MONTGOMERY WATSON
Mining Group

April 28, 1998

Mr. Cornelius Amindyas
RCRA Permitting Program
Hazardous and Radioactive Materials
New Mexico Environmental Department
2044 Galisteo
P.O. Box 26110
Sante Fe, New Mexico 87502

Re: Replacement Pages for Part B Permit
Triassic Park Hazardous Waste Disposal Facility Permit Application
EPA I.D. #NM001002484

Dear Mr. Amindyas:

Attached are replacement pages for the above referenced Part B Permit application. These replacement pages have been prepared to address the comments that we received from NMED dated March 5, 1998 We prepared responses to these comments that were submitted to NMED in a letter dated April 6, 1998. On April 27, 1998 we received verbal concurrence with the responses.

The replacement pages are indicated with a "Revision 1" in the footer, "R" after the page number, and are dated April 1998. Replacement pages will supersede existing pages of the permit application. If the replacement text extended beyond the page being replaced, the new page retained the same number but was designated with an "a, b, c ...". New and revised figures are also included in the attached. These should be inserted into the text as indicated.

Per your request, we have included two complete sets of replacement pages and figures and an electronic copy of the text. We have also distributed replacement pages to all other recipients of the permit application.

P.O. Box 774018
1475 Pine Grove Road
Steamboat Springs, Colorado
80477

Tel: 970 879 6260
Fax: 970 879 9048

We hope this meets your needs. If you have any questions or need any additional information, please contact us.

Sincerely,

Montgomery Watson Americas, Inc.

Patrick Corser, P.E.
Vice President

attachments

cc: Dale Gandy
Larry Gandy
Ken Schultz
Jim Bonner
Trey Greenwood

REPLACEMENT COVER PAGE FOR VOLUME I

ADD NEW TABLE OF CONTENTS BEHIND COVER PAGE

Prepared for:

TRIASSIC PARK WASTE DISPOSAL FACILITY
Post Office Box 827
1109 E. Broadway
Tatum, New Mexico 88267

TRIASSIC PARK WASTE DISPOSAL FACILITY
CHAVES COUNTY, NEW MEXICO

December 1997

Revision Pages April 1998

Prepared by:

THE S.M. STOLLER CORPORATION
1717 Louisiana Blvd., N.E., Suite 209
Albuquerque, New Mexico 87110
(505) 255-6200

and

DELHART
520 E. Harkness
Carlsbad, New Mexico 88220
(505) 885-1532

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REPLACEMENT PAGES FOR THE TEXT OF VOLUME I

1.0 GENERAL FACILITY STANDARDS

This section provides a general description of the facility, waste management practices, site environment and climate, location information, emergency management, and traffic patterns, and serves as a summary of the complete permit application, which follows.

Section 1 includes the following volumes: Volume I - Part A and Part B, Volume II - Appendix A-M. Section II is divided into four volumes and incompatible wastes are described in Section 4.3.2.1 of this application.

- *Volume I* - Part A and Part B (Text and Figures)
- *Volume II* - Appendix A - M of Part B Text

Section II presents the engineering Report and associated appendices. Section II is divided into four volumes 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 Triassic Park Waste Disposal Facility will be a full-service Resource Conservation and Recovery Act (RCRA) waste treatment, storage, and disposal facility. 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). 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 surface impoundment, include all wastes listed in the Part A application, provided that Land Disposal Restriction (LDR) standards are met prior to placing the wastes in the surface impoundment. All waste placed in the surface impoundment 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). 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 a surface impoundment (i.e., 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, 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 of this permit application. Once these wastes are identified, they will be

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 candidate for protection 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 as a candidate 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 has been developed for a 1997 aerial photograph from U.S. Geological Service (USGS) 7.5 minute series, Mescalero Point, New Mexico, 1973, this drawing illustrates facility boundaries, access roads, access control locations, internal roads, and site fences. The site master plan, or facility layout, is Drawing No. 4 in Section II of this application.

The site is located in eastern Chaves County, in an area that has historically been utilized primarily as rangeland 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 1-1. 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 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 (Section 5).

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

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 or independent, qualified, registered professional engineer 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 to 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 professional engineer will certify major repairs. The certification will be submitted to the New Mexico Environment Department (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 Facility and to the Surface Impoundment

Transfer of liquids from the liquid waste storage tanks to the stabilization facility will be accomplished either by direct piping to the facility or 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 surface impoundment. Tanker trucks will be cleaned following a transfer operation to ensure that subsequent transfers do not result in mixing of incompatible or reactive wastes. Similarly, if direct piping to the stabilization facility is used to transfer liquids, the pipelines will be cleaned prior to using the pipes for any subsequent incompatible waste transfer.

Personnel performing liquid waste transfer operations will comply with all 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 surface impoundment discharge station. Hose/pipe connections will be inside the concrete containment area boundaries.

2.4 STABILIZATION

Drawing Nos. 33 through 36 in Section II of this application show the stabilization building floor plan, 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 facility via the gravel aprons. Additionally, there will be a control room from which operations will be directed and coordinated.

Bulk liquids, semi-solids and sludges, solids that do not meet LDR treatment standards, and 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. For toxic characteristic wastes and listed wastes, if 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, Section 4, wastes will be tested prior to stabilization to determine the appropriate reagent formula. Dry reagents typically include Portland cement, flyash, and/or lime. Liquid reagents typically include ferrous sulfate, which may be used to detoxify certain wastes, and calcium polysulfide, which may be used to precipitate certain constituents of the waste. Waste may be offloaded directly from trucks into the stabilization bins, transferred via pipeline from the liquid hazardous waste storage tanks, or transferred from the drum handling facility or roll-off box 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

approximately 500 feet of halite (salt). The Rustler Formation represents the youngest anhydrite sequence in the Permian Basin.

Yates Formation—Unconformably underlying the Rustler, the Yates Formation is composed primarily of interbedded sandstone with minor dolostone and limestone. The sands are light gray and fine to very fine grained. Limestone is white to very light gray microcrystalline lime mudstone with a chalky texture. Dolostone is pink to light gray and microcrystalline.

3.4.1.2 Regional Structure

The tectonic setting and seismic activity are discussed in this section.

Tectonic Setting

The proposed site is located on the western flank of the Permian Basin of west Texas. Because of the distance from tectonic centers and the minimal seismic activity, this is considered one of the more geologically stable regions within the United States.

The region underwent intense deformation, however, during late Paleozoic times. As shown in Figure 3-5, major uplifting occurred along the Ouachita Tectonic Belt and the Wichita System of Texas and Oklahoma. The Sacramento and Sangre de Cristo uplifts in southeastern New Mexico were also active during late Paleozoic time. The overall structural configuration of the Permian Basin was established at this time.

This period of intense deformation was followed by a long period of gradual subsidence. The sea covered the region, and throughout the remainder of Permian era, the Permian Basin was slowly filled with several thousand feet of evaporites, carbonates, and shales. As discussed in Section 3.5.1.1, non-marine deposition began in Triassic time with the accumulation of lacustrine/fluvial sediments into a large shallow lake.

During the late Cretaceous to early Tertiary Laramide Orogeny, there was renewed uplifting along the Sacramento, Sangre de Cristo, and other ranges within the Rocky Mountains. This orogeny uplifted the region to its present position and supplied sediments for the Tertiary Ogallala Formation.

Seismic Activity

The Permian Basin is an area of moderate to low seismic activity. Data obtained from the National Geophysical Data Center of NOAA indicate a total of 102 observed earthquakes within a 250-km (155-mile) radius of the proposed site. These data reflect observations made from 1930 to 1993.

As shown in Figure 3-8, there were no recorded earthquakes with a magnitude greater than 3.9 within 70 miles of the proposed site and no recorded seismic activity within a radius of 45 miles. The distance from any tectonic centers and the low recorded seismic activity suggest that the proposed site is located in an

Because of the identification of groundwater in borehole 14, an offset (borehole 14o) was completed 400 feet to the east (down-gradient). This borehole location was in addition to those pre-approved by the NMED, but determining the potential extent of groundwater saturation was important. Borehole 14o was drilled to a depth of 100 feet.

There was no saturation observed while drilling this offset, but the geophysical log indicated the presence of fluid at the bottom of this borehole. The top of the fluid was observed to be at a depth of 92.0 feet, indicating a maximum apparent concentration of 3.5 feet. This is an apparent concentration because a 2.25 inch probe will displace approximately one-half of the volume of the hole. Regardless of all of these factors, there was approximately one gallon of fluid in the bottom of this borehole introduced by a heavy rainfall that occurred after the hole was drilled and before it could be logged. Due to the impermeable nature of the Lower Dockum mudstones, the water did not infiltrate into the formation and was trapped in the bottom of the hole.

The hole was cased with 3-inch plastic tubing and monitored for several weeks. No additional water entered the hole, and, in fact, the gallon of water eventually dispersed into the Lower Dockum. An examination of the log for PB-14o shows the bottom of the sandy silt unit (Upper Dockum) to be a depth of 36 feet. If the Upper Dockum was the source of the water, the hole would have equilibrated or filled to a depth of at least 36 feet. The fluid did not migrate upward through several hundred feet of Lower Dockum mudstones; therefore, there is no apparent subsurface source for the small quantity of water shown in the log for this hole.

Water Level Measurements—After the stratigraphically trapped water (Cross-section 3-3, Appendix G, Section I) was encountered, temporary casing was placed in the drill hole (PB-14) so that piezometric water levels could be measured. For the first six weeks after casing the drill hole, the water was pumped from the hole weekly. After each pumping event, the water returned to a static level of 42 feet. Subsequent water level measurements have confirmed a static water level in this drill hole.

In addition to casing drill hole PB-14, nine other drill holes, located downdip, were also cased. Although the Upper Dockum is unstaturated in these other drillholes, the holes were examined weekly for six weeks. No water was observed except for that previously described in PB-14o. The drill holes that were cased with 3-inch plastic casing and the perforated intervals for these holes are as follows:

Hole No.	Perforated Zone	Base of Upper Dockum
PB-14	30-80	42'
PB-14o	20-40	36'
PB-33	20-55	52'
PB-18	60-80	78'
PB-16	60-80	79'
PB-15	30-65	62'
PB-13	30-50	48'

Hole No.	Perforated Zone	Base of Upper Dockum
PB-9	40-80	72'
PB-7	20-40	38'
PB-17	60-85	80'

The intent of installing casing in these 10 holes was to allow any groundwater in the vicinity of these drill holes to collect for detection purposes. The depths of the cased intervals varied because there is an approximate 1° regional dip to the east. All cased intervals extend down to the bottom of the Upper Dockum sand. Slits were cut in the PVC casing every foot throughout the perforated zones.

Water Quality—Preliminary water quality data were obtained from limited chemical analyses on a sample of the stratigraphically trapped groundwater from drill hole PB-14. These results include the following measurements:

Total Dissolved Solids	4,920 mg/L
Alkalinity	396 mg/L
Sodium	1,640 mg/L
Magnesium	103 mg/L

These preliminary data indicate that water from the Upper Dockum is of poor quality. The most significant parameter is Total Dissolved Solids (TDS); water with TDS values of greater than 5,000 mg/L is considered to be unfit for human consumption.

3.6.2.3 Lower Dockum Aquifer

The basal sandstone of the Lower Dockum Unit is the water-bearing portion of this unit. As shown in Figure 3-19, this unit is overlain by a thick sequence (600 to 650 feet) of impermeable mudstones that act as an aquitard. The recharge area for the Lower Dockum Aquifer is the Pecos River drainage to the west. Groundwater flow direction is easterly, along the regional dip of this unit.

Most of the shallow drilling in the site area has "bottomed" in the upper portion of the aquitard. Two holes (WW-1 and WW-2) were drilled to approximately the base of the Triassic section and encountered water from the Lower Dockum Aquifer (Figure 3-18). Hole WW-1 also penetrated a saturated zone in the Upper Dockum Unit, resulting in a mixing of these groundwaters in this drill hole.

Both holes were drilled with an air rotary rig and drill cutting samples were collected. WW-1 was completed to a depth of 820 feet and, at the time of drilling, no water saturation was apparent in the drill cuttings. WW-2 was completed to a depth of 710 feet; however, circulation was lost at a depth of 645 feet. Loss of circulation commonly occurs when drill cuttings are too wet for the air pressure of the rig to remove the cuttings from the hole. It is likely that the basal sandstone of the Lower Dockum Unit was penetrated at this depth.

Dockum/Lower Dockum contact, approximately 2,500 feet east of the proposed landfill. Upgradient of the site, an isolated pocket of groundwater was detected at Borehole 14. The low permeability of the underlying Lower Dockum will prevent significant vertical migration of groundwater and will direct flow downdip along the Upper Dockum/Lower Dockum contact in the direction of perched groundwater east of the site. Therefore, potential contaminant releases from the proposed facility will preferentially migrate downdip along the Upper Dockum/Lower Dockum contact.

Given the geologic and hydrologic features controlling the movement of groundwater at the site, monitoring the Upper Dockum is the most effective manner in which to immediately detect potential releases from the facility. However, the placement of monitoring wells in the Upper Dockum is limited due to the fact that this unit is unsaturated within the site boundary. The utility of placing groundwater monitoring wells 2,500 downgradient of the landfill is questionable. The most effective monitoring program will involve vadose zone monitoring.

3.7.2 Vadose Zone Monitoring Requirements

The proposed design for the Triassic Park Waste Disposal facility includes a vadose zone monitoring system in the sump of each cell. The intent of the sump vadose monitoring system is to provide an immediate indication if there is any leakage from the double composite liner system. Leakage from the secondary liner will be intercepted by the vadose zone monitoring system, which will be monitored regularly. The design of the vadose zone monitoring system is shown in the design drawing (Section II). It includes a 60 mil HDPE liner system below the bottom of the secondary liner system in the area of the sump. The vadose zone liner system is limited to an area directly beneath the sump, as this is the area expected to have the most liquids ponded for the longest period of time. Above the HDPE liner in the vadose zone sump, a drainage gravel surrounds a side slope riser pipe that extends into the sump. The side slope riser pipe allows a pump to be installed in the sump to remove accumulated liquids.

The vadose zone monitoring system, shown in the design drawings (Section II) and described above, is expected to be a much more immediate indicator of leakage from the landfill than any other type of groundwater monitoring system or even a vadose zone monitoring system installed around the perimeter of the landfill. Given the geologic and hydraulic conditions at the base of the landfill (unsaturated Upper Dockum siltstones and claystones), any fluids leaking from the landfill will migrate vertically with limited lateral dispersion and will be very difficult to intercept and detect. Since each cell is graded so that leachate will collect in the sump liquids will be present in this area for the longest period of time, resulting in the sump area having the highest hydraulic head on the liner system. A vadose liner below the sump areas will indicate quickly if liquids are escaping from the liner system. The vadose zone sump will not only provide an indication that the LDRS sump is leaking, but will also provide access to remove the leakage and minimize head buildup in the sumps and in liners above until the source of the leakage is found. The vandose sumps for the landfill and evaporation ponds will be monitored for the presence of liquids whenever the primary or secondary sumps are monitored.

It is expected that liquids in the vadose sump could occur from two sources. The first is consolidation of the overlying clay liner draining into the sump. This water is expected

to be uncontaminated. The second source is leakage from the landfill. This liquid is expected to be similar to the leachate that is collected from the primary sumps. After the start of operations of the landfill, the leachate that is collected and removed from the primary sump will be analyzed to determine its constituents. Based on this analysis a select series of parameters will be identified that can be used to identify leachate from consolidation water. Thereafter, whenever liquids are detected in the vadose sump, they will be removed and sampled. Samples will be analyzed for leachate characteristics. If any of the leachate parameters are identified, the samples will be tested for the complete EPA Appendix IX parameters. If leachate is confirmed to be present in the vadose zone sump, then corrective action measures will be implemented.

3.8 SUMMARY AND CONCLUSIONS

The proposed location of the Triassic Park Waste Disposal facility landfill in eastern Chaves County, New Mexico is ideal for such a facility. It is located in an unpopulated portion of the

Ramps will be installed where necessary to enable fork lifts, dollies, or hand trucks to move into or out of secondary containment areas surrounded by berms or curbing.

Transferring waste from drums to tanks will be accomplished as expeditiously as possible to avoid having containers remain open for extended periods of time.

If ignitable wastes are handled, special precautions will be instituted, including the use of special non-sparking bung wrenches or other tools for opening drums or otherwise handling the waste containers, grounding waste containers during waste transfer, and other special handling requirements. These precautions, coupled with the requirements for the management of ignitable waste contained in Section 2, will minimize the hazards associated with ignitable wastes.

5.4.2 Run-Off and Run-On

Run-off and run-on for units in buildings and those located outdoors are described in the following sections.

5.4.2.1 Tank Storage, Container Storage, and Treatment Areas

Run-off and run-on will be prevented in container and tank storage areas and the treatment unit by exterior drainage systems located at the perimeters of these areas, outside the containment systems.

All containment areas associated with tanks or containers will be sloped to remove accumulated liquids caused by spills, leaks, or precipitation (for outdoor units). Liquids that accumulate in any secondary containment area will be sampled to determine if the liquid is hazardous waste. If the liquid is hazardous, the waste will be pumped to a drum or tank and handled accordingly. If the liquid is not contaminated, it will be discharged to the storm drainage system.

5.4.2.2 The Landfill and Surface Impoundment

The landfill run-on control system will be capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year storm. The run-on control system will consist of unlined ditches for diverting run-on from off site around the facility. Water from outside the landfill will be prevented from entering the active portion of the landfill by the waste processing corridor drainage ditch.

The run-off management system will be capable of collecting the water volume resulting from at least a 24-hour, 25-year storm. Run-off in the active portion of the landfill will be collected in the leachate collection system.

The run-on and run-off control system for the landfill is described in greater detail in Section 2.5.1.6 of this permit application.

The area surrounding the evaporation pond facility will be graded to carry stormwater run-off towards the drainage ditch to the south of the evaporation pond area. This ditch will ultimately empty into the site stormwater detention

pond. The perimeter of the evaporation ponds is elevated to prevent stormwater run-on into the ponds from the surrounding areas.

5.4.3 Wind Dispersal Control System

Whenever particulate matter from the landfill is dispersed by the wind, the active portion of the landfill will either be covered or managed to control the wind dispersal.

8.0 CLOSURE AND POST-CLOSURE OF PERMITTED UNITS

This closure plan describes specific activities required for closure of the drum handling facility, roll-off storage area, stabilization treatment unit and associated liquid waste receiving and storage facility, evaporation surface impoundment, and landfill, in compliance with Resource Conservation and Recovery Act (RCRA) closure requirements. 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, Gandy Marley Inc. will close and dismantle all facilities and structures For the purposes of this closure plan, the closure date is estimated to be 2030. 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 generally be treated onsite. 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.

Prior to the commencement of closure activities, Gandy Marley Inc. will notify the secretary of NMED at least 60 days prior to the date Gandy Marley Inc. expects to begin closure of the disposal facilities. In addition, Gandy Marley Inc. will notify the secretary 45 days prior to the closure of the surface impoundments, container storage units and storage tanks. The schedule for closure is described in more detail in Section 8.4.

8.1.1 Drum Handling Facility

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

- removal of remaining waste and other material in the storage area;
- decontamination of equipment in the area and 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 facility 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, Gandy Marley Inc. will arrange for all waste remaining in inventory to either be disposed of directly in the landfill, treated at the onsite treatment facility 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).

After removal of the building, 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 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.

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 Facility, it is assumed that all 1,120 drums contain sludges that must be stabilized. For these calculations, the maximum inventory of the drum-handling facility 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 pallets or drum-moving equipment, that may have contacted hazardous waste will either be decontaminated or disposed 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 (roof and walls) 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. The use of wash water will be limited to the extent practical 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 Facility is included in the liquid waste amounts shown in Table 8-1.

8.1.1.3 Dismantling of Concrete Floor and Secondary Containment

Secondary containment for the drum handling facility will be provided by a flexible membrane lined trench and collection sump system. Drums will be stored on an uncoated concrete floor that drains to the trench and sump system. Because the concrete will not be coated, decontamination at closure is not proposed; rather, the concrete will be broken up and removed as hazardous debris. Upon certification of compliance with the land disposal restriction (LDR) requirements, the concrete will be disposed in the landfill. The liner and collection sump system will also be removed at closure and disposed in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.

8.1.1.4 Soil Sampling

After removal of the drum handling facility structure 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. Seven samples will be collected from locations that correspond to the floor drain sumps. 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.

An offsite 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.

8.1.2 Evaporation Surface Impoundment

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

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

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 a approximate depth of 8 feet, and it is assumed that at closure there will be 2 feet of sludge in the bottom of the pond, leaving 6 feet of liquid (72 inches). Therefore, 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 dredged from the bottom and solidified in the treatment unit. The stabilized waste will be placed in roll-off boxes for 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.

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. 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.

8.1.2.4 Soil Sampling

After removal of the liquid, sludge, and surface impoundment liners, 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. Ten samples will be collected. Two will be from locations that correspond to the leachate collection sump and the tanker pad fill line, and eight at random locations. 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.

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 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 facility, tank storage area, stabilization treatment unit, evaporation pond, or roll-off storage area, then a post-closure plan for those portions of the units that do not meet the closure performance standard will be submitted no later than 90 days after the owner or operator determines that the hazardous waste management unit must be closed as a landfill.

A request for changes to the post-closure plan will include the following items if appropriate:

Amended Waste Analysis Plan;
Vadose Monitoring Plan;
Amended Closure Plan;
Amended Post-Closure Plan;
Updated Closure Cost Estimate;
Updated Post-closure Care Plan;
Updated Financial Assurance Plan for Closure;
Updated Financial Assurance Plan for Post Closure; and,
Contingent Corrective Measure.

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.

The facility-specific clean-closure performance standard for the drum handling facility, roll-off storage area, tank storage area, stabilization treatment unit, and evaporation surface impoundment 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 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 facility, roll-off storage area, liquid waste receiving and storage facility, stabilization treatment unit, and evaporation surface impoundment 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 facility will be closed first, as wastes from this area may need to be processed through the stabilization treatment unit prior to disposal onsite. Concurrent with the closure of the drum handling facility, the evaporation surface impoundment 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 facility and during evaporation of the liquid in the ponds, the liquid waste receiving and storage facility will be closed. After the pond sludge has been removed and treated, the stabilization treatment 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 facility, liquid waste receiving and storage facility, stabilization treatment 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."

Figure 8-1, Closure Schedule - Has Been Deleted

11.0 40 CFR 264 SUBPART AA & BB 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 Triassic Park Waste Disposal Facility.

11.1 40 CFR 264 SUBPART AA

The Triassic Park Waste Disposal 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, or air or steam stripping operations.

11.2 40 CFR 264 SUBPART BB

Because wastes with organic concentrations greater than 10 percent by weight will not be stored in the liquid waste storage facility, in the surface impoundment or treated in the stabilization facility, these facilities 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.

11.2.1 Equipment List

An equipment list will be prepared and kept in the operating log that includes equipment identification numbers, hazardous waste management unit identification numbers, approximate location of the equipment at the facility, type of equipment, percent by weight total organics, hazardous waste state, and method of compliance with the appropriate standard in 40 CFR 264.1052 through 40 CFR 264.1062 for all equipment subject to Subpart BB requirements.

11.2.2 Equipment Controls

During final design of the facility, consideration will be given to applying the following equipment controls for fugitive emissions sources:

- leakless technology for valves and pumps;
- plugs, caps, blinds, etc. for open-ended lines;
- rupture disks and soft seats for pressure relief devices;
- dual mechanical seals with barrier fluids/degassing vent systems for rotary equipment; and,
- closed-loop sampling systems.

If the above equipment is utilized, no inspection or monitoring is required.

11.2.3 Equipment Marking

Each piece of affected equipment will be marked after the tank system is installed in such a manner that it can be readily distinguished from other pieces of equipment. Such marking will include hanging a plastic or metal tag on the equipment. The tags will provide the equipment identification number for each piece of affected equipment. When a leak is detected, the equipment also will be marked to identify it as leaking. The identification on a valve may be removed after it has been monitored for two successive months and no leak has been detected during this time. The identification on equipment other than a valve may be removed after it has been repaired.

11.2.4 Leak Detection and Repair

A leak detection and repair program will be developed that includes the following elements:

- weekly visual monitoring of pumps in light liquid service in accordance with 40 CFR 264.15;
- monthly monitoring of pumps and valves in light liquid service in accordance with Reference Method 21 in 40 CFR 60;
- monitoring of pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors in accordance with Reference Method 21 in 40 CFR 60 within five days of discovery of evidence of a leak;
- compliance with other standards found in 40 CFR 264.1052 through 264.1062, as appropriate;
- utilization of alternative standards for valves in light liquid service (percentage of valves allowed to leak or skip period leak detection) if operating experience demonstrates that such alternatives are appropriate; and,
- repair of leaks in accordance with standards in 40 CFR 264.1052 through 264.1062.

The monthly monitoring will be conducted once per calendar month if waste containing 10 weight percent or greater organics is stored in the tank system during that calendar month. When waste is not received or stored in the tank system during a calendar month, no monitoring will be performed.

11.2.5 Record Keeping and Reporting

Record keeping will be conducted in accordance with requirements in 40 CFR 264.1064.

Records that will be kept in the facility operating record include:

- the equipment list discussed in Section 11.2.1;

- results of weekly inspection of pumps;
- results of monthly monitoring of pumps and valves;
- other records required to demonstrate compliance with standards in 40 CFR 264.1052 through 264.1062, as necessary;
- records that demonstrate compliance with the alternative standards for valves in light liquid service, if such standards are utilized;
- information regarding leaks and repairs;
- information regarding equipment designated as having no detectable emissions;
- justification for valves designated as unsafe to monitor or difficult to monitor;
- criteria for failure of seal system or barrier system or both if an exemption from 40 CFR 264.1052(a) is being sought using a dual mechanical seal system that includes a barrier fluid system, and,
- information on other equipment for which exemptions are sought and justifications for the exemptions.

The facility will provide a semi-annual report to the U.S. Environmental Protection Agency and New Mexico Environment Department if any leaks from valves, pumps, and compressors are not repaired as required in 264.1057(d), 264.1052(c) and (d), or 264.1053(g) and if any hazardous waste management unit shutdowns occurred within that semi-annual reporting period.

11.3 40 CFR 264 SUBPART CC

The Triassic Park Waste Disposal Facility will not be subject to the Subpart CC requirements for tanks and surface impoundments because these facilities will not be used to manage wastes containing volatile organic concentrations greater than 500 ppmw.

Fifty-five gallon drums and roll-off box containers may hold hazardous waste that contains greater than 500 ppmw volatile organic compounds. All 55-gallon drums and roll-off boxes stored at the facility will have covers and meet Department of Transportation (DOT) requirements or packaging of hazardous waste for transport under 49 CFR 178. Therefore, no additional controls will be required for 55-gallon drums or roll-off boxes.

11.3.1 Waste Determination

A waste determination will only be required 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 surface impoundment). 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 in certain situations.

For waste to be placed in units that comply with Subpart CC requirements for air emission controls, no formal waste determination is required.

REPLACEMENT FIGURES FOR VOLUME I