MONTGOMERY WATSON
Mining Group

RED TPDF 99

December 7, 1999 (Via: FedEx)

New Mexico Environmental Department (NMED)
Hazardous and Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Sante Fe, New Mexico 87502

Attn: Ms. Stephanie Kruse

Re: Revised Draft of Sections 1, 2, 8 and 11
Triassic Park Waste Disposal Facility - Part B Permit Application
Gandy Marley Inc. (GMI)

Dear Ms. Kruse:

Attached is a hard copy of revised Sections 1, 2, 8 and 11. These sections address comments we received from NMED after we incorporated our responses to the RSI request. We understand that after you have reviewed these sections, we will submit electronic copies that will be incorporated into your permit modules.

The draft of Section 8 does not include the costs estimates or the closure schedule. These are being prepared and will be submitted after you have confirmed concurrence with the sampling strategies in the closure plan.

If you have any questions or require any additional information, please contact the undersigned or Mr. Dale Gandy.

Sincerely,

Montgomery Watson

Patrick Corser, P.E.
Principal

cc: Dale Gandy - GMI
Trey Greenwood – Delhart

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12/7/99 slw

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1.0 GENERAL FACILITY STANDARDS

This section provides a general description of the Triassic Park Waste Disposal Facility (Facility), including waste management practices, site environment and climate, location information, emergency management, and traffic patterns.

Part A and Part B of the permit application are included in the two volumes described below.

- *Volume I* - Part A and Part B (Text and Figures)
- *Volume II* – Part B Appendices A - M

Supporting documentation for Part B is provided in four additional volumes. These volumes present the engineering report and associated appendices as outlined below.

- *Volume III* - Engineering Report Text and Appendix A (Design Drawings)
- *Volume IV* - Appendix B (Construction Quality Assurance Plan) and Appendix C (Construction Specifications)
- *Volume V* - Appendix D (Laboratory Data) and Appendix E (Engineering Calculations)
- *Volume VI* - Appendix E (cont.), Appendix F (Surface Water Design), and Appendix G (Action Leakage Rate and Response Action Plan)

This is considered a complete submittal and supersedes all previous submittals.

1.1 GENERAL DESCRIPTION

The Facility will be a full-service Resource Conservation and Recovery Act (RCRA) Subtitle C waste treatment, storage, and disposal operation. The Facility will be located in Southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico (see Figure 1-1 at the end of this section). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2.

Hazardous wastes which may be placed in the evaporation pond include all wastes listed in Part A of the application, provided that Land Disposal Restriction (LDR) standards are met prior to placing the wastes in the evaporation pond. All waste placed in the evaporation pond at the Facility will meet LDR standards prior to disposal. The Facility will accept Toxic Substances Control Act (TSCA)-regulated polychlorinated biphenyl (PCB) wastes but only at concentrations of less than 50 parts per million (ppm) in liquids and 500 ppm in soils. The Facility will offer the following RCRA-regulated services, which are described in this permit application.

1.1.1 Treatment

Two treatment processes will be used at the Facility, including an evaporation pond for managing wastewaters that meet LDR standards and a stabilization process for treating liquids, sludges, and solids to ensure that no free liquids are present and that LDR standards are met prior to placing wastes in the landfill. Dilution of restricted waste will not be used as a substitute for adequate treatment. All stabilized wastes will be tested, as a final step in the stabilization process, to ensure that no free liquids are present. The Paint Filter Liquids Test, U.S. Environmental Protection Agency (EPA) Method 9095, will be used to make this evaluation. Prior to treating wastes in the stabilization unit, waste characteristics will be analyzed to ensure that proper measures can be taken to safely manage ignitable, reactive, and incompatible wastes. Procedures for properly identifying

and verifying ignitable, reactive, and incompatible wastes are described in Section 4.3.2.1. Once these wastes are identified, they will be managed in accordance with applicable regulatory requirements and permit conditions (see Section 5.5).

1.1.2 Solid Waste Storage

Two container storage areas (roll-off storage area and drum handling unit) will be used to stage waste at the Facility for treatment or disposal. These units will ensure that waste is stored in compliance with RCRA requirements for permitted storage. Neither of the units will be used for long-term storage of waste. All containers being stored will be clearly marked with hazardous waste labels which identify the contents of each container as well as the date of receipt (accumulation date). All labels will be clearly visible while containers are being stored. All containers will remain closed during storage, except when waste is removed or added. Further, container storage and handling procedures will be developed to ensure that containers are not opened, handled, or stored in a manner that may cause them to rupture or leak.

1.1.3 Liquid Waste Storage

Four aboveground storage tanks will be utilized to accumulate regulated bulk liquid hazardous wastes prior to stabilization. Handling of reactive materials, tank corrosion, tank assessments, tank inspection and tightness testing, and repair and certification of tank systems is discussed in Section 5.0. Description of contents, quantity of hazardous waste received, and the date each period of accumulation begins will be documented in the facility records and will be included on labels for each storage tank. Design, dimensions, capacity, and other tank specifications are included in Volumes III and IV of this permit application.

1.1.4 Land Disposal

A landfill will be utilized for the disposal of waste that meets LDR standards. Support units and structures include a chemical laboratory, administration building, weigh scale area, maintenance shop, truck wash unit, clay processing area, clay liner material stockpiles, daily cover stockpiles, and a stormwater retention basin.

Because the Facility has not yet been constructed or operated, there are no solid waste management units (SWMUs) at this time. Satellite and/or 90-day accumulation areas may possibly be located at the chemical laboratory, the truck wash unit, and the maintenance shop. Other areas at the Facility that may be designated as SWMUs include the untarping, sampling, and weigh scales area, the truck staging area, and the stormwater retention basin. Detailed information on location, unit type and dimensions, and a structural description of these units is provided in the design of the Facility contained in Volumes III through VI of this application.

The future debris encapsulation area and the future waste processing area identified in the Facility layout are possible future RCRA treatment units envisioned for the Facility that are not being designed at this time. Prior to construction of these units, a RCRA permit modification request will be submitted.

1.1.5 Facility Name

Gandy Marley, Inc. (GMI) owns the Facility. The waste disposal operations covered by this permit will operate under the name of the Triassic Park Waste Disposal Facility.

1.1.6 Facility Contact

Larry Gandy, Vice President
Gandy Marley, Inc.
Tatum, New Mexico
505/398-4960

1.1.7 Facility Address

1109 East Broadway
P. O. Box 827
Tatum, New Mexico 88267

1.1.8 Purpose of Facility

The purpose of the Facility will be the treatment and permanent disposal of hazardous wastes in a manner protective of human health and the environment. Wastes that do not meet LDR standards will not be accepted for placement into the landfill or evaporation pond until appropriate treatment is performed. Infectious wastes and radioactive wastes will be prohibited at this Facility. The Waste Analysis Plan contains more details regarding wastes that can be accepted at the Facility and wastes that are prohibited.

1.1.9 Facility Location

The Facility will be located in Southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico, Sections 17 and 18 of R31E, T11S (see Figure 1-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2. The only major road in the vicinity is U.S. Highway 380, which runs east and west approximately 4 miles north of the proposed site. State Highway 172, which runs north and south, is approximately 4 miles east of the proposed site. State Highway 172 is not a major thoroughfare and does not provide access to the proposed site.

1.1.10 Hazardous Waste Generation

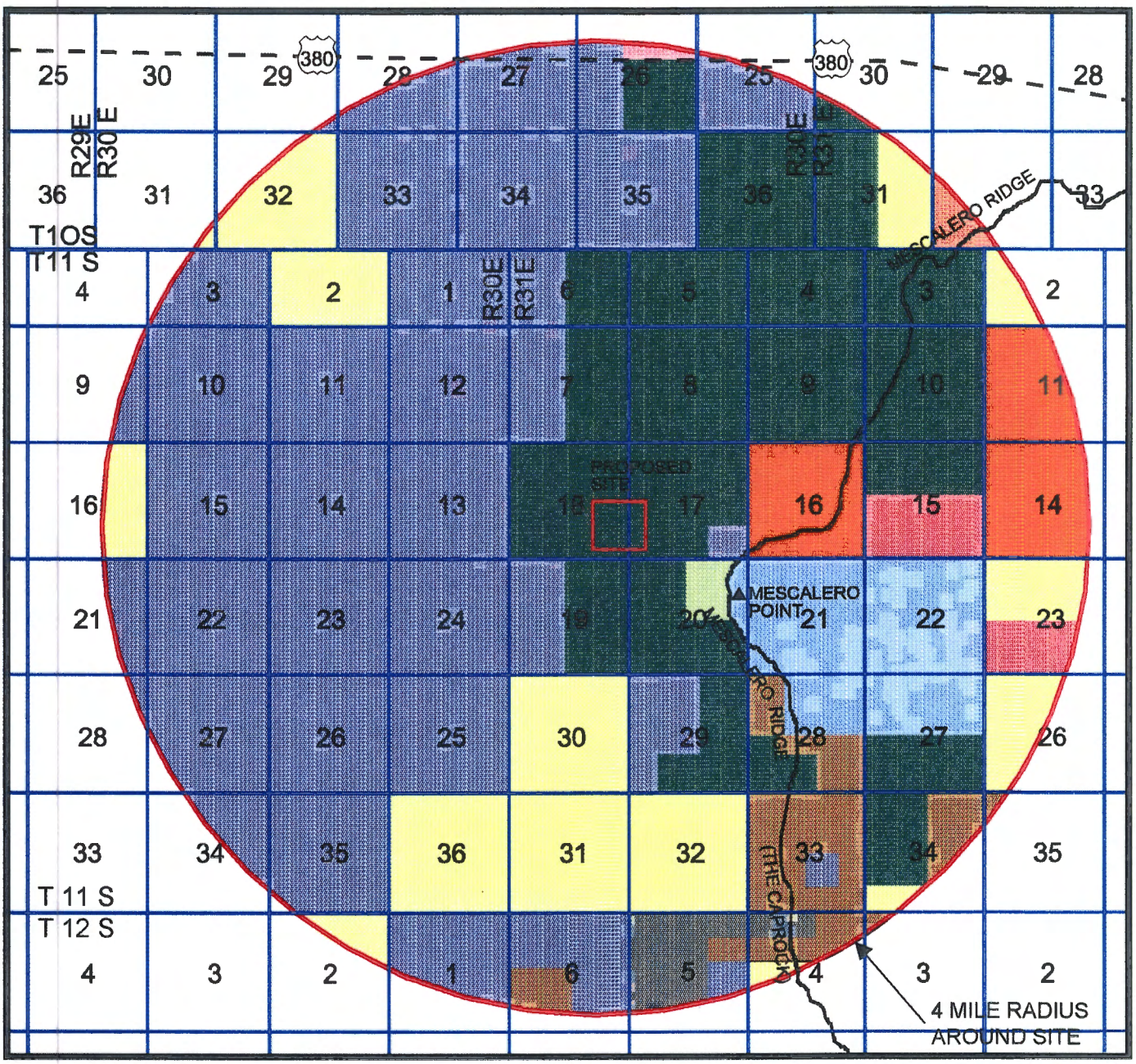
Some hazardous waste will be generated as a result of normal Facility operations. Various treatment and handling processes and support operations will likely generate such wastes. Examples of typical hazardous waste forms likely to be generated during normal Facility operations include solvents, oils, acids and bases, laboratory chemicals and equipment, paint and paint strippers, sludges, solvent contaminated solids, and personal protective equipment. Non-recyclable hazardous wastes will be disposed of onsite in accordance with the requirements outlined in Section 4.3.3.

1.1.11 Sanitary Waste Generation

Sanitary liquid wastes will be generated in most Facility buildings. This waste form consists primarily of shower water, janitorial wastes, rest room wastes, and liquid wastes generated from cleaning operations. Non-hazardous liquid wastes will be managed as sewage and disposed of accordingly.

1.1.12 Non-hazardous Refuse Generation

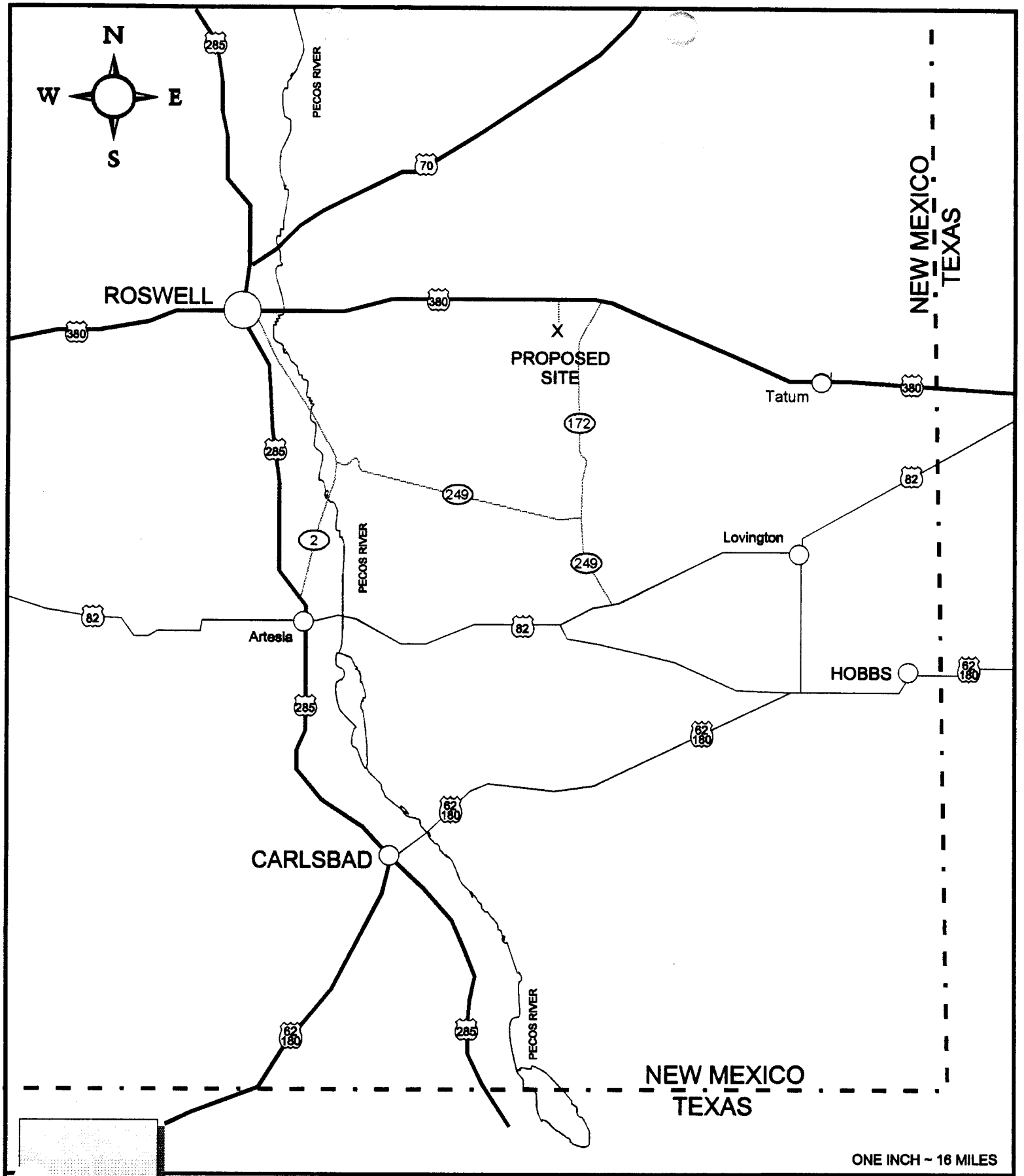
Non-hazardous municipal solid waste (MSW) and construction and demolition (C&D) waste will be generated during building and normal operations at the Facility. These wastes will include such



LAND OWNERSHIP WITHIN 4 MILE RADIUS

TRIASSIC PARK WASTE DISPOSAL FACILITY

Figure 1-1



SITE LOCATION MAP

TRIASSIC PARK WASTE DISPOSAL FACILITY

Figure 1-2

things as cardboard packing containers, garbage, paper refuse, and construction debris. Collection, transportation, and disposal of non-recyclable waste will be contracted to a MSW and C&D waste disposal company. Recyclable wastes, such as office paper, will be sent off site for usable materials recovery. The disposal of non-routine waste materials will be administratively controlled on a case-by-case basis in accordance with applicable regulatory requirements.

1.2 SITE ENVIRONMENT AND CLIMATE

The selected site for the Facility is on the western edge of a geological bench known locally as the Caprock. The Caprock is characterized by rocky terrain which runs north and south. Detailed information about the geologic characteristics of the site is contained in Section 3.0.

The site is approximately 4,150 feet above sea level. Climatic conditions of the area are typical of semi-arid regions and are characterized by dry, warm winters with minimal snow cover and hot, somewhat more moist summers. The frost-free season averages from 190 to 215 days per year. The mean annual soil temperature ranges from 59 to 65 degrees Fahrenheit. The average annual precipitation ranges from 10 to 13 inches. Winter precipitation usually consists of occasional snowfall from November through April. Snowfall typically melts within a short period of time. Most precipitation (approximately 80 percent of the annual total) occurs between June and September.

Normally, two-thirds of the summer days reach temperatures in excess of 90°F with maximum temperatures commonly 100°F or higher. Night temperatures during the winter months commonly fall below freezing, occasionally reaching below 0°F. The average annual temperature is 62°F.

The prevailing wind is from the south. Winds of up to 40 miles per hour are common during the spring and in association with summer thunderstorms.

Area vegetation consists primarily of Tobosa, Buffalo Grass, Vine-Mesquite, Mesquite, Cactus, Sand Dropseed, Little Bluestem, Sand Bluestem, Sandbur, Three-Awn, Shinnery Oak, Yucca, and Sand Sagebrush. According to the New Mexico Forestry and Resources Conservation Division of the State Department of Energy, Minerals, and Natural Resources, there are no rare or endangered plant species located in either Section 17 or 18.

According to the Bureau of Land Management (BLM) - Roswell Resource Area, there are 54 bird species, 33 species of mammals, and 36 species of reptiles and amphibians in what is designated as the Caprock Wildlife Habitat Area. The Facility location is within that wildlife habitat designation.

One bird species, the ferruginous hawk (*Buteo regalis*), is classified as a "Category 2" candidate for listing as threatened or endangered by the United States Fish and Wildlife Service of the U.S. Department of Interior. Currently, it is not listed. No other documented species in the area of the proposed Facility site are federally protected or candidates for federal protection.

The sand dune sagebrush lizard (*Scelopurus graciosus arenicolous*) is currently listed as a threatened species by the State of New Mexico. Population and habitat studies are ongoing for use by the state in determining whether to give the species protected status. The sand dune sagebrush lizard is not classified for federal protection.

GMI will continue to monitor the existence of threatened or endangered species in the area. Should any threatened or endangered species be identified within the Facility area, GMI will take measures to ensure that these species are protected. GMI will implement protective measures for the wildlife

population in the area. These measures include the use of restrictive fencing around the operational portions of the Facility and the use of protective netting over the evaporation pond.

1.3 LOCATION INFORMATION

A topographic map of the site has been developed from a 1997 aerial photograph and U.S. Geological Survey (USGS) 7.5 minute series map (Mescalero Point, New Mexico, 1973) and is presented in Volume III, Drawing 3. This drawing illustrates Facility boundaries, access roads, access control locations, internal roads, and site fences. The Facility layout is presented as Drawing 4 in Volume III of this application.

The site is located in eastern Chaves County, in an area that has historically been utilized primarily as range land for livestock grazing and for limited oil and gas activities. The residence nearest the site is owned by Marley Ranches, Ltd. and is located approximately 2.9 miles to the east-southeast. Land ownership for a 4-mile radius around the site is shown in Figure 1-2 at the end of this section. All of the residences within a ten-mile radius of the site are listed in Figure 1-3.

The site will encompass 480 acres and will be enclosed by a 3-strand barb-wire fence. Gates to the same height as the perimeter fence will be constructed. The area will be secured and monitored so that only authorized personnel or personnel being accompanied and supervised by authorized personnel are allowed onsite. Employees responsible for site security will be present at all times to prevent unauthorized entry and to report unusual events and/or emergencies. Site security personnel will be responsible for conducting regular inspections and routine maintenance of the perimeter area (see Section 5.0).

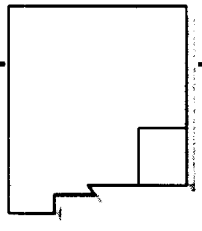
Land use plans and/or zoning maps have not been developed for Chaves County. All areas within the county, except those within municipal boundaries, are designated as Zone A (agricultural). The eastern half of the county is further designated as Area 1 and the western half as Area 2. Area 1 and Area 2 are zoning Land Use Areas, whose boundaries have been determined by a joint-powers agreement between the Board of Chaves County Commissioners and the Roswell City Council. Existing uses in Area 1 are livestock grazing, mineral exploration and production, wildlife habitat, and extensive recreation. Single-family dwellings require permits in Area 1. Area 2 covers an important part of the recharge area of the Roswell Artesian Basin. Existing uses in Area 2 are livestock grazing, mineral exploration and production, extensive recreation, wildlife habitat, and flood control structures and floodways. Any new parcels created in the area must be five acres or larger.

Approximately 2 miles northwest of the Facility location, the Mescalero Sands recreational "complex" has been established for use by off-road vehicles. The South Dunes area of Mescalero Sands has been designated as an "Outstanding Natural Area" (ONA) and is utilized by the public primarily for wildlife observation activities.

The land in the area of the Facility is used predominantly for grazing cattle and to a much lesser extent for oil and gas exploration activities. The nearest production well is 3 miles from the site. Additional information about the drilling activities in the area is contained in Section 3.0 of this document.

All abandoned wells in the area have been plugged in accordance with New Mexico Oil Conservation Division (OCD) regulations. These regulations require the use of mud-laden fluids, cement and plugs in the well "in a way to confine crude petroleum oil, natural gas, or water in the strata in which it is found and to prevent it from escaping into other strata." Surface reclamation of abandoned wells prevents surface water from entering and contaminating subsurface strata.

OWNER	DISTANCE	DIRECTION
Marley Ranch	Approximately 2.9 Miles	East-Southeast
Bill Kolb - KOBR TV Towers	Approximately 4.5 Miles	East
KOBR TV - two dwellings	Approximately 4.5 Miles	East
Pearce Ranch	Approximately 4.5 Miles	Southeast
Sand Ranch	Approximately 6.3 Miles	Northeast
Jack Luce Ranch	Approximately 6.5 Miles	Northeast
Pearce Ranch	Approximately 7 Miles	West
Buddy Fort Ranch	Approximately 7 Miles	East-Southeast
Sand Ranch	Approximately 7.2 Miles	Northwest
Bill Rushing	Approximately 8 Miles	Northeast
Tivis Ranch	Approximately 8.2 Miles	Southeast
Johnson Ranch	Approximately 9.7 Miles	North



AutoCAD FILE GANDY-FIG1-3

RESIDENCES WITHIN A TEN MILE RADIUS

TRIASSIC PARK WASTE DISPOSAL FACILITY

Figure 1-3

1.3.1 Flood Plain Information

Sections 17 and 18, T11S, R31E are included on Federal Insurance Rate Map #350125. This map has not been printed because the National Flood Insurance Program has determined that this is an area of minimal flood hazards. This information was provided to GMI by the Director of Planning and Environmental Services, Chaves County, New Mexico.

Additionally, rainfall run-off calculations were performed to determine whether the site falls within the flood plain of a 100-year, 24-hour storm event. Based on information in the Precipitation Frequency Atlas published by the National Oceanic and Atmospheric Association, a rainfall amount of 5.3 inches was used in the calculations. The nearest drainage to the site was determined from the USGS 7.5 minute series topographic map of the Mescalero Point Quadrangle (see Section 3.0). This drainage flows westerly from Mescalero Point, which is approximately three-quarters of a mile south of the site.

Storm run-off flows were calculated for the area using the Rational Method. A run-off coefficients of 0.3 was used in the calculations. It was determined that the maximum flow could be accomodated in a triangular section occupying a width of 76 feet . It may be concluded from this comparison that a flood plain does not exist for the drainage and that there are no flood plains within 1 mile of the site. It may be further concluded that flood plain regulations are not applicable to this Facility.

1.3.2 Fire Control and Emergency Response

Fire control and emergency response will be the responsibility of the Emergency Coordinator (EC) who is on call or duty at the time of an incident. Each EC will be trained to handle emergencies and to notify appropriate authorities (see Section 7.0). Each EC will have the authority to commit resources necessary to implement the site Contingency Plan described in Section 6.0.

In addition to onsite emergency response capabilities, cooperative agreements will be established with local emergency response organizations in surrounding communities to respond to and assist in any emergencies that arise at the Facility (see Section 6.0).

1.4 TRAFFIC PATTERNS

The flow of traffic within the Facility boundary will not be significant except during shift changes. The number of employee vehicles will not be substantial enough to require elaborate signage or other traffic control systems. All personnel will be given written instructions that will caution them to be alert to other vehicles and pedestrians. Each vehicle must enter and exit through the security gate at the northeast corner of the perimeter of the Facility boundary. The arrival and departure of trucks transporting waste will not be scheduled during peak traffic times. Drawing 26, Sheet 2 in Volume III illustrates traffic flow patterns for the operations and waste processing area, traffic control signage and truck staging areas.

1.4.1 Traffic Control

Access to the Facility will be gained through the security gate at the northeast corner of the perimeter fence (see Drawing 26, Sheet 2 in Volume III). Authorization to enter the Facility will be verified for each vehicle. Visitors will be required to sign in at the guard shack and will be escorted while onsite unless other arrangements are made with the Facility. Only authorized persons will be allowed past the security gate guard shack.

1.4.2 Onsite Transportation Of Wastes

All trucks transporting wastes will be stopped at the security gate prior to entering the Facility. Security personnel will record the license number, transportation company, arrival time, and other pertinent information with regard to the vehicle and driver.

After being granted access to the Facility through the security gate entrance, waste transport vehicles will be directed to the untarping/sampling area. Here, a sample of the waste will be collected for fingerprint testing, along with the shipment manifest and other pertinent documentation. While the sample is being analyzed at the chemical laboratory, the truck will be directed to the weigh scales and finally to the truck staging area. The truck will remain at the staging area until laboratory analysis verifies that the waste meets acceptance criteria and the waste characteristics are consistent with profile information from the shipment manifest.

Following determination that waste acceptance criteria have been met, the truck will be directed either to the landfill, in cases where wastes can be directly landfilled (for instance, when all LDR treatment standards are met), or to another station for staging/storage or further processing.

1.4.3 Routes

Transporters must use U.S. Highway 380 to reach the Facility. U.S. Highway 380 runs east and west between Roswell and Tatum, New Mexico as shown in Figure 1-2.

1.5 REMAINDER OF PERMIT APPLICATION

Treatment, storage, and disposal; groundwater protection; Facility design; waste analysis; procedures to prevent hazards; contingency plan; personnel training; closure; waste minimization; corrective action; and organic air emissions are discussed in the remainder of the permit application. A list of references used for the preparation of this application is also provided.

2.0 TREATMENT, STORAGE, AND DISPOSAL

This section provides a general description of the storage, treatment, and disposal processes and units for the Facility. For each of the operational units described in this section, detailed design drawings and associated engineering reports are contained in Volume III of this application. The drawings and specifications present final designs for the RCRA permitted facilities. Details on the non-RCRA components of the facilities will be supplemented during the bidding and construction phase. Gandy Marley will supply the additional details on the non-RCRA components of the design to NMED for review and approval prior to the start of construction.

2.1 FACILITY OVERVIEW

An overview of the Facility layout is provided in Volume III, Drawing 4 of this application. This drawing shows the units used for the five general categories of waste disposal activities at the Facility. These five waste disposal operations are: (1) waste acceptance, (2) waste receiving, (3) waste staging/storage (4) waste treatment, and (5) waste disposal. Each activity is described below.

2.1.1 Facility Waste Acceptance

Prior to initiation of a shipment of waste to the Facility, the generator of the waste must provide a full characterization of its waste and receive approval from the Facility to ship the waste. This process is more completely described in the Waste Analysis Plan presented in Section 4.0. The Facility will use the waste characterization data to perform the following activities:

- ensure that the waste can be accepted in accordance with the RCRA permit;
- verify that the Facility has the capability to properly treat and/or dispose of the waste;
- identify any safety precautions that must be taken to properly manage the waste;
- use the physical characteristics and chemical composition of the waste to determine the most effective treatment and disposal methods for the waste;
- select parameters to be tested to determine the formula for stabilization of appropriate wastes;
- select parameters to be tested upon arrival at the Facility to verify that the waste accepted is the waste characterized; and,
- develop a cost estimate for treatment and disposal.

2.1.2 Waste Receiving

Once approved for acceptance at the Facility, the waste can be shipped. The Facility can be accessed only from New Mexico State Highway 380, as shown in Figure 2-1. When a shipment arrives at the Facility, a Facility representative will verify that the shipment was scheduled. If unscheduled shipments arrive at the Facility, the Facility manager will be consulted to determine if the appropriate paperwork has been received and the shipment can be accepted.

The shipment and shipping papers will be inspected to ensure that the correct inventory has been received, that the hazardous waste manifest is properly completed, and that a LDR certification is attached. Any discrepancies will be resolved prior to acceptance of the shipment. If discrepancies cannot be resolved, the shipment will be rejected. Representative samples of the waste will be taken and fingerprint testing will be conducted. Fingerprint testing is described in Section 4.3.2.1. If the fingerprint test results are inconsistent with the generator's information, several actions can be taken (see Section 4.3.2.1). Waste will be processed only if fingerprint tests are consistent with information provided by the waste generator. Containers and drums will be inspected for visible cracks, holes or gaps.

2.1.3 Waste Staging/Storage

Containerized wastes will be moved to the drum handling unit or the roll-off storage area. The objectives of these container storage areas are to provide safe storage of waste prior to its introduction into the treatment or disposal system; to ensure that adequate accumulation space is available during intervals when the treatment or disposal system is temporarily unavailable; and to facilitate repackaging as necessary.

Solid waste will be transferred directly to the landfill for disposal if all applicable LDR requirements are met and, in the case of containerized material, if the container is at least 90 percent full.

Restricted waste at the Facility will be stored solely for the purpose of accumulating sufficient quantities to facilitate proper treatment, or disposal. Procedures will be in place at the Facility so that only that waste will be accepted that either (1) meets LDR treatment standards; or (2) is amenable to treatment using existing and available treatment capabilities at the Facility, such that restricted wastes will not be stored for longer than one year.

2.1.4 Waste Treatment

There are two treatment processes: stabilization and evaporation. Low concentration wastewater from off site generators and leachate from the landfill that meet LDR standards will be placed in the evaporation pond. Pond sludge, contaminated leachate from the landfill that does not meet LDR standards, and various wastes from generators will be treated in the stabilization process. Stabilized waste that meets LDR treatment standards and other operational criteria will be placed in the landfill.

Wastes that carry more than one characteristic or listed waste code must be treated to the most stringent treatment requirements for each hazardous waste constituent of concern. When wastes with different treatment standards are combined solely for treatment, the most stringent treatments standard specified will be met.

2.1.5 Waste Disposal

In general, wastes arriving at the Facility that meet LDR requirements and contain no free liquids will be directly landfilled. When wastes are unable to be directly landfilled, such as during landfill equipment maintenance periods or extreme weather conditions, the waste will be stored in the waste storage area. Wastes stabilized at the Facility that meet LDR requirements will be transferred to the landfill from the treatment or storage areas as necessary.

An access ramp will be constructed from the top of the landfill to the bottom of the active portion of the landfill (see Drawings 8 and 14 in Volume III). Bulk hazardous wastes will be placed and compacted on the bottom of the landfill in 5-foot to 10-foot layers or lifts. Containers (drums) will

be placed upright in the cell using a forklift or barrel snatcher. Sufficient space will be left around the containers for the placement and compaction of compatible bulk hazardous wastes or soil. Materials in roll-off containers will be dumped with the bedliners at preselected locations. Containers or bulk waste can be placed adjacent to the roll-off material. A layer of cover soil sufficient to prevent wind dispersal of waste will be placed over the bulk hazardous wastes and containers following emplacement or before the end of each working day (see Section 2.5.1.7). The soil cover will be deposited on top of the waste placement face and then spread and compacted with a tracked bulldozer. The minimum cover thickness will be 0.5 feet.

The landfill will be laid out in an engineered grid system consisting of blocks that are 50 feet wide, 50 feet in length, and 10 feet in depth. Grid stakes will be established by survey. A two-dimensional grid system along with lift elevation designation will provide a three-dimensional record of the location of all wastes placed in the landfill. Records of the location, date of placement, waste source, manifest, and profile numbers will be maintained at the Facility.

2.2 CONTAINER STORAGE AREAS

The site will employ two container storage areas: a drum handling unit and roll-off storage area. Descriptions and conditions specific to these areas are presented in Section 2.2.1 and Section 2.2.2 for the drum handling unit and roll-off storage area, respectively. Sections 2.2.3 through 2.2.14 describe conditions common to both units. Wastes which are either suspected or known to contain free liquids will be managed accordingly. A description of how these wastes will be managed is included in the following sections. More detailed information on the management of wastes containing free liquids can also be found in the Waste Analysis Plan presented in Section 4.0. Both the drum handling unit and the roll-off storage area will be constructed to meet the minimum requirements identified in the detailed design and associated engineering report (Volume III).

2.2.1 Drum Handling Unit

Drawings 37, 38, and 39 presented in Volume III of this application show the detailed design for the drum handling unit. The open sided unit will be roofed to prevent run-on from precipitation. The roof of the building is designed to extend over the unloading dock area to ensure that precipitation does not enter the building or impact unloading operations.

The building will be equipped with fire extinguishers, a sprinkler system, telephones, fire alarm system, public address system, eye washes, safety showers, spill control equipment, and first aid equipment. An office for storing record-keeping information and for administrative functions within the drum handling unit will be located in the building.

The base of the drum handling unit will consist of a compacted subgrade of non-swelling soils placed at a moisture content and density capable of supporting projected loads comprised of the building's structural components, stored waste, and mobile equipment traffic inside the building. A 60-mil geomembrane liner, cushion geotextile, and 1 foot of foundation sand will overlie the subgrade. The steel reinforced concrete floor will be constructed on the prepared subgrade. Design details and the associated specifications are presented in Volumes III and IV of this application.

2.2.1.1 Containment and Detection of Releases

Wastes stored in the drum handling unit will be placed in individual storage cells segregated by waste type and compatibility. Individual storage cells are defined as groupings of drums as shown on Drawing 37. The specific areas to be used for storage will depend on the volume and type of waste

being processed at the site. Labels will be added to each section of the drum storage unit to identify the type of waste to be stored. The labels may change depending on the volume and type of waste being received. A chemically resistant epoxy coating (or an equivalent) will be applied to the concrete floor. Chemical resistant water stops and caulking will be installed in all joints. The floor is designed and will be maintained to be free of cracks and gaps and will be inspected regularly to determine if any cracks or gaps have developed or if the epoxy coating has been damaged. Should cracks or gaps develop in the concrete, repairs will be scheduled immediately. The nature of the repair will depend on the extent of the cracking and could range from the application of chemically resistant epoxy fillers or coatings to the replacement of portions of the concrete floor.

Each storage cell will have a concrete floor that slopes toward a trench covered by steel grating. Each trench will lead to a separate secondary containment sump for that cell where any spilled liquids will be accumulated. The trench and sump system design incorporates a double high-density polyethylene (HDPE) geomembrane liner and leak detection and leachate removal system. The secondary containment sump incorporates drainage material surrounding a perforated pipe. The trench and sump has been sized to contain at least 10 percent of the volume of the containers stored in the cell. The leachate collection and removal system (LCRS) and leak detection and removal system (LDRS) sumps in the drum handling unit will be checked regularly for the presence of liquid. If liquids are present, samples will be obtained and chemically analyzed to determine the nature and concentration of any waste constituents. An appropriate treatment or disposal method will be selected in accordance with the Waste Analysis Plan presented in Section 4.0. Pumpable quantities of liquids will be removed with a vacuum truck. Leaks and spills will be removed from the sump in as timely a manner as possible. Because the building is covered, precipitation and the consequent accumulation of liquid are not considered in the design or operation of the drum handling unit.

The TSCA cells will be surrounded by a 6-inch concrete berm, in addition to the floor trench and sump.

2.2.1.2 Dimensions

The drum handling unit is 418 feet long by 118 feet wide (see Drawing 37 in Volume III). The building floor and loading dock will be 5 feet above ground level to facilitate the loading and unloading of trucks and prevent run-on from precipitation. An adjustable hydraulic loading platform will align the truck beds with the building floor to allow for the smooth transition of forklifts in and out of the trucks from the floor. An overhang on the front of the building will prevent precipitation from getting on the drums and into the front area.

2.2.1.3 Storage Limits

The Facility will contain seven separate containment areas, each 52 by 63 feet as shown on Drawings 37 and 38 in Volume III. Each of the seven areas will have its own floor drain and containment sump, allowing incompatible wastes to be placed in separate cells. Two of the cells will be designed to accommodate only TSCA PCB wastes. Aprons on the ends of the TSCA areas will be tapered to allow for forklift access over the concrete berms. The total capacity of the drum handling unit will be 1,120 drums (160 drums per containment cell). The drain and sump for each drum cell is dimensioned such that the storage capacity will be a minimum of 118 cubic feet, 10% of the capacity of the drums in each cell. A typical drum layout is shown in Drawing 37 of Volume III.

2.2.2 Roll-Off Storage Area

Roll-off containers will be stored on an open pad, as shown in Drawings 41 through 43 presented in Volume III. This unit will not be covered or enclosed by walls. The pad will be divided into two sections... One section will hold tarped, U.S. Department of Transportation (DOT) approved, lined, roll-off containers with non-stabilized waste awaiting treatment at the stabilization unit. The other section of the pad is intended as a staging area for roll-off containers containing stabilized waste awaiting Toxicity Characteristic Leaching Procedure (TCLP) test results and landfill-disposal approval.

Waste will be characterized and screened as part of the waste acceptance procedures. This procedure will prevent incompatible waste from being stored in the same roll-off containers that are delivered to the site. After the materials have been stabilized, material from a single stabilization batch will not be mixed with material from a different batch, therefore eliminating the potential for incompatible waste to be stored in the same roll-off bin. Individual bins will be physically separated from each other in the storage area by a minimum of 1 foot and will be stored inside the covered steel roll-off bins and the HDPE bin covers.

Landfill operational staff will visually observe trucks leaving the area for excessive accumulation of waste on the tires and/or truck body. If excessive accumulation is noted, the truck will be routed to the truck wash for cleaning.

This area is restricted to wastes that do not contain free liquids. Prior to exiting the stabilization unit, stabilized waste loads will be tested for free liquids using the paint filter test. Stabilized waste loads that do not pass the paint filter test will be reprocessed using a modified treatment mixture and re-tested before being allowed to exit the stabilization unit. Roll-off containers which hold stabilized wastes that pass the paint filter test will be covered before exiting the stabilization unit and will remain covered while they are staged in the roll-off storage area.

Roll-off containers will be inspected for free liquids prior to acceptance at the unit. Containers which are received for disposal, but are found to contain free liquids upon inspection will be managed in accordance with stabilization procedures described in Section 2.4. If the waste generator will not allow the Facility to prioritize handling of the load to eliminate free liquid, the load will not be admitted to the Facility. Otherwise, free liquids will be removed with a vacuum truck, characterized, and managed in accordance with stabilization procedures described in Section 2.4. The volume of free liquids in the roll-off containers is expected to be minimal. Following the removal of free liquids, the waste (in the roll-off container) will either be managed through the stabilization process or landfilled, whichever is appropriate. Section 2.2.12 describes the methods that will be used to separate incompatible wastes. The area will be equipped with fire extinguishers, a telephone, alarm systems, spill control, and first aid kits.

Waste in the roll-off containers that meet the requirements for free liquids (or lack thereof) will be placed in the landfill. Other wastes in roll-off containers that do not pass the appropriate acceptance testing (i.e. paint filler test) will be transferred to the stabilization area for treatment. Upon completion of the stabilization process, the waste will once again be tested to ensure that it meets the landfill criteria.

2.2.2.1 Containment and Detection of Releases

There is a potential for free liquids to exist in incoming waste. The roll-off storage area is designed to store any non-stabilized waste that may contain free liquids. Secondary containment of the roll-off storage area is shown in Drawing 41 through 43 in Volume III.

The floor and slopes of the lined cell will consist of, from bottom to top, a prepared subgrade; a geomembrane liner that will be composed of a component material compatible with the anticipated waste; a geocomposite drainage layer; a structural-fill; and a roadbase surface. A sump will be incorporated into the drainage layer. To accommodate this installation, the floor will be sloped to a sump located in the corner of the storage area. Any liquids would collect in the containment sump, which is designed to have the pumping capacity to remove liquids resulting from the 25-year, 24-hour storm event.

The roll-off containment area is surrounded by a berm with a minimum height of 2.0 feet (Drawing 41) This berm will divert run-on surface water around the perimeter of the truck roll-off area. Culverts will be placed under each of the access ramps to allow surface water flow to the west towards the run-off detension basin.

The containment sump is designed to collect precipitation falling inside the bermed area of the truck roll-off storage area. During heavy rain events, a portion of the water will drain along the roadbase surface to the sump area located in the corner of the cell. The remaining volume will percolate through the roadbase and structural fill and will be collected in the geocomposite drainage layer. Water collecting on the surface of the sump or in the sump drainage gravel will be removed by vacuum truck. Samples of sump liquids will be chemically analyzed to determine the presence and concentration of any waste constituent. After this determination, an appropriate method of treatment or disposal will be selected in accordance with the criteria prescribed in the Waste Acceptance Plan (see Section 4.0). Leaks, spills, and precipitation will be removed from the sump as soon as possible. The entire roll-off storage area will be surrounded by a berm which ranges in height from 4 feet to 8 feet.

The purpose of the drainage system below the storage area surface is to allow rainfall to be collected and removed from the contained area. This will reduce ponding and mud formation on the storage area surface and will allow the surface to support truck traffic almost immediately following a rainstorm. The presence of free liquids inside the roll-off container/bed liner system can occur if liquids are inadvertently loaded in the container, rainfall enters a hole in the roll-off container cover during transportation, or liquids separate from solids during transport. These free liquids will be identified when the roll-off container is visually inspected at the untarping station.

It is possible, but unlikely, that free liquids could be generated after inspection in the staged roll-off containers. For example, if a faulty roll-off container cover allows rainfall to enter the container and both the plastic and containment fail, a leak can occur on the surface of the roll-off storage area. A leak will appear as a drop or a stain on the storage area surface. In the case of a leak, the liquids in the roll-off container will be handled as described in Section 2.4 and the stained soil will be excavated and handled as a potential hazardous waste.

2.2.2.2 Dimensions

The entire roll-off storage area (including both halves) will measure 420 feet by 350 feet from the outer edge of the berms. The berm height surrounding the area will range from 4 feet to 8 feet. The

storage areas will be accessed by 35-foot-wide compacted soil ramps at the center of each storage area. The halves will measure approximately 180 feet by 310 feet inside the berms.

2.2.2.3 Storage Limits

The permitted capacity of the incoming waste cell will be 66 roll-off containers. The stabilized waste cell also will have a capacity of 66 roll-off containers, for a total storage capacity of 132 containers. The actual number of roll-off containers placed in the roll-off storage area may vary slightly depending on placement arrangements as determined by operations.

2.2.3 Warning Signs

Signs containing the legend "Danger - Unauthorized Personnel Keep Out" will be conspicuously posted on the outside and at entrances to the storage areas. In the areas where ignitable or reactive wastes will be stored, "No Smoking" signs will be posted. All signs will be in both English and Spanish.

2.2.4 Proper Waste Storage

Compatibility codes established during the initial receipt of waste will be assigned to ensure the proper storage of containers within the Facility (see Section 4.0). Containers which are discovered upon receipt to have free liquids will not be accepted or will be handled at the stabilization unit as a priority load.

2.2.5 Ignitable/Reactive Wastes

Ignitable or reactive wastes will be protected from any sources of ignition or reaction. All containers storing ignitable or reactive waste will be stored at least 50 feet inside the fence around the Facility shown in Volume III, Drawing 4. "No Smoking" rules will be enforced and open flames prohibited where ignitable or reactive waste is being handled.

2.2.6 Precautions to Prevent Reactions

Precautions to prevent reactions are described in Section 5.0, Procedures to Prevent Hazards.

2.2.7 Inspection Methods

As required in 40 CFR 164.174, all container storage areas will be visually inspected at least once a week for leaking containers and deterioration of the containers and containment area. Inspectors will enter the area and visually inspect the area and the containers. All inspection information will be recorded, and any problems noted during the inspection will be resolved in a timely manner (see Section 5.0). Workers will be instructed and trained on the procedures for identifying and reporting any signs of leaks or deterioration that appear between the weekly inspections. Any identified leaks will be resolved as described in Section 2.2.10. Containers with more than 500 ppmw volatile organic compounds will be inspected at least once a month for cracks, holes or gaps in the container, cover or closure devices. Defects detected will be repaired according to CFR 264.1086 (d)(4)(iii).

2.2.8 Types of Containers

Hazardous wastes will be stored in 10-gallon, 35-gallon, or 55-gallon drums, in 40 cubic yard or similar roll-off containers, or in other DOT approved containers. Overpack drums will be used as necessary.

2.2.9 Labels

All containers of hazardous waste in storage will be labeled with a hazardous waste label identifying the contents of the container. The label will also be clearly marked to indicate the date of accumulation or the date of receipt. The label will not be obstructed from view during storage.

2.2.10 Condition of Containers

All containers of hazardous waste will be managed by the following conditions:

- containers will be maintained in good condition. If a container is not in good condition (e.g. severe rust, apparent structural defects, or leaks), the hazardous waste will either be transferred to a container that is in good condition or be managed in some other way, such as direct placement in the landfill or stabilization unit;
- containers of hazardous waste stored at the drum handling unit will be closed during storage, except when it is necessary to add or remove waste;
- the container storage area will be inspected prior to placement of containers to ensure that no conditions exist which could damage the waste containers; and,
- all containers will be handled in a manner, and with equipment compatible to their design and construction, to minimize the potential for damage to the container.

The roll-off units to be placed in the roll-off area will be covered with a tarp. The covers will not be removed until the material is placed in the stabilization unit. Roll-off units used to store stabilized material will also be placed on the roll-off unit with covers. It is not expected that the tarps will be removed during storage except for re-sampling of the material, if required.

2.2.11 Compatibility with the Container

All hazardous waste will be compatible with the container or liner as defined by the following conditions:

- all containers used to store hazardous waste will be made of, or lined with, material that will not react with, or otherwise be incompatible with, the waste being stored so that the ability of the container to hold waste is not impaired; and,
- hazardous waste will not be placed in an unwashed container that has previously held incompatible waste or material.

2.2.12 Compatibility with Other Waste

Incompatible liquid hazardous wastes stored within the units will be separated by a berm, catch pan, or other physical barrier which adequately prevents commingling of incompatible wastes.

Incompatible solid hazardous wastes stored within the container storage areas will be separated by a distance of at least 10 feet unless separated by a berm, catch pan, or other physical barrier. Incompatible wastes will not be placed in the same container.

2.2.13 Aisle Space

Aisle spacing will be maintained to assure inspectability and accessibility for operational and emergency equipment to containers. The spacing will allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in the event of an emergency, as required by 40 CFR 264.35.

A minimum 30-inch aisle space will be maintained in the drum handling unit between double rows of containers. Containers will be stored in single rows only if they are against a wall or other barrier that prohibits inspection from all sides. Roll-off containers will be spaced 4 feet apart and 4 feet from the edge of the berm.

2.2.14 Record Keeping

The results of all container storage waste analyses, trial tests, waste compatibility analyses, and ignitable and reactive waste handling documentation pertaining to compliance will be maintained in the Facility operating record. Inspection records will be maintained in the inspection log for each unit.

2.3 STORAGE IN TANKS

The liquid waste receiving and storage unit is shown in Volume III, Drawing 40. It will house four aboveground tanks for the storage of regulated bulk liquid hazardous wastes prior to stabilization. The unit will not be covered by a roof or enclosed by walls.

Each tank will have a capacity of approximately 9,000 gallons. The tanks will be double-walled and constructed of high density polyethylene materials that are compatible with the wastes to be placed in the tanks. Compatibility of the tanks with different types of waste has been provided by the manufacturer and is indicated in Volume III, Appendix E-34. Facility procedures for waste acceptance and the associated criteria and waste acceptance plan will ensure that wastes incompatible with the tank material are not placed in the storage tanks. These compatibilities are assessed in the design specifications and engineering report (see Volume III). The tanks will be elevated above an imperviously coated reinforced concrete pad. All piping systems within the facility will comply with API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4. Waste will be transferred from the tanks to the stabilization unit by pumping into transfer tankers.

Each of the storage tanks will be clearly marked with a description of the contents and records will be kept documenting the quantity of waste received, and the date each period of accumulation begins. This information will be documented in the Facility operating record.

2.3.1 Containment and Detection of Releases

The outer tank of the double walled poly tank system will provide secondary containment of sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with waste, climatic conditions, or the stress of daily operations. The tank system will be placed on a concrete base capable of supporting the system, providing resistance to pressure gradients below the

system, and preventing failure due to settlement, compression, or uplift. The secondary tank is designed to contain 100 percent of the tank contents.

Each tank will be surrounded by a concrete area which will be sloped to provide drainage to a sump. The floor and berm of the concrete area will be maintained in good condition and free of cracks and gaps, as described in Section 2.2.1.1, in order to protect the effectiveness of the containment.

All ancillary equipment will be provided with secondary containment except aboveground piping (exclusive of flanges, joints, valves, and other connections), welded flanges, welded joints, and welded connections that are visually inspected for leaks each operating day. Secondary containment will be provided by the concrete pad.

Daily visual inspection will be used to detect releases to the secondary containment. Response to releases from tank systems will be initiated immediately upon discovery, and regulations specified in 20 NMAC 4.1 Subpart V, 40 CFR 264.196(d) or 40 CFR 264.56 will be followed as appropriate (see Section 5.0), including notification of the Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) and National Response Center (NRC). The secondary containment tank will be emptied by pumping fluids from the drainage port located near the base of the tank or by the use of a vacuum truck.

2.3.2 Management of Incompatible Wastes

Only the waste types approved for a tank system will be placed in the tank. No new waste types will be placed into an existing tank system unless (1) the compatibility of the new waste type with the prior contents of the tank is determined by testing or documentation; or (2) the existing tank system is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type.

2.3.3 Spill and Overfill Prevention

Appropriate controls and practices will be used to prevent spills from and overfills of the tank or containment systems.

Spill prevention is primarily maintained by hard-plumbed piping. When transfer lines are not hard plumbed or when open-ended lines are used, one or more of the following spill prevention controls or an equivalent device will be used:

- *Dry Disconnect Couplings* - a pipe connection designed to cap the flow of liquids as soon as the fitting is disconnected;
- *Direct Monitoring* - the transfer is monitored continuously to prevent spills; and/or,
- *Overfill Prevention* - one or more of the following spill prevention controls or an equivalent device will be used:
    - ◊ *Automatic Feed Cutoff* - a device used to stop flow into a tank when it is filled to operating capacity or another predetermined level;
    - ◊ *High-Level Alarm* - a device used to detect the level in a tank, sounding an audible alarm or displaying a visual alarm when the operating capacity level or another predetermined level is reached;

◊ *Level Indicator* - a device used to visually display the level of material in a tank; if a level indicator is used for overfill prevention, the indicator must be monitored during liquid transfers or checked prior to transfers to ensure that sufficient capacity exists in the receiving tank. Level indicators may include sight gauges , level meters, or graduations placed directly on opaque poly tanks; and/or,

◊ *Bypass* - a device or plumbing arrangement used to divert flow from the tank being filled to a second tank of sufficient capacity after the operating or predetermined level has been reached.

2.3.4 Feed Mechanism, Pressure Controls, and Temperature Controls

The tanks will be operated at ambient pressure and temperature when storing liquids. One of the following feed mechanisms for tank systems or an equivalent transfer mechanism will be used:

- *Pump Transfer* - liquids will be pumped into or out of the tank through permanent or temporary transfer lines; or,

- *Gravity Drain* - liquids will be allowed to drain by gravity through permanent or temporary transfer lines.

2.3.5 Management of Ignitable or Reactive Wastes

Ignitable or reactive wastes will not be placed into any tank system unless the tank system is protected from sources of ignition by measures including, but not limited to, the following: signs prohibiting smoking, open flames or welding; an inert atmosphere blanket; enclosed vents isolated from sources of ignition.

2.3.6 Inspections

A visual inspection of tank systems will be conducted each operating day. Each tank system will be visually inspected, including, but not limited to, the tanks and ancillary equipment, monitoring and leak detection systems, and the construction materials and area immediately surrounding the tank system. The results of each inspection will be documented in the daily operating record. Inspections are further described in Section 5.0, Procedures to Prevent Hazards.

2.3.7 Corrosion Protection

All liquid hazardous waste materials will be stored in double walled poly tanks. Corrosion protection is not required for double walled poly tanks that do not come into contact with soil or water.

2.3.8 Tank Assessments

A written assessment attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste will be provided by an independent, qualified, New Mexico registered professional engineer based on the final tank design drawings and prior to tank construction. The engineering report presented with the tank design drawings in Volume III includes a discussion of wastes to be excluded from storage in poly tanks due to their excessive corrosive effects.

2.3.9 Ancillary Equipment

All ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction, according to API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4.

Hazardous waste will be transferred from the tanks to the tankers through a limited piping system. This piping system will be considered part of the tanks and will be drained and dismantled as part of the tank closure.

2.3.10 Installation and Tightness Testing

Proper handling procedures will be developed and followed to prevent damage to the system during installation. A qualified installation inspector will inspect the installed system to ensure adequate construction/installation. Any discrepancies will be resolved before the system is placed in service.

The tanks and ancillary equipment will be tested for water tightness, and any necessary repairs will be performed prior to the system being placed in service.

Written statements by those who certify the design and supervise installation will be maintained in the operating record.

2.3.11 Repair and Certification of Tank Systems

If a release occurs from the primary tank system, the tank will be removed from service immediately. Wastes in the tank will be removed within 24 hours to the extent necessary to prevent further release and allow inspection and repair of the tank system. All released materials will be removed from the secondary containment as soon as possible and within 24 hours of detection.

The tank system will be repaired or replaced prior to returning it to service. An independent New Mexico registered professional engineer will certify major repairs. The certification will be submitted to the NMED within seven days after the tank system is returned to service. Major repairs include repair of a ruptured primary containment vessel and replacement of secondary containment.

2.3.12 Transfer of Liquids from Liquid Waste Storage to the Stabilization Unit and to the Evaporation Pond

Transfer of liquids from the liquid waste storage tanks to the stabilization unit will be accomplished by tanker trucks approved for liquid waste transfer. Approved tanker trucks, such as vacuum trucks or DOT approved tankers, will be used to transfer liquids from the storage tanks to the evaporation pond. Tanker trucks will be cleaned following a transfer operation to ensure that subsequent transfers do not result in mixing of incompatible or reactive wastes.

Personnel performing liquid waste transfer operations will comply with all personal protective equipment (PPE) requirements and transfer operation procedures, including spill cleanup. Impervious concrete coatings will be applied to the liquid waste storage tank containment area and the evaporation pond discharge station. Hose and pipe connections will be inside the concrete containment area boundaries.

2.4 STABILIZATION

Drawings 33 through 36 presented in Volume III of this application show the stabilization building floor plan, a typical bin, and vault sections. The stabilization process will use four in-ground double lined stabilization bins, two dry reagent silos, two liquid reagent tanks, and a water tank. Trucks and other vehicles will access the unit via the gravel aprons. Additionally, there will be a control room from which operations will be directed and coordinated.

Bulk liquids, semi-solids, sludges, and solids that do not meet LDR treatment standards, as well as solids that may contain free liquids, will be treated in the stabilization unit. Dilution of restricted wastes will never be used as a substitute for adequate treatment. If toxic characteristic wastes and listed wastes are amenable to the same type of treatment and aggregation is a part of treatment, the aggregation step does not constitute impermissible dilution.

As discussed in the Waste Analysis Plan in Section 4.0, wastes will be tested prior to stabilization to determine the appropriate reagent formula. Both dry and liquid reagents may be used in the stabilization process. Waste may be offloaded directly from trucks into the stabilization bins or transferred from the drum handling unit or roll-off storage area. The bins will be covered while dry reagents are being added to control particulate air emissions. The cover will be removed and a backhoe positioned adjacent to the bin will mix the waste and reagents. When the waste is sufficiently mixed, it will be tested in accordance with the Waste Analysis Plan (see Section 4.0). It will then be placed in a roll-off container and transferred to the roll-off storage area to cure.

The stabilized waste will be either transferred to the roll-off area or directly to the landfill. The stabilized waste will need to be stored temporarily at the roll-off unit while tests are compared to determine how and if the material can be disposed of in the landfill. All stabilized waste would require temporary storage only if TCLP tests are necessary.

The backhoe bucket and stabilization bin will be thoroughly cleaned before a load of waste which is not compatible with the waste previously stabilized in that bin is mixed. After the last bin load of a specific stabilization mixture has been loaded out, Facility personnel will use a high-pressure water hose located near the bins to rinse the backhoe bucket and the bin walls. This rinsing will cause residual clods of stabilized waste to fall to the bottom of the bin along with the rinse water. Reagents will then be added to the bin at the same mixture proportions and the remaining waste and rinse water will be stabilized, tested for free liquids, and loaded out before a different waste stabilization mixture is processed in that bin.

The nominal dimensions of the bins are 25 feet long by 10 feet wide by 10 feet deep, resulting in an approximate volume of 2,500 cubic feet. The volume of waste to be treated in each batch will be variable but less than 2,500 cubic feet, depending on the addition of stabilization materials. The overall process volume is based on four bins. However, the actual process design will be dependent on the characteristics of the incoming waste (time to mix each batch) and the volume of stabilization materials required. Assuming that 15 batches are processed per day, a total of 150,000 cubic yards of waste are treated per day. The ends of the bins have been shaped to conform to the reach profile of the backhoe selected for mixing in the stabilization unit. The bins will be contained in a concrete vault, which will also provide support. All mixing bins will be equipped with ventilation and air pollution control systems to remove any air pollutants generated during the mixing process. Potential contaminants may include particulates, low concentration volatile organic compounds, or acid fumes.

2.4.1 Contaminant and Detection of Releases

The bins will be of steel construction. Waste which is incompatible with the steel used in construction will not be stabilized in the bins. An assessment of the compatibilities of the bin materials and waste, along with the influence of the process (materials, time, temperature, etc.), is contained in the design specifications and the associated engineering report (Volumes III and IV). The design requirements and limitations will be incorporated into Facility procedures. The waste acceptance plan and associated criteria will ensure that waste which is incompatible with the bin construction material will not be introduced into the bins.

The bins will be double-walled steel tanks with the space between the walls serving as the LDRS. Shock absorbing coiled wire rope isolators will maintain separation between the bins.

The tank secondary containment (the outer shell) will be of sufficient volume to contain the contents of the inner tank, because the inner tank will be completely enclosed within the outer shell. The vault will not be used as secondary containment; therefore, it does not have to be lined or meet other requirements for secondary containment. Its purpose will be to isolate the tank system from the surrounding soil, provide a monitoring and collection point if leakage were to occur from both the primary and secondary systems, and means to inspect and repair the secondary containment.

Releases into the LDRS will be detected within 24 hours by liquid sensing instruments (e.g. a magnehelic gauge) or inspection. Accumulated liquids will be removed within 24 hours of detection. The secondary containment will be emptied by pumping accumulated liquids into a temporary storage tank or into another stabilization bin. Releases to the LDRS could occur if a breach occurred in the primary steel liner. In such a case, the bin will be removed from service and repaired.

All ancillary equipment will be provided with secondary containment unless it is aboveground piping (exclusive of flanges, joints, valves, and other connections), welded flanges, welded joints, and welded connections that can be visually inspected for leaks each operating day. Secondary containment will be provided by a concrete pad.

2.4.2 Management of Incompatible Wastes

New waste will not be placed in the bins unless (1) the compatibility of the new waste type with the prior contents of the bin is determined by testing or process knowledge documented in the operating record or (2) the existing tank system is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type using procedures specified in Section 2.4.

2.4.3 Spill and Overfill Prevention

Spill and overfill prevention will be accomplished by continuous direct monitoring of transfer operations. Additionally, the delivery system will be computerized and will be designed to ensure that the mixture used for stabilization prevents overfilling.

2.4.4 Feed Mechanism, Pressure Controls, and Temperature Controls

The stabilization bins will be operated at ambient temperature and pressure. Reagents will either be pumped from reagent tanks or manually fed. Liquid hazardous wastes will be pumped from the liquid waste receiving and storage unit or from vacuum trucks or tanker trucks. Other wastes may be manually transferred directly from the incoming waste hauler truck or from the container storage areas.

2.4.5 Management of Ignitable or Reactive Waste

The stabilization bins will be protected from sources of ignition through the use of signs and procedures prohibiting smoking, open flames, or welding. If ignitable or reactive wastes are placed in the bins, they will be immediately mixed with sufficient quantities of fly ash and/or cement to render them non-ignitable or non-reactive.

2.4.6 Inspections

Each stabilization bin will be visually inspected once each operating day as described in Section 5.0, Procedures to Prevent Hazards. At least once per month, the daily visual inspection will be conducted on empty bins to ensure the integrity of the bin and welds. An annual sonic test will be conducted to ensure that the thickness of the inner tank and outer shell is maintained.

2.4.7 Corrosion Protection

Corrosion is not anticipated to be a significant problem for the stabilization bins because of low humidity and the fact that the units are located indoors. No corrosion protection will be provided other than cathodic grounding. The thickness of the inner tank and outer shell compensates for the abrasion and impact forces of the backhoe bucket during waste stabilization mixing. The preliminary structural steel design of the bins is presented in the engineering report (Volume III).

Inspection of the bins is discussed in Sections 2.4.6 and 5.2.6. Visual inspection of the empty bins will be accomplished monthly, and sonic testing will be conducted annually. The system has been designed so that the inner tank and outer shell can be easily removed and replaced, if necessary.

2.4.8 Tank Assessments

A written assessment attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste will be provided by an independent, qualified, New Mexico registered professional engineer based on the final tank design drawings and prior to tank construction. The engineering report presented with the preliminary tank design drawings in Volume III include a discussion of wastes to be excluded from storage or treatment in steel tanks due to their excessive corrosive effects.

2.4.9 Ancillary Equipment

All ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction; according to API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4.

2.4.10 Installation Inspection and Tightness Testing

Proper handling procedures will be developed and followed to prevent damage to the system during installation. A qualified installation inspector will inspect the installed system to ensure adequate construction/installation. Any discrepancies will be resolved before the system is placed in service. The bins and ancillary equipment will be tested for water tightness, and any necessary repairs will be performed prior to the system being placed in service. Written statements by those who certify the design and supervise installation will be maintained in the operating record.

2.4.11 Repair and Certification of Tank Systems

If a release occurs from a primary tank system, the tank will be removed from service and all materials will be removed from the tank or secondary containment within 24 hours or as soon as reasonably possible. The tank system will be repaired prior to return to service. Major repairs will be certified by an independent New Mexico registered professional engineer. The certification will be submitted to the NMED within seven days after the tank system is returned to service.

2.5 LANDFILL

This section describes the design, construction, and operation of the landfill. As with the Facility units discussed previously in this section, the detailed design for the landfill is contained in Volume III of this application. The overall landfill will be constructed in Phases. As shown on drawing 4. The first phase to be considered will be phase 1A. This permit application refers only to Phase 1A. However, potential expansions of the landfill to future phases have been included in the general layout drawing for completeness. Detailed design drawings are only submitted for Phase 1A. The landfill design is presented on Drawings 6 through 27 in Volume III, and a list of these drawings is provided on Drawing 1, Sheet 2 (Volume III).

2.5.1 Design of Landfill

The landfill design specifies a double-lined landfill with a LCRS above the primary liner and a LDRS between the primary and secondary liners. The detailed design presented in Volume III specifically describes the relationship between the existing site topography and the landfill subgrade.

2.5.1.1 Nature and Quantity of Waste

As specified in the Waste Analysis Plan in Section 4.0, the Facility will accept RCRA hazardous waste and TSCA PCB waste, excluding the following waste types:

- radioactive waste;
- dioxin contaminated waste;
- medical waste;
- MSW and C&D waste;
- explosives;
- compressed gases; and,
- liquid waste containing PCBs greater than 50 parts per million.
- Solid Waste Containing PCB's Greater than 500 parts per million

The wastes which will be accepted for placement in the landfill include all wastes listed in Part A of this application (presented in Volume I). All waste to be placed in the landfill must meet LDR treatment standards. Additional details on wastes to be accepted at the Facility can be found in Section 4.0, Waste Analysis Plan.

The total landfill will have an area of approximately 100 acres and a capacity of approximately 10 million cubic yards of waste. The Phase 1A area will have an area of approximately 47 acres and will have a capacity of approximately 553,200 cubic yards of water.

2.5.1.2 Liner Systems

The liner system will be installed to cover all surrounding earth that may come in contact with waste or leachate (see Drawings 9 and 11 in Volume III). The primary system will consist of, from top to bottom, a 2-foot layer of protective soil, a geocomposite drainage layer, and a HDPE geomembrane liner. The secondary system will consist of a geocomposite drainage layer, HDPE geomembrane liner, geosynthetic clay layer (GCL), and 6 inches of prepared subgrade. Both the primary and secondary systems will extend over the floor and slope areas of the landfill.

The primary and secondary geomembrane liners will be constructed of HDPE as defined in the construction specifications presented in Volume IV. This material will have sufficient strength and thickness to prevent failure as a result of pressure gradients, physical contact with waste or leachate, climatic conditions, stress of installation, and stress of daily operations. The liner systems and geosynthetic drainage layers will rest upon a prepared subgrade capable of providing support to the geosynthetics and preventing failure due to settlement, compression, or uplifting.

The liner system will be installed in stages as the landfill expands both in the vertical direction up slope and in the horizontal direction by phase. The three horizontal phases of landfill expansion are shown in Drawings 4, 6 and 7 in Volume III. The benching technique considered for expansion of the landfill vertically up slope is shown in Drawings 8 through 11 (Volume III) for Phase IA. Geosynthetic liner component tie-ins for the vertical expansion will be made on the access ramps leading into the landfill.

Stresses to the liner system can result from consolidation settlement of the subgrade during waste filling and localized equipment loading during protective soil placement. The subgrade consists of the 6 inch thickness of prepared soil subgrade and the existing ground formations below the landfill (see Drawing 7, Volume III). Because the existing ground formations have been prestressed by overburden forces prior to landfill excavation, additional consolidation settlement during waste filling will be minimal.

Consolidation settlement of the 6 inch prepared soil subgrade layer will also be minimal because it is limited by the thickness of this layer and because this material will be compacted during installation. Localized equipment loading to the liner during protective soil placement will be controlled by specifying maximum equipment ground pressures in the construction specifications and by monitoring the placement of this material. Monitoring can be performed by individuals operating the placement equipment or by grade checkers who will observe the material placement to assure that appropriate thicknesses have been installed.

2.5.1.3 Leachate Collection and Removal System (LCRS)

The LCRS will be located above the primary liner system. Drawing 12 in Volume III provides the design details of the LCRS. A filtered LCRS layer consisting of a geocomposite drainage material will be constructed. Within the floor area of the LCRS layer will be the primary leachate collection piping, which is used to remove leachate from the landfill during the active life and post-closure care period. The piping as shown in Drawing 12 (Volume III) is nominally 8 inches in diameter.

As demonstrated in the engineering report (Volume III), the LCRS will be (1) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (2) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material, and equipment used in the landfill; and (3) designed and operated to minimize clogging during the active life and post-closure care period through selection of an appropriate geotextile for the filtration application (see Volume III, Section 3.1.3).

The LCRS is sloped so that any leachate above the primary liner will drain to one of three sumps. The sumps and liquid removal methods will be of sufficient size to collect and remove liquids from the sumps and prevent liquids from backing up into the drainage layer.

The sump will be lined with the same liner system components as elsewhere in the landfill except that the drainage layer will expand to include gravel and a compacted clay liner material beneath the primary and secondary geomembranes which will fill the sump area. Leachate that collects in the sumps will be pumped through a pipe to the surface of the landfill where it will be collected in temporary storage tanks.

The leachate storage tanks will be chemically resistant, double lined poly tanks anchored to a concrete crest pad as shown in Sheets 1 and 2 of Drawing 19 (Volume III). To prevent overfilling of the tanks, an individual tank will be installed for each landfill phase, and each tank will be equipped with high-level control switches, which will automatically shut down the leachate collection or leak detection sump pumps. In addition, an alarm will be activated that will notify personnel that the system requires maintenance. Pumps will be hard piped to the leachate storage tanks, and flow meters will be installed to monitor leachate pumping from the landfill should a catastrophic tank or pipe failure occur. All piping will be located within the concrete tank pad. The pump control panel will be located inside the tank pad with electrical wiring enclosed in waterproof conduits.

Because leachate is generated by the landfill, the leachate collection tanks will be used as 90-day storage units and managed accordingly. They are not required to be permitted.

The sump system will provide a method for measuring and recording the volume of liquid removed. Drainage materials will meet the minimum drainage requirements per the specifications. Sump design, filter fabric selection, floor pipe design, pump design, disposal system design, and action leakage rate (ALR) calculations involving removal of leachate flow from a 1-mm^2 hole/acre are discussed in the engineering report (Volume III). All pumpable liquid in the sump will be removed in a timely manner to prevent the head on the primary liner from exceeding 12 inches.

2.5.1.4 Leak Detection and Removal System (LDRS)

The design of the LDRS is similar to the design of the LCRS. The LDRS will be capable of detecting, collecting, and removing leaks of hazardous constituents through areas of the primary liner during the active life and post-closure care period. A filtered LDRS layer consisting of a geocomposite will be constructed below the primary geomembrane. Within the LDRS layer will be the LDRS piping, which will be used to detect and remove liquid from between the primary and secondary liners. The piping arrangement is shown on Drawing 18 in Volume III.

As demonstrated in the engineering report (Volume III), the LDRS will be (1) constructed with a bottom slope of one percent or more; (2) constructed of a geocomposite with a hydraulic conductivity that exceeds 1 x 10^{-2} cm/sec; (3) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (4) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material,

and equipment used at the landfill; and (5) designed and operated to minimize clogging during the active life and post-closure care period.

In addition, the sump and liquid removal methods are designed to be of sufficient size to collect and remove liquid from the sump and prevent liquid from backing up into the drainage layer (see ALR calculations in Volume VI). A method will be provided for measuring and recording the volume of liquid present in the sump and liquid removed. All pumpable liquid in the sump will be removed in a timely manner to maintain the head on the secondary liner at less than 12 inches. The pump for the LDRS sump is located at the sump's low point so that pumpable liquids can be removed to the maximum extent possible.

2.5.1.5 Vadose Zone Monitoring System

The vadose zone monitoring sump serves as a detection system for leaking in the secondary LDRS system. Located directly beneath the LDRS sump, leakage through the secondary liner system will flow into the vadose sump, allowing it to be detected and removed. The vadose pipe and gravel arrangement is similar to the LCRS and LDRS arrangements. Drawings 16 through 18 in Volume III show the vadose zone in the sump.

2.5.1.6 Run-On/Run-Off Control

The run-on/run-off system is designed to be constructed, operated and maintained to control at least the water volume resulting from a 24-hour, 25-year storm.

The run-on/run-off control system design is provided in Volumes III and IV. The purpose of the run-on/run-off control system is to ensure that the amount of liquid entering the landfill is kept to a minimum because the liquids could serve as a transport medium for contaminants placed in the landfill, and to prevent any contamination present onsite from migrating off site. Run-on/run-off will be managed according to its source. Three sources of run-on/run-off have been identified for the landfill: (1) run-on to the landfill originating off site; (2) run-off from the active landfill; and, (3) run-on/run-off from the Facility outside of the active portion of the landfill.

Run-on originating off site will be directed around or away from the proposed landfill area using unlined ditches. Based on the topography of the site, the run-on is expected to move from the east/southeast to the west/northwest. This run-on will be diverted directly off site by a stormwater diversion ditch located along the eastern site boundary. Water from outside the landfill will be prevented from entering the active portion of the landfill by the drainage ditches which surround the landfill.

Run-off in the active portion of the landfill collecting in the bottom of the landfill, and which does not infiltrate into the LCRS, will be pumped out of the landfill within 24 hours of a storm event. The stormwater pumped out of the landfill will be collected using vacuum trucks. The water will then be sampled and analyzed for hazardous constituents. Contaminated water will be treated either in the stabilization process or the evaporation pond, and treatment residuals will be disposed of in compliance with appropriate regulations.

During the initial stages of the landfill operation, run-off from the landfill side slopes above the liner system will be channeled away from the waste by the slope drainage interceptor ditch. This water will flow to a lined collection basin located at the toe of the inter phase cut slope as shown on Drawings 10 and 13 in Volume III. This water will be handled as clean water because it will not have come in contact with the landfill waste.

Run-off from the Facility, but not from the active portion of the landfill (including run-on/ run-off from the landfill perimeter drainage ditch), will be directed to the stormwater retention basin. The retention basin will be pumped after rainfall events that result in the accumulation of water in the basin.

2.5.1.7 Wind Dispersal Control Procedures

Wind dispersal control will consist of a daily soil cover obtained from excavation. Typically, the daily cover will consist of soil spread on top of the waste placement area to a depth of approximately0.5-feet.

Depending on the local wind conditions, traffic, and the number of fine particles in the soil cover, dust may be generated from the surface. Typically, this dust generation is reduced by restricting traffic to predetermined haul roads on the surface of the daily cover and applying small amounts of water spray to moisten the soil surface. The water will be applied with a water truck equipped with a pump, piping, and an array of nozzles that spray very small water droplets onto the soil cover.

The frequency of the water application depends on the climate and traffic. In areas on the daily cover surface where traffic is not present, an occasional water spray will cause a crust to form on the soil surface, inhibiting dust formation. Sufficient moisture will be applied to all soil surfaces, including roads, on an as needed basis to prevent wind erosion of the daily cover. However, the application of water will be limited so that ponding in the landfill does not occur. Because the water is a topical surface application, the majority of it will evaporate rather than seep into the waste to become leachate.

2.5.1.8 Gas Generation Management

Because the landfill will not receive MSW or C&D waste, gas generated as a result of biological decomposition of organic wastes will be minimal. Organic wastes placed in the landfill will meet LDRs, which will limit the organic gas generation potential. The waste acceptance procedures at the Facility will be designed to limit receipt of wastes with potential for significant gas generation. The waste acceptance program is described in Section 4.3 and outlines the procedures that will be used to test for reactive cyanides and sulfides, other reactive chemical groups, waste compatibility, and biodegradability of sorbents.

During the operational phase of the landfill, periodic checks will be made within the landfill to detect the presence of hazardous gases and volatile organics. Surveys of the active landfill surface area and the riser pipes with an organic vapor meter (OVM) or comparable device will be performed quarterly to detect the presence of organic compounds. PPE levels and respiratory protection levels will be modified accordingly, if necessary. This testing will be conducted in addition to the fingerprint testing conducted on incoming waste. The data from both tests will be evaluated to determine what steps are necessary to reduce the generation and/or release of these gases to levels which meet prescribed regulatory air quality standards.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This assessment will be based on review of fingerprint test data and data gathered in the landfill during operations. Based on this assessment, if it is concluded that gas generation may result in gas build-ups beneath the barrier layer of the cover or releases following closure exceeding regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the latest technology available will be implemented into the construction of the cover system.

2.5.1.9 Cover Design

The design of the final cover is described in Section 8.0, Closure and Post-Closure of Permitted Units. Additional details of the final cover design are shown in Volume III of this application.

2.5.1.10 Landfill Location Description

The proposed site is in eastern Chaves County, New Mexico.

Geographic Location

The proposed site is located in a remote, unpopulated portion of New Mexico, 36 miles from the city of Tatum. The primary land use in the surrounding area is ranching, which will not be impacted by landfill operations.

Geologic Setting

The proposed site is to be developed within impermeable, geologically stable sediments of the Dockum Group of Triassic age (see Section 3.4). The base of the proposed landfill will be designed to rest on 600-foot thickness of unsaturated mudstone of the Lower Dockum. This thick sequence acts as a geologic barrier to potential vertical migration of contaminants. Potential lateral migration through unsaturated Upper Dockum sediments will be retarded by the low permeability of the host sediments (siltstones and mudstones) and engineered barriers such as the liner systems.

2.5.2 Construction

Construction activities will consist of site preparation; excavation and preparation of landfill bottoms and subsurface sides; and construction of the liner, LCRS, and LDRS in accordance with the specifications and Construction Quality Assurance (CQA) Plan. The CQA plan is included as Appendix B of the engineering report presented in Volume IV.

2.5.2.1 Site Preparation

Existing site drainage will be modified to route any run-on away from the landfill area. Additionally, drainage of the landfill area itself will be modified to route water away from the initial fill area. Access roads and weighing units will be constructed. A fence will also be installed around the Facility. These components and installations are shown in Drawing 4 presented in Volume III.

2.5.2.2 Excavation and Preparation of Landfill Bottom and Subsurface Sides

The landfill will be constructed and excavated in sections to allow a smaller portion of the landfill surface to be exposed to precipitation at any one time. The initial working area of the landfill will be excavated to design depth. The excavated material will be stockpiled on unexcavated soil near the active area for use as cover material. The landfill bottom will be sloped toward the central axis of each phase to provide drainage of leachate to the sump. The EPA minimum required slope of 1 percent has been exceeded in all cases. The upper 6 inches of the subgrade will consist of a soil material which has been sized, moisture conditioned, compacted, and trimmed to provide a smooth stable surface for geosynthetic material placement.

2.5.2.3 Construction Quality Assurance Plan

Appendix B of the engineering report presented in Volume IV of this application contains the Construction Quality Assurance Plan. Implementation of CQA procedures will result in increased leachate collection efficiency and reduced leakage through the landfill and evaporation pond liners. Additionally, use of CQA will result in fewer costly repairs to the landfill after wastes have been received, fewer occasions of exceeding the ALR, and a decreasing need for corrective action.

The CQA Plan describes the CQA procedures for the installation of the soil and geosynthetic components for the hazardous waste landfill, evaporation pond, and other units requiring subsurface containment systems comprised of soils and geosynthetic components constructed at the Facility. These procedures apply to construction of the lining systems and final cover systems, including the LCRS and LDRS systems.

The objectives of the CQA program include the following:

- development of a clearly defined organizational structure within which the project can be planned and completed;
- assurance that the methods, techniques, and procedures used to collect, analyze, verify, and report data will produce sound, documented, and defensible results;
- assurance that equipment or instrumentation used in field or laboratory testing activities has been properly maintained and calibrated as required;
- assurance that the required documentation of quality performance is properly generated and that such documentation is adequate and complete for the activity;
- development of permanent project CQA document files identifiable and traceable to each activity;
- systematic control of items, equipment, materials, or activities not in conformity with established requirements or methods, and assurance of prompt and effective corrective action when nonconforming conditions are identified;
- regular evaluation of the adequacy of the CQA program by means of quality audits coupled with the effective action necessary to correct deficiencies and prevent recurrence;
- assurance that technical and CQA personnel are qualified and trained to perform the work activities to which they have been assigned; and,
- assurance that subcontractors and consultants used in assisting project activities have an acceptable CQA program or are participating in accordance with the Facility CQA program guidelines.

Upon completion of construction activities, the Facility will submit certification signed by the New Mexico registered professional engineer serving as the CQA certifying engineer, which states that the unit has been constructed in accordance with the design drawings, Construction Quality Assurance Plan, and Construction Specifications. Documentation supporting the certification will be

maintained in the operating record and will be furnished to the NMED upon request. Wastes will not be accepted at the constructed portion of the landfill until the NMED either approves the certification or waives the approval requirement.

2.5.3 Operation

The landfill will be operated in a safe and proper manner, in accordance with the following requirements:

2.5.3.1 Inspections and Monitoring

Section 5.0, Procedures to Prevent Hazards, contains information on inspections and monitoring.

2.5.3.2 Maintenance and Repairs

The landfill structure will be maintained through a routine preventive maintenance program which will be fully defined in the final site operations plan. Preventative maintenance will involve regular visual inspections of the landfill liner (where feasible) and review of leachate collection and analysis results. Equipment, such as pumps, generators, electrical lighting, and warning systems, will be subject to manufacturer recommended programs. Preventative maintenance information will be documented and any deviation from normal conditions will be closely tracked and corrected as necessary.

2.5.3.3 Warning Signs

Section 5.0, Procedures to Prevent Hazards, contains information about warning signs.

2.5.3.4 Record Keeping

All documentation pertaining to the results of waste analyses, waste compatibility analyses and waste handling compliance will be maintained in the Facility operating record. The Facility will be capable of determining exactly where a waste has been placed within a three-dimensional grid system. Landfill inspection records will be maintained on file for at least 3 years, in accordance with 40 CFR 264.15(d) (see Section 5.2.2).

2.5.3.5 List of Hazardous Wastes to be Placed in Landfill

The wastes to be placed in the landfill are described in Section 4.0, Waste Analysis Plan.

2.5.3.6 Specific Requirements for Ignitable/Reactive Wastes

Wastes that do not meet LDRs, as defined in Section 4.3.1.2, will not be placed in the landfill. Therefore, untreated ignitable and reactive waste (as defined in 20 NMAC 4.1) will not be placed in the landfill.

<u>Procedures That Render Wastes Nonreactive</u>

Reactive waste will be treated or mixed prior to placement in the landfill so that the resulting waste mixture no longer meets the definition of reactive waste.

Procedures for Preventing Reactions

Reactive waste will be separated from sources of reaction, including but not limited to open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat. When reactive waste is being handled, smoking and open flames will not be permitted. "No Smoking" signs written in English and Spanish will be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

Procedures that Render Wastes Nonignitable

Ignitable waste will be treated or mixed prior to placement in the landfill so that the resulting waste mixture no longer meets the definition of ignitable waste.

2.5.3.7 Procedures for Protecting Wastes

Procedures for the handling of incompatible wastes, lab packs, bulk and containerized liquids, and containers that are less than full are discussed below.

Procedures for Ensuring Safe Disposal of Incompatible Wastes

Procedures for identifying incompatible wastes are discussed in Section 4.0, Waste Analysis Plan. At a minimum, incompatible wastes will be spaced a sufficient distance apart in the landfill to prevent commingling. The landfill placement operation will be based on a set of grids along the north end of the landfill and along both the east and west sides of the landfill. Incompatible waste will be placed with a minimum of one grid in between the loads. Grids are normally spaced at approximately 50 to 100 foot intervals. Therefore, the minimum spacing would be 50 feet.

Procedures for Identifying Contents and Ensuring Proper Landfilling of Incoming Lab Packs

Lab packs may be placed in the landfill only if they meet the requirements in 40 CFR 264.316. Containers must be non-leaking and appropriate to the waste being contained. Appropriate non-biodegradable sorbents will be used. The Waste Analysis Plan presented in Section 4.0 will ensure that lab packs meet all of the applicable requirements prior to disposal. As with all other waste, lab packs must be properly characterized prior to acceptance at the Facility and meet the LDR treatment criteria prior to disposal. Lab packs will not be accepted if incompatible wastes are placed within the same lab pack or if reactive wastes have not been treated to render them non-reactive. Lab packs will meet all applicable LDR (40 CFR 268) requirements.

Special Requirements for Bulk and Containerized Liquids

Bulk and containerized wastes will not be placed in the landfill unless they meet the requirements in 40 CFR 264.314. Containers holding free liquids will not be placed in the landfill unless all free liquid has been eliminated by absorption, decanting, solidification, or other method. Very small containers, such as ampules or containers designed to hold liquids for use other than storage, may be placed in the landfill (40 CFR 264.314[d]).

Special Requirements for Containers

Containers, except those that are very small such as ampules, will be 90 percent full when placed in the landfill. Containers less than 90 percent full will be crushed, shredded, or otherwise reduced in volume to the maximum extent possible prior to placement in the landfill.

2.5.3.8 Action Leakage Rate

The ALR proposed for the landfill is 900 gallons per acre per day (gpad). This proposed ALR was selected based on a discussion in the preamble to the January 29, 1992, final rule for Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units (57 FR 3462). A discussion of the proposed ALR and supporting calculations are presented in the engineering report in Volumes III and VI.

The average daily flow rate in the LDRS sump will be calculated in accordance with the response action plan, discussed in the following section.

2.5.3.9 Response Action Plan

The elements of the response action plan for the landfill and evaporation pond include (1) reducing the head on the liner to the maximum extent possible to aid in the prevention of leaks, (2) determine the failure mechanism of any leaks, and establish procedures to minimize the potential for reoccurrence of this failure mechanism, and (3) responding immediately and appropriately to a leak exceeding the ALR. Each of these elements is described below. The response action plan will apply to both the landfill and the evaporation pond. Activities that apply to the landfill only are specified.

Reducing the Head on the Landfill Liner

The head on the liner will be reduced by:

- monitoring the leachate collection system sumps weekly and after all significant precipitation events; and,
- removing pumpable liquids from the sump when monitoring indicates the presence of liquid. A reasonable effort will be made to remove as much liquid as possible. As previously described, it is standard landfill design practice to locate a low point or sump box in the base of the landfill sump. The pump for the sump is located at this low point, and it is from here that pumpable liquids are removed to the maximum extent possible.
- Vacuum trucks to remove as much of this water as possible before it can seep into the waste.
- Utilizing if during a heavy rain event, water ponds on the surface of the daily cover.

Leak Detected Below the Action Leakage Rate

Flow rates less than the ALR are expected under normal operation conditions. However, the following actions will be taken in response to a leak below the ALR:

- determine whether the leak can be attributed to some operational disturbance such as an equipment or power failure;
- verify that the sump pump is working as designed;
- increase the pump rate on the leachate collection system pump;
- for the landfill only: remove all standing water, if any, from the surface of the landfill;
- assess operations to determine if waste receipt should be temporarily curtailed or waste should be removed for inspection, repair, or controls;
- determine if the flow rate varies with precipitation;
- for the landfill only: repair any damage to the exposed portion of the liner in a manner which conforms to original design specifications and by qualified technicians in accordance with the CQA Plan (see Volume IV);
- document any damage and repairs in the Facility operating record; and,
- investigate alternative sources of liquids.

Leak Detected Above Action Leakage Rate

If a leak is detected above the ALR, the following actions will be implemented in response:

- notify NMED within seven days that the ALR has been exceeded;
- determine whether the leak can be attributed to some operational disturbance such as an equipment or power failure;
- verify that the sump pump is working as designed;
- increase the pump rate on the leachate collection system pump;
- for the landfill only: remove all standing water, if any, from the surface of the landfill;
- assess operations to determine if waste receipt should be temporary curtailed or waste should be removed for liner inspection, repair or controls;
- determine if the flow rate varies with precipitation;
- for the landfill only: repair any damage to the exposed portion of the liner;
- document any damage and repairs in the Facility operating record;
- for the landfill only: verify that the waste surface is sloping away from the landfill side slopes;

- for the landfill only: if necessary, regrade waste or place soil to achieve a minimum 1 % slope away from the landfill side;

- investigate alternative sources of liquids;

- have a third-party assessment conducted by an independent New Mexico registered professional engineer;

- review the analysis of the leachate collected from the leachate collection system, attempting to match fingerprint, generator analyses and waste placement records to help determine the source of the leaks;

- for the landfill only: inspect all exposed liner surfaces for damage. This will be accomplished by walking these areas and observing the liner surface for evidence of damage and water inflow. Additionally, the protective soil cover on the side slopes will also be observed for water inflow, sloughing, or excessive erosion which might indicate a liner damage location;

- as required per 40 CFR 264.304(b)(2), submit a written assessment to NMED within 14 days of the determination as to amount and source of liquids; information on possible size, location, and cause of the leak; an assessment of the seriousness of any leakage in terms of potential for releases to the environment; and any immediate and short-term actions to be taken;

- submit a report to NMED within 30 days of exceeding the ALR describing how effective the response actions have been in reducing the leakage rate below the ALR and preventing migration of hazardous constituents out of the landfill; and,

- submit monthly reports to the NMED as long as the ALR is exceeded.

2.5.3.10 Closure

A description of landfill closure is provided in Section 8.0, Closure and Post-Closure of Permitted Units.

2.6 TREATMENT IN EVAPORATION POND

Only waste that meets LDR treatment standards will be placed in the evaporation pond. Waste will be received from off site generators and from the leachate collection system associated with the landfill or other site units (i.e. waste storage areas). Evaporation will be the only treatment occurring in the evaporation pond.

2.6.1 Design of Evaporation Pond

The Facility is proposing design and operating practices for the evaporation pond in accordance with 40 CFR 264.221(c). The evaporation pond design is provided on Drawings 28 through 32 in Volume III and will have an approximate operating capacity of 5.2 million gallons over an approximate area of 78,600 square feet.

The evaporation pond has been designed as a double-lined unit with a LDRS between the primary and secondary liners. The unit is designed and will be constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error.

2.6.1.1 Liner System

The liner system, shown in Drawings 29 and 32 of Volume III, will include a primary (top) geomembrane liner above a geonet layer and a secondary (bottom) geomembrane liner, supported by 3 feet of compacted clay liner material with a hydraulic conductivity of no more than 1 x 10^{-7} cm/sec. Soil liner leachate compatibility tests (EPA 9090) will be conducted prior to construction. In addition, a rest fill will be constructed, as per the procedures outlined in the CQA Plan. Soil liner compatibility is normally not a problem unless the leachate contains high concentrations of organics (EKLUND, 1985; Peterson and GEE, 1985; Mitchell and Madsen, 1987; Finno and Schubert, 1986; LO ET AL., 1994; Day, 1994; Shacke Ford, 1994). The WAP does not allow the site to accept high concentrations of organic, therefore the soil and leachate compatibility is not expected to be a problem.

The compacted clay surface will provide a stable foundation for the liner and resistance to pressure gradients above and below the liner. The evaporation pond liner system will be located on top of the excavated subgrade which will be located approximately 15 feet below the existing ground surface. At this depth the basal portions of the evaporation pond will lie in either the Quaternary sand or Upper Dockum units. Settlement evaluations presented in the engineering report (see Appendix E in Volume V) demonstrate that either of these units will adequately serve as a foundation for the evaporation pond. Near surface evaporation pond slope areas will be located on top of Quaternary soil materials. The engineering report also presents settlement evaluations for the evaporation pond subgrade within the Quaternary soil materials and stability evaluation of any load bearing embankments.

Design and operating practices, together with the geologic setting of the Facility, will prevent the migration of any hazardous constituent to adjacent subsurface soil, surface water, or groundwater. The top liner is designed to minimize the migration of hazardous constituents through the liner system during the active life and closure period of the evaporation pond. A 60-mil HDPE geomembrane material will be used for the primary liner component. HDPE liners have been shown to be chemically resistant to landfill leachates based on operational performance and on EPA 9090 compatibility tests conducted on actual landfill leachates and synthetically generated leachates. Calculations that define the stresses on the evaporation pond liner system due to thermal expansion and contraction are also provided in the engineering report (Appendix E, Volume VI).

Drawing 32 in Volume III shows that the bottom liner will be a two-component system, including a geomembrane and a compacted clay liner. The lower component, the 3 feet of compacted clay, will minimize the migration of hazardous constituents if a breach through the upper components occurs. Material for the evaporation pond compacted clay liner will be siltstone or mudstone obtained during landfill excavation within the Upper Dockum. During landfill excavation, appropriate siltstone and mudstone materials will be stockpiled and if necessary, conditioned such that compacted soil liner specifications are met. The test results presented in Appendices D and E (Volumes V and VI) indicate that the unprocessed material has an intact permeability close to 1 x 10^{-7} cm/sec. Therefore, with processing, the material can be placed and compacted to meet the permeability specification of 1 x 10^{-7} cm/sec or less. Additional laboratory tests will be conducted on processed siltstone and mudstone samples during the test fill program to confirm their permeability characteristics.

The liners will be constructed of materials that will be chemically resistant to the waste managed in the evaporation pond and any liquid that has accumulated in the leak detection system. The liner system materials will have appropriate chemical properties and sufficient strength and thickness to prevent failure as a result of pressure gradients, physical contact with the waste or leaked liquid to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation.

Information pertaining to the chemical properties and physical strength of the liner system materials was supplied by the manufacturer and is included in the construction specifications presented in Volume IV.

The geonet drainage system is capable of effectively minimizing the head developing on the secondary evaporation pond liner. Geonet clogging, which reduces the overall drainage capacity, has been incorporated into the design of the drainage system as a factor of safety. This safety factor has been applied in the ALR calculation presented in the engineering report (Volumes III and VI). This approach is suggested in EPA guidance for determining the ALR in the preamble to the January 29, 1992, final rule for Liners and Leak Detection System for Hazardous Waste Land Disposal Units (57 FR 3462).

Stresses on geosynthetics during installation are likely to be negligible. The evaporation pond slope lengths will be less than 40 feet, and the slope ratio is relatively shallow, causing little tensile stress to be exerted in the liner. Also, there will be no horizontal seams in the geosynthetic liner material. Traditional anchoring methods will be used. 60-mil HDPE material will be used, which, when properly installed and welded, is of sufficient tensile strength to withstand the stresses of installation.

2.6.1.2 Leak Detection and Removal System/Vadose Monitoring System

The LDRS consists of a geonet layer of cross-linked ribbed HDPE, a sump, and associated detection and liquid removal pipes. A pump located in the LDRS pipe will be used to remove leachate accumulating in the leachate collection systems. When leachate accumulates, it will be pumped to a tanker truck and either returned to the evaporation pond, stabilized in the onsite treatment unit, or stored in one of the liquid waste storage tanks.

The LDRS unit will have the following characteristics:

- be constructed with a bottom slope of 1% or more;
- be constructed of synthetic or geonet drainage materials with a minimum transmissivity of 5×10^{-3} m^2/sec;
- be constructed of materials that are chemically resistant to the waste managed in the evaporation pond and any leachate generated in the landfill;
- of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, and equipment used at the evaporation pond;
- designed and operated to minimize clogging during the active life and closure period of the evaporation pond; and,
- constructed with sump and liquid removal methods.

LDRS details are presented Drawing 32 in Volume III. The LDRS will be sloped so that any leachate below the primary liner will drain to the centrally located sump. The sump pit design is also shown in the drawing.

The collection system has been designed to be of sufficient size to collect and remove liquids from the sump and prevent liquid from backing up into the drainage layer. A sump pump and associated piping will be installed in the lower portion of the sump. The sump system will be covered with gravel to bring the area to the level of the evaporation pond floor. The gravel will serve as an expanded drainage layer providing space for the piping.

The sump system will be provided with a method for measuring and recording the volume of liquids present and the volume of liquid removed. All pumpable liquids in the sump will be removed in a timely manner to maintain the head on the bottom liner below 12 inches.

A pump operating level will be established to ensure that backup into the drainage layer does not occur, and the head in the sump is maintained at less than 12 inches.

Methods and equipment to be used to measure and record liquid handling volumes during evaporation pond operation will include survey monuments and elevation rods, flow meters, and fluid level transducers. Elevation rods will be placed in the evaporation pond following pond construction. The rods will be fixed to a ballasted base, which will rest on the primary geomembrane liner. The rods will have graduated markings from which pond liquid elevations and critical freeboard levels can be observed and pond volumes can be determined. Rod elevations will be checked periodically by survey. Flow meters will be used to record volumes of liquid discharged into the pond and removed from the LDRS drainage system sump. The transducers located in the LDRS sump will provide a reading for the liquid levels in the sump at any time during operation. The evaporation pond vadose monitoring sump serves as a detection system for leakage of the LDRS sump. Leakage through the secondary liner system will flow into the vadose sump. This will allow the leakage to be detected and moved. The vadose pipe and gravel arrangement is similar to the LDRS arrangement.

2.6.1.3 Separator Berm System

The evaporation pond design incorporates a separator berm between the two pond sections, Pond 1A and Pond 1B (see Drawing 28 in Volume III). This pond design provides two independent treatment areas. Thus, in the event that a leak should occur in one section of the pond, liquids could be pumped into the other section until repairs are completed. Two feet of freeboard will be maintained in the evaporation pond at all times. The evaporation pond design and ongoing proper maintenance of the unit will ensure sufficient structural integrity to prevent massive failure. The evaporation pond will be of sufficient volume and freeboard capacity to contain the 100-year 24-hour storm event. This design capacity, coupled with the management of surface water and routine inspections, will help prevent overtopping (see Section 2.6.4.3).

2.6.1.4 Run-On/Run-Off Control

The run-on/run-off system is designed to be constructed, operated and maintained to control at least the water volume resulting from a 24-hour, 25-year storm. Run-on originating off-site will be directed around the proposed evaporation pond into the site wide surface diversion channels shown in Drawing 25, using unlined ditches. Run-off in the pond will be pumped out within 24-hours of a storm event with vaccum trucks. Contaminated water will be treated in the stabilization bins and treatment residuals will be disposed of in compliance with appropriate regulations.

2.6.1.5 Evaporation Pond Location Description

As indicated in Drawing 4 presented in Volume III, the evaporation pond, will be located in the northwest corner of the active portion of the Facility.

2.6.2 Construction

Construction activities will consist of site preparation; excavation, and preparation of the bottom and sides of the evaporation pond; construction of dikes; installation of the liners, LDRS and vadose system; and CQA.

2.6.2.1 Site Preparation

Existing site drainage will be modified to route any run-on away from the evaporation pond area. Access roads and a truck discharge station will be constructed. These engineered controls and components are shown on Drawings 4, 5, and 31 in Volume III.

2.6.2.2 Excavation and Preparation of Evaporation Pond Bottom and Subsurface Sides

The evaporation pond will be constructed and excavated to a design depth of approximately 15 feet. The excavated material will be stockpiled for future use. The evaporation pond bottom will be constructed with a 2% (approximate) slope toward the central sump location.

2.6.2.3 Structural Fill Areas

Areas of the evaporation pond requiring structural fill will be constructed according to the specifications presented in Specifications, Section 02110 Site Preparation and Earthwork, Volume IV.

2.6.2.4 Liner, LDRS, and Vadose System Installation

Three feet of clay will be installed directly on the excavated subgrade, forming the lower portion of the secondary liner. The clay will have a permeability of 1 x 10^{-7} cm/sec or less. A geomembrane liner will be placed over the entire clay liner, including the sump area and the separator berm. A geonet layer of cross-linked ribs, which will serve as the LDRS, will be installed next. The sump and associated piping will then be installed, and gravel will be placed in the depression to bring the surface level of the sump area to that of the evaporation pond floor. A filter geotextile will surround the gravel in the sump area to protect the geomembrane liner and to reduce the sediment clogging of the geonet.

The liners will be installed to cover all surrounding soils likely to be in contact with the waste or leachate.

The sump pump and pressure transducers (or other) liquid detection device will be installed next to the LDRS and vadose pipes during construction. These devices will be attached to a control panel. Any time liquids are detected at a specified level, the sump pump will be activated and the liquid will be removed. The pump activation level is related to the sump design and pump type selected. The wastewater will be sampled, analyzed and handled in accordance with the Facility requirements.

2.6.2.5 Construction Quality Assurance Plan

Section 2.5.2.3 contains information detailing the CQA Plan. In addition, the CQA plan is contained in Volume IV of this application.

2.6.3 Nature and Quantity of Waste

Hazardous wastes which may be placed in the evaporation pond include all wastes listed in Part A of the application (Volume I), provided that LDR treatment standards are met prior to placement of the wastes. Potential contaminants in the wastewater will include those found in wastes accepted at the landfill and in other wastes as specified in the Waste Analysis Plan (see Section 4.0). In general, these wastes include RCRA hazardous wastes and TSCA PCB wastes (less than 50 ppm), excluding the waste types listed in Section 2.5.1.1.

2.6.4 Operation of the Evaporation Pond

Operation of the evaporation pond will involve three main activities: (1) waste acceptance and receiving; (2) placement of wastewater into the evaporation pond; and (3) inspection, monitoring, and repair of the unit. Each of these activities is described below.

2.6.4.1 Waste Acceptance and Receiving

Off site generators must provide a full characterization of their waste to the Facility prior to receiving approval to ship the waste to the Facility. After approval has been received, shipment of waste to the Facility will proceed as described in Section 2.1.2. Tanker trucks will then transport their waste to the tanker discharge pad at the evaporation pond.

Once the waste is received onsite, it will be sampled and fingerprint tested to verify that it is the same waste that was previously characterized. Landfill leachate waste must also be sampled and analyzed prior to being placed in the evaporation pond. Waste analysis and fingerprint testing are more fully described in Section 4.0, Waste Analysis Plan. This waste analysis and characterization data will be used to ensure that the waste acceptance criteria specified in the RCRA permit are met and to identify any safety precautions that must be taken to properly manage the waste.

Following a determination that the leachate from the landfill meets the acceptance criteria, the waste will be pumped from the leachate collection tank to a tanker truck. Approved leachate trucks and off site waste trucks will transport the waste to the tanker discharge pad at the evaporation pond.

Landfill leachate collection waste and off site waste that is determined not to meet LDR treatment standards will be treated in the stabilization unit or shipped to other appropriate treatment facilities.

2.6.4.2 Placement of Wastewater into the Evaporation Pond

Tanker trucks will be unloaded directly into the evaporation pond through a series of hoses, valves and pipes. The tanker discharge pad will be constructed of concrete and will be sloped toward the evaporation pond to drain any spills or leaks into the pond. Details of the tanker discharge pad are provided in Sheets 1 and 2 of Drawing 31 (Volume III).

2.6.4.3 Inspections, Monitoring, and Repairs

The evaporation pond structure and dikes will be maintained through a routine inspection program. The volume of liquids in the ponds will be dependent on the waste market. Net evaporation (total evaporation minus rainfall) for the site is in the range of 80 inches per year. The freeboard level will be routinely inspected to ensure that approved or acceptable freeboard levels are maintained and that overtopping does not occur. Pond overtopping will be controlled operationally by maintaining evaporation pond fluid levels below the freeboard elevation and by ensuring that any storm water run-on from surrounding areas is diverted around the evaporation pond. Sludge will be removed by vacuum trucks and treated in the stabilization bins. Sludge will be removed on a routine basis to maintain the operational level in the pond. The vacuum trucks will park on a concrete pad during sludge removal. Sludge will be removed by means of pumps and flexible hoses. Vacuum trucks will be washed thoroughly in the truck wash unit after sludge removal and transporation to the stabilization bins. Grading of the surrounding surface area has been included as a part of the surface water management. Inspections will occur on a weekly basis and after storms to detect evidence of deterioration, malfunction, improper operation of overtopping control systems or sudden drops in the liquid level. The liner exposed above the operating pond level will be inspected to make sure that the liner is not damaged.

The engineering report includes a discussion of the evaporation pond LDRS ALR (see Section 4.0 in Volume III). LDRS drainage layer flow capacity, LDRS sump capacity, fluid head calculations, and flow rate conversions are included, as well as response actions for ALR exceedance.

The two evaporation pond sections allow for one section of the pond to be removed from service if the liquid level suddenly drops for an unknown reason. If liquid losses exceed daily evaporation losses and no other reasonable explanation is found, then that section of the evaporation pond will be shut down and authorities at the NMED will be notified immediately. If a section of the evaporation pond must be removed from service, flow of waste to that section will be stopped, leakage will be stopped by draining the pond to below the level of the leak, surface leakage will be contained, and all necessary steps will be taken to repair the liner system and prevent a future failure. Responses to such situations, including NMED notification, are described in Section 6.0, Contingency Plan.

Additional inspection and monitoring information is provided in Section 5.0, Procedures to Prevent Hazards.

2.6.4.4 Specific Requirements for Ignitable, Reactive, and/or Incompatible Wastes

Wastes that are ignitable, reactive, and/or incompatible will not be placed in the evaporation pond at the same time. Waste acceptance procedures, described in Section 4.0, Waste Analysis Plan, will ensure that such wastes are not inadvertently placed together in the evaporation pond.

2.6.4.5 Warning Signs

Section 5.0, Procedures to Prevent Hazards, contains information on warning signs.

2.6.4.6 Record Keeping

All documentation pertaining to the results of waste analyses or waste compatibility analyses will be maintained in the Facility operating record. Inspection records will be maintained in the inspection log for the evaporation pond.

2.6.4.7 Action Leakage Rate

The proposed ALR for the evaporation pond is 1,000 gpad. This ALR was selected based on a discussion in the preamble to the final rule for Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units (57 FR 3462), in which the EPA indicates that an ALR below 1,000 gpad should not be required.

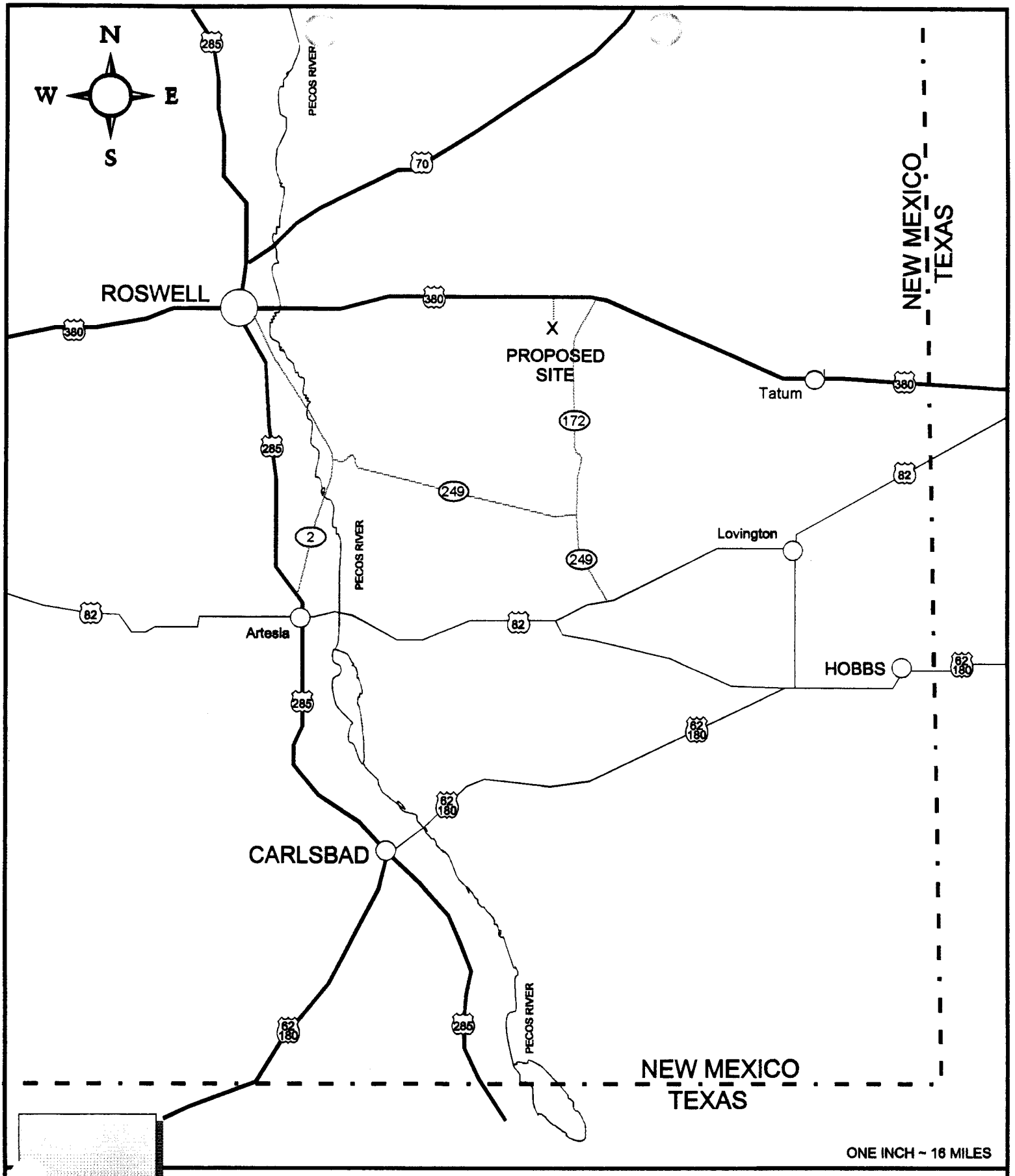
The average daily flow rate to the sump system will be calculated and recorded weekly during the active life and closure period of the evaporation pond to ensure that the ALR is not exceeded.

2.6.4.8 Response Action Plan

The response action plan is described in Section 2.5.3.9.

2.6.4.9 Closure

A description of how hazardous waste residues will be removed from the evaporation pond at closure is provided in Section 8.0, Closure and Post-Closure of Permitted Units.



SITE LOCATION MAP

TRIASSIC PARK WASTE DISPOSAL FACILITY

Figure 2-1

8.0 CLOSURE AND POST-CLOSURE OF PERMITTED UNITS

This closure plan describes specific activities required for closure of the drum handling unit, roll-off storage area, stabilization unit and associated liquid waste receiving and storage unit, evaporation pond, and landfill, in compliance with RCRA closure requirements. It is currently planned that all of these units will be cleaned closed with the exception of the landfill. The closure activities are designed to minimize the need for further maintenance and any potential impacts to human health and the environment. Closure activities are described in Section 8.1. A post-closure care plan for the landfill is included in Section 8.2. Section 8.3 presents the closure performance standard; and Section 8.4 discusses the closure schedule. Closure certification and modifications are discussed in Sections 8.5 and 8.6, respectively. Closure and post-closure cost estimates are discussed in Section 8.7 and compliance with financial assurance requirements is discussed in Section 8.8.

8.1 CLOSURE ACTIVITIES

At the end of the active life of the Facility, all units and structures of the Facility will be closed and dismantled. Any solid hazardous waste and debris will be placed in the landfill, and non-hazardous waste will be sent off site for reuse, recycle, or disposal. Liquids generated during closure (decontamination solutions and evaporation pond liquid) will be treated onsite unless it is determined that shipment offsite for treatment is more cost effective. The landfill will be capped with a final cover, and post-closure care will be initiated for the landfill. These closure activities are described in detail in the following sections. The unit-specific closure descriptions are presented in the order in which the units are anticipated to be closed.

An off site laboratory will be used for analysis of hazardous waste and soil samples at closure. The off site laboratory will be an EPA approved laboratory with an internal QA/QC program and specific procedures for each analytical method.

Prior to the commencement of closure activities, GMI will notify the secretary of NMED at least 60 days prior to the date GMI expects to begin closure of the Facilities. The schedule for closure is described in more detail in Section 8.4 and shown in Figure 8-1, Closure Schedule.

8.1.1 Drum Handling Unit

The following steps will be necessary to complete closure of the drum handling unit:

- removal of remaining waste and other material in the storage area;
- decontamination of equipment in the area;
- sampling of any areas or facilities suspected, based on visual observations, of being contaminated;
- dismantling of the building structure;
- dismantling of the concrete floor and secondary containment; and,
- sampling of soil beneath the floor to determine if contamination is present.

8.1.1.1 Removal of Inventory

Closure of the drum handling unit will commence with removal of any inventory or other materials stored in the area according to standard operating procedures. Remaining inventory will be removed within 90 days after receipt of the final volume of hazardous wastes at the unit. For the purposes of this plan, GMI will arrange for all waste remaining in inventory to either be disposed of directly in the landfill, treated at the onsite treatment unit prior to disposal in the landfill, or returned to the generator if either of the previous two options are not available. If required, the hazardous materials could be returned to the generator utilizing the same method of transportation that was used to deliver the material to the site (e.g., end dump trucks).

Closure cost estimates and waste volumes for disposal are based on the worst-case scenario of all wastes requiring stabilization at the onsite treatment unit prior to landfilling. In the case of the drum handling unit, it is assumed that all 1,120 drums contain sludge that must be stabilized. For these calculations, the maximum inventory of the drum handling unit at the time of closure is assumed to be the maximum permitted capacity of the unit.

8.1.1.2 Decontamination of Equipment and Dismantling of Building Structure

Equipment in the area, such as drum-moving equipment, that may have contacted hazardous waste will either be decontaminated or disposed of as hazardous waste. Large equipment, such as the fork trucks, will be decontaminated. Disposal as waste will be the preferred option only for items, such as wood pallets, that are difficult to decontaminate.

The building structure is not anticipated to be contaminated with hazardous waste; however, it will be cleaned and rinsed prior to, or during, dismantling. The dismantled building structure will either be reused elsewhere or recycled as scrap metal.

A high-pressure detergent wash and water rinse will be used to clean off all visible residue. Cleaning will continue until sampling and analysis of the wash water indicates that contaminants have been removed. The use of wash water will be limited to minimize the amount of waste generated. All decontamination solutions will be collected in containers or portable tanks. The decontamination solutions will either be treated onsite or trucked to an approved off site facility for treatment. The expected volume of decontamination solutions that will be generated during closure of the drum handling unit is included in the liquid waste amounts shown in Table 8-1.

Clean closure of the building will be ensured by the development and implementation of a sampling and analysis plan (SAP). The plan will be provided to the New Mexico Environment Department for approval 90 days prior to implementation. At a minimum, it will specify the following aspects of the sampling and analysis activities:

1.0 Sampling Program
- *1.1 Sampling Locations*
- *1.2 Sample Matrix*
- *1.3 Sample Containers, Type and Size*
- *1.4 Sampling Tools*
- *1.5 Sample Management*

2.0 Analytical Methods
- *2.1 Analytes for Analysis*
- *2.2 Analysis Procedures (Specified SW-846 Methods)*

3.0 Quality Assurance
- *3.1 Organization*
- *3.2 Sample Management*
- *3.3 Analytical System*
  - *3.3.1 Instrument Maintenance*
  - *3.3.2 Instrument Calibration*
  - *3.3.3 Personnel Training*
  - *3.3.4 Reagents and Standards*
  - *3.3.5 Corrective Actions*
- *3.4 Data Quality Objectives*
- *3.5 Performance and System Audits*

4.0 Data Management
- *4.1 Data Collection*
- *4.2 Data Reduction*
- *4.3 Data Reporting*

The sampling and analysis plan will specify the use of equipment, methods, and techniques current at the time the plan is prepared. Applicable provisions of the then-current version of SW-846 (or other applicable standard reference then in effect) will be specified. Applicable reporting requirements will also be specified, as appropriate.

8.1.1.3 Dismantling of Concrete Floor and Secondary Containment

Secondary containment for the drum handling unit will be provided by a membrane lined trench and collection sump system. Drums will be stored on a coated concrete floor that drains to the trench and sump system. Because the concrete will be coated, decontamination at closure is proposed so that the concrete will be broken up and disposed of as non-hazardous debris. The liner and collection sump system will be removed at closure but will not be decontaminated. Since this material will be considered a hazardous waste, it will be disposed of in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.

8.1.1.4 Soil Sampling

After removal of the building, any contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Sampling will be performed in the vicinity of the loading dock and in open areas. Individual samples will be collected at a frequency equivalent to one per every 400 square feet. Ten such individual samples will be combined to create a single composite sample for analysis. This will result in a testing frequency of one composite sample per 4,000 square feet.

Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminate of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste acceptance criteria for the landfill it will be landfilled at GMI. If the GMI landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.

TABLE 8-1
CLOSURE COST ESTIMATES AND CLOSURE - GENERATED WASTE VOLUMES

Closure Activity	Inventory	Residual For Disposal In Landfill (tons)	Total Cost
Disposal of Sludges			
1120 drums in Drum handling unit			
Sludge removed from Evaporation Pond			
4 Mixing Bins			
Disposal of Liquids			
4 tanks @ 9,000 gal			
Liquid from Facility closure decontamination @ 23,000 gallons			
Disposal of Solids			
Drum handling unit Pad and Subfloor			
Evaporation Pond Subgrade			
Roll-off storage area Subgrade			
Total Waste Disposal Cost			
Facility Removal			
Remove Drum handling unit			
Remove Stabilization unit			
Total Removal Costs			
Area Backfill			
Evaporation Pond			
Drum handling unit			
Roll-off storage area			
Total Backfill Costs			
Soil Sampling and Analysis			
23 Samples/$1100 per samples			
Total Sampling Cost			
Certification of Closure			
Inspections			
Reports			
Total Certification Costs			
Total Facility Closure Costs (Does Not Include Landfill)			
Landfill Closure			
Leachate Collection and Treatment during Closure			
Vadose Zone Monitoring			
Sampling and Analysis			
Final Plat Survey			
Subtotal Landfill Closure Costs			
Final Cover			
Certification of Final Closure for Landfill			
Total Landfill Closure Cost			
TOTAL FACILITY CLOSURE COST			

In addition, seven samples will be collected from specific locations that correspond to the floor drain sumps (see Drawings 37, 38 and 39 in Volume III). An additional sample will be collected in the dock area. Sample results will be compared against the closure performance standard presented in Section 8.3.

Any contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminate of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste acceptance criteria for the landfill it will be landfilled at GMI. If the GMI landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.

8.1.2 Evaporation Pond

The primary steps required to complete closure of the evaporation pond are the following:

- removal of remaining liquid waste;
- removal and solidification of sludge;
- removal and disposal of liner and leachate collection system;
- sampling of soil beneath the unit to determine if contamination is present; and
- filling and revegetating the area.

8.1.2.1 Removal of Liquid Waste

The liquid in the evaporation pond will be allowed to evaporate naturally. At the beginning of closure of the evaporation pond, no further waste will be accepted into the pond. The water balance for the site indicates that there is a net loss of approximately 80 inches of water per year (90 inches of evaporation minus 10 inches of precipitation). The liquid in the evaporation pond has an approximate depth of 9 feet, and it is assumed that at closure there will be 2 feet of sludge in the bottom of the pond, leaving 7 feet of liquid (84 inches). Therefore, approximately 1 year is projected to be adequate time to evaporate all the liquid in the pond, assuming it is full to capacity at the time closure is initiated.

8.1.2.2 Removal and Solidification of Sludge

Following evaporation of the pond liquid, the sludge will be removed from the bottom with trash pumps or hand excavation equipment. Removal operations will continue until visual examination shows that all sludge has been removed. The removed sludge will be solidified in the treatment unit. The stabilized waste will be placed in roll-off containers and cured in accordance with the provisions of the WAP prior to disposal in the landfill. The expected volume of sludge that will be removed and disposed in the landfill is shown in Table 8-1. This information is based on an estimated sludge depth of 2 feet at the sump.

8.1.2.3 Removal and Disposal of Liner and Leachate Collection System

The pond liner and leachate collection system will be dismantled and removed as hazardous debris. Prior to removal, the liner will be washed to remove the visible contaminants. The method of treatment is consistent with debris treatment technologies as defined in 40 CFR 268.7(d). Upon certification of compliance with the LDR requirements, as required by 20 NMAC 4.1.800 incorporating 40 CFR 268.7(d), the waste will be disposed in the landfill. The

expected volume of solid hazardous waste and debris that will be generated during closure is provided in Table 8-1.

8.1.2.4 Soil Sampling

After removal of all waste, the evaporation pond liners, and the leachate collection system, soil samples will be collected and analyzed for constituents that may have been present in the stored wastes to determine if any contamination occurred from releases. Individual samples will be collected at a frequency equivalent to one per 400 square feet. Ten such individual samples will be combined to create a single composite sample for analysis. This will result in a testing frequency of one composite sample per 4,000 square feet. In addition, a sample will be obtained from the leachate collection sump and the tanker pad fill line. Sample results will be compared against the closure performance standard presented in Section 8.3.

Contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminate of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste acceptance criteria for the landfill it will be landfilled at GMI. If the GMI landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.

8.1.2.4 Filling and Revegetating

The final step in closing the Evaporation Pond will be filling the depression with soil to the approximate original grade and revegetating the disturbed areas. A seed mixture appropriate for the area will be applied and the site will be watered as necessary to promote germination.

8.1.3 Liquid Waste Receiving and Storage Unit

The following steps will occur during closure of the liquid waste receiving and storage unit associated with the stabilization unit:

- removal and treatment of tank contents;
- dismantling and removal of tanks, ancillary equipment, and concrete containment area; and,
- sampling of soil beneath the unit to determine if contamination is present.

8.1.3.1 Removal of Inventory

Closure of the liquid waste receiving and storage unit will commence with removal of any inventory in the tanks according to standard operating procedures. Remaining inventory will be removed within 90 days after receipt of the final volume of hazardous wastes in the tanks. All wastes remaining in inventory can be treated at the onsite stabilization unit prior to disposal in the landfill. Closure cost estimates and waste volumes for disposal were based on the worst-case scenario of all four tanks being full to capacity at the start of closure. The maximum possible inventory for each tank at the time closure is initiated is equal to the permitted capacity of the tanks.

8.1.3.2 Dismantling of Tanks, Equipment, and Concrete Secondary Containment Area

The tanks and ancillary equipment will be dismantled and disposed in the landfill after certification of compliance with LDR requirements, as required by 20 NMAC 4.1.800 incorporating 40 CFR 267(d). After removal of the tanks, the concrete containment will be washed and broken up for disposal as hazardous debris. Upon certification of compliance with the LDR requirements, as required by 40 CFR 268.7(d), any hazardous materials will be disposed in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.

8.1.3.3 Soil Sampling

After removal of the tanks and containment, soil samples will be collected and analyzed for constituents that may have been present in the stored wastes to determine if any contamination occurred from releases. Due to the limited footprint area of the liquid waste storage area, sampling will not be based on a per area basis. Rather, it is proposed that one sample be obtained beneath the sumps in the concrete base for the liquid waste storage units. The four samples, one for each tank, will not be composited but will be analysed individually. Sample results will be compared against the closure performance standard presented in Section 8.3.

8.1.4 Stabilization Unit

The primary steps required to complete closure of the stabilization unit are the following:

- removal of remaining waste inventory;
- decontamination and removal of equipment and building structure;
- dismantling of the tanks and secondary containment area; and,
- sampling of soil beneath the floor to determine if contamination is present.

8.1.4.1 Removal of Inventory

Closure of the stabilization unit will commence with removal of any inventory remaining in the tanks according to standard operating procedures. Remaining inventory will be stabilized and removed within 90 days after receipt of the final volume of hazardous wastes at the unit. The stabilized waste will be placed in roll-off containers and cured in accordance with the provisions of the WAP prior to disposal in the landfill. The maximum possible inventory for the tanks, at the time closure is initiated, is equal to the working capacity of the unit (approximately one-third full) because adequate space must remain for addition of reagents and for mixing.

8.1.4.2 Decontamination of Equipment and Dismantling of Building Structure

Equipment in the area, such as waste mixing equipment or other ancillary equipment that may have contacted hazardous waste, will either be decontaminated and certified as clean or disposed of as hazardous debris. The building structure (roof and walls) is not expected to be contaminated with hazardous waste; however, this will be cleaned and rinsed prior to dismantling. The building structure will be dismantled after cleaning and will either be reused or recycled as scrap metal. Building components and associated reagent silos that did not contact hazardous waste will be dismantled and removed from the site.

A high-pressure detergent wash and water rinse will be used to clean off all visible residue. The use of wash water will be limited to minimize the amount of waste generated. All decontamination solutions will be collected in containers or portable tanks. The decontamination solutions will either be treated onsite or trucked to an approved off site facility for treatment. The expected volume of decontamination solutions that may be generated during closure of the stabilization unit is included in the liquid waste amounts shown in Table 8-1.

8.1.4.3 Dismantling of Tanks, Ancillary Equipment, Piping and Secondary Containment Area

The tanks, ancillary equipment, piping concrete, and secondary containment system will be dismantled and removed as hazardous debris. Upon certification of compliance with the LDR requirements, the waste will be disposed in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.

8.1.4.4 Soil Sampling

After removal of the stabilization unit structure, tanks, piping, the bag house, and the containment system, soil samples will be collected and analyzed for hazardous constituents that may have been present in the stored wastes to determine if any contamination occurred from releases. Individual samples will be collected at a frequency equivalent to one per 400 square feet. Ten such individual samples will be combined to create a single composite sample for analysis. This will result in a testing frequency of one composite sample per 4,000 square feet. Sample results will be compared against the closure performance standard presented in Section 8.3.

8.1.5 Roll-off Storage Area

Closure of the roll-off storage area will be identical to closure of the drum handling unit, except that the roll-off storage area does not have a structure associated with it. The major steps of inventory removal, equipment decontamination, primary and secondary containment removal, and soil sampling will be identical to those described in Section 8.1. Details of the sampling and analysis program will be specified in a sampling and analysis plan providing information similar to that to be developed for the drum handling unit (see Section 8.1.1.2). Sample results will be compared against the closure performance standard presented in Section 8.3.

Estimated waste volumes for closure of the roll-off storage area are included in Table 8-1.

8.1.6 Landfill

This Part B Permit Application only includes the Phase IA portion of the landfill. Therefore, this Closure Plan only addresses Phase IA. If future expansions are required, they will be addressed in future permit modifications and will include revised closure plans.

At closure of the landfill, a final cover will be constructed that is less than or equal to the permeability of the bottom liner. The final cover will consist of a three-layer cap design consisting of a vegetative cover, a geocomposite drainage layer, and a geomembrane and GCL barrier layer over a prepared subgrade, as described in Section 3.0 of Volume III. The final cover will meet the following requirements:

- the vegetative cover will have a minimum thickness of 2.5 feet and final upper slopes of between 3 and 5 percent after settlement and subsidence of the waste. Native grasses will be planted;

- the drainage layer will consist of a HDPE geonet sandwiched between two geotextile layers (generally referred to as a geocomposite) will be designed to allow lateral flow and discharge of liquids;

- the bottom layer will consist of an HDPE geomembrane layer and GCL underlain by 6 inches of prepared subgrade and 1.5 feet of protective soil; and,

- the cover will be designed to function with minimum maintenance, including minimal erosion. The vegetative cover will be designed with a surface drainage system capable of conducting run-off across the cap without forming rills and gullies.

In addition, the contaminated water basin (as shown in Drawing 10, page 1 of 1) will be filled and the cover will be constructed across this area. This will ensure that all lined areas of the landfill will be covered.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This will be made from the quarterly landfill gas monitoring data that will be collected over the life of the landfill. Following closure, if it is concluded that gas generation may result in gas build-ups beneath the barrier layer of the cover or releases that exceed regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the latest technology available will be implemented into the construction of the cover system. In this case, the NMRD secretary will be informed and shall approve a monitoring plan and any changes in the construction of the cover system.

Any leachate from the landfill will be pumped from the primary and secondary collection systems and, if detected, from the vadose zone monitoring sumps throughout the closure period and will continue throughout post-closure care. The leachate will be collected, sampled, and managed as hazardous waste, as appropriate. The leachate will be collected at a frequency appropriate to the rate at which it collects in the sump. As indicated in Table 8-2, the collection sump will be inspected monthly until the sump remains dry for six months. Thereafter, the sump will be inspected semi-annually. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

After the landfill cap is completed, soil samples will be collected from outside the perimeter of the landfill cap to determine if any soil contamination is present. The sampling locations will primarily correspond to the transportation corridor used by waste hauling trucks during the active life of the landfill. In addition, samples will be collected at the landfill stormwater retention basin and within ditches directing flow to the basin.

It is proposed that 16 individual samples be obtained along the haul roads and that they be combined into 4 composite samples for testing. Sample results will be compared against the closure performance standards presented in Section 8.3. If any contaminated materials are identified they will be excavated and removed to the landfill prior to placement of the final cover.

Due to the large area and low risk of contamination in the stormwater runoff basin and associated drainage ditches, it is proposed that the subgrade sampling be limited to 1 per 40,000 square feet. This will result in a total of approximately 8 samples for testing.

No later than the submission of the certification of closure of the landfill, the Facility will submit to the local zoning authority and to the NMED, a survey plat indicating the location and dimensions of the landfill with respect to permanently surveyed benchmarks. This plat will be prepared and certified by a professional land surveyor. The survey plat will contain a prominent note that asserts the Facility's obligation to restrict disturbance of the hazardous waste disposal unit. The Facility will also record a notation on the deed to the Facility property to notify any potential purchasers of the property that (1) the land has been used to manage hazardous wastes; (2) use of the land is restricted to activities that will not disturb integrity of the final cover system or monitoring system during the post-closure care period; and (3) the survey plat and record of waste disposal have been submitted to the local zoning authority and to the NMED.

A record of the type, location, and quantity of hazardous wastes disposed of within the disposal unit will be submitted to the local zoning authority and to the NMED no later than 60 days after certification of closure of the landfill.

The vadose zone monitoring wells will be sampled and analyzed in accordance with the procedures that are presented in Section 3 of the permit application. The frequency of sampling and parameters to be tested are outlined in Section 3.

8.2 POST-CLOSURE ACTIVITIES

Post-closure care involves long-term maintenance, monitoring, and reporting of activities that are carried out after closure is completed. Post-closure care is only anticipated to be needed for the landfill after closure. However, if clean closure cannot be certified for any unit components or secondary containment areas associated with the drum handling unit, liquid waste storage area, stabilization unit, evaporation pond, or roll-off storage area, then those closure activities that have been completed will be certified and a permit modification request will be submitted to NMED to include post-closure activities for those portions of the units that do not meet the closure performance standard.

The post-closure care period for the landfill will begin after completion of closure activities and continue for an anticipated 30 years. Inspection, maintenance, and repair activities to be conducted during post-closure are described in the following sections. The schedule for performing inspections is shown in Table 8-2, Post-Closure Inspection Schedule.

8.2.1 Security Systems

As shown in Facility Drawing Number 4, the Facility perimeter fence encloses the entire 480-acres of the Facility. The fence and warning signs mounted on the fence will be inspected and maintained throughout the post-closure period. Monthly inspections will include checking the condition of fencing, locks, gates, and warning signs. Any signs of unauthorized entry will be reported to the local sheriff's office and NMED. Routine maintenance will be performed based on inspection findings to repair or replace damaged or deteriorating items.

TABLE 8-2 POST-CLOURE INSPECTION SCHEDULE	
INSPECTION ITEM – PROBLEM OR PROBLEM AREA	**INSPECTION TIME**
Facility	
Fence	quarterly
Locks and gates	quarterly
Warning signs	quarterly
Landfill Cover	
Cracking, subsidence, ponding water, erosion, Burrowing animals, deep-rooted vegetation	quarterly
Perimeter Diversion Ditch	
Sediment and debris accumulation,	quarterly
Leachate Collection System	
Sump	quarterly until the sump remains dry for 6 months, then semi-annually
Pumps	quarterly
Riser pipes, grout seals, other visible portions of the system	quarterly
Leak Detection System	quarterly until the sump remains dry for 6 months, then semi-annually
Vadose Zone Monitoring System	quarterly

8.2.2 Landfill Final Cover

The integrity and effectiveness of the landfill final cover will be maintained, including making necessary repairs to correct the effects of settling, erosion, water damage, animal damage, or other events. The landfill cover will be inspected quarterly. Inspections will include checking for signs of cracking, subsidence, ponding water, erosion, burrowing animals, or deep-rooted vegetation. Repairs will be scheduled in a timely manner upon noting deficiencies in order to ensure that the final cover maintains its effectiveness.

General maintenance will include the following activities:

- fertilizing the vegetation periodically;
- re-establishing damaged or sparse vegetative cover, including seeding and fertilizing;
- conducting erosion damage repair, including soil excavation, transport and placement, seeding and fertilizing;
- regrading as needed to overcome the effects of subsidence or to repair areas where ponding is occurring; and,
- providing rodent control as needed, including trapping and relocating animals and repairing damage caused by burrowing.

Soil for erosion repair and regrading will be excavated from unused areas onsite and transported to the cap area for use in maintenance activities.

8.2.3 Perimeter Diversion Ditch

The perimeter diversion ditch (as shown on Drawings 22 and 25) will be inspected and maintained throughout the post-closure period to ensure its designed functions to divert

precipitation and run-on from the landfill area. Inspections will be conducted quarterly and will include checking for accumulated sediments and debris, and signs of erosion. Repairs will be scheduled in a timely manner, upon deficiencies being noted, to ensure that the diversion ditch maintains its effectiveness.

General maintenance activities will include diversion ditch cleaning to remove accumulated sediments and debris, and regrading, as needed, to repair the effects of erosion.

8.2.4 Leachate Management System

8.2.4.1 Leachate Collection System

The leachate collection and removal system will be operated until leachate is no longer detected. Leachate pumps will initially be operated at least quarterly. The volume of leachate pumped will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the sump pumps will be changed to semi-annually. Any leachate collected will be pumped to an above-ground storage tank.

The leachate collection system will be inspected quarterly or semi-annually as described in the preceding paragraph. Pumps will be inspected for proper operation. The riser pipes, grout seals, and other visible above-ground portions of the system will be inspected for integrity. The level of liquid in the sumps will be measured prior to pumping out accumulated leachate.

Routine maintenance will be conducted to ensure that the leachate collection system remains operable. Locking caps and standpipe grouting will be repaired or replaced as necessary. Accumulated sediments or sand in the standpipes will be removed as necessary to enable the system to function properly. Based on the amount of leachate collected over time, a determination will be made about the integrity of the collection system. If a system is suspected of being clogged, an assessment by a New Mexico registered professional engineer will be made. All repairs will be made according to the New Mexico registered professional engineer's assessment.

8.2.4.2 Management of Leachate

During the post-closure care period, leachate pumped from the collection system will be temporarily stored in an above-ground tank. The leachate will be sampled and managed at an off-site facility as hazardous waste, as appropriate. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

8.2.4.3 Leak Detection System

During the post-closure care period, the leak detection system beneath the landfill primary liner will initially be monitored and inspected quarterly to ensure that it is operating correctly and that any leachate that has migrated through the primary liner is collected and removed. As with the primary leachate system, the volume of leachate pumped from the secondary leak detection system will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the leak detection system will be changed to semi-annually.

Inspections and maintenance will be similar to those described for the leachate collection system (see Section 8.2.4.1).

8.2.5 Vadose Zone Monitoring System

The vadose zone monitoring system will be maintained and monitored throughout the post-closure care period. The following sections outline the post-closure monitoring plan for this system. The vadose zone monitoring system is described in Section 3 and consists of vadose zone sump in the landfill and vadose zone wells along the eastside of the facility.

8.2.5.1 Sampling and Analysis

Vadose zone monitoring systems will be conducted quarterly to test for the presence of contaminants in the unsaturated sediments hosting the landfill. Sampling procedures and analytical parameters will follow the same guidelines used during the active life of the Facility.

8.2.5.2 Inspection and Maintenance

The visible above-ground portions of the vadose zone monitoring system will be inspected quarterly for integrity. Routine maintenance will be conducted to ensure that the vadose zone monitoring system remains in operable condition. System equipment will be repaired or replaced as necessary.

8.2.6 Recordkeeping

A post-closure Facility record will be maintained. This record will include the dates and times of inspections, inspection findings, name of inspector, volumes of leachate pumped, disposition of leachate, sampling results of leachate and vadose zone samples, and dates and nature of any corrective actions taken.

8.2.7 Certification of Post-Closure

Within 60 days after completion of the established post-closure care period for the Facility, the permittee will submit to NMED a certification that the post-closure operations were performed in accordance with the approved post-closure plan. The certification will be signed by the permittee and an independent New Mexico registered professional engineer.

8.2.8 Amendment of Plan

The permittee will submit a permit modification request for changes to the post-closure plan if changes in operating plans or Facility design, or events that occur during the active life of the Facility, affect the approved post-closure plan. The owner or operator may also request a modification to the post-closure plan at any time during the active life of the Facility or during the post-closure care period. Permit modification requests will be submitted at least 60 days prior to a proposed change in Facility design, or no later than 60 days after an unexpected event which affects the post-closure plan.

If clean closure cannot be certified for any unit components or secondary containment areas associated with the drum handling unit, tank storage area, stabilization unit, evaporation pond, or roll-off storage area, then a post-closure care permit application for those portions of the units that do not meet the closure performance standard will be submitted to NMED no later than 90 days after the owner or operator determines that the hazardous waste management unit must be closed as a landfill.

8.2.9 Facility Post-Closure Contact

During the post-closure care period, the Facility contact organization will be the following:

Gandy Marley, Inc.
1109 East Broadway
Tatum, New Mexico 88267
(505) 398-4960

8.3 CLOSURE PERFORMANCE STANDARD

The RCRA closure performance standard (40 CFR 264.111) specifies that hazardous waste facilities are to be closed in such a way as to minimize the need for further maintenance at the Facility and protect human health and the environment by controlling, minimizing, or eliminating potential releases of hazardous waste to the environment. Any hazardous constituent left at a unit will not impact any environmental media in excess of agency-established exposure levels and that direct contact will not pose a threat to human health or the environment.

The Facility-specific clean-closure performance standard for the drum handling unit, roll-off storage area, tank storage area, stabilization unit, and evaporation pond is based on sampling soil from beneath the units. The landfill will not be clean-closed; therefore, the Facility-specific, clean-closure performance standard is not applicable.

Indicator parameters will be selected and approved by NMED for each unit at closure. These parameters will be representative of the wastes stored and/or treated in that unit during its operating life. The waste information used to make these selections will be based upon the Facility operating record. For soil, analytical results that show that these selected constituents are within three standard deviations of the mean constituent concentration in clean background soil will constitute demonstration of clean closure. Clean background soil samples will be collected from the surrounding area outside the Facility fence line.

8.4 CLOSURE SCHEDULE

Closure of all units at the Facility will be initiated when the landfill nears its final capacity because the other units exist only to support landfill disposal activities. In other words, the drum handling unit, roll-off storage area, liquid waste receiving and storage unit, stabilization unit, and evaporation pond will not continue to operate after the landfill has reached capacity and is no longer in use. Closure is expected to begin when the landfill is nearing final capacity, allowing enough capacity in the landfill to dispose of all solid wastes generated during closure activities. Expected waste volumes that will be generated during closure are shown in Table 8-1.

At the time of final Facility closure, the drum-handling unit will be closed first, as wastes from this area may need to be processed through the stabilization unit prior to disposal onsite. Concurrent with the closure of the drum-handling unit, the evaporation pond closure will begin because sludge from the pond must also be treated in the stabilization unit. After closure of the evaporation pond begins, the leachate from the landfill will be collected in tanks and shipped off site. Following closure of the drum-handling unit and during evaporation of the liquid in the ponds, the liquid waste receiving and storage unit will be closed. After the pond sludge has been removed and treated, the stabilization unit will be closed, and last the roll-off

storage area will be closed. The landfill cover will be constructed when all closure wastes have been placed in the landfill.

Notification will be provided to the NMED in writing at least 60 days prior to beginning closure of the entire Facility. Closure of the drum handling unit, liquid waste receiving and storage unit, stabilization unit, and roll-off storage area will proceed sequentially, and each closure will be completed within 180 days.

The closure regulations allow a period of 180 days from receipt of the final volume of waste at each unit for closure activities, [per 40 CFR Section 264.113(b)(1)] unless "...final closure activities will, of necessity, take longer than 180 days to complete."

8.5 CERTIFICATION OF CLOSURE

Within 60 days of completion of closure of each unit, and within 60 days of completion of final Facility closure, the Facility will submit to NMED, a certification that the hazardous waste management unit has been closed in accordance with the approved closure plan. The certification will be signed by the owner/operator and by an independent New Mexico registered professional engineer. Post-closure will also be certified at the end of the 30-year post-closure care period.

8.6 MODIFICATIONS TO THE CLOSURE PLAN

After this closure plan is approved, it will be amended whenever it is affected by changes in operating plans or Facility design. While conducting partial or final closure activities, unexpected events may be identified that also require amendment of the approved closure plan. Requests for modification will be made within 30 days of identifying an event that justifies plan modification.

8.7 CLOSURE COST ESTIMATES

The closure costs are described in the following sections.

8.7.1 Closure Costs

Table 8-1 summarizes the closure cost estimates for the drum handling unit, roll-off storage area, liquid waste receiving and storage unit, stabilization unit, evaporation pond, and landfill closure. These estimates are based on 1999 dollars and will be updated annually as required in 40 CFR Part 264.142(b).

These estimates are based on costs for closure when each unit is at maximum capacity, which is the point in the Facility's active life when the extent and manner of its operation would make closure the most expensive. As required in 40 CFR Part 264.142(a)(2), cost estimates are based on the costs of hiring a third party to close the Facility. In reality it is expected that Facility personnel will perform many closure tasks. Costs for onsite disposal are used in this cost estimate because Facility closure will be scheduled when sufficient landfill capacity remains to handle closure wastes. The maximum volume of waste that the Facility is projected to generate through closure activities is also shown in Table 8-1.

8.7.2 Post-Closure Costs

Table 8-3, Landfill Post-Closure Cost Estimate, summarizes the post-closure cost estimate for the landfill. The costs include 30 years of monitoring and maintenance activities, as described in Section 8.2. These estimates are based on 1999 dollars and will be updated annually as required in 40 CFR Part 264.144(b).

8.8 FINANCIAL ASSURANCE

The treatment, storage and disposal facility standards found in 40 CFR 264 require facilities to establish and maintain financial assurance for three areas prior to operation. 40 CFR 264.143 defines the standards for financial assurance for closure, 40 CFR 264.145 the standards for post-closure care, and 40 CFR 264.147 defines the liability requirements for coverage of accidental occurrences. The financial instruments selected to provide coverage for these three requirements must be implemented and submitted to the NMED at least 60 days prior to the initial receipt of waste.

TABLE 8-3
LANDFILL POST-CLOSURE COST ESTIMATE

Post-Closure Items	Total Cost (1999 $)
Annual Post-closure Costs	
Facility inspection	
Routine maintenance and repairs	
Severe erosion damage repair	
Leachate pumping and treatment	
Leachate collection system inspection and maintenance	
Vadose zone system monitoring and maintenance	
Annual Subtotal	
30 Year Post-closure Subtotal	
One Time Post-closure Costs	
Notation on property deed	
Decontamination and demolition of treatment unit	
Certification of post-closure	
One Time Closure Cost Subtotal	
Subtotal Post-closure Cost	
Contingency (10%)	
Total	

8.8.1 Financial Assurance for Closure

Upon receipt of the final permit for the Facility, GMI will evaluate and select one of the financial instruments defined in 40 CFR 264.143 to provide financial assurance for the closure of the Facility. Selection of one of the following six financial instruments will consider the effectiveness and economics of the particular options. The instruments defined in the regulations are:

1. Financial test and corporate guarantee for closure
2. Closure trust fund
3. Surety bond guaranteeing payment into a closure trust fund
4. Surety bond guaranteeing performance of closure
5. Closure letter of credit
6. Closure insurance

The appropriate instrument will be selected, implemented, and submitted a minimum of 60 days prior to the initial receipt of waste as required by the regulations defined in this subpart.

8.8.2 Financial Assurance for Post-Closure Care

Similar to the financial assurance requirements for closure activities, the Facility is required to provide assurances for the post-closure care of the Facility. Upon receipt of the final permit, and 60 days prior to the initial receipt of waste, the owner/operators will provide the appropriate financial instrument to fulfill this requirement. Selection of the instrument to be used will be based upon economic and performance considerations. The financial instruments allowed by this subpart of the regulations are listed in Section 8.8.1.

8.8.3 Liability Requirements

As stated in 40 CFR 264.147, an owner or operator of a hazardous waste treatment, storage, or disposal facility must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences which arise from the operation of the facility. This section of the regulations requires that the owner/operator of such a facility provide the administrator one of the following instruments at least 60 days prior to the initial receipt of waste;

1. Liability insurance
2. Financial test
3. Letter of credit
4. Surety bond
5. Trust fund
6. Combination of the above

GMI will submit required documentation demonstrating financial assurance to meet the liability requirements at least 60 days prior to receiving the first hazardous waste at the Facility. The financial assurance mechanism will comply with requirements in 40 CFR Part 264.147.

AutoCAD FILE: GANDY-FIG8-1

CLOSURE SCHEDULE (DAYS)

TRIASSIC PARK WASTE DISPOSAL FACILITY

-60 0 90 180 270 360 450 540 630 720 810 900 990 1080 1170 1260 1370

Notification to NMED
Start of Closure

Container Storage Area
- Removal & treatment of inventory
- Removal of bldg. & containment
- Soil sampling & analysis
- Completion of closure
- Certification of closure

Evaporation Pond
- Evaporation of liquid
- Removal & treatment of sludge
- Removal & disposal of liner
- Soil sampling & analysis
- Completion of closure
- Certification of closure

Storage Tanks
- Removal & treatment of inventory
- Removal of tanks & containment
- Soil sampling & analysis
- Completion of closure
- Certification of closure

Stabilization Unit
- Treatment of inventory
- Removal of bldg. & containment
- Soil sampling & analysis
- Completion of closure
- Certification of closure

Roll off Storage Area
- Disposal of inventory
- Removal of containment
- Soil sampling & analysis
- Completion of closure
- Certification of closure

Landfill
- Place final cover
- Initiate post closure care
- Certification of closure

Figure 8-1

11.0 40 CFR 264 SUBPART AA, BB & CC REGULATIONS

This section provides a brief summary of the air requirements, as presented in 40 CFR 264 subpart AA and BB. In addition, this section provides a brief summary of other regulations which may be applicable to the Facility.

11.1 40 CFR 264 SUBPART AA - AIR EMISSIONS FOR PROGRESS UNITS

The Facility will not be subject to the 40 CFR 264 Subpart AA regulations because the Facility will not utilize distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations.

11.2 40 CFR 264 SUBPART BB – AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

Because wastes with organic concentrations greater than 10 percent by weight will not be accepted for storage in the liquid waste storage unit, treated in the evaporation pond, or treated in the stabilization unit, these units will not be subject to 40 CFR 264 Subpart BB regulations. Therefore, equipment such as pumps, compressors, pressure relief devices, sampling equipment, connecting system, and valves will not contain or contact hazardous wastes with organic concentrations of 10 percent or greater by weight.

11.3 40 CFR 264 SUBPART CC – AIR EMISSIONS STANDARDS FOR TANKS, SUFACE IMPOUNDMENTS AND CONTAINERS

The Facility will not be subject to the Subpart CC requirements for tanks and evaporation ponds because these units will not be used to manage wastes containing volatile organic concentrations greater than 500 parts per million by weight (ppmw).

Drums and roll-off containers may hold hazardous waste that contains greater than 500 ppmw volatile organic compounds. All drums and roll-off containers stored at the Facility will have covers and meet DOT requirements or packaging of hazardous waste for transport under 49 CFR 178. Potential air pollution from these containers will be controlled in accordance with the container level 2 standards specified in CFR 264.1086 (d).

11.3.1 Waste Determination

A waste determination will only be conducted for each waste stream to be placed in a unit that is exempt from the Subpart CC requirements for air emission controls (e.g. the evaporation pond). The waste determination shall be made at the point where the Facility first takes possession of the waste. In general, the Facility will use generator-supplied information (manifests, shipping papers, certification notices etc.) prepared in accordance with 40 CFR 265.1084(a)(5) and (a) to make this determination, however, the Facility may choose to test a representative sample of the waste. For waste to be placed in units that comply with Subpart CC requirements for air emission controls, no formal waste determination is required.

11.3.2 Applicability to Containers

There are two types of containers expected to be used at the Facility to store wastes: (1) drums and (2) roll-off containers. These containers may hold hazardous waste that contains greater than 500 ppmw volatile organic compounds. All drums and roll-off containers stored at the Facility will have

covers and meet DOT requirements for packaging of hazardous waste for transport under 49 CFR 178. Potential air pollution from these containers will be controlled in accordance with the container level 2 standards specified in 264.1086 (d).

11.3.3 Applicability to the Evaporation Pond

The Facility will not accept waste to be placed in the evaporation pond that contains greater than 500 ppmw volatile organics. Therefore, the evaporation pond is exempt from air emission control requirements specified in Subpart CC.

11.3.4 Applicability to Tanks

The waste storage tanks will not be subject to the Subpart CC requirements for inspection, monitoring, and emission controls because this unit will not be used to manage wastes containing volatile organic concentrations greater than 500 parts per million by weight (ppmw)

11.3.5 Applicability to the Stabilization Process

The concentration of volatile organics in the waste to be stabilized will limited to less than 500 ppmw. Final design documentation will be included as part of the operating record for the Facility.

11.3.6 Inspection and Monitoring

A written plan and schedule will be developed and implemented to perform all inspection and monitoring in accordance with 40 CFR 265.1089(f)(2)(i).

11.3.7 Recordkeeping and Reporting

Recordkeeping and reporting will be conducted in accordance with 40 CFR 264.1089 and 264.1090, respectively.

11.3.7.1 Recordkeeping

The following records will be kept:

- waste determinations;
- inspection and monitoring results;
- design specifications for closed vent systems and control devices;
- control device exceedances and corrective action; and,
- leak repair information.

11.3.7.2 Reporting

Facility personnel will provide reports to the appropriate regulatory authority under the following conditions:

- if the Facility becomes aware that an exempt unit has received hazardous waste containing greater than 500 ppmw volatile organic compounds, the regulatory agency will be notified within 15 days; and,

- if continuous emission monitoring is used, a semi-annual report will be provided that indicates each time the monitoring is operated in non-compliance over a 24 hour (or more) period of time. This report will not be provided if the monitoring system remains in compliance during the entire 6-month reporting period.

11.4 OTHER APPLICABLE REGULATIONS

There are a number of other federal regulations which will apply to the Facility. Once the Facility has received a final permit and the configuration and operational aspects are finalized (it is possible that some minor changes to the Facility configuration and operation will occur as a result of the final permit) other regulations will be evaluated. Some of the regulations that will be evaluated are:

- National Pollution Discharge and Elimination System;

- Clean Water Act;

- Clean Air Act; and

- Occupational Safety and Health Administration regulations.

The regulations listed above will be evaluated for their applicability to the Facility. In addition to these federal regulations, the Facility will evaluate numerous state, county, and local regulations. GMI will ensure that the Facility is designed, constructed, and operated in compliance with all applicable regulations.