approximately 40 miles south of the confluence of the Noxubee and Tombigbee Rivers. The nearest groundwater drinking water intake is approximately 2.25 miles north of the Facility on Highway 17 North. This well draws water from the bottom of the Coker formation, which is at an elevation below the Eutaw Aquifer. The depth of the 18" pipe is at 1,912 feet from the surface with the screen depth to 1,982 feet. The well is an artesian well, capable of producing 450 to 500 gpm without pumping.

The Facility is located in an area underlain by four major geologic formations: the Selma Chalk and the Eutaw, Gordo, and Coker aquifers. Each of these formations is described in Section E of the Part B Permit Application. Attention here is focused on the Selma chalk and the Eutaw aquifer, the uppermost aquifer used as a water resource in the vicinity of the Facility.

The Selma Chalk consists of a soft claystone matrix that ranges from 600 feet to 750 feet in thickness beneath the Facility. Ground surface elevations on the Facility vary from 130 feet to 300 feet mean sea level (MSL). The typical bulk in-situ hydraulic conductivity of the chalk ranges from 1.0×10^{-7} cm/sec in the upper 150 feet of the chalk to 3.0×10^{-8} cm/sec in the lower section of the formation. The effective porosity is approximately 30%. The locations of regional discharge and recharge areas for the Selma chalk are described in Section E of the Part B Permit Application. A generalized water budget for Sumter County is also presented in Section E of the Part B Permit Application.

The sand and gravel Eutaw formation underlies the Selma chalk. The Eutaw aquifer is about 400 feet thick, and the top of the formation is encountered at an approximate elevation of -455 feet mean sea level (MSL). The Eutaw formation is an artesian aquifer, and its potentiometric head at the Facility is at an approximate elevation of 140 feet MSL. The transmissivity of the aquifer is about 4,000 ft^2/day. At the vicinity of the site, the direction of groundwater flow in the Eutaw aquifer is toward the northeast and is subject to a hydraulic gradient of about 0.0004.

Section E of the Permit Application describes the current status of monitoring wells at the Facility. Figure E-1.1, within Section E of the Permit Application, shows the locations of the Facility's monitoring wells. The nearest downgradient (or possibly side gradient) groundwater wells used to supply drinking water are located approximately 1 mile north of the Facility's entrance and approximately 2,000 feet from the Facility's property boundary. In addition, there is a free flowing well that is occasionally used for watering livestock approximately 500 feet from the Facility's property boundary.

M-2-2 Access Road

Local traffic to the Facility travels along State Route 17, which passes through rural countryside near the Facility. Approximately 75% of the traffic reaches the Facility from the south via Interstate Highway 20. The remaining traffic reaches the Facility from the north, typically arriving by State Route 17 from State Route 14. There are four residences adjacent to or near State Route 17 within a 1-mile radius of the Facility entrance. The traffic from the north crosses Bodka Creek just before entering the Facility's property. Waste delivery trucks enter the Facility from State Route 17 and travel through the main gate.

M-3 Facility Operations

M-3-1 Waste Characteristics

The Facility receives or has received a broad range of organic and inorganic hazardous waste types, as described in Tables C-1-1 and C-1-2 in Section C of the Part B Permit Application. Wastes received at the Facility include liquids, semi-solids, and solids in both bulk and container (principally drums) shipments. Historically, these wastes have included the wastes identified and listed in 40 CFR Part 261 and ADEM Administrative Code Rule 335-14-2-.01, as well as other industrial waste, TSCA waste (e.g., PCB wastes), and wastes from off-site cleanup work that are not now identified or listed in 40 CFR Part 261 or ADEM Administrative Code Rule 335-14-2-.01.

Wastes specifically excluded by the Facility include municipal garbage and refuse, radioactive waste, infectious waste, and waste that the manager deems to be extremely dangerous (e.g., shock sensitive and explosive wastes).

The background data used to develop this EI is from January to December 1994. During this period, the annual quantity of wastes for 1994 was 359,000 tons. Since this time period, the amount of incoming waste to the facility has decreased. The values provided from this period, therefore, represent a conservative basis for this EI.

M-3-2 Treatment, Storage, and Disposal Units

Those operations considered directly relevant to the EI include the following:

- the closed, operating, and future landfill cells or trenches;
- the closed surface impoundments for storage of aqueous corrosive waste prior to stabilizing and landfilling; and
- the closed truck-wash impoundment.

In addition, intermediate processing or treatment of wastes destined for the landfill is described in Sections D-1 and D-2 of the Part B Permit Application. Treatment may be accomplished by a number of processing steps applicable to the particular type of waste. The sequence of processing operations varies with the physical state of waste (i.e., solid, semi-solid, or liquid). Depending on the waste, multiple treatment processes may be necessary. However, normally a particular waste requires only one type of treatment, and portions of the waste residuals are then directed for further treatment as appropriate. Within each management unit, there are certain general functions conducted, such as decanting, repackaging, bulking, blending, mixing, and phase and component separation. These functions may be conducted in any of the management units. Descriptions of these general functions are discussed in Sections D-1 and D-2 in the Part B Permit Application.

The Facility manages waste by storing and treating in containers, tanks, and containment buildings and disposal in lined land disposal units (i.e., landfill trenches). In general, the management practices include the following:

1. accumulating, repackaging, and transferring to off-site facilities wastes that are amenable to recovery or reuse;
2. accumulating and repackaging waste for treatment disposal and destruction at off-site facilities;
3. treatment of waste by oxidation/reduction, neutralization, hydrolysis, size reduction, decanting, phase separation, blending and mixing, bulking, solidification, fixation or stabilization, biological treatment, and by various debris treatment methods; and
4. the on-site disposal of treatment residues and other wastes amenable to landfill disposal.

There are several waste management (i.e., storage, treatment, and processing) units at the Facility. These units include container management units, tank management units, containment building units, specialized treatment units, stabilization units, and disposal units. These units,

which are regulated under the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), and Toxic Substances Control Act (TSCA) are identified in Section D of the Permit Application.

The methods of storage, treatment, recovery, and disposal of waste and residuals are dependent on the type of waste and the point of generation. In general, wastes that are primarily organic and have not been treated are banned from land disposal. These wastes will be mixed and shipped off-site for solvent reclamation or incineration. Aqueous wastes and other liquids, and residues from treatment at other units will generally be transferred off-site for proper management. Solid residues from the treatment of leachate will be containerized and may be shipped off-site for proper treatment. Inorganic waste may be treated by reduction, oxidation, neutralization, mixing, blending, size reduction, or stabilization and landfilled on-site. Organic and inorganic waste amenable to direct disposal will be landfilled at the Facility. Empty containers will be rinsed, if necessary, and may be sent to off-site drum recovery facilities; or may be crushed or shredded or otherwise reduced in volume and re-containerized with other non-recoverable containers, and shipped off-site for treatment; or may be disposed of at the Facility in a landfill trench.

The Facility also conducts landfill disposal activities. The location and size of landfill disposal units are discussed in Section D-6 of the Part B Permit Application.

There are also several features of the Facility involved in the management of PCB wastes regulated under TSCA. The physical features of the Facility used to manage PCB wastes regulated under TSCA are:

- PCB waste unloading and loading, storage, and processing units;
- two tank farms which previously stored an inventory of PCB wastes and are certified clean closed (i.e., Tank Farms No. 1 and 2); and
- several closed landfill trenches containing PCB wastes, Trench 22 (active), and Trench 23 (planned).

The specific design features and management practices employed at each of these units are described in the following sections of the Part B Permit Application:

- Section D-1 Management of Waste in Containers
- Section D-2 Management of Waste in Tanks
- Section D-6 Landfill Design

- Section D-9 Management of Waste in Containment Buildings

The flow of wastes through the Facility is shown in the current Facility Operation Flow Sheet in Figure B-4 of Appendix B-2 to Section B of the Part B Permit Application.

M-3-2a Pretreatment Units Description

Treatment units at the Facility are described in Sections D-1 and D-2 of the Part B Permit Application.

M-3-2b Landfill

Currently, most of the wastes received at the Facility are disposed of by landfilling, either directly or after treatment. Based on the waste receipt data for the period from January through December 1994, the annual quantity of wastes projected for 1994 is 359,000 tons. Landfill operations at the Facility consist of a series of large rectangular trenches excavated to depths varying from 30 feet to 100 feet. To date, 21 of these trenches have been completed, and one trench (i.e., Trench 22) is currently being filled, as described in Section D-6 of the Part B Permit Application. Typically, only one disposal unit is operated at any given time at the Facility.

The landfill operations can be grouped in terms of closed, operating, and future trenches, as described below:

i. Closed Trenches

- Trenches T-1 through T-10 (excluding Trench 2, which was never constructed) were completed and closed prior to November 1980 and are not considered to be land disposal units subject to the requirements of Subtitle C of RCRA. Trenches 4 through 10 are lined with a re-compacted chalk liner, and Trenches 1 and 3 were excavated directly into the chalk. All trenches have a final cover of more than three feet of re-compacted chalk.
- Trenches T-11, T-12, T-12A, T-13, T-13A, T-14, T-15, and T-16 were completed and closed after July 26, 1982. At the time of closure, these trenches were covered with a final cover of more than three feet of re-compacted chalk. In 1986 a composite synthetic/compacted chalk cover was installed over these trenches.
- Trenches T-17, T-18, and T-20 were constructed and closed after July 26, 1982 and were operated under the interim status requirements of 40 CFR Part 265 and ADEM Administrative Code Rule 335-14-6.. These trenches are lined with a re-compacted chalk liner and have a final cover comprised of a composite synthetic/compacted chalk layer.

- Trench 19 was operated under interim status requirements of 40 CFR Part 265 and ADEM Administrative Code Rule 335-14-6. Trench 19 is lined with a single composite synthetic/compacted chalk liner. Trench 19 was closed with a final cover of up to 5 feet of chalk, supplemented by a synthetic cover.
- Trench 21 was operated under an EPA RCRA Part B Permit (40 CFR Part 264) and requirements of ADEM Administrative Rule 335-14-6. Trench 21 was lined with a double synthetic liner. Trench 21 was closed with a final cover of up to 5 feet of chalk, supplemented by a synthetic cover.

ii. Operating Trenches

- Trench 22 is operated under an EPA RCRA Part B Permit (40 CFR Part 264). Trench 22 is lined with a double synthetic liner. Trench 22 will be closed with a final cover of up to 5 feet of chalk, supplemented by a synthetic cover.

iii. Future Trenches

- Trench 23 is planned and will be constructed, operated, and closed in accordance with Section D-6 of the Permit Application.

As previously indicated, the landfill trenches have historically accepted a broad range of wastes. Presently, the types of wastes accepted for landfill disposal are limited due to the Land Disposal Restrictions in 40 CFR Part 268 and ADEM Administrative Code Rule 335-14-9. Furthermore, it is emphasized that all future trenches will be lined with double synthetic liners, closed with synthetic covers to minimize release potential, and that leachate will be pumped out of the trenches and disposed of according to the EPA and ADEM hazardous waste rules.

M-3-2c Surface Impoundments

The following surface impoundments were operated and closed at the Facility:

- Lagoon L-1 was in service from April 1978 through April 1984, and until January 26, 1983 this lagoon was used to manage various aqueous wastes. After January 26, 1983 the lagoon was used to store rainwater from various catchments at the Facility and to manage Facility generated sanitary waste. In April of 1984, the lagoon was clean closed per an ADEM approved Closure Plan;
- Lagoon L-2 was in service from April 1978 through April 1984, and until January 26, 1983 this lagoon was used to manage various aqueous wastes. After January 26, 1983 the lagoon was used to store rainwater from various catchments at the Facility and to manage Facility generated sanitary waste. In April 1984, the lagoon was clean closed per an ADEM approved Closure Plan;

- Lagoon L-3 was in service from 1979 through September 1980 and was used to manage various aqueous and corrosive wastes. The waste in the lagoon was solidified in-place, capped with a compacted chalk cover, and closed as a landfill trench in September of 1980;
- Lagoon L-4 was in service from 1979 through March of 1980 and was used to manage various aqueous and corrosive wastes. The waste in the lagoon was solidified in-place, capped with a compacted chalk cover, and closed as a landfill trench in March of 1980;
- Lagoon L-5 was in service from 1979 through March of 1980 and was used to manage various aqueous and corrosive wastes. The waste in the lagoon was solidified in-place, capped with a compacted chalk cover, and closed as a landfill trench in March of 1980;
- Lagoon L-6 (also known as Impoundment 3 or Impoundment 3/4) was in service from 1980 through January of 1988 and was used to manage various aqueous wastes and rainwater. The waste in the lagoon was removed, and the lagoon was clean closed in accordance with an ADEM approved Closure Plan. The closure was certified in August of 1989;
- Lagoon L-7 (also known as Impoundment 3 or Impoundment 3/4) was in service from 1980 through January of 1988 and was used to manage various aqueous wastes and rainwater. The waste in the lagoon was removed, and the lagoon was clean closed in accordance with an ADEM approved Closure Plan. The closure was certified in August of 1989;
- Truck-wash Lagoon was in service from 1980 through 1988 and was used to manage various wastes from the wash down of vehicles carrying waste. The waste in the lagoon was removed, and the lagoon was clean closed in accordance with an ADEM approved Closure Plan. The closure was certified September 4, 1989;
- Incinerator Scrubber Blowdown Caustic Lagoon was in service from 1981 through October of 1983 and was used for cooling the scrubber liquid and the neutralization of the acidic scrubber liquids from an incinerator unit. The waste in the lagoon was removed, and the lagoon was clean closed in accordance with an ADEM approved Closure Plan in March 1984. In order to meet ADEM-required closure activities requested in 1999, the lagoon closure plan was revised to require excavation to a minimum of 1.5 feet below existing grade and a liner closure cover system to be installed to cap the lagoon. Information on the post-closure activities required for the Incinerator Scrubber Blowdown Caustic Lagoon is provided in Section I of the RCRA Part B Permit Application.

Note that Lagoons L-6 and L-7 were separated by an internal berm that was lower than the external berms surrounding the two lagoons. These lagoons were eventually operated as one unit with the same external berms. These combined lagoons were also known as Surface Impoundment L-3.

The lagoons that were clean-closed do not pose a potential exposure threat. Lagoons L-3, L-4 and L-5, which were solidified and closed in-place were capped and covered with a minimum of 3 feet of compacted chalk. When constructed, these lagoons were excavated to approximately ten (10) feet below the ground surface; therefore, the lowest level in the bottom of these lagoons is at an elevation that is much higher than any of the closed landfill trenches at the Facility (therefore, closed in-place lagoons pose less of a threat to the Eutaw Aquifer than the closed landfill trenches). Further information on the closed impoundments is located in Section L of the Part B Permit Application.

M-3-3 Permits and Compliance Record

Permits for the landfill units at the Facility are described in Section A of the Part B Permit Application. These permits include: various Air Permits for point source emissions, RCRA Part B Permit, TSCA Disposal Approval, and an NPDES Permit.

RCRA and TSCA inspections are performed by the Alabama Department of Environmental Management (ADEM) and USEPA, Region IV. Copies of the inspection reports can be found at ADEM in Montgomery, Alabama and at USEPA, Region IV in Atlanta, Georgia.

Inspections for compliance with the Facility's Air and NPDES Permits are performed by the Alabama Department of Environmental Management (ADEM). Copies of the inspection reports can be found at ADEM in Montgomery, Alabama.

The Facility is in compliance with all permits, regulations, standards, and regulatory agency directives applicable to the landfill and surface impoundment units at the Facility at the time of this report. The Facility is not aware of any violation, or alleged violation, that has resulted in a release from the units of concern. Any prior alleged violations have been or are being addressed toward resolution.

In this regard, the Facility reserves the right to challenge the factual and legal accuracy of any allegations or findings of violation or non-compliance, other than those finds that were made by a court or administrative agency with jurisdiction, and for which any rights of appeal have been exhausted and other than those findings contained in an agreed order or consent agreement, that may appear or otherwise be reflected in the files of the agencies described above. Any major violations that have been found as a result of final and non-appealable administrative or

judicial action, or have been admitted in an agreed order or consent agreement to which the Facility is a signatory, should be reflected in the records of the agencies described above.

M-4 Air Exposure Pathway

M-4-1 General

To assess human exposure via the air exposure pathway, two categories of air emissions at the Facility were considered:

1. low-level, long-term releases as a result of fugitive emissions; and
2. short-term releases associated with upset and accident conditions.

Based on the waste types handled at the Facility and the USEPA guidance documents (USEPA, July 5, 1985), these categories were further subdivided into:

a. Long term releases:
   - Emissions of volatile organic chemicals;
   - Emissions of particulates;

b. Short term releases:
   - Accidental mixing of incompatible wastes;
   - Accidental ignition of wastes; and
   - Leaks and spills.

This subdivision forms the basis for the discussion of air exposure provided herein. In the case of long-term releases, information is provided on the control measures to prevent or limit releases and, if available, monitoring data are provided. In the case of short-term releases, the history of previous incidents is reviewed, and the preventive measures and contingency plans incorporated in the Facility operating procedures are described.

M-4-2 Long Term Emissions of Volatile Organic Chemicals

Measures to limit releases from the landfill and the resulting human exposures are described below.

a. Landfill - Volatilization of organic chemicals from the landfill trenches can potentially occur as the result of diffusion from the open surface of the stabilized

waste and through the landfill cover. These separate landfill configurations were identified as potential sources of emissions of volatile organic chemicals at the Emelle Facility as follows: the open working area; the closed trenches; and to a lesser extent, the partially completed trenches covered with intermediate cover. To limit these emissions, the working area in the landfill trench is restricted to the minimum area necessary to effectively manage the waste, and cover is applied as required. Also, present Land Ban Restrictions limit the concentration level of organic waste deposited in the landfill, thus substantially reducing the potential quantity of VOC emission. Intermediate and/or final covers greatly reduce VOC emissions from the landfills and surface impoundments closed in-place. Therefore, the potential for human exposure to air-born hazardous constituents from the landfill is considered small.

M-4-3 Long Term Emissions of Particulates

A potential source of hazardous emissions associated with the operation of the Facility is the entrainment of contaminated dust into the atmosphere. Four possible mechanisms that can generate dust emissions at the Facility were identified:

- trench construction activities,
- traffic,
- wind erosion of open areas, and
- deposit of dusty waste in the landfill trenches.

No monitoring data are available to assess the off-site exposure of these emissions; however, Workplace Monitoring of selective employees from 10/92 through 7/93 indicated that the Occupational Safety and Health Administration (OSHA) limit of 15 mg/m^3 was not exceeded. Lacking any off-site monitoring data, these dust sources were evaluated qualitatively to determine their potential for generation of hazardous emissions relevant to this exposure assessment.

M-4-3a Trench Construction Activities

The construction of landfill trenches involves the movement of large amounts of soil material. Although dust could be generated by this activity, all trench construction activities involve native uncontaminated soils. Consequently, the potential for human exposure to hazardous constituents from trench construction activities is considered negligible.

M-4-3b Traffic

The movement of vehicles on dry, dusty surfaces can generate particulate emissions. Vehicular traffic at the Facility consists of trucks delivering wastes, trucks delivering non-waste materials such as fuel and supplies, heavy equipment traffic, and light vehicles such as automobiles or pick-up trucks driven by Facility supervisory and operating personnel. To reduce the potential for emissions from delivery traffic, the Facility has implemented an extensive traffic control plan (see Figures B-5 through B-10 in Appendix B-2 to Section B of the Part B Permit Application) and conducts regular dust suppression best management practices (e.g., sweeping and water application to roadways).

The Facility employs specific procedures to prevent vehicles from traveling on waste within the Landfill (see Section D-6 of the Part B Permit Application). In addition, there are procedures to prevent vehicles from tracking waste out of the landfill and containment buildings. Vehicles that have entered the landfill and are leaving the Facility are required to exit through the wheel wash unit before leaving the Facility. In addition, all waste received at the Facility is managed within a container management unit, tanks management unit, containment building unit, or land disposal unit. While in these units the waste remains covered, unless sampling or treatment is being conducted. Maintaining a cover over the waste during storage and transport at the Facility prevents the spread of any waste leaks to other parts of the Facility due to rainwater run-off and improves the efficiency of roadway sweeping.

In addition, the following procedures also minimize waste drag-out from landfill operations:

- placement of intermediate cover on the operating floor of the trenches or cells so that traffic on wastes is avoided;
- periodic scraping of the haul roads and ramps into the trenches or cells; and
- periodic watering of haul roads and ramps during dry weather to minimize dust and drag-out of dusty materials.

These procedures ensure that all traffic paths are kept free of waste, and the potential for undetected contamination is reduced to the greatest extent possible. The potential for human exposure to air-borne hazardous constituents from traffic-induced particulates is therefore considered very remote.

M-4-3c Wind Erosion of Open Areas

Potential sources of wind-generated contaminated particulates include haul roads, paved areas, traffic lanes and landfill areas. In the case of haul roads, paved areas and traffic lanes, fugitive emissions are controlled by implementation of the traffic control plan and the good housekeeping procedures.

The active landfill is protected from the wind by the surrounding perimeter berms (waste must remain two feet below the crest of the berm), the placement of intermediate cover, and other specific practices as described in Section D-6 of the Part B Permit Application. These practices effectively eliminate any open surface for the emissions of contaminated particulates. In addition, the rainfall that often accompanies winds of entrainment velocity reduces the tendency of the material to become airborne. Closed landfill areas are covered by a maintained vegetative layer atop a compacted chalk cover or compacted chalk cover and a synthetic HDPE liner to further restrict emissions of potentially contaminated particulates. Because of the above factors, and considering the continuing inspection and monitoring practices employed at closed and operating units at the Facility, the potential for human exposure to airborne hazardous constituents from wind erosion is considered very remote.

M-4-3d Placement of Dusty Wastes

The placement of dusty wastes in the active landfill during windy conditions is an operation that could potentially generate particulate emissions. The extent of the emission will depend on the physical characteristics of the waste, the quantities of waste handled, wind velocities, and the materials handling techniques used. For example, these emissions would be potentially greater for extremely dry, fine materials dumped in large volumes than for relatively moist or low volume wastes.

Based on discussions held with the Disposal Superintendent at the Facility, most dusty loads received at the Facility require and receive treatment by stabilization. This occurs at the Facility in an enclosed building at a container, tank, or containment building management unit that is equipped with an air handling system discharging through permitted baghouse filters. Once stabilized, the waste no longer displays "dusty" characteristics. The Superintendent indicated that in 1994, approximately eight bulk loads of dusty material were received at the Facility for direct landfill disposal. In these cases, the loads are identified as potentially dusty loads (see the Waste Analysis Plan in Section C) prior to their delivery to the landfill. Personnel at the landfill then properly off-loaded and disposed of the waste according to the procedures described in Appendix D-6-1, Attachment D-6-1-1 of the Part B Permit Application. These procedures prevent fugitive emissions from escaping the disposal area. The Superintendent estimated that in prior years the quantity of dusty waste placed directly in the landfill represented less than five (5) percent of the total wastes landfilled at the Facility. Based on these control measures, the potential for human exposure resulting from air-borne hazardous constituents generated by the placement of dusty wastes is considered to be very remote.

M-4-4 Accidental Mixing of Incompatible Wastes

Ignitable or reactive wastes are not placed in the landfill unless the wastes meet all of the LDR requirements of 40 CFR 268 and ADEM Administrative Code Chapter 335-14-9. The Facility

does not landfill any incompatible wastes which cause any of the types of reactions listed in 40 CFR 264.1(b) and ADEM Administrative Code Rule 335-14-5-.02(8). Wastes placed in the landfill are all solids and compatible or are made compatible using stabilization or other treatment prior to landfilling. Corrosive wastes are treated or stabilized before being landfilled.

Measures to prevent mixing of incompatible wastes are described in Section D-6 of the Permit Application and in the Waste Analysis Plan in Section C of the Permit Application. Measures to prevent ignition of wastes are described in Section F of the Part B Permit Application. In the event of an emergency such as a fire or explosion, the Contingency Plan would be initiated as described in Section G of the Part B Permit Application. The primary emergency response equipment available at the Facility is listed in Section G of the Part B Permit Application.

Based on the Facility's current operating procedures, particularly the limitations specified in the Land Ban Regulations, and a review of historical incidents, accidental mixing of incompatible wastes causing fire or emissions of toxic gasses is considered a low probability event.

M-4-5 On-site Leaks and Spills

Emissions of volatile organic chemicals (VOCs) can occur as a result of significant leaks and spills. Complete reports of all significant leak and spill events (Reportable Quantities) are on file with the ADEM and Region IV USEPA. No leaks or spills above the reportable quantities have occurred since the last Permit Application.

To minimize the potential for future leaks or spills, each operating unit at the Facility is inspected regularly (as described in Section F of the Part B Permit Application) for malfunction, deterioration, failure or operator error or other conditions which could produce unanticipated emissions, and repair orders are issued accordingly. All inspections are performed by trained individuals.

In the event of a spill or leak, volatilization of organics will depend on the nature of the wastes spilled and the speed with which the spilled liquid is cleaned up. To minimize releases to the atmosphere, the Contingency Plan described in Section G of the Part B Permit Application provides for immediate clean up with absorbent material and proper disposal of the recovered material according to applicable regulations.

To facilitate response procedures, the Facility maintains a large inventory of operating equipment which is available for containing and cleaning up on- and off-site spills. The equipment is well maintained and regularly inspected. The emergency coordinator designated in the Contingency Plan (Section G) is responsible for assembling the required response equipment, determining the most appropriate containment or diking method, and coordinating activities of supervisory personnel and off-site response teams. These rapid response

procedures will adequately control the potential for human exposure to hazardous constituents via the air pathway as a result of on-site leaks and spills.

M-5 Surface Water Exposure Pathway

M-5-1 General

To assess human exposure via the surface water exposure pathway, two categories of releases of chemical contaminants to surface water were considered: long term releases from effluent discharges, and short-term releases from upset and accident conditions. Based on the types of operations at the Emelle Facility and the USEPA's guidance document (USEPA July 5, 1985), the releases under upset and accident conditions were further subdivided into on-site leaks and spills. These releases form the basis for the discussion of exposures via the surface water pathway provided here.

M-5-2 Effluent Discharge

The Facility does not discharge process water to the environment. The only potential discharge of waste-contaminated waters to surface water is surface run-off, which is directly controlled at the various waste processing areas. Potentially contaminated water is either treated and/or disposed. The areas where run-on and run-off are directly controlled include truck loading and unloading areas, container management units, tanks management units, containment building management units, and landfill trenches. Run-on and run-off from the truck loading and unloading areas is prevented by roofs and berm-contained areas. Precipitation in these areas is pumped and transported to on-site storage tanks and held for subsequent management. Run-on into the trenches is prevented by perimeter dikes and drainage ditches; precipitation falling directly into the active waste placement area is managed as discussed in Section D-6, Attachment D-6-1-1 of the Part B Permit Application. A detailed discussion of the system of controls is provided in Section D-6, Attachment D-6-1-1 of the Part B Permit Application.

Unvegetated areas may potentially produce sediment during the construction, operation, and closure of the landfill trenches. Localized sedimentation control is provided by sediment fences and hay bales at various areas. Sedimentation control from the Facility is by sedimentation basins with regulated discharge governed under the Facility's NPDES Permit.

In the NPDES permit application, the current sediment and contaminant releases to the surface waters were addressed, and the conclusions are summarized as follows:

1. A background site (away from any site influence) had a total suspended solids concentration and a turbidity value significantly greater than those samples collected on site.

2. A composite sample of all intermittent streams originating on-site indicated no detectable concentration of heavy metal or organic constituents.

3. Suspended solids concentration and turbidity values were greater upstream of the site than those data downstream of the site.

Also, as indicated by long-term NPDES monitoring, the discharge of non-contaminated stormwater from the facility is generally consistent with the background water quality of the streams and water bodies of the surrounding area.

Based on these findings and the surface water control measures utilized at the Facility, the potential for human exposure to hazardous constituents as a result of routine discharges of stormwater run-off is considered to be small.

M-5-3 On-site Leaks and Spills

Releases to surface water can potentially occur from on-site leaks and spills. Routine inspections, preventive measures, and response procedures minimize the potential for and mitigate the effects from such leaks and spills. Complete reports of all significant leak and spill events (Reportable Quantities) are on file with the ADEM and Region IV USEPA. No leaks or spills above the reportable quantities have occurred since the last Permit Application.

In the event that a liquid waste spill occurs, the potential for release to surface water will depend on the location of the spill relative to a water course. Most on-site locations where spills might be expected are in bermed and contained areas or are relatively distant from any drainage ditches. A series of gate valves are also installed in drainage ditches at various locations to allow isolation of segments of drainage ways during emergencies. These valves can be closed in an emergency to contain any spilled material before migrating into the sediment basins. It is therefore considered by this information that most likely a liquid waste spill would either be: 1) confined within the bermed containment areas, 2) stored in surface puddles, 3) infiltrated into the soil, or 4) evaporated rather than directly entering a water course. In the case of any spills, the spilled material or contaminated soil would be cleaned up as described in the Facility's Contingency Plan in Section G of the Permit Application. In the unlikely event that a spill reaches a sediment basin, gates provided on each basin's outlet can be closed to retain the spill and allow its pickup for treatment and disposal as described in Section G of the Part B Permit Application.

A possible worst-case event would be an on-site transportation spill occurring at the Facility entrance, where the access road crosses a roadside drainage ditch which flows into Bodka Creek approximately 3,300 feet to the north. Assuming that the ditch is not dry at the time of a spill, it is possible that some fraction of the spilled waste could enter Bodka Creek. However,

this scenario is considered a low probability event due to the measures outlined in the Contingency Plan in Section G of the Part B Permit Application, which provide for immediate treatment with clean-up materials. In addition, the Facility maintains a large inventory of operating equipment which is available for containing and cleaning up on- and off-site spills before they reach a watercourse. Also, as indicated in Section M-2, there are no downstream water intakes until Bodka Creek enters the Noxubee River, at which point any spilled material would be significantly diluted and dispersed during its subsequent flow into the Tombigbee River. The potential for human exposure to hazardous constituents from an on-site spill or leak is therefore considered to be small.

M-6 Groundwater Exposure Pathway

M-6-1 General

To assess human exposures via the groundwater pathway, leachate releases from operating and closed trenches to groundwater were considered.

As defined by regulation, the uppermost aquifer underlying the Facility is the Eutaw Formation. This formation is overlaid and confined by more than 600 feet of relatively impermeable Selma chalk. The Selma chalk is saturated with groundwater below a certain elevation. Under the active areas of the Facility, this elevation is higher than the potentiometric surface in the Eutaw aquifer, so that there is a very slow natural downward movement of groundwater from the Selma chalk towards the Eutaw aquifer. This potentiometric surface can vary greatly due to excavations within the chalk and impermeable closure covers over the closed landfills. All the landfill trenches are excavated into the Selma chalk which overlies the Eutaw aquifer. Potentially, downward vertical movement of liquids from closed in-place land disposal units could occur because of this downward gradient. At the Facility such a gradient might occur because the potential exists for liquid levels in certain closed landfill trenches to be higher than the potentiometric head of the Eutaw aquifer. However, for landfill trenches constructed after 1985, there is a net upward gradient because of groundwater withdrawals from the pressure relief system, liquid removal from the landfill, and impervious closure covers. As indicated in Section F of the Permit Application, the Eutaw aquifer is not considered as a source of drinking water in the vicinity of the Facility. The closest water supply well to the Facility is located approximately 10,500 feet from the nearest Facility boundary and is completed in the Coker Formation. The Coker Formation is an aquifer that is stratigraphically much lower than the Eutaw Formation. This well is screened between 1,900 feet and 1,970 feet below the ground surface. This analysis addresses both current and future exposures as a result of human consumption of the Eutaw Aquifer water supply.

M-6-1a Current Exposure

To determine whether any contaminants emanating from the Facility are currently in the groundwater, groundwater quality data from the CWM RCRA Part 264 groundwater detection monitoring system were reviewed. The RCRA Part 264 groundwater monitoring detection system consists of six wells cased through the Selma chalk and screened in the Eutaw aquifer. The background water quality values as required by 40 CFR 165.92(b) have been developed. Details of the groundwater detection monitoring system and analyses are provided in Section E of the Part B Permit Application.

In the Facility's 1983 Groundwater Monitoring Annual Report (CWM 1984), the results presented showed that certain groundwater monitoring wells exhibited significant differences for certain parameters between upgradient and downgradient wells. A groundwater quality assessment program was therefore implemented (CWM 1985), and the results of the program were submitted to the USEPA in July 1985. The assessment program demonstrated that no hazardous waste or hazardous waste constituents had entered the groundwater and that the operation of the Emelle Facility has had no effect on the groundwater quality of the Eutaw aquifer.

In order to further demonstrate on an ongoing basis that the completed trenches are not contaminating the groundwater, the Facility agreed, in April 1985, to install a shallow groundwater monitoring system. This system is comprised of shallow monitoring wells in close proximity to the completed landfill trenches that are screened within the Selma chalk, especially at any fractures therein. This system is described in detail in Section E of the Part B Permit Application.

For the purpose of the EI, the groundwater monitoring results collected during the previous permit period (2016-2020) were reviewed (see Appendix E-2). The data is consistent with long-term monitoring results and demonstrates that the Facility has not impacted the Eutaw aquifer.

M-6-1b Future Exposure

To assess future exposure to groundwater contaminants from the completed landfill trenches, the approach adopted was to assess the break-through time for leachate from these landfill trenches. The break-through time is defined as the time it takes a chemical constituent to migrate from the base of the landfill trench vertically downward to the interface between the Selma chalk and the Eutaw aquifer. Since human exposure can only happen after the occurrence of break-through followed by horizontal movement in the Eutaw aquifer to a well or spring that might constitute an exposure point, the initial step in assessing exposure was to identify the unit or units with the shortest break-through time. This analysis of break-through time for the landfill trenches is described in the following sections.

M-6-2 Leachate Release from Landfill

Break-through times for hazardous constituents of landfill leachate were estimated from the vertical seepage velocities through the chalk, which depend on the hydraulic conductivity of the chalk, the hydraulic gradient, and the effective transport porosity. The relationship between the above parameters is given by:

$$V = \frac{Ki}{n}$$

where:	V	=	average transport velocity (cm/sec)
	K	=	hydraulic conductivity (cm/sec)
	i	=	hydraulic gradient
	n	=	effective transport porosity

Values for the input parameters for the transport velocity were as follows:

1. The calculated hydraulic conductivity for the chalk ranges from 5.5 x 10^{-7} cm/sec to 4.0 x 10^{-8} cm/sec based on packer tests (Section E of the Part B Permit Application) and ranges from 5.7 x 10^{-8} cm/sec to 2.0 x 10^{-8} cm/sec based on recovery well tests (Section E of the Part B Permit Application). The hydraulic conductivity was chosen to be 1.0 x 10^{-7} cm/sec throughout the chalk; a conservative assumption since velocity is directly related to the hydraulic conductivity.
2. The effective transport porosity is approximately 30%.
3. The hydraulic gradient was defined as the difference, in heads, between the water level in the trench and the potentiometric head in the Eutaw aquifer divided by the distance between the trench bottom and the top of the Eutaw aquifer, i.e.

$$i = \frac{h_2 - h_1}{l_2 - l_1}$$

where:	h_2	=	groundwater elevation (feet MSL)
	h_1	=	potentiometric head of Eutaw aquifer (approximately elevation 140 feet MSL at Facility vicinity)
	l_2	=	trench bottom elevation (feet MSL)
	l_1	=	Eutaw aquifer elevation (approximately -450 feet MSL at Emelle vicinity)

The trench bottom and groundwater elevation data were taken from field monitoring data. The average transport velocities were found to vary from 0.011 feet per year in Trench 18 to 0.068 feet per year in Trench 10. The final calculation to determine the travel time for particles with no dispersion or attenuation to reach the Eutaw aquifer was to divide the distance that the particle must travel by the average velocity, i.e.;

$$t = \frac{(l_2 - l_1)}{v}$$

where:	t	=	break-through time for particle (yr)
	l_2-l_1	=	distance from bottom of trench to Eutaw (feet)
	v	=	average transport velocity (feet/yr)

The break-through times vary from about 9,179 years for Trench 10 to about 49,569 years for Trench 8. Trench 10's break-through time is lower than the other trenches, so leachate from Trench 10 will reach the Eutaw aquifer much sooner than from the other trenches. Trench 10 can therefore be considered a limiting case for assessing groundwater exposure.

Leachate concentration data for Trench 10 was based on median values from the monitoring data for the period August, 1984 to October, 1994. Mobilities for each of the hazardous constituents in the leachate are shown as high, medium, and low, reflecting the relative attenuation (removal or binding) potential of the chemicals as a result of interaction with aquifer solids. High mobility organic chemicals can be considered to move essentially unretarded.

For the purpose of the exposure assessment, the high mobility constituents originating in Trench 10 will break through the Eutaw aquifer in approximately 9,179 years. These contaminants will then be subject to dilution and dispersion during horizontal seepage in the Eutaw aquifer. As indicated in Section M-2, the nearest drinking water well is 7,000 feet downgradient from Trench 10, and the City of Geiger, the nearest downgradient community, is approximately 5 miles away. The Geiger Well, which is located approximately 2.25 miles north (downgradient) of the Facility, is completed in the Coker Aquifer, which is below the Eutaw Aquifer. The extremely long break-through times and the additional buffer zone between the landfill and potential receptors thus provide a high degree of protection for human exposure to hazardous constituents via the groundwater pathway.

M-7 Potential Exposure via Off-Site Transportation Spills

M-7-1 General

Spills of hazardous waste can occur during transportation from the waste generator to the Facility. These off-site spills are low probability events that are caused by traffic accidents or equipment failure. Waste materials released in this way can volatilize to the atmosphere and/or run-off to adjacent surface watercourses. These scenarios form the basis for the analysis of transportation spills considered in this EI. Consistent with the USEPA's guidance document (USEPA, July 1985), consideration of off-site transportation spills is restricted to the local access route within a 1-mile radius of the Facility's entrance.

M-7-2 Transportation Operations

Transportation operations associated with the Facility are described in Section B of the Part B Permit Application. All waste arrives at the Facility by trucks using State Route 17, a 2-lane paved highway with a predominantly straight configuration. Based on a study in 1994, on the average, there are about 50 deliveries a day of waste to the Facility from Interstate Highway 20 to the south. The actual number of trucks has ranged from 30 to 120 per day. There have rarely been more than four trucks queued at the main gate. Waste volumes received at the site have also decreased since 1994. These data are presented as a conservative assessment of waste receipts at the site. For the purposes of the EI, it has been conservatively assumed that the traffic volume will remain unchanged in the foreseeable future.

The trucks which deliver to the Facility are typically tractor-trailers, with the trailer being a closed van, a flatbed, a tank, or an end-dump unit. Some trucks carrying roll-off containers are also received. The typical total tare weight of a tractor-trailer is 31,700 pounds. Based on an analysis of waste receipts for the months of January through December 1994, the different types of waste that are shipped in and the relative usage of the different truck types are typically vans/flatbeds for containerized waste, tank trucks for bulk liquid and sludges, and dump trucks/roll-offs for bulk solids.

M-7-3 Potential for Exposure

In the event that a spill of wastes occurs on the local access route (i.e., within one mile of the Facility entrance), the potential exists for volatilization to the atmosphere or run-off to the adjacent roadside ditch, which ultimately drains to Bodka Creek. The impact of the spill will depend on the nature and volume of the material spilled and mitigative measures taken to limit human exposure.

In the case of volatilization, only that fraction of the wastes containing volatile organics would pose an exposure hazard via the air pathway, and then only when spilled in close proximity to a

residence adjacent to the access route. Based on data from January to August of 1994, approximately 49,000 tons, or approximately 20% of the wastes received at the Facility, are organic liquids or sludges (i.e., wastes that might contain concentrations of organics). However, due to Land Ban requirements, much of this material may be low in organic concentration. This material was identified and handled in a manner required by regulation for various organic waste and is identified as a potential source of organic emission for this report. Based on the above information, the probability of human exposure from a spill via the air pathway is low.

In the case of run-off to the roadside ditch and drainage into Bodka Creek, those spills of greatest concern are bulk liquids, since these provide the greatest potential for release and run-off of significant volumes of wastes. Approximately 9% of the wastes received at the Facility are bulk liquids or sludges. While there are considerable uncertainties in assessing the impacts of spills to surface water, the potential for human exposure to hazardous constituents from such spills will be small since there are no drinking water intakes on Bodka Creek.

Finally, in the event of a spill or a leak occurring on the local access route, the Facility's contingency plan provides for implementation of the same response procedures summarized in above sections and described in Section G of the Part B Permit Application. These spill response procedures provide a rapid and effective control mechanism for limiting exposures from off-site transportation spills; thus, the potential for human exposure to hazardous constituents is considered to be small.

M-8 Other Potential Sources of Exposure

M-8-1 Subsurface Gas Migration

The USEPA has indicated a concern for exposure of off-site populations to explosions that may occur as a result of generation of methane gas and subsurface migration. At concentrations in excess of 5%, methane could potentially explode when mixed with air in the presence of an ignition source. The Facility manages hazardous waste, and no municipal-type putrescible wastes have been deposited within the Facility boundary at the Facility. Consequently, no source for generation of methane gas exists, and therefore the potential for human exposure to hazardous concentrations of methane gas via off-site migration and explosion is considered to be negligible. Physical methane gas surveys conducted at the Facility have verified the absence of methane gas.

M-8-2 Soil Contamination

The USEPA has indicated a concern for exposure of off-site populations to contaminated soil, and in cases where food crops are grown in or adjacent to contaminated soil, food chain contamination. The potential for these exposures is addressed below for both current exposures and exposures after Facility closure.

M-8-2a Current Exposures

For current exposures, the measures for the Facility, as described in Section F of the Part B Permit Application, are adequate to prevent unauthorized entry to the Facility and thus eliminate any concern for direct exposure of off-site populations. These security measures include a chain link fence surrounding the active Facility, a 24-hour per day security surveillance, locked or guarded gates, and warning signs on the fence at intervals as required by regulations.

For indirect exposures via off-site transport of contaminated soil, the Facility's operation procedures are designed to control both the generation of contaminated soil and its transport off site. Measures to limit emissions of contaminated particulates from landfilling and associated construction and transportation operations are summarized in Section M-4-3 and further described in Section D-6 of the Part B Permit Application. Measures for spill prevention and clean up, and the control of surface run-off are described in previous sections of this EI. In particular, sampling of surface waters presented in the NPDES Permit Application shows no evidence of off-site transport of contaminated soil.

Due to the control measures specified above, the potential for human exposure to hazardous constituents due to off-site transport of contaminated soil is considered to be negligible. For the same reasons, the potential for human exposures to hazardous constituents via the food chain is also considered to be negligible.

M-8-2b Closure/Post Closure Exposures

Any concerns for future exposures after the Facility become inactive are addressed by the closure plans which have already been implemented or will be implemented for surface impoundments and landfill units.

The closure and post closure activities as described in Section I of the Permit Application provide for long-term isolation of waste from human contact. The closure cover systems are designed to be protective of human health and thus, the potential for future human exposure to hazardous constituents is considered to be negligible.

M-9 Management Practices

Management practices and worker exposure are considered in USEPA's guidance document (USEPA, July 5, 1985) as an indicator of potential release and off-site exposure. Worker exposure data and the management practices used to ensure safe handling of hazardous wastes at the Facility are summarized below.

M-9-1 Worker Exposure

The Facility continually conducts an extensive monitoring program to assess the ambient concentrations workers are exposed to. Ambient concentrations of hazardous constituents at several locations on site are routinely monitored by personal dosimeters. Active (air pump and charcoal canister) methods are used for sampling. A wide range of chemicals are sampled at all areas of the Facility. Dosimetry data indicates that peak measured exposures do not exceed the threshold limit value (TLV) levels anywhere at the Facility. These data indicate a high standard of Facility "housekeeping" consistent with the safe handling of hazardous waste managed at the Facility.

M-9-2 OSHA Complaints

The Facility does not have any knowledge of any OSHA complaints concerning the landfill operations at the Facility. There have not been any known OSHA enforcement actions taken against the Facility to date.

M-9-3 Worker Illness or Injury

Section 3019 of RCRA requires submission of information of the "potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the unit" (42 U.S.C. Section 6929 (a) - emphasis added). Data regarding any injury, accident, or illness of workers who are on-site for at least 8 hours every day, five days a week, are not directly correlated with the potential for the public to be exposed to hazardous wastes or hazardous constituents from the landfill and surface impoundment units. Moreover, as a practical matter, an analysis of this data sufficient to determine whether there are any patterns of occurrence indicating that releases have occurred is not readily ascertainable, and drawing conclusions from such data would be difficult because of the relatively small size of the data base. For these reasons, and due to concern for the personal privacy of its employees, the Facility has not included such data in this report.

M-9-4 Training Programs

The Facility emphasizes accident prevention in all areas of Facility operations as well as in specific duties related to each job function. No Facility employee is permitted to work under reduced supervision until his supervisor has determined that he has successfully completed appropriate training as described in Section H of the Part B Permit Application. Similarly, these training procedures include methods to mitigate the effects of such releases. Specific responsibilities for Facility personnel are identified in the contingency plan, including a designated emergency coordinator responsible for coordinating the response effort. Pertinent aspects of the contingency plan are referred to in the pathway specific sections of this report. These management practices ensure the safe handling of wastes and minimize the potential for release from the Facility.

M-9-5 Other Facility Assessment Reports

The Facility has no knowledge of any existing on risk assessment reports that reflect adversely the landfill or surface impoundment units at the Facility as they currently exist or are currently operated or maintained.

M-10 References

1. PERMIT APPLICANTS' GUIDANCE MANUAL FOR EXPOSURE INFORMATION REQUIREMENTS UNDER RCRA SECTION 3019. Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC, July 3, 1985, Publication No. PB87-193694
2. CHEMICAL WASTE MANAGEMENT, INC. 1984. 1983 Groundwater Monitoring Annual Report.
3. CHEMICAL WASTE MANAGEMENT, INC. 1985. Groundwater Quality Assessment Plan Results.
4. GOLDER ASSOCIATES. 1985. Closure of Trenches 8 through 18 and 20 with Synthetic Membranes. Submitted to Chemical Waste Management, September. Revised February, 1985
5. PERSONAL COMMUNICATION. August 30, 1994. Mr. William Moody. Geological Survey of Alabama, Tuscaloosa
6. U. S. ENVIRONMENTAL PROTECTION AGENCY (USEPA). 1985. Permit Applicant's Guidance Manual for Exposure Information Under RCRA 3019, July 5, 1985.

[End of Section M]