Attachment A

General Facility Description and Information

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PERMIT ATTACHMENT A

GENERAL FACILITY DESCRIPTION AND INFORMATION

1 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.

1.1 General Description

The Facility is a Resource Conservation and Recovery Act (RCRA) Subtitle C waste disposal landfill. The Facility is located in Southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico (Figure A-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure A-2.

All waste placed in the Facility must meet Land Disposal Restrictions (LDRs) prior to disposal. The Facility will accept polychlorinated biphenyl (PCB) wastes at concentrations of less than 50 parts per million (ppm) in soils, and bulk PCB-contaminated remediation waste. The Facility will offer the following RCRA-regulated service, which is described in this permit application.

1.1.1 Land Disposal

A landfill will be utilized for the disposal of waste that meets LDRs. Support units and structures include a chemical laboratory, administration building, weigh scale area, maintenance shop, clay processing area, clay liner material stockpiles, daily cover stockpiles, and a stormwater detention 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 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 detention 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 Permit Attachments L; L1; L2 (Engineering Report and Attachments) and M (Construction Quality Assurance Plan)**.**

1.1.2 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.

1.1.3 Facility Contact

Larry Gandy, Vice President
Gandy Marley, Inc.
P.O. Box 1658
Roswell, New Mexico 88202
575-347-0434

1.1.4 Facility Mailing Address

P.O. Box 1658
Roswell, New Mexico 88202

1.1.5 Purpose of Facility

The purpose of the Facility will be the permanent disposal of hazardous wastes in a manner that is protective of human health and the environment. Wastes that do not meet LDRs will not be accepted for placement into the landfill. Infectious wastes and radioactive wastes are prohibited at this Facility. The Waste Analysis Plan (Permit Attachment F) contains more details regarding wastes that can be accepted at the Facility and wastes that are prohibited.

1.1.6 Facility Location

The Facility is 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 A-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure A-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.

1.1.7 Hazardous Waste Generation

Some hazardous waste will be generated as a result of normal Facility operations. Various support operations and collected leachate 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 excluding liquids, will be disposed of on-site in accordance with the requirements outlined in Permit Attachment F, *Waste Analysis Plan*. Any waste not meeting LDRs will be managed through off-site disposal at a facility permitted to accept such material.

1.1.8 Sanitary Waste Generation

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

1.1.9 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 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 of the Part B Permit Application.

The site is at an elevation 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 moister 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 (^{o}F). The average annual precipitation rate for Roswell for a 118-year record of data from 1894 to 2011 is 11.6 inches per year. 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 32°F. Moderate temperatures at the Facility are typical throughout the year with annual average high and low temperatures of 75°F and 45°F, respectively.

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.

Pursuant to the U.S. Endangered Species Act, there are 13 federally-listed and sensitive species in Chavez County and 18 species of concern, which are identified for planning purposes only. As of February 28, 1996, the ferruginous hawk (*Buteo regalis*) is no longer listed as a candidate species but does remain a species of management concern.

The dunes sagebrush lizard (formerly sand dune lizard) (*Scelopurus graciosus arenicolous*) is currently listed as Endangered by the New Mexico Department of Game and Fish. In 2008, the U.S. Bureau of Land Management adopted a Special Status Resource Management Plan for the dunes sagebrush lizard. The lesser prairie chicken (*Tympanuchus pallidicinctus)* is currently listed as a threatened species under the Endangered Species Act.

GMI will continue to monitor for the presence of threatened or endangered species in the area and follow all appropriate regulations, as updated. Should any threatened or endangered species be identified within the Facility area, GMI will take measures to ensure that these species are protected. In the case of the lesser prairie chicken, GMI shall enroll in the Lesser Chicken Interstate Working Group's Lesser Prairie Chicken Range-Wide Conservation Plan, and shall comply with all components of this plan (as updated). GMI will implement protective measures for the wildlife population in the area including the use of restrictive fencing around the operational portions of the Facility.

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 Permit Attachment L1, *Engineering Drawings*, Drawing 3. The Facility layout is presented at Drawing 4 in Permit Attachment L1. This drawing illustrates Facility boundaries, access roads, access control locations, internal roads, and site fences.

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 A-1. All of the residences within a ten-mile radius of the site are listed in Figure A-3.

The site will encompass 480 acres. The active portion of the Facility shall be enclosed by a 6-foot chain link fence topped with barbed wire. Gates to the same height as the perimeter fence shall be constructed. The area shall 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 shall be present at all times to prevent unauthorized entry and to report unusual events and/or emergencies. Site security personnel are responsible for conducting regular inspections and routine maintenance of the perimeter area (see Permit Attachment D, *Inspection Procedures*).

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 of the Part B Permit Application.

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.

1.3.1 Flood Plain Information

Sections 17 and 18, T11S, R31E are included on Federal Insurance Rate Map #35005C1775D. This map has not been printed because this is a non-participating community, a status which generally indicates that the area is an area where there are minimal flood hazards. This information was originally provided to GMI by the Director of Planning and Environmental Services, Chaves County, New Mexico, and was also confirmed with the National Flood Insurance Program at their website (www.msc.fema.gov) on October 11, 2011.

To confirm that this Facility is an area with minimal flood hazards, 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 5.75 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 of the Part B Permit Application). 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 (see the Surface Water Control Plan in Permit Attachment CC of the Part B Permit Application). A run-off coefficient of 0.3 was used in the calculations. It was determined that the maximum flow could be accommodated in a triangular channel with occupying a width of 78 feet at a water depth of 1.2 feet. It may be concluded from this calculation 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 Permit Attachment C, *Contingency Plan*). Each EC will have the authority to commit resources necessary to implement the site Contingency Plan described in Permit Attachment C.

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 Permit Attachment C).

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. Drawing 26, Sheet 2 in Permit Attachment L1 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 (Permit Attachment L1). 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 On-Site 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 to the landfill, where the waste will be placed in the landfill for permanent disposal.

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 A-2.

2 DISPOSAL PROCESS

This section provides a general description of the disposal process for the Facility. Detailed design drawings and associated engineering reports for the Facility are contained in Permit

Attachments L, *Engineering Report*, and L1, *Engineering Drawings*. The drawings and specifications contained in Permit Attachment L2 present final designs for the RCRA permitted Landfill. Details on the non-RCRA components of the facility will be supplemented during the bidding and construction phase. GMI 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 Permit Attachment L1, Drawing 4 and identifies areas to be used for waste acceptance, waste receiving, and waste disposal activities. 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 Permit Attachment F, *Waste Analysis Plan*. 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 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 whether the waste may be accepted for disposal;
- 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 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 A-2. When a shipment arrives at the Facility gate, a Facility representative will verify that the shipment was scheduled prior to allowing entrance to the Facility. 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 complete and accurate, and that an 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 1.5 of the Waste Analysis Plan in Permit Attachment F. If the fingerprint test results are

inconsistent with the generator's information, several actions can be taken (see Section 1.5 of the Waste Analysis Plan in Permit Attachment F). Waste will be received 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 Disposal

Wastes arriving at the Facility that meet LDRs and contain no free liquids will be placed directly in the landfill. When wastes are unable to be placed directly in the landfill, such as during landfill equipment maintenance periods or extreme weather conditions, the wastes will not be unloaded and will be temporarily stored in the truck staging area.

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.

An access ramp will be constructed from the top of the landfill to the bottom of the active portion of the landfill (see Permit Attachment L1). 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 waste.

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 2.2.1.g below). The soil cover will be deposited on top of the waste placement face and then spread and compacted with a landfill compactor or tracked bulldozer. The minimum cover thickness will be 0.5 foot.

2.2 Landfill

This section describes the design, construction, and operation of the landfill. The detailed design for the landfill is contained in Permit Attachment L, Engineering Report, and L1, Engineering Drawings. 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. The capacity of the landfill is included in Attachment L Potential expansions of the landfill in 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 Permit Application Attachment L1.

2.2.1 Design of Landfill

The landfill design specifies a double-lined landfill with a leachate collection and leachate removal system (LCRS) above the primary liner and a leak detection and removal system (LDRS) between the primary and secondary liners. The design presented in Permit Attachment L specifically describes the relationship between the existing site topography and the landfill subgrade.

2.2.1.a Nature and Quantity of Waste

As specified in the Waste Analysis Plan in Permit Attachment F, the Facility will accept RCRA hazardous waste and PCB waste, excluding selected waste. The excluded waste is listed in the Waste Analysis Plan (Permit Attachment F).

The wastes that will be accepted for placement in the landfill include all wastes listed in Part A of the application (presented in the *Part A Permit Application*). All waste to be placed in the landfill must meet LDRs (40 CFR 268). Additional details on wastes to be accepted at the Facility are included in Permit Attachment F, Section 1.1.1, Permitted Waste.

The landfill will have an area of approximately 100 acres and a capacity of approximately 10 million cubic yards of waste. The Phase 1A area, which is the subject of this Permit, will comprise approximately 35 acres (estimated final cover area) and have a capacity of approximately 553,200 cubic yards.

2.2.1.b Liner Systems

The liner system will be installed to cover all surrounding earth that may come in contact with waste or leachate (see Permit Attachment L1). The primary liner system will consist of, from top to bottom, a 2-foot layer of protective soil, a geocomposite drainage layer, and a high density polyethylene (HDPE) geomembrane liner.

The secondary liner 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 liner 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 Permit Attachment L2. 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.

Initially, the Phase 1A 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 Permit Attachment L1. The benching technique considered for expansion of the landfill vertically up slope is shown in Drawings 8 through 11 (Permit Attachment L1) 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 Permit Attachment L1). Because the existing ground formations have been pre-stressed 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.

2.2.1.c Leachate Collection and Removal System (LCRS)

The LCRS will be located above the primary liner system. Attachment L1 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.

As demonstrated in the engineering report (Permit Attachment L), 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 Permit Attachment L, Section 3.1.3).

The LCRS is sloped so that any leachate above the primary liner will drain to the sump. Phase 1A includes one sump as shown in Permit Attachment L1. The sump and liquid removal methods will be of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

The sump will be equipped 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 in 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 Permit Attachment L1. 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 if fluid levels in the tanks approach capacity. 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.

The sump system will be equipped to measure and record the volume of liquid removed. 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 hypothetical 1-mm^2 hole in the liner per acre are discussed in the engineering report (Permit Attachment L). All liquid in the sump will be removed in a timely manner to prevent the head on the primary sump liner from exceeding 12 inches.

Leachate will be managed by recirculating the liquid and applying it to the landfill soil cover for enhanced evaporation. The leachate collection tanks will be used for temporary storage. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum trucks with spray bars may also be used to apply leachate to the soil cover. Management of leachate has been evaluated through calculations that are provided with the Engineering Report in Attachment L. Calculations show that the leachate generation rate is anticipated to be much less than the potential evaporation rate within the Phase 1A landfill. Management of leachate by recirculation for enhanced evaporation keeps all leachate and potential contaminants within the lined landfill cell.

2.2.1.d 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. Piping will be installed within the LDRS layer to detect and remove liquid from between the primary and secondary liners. The piping arrangement is shown in Permit Attachment L1.

As demonstrated in the engineering report (Permit Attachment L), 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 1×10^{-2} centimeters per second (cm/s); (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 Permit Attachment J, Action Leakage Rate and Response Action Plan). A method will be provided for measuring and recording the volume of liquid present in the sump and liquid removed. All 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 liquids can be removed to the maximum extent possible.

2.2.1.e Vadose Zone Monitoring System

The vadose zone monitoring sump serves as a detection system for potential leakage from 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 and is included in Permit Attachment L1.

2.2.1.f Run-On/Runoff Control

The run-on/runoff 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/runoff control system design is provided in the Engineering Report in Attachment L and the Surface Water Control Plan in Attachment CC of the Part B of Permit Application. The purpose of the run-on/runoff control system is to prevent any contamination present on-site from migrating off-site

and to minimize the volume of liquid entering the landfill in order to limit the potential to transport contaminants within and from the landfill.

Run-on/runoff will be collected in one of three different collection basins, depending on the source of the water. The collection basins are listed and discussed in detail below:

- The Facility Stormwater Detention Basin
- The Phase 1A Landfill Stormwater Collection Basin
- The Phase 1A Landfill Contaminated Water Basin

The Facility Stormwater Detention Basin is located northwest of the landfill area, as shown in Permit Attachment L1. Run-on originating from around the landfill will be directed away from the proposed landfill area using unlined landfill perimeter ditches (see Permit Attachment L1). These ditches will prevent water outside of the landfill from entering the active portion of the landfill. Based on the topography of the site, the run-on is expected to move from the east/southeast to the west/northwest and will be diverted to the Stormwater Detention Basin. The Stormwater Detention Basin also is intended to collect runoff from the rest of the Facility (not including the landfill itself) and will be lined with a single 60-mil HDPE liner as a precaution to prevent infiltration of ponded stormwater. Occasional maintenance may be required for the stormwater basin, including liner repairs and removal of accumulated sediments. Materials removed from the basin will be tested for contamination. If basin materials are found to contain contaminants at concentrations greater than NMED SSLs for the industrial land use scenario, they will be placed in the landfill. If materials are not found to contain contaminants at concentrations greater than the NMED SSLs for the industrial land use scenario, they may be disposed as solid waste.

The Phase 1A Landfill Stormwater Collection Basin is located at the toe of the inter-phase cut slope in the landfill, as shown in Permit Attachment L1. This basin will collect runoff from the inactive portion of the Phase 1A landfill. During the initial stages of the landfill operation, runoff from the landfill side slopes above the liner system will be channeled away from the waste by the slope drainage interceptor ditch. The water in the Stormwater Collection Basin will be sampled prior to discharging outside the landfill area. If not tested or if impacted above New Mexico Water Quality Commission Control (NMWQCC) standards, non-contact stormwater will be handled in the same manner as contact stormwater. If not impacted, the stormwater will be pumped to ditches and/or the Facility stormwater detention basin. The basin is lined with a single 60 mil HDPE liner.

The Phase 1A Landfill Contaminated Water Basin is located at the bottom of the Phase 1A landfill, as shown in Permit Attachment L1. This basin overlies the landfill liner system. The

contaminated water basin will be maintained in a manner that ensures that a 2-feetthick protective soil cover is present over the liner system.

Runoff from the active portion of the landfill, which does not infiltrate into the LCRS, will be collected in the landfill contaminated water basin. Runoff water collected within the contaminated water basin will be managed by pumping to remove the standing water in the basin and applying it to the landfill soil cover for enhanced evaporation. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum trucks with spray bars may also be used to apply water to the soil cover. Leachate recirculation from either a moveable sprinkler system or from vacuum trucks will only occur within the lined landfill areas. Spraying will only be in the direction of the lined landfill areas. There will be no spraying from the ramp or in an active work area. Additionally, if sustained wind speed is over 15 miles per hour (mph), no leachate application will occur until wind speed has dropped below 15 mph. Daily soil cover will be placed on areas where leachate has been sprayed. Management of runoff water within the Phase 1A landfill has been evaluated through calculations that are provided with the Engineering Report in Attachment L. Because evaporation rates greatly exceed precipitation rates at the site, runoff water can be removed from the basin and eliminated by enhanced evaporation. Management of runoff water by recirculation for enhanced evaporation keeps all water, that has a potential to contact waste, within the lined landfill cell.

2.2.1.g 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 approximately 0.5 foot.

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. Water applied for dust control may only include clean water supply, leachate, and runoff water collected within the landfill contaminated water basin. The water will be applied using both a piping and sprinkler system and water trucks equipped with a pump, piping, and an array of nozzles that spray very small water droplets onto the soil cover. If leachate is used for wind dispersal control, daily soil cover will be placed on areas where leachate has been applied. Leachate application for wind dispersal will only occur within lined landfill areas.

The frequency of the water application depends on weather and traffic conditions. 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 or be absorbed rather than seep through the waste to become leachate.

2.2.1.h Gas Generation Management

The landfill will not receive municipal solid waste (MSW) or construction and demolition (C&D) waste, limiting the gas generated as a result of biological decomposition of organic wastes. Hazardous organic wastes placed in the landfill will meet LDRs, which will limit the organic gas generation potential. The hazardous 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 the Waste Analysis Plan (Permit Attachment F) and outlines the procedures that will be used to test for reactive cyanide and sulfide, other reactive chemical groups, waste compatibility, and degradability 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 evaluate for 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 best available technology will be implemented into the construction of the cover system, which may require a modification to the Permit.

2.2.1.i Cover Design

The design of the final cover is described in Permit Attachment O, Closure Plan. Additional details of the final cover design are shown in the Engineering Report in Permit Attachment L and the Engineering Drawings in Permit Attachment L1.

2.2.1.j Landfill Location Description

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

2.2.1.j.1 Geographic Location

The proposed site is located in a remote, unpopulated portion of New Mexico, approximately 43 miles east of the City of Roswell and 36 miles west of the City of Tatum. The primary land use in the surrounding area is ranching, which will not be affected by landfill operations.

2.2.1.j.2 Geologic Setting

The proposed site is to be developed within low-hydraulic conductivity, geologically stable sediments of the Dockum Group of Triassic age (see Section 3.4 of the Permit Application). 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.

2.2.2 Construction

Construction activities will consist of site preparation; excavation and preparation of landfill slopes and base; and construction of the liner, LCRS, and LDRS in accordance with the specifications and Permit Attachment M, Construction Quality Assurance Plan.

2.2.2.a 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 security fence also will be installed around the Facility perimeter. These components are shown in Drawing 4 presented in Permit Attachment L1.

2.2.2.b 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 U.S. Environmental Protection Agency (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 that has been sized, moisture conditioned, compacted, and trimmed to provide a smooth stable surface for geosynthetic material placement.

2.2.2.c Construction Quality Assurance Plan

Permit Attachment M contains the Construction Quality Assurance (CQA) Plan. Implementation of CQA procedures will result in increased leachate collection efficiency and reduced leakage through the landfill liner. Additionally, use of CQA will result in fewer costly repairs to the landfill after wastes have been received, fewer occasions of exceeding the ALR, which should decrease the 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. 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, CQA Plan, and Construction Specifications and meets the requirement of 40 CFR § 264.19. Documentation supporting the certification will be maintained in the operating record and will be furnished to NMED upon request. Wastes will not be accepted at the constructed portion of the landfill until NMED either approves the certification or waives the approval requirement.

2.2.3 Operation

The landfill will be operated in a safe and proper mannerand in accordance with the following requirements.

2.2.3.a Inspections and Monitoring

Permit Attachment D contains information on inspections and monitoring.

2.2.3.b Maintenance and Repairs

The landfill structure will be maintained through a routine preventive maintenance program, which will be fully described in the final site operations plan. Preventive 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 maintained in accordance with the manufacturer's recommended procedures. Preventive maintenance information will be documented and any deviation from normal conditions will be closely tracked and corrected, as necessary.

2.2.3.c Warning Signs

Permit Attachment B, Procedures to Prevent Hazards, contains information about warning signs.

2.2.3.d 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 Attachment M, Construction Quality Assurance Plan).

2.2.3.e List of Hazardous Wastes to be placed in Landfill

The wastes to be placed in the landfill are described in Permit Attachment F, Waste Analysis Plan.

2.2.3.f Specific Requirements for Ignitable/Reactive Wastes

Wastes that do not meet LDRs, as defined in Permit Attachment F, Section 1.5, Waste Analysis, will not be placed in the landfill. Therefore, untreated ignitable and reactive waste (as defined in 20.4.1 NMAC) will not be placed in the landfill.

2.2.3.g 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.

2.2.3.g.1 Procedures for Ensuring Safe Disposal of Incompatible Wastes

Procedures for identifying incompatible wastes are discussed in Permit Attachment F, Waste Analysis Plan. At a minimum, incompatible wastes will be spaced a sufficient distance apart in the landfill to prevent the potential for contact. 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 spaced at approximately 50- to 100-foot intervals. Therefore, the minimum spacing would be 50 feet.

2.2.3.g.2 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 Attachment F 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, prior to receipt at the Facility. Lab packs must meet all applicable LDRs (40 CFR § 268).

2.2.3.g.3 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 bulk liquids will not be accepted at the Facility or placed in the landfill. 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(c)]

2.2.3.g.4 Special Requirements for Containers

Containers, except those that are very small such as ampules, must be 90 percent full when placed in tact in the landfill. Containers less than 90 percent full will be crushed to the maximum extent possible though compaction when placed in the landfill.

2.2.3.h 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 Action Leakage Rate and Response Action Plan in Permit Attachment J and the Engineering Report in Attachment L.

The average daily flow rate in the LDRS sump will be calculated in accordance with the Action Leakage Rate and Response Action Plan, which are presented in Permit Attachment J.

2.2.3.i Response Action Plan

The elements of the response action plan for the landfill include (1) reducing the head on the liner to the maximum extent possible to aid in the prevention of leaks, (2) determining 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.

2.2.3.i.1 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;
- removing liquids from the sumps 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 liquids are removed to the maximum extent possible;
- waste material and soil cover will be placed in the landfill in a configuration to provide slopes that will prevent ponding and drain to the contaminated water collection basin within the Phase 1A landfill liner; and
- if water ponds on the surface of the daily cover due to a heavy rain event, vacuum trucks will be utilized to remove as much of the standing water as possible before it can seep into the waste.

2.2.3.i.2 Leak Detected Below the Action Leakage Rate

Flow rates less than the ALR are expected under normal operating 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 pumps;
- 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;
- 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 Permit Attachment M);
- document any damage and repairs in the Facility operating record; and
- investigate alternative sources for the liquids.

2.2.3.i.3 Leak Detected Above Action Leakage Rate

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

- notify NMED in writing of the exceedance;
- submit a preliminary written assessment to NMED as to the amounts of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;
- determine, to the extent practicable, the location, size, and cause of any leak;
- determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;
- determine any other short-term and long-term actions to be taken to mitigate or stop any leaks;
- submit to NMED the results of the determinations described above, the results of the actions taken, a description of the actions planned;

- monthly, as long as the action leakage rate continues to be exceeded, submit a report to NMED summarizing the results of any remedial actions taken and planned; and
- in making the determinations described in this section, either conduct the following investigation or document why such an investigation is not needed:
    - assess the source and amount of liquid from each source collected in the sump;
    - conduct hazardous constituent analysis of the liquid collected in the sump and use the results to help identify the source(s) of the liquid and possible location of any leaks as well as the potential hazard associated with the liquid and its mobility; and
    - assess the seriousness of any leaks in terms of potential for escaping into the environment.

2.3 Operations and Maintenance

The regulated landfill unit will be constructed in accordance with the Design Drawings, Specifications, and CQA Plan presented in Permit Attachments L1, L2, and M, respectively. The operations and maintenance of the landfill unit will be in accordance with the Operations and Maintenance Plan presented in Permit Attachment N. In general, all maintenance and repairs to the facilities will be completed to meet the requirements of the original Design Drawings and Specifications and will be monitored in compliance with the CQA Plan.

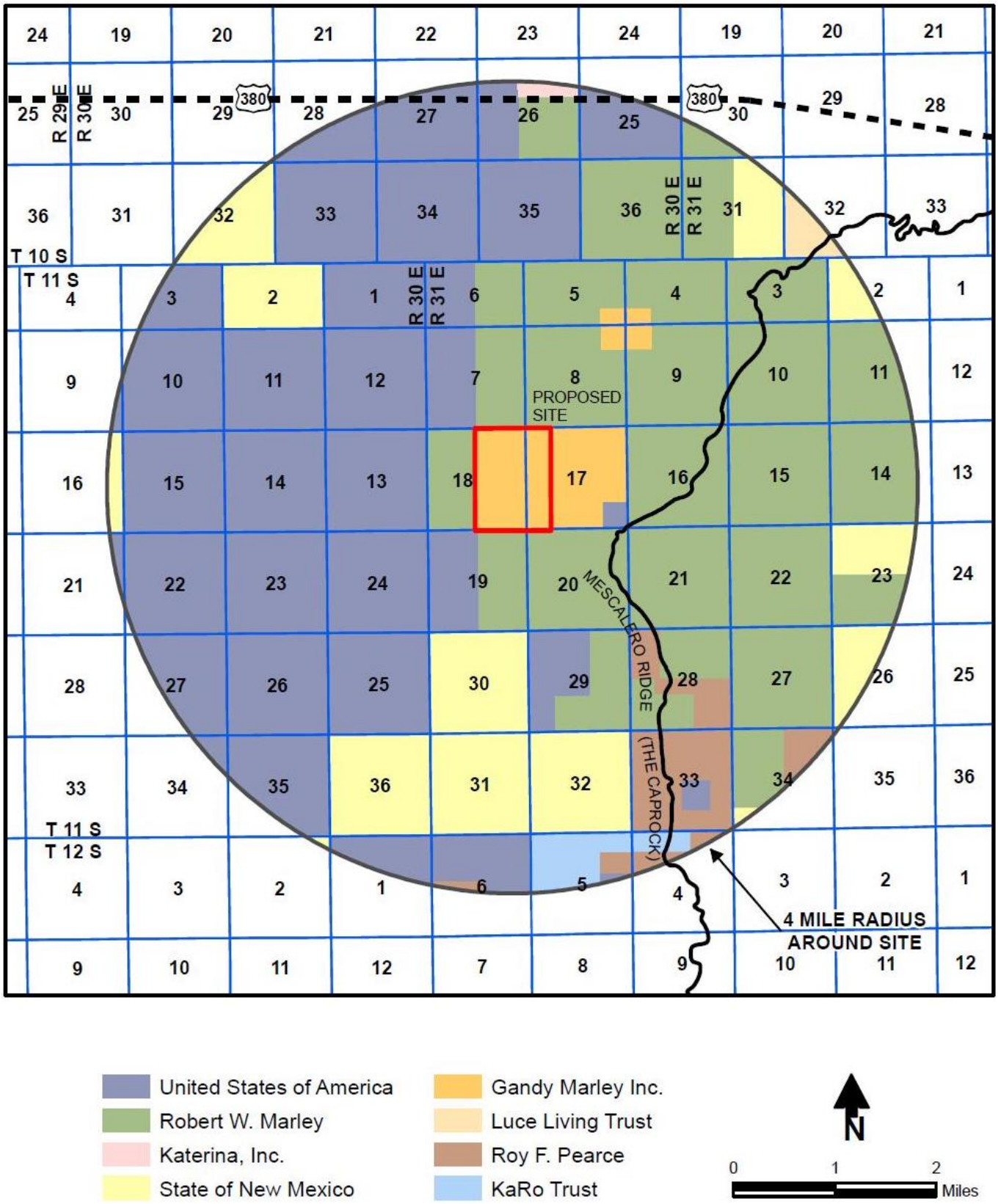

FIGURE A-1: LAND OWNERSHIP WITHIN 4-MILE RADIUS

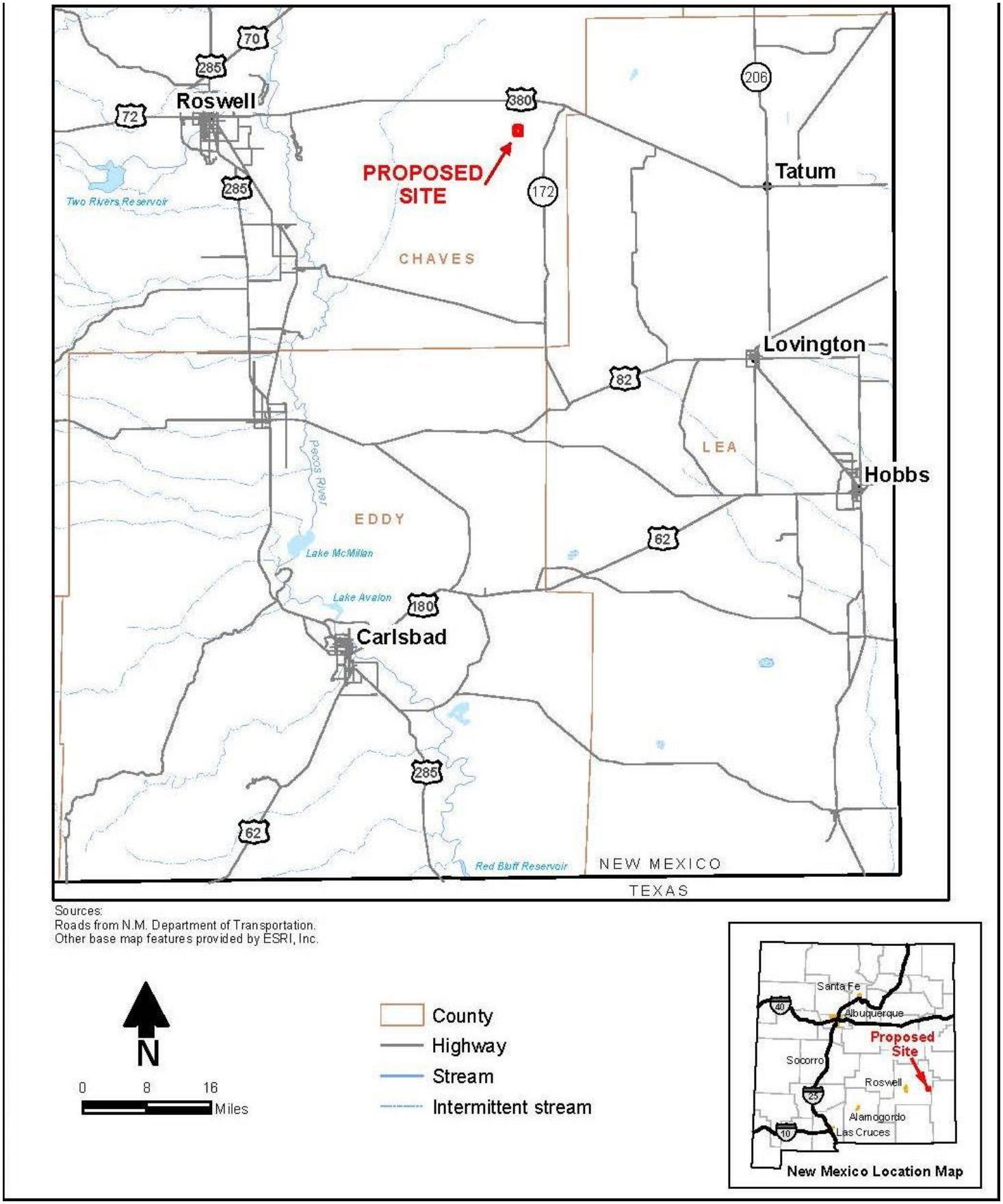

FIGURE A-2: SITE LOCATION MAP

OWNER	DISTANCE	DIRECTION
Marley Ranch	Approximately 2.9 Miles	East-Southeast
Bill Kolb, Jr. - KOBR TV Towers	Approximately 4.5 Miles	East
KOBR TV - Two Dwellings (Vacant 20+ Years)	Approximately 4.5 Miles	East
Pearce Ranch	Approximately 4.5 Miles	Southeast
Sand Ranch (Vacant 10+ Years)	Approximately 6.3 Miles	Northeast
Jack Luce Ranch	Approximately 6.5 Miles	Northeast
Pearce Ranch	Approximately 7 Miles	West
Perry Dean Goff Ranch	Approximately 7 Miles	East-Southeast
Sand Ranch	Approximately 7.2 Miles	Northwest
Jackie & Cindy Reynolds	Approximately 7.9 Miles	Southeast
Luce Ranch and Store	Approximately 8 Miles	Northeast
Tivis Ranch	Approximately 8.2 Miles	Southeast
Johnson Ranch	Approximately 9.7 Miles	Northeast

FIGURE A-3: RESIDENCES WITHIN A 10-MILE RADIUS