



**TerraMatrix**

April 9, 1997

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



Mr. David Neleigh, Section Chief  
United States Environmental Protection Agency  
Region VI  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Re: Gandy Marley Inc., Triassic Park Hazardous Waste Facility,  
Part B Application Revisions and NMED Comment Responses

Dear Mr. Neleigh:

Pursuant to the March 21, 1997 New Mexico Environmental Department (NMED) request for supplementary information addressed to Mr. Larry Gandy, Vice President of Gandy Marley Inc. (GMI), TerraMatrix has prepared herein a summary of our proposed approach to respond to the 169 comments prepared by A.T. Kearny (ATK) on behalf of NMED. It is the intention of GMI to meet all relevant requirements stipulated under 40 CFR 264, 40 CFR 268, 40 CFR 270 and corresponding NMED requirements in 20 NMAC necessary to obtain a RCRA Part B Permit for the Triassic Park Hazardous Waste Facility. In addition, GMI will respond to each ATK/NMED comment and provide the requested supporting technical information for each waste management unit proposed for the facility. Finally, GMI has committed to providing detailed construction level drawings, engineering reports, and specifications prior to construction, as well as, providing confirmatory construction certification reports prior to facility operation.

The central issue confronting us in responding to the ATK/NMED comments is that, in a number of cases, a general request is made for final design drawings, engineering reports, and specifications for the proposed process facilities. To adequately satisfy general comments of this type, the design would have to be carried to a level of detail more appropriate for construction than for agency review. For example, unlike the landfill and surface impoundment which have few process, mechanical, and electrical design elements, preparation of final design drawings, engineering reports, and specifications for the process facilities (i.e., stabilization facility, drum handling facility, liquid waste storage area) involves incorporating detailed product information into the various structural, electrical, mechanical, ventilation, and process control

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design elements. In most cases, this detailed product and design information is not necessary to evaluate major operational, waste management, and waste containment issues related to the facility.

We, therefore, propose the following approach which will address each technical issue raised in the ATK/NMED comment package:

1. GMI will submit final design drawings, engineering report, specifications, and construction quality assurance plan for the landfill, surface impoundment, truck roll-off area, and site surface water management features. All comments relative to these facilities will be addressed to the satisfaction of NMED.
2. GMI will submit final operations and maintenance plan, closure/post-closure plan, waste analysis and waste handling plan, contingency plan, and ground water monitoring plan. All comments relative to these procedural areas will be addressed to the satisfaction of NMED.
3. GMI will submit waste flow diagrams, limited piping and instrumentation diagrams, traffic diagrams and supporting engineering calculations addressing comments for the stabilization facility, drum handling facility, and liquid waste storage facility. All technical comments related to these facilities will be addressed. In cases where specific product or material evaluations are called for, references will be made to currently operating process facilities successfully using similar methods, materials, and equipment. Final detailed drawings, construction specifications, and final engineering report requiring product evaluation will not be included.

Attached for your review is a preliminary list of drawings and engineering calculations which we propose to provide in response ATK/NMED comments. We would like to schedule a meeting with you to provide additional details and finalize a list of deliverables that will adequately meet your needs. Until then, if you have any questions, please call John Kendall in our Denver Office at (303) 763-5140.

Sincerely,

TerraMatrix Inc.

*John Kendall for AJK*

Alan J. Krause, P.G.  
President

cc: John Kendall, TerraMatrix Inc.  
Dale Gandy, Gandy Marley Inc.

Attachments

**GANDY MARLEY INC.  
LANDFILL DRAWING LIST**

Drawing No.	Drawing Title	Included in Current Draft Permit	ATK/NMED Comment	Submit for Comment Response	Submit Prior to Construction
1	Cover Sheet	No		Yes	Yes
2	Existing Topography and Facility Location	Yes (10 ft contours)	6, 7	Yes	Yes
3	Phase I Excavation Sequence	No	70	Yes	Yes
4	Phase II Excavation Sequence	No	70	Yes	Yes
5	Top of Prepared Subgrade Contours	No	89	Yes	Yes
6	Top of Protective Soil Contours	No		Yes	Yes
7	Liner Details	Yes (w/o dims.)		Yes	Yes
8	Side Slope Riser Trench Details	No		Yes	Yes
9	Riser Crest Pad Plan and Details	No		Yes	Yes
10	Leachate Collection Tank and Piping	Yes (Conceptual)	4, 32a, 35, 36	Yes	Yes
11	Slope Runoff Interceptor Ditch and Collection Basin Plan and Details	No	65, 115b	Yes	Yes
12	Access Ramp Details	No		Yes	Yes
13	Phase I Sump Layout and Cross Sections	No	89, 95a	Yes	Yes
14	Phase II Sump Layout and Cross-Sections	Yes (w/o dims.)	89, 95a	Yes	Yes
15	Sump Details	No	89	Yes	Yes
16	Typical Cover Cross-Sections	Yes (w.o dims)	69, 152	Yes	Yes
17	Final Cover Details	Yes (Conceptual)	69, 152	Yes	Yes
18	Phase I Fill Sequence	No	70	Yes	Yes
19	Phase II Fill Sequence	No	70	Yes	Yes
20	Traffic Plan	No	8	Yes	Yes
21	Phase I Final Grading Plan Top of Waste Contours	No	152	Yes	Yes
22	Phase II Final Grading Plan Top of Waste Contours	No	152	Yes	Yes
23	Top of Cover Prepared Subgrade Contours	No	69, 152	Yes	Yes
24	Top of Cover Vegetative Cover Contours	No	69, 152	Yes	Yes
25 - 26	Phase I/II Interphase Berm Sections and Details (2 sheets)	No		Yes	Yes
27	Perimeter Berm Sections and Details	Yes (w.o. dims.)		Yes	Yes

**GANDY MARLEY INC.  
LANDFILL DRAWING LIST**

Drawing No.	Drawing Title	Included in Current Draft Permit	ATK/NMED Comment	Submit for Comment Response	Submit Prior to Construction
28	Surface Water Control Features	No	65, 112, 113, 116	Yes	Yes
29	Prepared Subgrade Grid Points	No		No	Yes
30	Protective Soil Layer Grid Points	No		No	Yes
31 - 34	Lighting and Electrical (4 sheets)	No		No	Yes
35 - 37	Soil Stockpile Location and Fill Plans (3 sheets)	No		No	Yes

**GANDY MARLEY INC.  
LANDFILL CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction (1)
1. Prepared Subgrade Properties Define Specification Window	81	Yes	Yes
2. Shallow Soils Characterization Sampling and Strength Tests Index Consolidation Compressive, Shear Strength Bearing Capacity	71, 72, 73, 74, 75, 76	Yes	Yes
3. Final Landfill Stability (system: subgrade, liner, waste fill, cover) 2-D Circular Failure Model Block Failure Model	68, 74, 77, 92	Yes	Yes
4. Cover Stability Infinite Slope Model Circular Failure Model Dynamic Loading	68, 74, 77, 92	Yes	Yes
5. Operations Layer Stability Infinite Slope Model Circular Failure Model	68, 74, 77, 92	Yes	Yes
6. Waste Fill Plan Stability (Interim & Final) 2-D Circular Failure Model Dynamic Loading	68, 74, 77, 92	Yes	Yes
7. Subgrade Cut Slope Stability 2-D Circular Failure Model Dynamic Loading	68, 74, 77, 92	Yes	Yes
8. Haul Road Drainage Material Slippage, Creep and Geosynthetics Ramp Drainage Capacity Geomembrane Wheel Loading Static & Dynamic Stability Geomembrane Bridging Anchor Trench Design		Yes	Yes
9. Waste Settlement	154	Yes	Yes
10. Prepared Subgrade Settlement	75, 76	Yes	Yes
11. Subgrade Settlement	71, 72, 73, 74, 75, 76	Yes	Yes
12. Settlement Induced Stresses in Geomembrane		Yes	Yes
13. Geomembrane Computations (FML and FMC applications) Thermal Expansion and Contraction Geomembrane Windlift & Sandbag Density Geomembrane Tearing/Puncture Slope Tensile Strength Survivability Calculations Carbon Black Seam Strengths	41a, 70, 78, 80	Yes	Yes
14. GCL Computations (Liner and Cover applications) Strength Puncture, Tearing Thickness Swell Characteristics Max Subgrade Particle Size Dispersion and Piping Potential	82, 83, 85, 97, 98	Yes	Yes

**GANDY MARLEY INC.  
LANDFILL CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction (1)
15. Anchor Trench Pullout		Yes	Yes
16. Leachate Collection System Floorpipe Sizing Hydraulic Requirements Leachate Volume Geotextile Transmissivity Drainage Material Sizing Sump Sizing Pump Response Times Liner Head Calculation ALR Flow Velocity Travel Time	54, 87, 88, 89, 90, 93, 95a, 99, 108, 109, 110, 111	Yes	Yes
17. Geocomposite Puncture Filtration Tearing - Slope Tensile Stress Clogging	94	Yes	Yes
18. Compatibility Testing Geosynthetics Piping Soils	79, 84, 91	Yes	Yes
19. Vertical Riser Base Crushing Vertical Drag		Yes	Yes
20. Side Slope Risers Pipe Anchor & Slippage Abutment Stress Pipe Deflection Trench Backfill Settlement Geosynthetics Stresses Pipe Sweeps		Yes	Yes
21. Riser Crest Pads Fixed vs Non-Fixed Pipe Drainage and Containment Concrete Design		Yes	Yes
22. Leachate Tanks Pad Drainage and Containment Tank Supports and Tie-downs Tank Data Sheets	33, 34	Yes	Yes
23. Surface Water Volume Requirements Peak Flow Computation Size Drainage Ditches Size Collection Basins and Embankments Segregation Surface Water Calculation Size Culvert, Inlets, Outlets Ditch Liner Requirements	112, 113, 114, 115, 117, 118	Yes	Yes
24. Final Cover Erosion Run-off Calculations Cover Drain Pipe Spacing	153, 157	Yes	Yes
25. Final Cover Frost and Heat Protection	156, 157	Yes	Yes
26. Final Cover Infiltration, Evapotranspiration and Drainage	155, 157	Yes	Yes

**GANDY MARLEY INC.  
LANDFILL CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction (1)
27. Final Cover Biotic Protection		Yes	Yes
28. Lights and Electrical Distribution Light Distribution Calculation Load Calculations		No	Yes
29. Volumetrics Excavation Volumes Prepared Subgrade and Gravel Volumes Berm Volumes Waste Fill Volumes Geosynthetics Volumes		Yes	Yes

**Notes:**

1. Calculations will be resubmitted for agency review and approval if required by minor design changes.

**GANDY MARLEY INC.  
EVAPORATION POND DRAWING LIST**

<b>Drawing No.</b>	<b>Drawing Title</b>	<b>Included in Current Draft Permit</b>	<b>NMED/ATK Comment</b>	<b>Submit for Comment Response</b>	<b>Submit Prior to Construction</b>
1	Existing Topography and Facility Location	No	60	Yes	Yes
2	Subgrade Contours	No	60	Yes	Yes
3	Clay Liner Contours	No		Yes	Yes
4	Pond Cross Sections	Yes		Yes	Yes
5	Liner Details	Yes (w.o. dims.)		Yes	Yes
6	Anchor Trench Details	Yes		Yes	Yes
7	LDS Plan and Details	Yes (w.o. dims.) (w.o. plan)	47, 48, 54	Yes	Yes
8	Truck Station General Arrangement	Yes (w.o. dims)		Yes	Yes
	Traffic Plan (incorporate into site wide plan)	No	8	Yes	Yes
9	Subgrade Grid Points	No		No	Yes
10	Clay Liner Grid Points	No		No	Yes
11 - 12	Concrete Plan and Details (2 sheets)	No		Yes	Yes
13 - 14	Piping Layout and Details (2 sheets)	No	35	Yes	Yes
15	Lighting and Electrical Plan	No		No	Yes

**GANDY MARLEY INC.  
EVAPORATION POND CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction (1)
1. Clay Liner Properties Identify clay borrow Area Define Specification Window Chemical Compatibility with the Waste (actual or similar soils)	44, 45, 46, 49	Yes	Yes
2. Pond Stability (system: subgrade, dike, liner) 2-D Circular Failure Model Static and Dynamic Loading	59, 60, 131	Yes	Yes
3. Clay Liner Settlement		Yes	Yes
4. Subgrade Settlement	42, 71	Yes	Yes
5. Settlement Induced Stresses in Geomembrane		Yes	
6. Geomembrane Computations Thermal Expansion and Contraction Geomembrane Windlift & Sandbag Density Geomembrane Tearing/Puncture Slope Tensile Strength Survivability Seam Strengths Waste Compatibility	41a, 41b, 78, 80	Yes	Yes
7. Anchor Trench Pullout		Yes	Yes
8. Leak Detection System Floorpipe Sizing Hydraulic Requirements Leachate Volume Geonet Transmittivity Drainage Material Sizing Sump Sizing Pump Response Times Liner Head Calculation ALR Flow Velocity Travel Time	47, 48, 54,55, 56, 108, 109, 110, 111	Yes	Yes
9. Side Slope Risers Pipe Anchor & Slippage Abutment Stress Pipe Deflection Trench Backfill Settlement Geosynthetics Stresses Pipe Sweeps		Yes	Yes
10. Riser Crest Pads Fixed vs Non-Fixed Pipe Drainage and Containment		Yes	Yes
11. Surface Water Control Feature Requirements Size Drainage Ditches Size Culvert, Inlets, Outlets		Yes	Yes
12. Liner Frost and Heat Protection	41b	Yes	Yes

**GANDY MARLEY INC.  
EVAPORATION POND CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction (1)
13. Lights and Electrical Distribution Light Distribution Calculation Load Calculations		No	Yes
14. Volumetrics Excavation Volumes Clay Liner and Gravel Volumes Berm Volumes Liquid Waste Volumes Precip. Volumes and Freeboard Calculation Geosynthetics Volumes	57, 58, 130	Yes	Yes

**Notes:**

1. Calculations will be resubmitted for agency review and approval if required by minor design changes
2. Comment 36 equates evap pond requirements with landfill requirements

**GANDY MARLEY INC.  
TRUCK ROLL-OFF AREA DRAWING LIST**

Drawing No.	Drawing Title	Included in Current Draft Permit	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction
1	Existing Topography and Facility Location	No (Location identified)		Yes	Yes
2 - 3	Subgrade Contours (2 sheets)	No		Yes	Yes
4 - 5	Drainage Surface Contours (2 sheets)	No (Grades indicated)		Yes	Yes
6	Incoming Roll-Off Area Liner Details	Yes (w.o dims.)		Yes	Yes
7	Incoming Roll-Off Area Drain, Vertical Riser, and LDS Details	Yes (w.o. dims.)	31	Yes	Yes
8	Access Ramp and Divider Berm Details	Yes (w.o dims.)		Yes	Yes
	Traffic Plan (incorporate into site traffic plan)	No		Yes	Yes
9	Lighting, Electrical, and Warning System Details	No		No	Yes

**GANDY MARLEY INC.  
TRUCK ROLL-OFF AREA CALCULATION LIST**

Calculation Title	NMED/ATK Comment	Submit for Comment Response	Submit Prior to Construction
1. Subgrade Soil Properties Subgrade and Select Fill Settlement Define Specification Window for Subgrade and Select Fill		Yes	Yes
2. Geomembrane Computations Thermal Expansion and Contraction Anchor Trench Pullout Geomembrane Tearing/Puncture Traffic Induced Stresses Settlement Induced Stresses		Yes	Yes
3. Leachate Collection System Floorpipe Sizing Hydraulic Requirements Leachate Volume Geocomposite Transmittivity Drainage Material Sizing Sump Sizing Pump Response Times Liner Head Calculation ALR Flow Velocity Travel Time	30,31	Yes	Yes
4. Surface Water Control Feature Requirements Size Drainage Ditches Size Culvert, Inlets, Outlets		Yes	Yes
5. Liner Frost and Heat Protection		Yes	Yes
6. Divider Berm and Access Ramp Design Size for Storm Water Containment		Yes	Yes
7. Lights and Electrical Distribution Light Distribution Calculation Load Calculations		No	Yes
8. Volumetrics Excavation and Backfill volumes Gravel Volumes Berm Volumes Geosynthetics Volumes Waste Containment Precipitation Containment	30	Yes	Yes

Notes:  
1. Calculations will be resubmitted for agency review and approval if required by minor design changes.