RESPONSE to

NOTICE OF DEFICIENCY

DATA PACKAGE

GM inc.

TRIASSIC PARK WASTE DISPOSAL FACILITY
CHAVES COUNTY, NEW MEXICO

SEP 1995
RECEIVED
HAZARDOUS WASTE
PROGRAM

Prepared For:

Hazardous and Radioactive Materials Bureau,
New Mexico Environment Department

Prepared by:

The S.M. Stoller Corporation
1717 Louisiana Blvd., NE, Suite #209
Albuquerque, NM 87110

and

TerraMatrix Inc.
1475 Pine Grove Road, Suite #109
Steamboat Springs, CO 80477

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RESPONSE to

NOTICE OF DEFICIENCY
for

Triassic Park Part B Permit Application

TRIASSIC PARK WASTE DISPOSAL FACILITY
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RESPONSE to
NOTICE OF DEFICIENCY
for
TRIASSIC PARK PART B PERMIT APPLICATION

GENERAL COMMENTS:

The major concerns TCP has regarding this Permit Application relate to inadequacy of the subsurface characterization, the landfarm design, and the solid waste management units (SWMUs) which are not included in the Permit Application. The omitted SWMUs are:

1) the untarping, sampling, and weigh scales area,
2) the truck staging area,
3) the truck wash facility,
4) the maintenance shop,
5) the chemical laboratory,
6) the stormwater retention basin,
7) the future debris encapsulation area, and
8) the future waste processing area.

Response:

a) Inadequacy of subsurface characterization: An additional drilling program was conducted to evaluate the contact between the Upper and Lower Dockum units, investigate the saturation condition of these sediments, and collect core data for permeability studies on the Lower Dockum unit. The results are described in the response to Comment #83 and in the NOD Data Package and the Waiver Justification Document included with this NOD Response.

b) Landfarm design: We assume the comment refers to the design of the landfill. The Waiver Justification Document provides more information regarding the design of the landfill and its impact on the surrounding environment.

c) Omitted solid waste management units (SWMUs): Information pertaining to SWMUs is provided in the response to Specific Comment #2.

SPECIFIC COMMENTS:

ITEM

Comment 1 Table of Contents, page iv. **("2. Landfill...")** This section should be labelled "Storage, Treatment, and Disposal".

Response: Agreed. Wording should read as suggested.

Comment 2 Section 1.2, 2nd paragraph. **("Support facilities and structures, which will not be RCRA permitted...")** As noted in the General Comments above, eight of the facilities and structures are solid waste management units and need to be included in the permit application.

also § 124

Response: In accordance with 40 CFR 270.14(d), the following information is required for each solid waste management unit (SWMU) at a facility seeking a permit:

- The location of the unit on the topographic map
- Designation of type of unit
- General dimensions and structural description (with available drawings)
- When the unit was operated
- Specification of all wastes that have been managed at the unit
- Information on releases from SWMUs
- Results of sampling of groundwater, landsurface and subsurface strata, surface water or air.

Because the facility has not yet been constructed or operated, there are no SWMUs at this time. Satellite and/or 90-day accumulation areas may possibly be located at the chemical laboratory, the truck wash facility, and the maintenance shop. Other areas at the facility that may be designated as SWMUs include the untarping, sampling, and weigh scales area, the truck staging area, and the stormwater retention basin. The general locations of these facilities are identified in Figure 2-1. Detailed information on unit type, dimensions, and structural description will be provided as the final design of the facility is completed. The other required information is not applicable at this time, as the units have not been operated and have not had any releases.

The future debris encapsulation area and the future waste processing area identified in Figure 2-1 are possible future RCRA treatment units envisioned for the facility that are not being designed at this time. Prior

to construction of these units, a RCRA permit modification request will be submitted.

Comment 3 Section 1.4, 2nd paragraph. **("There are no residences near the proposed site.")** State the distance and direction to the closest residences.

Response: The 11 residences closest to the Triassic Park site are as follows:

Ramos Land and Cattle Company
1764 Merlinda Road
approximately 17.5 miles southwest

Bogle Farms, Ltd.
681 Cindy Road
approximately 16.25 miles south-southwest

Pearce Trust
321 Inez Road
approximately 6.5 miles west

Sand Ranch, Inc.
164 Sand Ranch Road
approximately 5 miles north-northeast

Marley Ranches, Ltd.
98 Melody Road
approximately 3.5 miles east-southeast

Sand Ranch, Inc.
7975 E. 2nd Street
approximately 17.5 miles northeast

Pirtle Revocable Trust
7152 Old Chisum Trail
approximately 32.25 miles west-southwest

Tivis, W.T., Jr.
15 Sharon Road
approximately 7.75 miles south-southeast

Pearce Trust
801 Hazel Road
approximately 9 miles west-southwest

Sand Ranch, Inc.
528 Quemodo Road
approximately 10 miles north-northwest

Luce, Jack
7675 E. 2nd Street
approximately 14.25 miles northeast

Comment 4 Section 1.4, 4th paragraph. **("...Area 1...and Area 2.")** What do these designations mean?

Response: 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. 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 shall be limited to a minimum of five acres.

Comment 5 Section 1.4, 6th paragraph. **("The nearest production well is situated three miles from the proposed site.")** Are there abandoned wells, or other types of wells, tests, or borings closer? What is the direction of the wells, etc.? This was discussed at the June 8, 1995 meeting in Santa Fe and the questions may be answered when GMI submits the map which was requested.

Response: Plate 3-7 is included in a NOD Data Package that accompanies these responses. This plate is a topographic map of the proposed site and the surrounding area (radius of 4 miles). All oil wells, water wells and initial shallow drill holes are plotted on this map. In addition, color air photos of the proposed site are included in the NOD Data Package.

All abandoned wells in the area have been plugged in accordance with New Mexico Oil Conservation Commission (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 presents surface water from entering and contaminating subsurface strata.

Comment 6 Section 2.1.2, 2nd paragraph. **(...samples will be taken and fingerprint testing...conducted.")** How, and by whom, will this testing be done? Will consistency of test results with the generating facility information be determined in all cases? How will the waste be handled if the results are inconsistent?

Response: Specifics of fingerprint testing can be found in Section 5.2.2.2 in the Waste Analysis Plan. As stated in section 5.2.2.1, Incoming Waste Shipment Procedures, samples will be collected by trained facility personnel using EPA-approved sampling methods such as those specified in 40 CFR 261 Appendix ~~II~~ I. Generally, samples will be collected from each different waste stream in a waste shipment for fingerprint testing. Certain loads may not be sampled, at the discretion of the facility manager or laboratory supervisor. Consistency of test results will be determined in all cases. If the fingerprint test results are inconsistent with the generator's information, several actions can be taken, as discussed in Section 5.2.2.2: resample the waste and perform a second fingerprint test, perform further waste characterization as necessary to verify the waste composition, or reject the entire waste shipment or the nonconforming portion of the shipment.

Comment 7 Section 2.1.3, 1st paragraph. **("...to ensure adequate accumulation time is available...")** The sentence is not clear. Can "space" be substituted for "time"?

Response: Agreed. Wording should read as suggested.

Comment 8 Section 2.1.5, 3rd paragraph. **("...a three-dimensional record...")** What horizontal dimensions are proposed for the individual blocks in this system?

Response:

Block Width:	50 feet
Block Length:	50 feet
Block Depth:	10 feet

Comment 9 Section 2.2.2. **("Roll-off containers will be stored on an open pad...divided into two sections.")** How will incompatible wastes be kept separated?

Response: Section 2.2.1~~2~~8, Compatibility with Other Waste, describes the methods that will be used to separate incompatible wastes.

Comment 10 Section 2.2.2. **("The** (roll-off storage) **area will not be equipped with** (emergency safety equipment)**...because of the facility's close proximity to the stabilization facility, which will be equipped...")** Figure 2-1 shows the roll-off storage area to be 800 feet from the stabilization facility. This distance will cause an undue delay in obtaining emergency safety equipment at the roll-off storage area.

Response: Emergency equipment will be provided in the roll-off storage area. Wording should be revised as follows: "The area will be equipped with fire extinguishers, alarms, a telephone, spill control and first aid kits." The remainder of the sentence should be deleted.

Comment 11 Section 2.2.2.1. **("...perforated pipe surrounded by drainage material.")** How will all of this be cleaned following any spills? Would it be simpler, and as efficient, to leave out the drainage material?

Response: The purpose of the drainage system below the storage area surface is to allow rainfall to drain and be removed from the contained area. This will reduce ponding and mud formation on the surface and support truck traffic quickly after a rainstorm. The presence of free liquids inside the roll-off box/bed liner system can occur if liquids are inadvertently loaded in the box, or if rainfall enters a hole in the roll-off cover during

transportation, or if liquids separate from solids during transport. These free liquids will be identified when the roll-off box is visually inspected at the untarping station.

It is possible, but unlikely, that free liquids in roll-offs could be generated in the staged roll-off boxes. For example, if a roll-off cover is faulty and rainfall enters the roll-off, and both the plastic bed liner and the roll-off box containment fail, then a leak could occur to the surface of the roll-off storage area. This leak would be observable as a drip or a stain on the storage area surface, in which case the roll-off would be handled as described above and the stained soil excavated and handled as a potential hazardous waste.

Comment 12 Section 2.2.2.1. **("...the secondary containment sump.")** What will be the volume of this sump? Will it be 10% of the volume of the waste containers?

Response: Because the final design of the sumps has not been completed, the actual volume is not known. The sump will however, be designed to contain a minimum of 10% of the volume of the waste containers.

Comment 13 Section 2.2.4. **("...adequate secondary containment.")** What is meant by this?

Response: Wording should be revised as follows: "...locations that have adequate secondary containment, which includes: an impervious base, run-on protection, sufficient capacity to contain 10% of the volume of the waste containers, a sloped base or a design or operation to drain or remove liquids, and removing leaked waste and accumulated liquids in a timely manner."

Comment 14 Section 2.2.7. **("All container storage areas will be visually inspected at least weekly...")** All storage areas should be inspected at least daily.

Response: As required in 40 CFR 264.174, all storage areas will be inspected at least weekly for leaking containers and deterioration of the containers and containment area. It is anticipated that because workers will be working in and around the storage areas frequently, any signs of leaks or deterioration will be identified and resolved promptly, between weekly inspections.

Comment 15 Section 2.3.1, 1st paragraph. **("Each bermed area will be sloped to provide drainage to a sump.")** What will be the sump capacity?

Response: Because the final design of the sumps has not been completed, the actual volume is not known. The sump in each storage tank containment area is intended to be a low point to enable pumping of accumulated liquids. The type of pump has not been selected and the size of the sump will depend mainly on this. A typical size of this type of sump might be 3 feet wide by 3 feet long by 3 feet deep. The capacity of the sump and containment berm together will meet or exceed the regulatory requirement to contain 100% of the tank volume plus precipitation from a 25-year 24-hour storm.

Comment 16 Section 2.3.1, 1st paragraph. **("The coating will cover the entire floor, sump, and berm...")** The coating must be compatible with wastes stored in the unit.

Response: Wording should be revised as follows: "The concrete will be coated with materials such as epoxy or other coatings that are compatible with the waste(s) to be placed in the tank systems. The coating will cover the entire..."

Comment 17 Section 2.3.1, 1st paragraph. **("...up to the minimum berm height.")** What does this mean?

Response: The minimum berm height is the elevation on the concrete berm wall that meets design containment volume requirements. In other words, it is the effective height that, when multiplied by the length and width, would convert to a capacity sufficient to contain 100% of the tank contents plus precipitation from a 25-year 24-hour rainfall event. Because the size of the tanks and the final concrete containment configuration will be determined during the final design, volume requirements and minimum berm coating height will be determined at that time.

Comment 18 Section 2.3.1, 3rd paragraph. **("Response to releases will be initiated within 24 hours of detection.")** The response to any release should occur immediately. 20 NMAC 4.1 Subpart V, 40CFR264.56 requires immediate response to releases and immediate notification to the National Response Center. HRMB should be notified at the same time.

Response: Response to a release from a tank will be initiated immediately upon discovery, as required in 40 CFR 264.196. The sentence referenced in

the comment should be changed accordingly. However, the regulations cited in the comment (40 CFR 264.56) require immediate notification to the National Response Center (NRC) only in cases where the facility has had a release, fire, or explosion that could threaten human health or the environment. A leak or spill to the secondary containment would not generally constitute a release to the environment (except in the case of volatile constituents), so notification to the NRC or HRMB is not believed to be required in all cases. Notification and reporting of releases from tanks will follow the requirements in 40 CFR 264.196(d) unless the release warrants implementation of the contingency plan in Section 7 of the permit application. In cases requiring notification to the NRC, HRMB will be notified also.

Comment 19 Section 2.3.11. **("If a release occurs...the tank will be removed from service and all materials...removed...within 24 hours...")** Response (e.g. removing the tank from service and removing all contents) to a release must begin as soon as possible. See Comment #18 above.

Response: As explained in the response to Comment #18, response to a release from a tank will be initiated immediately upon discovery. However, 40 CFR 264.196(b) only requires removal within 24 hours after detection of the leak, or if not possible, at the earliest practicable time, of as much waste from the tank as is necessary to prevent further release and to allow inspection and repair of the tank system. Releases to secondary containment must be cleaned up within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment. For clarification, the wording will be revised as follows: "If a release occurs from the primary tank system, the tank will be removed from service immediately upon discovery. 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."

Comment 20 Section 2.4, 2nd paragraph. **("The backhoe bucket and stabilization bin will be thoroughly cleaned...")** Where will the bucket be cleaned? How will the bins be cleaned?

Response: After the last bin load of a given stabilization recipe has been loaded out, facility personnel will use a high-pressure water hose located near the bins to rinse the backhoe bucket and the bin walls. This rinsing will cause residual clods of stabilized waste to fall to the bottom of the bin along with the rinse water. Reagents will then be added to the bin at the

same recipe proportions and the remaining waste and rinse water will be stabilized, tested for free liquids, and loaded out before a different waste stabilization recipe is processed in that bin.

Comment 21 Section 2.4.1, 1st paragraph. **("...sand between the walls that will serve as a primary...leachate collection and removal system...")** How will releases into the sand be cleaned up? Will the sand be removed from between the tanks and cleaned ex situ? Or will the sand be cleaned in situ?

Response: Releases to the sand could occur if there was a breach in the primary steel liner. In this case, the bin would be removed and repaired. The contaminated inter-bin sand would be replace with new sand during this operation. The contaminated sand would be loaded into an adjacent bin and stabilized using an appropriate stabilization recipe. This material would be handled like any other stabilization waste stream.

Comment 22 Section 2.4.2. **("No new waste will be placed in the bins unless...the existing tank system is cleaned or flushed...")** How will this be accomplished?

Response: See Comment #20 response.

Comment 23 Section 2.4.7. **("...the thickness of the inner tank and outer shell will be increased to compensate.")** How and why will this be done?

Response: The inner bin liner may be constructed of thicker steel plate compared to the outer bin wall to compensate for the abrasion and impact forces of the backhoe bucket during waste stabilization mixing. Steel structural design of the bins will be done as part of the stabilization facility final design.

Comment 24 Section 2.5.1.1, 1st paragraph. **("...the facility will accept ...PCB waste, excluding...liquid waste containing PCBs greater than 500 parts per million.")** As stated in 20 NMAC 4.1 Subpart VIII, 40CFR268.42(a)(1), liquid hazardous wastes containing PCBs at concentrations between 50 and 500 parts per million must be incinerated or burned in high efficiency boilers.

Response: The wording of the last bullet should read as follows: "liquid waste containing PCBs greater than <u>50</u> parts per million."

Comment 25 Section 2.5.1.2, 1st paragraph. **("The bottom liner will consist of the clay subgrade below the landfill site.")** For at least the eastern part of the landfarm the subgrade is siltstone and/or sandstone, not clay. Because these coarser-grained sediments are of higher permeability than the clay, and because the proximity to groundwater is unknown, the proposed liner design may be insufficient to protect the underlying sediments and groundwater from contamination due to releases of hazardous constituents from the landfarm.

Response: For a description of the Triassic Park liner system, including the technical rationale and modeling analyses in support of a waiver from double liner requirements, see the attached Waiver Justification Document.

Comment 26 Section 2.5.1.2, 3rd paragraph. **("...the HDPE will be terminated...less than 10 feet up the side slope of the landfill.")** The HDPE must cover the entire side slope. The exposed clay liner, as proposed, will desiccate and allow leakage of liquids to adjacent host rocks. (note: also see Item 68 below.)

Response: Desiccation of clay layers in slope liner systems is relatively common and can occur regardless of whether it is covered by an HDPE membrane. This problem is prominent particularly in large landfills which require slopes to remain exposed to the sun and wide temperature fluctuations for many years before they are loaded with soil cover and waste. In these cases, clay liner components are placed entirely up slope and overlain with geosynthetic components. Because the geosynthetics are not loaded with soil, air gaps between the clay and the geosynthetic membrane allow moisture to leave the surface of the clay through evapotranspiration, condense on the underside of the membrane, and flow down slope. Over time, this moisture loss can result in desiccation of the clay surface. It is believed, however, that once the slope areas are loaded with soil cover and waste fill, that recompression of the clay will occur and the desiccation cracks will heal, provided enough moisture remains in the clay.

The upper portions of the Triassic Park slope, as shown in Figure 2-9 of the RCRA permit application, includes a 1-foot drainage layer overlain by 2 feet of compacted clay which will be covered with a geotextile, another 1-foot drainage layer and geotextile, followed by 5 feet of soil cover and 1 foot of gravel. Although some desiccation will occur, it is believed that it will be minimal because the clay moisture will be largely held within the clay due to the soil and gravel overburden and its

temperature-insulating effects. Because only a small portion of the slope liner will be constructed at any point in time, instead of the entire slope as discussed above, the timeframe between clay liner construction and loading of the slope clay will be much shorter, therefore reducing the exposure period required for desiccation to occur. As above, it is also believed that once waste placement occurs, additional overburden pressures will compress the clay and redistribute the existing moisture. This recompression of clay and redistribution of moisture will tend to heal the desiccation cracks which are present.

Comment 27 Section 2.5.1.2, 3rd paragraph. **("...geotextile materials will be horizontally seamed...")** Horizontal seams will not be permitted within 5 feet of the landfill bottom. Please explain the need for <u>any</u> horizontal seams.

Response: Geotextile components of the LCRS and LDS in the Triassic Park design will extend up the entire length of the slope. Because the side slope liner system will be constructed progressively in stages, it will be necessary add segments of geotextile with each new portion of slope liner. In order to provide a continuous drainage layer, each new geotextile segment will have to be seamed to the previous segment. This could be accomplished by either placing very short strips of geotextile running down slope and seaming the ends of each strip to the geotextile below or by placing the geotextile in horizontal strips running across the slope and seaming the sides of each strip to the geotextile below. In either case, horizontal seaming will be required to install the geotextile in this manner.

The purpose of seaming geotextiles in the up slope direction is to eliminate seam separation due to the tensile stresses that will develop in the geotextile as it is placed and covered with other materials. The magnitude of these tensile stresses is related to the length and angle of the side slope, the interface friction angle of the geotextile with other liner components, and the overburden pressures due to overlying liner components and soil cover. Because the down slope length of geotextile placed in the Triassic Park design is short, with soil cover and waste fill placement occurring soon after installation, the tensile stresses in the geotextile will be greatly reduced compared to a liner system that calls for geotextile to be installed up the entire slope length prior to waste filling.

Comment 28 Section 2.5.1.2, 4th paragraph. **("...operational stresses to the liner systems following installation are anticipated to be negligible.")**

Please explain the statement. HRMB understands that operational stresses should be greatest during the initial stages of filling.

Response: Operational stresses to the geosynthetic components of the liner system following installation can result from subgrade or clay layer settlement, from tire loading during placement of overlying gravel and soil layers, and from of foreign object penetration during waste placement. These stresses are discussed below.

Settlement of the subgrade and clay liner components occurs initially when these layers are placed and compacted and secondarily as they are compressed by overburden pressures of the waste fill. As with the waste settlements, the secondary settlement due to overburden pressure is much less than the initial compaction during placement.

In MTR liner systems where geosynthetic materials are installed up slope prior to waste filling, geosynthetics must be able to withstand strains due to the secondary settlement of the clay layers and subgrade. In very large landfills, this settlement between the crest and the floor can be in the order of 12 to 18 inches. In these cases, it is generally assumed that these displacements are distributed over the entire length of the slope geosynthetics which are attached at the crest anchor trench.

The difference in settlement between the toe of slope and a point 10 feet up slope will be negligible in comparison to the settlement between the toe of slope and a point 250 feet up slope. This is true because the stress differential between the toe of slope and a point 10 feet up slope is much less than the stress differential between the toe of slope and a point 250 feet up slope at the anchor trench.

Operational stresses on the liner can also result from the placement of overlying gravel and soil layers. The 2-foot-thick protective soil cover will provide adequate protection from tire loading or foreign object penetration during initial waste placement. See response to Comments #48 and #53 for additional discussion.

Comment 29 Section 2.5.1.3, 1st paragraph. **("...well graded drainage material...")** Please define this term.

Response: This should read "...uniformly graded drainage material..."

Comment 30 Section 2.5.1.3, 2nd paragraph. **("The LCRS will be...designed and operated to minimize clogging...")** The previous paragraph states that

geotextile filter will be included in the LCRS. Given the geotextile's potential for clogging, how will the design minimize clogging?

Response: An appropriate geotextile will be selected for the filtration application. This will involve matching the soil gradation characteristics with the size of openings in the geotextile. The selection of the appropriate geotextile for this application will be made during final design. See response to Comment #31.

Comment 31 Section 2.5.1.3, 5th paragraph. **("The sump system will be provided with a method for measuring and recording...")** Please define the method of measuring and recording, specify the maximum head of leachate possible and the maximum head to be maintained on the liner, and show the sump design, pump design, and disposal design for the quantity of liquid to be removed. Also, calculate or demonstrate the adequacy of the liner, LCRS, and LDS to accommodate a hole (e.g., 1 mm^2/acre) in the liner.

Response: These calculations are typically done during the final design of the landfill. They involve evaluating drainage materials that are accessible to the site which will meet the minimum drainage requirements mentioned above. Once the drainage materials are evaluated and selected, then sump design, filter fabric selection, floor pipe design, pump design, disposal system design, and ALR calculations involving removal of leachate flow from a 1-mm^2 hole/acre will be performed.

Comment 32 Section 2.5.1.4, 1st paragraph. **("...piping...8 inches in diameter...")** This seems excessive unless major leaks are expected.

Response: The pipe is intended to increase flow from floor areas to the sump. The pipe size will be specified in the final design. See response to Comment #31.

Comment 33 Section 2.5.1.4, 3rd paragraph. **("The sumps and liquid removal methods will be of sufficient size to collect and remove liquids...")** Design specifications must be submitted.

Response: See response to Comment #31.

Comment 34 Section 2.5.1.4, 3rd paragraph. **("All pumpable liquids in the sump will be removed...")** Non-pumpable liquids need to be removed also.

Response: It is standard landfill design practice to locate a low point or sump box in the base of the landfill sump. The pump for the sump is located at this low point, and it is from here that pumpable liquids are removed to the maximum extent possible.

Comment 35 Section 2.5.1.6. **("...daily cover of sand and dirt...and application of water...")** State the proposed thickness of daily cover and how water will be applied without producing landfill leachate.

Response: The purpose for placing daily cover on the waste is, in part, to reduce the generation of windblown debris such as plastic bags from the waste surface. Typically, this cover consists of soil which is spread on top of the waste placement area in a 0.2- to 1.0-foot thickness. Foam spray applications, polymeric spray on mixtures, and geotextile covers have also been used as daily covers with varying degrees of success.

Depending on the local wind conditions, traffic, and the amount of fine particles in the soil cover, dust can be generated from the surface. Typically, this dust generation is reduced by restricting traffic to predetermined haul roads or pathways on the surface of the daily cover and by applying small amounts of water spray to moisten the road surface. The frequency of the water application depends on the climate and traffic. In areas on the daily cover surface where traffic is not present, an occasional water spray will cause a crust to form on the soil surface which also inhibits dust formation. The water is applied using a water truck equipped with a pump and piping and an array of nozzles which spray very small water droplets onto the surface of the soil cover. Because the water is a topical surface application, the majority of it evaporates rather than seeping into the waste to become leachate.

Comment 36 Section 2.5.1.7. **("It is not anticipated that gas generation will be of concern.")** How will any gas generated in the landfill be detected and removed if necessary?

Response: Gas generation in municipal landfills occurs as a result of biological decomposition of organic wastes. Because the Triassic Park landfill will not receive municipal solid wastes, gas generated in this manner will be minimal. Organic wastes placed in the landfill will meet LDRs, which will limit the organic gas generation potential. The waste acceptance procedures at the facility will be designed to limit receipt of wastes with potential for significant gas generation. Section 5.2.2.2, Fingerprint Testing, outlines the procedures that will be used to test for reactive

cyanides and sulfides, other reactive chemical groups, waste compatibility, and biodegradability of sorbents.

Comment 37 Section 2.5.1.9, 3rd paragraph. **("The proposed site is to be developed within impermeable...sediments of the Dockum Group...")** Data provided with the Part B Permit Application indicate the Dockum's heterogeneous sediments to be of varying permeability. The potential for releases from the facility to migrate to groundwater is unresolved.

Response: Please refer to responses to Comments #83 and #90.

Comment 38 Section 2.5.2.2. **("...sloped toward the center...")** Please clarify. This is not the way it is shown on Figure 2-7.

Response: Figure 2-7 shows minimum floor slopes for each phase of the landfill. These slopes run down the central axis of each phase to the sump. Other slopes shown are the maximum slopes perpendicular to the contour lines. It should be noted that the EPA minimum required slope of 1 percent has been exceeded in all cases.

Comment 39 Section 2.5.3.2. **("...a routine preventive maintenance program.")** Please define the program.

Response: The program will be fully defined in the final site operations plan. Typically, these types of preventative maintenance plans 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 typically have manufacturer-recommended programs. Preventative maintenance information is documented and any deviation from normal conditions is closely tracked and corrected if necessary.

Comment 40 Section 2.5.3.6, 3rd paragraph. **("'No Smoking' signs will be placed wherever there is a hazard from reactive waste.")** Will landfill operators be allowed to smoke? "No Smoking" signs, in both English and Spanish, should be placed throughout the facility.

Response: The facility will not be designated as a no-smoking facility. However, "No Smoking" signs will be conspicuously placed wherever there is a hazard from ignitable or reactive waste. The wording should read as follows: "..."No Smoking" signs written in English and Spanish will be conspicuously placed wherever there is a hazard from ignitable or reactive waste."

Comment 41 Section 2.5.3.7, 4th paragraph. **("...unless all free liquid has been in some way been eliminated.")** Please explain how this will be done.

Response: The wording should read as follows: "Containers holding free liquids will not be placed in the landfill unless all free liquid has been in some way eliminated by absorption, decanting, solidification, or other method."

Comment 42 Section 2.5.3.7, 5th paragraph. **("Unless they are very small...")** Please define the term "very small."

Response: The wording should read as follows: "Containers, except those that are very small, such as ampules, will be 90 percent full when placed in the landfill."

Comment 43 Section 2.5.3.8, 1st paragraph. **("...(EPA) believes that an ALR below 100 gpad should not be required.")** The baseline of 100 gpad is for units meeting the minimum technical requirements (cf. 57FR3462, 1992, IV, C, 1.) and does not apply to the Triassic Park landfill.

Response: See Section 3 of the attached Waiver Justification Document for a discussion of minimum technology requirements.

Comment 44 Section 2.5.3.9, 1st paragraph. **("...ensuring that the ALR is not exceeded in the future...")** How will this be accomplished?

Response: The phrase cited should be replaced with: "(2) establishing procedures to minimize the potential for exceeding ALR in the future . . ."

Comment 45 Section 2.5.3.9, 2nd paragraph. **("Removing all pumpable liquids from the sump...")** How will non-pumpable liquids be removed?

Response: See response to Comment #34.

Comment 46 Section 2.5.3.9, 2nd paragraph. **("...remove as much liquid as possible.")** Design the system so all liquid can be removed.

Response: See response to Comment #34.

Comment 47 Section 2.5.3.9, 4th paragraph, 4th bullet. **("...remove all standing water from the surface of the landfill,")** Describe the method for doing this.

Response: During a heavy rain event, water may pond on the surface of the daily cover. Typically, vacuum trucks, which are capable of pumping this water into their on-board tanks, are used to remove as much of this water as possible before it can seep into the waste.

Comment 48 Section 2.5.3.9, 4th paragraph, 7th bullet. **("...repair any damage...")** Describe how this will be done and who will do it.

Response: The liner can be damaged during the placement of the initial lifts of the operations layer both on the slope or the floor areas. This damage can occur when dozer operators spin their tracks or if they operate on less than 1 foot of cover soil during the placement operation. These types of liner damage are typically noticed by either the dozer operator or the spotter who is observing the soil placement. Repairs to damaged areas are made in a manner which conforms to original design specifications. These repairs will be made by qualified technicians in accordance with the CQA Plan.

Comment 49 Section 2.5.3.9, 5th paragraph. **("...the following actions should be implemented...")** Substitute the word "will" for "should."

Response: Agreed. Wording should read as requested.

Comment 50 Section 2.5.3.9, 5th paragraph, 1st bullet. **("Notify NMED within seven days...")** NMED must be notified by telephone as soon as possible, but not more than 24 hours after the leak is detected. A followup written report must be sent within seven (7) days.

Response: 40 CFR 264.304(b)(1) states that if the flow rate into the leak detection system exceeds the action leakage rate for any sump, notification must be given within seven days. This is what is currently in the permit application. NMED is requesting oral notification within 24 hours. 40 CFR 270.30(l)(6) provides a general requirement for 24-hour notification where a noncompliance may endanger health or the environment. Not every situation where the ALR is exceeded may endanger human health or the environment, so 24-hour notice should only be required in those situations.

Comment 51 Section 2.5.3.9, 5th paragraph, 4th bullet. **("Increase the pump rate...")** This should not be necessary if the system is properly designed.

Response: By increasing the pump rate in the LCRS system, the head over the leaking areas may be reduced, thus reducing the flow into the LDS system.

Pumping rates in the LCRS can be reduced over time due to wear on the mechanism or the motor. When this occurs the pump may be repaired or replaced, which increases the pumping rate.

Comment 52 Section 2.5.3.9, 5th paragraph, 14th bullet. **("Review the analysis of the leachate...to help determine the source of the leaks,")** Please describe how this will work.

Response: Fingerprint and generator analyses will be maintained for all wastes placed into the landfill. One method of determining the location of a leak in the liner would be to analyze the leachate and attempt to match it with the waste analysis on record. If the leachate analysis matches a particular waste analysis, this may help identify the proximity of the leak.

Comment 53 Section 2.5.3.9, 5th paragraph, 15th bullet. **("...examine the primary liner 5 feet on either side of damage...")** This is unclear! How will the damage be located?

Response: The slopes have a 5-foot-thick protective soil cover and 1-foot-thick gravel layer on top of the 2-foot-thick clay layer. For damage to occur in the clay layer due to equipment placement operations, a sizeable hole would have to be excavated to reach the clay. This hole would be visible and noticeable from the surface. Any repair would likely require removal of additional material 5 feet laterally beyond the extent of the damage.

The floor has a 2-foot-thick protective soil cover and 1 foot thick gravel layer on top of the geomembrane liner. Equipment damage to the geomembrane is most likely to occur during the placement of the gravel or protective soil layers. Placement of these layers will be done under close scrutiny of the contractor and CQA observers and repairs are made immediately upon discovery. In order to inspect the damaged area, removal of the 3-foot thickness on top of the geomembrane would required excavation 5 feet laterally beyond the extent of the damaged area.

Comment 54 Section 2.5.3.9, 5th paragraph, 16th bullet. **("Submit a written assessment to NMED within 14 days...")** The information should be

submitted with the seven-day followup report. (Note: also see Comment #50 above.)

Response: 40 CFR 264.304(b)(2) requires that a preliminary written assessment be submitted within 14 days after the determination that the ALR was exceeded. This is what is currently in the permit application. It may be difficult to gather all the necessary information for a report within 7 days as requested by NMED, particularly when analytical results would be included, and therefore the facility requests the regulatory time limit of 14 days for this reporting requirement.

Comment 55 Section 2.6.1.1, 1st paragraph. **("The compacted clay surface will provide a foundation...")** Please explain how the surface beneath the composite bottom liner (which itself includes the 3 feet of compacted soil material) will be prepared.

Response: A typical treatment of a pond liner subgrade would involve trimming the surface to within design tolerances using motor-grader-type earthmoving equipment. Fine material would then be used to fill any wheel ruts or depressions in the surface and then compacted with a vibratory drum compactor to provide a smooth stable surface for clay placement.

Comment 56 Section 2.6.1.1, 2nd paragraph. **("...geographical location of the facility will prevent the migration of any hazardous constituent to adjacent subsurface soil, surface water, or groundwater.")** Please explain the statement. It is not clear how geographical location will prevent any of the above.

Response: "Geographical location" should read "geologic setting."

Comment 57 Section 2.6.1.1, 4th paragraph. **("...any leachate generated.")** How might leachate be generated in the surface impoundment?

Response: The sentence should be changed to read ". . . and any leaked liquid that has accumulated in the leak detection system." Additionally, the word "leachate" in the next sentence of paragraph four should be replaced with "leaked liquid."

Comment 58 Section 2.6.1.1, 6th paragraph. **("...the geonet drainage system...will effectively eliminate any head from developing...")** What is the potential for geonet clogging?

Response: Geonet clogging will be incorporated into the design of the drainage system as a factor of safety which reduces the overall drainage capacity. This factor of safety will be applied in the Action Leakage Rate Calculation which will be performed during the final design. This approach is suggested in EPA guidance for determining the Action Leakage Rate.

Comment 59 Section 2.6.1.2, 1st paragraph. **("When leachate accumulates, it will be pumped to a tanker truck.")** How will the "leachate" be handled then?

Response: Any accumulated leachate will be pumped to a tanker truck and then returned to the surface impoundment or stabilized in the on-site treatment facility.

Comment 60 Section 2.6.1.2, 5th paragraph. Add a "t" to **("...do no_ occur ...")** in the last sentence.

Response: Agreed. The typographical error should be corrected as requested.

Comment 61 Section 2.6.1.3. **("...waste will not exceed a depth of approximately 8 feet.")** The distance from the sump to the opposite corner is approximately 400 feet. With a bottom slope of 2% (cf. Figure 2-11) the sump will be approximately 8 feet lower than the opposite corner of the unit. If the depth of waste at the sump corner is 8 feet then the opposite corner will be dry.

Response: Revise Section 2.6.1.3, second sentence to read as follows: "...the surface impoundment will be excavated to a depth of approximately 10 feet at the shallow end and approximately 18 feet at the sump end and 2 feet of freeboard will be maintained in the impoundment at all times."

Comment 62 Section 2.6.2.4, 3rd paragraph. **("Any time liquids are detected at a specified level,...")** What is the specified level?

Response: The pump activation level is related to the sump design and pump type selected. These items will be determined during the final design of the pond. See responses to Comments #31 and #34.

Comment 63 Section 2.6.3. **("Waste accepted at the surface impoundment will...include...PCB wastes, with the exception of wastes listed in**

Section 2.5.1.1") See Comment #24 above for comment on PCB wastes.

Response: See response to Comment #24.

Comment 64 Section 2.6.4.3, 2nd paragraph. **("The surface impoundment will be removed from service if the liquid level suddenly drops for an unknown reason.")** What amount of drop in the liquid level will cause the shut down?

Response: See response to Comments #117, 126.

Comment 65 Section 2.6.4.3, 2nd paragraph. **("...leaks will be stopped...")** How will leaks be stopped?

Response: Leaks will be located as described in the response to Comment #140(e). The leak will then be stopped by draining the impoundment to below the level of the leak, and the liner will then be repaired using appropriate methods.

Comment 66 Section 2.6.4.3, 2nd paragraph. **("As a last resort, the impoundment will be emptied.")** To where will impoundment be emptied?

Response: If the impoundment must be emptied, the contents will be pumped out and stored in temporary tanks or tank trucks. See also the response to Comment #128.

Comment 67 Section 2.6.4.8. **("...in Section 2.5.3.8.")** This is an incorrect citation. It should reference Section 2.5.3.9.

Response: Agreed. The typographical error should be corrected as requested.

Comment 68 Figure 2-9, Detail B (Slope). The landfill's "side slope" construction as shown is not acceptable. The liner must be extended to the top of the slope. 20 NMAC 4.1 Subpart V, 40CFR264.301(a)(1)(iii) requires liner installation to cover all surrounding earth likely to be in contact with the waste or leachate.

Response: Section 3 of the Waiver Justification Document describes in detail the GMI alternative to lining the slope.

Comment 69 Figure 2-9, Details B (Slope), C (Toe of Slope), D (Floor), and E (Pipe Centerline). The landfill design does not meet minimum technology

requirements for liners and leachate collection and removal systems specified in 20 NMAC 4.1 Subpart V, 40CFR264.301(c). Alternative designs may be approved if, as stated in 20 NMAC 4.1 Subpart V, 40CFR264.301(d)(1), they "Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in paragraph (c) of this section;". The subsurface geology of the proposed landfill site includes siltstones and sandstones which can provide a conduit to groundwater should releases of hazardous constituents occur. NMED is concerned that the proposed alternative design is not adequately protective of human health and the environment and currently requires adherence to the minimum technology requirements.

Response: For technical documentation and supporting computer analyses of the proposed design's ability to protect human health and the environment adequately, see the Waiver Justification Document.

Comment 70 Figure 2-10, Detail J (Typical Cover). Was a HELP model analysis done for evaluation and comparison of alternative landfill designs? If so, please provide a copy of the results. Also, a final cover plan drawing must be submitted.

Response: The HELP model was used to evaluate different liner system designs. These HELP analyses are presented in Section 4 and Appendix A of the Waiver Justification Document. A final cover design will be presented with the final design package.

Comment 71 Note #6 on both Figure 2-10 and 2-12. The note refers to "Final Design." To avoid delay in processing the Permit, GMI should submit the final designs as soon as possible.

Response: See minutes from August 29, 1995, NMED Meeting re: schedule and conditional responses.

Comment 72 Figure 2-11, Cross-Section C-C'. Will this design prevent fluid head on the bottom liner from exceeding the one-foot maximum permitted by 20 NMAC 4.1 Subpart V, 40CFR264.222(a)?

Response: The final design for the surface impoundment sump and LDS system will be sufficient to prevent 1 foot of head buildup on the secondary liner. See responses to Comments #31 and #34.

Comment 73 Figure 2-12, Note #5. **("Drainage layer consists of sand or gravel with min. permeability of $1x10^{-2}$ cm/sec")** For a surface impoundment, a leak detection system constructed of granular drainage materials must have a hydraulic conductivity of at least $1x10^{-1}$ cm/sec. (cf. 20 NMAC 4.1 Subpart V, 40CFR264.221(c)(2)(ii)).

Response: Figure 2-12, Note #5 should read: " Drainage layer consists of sand or gravel with minimum permeability of 1×10^{-1} cm/sec for final design submittal."

Comment 74 Section 3.1, 1st paragraph. The Groundwater Monitoring Guidance Document referred to is not included in the Section 13 References of the Permit Application.

Response: Section 13 References should include the following two references:

U.S. Environmental Protection Agency, Office of Waste Programs Enforcements and Office of Solid Waste and Emergency Response. RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER Directive 9950.1, September 1986.

U.S. Environmental Protection Agency, Office of Solid Waste. RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November 1992.

Comment 75 Section 3.1, 7th paragraph. **("This section documents the lack of groundwater present in the proposed Triassic host rocks...")** The information provided in the Permit Application does not confirm adequately the lack of groundwater in the proposed host rocks.

Response: This is a portion of an introductory paragraph to describe information to be presented in Section 3.7 of the chapter on Groundwater Protection. Since the preparation and delivery of this document to NMED, a small state-approved drilling program has been conducted to further characterize groundwater potential within the proposed host rocks. The results of this drilling program provided additional data on the unsaturated nature of the proposed host rocks within the facility boundary and are discussed in detail in our response to Comment #83.

Comment 76 Section 3.1, 7th paragraph. **("This section...presents contaminant transport modeling results that demonstrate the low potential for groundwater contamination.")** GMI should present results that demonstrate no potential for contamination.

Response: This statement is part of the above introductory paragraph to describe information to be presented in Section 3.7 of the chapter on Groundwater Protection. The best available technology cannot guarantee that there will be no leakage from a landfill liner system. With this is mind, perhaps a better way to describe the Gandy Marley site's ability to protect the environment is to state that the proposed landfill design, in conjunction with the site's geologic setting, will meet or surpass all RCRA minimum technology requirements. Data to support this conclusion is provided in the Waiver Justification Document attached to these NOD responses.

Comment 77 Section 3.5.3.1, 4th paragraph. **("...Upper Dockum (475 feet thick)...")** The maximum thickness shown on the cross-sections included with the Permit Application is 140 feet.

Response: The maximum thickness of Upper Dockum encountered in any drilling was 173 feet in hole PB-27.

The maximum measured stratigraphic thickness of the Upper Dockum unit in the area of the proposed Gandy Marley facility is 475 feet. This total thickness was determined by combining subsurface drill hole information with surface geologic mapping. Nowhere within the proposed facility boundary is this maximum thickness present. In fact, to encounter this maximum thickness in drilling would require a drill hole to be completed on the face of the Mescalero Rim, directly below the base of the Ogallala Formation.

Within the proposed facility boundary the thickness of the Upper Dockum unit never exceeds 100 feet.

Comment 78 Section 3.6.1, 2nd paragraph. **("...tanks on adjacent lands...contain water for livestock...retain water from run-off or receive water from an underground pipeline.")** State the source, and its location, of the water in the pipeline.

Response: Water in the underground pipeline is supplied from three water wells on the Marley Ranch located in Section 10, T11S, R31E. These wells are east of the Mescalero Rim and produce water from the Ogallala Formation.

Comment 79 Section 3.6.2, 4th paragraph. **("...Roswell weather station...mean annual precipitation is 10.61 inches...")** GMI used this value to calculate the amount of water available for groundwater recharge. As

noted in Section 3.3.2, the record high annual precipitation is 32.92 inches. This higher value should also be used to calculate the water available for groundwater recharge as a "worst case" scenario in considering the potential for groundwater contamination.

Response: The purpose of the Water Balance (Section 3.6.2) was to provide a conceptual understanding of the hydrologic components at the site. The amount of groundwater recharge is a reflection of the arid climate of the region. The net recharge estimate of 0.42 inch per year (based on average hydrologic components) represents the expected long term annual conditions at the site. The relatively low recharge rate appears to be reasonable given the unsaturated conditions of the Upper Dockum within the site boundaries. However, using an extreme high annual precipitation value of 32.92 inches yields only a slightly higher recharge rate of 1.32 inches (assuming an evapotranspiration rate of 0.96). This short term (1 year) increase in recharge is unlikely to have a significant impact on the unsaturated flow regime at the proposed site.

Comment 80 Section 3.7.1.2, 4th paragraph. **("...Upper Dockum... permeable zones...produce small quantities of groundwater.")** Please indicate what the water is produced to (e.g., springs, wells) and the location of production.

Response: The term "produce" is incorrect. While Upper Dockum sediments within the proposed facility boundary are unsaturated, drilling approximately one mile northeast of the site has encountered limited saturation within these units. There is <u>no</u> groundwater production from the Upper Dockum in this area. A check with the New Mexico State Engineer's office indicates that there is no groundwater production within a 6-mile radius of the proposed site. The sentence should read: ("Near the unconformable contact of the Upper Dockum with the Ogallala Formation (Mescalero Rim), permeable zones within this unit have been observed to be water-bearing.")

Comment 81 Section 3.7.1.2, 4th paragraph. **("...overlying aquifers.")** Please identify the overlying aquifers.

Response: The overlying aquifers that supply limited recharge to Upper Dockum sediments are water-bearing units within the Ogallala Formation. This relationship has been illustrated in a revised Plate 3-1, Appendix G.

Comment 82 Section 3.7.2. **("Detailed drilling within this boundary has encountered no groundwater.")** The geophysical log for borehole PB-14o indicated water at a depth of 91 feet.

Response: There was a foot of water (approximately 1 gallon) in the bottom of 14o at the time it was logged. This water was introduced into the hole as a result of 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, this water did not infiltrate into the formation and was trapped in the bottom of the hole.

This hole was cased with 3-inch plastic tubing and monitored for several weeks. No additional water entered the hole. 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. There is no apparent subsurface source for the small quantity of water shown in the log for this hole.

Comment 83 Section 3.7.2.2, 3rd paragraph. **("...saturated lithologies were encountered approximately 2,500 feet east (downdip) of the proposed landfill site...")** The maps and logs provided with the Permit Application indicate no drilling east of the proposed site.

Response: Drilling approximately 1 mile northeast of the proposed facility encountered saturated sandy siltstone facies at depths of 135-150 feet within the Upper Dockum Unit. Plate 3-1 and Figure 3-13 illustrate this saturated/unsaturated boundary within Upper Dockum sediments.

This boundary was projected in a north-south direction (Figure 3-13) to conform to a measured north-south strike of the Triassic sediments in the area. This strike (and a less than one degree dip to the east) was determined by performing a three-point problem using oil well logs. A copy of these calculations is included in a NOD Data Package which is attached to this response. This regional dip of the Triassic sediments is also well illustrated in a regional cross-section of southeastern New Mexico prepared by C. Telles and K. Ellison of the Roswell Geological Society. This cross-section is also included in the NOD Data Package.

The validity of this projection was questioned by the NMED in a technical review meeting held in Santa Fe on June 8, 1995. It was decided at that meeting that an additional drilling program would be conducted for the purpose of collecting specific field data on host rocks

on the eastern flank and downdip of the proposed landfill. This drilling would evaluate the contact between Upper and Lower Dockum units, investigate the saturation condition of these sediments, and collect core data for permeability studies on the Lower Dockum unit.

A proposed drilling plan was submitted to Mr. Bob Sweeney of NMED on June 26, 1995. This plan was modified and approved in a letter from Mr. Ronald A. Kern, dated July 12, 1995. A three-hole drilling program was conducted on the Gandy Marley site on July 24 & 25, 1995. Mr. Bob Sweeney visited the site and observed the drilling operations on Monday, July 24, 1995.

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Holes PB-36, PB-37, and PB-38 were completed as an extension to an existing east-west line of drill holes. The westernmost drill hole was located on the eastern boundary of the proposed landfill. The other two holes were drilled 1,000 feet apart and examined the area immediately east of the proposed landfill. All surface locations for these drill holes were surveyed. The relationship of these holes to previous drilling and the site is shown in a revised Figure 3-13 in the NOD Data Package.

No groundwater saturation was encountered. All holes were completed with air so that saturated sediments could have easily been detected. Lithology logs describing drill hole cuttings were prepared in the field and down-hole geophysical logs were run on each hole. The geophysical logs included gamma ray, thermal neutron, and caliper profiles. This information is included in the NOD Data Package.

As illustrated in Plate 3-8 (in the NOD Data Package), all three holes penetrated the clays of the Lower Dockum unit. PB-36 encountered 64 feet of this unit, PB-37 encountered 55 feet, and 18 feet were encountered at the bottom of PB-38. Ten feet of core of Lower Dockum were collected from PB-36 at a depth of 138 to 148 feet and 7 feet of Lower Dockum were collected from PB-37 at a depth of 148 to 155 feet. Four representative samples of this core were selected and sent to AGRA Earth & Environmental laboratories for permeability analyses. The results of these analyses confirm the Lower Dockum to be a very impermeable unit (average permeability of 5.7×10^{-8}), capable of performing as a geologic barrier to downward migration from the proposed landfill. Following are the results of the core analyses:

Core Interval	Permeability (cm^3/sec)
PB-36 (144-145)	5.2×10^{-8}

PB-36 (147-148)	6.8×10^{-8}
PB-37 (150-151)	5.8×10^{-8}
PB-37 (154-155)	4.9×10^{-8}

Comment 84 Section 3.7.2.2, 4th paragraph. **("...west of the proposed facility boundary...near the outcrop of the Upper Dockum...")** Please indicate on a map the location of the Upper Dockum outcrop west of the proposed facility.

Response: The small sandy hills located along the section line between Section 18, T11S, R31E and Section 13, T11S, R30E represent the approximate outcrop of the base of the Upper Dockum unit. This area is shown in Plate 3-7 of the NOD Data Package.

Comment 85 Section 3.7.2.2, 6th paragraph. **("...nine other drill holes...were also cased.")** A list of the nine, along with the perforated intervals, should be included here.

Response: The drill holes that were cased with 3-inch plastic casing and the perforated intervals for these holes are:

Hole No.	Perforated Zone
PB-14	30-80
PB-14o	20-40
PB-33	20-55
PB-18	60-80
PB-16	60-80
PB-15	30-65
PB-13	30-50
PB-9	40-80
PB-7	20-40
PB-17	60-85

Comment 86 Section 3.7.2.2, 6th paragraph. **("There was no water observed in these holes...")** PB-14o was one of the holes cased. Water was not identified in this hole when it was drilled on July 17, 1994; however, water was recorded on the geophysical log, run on the same day the hole was drilled, at a depth of 91 feet. If no water was observed in this hole during subsequent monitoring, GMI needs to address this and propose an explanation for its disappearance.

Response: See response to Comment #82.

Comment 87 Section 3.7.2.4, 2nd paragraph. **("Perched groundwater located approximately 2,500 feet downgradient of the site is the uppermost aquifer that could be affected...")** Assuming downgradient is to the east, there currently is no subsurface control 2,500 feet downgradient of the site.

Response: See response to Comment #83.

Comment 88 Section 3.7.2.4, 2nd paragraph. **("The Lower Dockum unit would act as a barrier limiting the vertical migration of contaminants...")** The statement may be correct; however, the top of the Lower Dockum unit has not been identified in the eastern part of the proposed facility.

Response: See response to Comment #83.

Comment 89 Section 3.7.2.4, 3rd paragraph, 1st bullet. **("...an extremely conservative estimate of travel time to the uppermost aquifer.")** Why is estimated travel time to the uppermost aquifer considered "extremely conservative"? It is reasonable to assume contaminant releases will travel through the siltstones/sandstones, rather than through the mudstones, to groundwater. Using core-derived hydraulic conductivity values in the calculations should give reasonable travel times.

Response: It is reasonable to assume that any lateral migration of contaminants from the proposed landfill would occur in the most permeable units (siltstones/sandstones) within the Upper Dockum unit. However, the fluvial depositional environment of the Upper Dockum resulted in the formation of discontinuous lenses of various lithologies. This discontinuous deposition pattern (facies changes) is well illustrated in cross-sections shown in Plate 3-8. Using these cross-sections as a specific example, any lateral migration within the siltstones/sandstones at the base of the Upper Dockum unit would encounter a lower permeability mudstones facies approximately 1,000 feet downgradient from the eastern edge of the proposed landfill. This permeability barrier would severely retard continued migration. In the contaminant modeling of Section 3.7.2.4, no credit was taken for these lithologic changes. It was assumed that there was a continuous siltstone/sandstone migration pathway from the proposed landfill to the uppermost aquifer. This assumption, based on the discontinuous, fluvial deposition environment within the Upper Dockum, is considered to be conservative. ?

The Upper Dockum sediments in the area of the proposed landfill and extending approximately 2,500 feet downgradient from the landfill are unsaturated (see response to Comment #83) For the purpose of the contaminant transport modeling in Section 3.7.2.4, it was assumed that these sediments were saturated and that lateral migration occurred under steady-state conditions. Due to our understanding of the subsurface conditions within the Upper Dockum unit at the proposed site, this assumption is also considered to be conservative.

There has been a modification to the contaminant transport calculations presented in Section 3.7.2.4. Please see the response to Comment #90.

Comment 90 Section 3.7.2.4, 6th paragraph. **("...elevation difference ...of...4555-4025...")** Please explain where these elevations came from.

Response: The elevations in question (4555 and 4025) represent elevations of the Upper/Lower Dockum contact at drill holes PB-3 and WW-1 (respectively). These were calculated by subtracting the depth to the contact (as observed in the geophysical log) from the surface elevation. The 4555 elevation is an obvious transcription error. Surface elevations in the area are all less than 4200 feet above sea level and this point would be located considerably above the land surface. **The correct elevation should have been 4055.**

Unfortunately, the erroneous value had been used to perform the contaminant transport modeling described in Section 3.7.2.4. This resulted in an artificially steep hydraulic gradient and an estimated transport time of 448 years. Using the correct value, the hydraulic gradient was decreased to 0.012. Using all other assumptions as listed in Section 3.7.2.4, together with this lower hydraulic gradient, yielded a darcy flux of 1.46 E-07 cm/s, an advective rate (seepage velocity) of 3.05 E-05cm/s, and a requirement of 8,065 years for a contaminant to travel 2,500 feet to reach the uppermost aquifer.

To confirm this travel time, similar calculations were conducted using the results of the July 24 & 25, 1995 drilling program. A hydraulic gradient of 0.0135 was calculated between drill holes PB-36 and PB-38. The same modeling parameters were applied to this gradient. It was estimated that the time required for contaminants to migrate 2500 feet from the eastern boundary of the proposed landfill to the uppermost aquifer would be 14,706 years.

Despite showing a range of travel time of 8,000-14,000 years, this contaminant transport modeling is considered to be "extremely" conservative because of the assumption of saturated conditions. To illustrate this point, unsaturated flow modeling was performed for the Waiver Justification Document. The results of this modeling estimated a total vertical contaminant travel time from the base of the landfill, through 600 feet of Lower Dockum sediments of 4 million years. The total lateral contaminant travel time to reach a point 2,500 feet down-gradient of the proposed landfill is 3.4 billion years.

Comment 91 Section 3.8.1, 1st paragraph. **("The Upper Dockum is not saturated within the facility boundaries.")** This statement is questionable. The geophysical logging indicated water in borehole PB-14o and the Upper Dockum was only partially evaluated in the eastern part of the proposed facility boundaries.

Response: See responses to Comments #82 and #83.

Comment 92 Section 3.8.1, 3rd paragraph. **("There is no regional aquifer developed within the Upper Dockum; however, locally permeable zones may produce small quantities of groundwater.")** What is this statement based on?

Response: See responses to Comments #80 and #81.

Comment 93 Section 3.8.2.1, 2nd paragraph. **("...the optimal placement for monitoring wells is...")** Placement of monitoring wells will be determined after the subsurface geology and hydrogeology are characterized sufficiently. (note: The installation of ground water monitoring wells should be consistent with the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986; RCRA Ground-Water Monitoring: Draft Technical Guidance, November 1992; and Waste Management Area and Supplemental Well Guidance, June 1993. Monitoring well specifics (e.g., siting, depth, screened interval, etc.) are subject to NMED approval. "As built" diagrams for all monitoring wells must be submitted to NMED.)

Response: Recently acquired borehole data (PB-36, PB-37, and PB-38) confirms the unsaturated conditions of the Upper Dockum 2,000 feet downdip of the proposed site. Therefore, the proposed horizontal and vertical placement of downgradient wells is adequate given the hydrogeologic conditions.

Comment 94 Section 3.8.2.2, 4th paragraph. **("Wells will be constructed with a 5-foot...screen extending upward from the Upper Dockum/Lower Dockum contact.")** Groundwater will need to be monitored at the top of the aquifer also. Placement of the screen interval must await characterization of the uppermost aquifer. (cf. EPA's RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November 1992.)

Response: The vertical placement of screen length will depend on the saturated thickness encountered and the expected waste stream characteristics. Site characterization data show perched groundwater on top of the Upper/Lower Dockum contact, varying in saturated thickness from 10 to 20 feet. Assuming that target analytes include metals, DNAPL, and LNAPL products, care must be taken in the placement of the screened interval to prohibit dilution of groundwater samples. If the saturated thickness is less than 10 feet, screen will be placed across the entire saturated thickness with 3 feet of screen extending above the water table. If the saturated thickness is greater than 10 feet a well pair will be completed. One well will be constructed with a 5-foot screen extending from the base of the Lower Dockum. The second well will be screened across the upper 7 feet of the "aquifer" with 3 feet of screen extending above the water table. It is important to place a sufficient length of screen above the water table to account for seasonal water level fluctuations and subsequent detection of potential LNAPL contaminants floating on top of the water table. Well construction diagrams will be submitted to NMED after well completion.

? - upper confined aquifer?

Comment 95 Section 3.8.2.3, 5th paragraph. **("...will be thoroughly decontaminated...")** The method of decontamination needs to be included. For details see EPA's RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November 1992.

Response: The bailer will be thoroughly decontaminated using a nylon bailer brush and phosphate-free detergent followed by a final rinse of deionized water. This sentence will be added to the text.

Comment 96 Section 3.8.2.3, 9th paragraph. **("The record will contain the following...")** The chain-of-custody should also include the preservatives used and a remarks section for communicating other pertinent information (e.g., potential hazards) to the laboratory.

Response: Agreed. The chain-of-custody record will include sample preservatives and a remarks section. The text will be revised accordingly.

Comment 97 Section 3.9, 4th paragraph. **("...Upper Dockum...sediments, consisting of fluvial, interbedded mudstones and siltstones, are unsaturated beneath the proposed site.")** This may be determined through additional borings into the Lower Dockum sediments.

Response: See response to Comment #83.

Comment 98 Section 3.9, 5th paragraph. **("...Upper Dockum...becomes partially saturated 2,500 - 3,000 feet east of the site...")** This remains to be determined since there is no subsurface control within 3,000 feet to the east of the proposed site.

Response: See response to Comment #83.

Comment 99 Section 3.9, 8th paragraph. **("The base of the proposed landfill is designed to rest upon the sediments of the Lower Dockum unit.")** Review of the geophysical logs of borings indicates:

a) there may be Upper Dockum siltstones/sandstones where the proposed landfill's base will be located, and

b) there are Upper Dockum siltstones/sandstones where the east slope of the landfill will be constructed.

Response: The base of the proposed landfill will be designed to rest upon the sediments of the Lower Dockum unit. A July drilling program was carried out to identify the top of the Lower Dockum unit on the eastern slope of the landfill. See response to Comment #83 for details on the results of this program.

Comment 100 Figure 3-9. Three other "Areas of Investigation" are shown. Please include any information they may have provided on the Upper Dockum, Lower Dockum, and/or groundwater.

Response: Locations of the initial shallow drill holes are shown on Plate 3-7. Most drill holes were drilled to a depth of only 40 feet with a few holes completed to a depth of 60 feet. ?

The purpose of this drilling was to identify the top of the Triassic sediments (Upper Dockum) underlying the surficial Quaternary cover.

The objective of this program was to locate an area where there was less than 20 feet of Quaternary cover. The existing proposed site met this specification and was selected for a more detailed and deeper drilling evaluation.

No water was encountered in any of the initial 40- to 60-foot drilling and none of these holes penetrated Lower Dockum sediments. The shallow penetration into the Upper Dockum encountered sandstone, siltstone and mudstone lithologies that were consistent with those found in the deeper Part B application drilling.

Comment 101 Figure 3-10. Cross section line A-A' is shown crossing the north part of sections 16, 17, and 18. This cross section was not included with the Permit Application.

Response: A revised Figure 3-10 shows the cross-section A-A' crossing the northern portion of sections 7, 8, and 9, T11N, R31E. This stratigraphic cross-section now is the same as shown in the revised Plate 3-1.

Comment 102 Figure 3-13. The cross section shows groundwater east of the proposed facility. What prevents this water from migrating to the west?

Response: It is unlikely that the perched groundwater in the Upper Dockum east of the site would migrate further to the west, given that the source of recharge is the overlying Ogallala Aquifer (please refer to revised Plate 3-1). In order for westward migration to occur there would have to be an increase in storage (i.e., increase in hydrostatic head) in the Ogallala Aquifer. Given the annual decline of water levels in the Ogallala and the projected increase in groundwater consumption in the area it is unlikely that westward migration of groundwater in the Upper Dockum could occur. Long-term storage changes in the perched groundwater system will be evaluated by quarterly water level measurements from the proposed downgradient monitoring wells.

Comment 103 Figure 3-13 and Appendices C, D, & G. Please correct the following borehole information discrepancies.

PB-1: The location is Section 18 on the geophysical log and Section 8 on the lithology log and Figure 3-13.

PB-26: No section location given on the geophysical log.

The lithology log location is NWNW of Section 9 but the borehole is shown in NWNE of Section 9 on Figure 3-13. Also, the "depth driller" on the geophysical log is 180 feet while the lithology log indicates drilling continued to 200 feet.

PB-27: No section location given on the geophysical log. The lithology log location is NWNE of Section 9 but the borehole is shown in NWNW of Section 9 on Figure 3-13. The elevation on the lithology log, 4144 feet, matches neither location (according to the topographic map).

Plate 3-1: The neutron log for PB-27 is shown west of that for PB-26, but they are labeled in the reverse order. Water is shown at a depth of approximately 145 feet in PB-27 but neither the lithology log nor the geophysical log indicate water.

PB-34: Location is Section 18 on the geophysical log and Section 7 on the lithology log and in Figure 3-13.

PB-35: Location is Section 18 on the geophysical log and Section 8 on the lithology log and in Figure 3-13.

WW-1: Location is Section 17 on the geophysical log and Section 8 on the lithology log and in Figure 3-13.

WW-2: Location is Section 17 on the geophysical log, SWSE of Section 19 on the lithology log and SESW of Section 19 in Figure 3-13.

Response: The location of PB-1 is NWNE Section 8, T11S, R31E. The geophysical log will be changed to reflect this.

The location of PB-26 is NWNE Section 9, T11S, R31E. The lithology log will be changed to reflect this and the location will be added to the geophysical log. The hole was drilled to a depth of 200 feet due to caving of the hole. The geophysical log will be changed to reflect this.

The location of PB-27 is NWNW Section 9, T11S, R31E. The elevation of PB-27 is 4183. The lithology log will be changed to reflect this.

Holes PB-26 and PB-27 are labeled in reverse order. Plate 3-1 will be changed to reflect this. There was no indication of water at the time of drilling or logging, however, a "water table" was projected through this hole because saturation had been observed both up-gradient and down-gradient from this hole.

The location of PB-34 is NWNE Section 7, T11S, R31E. The geophysical log will be changed to reflect this.

The location of PB-35 is NWNW Section 8, T11S, R31E. The geophysical log will be changed to reflect this.

The location of WW-1 is NWSE Section 8, T11S, R31E. The geophysical log will be changed to reflect this.

Lith. log is labeled correctly - Fig 3-13 need to be changed

The location of WW-2 is SWSE Section 19, T11S, R31E. The geophysical log and lithology log will be changed to reflect this.

Comment 104 Section 4.2, 1st paragraph. **("...the landfill cover will bar infiltration of precipitation.")** How was this determined? Please provide documentation.

Response: HELP analyses used to determine cover infiltration rates are presented in Section 4.2 of the Waiver Justification Document.

Section 4.2, 1st paragraph, 4th sentence should read: " After closure, the landfill cover will reduce infiltration of precipitation."

Comment 105 Section 4.2.1, 2nd paragraph. **("Water onsite is prevented from entering the active portion of the landfill by the waste processing corridor drainage ditch around the perimeter of the landfill.")** How will precipitation falling inside the landfill boundaries be prevented from migrating to the active part of the landfill?

Response: Figure 2-10, Sections H and I illustrate a temporary slope drainage ditch. Rain falling on landfill slopes above this feature will flow down slope and will be diverted from flowing onto the waste or the lined area. This clean water will flow to a lined clean water collection area to be located in the floor area of the landfill on top of the landfill liner system's protective cover. In this manner, slope storm-water runoff within the cell will be diverted from becoming leachate.

Comment 106 Section 4.2.1, 2nd paragraph. **("Removal of this water will begin within 24 hours of the storm event.")** Removal of any runoff which collects in low spots within the landfill must be accomplished as soon as possible to prevent infiltration and the formation of leachate.

Response: The wording should read as follows: "Removal of this water will begin as soon as possible, within 24 hours of the storm event." See response to Item 47.

Comment 107 Section 4.2.6, 2nd paragraph, 1st bullet. Please provide the calculations done for the expected leakage rates.

Response: HELP analyses and other ground-water models used to determine the expected leakage rates for MTR and Triassic Park liners are presented in Section 4 and Appendices A and B of the Waiver Justification Document.

Comment 108 Section 4.2.6, 2nd paragraph, 1st bullet. Was any modeling besides the HELP model done?

Response: See response to Comment #107.

Comment 109 Section 4.3, 2nd paragraph. **("...leachate will be removed...in a timely manner...")** Leachate should be removed as soon as it migrates to the sump in order to minimize the head on the liner. (note: also see Item 115 below.)

Response: Leachate from the leachate collection and leak detection systems will be pumped out daily. See also the response to Comment #115.

Comment 110 Section 4.4.3. **(...Roswell weather station...mean annual precipitation is 10.61 inches.")** NOAA precipitation data for Tatum shows an average annual precipitation of 16.14 inches. Because the proposed facility is approximately midway between the two communities, both sets of figures should be used in estimating precipitation.

Response: The reason the Roswell weather station was used is that both Roswell and the proposed site are located in the northern extension of the Chihuahuan Desert province. The Tatum weather station is located on the "Caprock" in the Southern High Plains province. Although there is less than 100 miles between Tatum and Roswell the physiographic setting (and climatological condition) of Tatum are not directly comparable to the proposed site.

Comment 111 Section 4.4.4. **("Samples taken from saturated sediments 2,500 feet down-gradient from the proposed site...")** Which samples were taken from saturated sediments 2,500 feet down-gradient from the proposed site?

Response: Samples of groundwater were collected from WW-1 which is located downgradient from the proposed site. Please refer to the revised Figure 3-13 in the NOD Data Package and the response to Comment #83.

Comment 112 Section 5.1.2, 3rd paragraph. **("The following wastes will not be accepted: Polychlorinated biphenyl (PCB) liquids that...have PCB concentrations > 500 ppm...")** Will GMI accept liquids with PCB concentrations less than 500 ppm? As stated in 20 NMAC 4.1 Subpart VIII 40CFR268.42(a)(1), liquid hazardous wastes containing PCBs at concentrations between 50 and 500 parts per million must be incinerated or burned in high efficiency boilers.

Response: The wording of the last bullet should read as follows: Polychlorinated Biphenyl (PCB) liquids that are ignitable or have PCB concentrations greater than 50 parts per million.

Comment 113 Section 5.2.2.1, 2nd paragraph. **("If a significant discrepancy is found in the paperwork, the facility will contact the generator for resolution prior to acceptance of the load...")** How will the waste be handled while the discrepancy is being resolved? Will the shipment be kept outside the facility gate? Will it be stored on site? Will it be returned to the shipper?

Response: If there is a significant discrepancy found in the paperwork, and the issue cannot be resolved in a timely manner (generally less than 24 hours), the shipment will be returned to the generator. During the time the issue is being resolved, the waste shipment will remain in a secure area inside the facility gate. Discrepancies in the quantity or type of hazardous waste, as defined in 40 CFR 264.72, that are not resolved within 15 days after receiving the waste will be reported to NMED.

Comment 114 Section 6.2.2, 4th paragraph. **("The landfill will be inspected...")** Who will do the inspecting? What procedures will be used? What documentation will be done?

Response: The landfill will be inspected by properly trained personnel. As with the inspection plan, inspection procedures will be developed as the facility design is finalized. All inspections will be documented on the Landfill Inspection Checklist, found in Appendix 6A of the application. Inspection checklists will be kept for at least 3 years, in accordance with 40 CFR 264.15(d).

Comment 115 Section 6.2.2, 5th paragraph. **("...the leachate collection and removal system...and the leak detection system...will be checked at least weekly...")** To minimize buildup of leachate head on the liner the sump should be emptied as soon as liquids accumulate in it. Weekly inspections may not be frequent enough to accomplish this.

Response: The wording should read as follows: "...the leachate collection and removal system (LCRS) and leak detection system (LDS) will be checked for the presence of liquids daily.

Comment 116 Section 6.2.2, 6th paragraph. **("...active portion of the landfill will either be covered or managed in such a way as to control the dispersal.")** Please describe the procedures for this.

Response: Methods to be used to control the dispersal of particulate matter may include covering the active portion of the landfill with a tarp, wetting the surface with water or suppressant, or other similar techniques. See the response to Comment #35.

Comment 117 Section 6.2.3, 2nd paragraph. **("...the surface impoundment...will be inspected weekly and after storms to...detect any sudden drops in the level of the impoundment's contents...")** What amount of drop in level will be detected? Also, if sudden drops occur, weekly inspections may not be frequent enough to detect them.

Response: Liquid levels in the surface impoundment will be monitored using a measuring staff gauged either in inches or in tenths of a foot. Water level increases or decreases not commensurate with rainfall or evaporation rates could be indicative of liner leakage or pond input tracking problems.

As stated in 40 CFR 264.226(b), surface impoundments must be inspected weekly and after storms. However, the facility agrees with NMED that weekly inspections may not be frequent enough to detect sudden drops in liquid level. Therefore, the surface impoundment will be inspected daily to detect any sudden drops in the level of the impoundment's contents and to measure the volume of and remove any leachate that has accumulated in the leachate collection and leak detection sumps. Other inspection items, such as condition of berms, warning signs, and surrounding area, will be checked weekly and after storms.

Comment 118 Section 6.2.3, 2nd paragraph. **("The surface of the waste will be visually checked for any sign of the primary liner floating, which may indicate a leak in the liner.")** The unit should be designed, constructed, and operated to avoid leaks and floating liner.

Response: The impoundment will be designed, constructed, and operated to meet or exceed the applicable regulatory requirements. The second sentence should read: "Visual inspections will be conducted to verify the integrity of the liners and associated systems."

Comment 119 Section 6.2.3, 2nd paragraph. **("Leachate collection pipes and the sump will be inspected for leaks or deterioration ...")** How will this be done?

Response: Section 6.2.3, 2nd paragraph, 3rd sentence, should read: "Visible portions of the leachate collection pipes and pump will be visually inspected for deterioration. The concrete pad for tanker discharge will be visually inspected for accumulation of liquids.

Comment 120 Section 6.4.4, 1st paragraph. **("The domestic water supply (via underground water line from a spring in the Ogallala formation...)...")** Does this refer to water to be used at the facility? If so, GMI needs to coordinate the intended water use with the State Engineer Office's Water Rights Division. The nearest office is in Roswell and may be reached by phone at 622-6467.

Response: This sentence does not refer specifically to water used at the site. The paragraph was intended to provide information required in 40 CFR 270.14(b)(8)(iii) regarding prevention of contamination of water supplies, which we interpret as broader than the water supply for GMI. However, the comment is still valid, and GMI will coordinate intended water use with the State Engineer's Office, Water Rights Division, and other appropriate agencies.

Comment 121 Section 6.4.8. **("If releases to the air occur, they will be handled in accordance with appropriate regulations.")** Please specify what type of releases and which regulations are being referenced.

Response: The facility will be constructed, operated and maintained in a manner to prevent releases to the atmosphere as required in 40 CFR 270.14(b)(8)(vi). A structural containment building housing the stabilization area will be equipped with pollution control systems to minimize the release of particulates to the atmosphere. Procedures will

be developed to ensure that the landfill and associated activities are managed to prevent particulate releases. The contingency plan will specify the methods to prevent and control spills and emissions related to spills. Regulations applicable to sources of air emissions from the facility may be found in the N.M. Air Quality Control Regulations.

Comment 122 Section 6.5.3, 1st paragraph. **("Any leachate generated from the landfill will be sufficiently dilute by the time it reaches the LCRS that problems associated with incompatibles in the LCRS sump are not anticipated")** What is this statement based on? How can the dilution level be determined at this time? Are leachate compatibility problems possible in the LCRS away from the sump?

Response: Wastes will be solidified and stabilized prior to their placement into the landfill. These processes are performed to bind liquids and prevent leaching of any of the wastes' constituents. Any leachate generated within the landfill, therefore, is not expected to contain significant levels of hazardous constituents. Furthermore, incompatible waste types will be segregated within the landfill. Due to the anticipated low concentrations of hazardous constituents in the leachate, and the geographic separation of incompatible waste types, incompatibility problems anywhere within the landfill will be negligible.

Comment 123 Appendix 6A, "Example Inspection Checklists". **("**For any 'no' answer, complete the Remedial Actions section below.")** For some of the inspections a <u>yes</u> answer will require remedial actions.

Response: The checklists have been revised to resolve this issue. Revised checklists are included as part of the NOD Data Package.

Comment 124 Section 7.4.1.1, 4th paragraph. **("...fire department personnel will respond immediately.")** Does this refer to GMI employees or other persons. If an off-site fire department responds to emergencies, what is the estimated response time?

Response: Facility personnel will be trained for initial response to on-site fires. Methods to be used by on-site personnel may include fire extinguishers, or the application of soil and/or water to suppress fires. The local fire department will respond to fires beyond the control of site personnel. Response time for the Roswell Fire Department is approximately 30-45 minutes.

Comment 125 Section 7.4.1.1, 9th paragraph. **("...if immediate action is required to protect a local community population...")** Persons using the nearby Mescalero Sands recreational complex and travelers at the rest stop on Highway 380 north of the facility need to be protected also.

Response: The EC will contact the appropriate emergency response agencies who will (as necessary) notify and/or evacuate persons using the nearby recreational complex or rest area.

Comment 126 Section 7.4.5.3, 1st paragraph. **("The surface impoundment will be removed from service if the level of liquids in the impoundment suddenly drops...")** How much of a drop in level will require shutdown of the unit? How will this be measured?

Response: As stated in the response to Comment #117, liquid levels in the surface impoundment will be monitored using a measuring staff gauged either in inches or in tenths of a foot. Daily evaporation losses will be compared to daily evaporation rates obtained from the nearest NOAA weather station (currently this is the Bitter Lakes Wildlife Refuge station, as evaporation rates are not measured at the Roswell and Tatum stations). If liquid losses exceed daily evaporation losses and no other reasonable explanation is found, then the surface impoundment will be shut down and the authorities at NMED will be notified immediately.

Comment 127 Section 7.4.5.3, 1st paragraph. **("...and the drop cannot be attributed to known flowrate changes into or out of the impoundment.")** What known flow out of the impoundment will occur?

Response: The major source of volume reduction from the impoundment is anticipated to result from evaporation. Liquid may also be pumped out of the impoundment, for example if a heavy rainfall event causes the water level to rise above the required freeboard elevation.

Comment 128 Section 7.4.5.3, 1st paragraph, 5th bullet. **("...the impoundment will be emptied.")** Please provide a detailed plan for emptying the surface impoundment.

Response: Several options are available to empty a surface impoundment. These include setting up temporary double-lined embankments, temporary double-lined bladders, temporary portable double-lined tanks, or using tanker trucks. These short-term storage measures are intended only to allow storage capacity during a major impoundment repair effort. The facility will request an emergency permit under 40 CFR 270.61 for

storage of wastes on-site in temporary tanks. The wastes would be transferred into and out of the tanks using existing or temporary pumps.

Comment 129 Section 7.4.5.3, 1st paragraph, 6th bullet. **("The Director will be notified in writing...within seven days...")** Notification should be to the Chief of the Hazardous and Radioactive Materials Bureau. A 24-hour oral report should precede the 7-day written report.

Response: Agreed. Notification will be made to the Chief of the Hazardous and Radioactive Materials Bureau. A 24-hour oral report will be made, followed by a 7-day written report. An unexplained drop in the level of the surface impoundment would qualify as a noncompliance that may endanger human health or the environment, and 40 CFR 270.30(l)(6) requires 24-hour notification for such events.

Comment 130 Section 7.4.5.3, 3rd paragraph. **("...in compliance with 264.22[a]...")** NMED is unable to identify this reference.

Response: The citation should be as follows: 264.221(a)

Comment 131 Section 7.5.2, 4th paragraph. **("Any release...greater than...1 pound must be reported...")** Any release which may impact the environment must be reported. Quantity, by itself, is insufficient, in determining reportability.

Response: The wording should be as follows: "Any release which could threaten human health or the environment must be reported to the Director."

Comment 132 Section 7.5.2, 7th paragraph. **("Within 15 days...submit a written report...")** The written report must be submitted within 7 days.

Response: 40 CFR 264.56(j) requires that a written report be submitted within 15 days after the incident that requires implementing the contingency plan. This is what is currently in the permit application. It may be difficult to gather all the necessary information for a report within 7 days as requested by NMED, particularly when analytical results would be included, and therefore the facility requests the regulatory time limit of 15 days for this reporting requirement.

Comment 133 Section 7.5.2, 7th paragraph. **("The report must include...")** Add to this list:

a) the source and cause of any release to the environment and

b) actions taken to mitigate damage due to the release.

Response: Wording should be added as requested.

Comment 134 Section 7.6, 3rd paragraph. **("An up-to-date list of all satellite and 90-day accumulation areas...will be... provided to the NMED inspectors upon request.")** Any satellite and 90 day accumulation areas, if not shown on Figure 1-2, the "Conceptual Site Master Plan", must be described, and indicated on a map, for consideration as SWMUs or Areas of Concern.

Response: Prior to construction and the commencement of waste operations at the Triassic Park facility, the locations of solid waste management units will not be known with certainty. Satellite and/or 90-day accumulation areas may possibly be located at the chemical laboratory, the truck wash facility, and the maintenance shop. Prior to accepting waste at a satellite or 90-day accumulation area, NMED will be provided with a description and location map. See response to Comment #2.

Comment 135 Appendix 7A. The correct street address for the Hazardous and Radioactive Materials Bureau is 2044 Galisteo Street, P.O. Box 26110, Santa Fe, New Mexico 87502. The Environment Department's emergency phone, for nights and weekends, is (505) 827-9329. NMED recommends adding CHEMTREC to the list of emergency contacts. CHEMTREC may be reached at (800) 494-9300.

Response: The address for HRMB will be updated as requested. CHEMTREC will also be added to the list of emergency contacts. Note: CHEMTREC's phone number is 1-800-424-9300.

Comment 136 Section 9.2.6, 3rd paragraph. **("The leachate will be used to irrigate the cap vegetation and any excess will be released to the stormwater retention basin.")** To what standards will the leachate be treated prior to this use or disposal?

Response: The leachate treatment system to be operated after closure of the surface impoundment will qualify as a wastewater treatment unit as defined in 40 CFR 260.10 and will be subject to regulation under the Clean Water Act. The treatment unit will thus be exempt from RCRA permitting requirements under 40 CFR 270.1(c)(2)(v), and the treated effluent will be exempt from RCRA (not a solid waste) under 40 CFR 261.4(a)(2). The effluent from the leachate treatment system will be

treated to meet the standards listed in the final NPDES permit prior to discharge for irrigation or to the stormwater retention basin.

Comment 137 Section 9.3, 2nd paragraph, 1st bullet. **("The landfill cover will be inspected monthly...")** Who will do the inspecting? What procedures will be used? What documentation will be done?

Response: The landfill cover will be inspected by properly trained personnel. Inspection procedures will be developed as the facility design is finalized. All inspections will be documented on a Post-closure Landfill Inspection Checklist, which is provided with the revised post-closure plan in the NOD Data Package.

Comment 138 Section 10.2, 2nd paragraph. **("...minimizing the quantities of virgin products and raw materials allowed into the disposal area...")** Which disposal area is referred to? What products and materials, other than hazardous wastes and their containers, will go to the disposal area?

Response: The landfill is the only disposal area at the facility. The "virgin products and materials" in this statement refer to sorbents, and other materials used in the stabilization process. The facility will endeavor to utilize other wastes (e.g., fly ash) in the stabilization process rather than virgin materials.

Comment 139 Section 11, 2nd paragraph. **("...the facility will notify the administrative authority in writing within 30 days of discovery.")** Any releases should be reported by phone within 24 hours and in writing within 7 days.

Response: Releases from solid waste management units will be responded to in accordance with the Contingency Plan provided in Section 7, including notification and reporting. Specifically, any release which could threaten human health or the environment must be reported to NMED within 24 hours of its detection, and any time the contingency plan is implemented, NMED will likewise be notified within 24 hours. However, in some cases, a release from a SWMU would not trigger reporting under the contingency plan, such as small amounts of material released from SWMUs into contained buildings or onto impervious surfaces which are immediately cleaned up. All releases and response actions will be documented in the facility operating record.

Comment 140 In addition to the preceding items, NMED requests the following information:

a) How will sludge be removed from the surface impoundment?

b) How will small animals, including birds, be kept out of the surface impoundment?

c) How will the landfill's operations layer be compacted without damaging the underlying LCRS and liner? How will this be verified?

d) What method will be used to test the landfill's upper drainage layer and its perforated collection pipe? How will this be verified?

e) How will the location of any leaks from the surface impoundment or landfill be located?

Response: a) Sludge will be removed from the impoundment during closure. This will be accomplished using earthmoving equipment such as an excavator and will be loaded into roll-off boxes or other appropriate haul equipment.

(b) Because final design of the facility has not yet been completed, the method(s) to be used for repelling birds and small animals from the surface impoundment has not yet been determined. There are several options available. To deter birds from the impoundment, one option would be to install a 10-foot by 10-foot grid of Kevlar or steel wire suspended 2 to 3 feet above the surface. Another option would be to treat the surface of the impoundment with methyl anthranilate. This chemical, which is biodegradable, is an irritant with a grape-like odor used successfully on mine tailings ponds and working faces of municipal landfills. Propane cannons with motion detectors are another potential method of deterring birds. To prevent the entry of small animals into the impoundment area, a 1-inch mesh hardware cloth fence may be constructed around the perimeter of the impoundment. The mesh extends 2 to 3 feet above and 1 to 1½ feet below the ground, and horizontally away from the impoundment about 3 feet. This will prevent small burrowing animals from accessing the area. Electric fencing may also be necessary to prevent animals from climbing the fence.

c) The operations soil layer will be placed on the geotextile in a loose lift under the observation of a spotter and/or the placement

equipment operator. This placement operation typically involves dozing a 3-foot to 4-foot pile over the geotextile and then trimming it back to the desired thickness. In this way, impact to the liner is minimized and any penetrations or damage during placement can be observed.

d) Drainage systems typically are not tested per se. Generally, the drainage materials used are sampled during construction and tested in the laboratory to ensure the materials used meet minimum permeability requirements.

e) The primary means of determining locations of leaks from the landfill will be to review operational records to determine the area heavy equipment has been working in recently, to determine if any liner damage may have occurred. Another method would be to analyze the leachate and attempt to match it with the waste analysis on record. If the leachate analysis matches a particular waste analysis, this may help identify the proximity of the leak by determining the grid location where the waste was disposed.

   Leaks from the surface impoundment will be located by lowering the liquid level until the flow into the LCRS ceases. The integrity of the liner and seams will then be inspected to locate the source of the leak. Operational records will also be reviewed to determine if heavy equipment operation may have caused damage to the berm or liner. Another method that may be used is to match the specific gravity of the leachate to the specific gravity at a particular depth in the impoundment to determine the elevation of the leak, because liquids in the impoundment will settle and stratify to some extent based on specific gravity.

   Some other experimental methods may be used if a leak proves difficult to locate, such as use of indicator dyes or measurement of electrical potential. However, the facility requests that these not be added to the permit, as the methods have not been developed.

References

New Mexico Hazardous Waste Management Regulations, 20 NMAC 4.1, September 1994.

U.S. Environmental Protection Agency, Office of Waste Programs Enforcement and Office of Solid Waste and Emergency Response. RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER Directive 9950.1, September 1986.

U.S. Environmental Protection Agency, Office of Solid Waste. RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November 1992.

U.S. Environmental Protection Agency. Waste Management Area (WMA) and Supplemental Wall (SPW) Guidance; Final, EPA/530-R-93-022, June 1993.

U.S. Environmental Protection Agency, Office of Solid Waste. "Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units," 57FR3462 (January 29, 1992), (codified at 40 CFR Parts 260, 264, 265, 270, and 271).

Additional Deficiencies that GMI needs to address:

Comment 141 Provide a comprehensive post-closure plan that includes, but is not limited to post-closure security and closure notices. Include long term maintenance, ground water monitoring and reporting activities. Provide a description of the post-closure care of the various units or portions (tanks, surface impoundment...etc) of the subject treatment, storage and disposal facility. The information presented in Gandy Marley's Section 9, pages 7-9 does not fully address the above issues. This requirement is in accordance with 20 NMAC 4.1, Subpart IX, 40 CFR §270.1(c).

Response: See the NOD Data Package for a revised post-closure plan.

Comment 142 Provide the dimensions of the surface impoundment (i.e., length, width, depth), its capacity (gallons) and the types of hazardous waste that will be treated by evaporation.

Response: The dimensions and capacity have been provided in the conceptual design submitted in the permit application, and they will be finalized during the final design process. The types of hazardous wastes that will be treated by evaporation include both wastes from offsite generators and leachate collected from the landfill that meet LDR treatment standards. Wastes that may be accepted from offsite generators are listed in the facility Part A Application. Leachate from the landfill will carry EPA waste code F039.

Comment 143 Provide a brief description of the physical properties of each of the five storage tanks, including their capacities (in gallons), dimensions (diameters, lengths), material from which the tanks were constructed, the year of manufacture, and how the integrity of the tanks will be maintained during storage of the hazardous waste at the Triassic Park.

Response: The capacity and integrity assessment description for the storage tanks have been provided in Section 2.3 in the permit application. All design elements requested will be provided with the final design package.

Comment 144 Submit a summary description of the Triassic Park landfill and/or cells, location and dimensions (length, width, and depth) and the types of hazardous wastes that will be disposed of into the landfill.

Response: A description of the landfill, including location and dimensions, has been provided in the conceptual design submitted in the permit application, and the description will be finalized during the final design process. The types of hazardous wastes that will be disposed of in the landfill include both wastes from offsite generators and wastes generated on site that meet LDR treatment standards. Details on wastes that will be accepted and wastes that will not be accepted are provided in Part 5, Waste Analysis Plan. Wastes that may be accepted from offsite generators are listed in the facility Part A Application.

REVISED POST-CLOSURE PLAN

9.3 Post-Closure Activities

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

The post-closure care period for the landfill will be 30 years. Inspection, maintenance, and repair activities that will be conducted during post-closure are described in the following sections.

9.3.1 Security Systems

The facility perimeter fence and warning signs will be inspected and maintained throughout the post-closure period. Monthly inspections will include checking the condition of fencing, locks, gates, and warning signs. Any signs of unauthorized entry will be reported to the local sheriff's office and NMED. Routine maintenance will be performed based on inspection findings to repair or replace damaged or deteriorating items.

9.3.2 Landfill Final Cover

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

General maintenance activities will include the following activities:

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

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

9.3.3 Perimeter Diversion Ditch

The perimeter diversion ditch will be inspected and maintained throughout the post-closure period to ensure it functions as designed to divert precipitation and run-on from the landfill area. Inspections will be conducted monthly and will include checking for accumulated sediments and debris, and signs of erosion. Repairs will be scheduled in a timely manner upon noting deficiencies in order to ensure that the diversion ditch maintains its effectiveness.

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

9.3.4 Leachate Management System

9.3.4.1 Leachate Collection System

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

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

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

9.3.4.2 On-site Treatment of Leachate

During the post-closure care period, an on-site leachate treatment unit will be operated to treat and discharge collected leachate. The unit will be designed and

operated in accordance with wastewater treatment standards under the Clean Water Act. An NPDES permit will be obtained prior to discharge of any treated leachate.

The treatment unit will be inspected and maintained during the time leachate is being generated from the closed landfill. Operations and maintenance will be in accordance with manufacturer's specifications. Any residues resulting from leachate treatment will be disposed off-site at a permitted or interim status hazardous waste facility.

Treated leachate will be used to irrigate the cap vegetation and any excess will be released to the stormwater retention basin. The irrigation system will be maintained and repaired as necessary during the time leachate is being generated and treated.

9.3.4.3 Leak Detection System

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

Inspections and maintenance will be similar to those described for the leachate collection system.

9.3.5 Groundwater Monitoring Wells

The groundwater monitoring system will be maintained and monitored throughout the post closure care period. The monitoring network will include one upgradient and three downgradient wells, as specified in section 3.8 of the permit application.

9.3.5.1 Sampling and Analysis

Groundwater samples will be collected from each well semi-annually to test for the presence of contaminants in the groundwater. Sampling procedures and analytical parameters will follow the same guidelines used during the active life of the facility, as specified in section 3.8.2.3 of the permit application.

9.3.5.2 Inspection and Maintenance

The riser pipes, grout seals, locking caps, and other visible above-ground portions of the wells will be inspected semi-annually for integrity. Routine maintenance will be conducted to ensure that the groundwater monitoring wells remain in operable

condition. Locking caps and standpipe grouting will be repaired or replaced as necessary. Well development will occur as needed to remove finely divided sediment that may accumulate in the well.

9.3.6 Recordkeeping

A post closure facility record will be maintained that includes the dates and times of inspections, inspection findings, name of inspector, volumes of leachate pumped, disposition of leachate, sampling results of leachate and groundwater samples, and dates and nature of any corrective actions taken.

9.3.7 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.

9.3.8 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.

9.3.9 Facility Post-Closure Contact

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

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

DRAFT POST-CLOSURE INSPECTION CHECKLIST: SECURITY SYSTEMS
(Inspection Frequency: Monthly)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes**	**No***
Is facility perimeter fence in good structural condition?	☐	☐
Are warning signs on perimeter fence present and legible?	☐	☐
Are gates and locks in good condition?	☐	☐
Is the facility free of signs of unauthorized entry?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST: LANDFILL FINAL COVER
(Inspection Frequency: Monthly and After Storms)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes***	**No**
Any signs of erosion or cracking on cover?	☐	☐
Any signs of subsidence or ponding water on cover surface?	☐	☐
Any signs of burrowing animals?	☐	☐
Any signs of deep rooted vegetation which could damage liner?	☐	☐
Any areas of sparse or dead vegetative cover?	☐	☐
Any areas of vegetative cover in need of watering?	☐	☐

* For any "Yes" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST:
PERIMETER DIVERSION DITCH
(Inspection Frequency: Monthly and After Storms)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes***	**No**
Any signs of erosion?	☐	☐
Any accumulated sediments or debris that could block water flow?	☐	☐

* For any "Yes" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST: LEACHATE SYSTEM
(Inspection Frequency: Monthly*)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes**	**No****
Leachate collection system pumps functioning properly?	☐	☐
Leak detection system pumps functioning properly?	☐	☐
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐
Leachate treatment system functioning properly?	☐	☐
Irrigation system functioning properly and in good repair?	☐	☐

Record amount of liquids removed:

Leachate collection system _____

Leak detection system _____

* After sumps have remained dry for six months, inspection frequency will be semi-annually.

** For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST:
GROUNDWATER MONITORING WELLS
(Inspection Frequency: Semi-Annually)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following on each well)	**Yes**	**No***
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT INSPECTION CHECKLISTS

cf NOD Comment 123
& 114

DRAFT LANDFILL INSPECTION CHECKLIST
(Inspection Frequency: Daily/Weekly as Noted)

Inspector: _____

Date: _____ Time: _____

DAILY:	Dates:						
Record amount of liquids removed:	____	____	____	____	____	____	____
Leachate collection system	____	____	____	____	____	____	____
Leak detection system	____	____	____	____	____	____	____

WEEKLY: Physical Inspection (check each of the following)	**Yes**	**No****
Leachate collection system pumps functioning properly?	☐	☐
Leak detection system pumps functioning properly?	☐	☐
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐
Is landfill free of signs of spills, leaks, odors?	☐	☐
Run-on and run-off control systems functioning properly?	☐	☐
Area warning signs present and legible?	☐	☐
Spill equipment available and accessible?	☐	☐
Perimeter fence in good structural condition?	☐	☐
Windblown particulates adequately controlled?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

Supervisor notified of problem Date _____ Time _____

Emergency Coordinator notified of problem Date _____ Time _____
(if appropriate)

DRAFT POST-CLOSURE INSPECTION CHECKLIST: LANDFILL FINAL COVER
(Inspection Frequency: Monthly and After Storms)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes***	**No**
Any signs of erosion or cracking on cover?	☐	☐
Any signs of subsidence or ponding water on cover surface?	☐	☐
Any signs of burrowing animals?	☐	☐
Any signs of deep rooted vegetation which could damage liner?	☐	☐
Any areas of sparse or dead vegetative cover?	☐	☐
Any areas of vegetative cover in need of watering?	☐	☐

* For any "Yes" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST: LEACHATE SYSTEM
(Inspection Frequency: Monthly*)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes**	**No****
Leachate collection system pumps functioning properly?	☐	☐
Leak detection system pumps functioning properly?	☐	☐
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐
Leachate treatment system functioning properly?	☐	☐
Irrigation system functioning properly and in good repair?	☐	☐

Record amount of liquids removed:

Leachate collection system _____

Leak detection system _____

* After sumps have remained dry for six months, inspection frequency will be semi-annually.

** For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

Date corrective action was taken: _____

DRAFT SURFACE IMPOUNDMENT INSPECTION CHECKLIST
(Inspection Frequency: Daily/Weekly as Noted)

Inspector: _____
Date: _____ Time: _____

DAILY:	Dates:						
Record amount of liquids removed:	____	____	____	____	____	____	____
Leachate collection system	____	____	____	____	____	____	____
Leak detection system	____	____	____	____	____	____	____
Elevation of liquid in impoundment:	____	____	____	____	____	____	____

WEEKLY: Physical Inspection (check each of the following)	**Yes**	**No***
Leachate collection system functioning properly?	☐	☐
Leak detection system functioning properly?	☐	☐
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐
Proper freeboard (2 feet) maintained?	☐	☐
Berm free of deterioration and erosion?	☐	☐
Area warning signs present and legible?	☐	☐
Spill equipment available and accessible?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

Supervisor notified of problem Date _____ Time _____

Emergency Coordinator notified of problem Date _____ Time _____
(if appropriate)

DRAFT CONTAINER STORAGE AREA INSPECTION CHECKLIST
(Inspection Frequency: Weekly)

Inspector: _____

Date: _____ Time: _____

Container Storage Unit I.D.: _____

Physical Inspection (check each of the following)	**Yes**	**No***
Are containers located within authorized boundaries?	☐	☐
Are area warning signs present and legible?	☐	☐
Is secondary containment free of cracks and gaps?	☐	☐
Is secondary containment area and sump free of liquids?	☐	☐
Are hazardous waste labels correct and legible?	☐	☐
Are EPA codes present on label?	☐	☐
Are all containers free of corrosion, buckles, dents, holes, damaged seams, or other structural defects or deterioration?	☐	☐
Are all containers free from signs of overpressurization?	☐	☐
Is aisle space adequate and clear of obstructions?	☐	☐
Is spill equipment available and accessible?	☐	☐
Are perimeter of the building and roof in good structural condition?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

Supervisor notified of problem Date _____ Time _____

Emergency Coordinator notified of problem Date _____ Time _____
(if appropriate)

DRAFT TANK STORAGE INSPECTION CHECKLIST
(Inspection Frequency: Daily)

Inspector: _____

Date: _____ Time: _____

Tank I.D. Number: _____

Physical Inspection (check each of the following)	**Yes**	**No***
Are area warning signs present and legible?	☐	☐
Is secondary containment free of cracks and gaps?	☐	☐
Is secondary containment area and sump free of liquids?	☐	☐
Are tank and ancillary equipment in good condition?	☐	☐
Is the stored hazardous waste compatible with the tank? (Signs of incompatibility include temperature increases or reactions)	☐	☐
Are tanks free from signs of leakage?	☐	☐
Is ancillary equipment free from signs of leakage?	☐	☐
Is tank accessible (i.e., is the area leading to and in front of the tank clear of obstructions?)	☐	☐
Is spill equipment available and accessible?	☐	☐
Is the overfill prevention equipment present and operable?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

Supervisor notified of problem Date _____ Time _____

Emergency Coordinator notified of problem Date _____ Time _____
(if appropriate)

DRAFT POST-CLOSURE INSPECTION CHECKLIST: SECURITY SYSTEMS
(Inspection Frequency: Monthly)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes**	**No***
Is facility perimeter fence in good structural condition?	☐	☐
Are warning signs on perimeter fence present and legible?	☐	☐
Are gates and locks in good condition?	☐	☐
Is the facility free of signs of unauthorized entry?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST:
PERIMETER DIVERSION DITCH
(Inspection Frequency: Monthly and After Storms)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following)	**Yes***	**No**
Any signs of erosion?	☐	☐
Any accumulated sediments or debris that could block water flow?	☐	☐

* For any "Yes" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

_____

_____

Date corrective action was taken: _____

DRAFT POST-CLOSURE INSPECTION CHECKLIST:
GROUNDWATER MONITORING WELLS
(Inspection Frequency: Semi-Annually)

Inspector: _____

Date: _____ Time: _____

Physical Inspection (check each of the following on each well)	**Yes**	**No***
Riser pipes in good structural condition?	☐	☐
Grout seals in good structural condition?	☐	☐
Locking caps present and in good structural condition?	☐	☐

* For any "No" answer, complete the remedial actions section below.

Remedial Actions

Describe corrective actions taken. _____

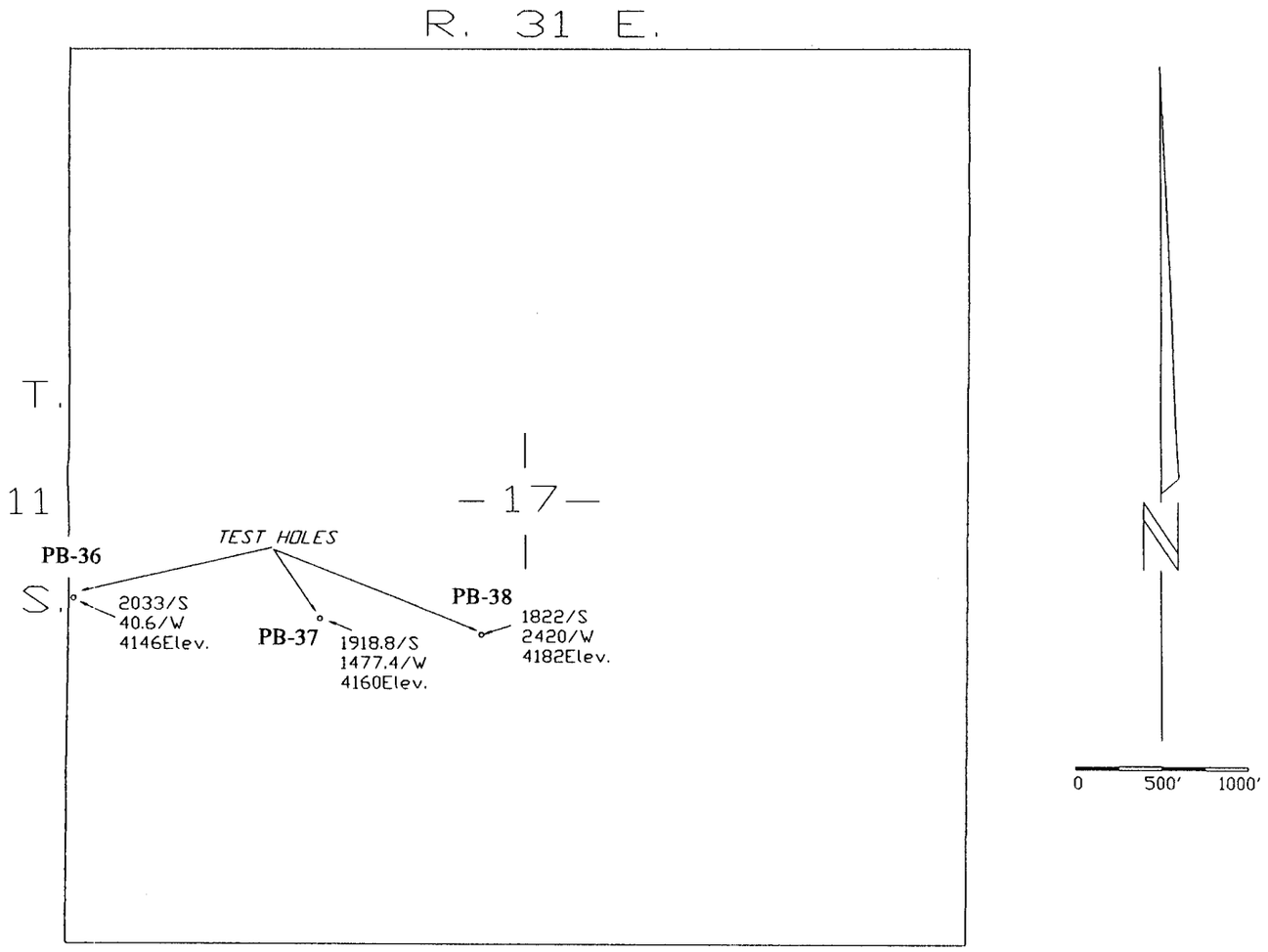
_____

_____

Date corrective action was taken: _____

PLAT MAP

Drill Holes PB-36, PB-37, PB-38



THE PREPARATION OF THIS PLAT AND THE PERFORMANCE OF THE SURVEY UPON WHICH IT IS BASED WERE DONE UNDER MY DIRECTION AND THE PLAT ACCURATELY DEPICTS THE RESULTS OF SAID SURVEY AND MEETS THE REQUIREMENTS OF THE STANDARDS FOR LAND SURVEYS IN NEW MEXICO AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS.

GANDY-MARLEY

HERSCHEL L. JONES R.L.S.No.3640

STATE OF NEW MEXICO
HERSCHEL L. JONES 3640
REGISTERED LAND SURVEYOR

LOCATE 3 ADDITIONAL WATER TEST HOLES IN SECTION 17, TOWNSHIP 11 SOUTH, RANGE 31 EAST, NMPM, CHAVES COUNTY, NEW MEXICO.

GENERAL SURVEYING COMPANY BOX 1928 LOVINGTON, NEW MEXICO 88260

SCALE: 1 " =1000 '	DRAWN BY: Ed R. Blevins
DATE: 9/13/95	SHEET 1 OF 1

WEST-EAST CORRELATION SECTION

SAN ANDREAS MTS. TO N. MEX.-TEXAS LINE
SOUTHEASTERN NEW MEXICO

cf HOD comment 83

BOREHOLE GEOPHYSICS APPLIED TO GROUND-WATER INVESTIGATIONS

AERIAL PHOTOGRAPHS OF THE TRIASSIC PARK SITE

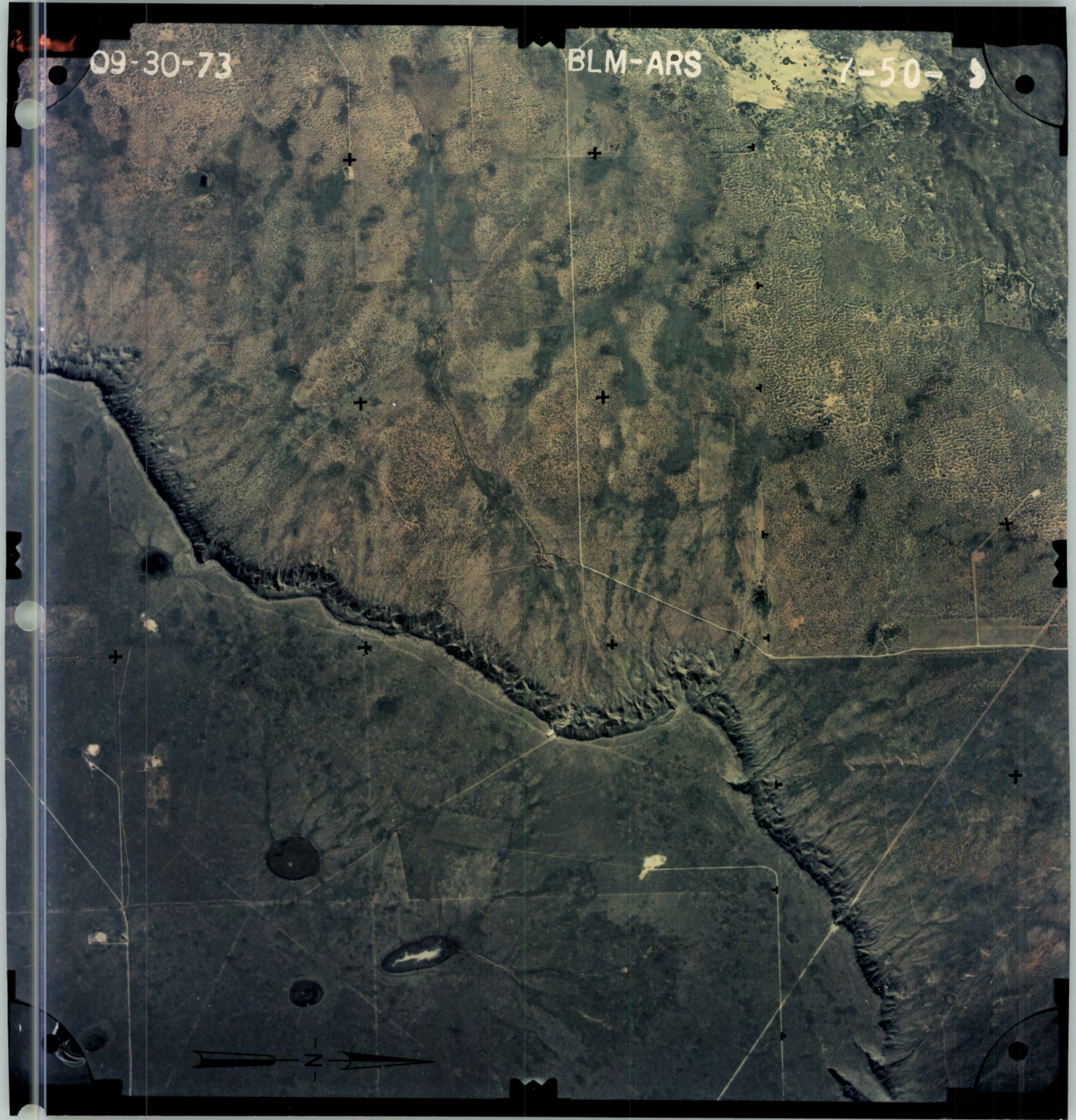
WEST-EAST CORRELATION SECTION

SAN ANDREAS MTS. TO N. MEX.-TEXAS LINE
SOUTHEASTERN NEW MEXICO

cf HOD comment 83

BOREHOLE GEOPHYSICS APPLIED TO GROUND-WATER INVESTIGATIONS

AERIAL PHOTOGRAPHS OF THE TRIASSIC PARK SITE


09-30-73
BLM-ARS
7-50-
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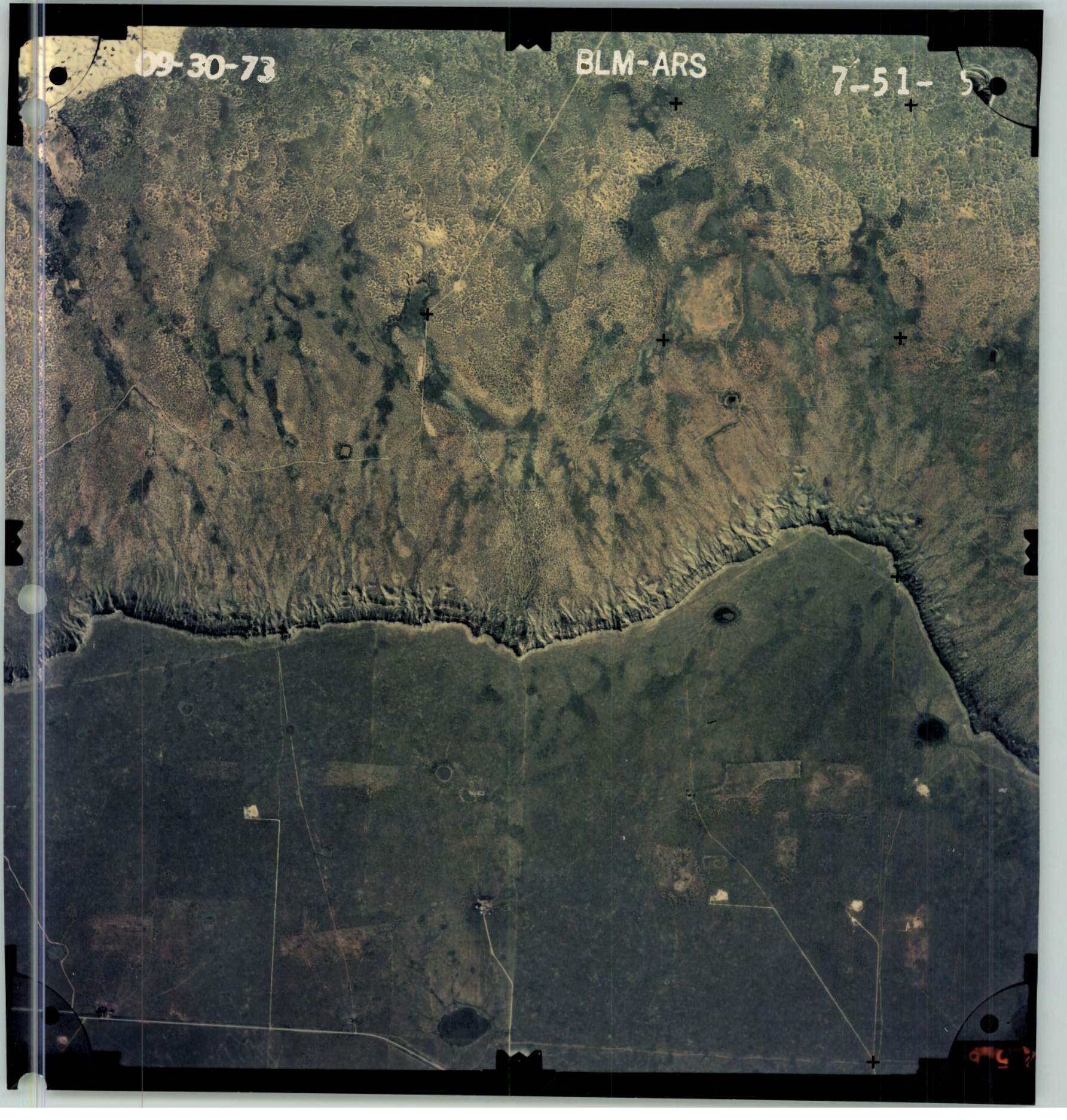

09-30-73
BLM-ARS
7-51-

PLATE 3-8

Cross-sections 1995 Drill Holes

cf. HOD Comment 83

PLATE 3-7

Drill Hole Locations

S. HOD Comment all 100

PLATE 3-1

Stratigraphic Cross Section

cf NOD Comment 81, 101, 102, 103

LITHOLOGIC LOGS

Drill Holes PB-36, PB-37, PB-38

& NOD Comment 83

S.M. Stoller Corporation

LITHOLOGY LOG

Hole No. PB-36 Section NW SW 17 T 11 S R 31 E

Project Gandy Marley Elevation 4146

Driller Sonny Pool Date 07/24/95

Comments (A) on NMED drill plan

GSA Color	Lith		Description
			lt grey (caliche) soil
10R 4/6			mod red-brn clay
10R 5/4			pale red-brn silt
10R 4/6			mod red-brn clay
		50'	lt grey v. fn ss - silt
10R 4/6			mod red-brn clay
10 R 5/4			pale red-brn silt
		100'	
10R 4/6			mod red-brn clay
10R 5/4			pale red-brn clay; trace silt @ 125'
	CORE	150'	
			cored interval 138'-148'

S.M. Stoller Corporation

LITHOLOGY LOG

Hole No. PB-37 Section NW SW 17 T 11 S R 31 E

Project Gandy Marley Elevation 4160

Driller Sonny Poole Date 07/25/95

Comments (B) on NMED drill plan

GSA Color	Lith		Description
			lt gray caliche soil
			lt gray silty clay
			dk gray clay
10 R 5/4		50'	pale red-brn clay
10 R 4/6			mod red-brn clay
10 R 4/6			mod red-brn silt w/ clay
10 R 5/4		100'	pale red-brn silt
10 R 4/6			mod red-brn silty clay
10 R 4/6			mod red-brn clay
	CORE		
			cored interval 148'-155'

S.M. Stoller Corporation

LITHOLOGY LOG

Hole No. PB-38 Section NE SW 17 T 11S R 31E

Project Gonzy Marley Elevation 4182

Driller Sonny Pool Date 07/25/95

Comments (c) on NMED drill plan

GSA Color	Lith	Description
		yell-brn silty soil
		Qal trace pebbles
		dk gray silty clay
	50	lt gray-grn clay silt
10R 4/2		gray-red clay
10R 4/6		mod red-brn clay
10R 5/4		
	100'	pale red-brn silt & clay
10R 4/6		mod red-brn clay
10R 5/4		pale red-brn silt with lt gray silt @ bottom
10R 4/6	150'	mod red-brn clay

GEOTECHNICAL ANALYSES

& HCD Comment #3

GEOPHYSICAL WELL LOGS

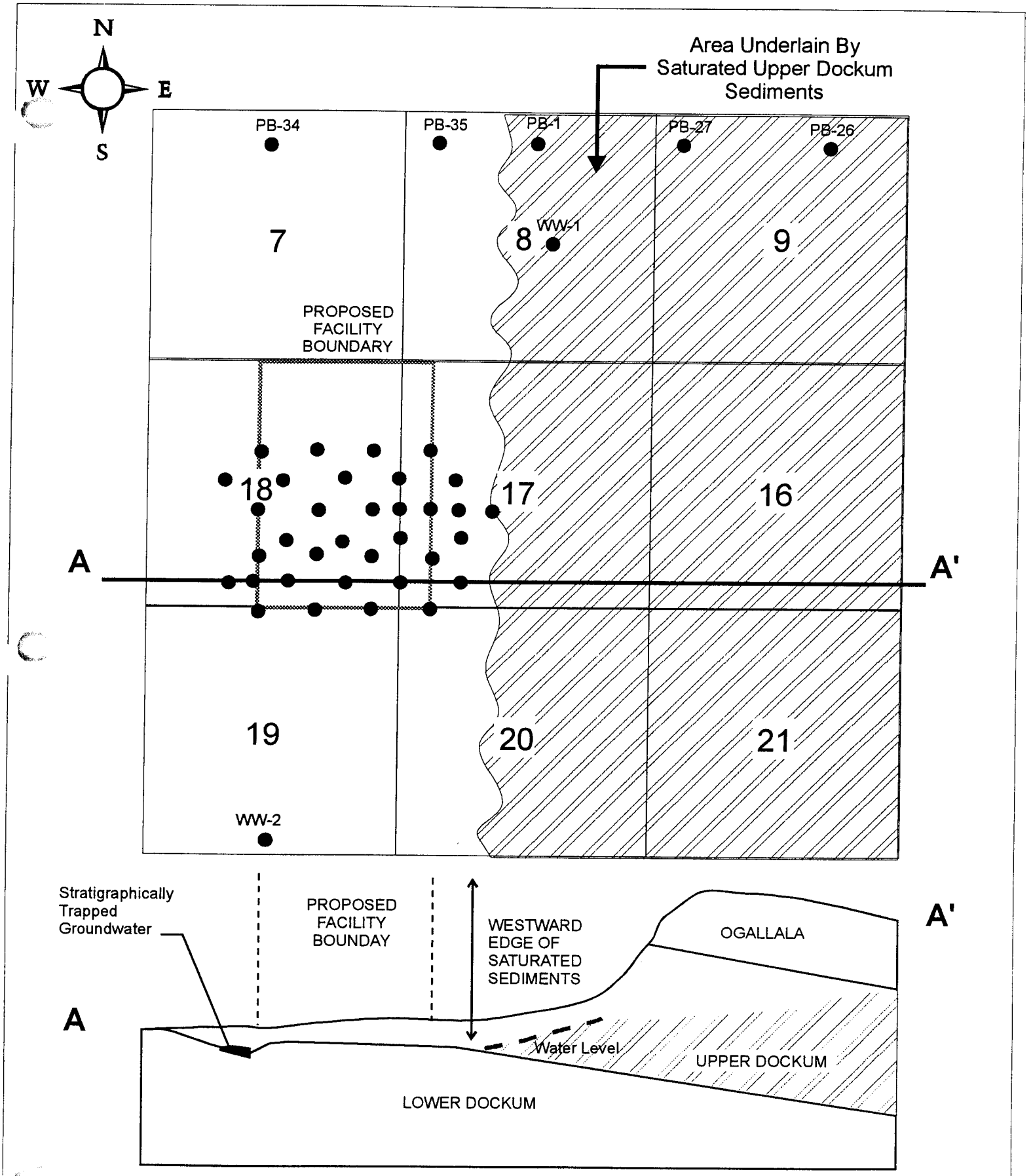
Drill Holes PB-36, PB-37, PB-38

cf HOD Comment 83

3-POINT PROBLEM

CALCULATIONS

cf NAD Comment 83



UPPER DOCKUM GROUNDWATER

SOUTH EAST NEW MEXICO

GANDY MARLEY PROJECT

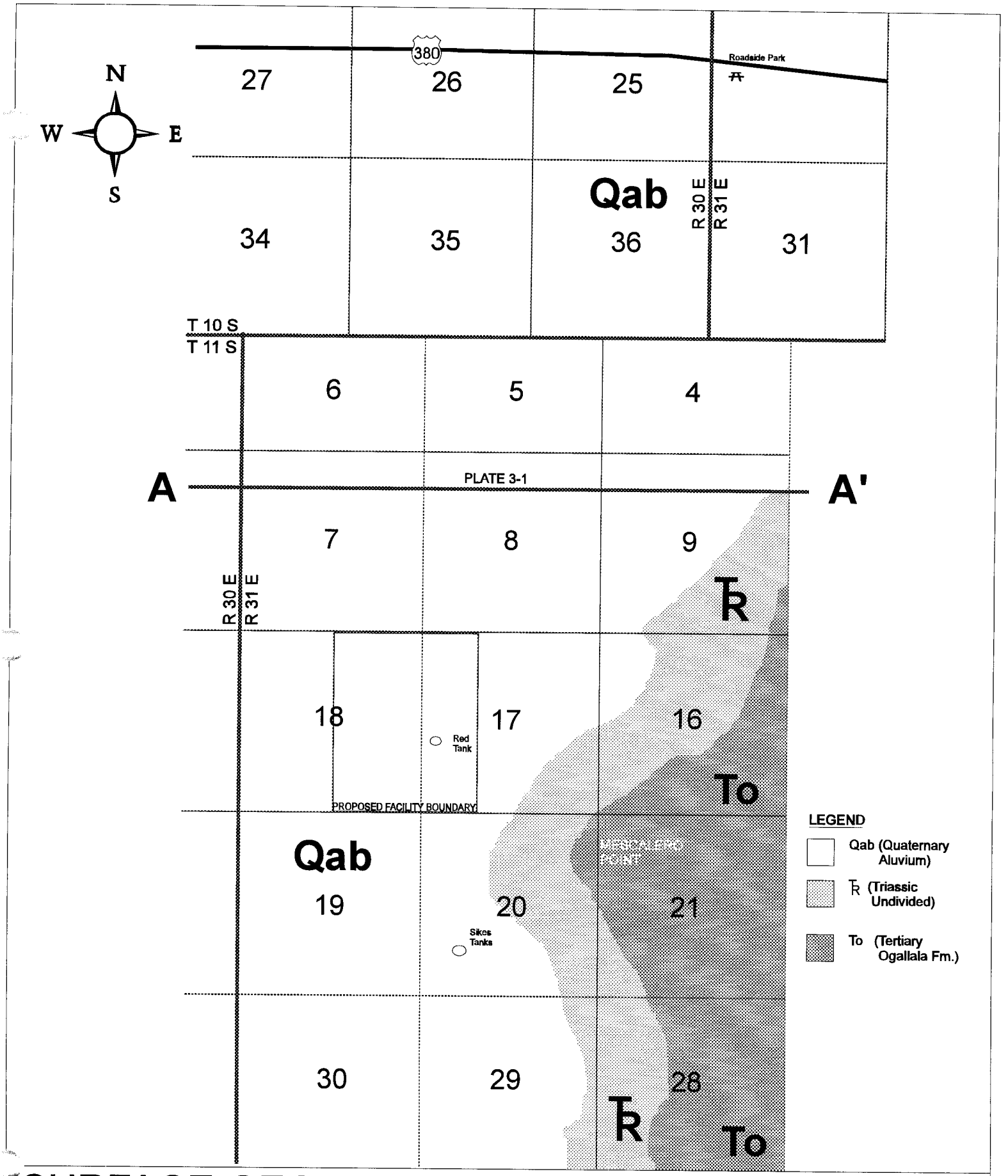
Figure 3-13

Corrected - 2/96

ONE INCH ≈ 2680'

REVISED FIGURES

cf HCD Comment 83, 101



SURFACE GEOLOGY - PROJECT AREA

SOUTH EAST NEW MEXICO

GANDY MARLEY PROJECT

Figure 3-10

ONE INCH ≈ 3500'

GM inc.

TRIASSIC PARK WASTE DISPOSAL FACILITY
CHAVES COUNTY, NEW MEXICO

SEP 1995
RECEIVED
HAZARDOUS WASTE
PROGRAM

September 29, 1995

Mr. Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044A Galisteo
Santa Fe, New Mexico 87502

RE: **Response to Notice of Deficiency for Triassic Park Hazardous Waste Disposal Facility EPA ID No. NM0001002484. (Reference NMED letter of August 8, 1995)**

Dear Mr. Garcia:

The purpose of this letter is to transmit responses to the New Mexico Environment Department's (NMED) August 9, 1995, Notice of Deficiency (NOD) for Gandy Marley, Inc., Triassic Park Hazardous Waste Disposal Facility. We are providing one hard copy of these responses and one electronic copy in WordPerfect 5.1, as requested by your staff in our August 29, 1995, meeting in Santa Fe.

This submittal is broken into three sections. The first section contains a response to each of the specific comments received in the NOD. In these responses, we have provided the information required to addressed the issue or concern. A number of these responses reference the other two sections of this submittal. The second section is the NOD Data Package, which contains maps, cross-sections, geotechnical data, a post-closure plan, and draft operational checklists that are reference in the first section. The third section is the Waiver Justification Document. This document provides additional information regarding the geology, construction, and design of the facility and its ability to meet or exceed the Minimum Technology Requirements for a landfill facility.

As agreed in the August 29, 1995, meeting with your staff, the final facility design is not provided with these responses. Our understanding is that the permit will contain a compliance schedule for completion of the final design package, and will include NMED review and approval authority to ensure that the final design meets permit requirements prior to the start of facility construction. We propose that the compliance schedule would require that final design drawings and information be provided to NMED for review no later than 180 days after the permit is issued. This timeframe allows us adequate time to prepare high quality design packages, and allows us to budget our resources to cover the considerable costs of design and construction. We will submit design packages for each permitted unit as it is finalized, such that NMED will have final design information for all units by the compliance deadline. As we proceed with final design and review our financing, we may elect to take a phased approach to

AR#95-026

Gandy Marley, Inc. Box 827, Tatum, New Mexico, 88267 (505) 398-4960 FAX (505) 398-6887

designing and constructing units, in which case we would request modification of the compliance schedule through the normal permit modification procedures.

Gandy Marley, Inc., appreciates the time and effort you and your staff have put into this project. Our continued ability to work closely with your Bureau will ultimately prove to be a key in making this facility an environmentally sound and safe disposal operation. We are committed to providing any follow-up information you may require in order to meet the November 1, 1995, date for the draft permit and an early January final permit date, as was discussed at our August 29, 1995, meeting.

If we can provide additional information to help facilitate your review, please do not hesitate to call me.

Sincerely,

Larry Gandy

Larry Gandy, Vice President
Gandy Marley, Inc.

cc: Barbara Hoditschek, HRMB
Cornelius Amindyas, HRMB
Bob Sweeney, HRMB

Gandy Marley, Inc. Box 827, Tatum, New Mexico, 88267 (505) 398-4960 FAX (505) 398-6887

RESPONSE to

NOTICE OF DEFICIENCY
for

Triassic Park Part B Permit Application

TRIASSIC PARK WASTE DISPOSAL FACILITY
CHAVES COUNTY, NEW MEXICO

SEP 1995
RECEIVED
HAZARDOUS WASTE
PROGRAM

Prepared For:

Hazardous and Radioactive Materials Bureau,
New Mexico Environment Department

Prepared by:

The S.M. Stoller Corporation
1717 Louisiana Blvd., NE, Suite #209
Albuquerque, NM 87110

and

TerraMatrix Inc.
1475 Pine Grove Road, Suite #109
Steamboat Springs, CO 80477

TO VIEW THE MAP AND/OR MAPS WITH THIS DOCUMENT, PLEASE CALL THE HAZARDOUS WASTE BUREAU AT 505-476-6000 TO MAKE AN APPOINTMENT