

**STATE OF NEW MEXICO
DIRECTOR OF OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE
APPLICATION OF SUNDANCE WEST,
INC. FOR A SURFACE WASTE
MANAGEMENT FACILITY PERMIT**

**APPLICATION FOR PERMIT
SUNDANCE WEST**

AUGUST 2016

VOLUME I: PERMIT APPLICATION TEXT

Prepared For:

**Sundance West, Inc.
1001 6th Street
Eunice, NM 88231**

Submitted To:

**New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
(505) 476-3440**

Prepared By:

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213 South Camino del Pueblo
Bernalillo, NM 87004
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August 15, 2016

Mr. Jim Griswold, Bureau Chief
Environmental Bureau
Oil Conservation Division
New Mexico Energy, Minerals and
Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

**Re: Sundance West Surface Waste Management Facility [530.06.01]
Submittal of Application for Permit**

Dear Mr. Griswold:

On behalf of our client, Sundance West, Inc. (Sundance West), Gordon Environmental, Inc. (GEI) is pleased to submit the enclosed Application for Permit (the Application) for the proposed Sundance West Surface Waste Management Facility to the Oil Conservation Division (OCD). This Application addresses the requirements of the New Mexico (NM) Oil and Gas Rules, specifically the Surface Waste Management Facility standards provided in 19.15.36 NMAC (i.e., "Part 36").

As you know, OCD's third-party reviewer, Jim Jordan, P.E. representing the New Mexico Junior College, performed a detailed technical review of the Draft Sundance West Application. GEI has implemented updates to the Application based on Mr. Jordan's feedback, and the enclosed Application reflects those updates.

The Sundance West Facility is designed in compliance with 19.15.36 NMAC, and will be constructed and operated in compliance with a Surface Waste Management Facility Permit issued by the OCD. The Sundance West Facility will accept oil field waste for processing and disposal from oil and gas exploration and production operations in southwestern NM and west Texas. The proposed Sundance West Facility is comprised of a 320-acre \pm tract of land located in the South $\frac{1}{2}$ of Section 30, Township 21 South, Range 38 East, in Lea County, NM. The site is located 3 miles east of Eunice, 18 miles south of Hobbs, and approximately 1.5 miles west of the Texas/NM state line in unincorporated Lea County, NM.

The proposed Sundance West Facility will include a liquid oil field waste Processing Area (80 acres \pm) and an oil field waste Landfill (180 acres \pm). At full build-out, the Processing Area is planned to include an oil treatment facility consisting of an estimated 8 produced water load-out points, 45 produced water tanks, 10 evaporation ponds, 3 crude oil recovery tanks, and 2 oil sales tanks; as well as 1 stabilization and solidification area; and 1 customer jet wash (6 bays). The Landfill disposal footprint is 180 acres \pm with a net waste capacity (airspace) of approximately 17.4 million cubic yards.

The Application is organized consistent with the regulatory requirements listed in 19.15.36 NMAC, and is subdivided into four Volumes provided in five binders:

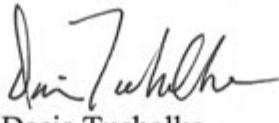
- Volume I: Application Text
- Volume II: Facility Management Plans
- Volume III: Engineering Design and Calculations (divided into two binders)
- Volume IV: Siting and Hydrogeology

The OCD "Part 36 Checklist" is also included with this submittal. We look forward to working with you and the OCD on the final review and approval of the Sundance West Application for Permit. Please contact GEI at 505.867.6990 or dtucholke@gordonenvironmental.com with your comments and questions.

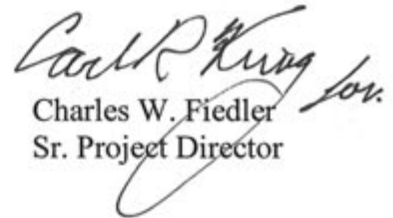
Very truly yours,
Gordon Environmental, Inc.



I. Keith Gordon, P.E.
Principal



Dacia Tucholke
Project Manager



Charles W. Fiedler
Sr. Project Director

cc: Mr. Arif Mussani, Sundance West, Inc.
Mr. Andrew L. Wambsganss, Esq., Brown-Pruitt

Attachments:

- OCD Part 36 Checklist (included in the frontispiece of Volume I)
- Application for Permit (5 binders; 2 hard copies)
- Permit Plan Set (one 24 x 36-inch hard copy, with a reduced set provided in Volume III.1)

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
PART 1 19.15.36.8 NMAC - SURFACE WASTE MANAGEMENT FACILITY PERMITS AND APPLICATION REQUIREMENTS:			
1	36.8C. Application requirements for new facilities, major modifications and permit renewals. 'An applicant or operator shall file an application, form C-137, for a permit for a new surface waste management facility, to modify an existing surface waste management facility or for permit renewal with the environmental bureau in the division's Santa Fe office. The application shall include:	Volume I	
2	(1) the names and addresses of the applicant and principal officers and owners of 25 percent or more of the applicant;	Form C-137	
3	(2) a plat and topographic map showing the surface waste management facility's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the surface waste management facility site; watercourses; fresh water sources, including wells and springs; and inhabited buildings within one mile of the site's perimeter;	Topographic Map: Landfill: 36.13.B(1-6) Landfarm: 36.13.B(1-6) Ponds/Pits: 36.13.B(1-6) Plat: Landfill: 36.13.C Landfarm: 36.13.C Ponds/Pits: 36.13.C	Site Location Map, Figure I.1 (pg. I-2); Site Topograph, Figure I.3 (pg. I-15); Partial Assignment and Assumption of Lease, Attachment I.A; Watercourse and Water Well Map, Figure IV.2.5
4	(3) the names and addresses of the surface owners of the real property on which the surface waste management facility is sited and surface owners of the real property within one mile of the site's perimeter;	Landfill: 36.13.C Landfarm: 36.13.C Ponds/Pits: 36.13.C	Public Notification, Attachment I.B
5	(4) a description of the surface waste management facility with a diagram indicating the location of fences and cattle guards, and detailed construction/installation diagrams of pits, liners, dikes, piping, sprayers, tanks, roads, fences, gates, berms, pipelines crossing the surface waste management facility, buildings and chemical storage areas;	Written Description: Map/Diagram: 36.13.I fencing; Construction/Installation Diagrams: Landfill: 36.13.I fencing; 36.14.C(10) external piping Landfarm: 36.13.I fencing; 36.15.C(1) berms; Ponds/Pits: 36.13.I fencing; 36.17.A dike protection and integrity and fluid collection and removal system; 36.17.C(3) fencing and netting;	Permit Plans, Sheets 2 and 3
6	(5) engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation and disposal method and detailed designs of surface impoundments;	Engineered Drawings: Landfill: 36.14.C; D; E; F; Landfarm: 36.15.C(1) berms; 36.15.C(10) Ponds/Pits: 36.17.A design plan, leak detection system; 36.17.B(1-12); 36.17.B(4); 36.17.C(4) spray system; 36.17.C(5) skimmer pit or tank; 36.17.D; Technical Data/Specifications: Landfill: 36.14.C; D; E; F; Landfarm: 36.15.C(10) Ponds/Pits: 36.17.A leak detection system, liner specifications; 36.17.B(1-12); 36.17.B(4); 36.17.C(4) spray system; 36.17.C(5) skimmer pit or tank; 36.17.D;	Permit Plans, Sheets 1-19

OCD Part 36 Checklist
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7	(6) a plan for management of approved oil field wastes that complies with the applicable requirements contained in 19.15.36.13 NMAC (Siting and Operational Requirements – See Part 2 below), 19.15.36.14 NMAC (Landfills – See Part 3 below), 19.15.36.15 NMAC (Landfills – See Part 4 below), and 19.15.36.17 NMAC (Ponds – See Part 5 below);	Waste Management Plan: Landfill: 36.13.D; E; F; G; H; 36.14.A; Landfarm: 36.13.D; E; F; G; H; 36.15.A; B; C(1-10); D; E; F; G; H; Ponds/Pits: 36.13.D; F; G; H; 36.17.A waste streams and chemical analysis; 36.17.C(5) skimmer pit or tank;	Oil Field Waste Management Plan, Volume II.2
8	(7) an inspection and maintenance plan that complies with the requirements contained in Subsection L of 19.15.36.13 NMAC; 36.13L. Each operator shall have an that includes the following: (1) <i>monthly inspection of leak detection sumps including sampling if fluids are present with analyses of fluid samples furnished to the division; and maintenance of records of inspection dates, the inspector and the leak detection system's status;</i> (2) <i>semi-annual inspection and sampling of monitoring wells as required, with analyses of ground water furnished to the division; and maintenance of records of inspection dates, the inspector and ground water monitoring wells' status; and</i> (3) <i>inspections of the berms and the outside walls of pond levees quarterly and after a major rainfall or windstorm, and maintenance of berms in such a manner as to prevent erosion.</i>	Inspection and Maintenance Plan: Landfill: 36.14.B; 36.14.G.(7); Landfarm: 36.15.C(1) berms Ponds/Pits: 36.17.A freeboard and overtopping, monitoring and inspection plan; and erosion control; 36.17.C(1-2) 36.8C(7) adopts 36.13L (items 1 -3 in italics).	Operations, Inspection, and Maintenance Plan, Volume II.1
9	(8) a hydrogen sulfide prevention and contingency plan that complies with those provisions of 19.15.11 NMAC that apply to surface waste management facilities;	Hydrogen Sulfide Prevention and Contingency Plan: 19.15.11.2; 19.15.11.9-10; 19.15.11.12-14; 19.15.11.16 36.8C(8) requires Operator to Comply with Part 11 (H2S).. Does not apply unless Operators tests for >100 ppm H2S.	Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3
10	(9) a closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, safety and the environment (the closure and post closure plan shall comply with the requirements contained in Subsection D of 19.15.36.18 NMAC); (See Part 6 below).	Closure and Post Closure Plan: Landfill: 36.13.O; 36.14.A.(8); 36.18.A; 36.18.D(2-3); 36.18.G; Landfarm: 36.13.N; 36.15.F; G; H; 36.18.A; 36.18.D(4); 36.18.F; 36.18.G; Ponds/Pits: 36.13.N; 36.17.A closure plan; 36.17.E; 36.18.A; 36.18.E; 36.18.F; 36.18.G; Oil Treating Plant: 36.18.A; 36.18.D(1); 36.18.G; 36.8C(9) adopts 36.18. See Part 6 below.	Closure/Post-Closure Plan, Volume II.4
11	(10) a contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended;	Contingency Plan: Landfill: 36.13.N Landfarm: 36.13.N Ponds/Pits: 36.13.N; 36.17.A emergency response plan; 36.8C(10) adopts 36.13N. See Part 2 below.	Contingency Plan, Volume II.5
12	(11) a plan to control run-on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC;	Stormwater Run-on/off Control Plan: Landfill: 36.13.M; Landfarm: 36.13.M; 36.15.C(1); Ponds/Pits: 36.13.M; 36.8C(11) adopts 36.13M. See Part 2 below.	Drainage Calculations, Volume III.3; Operations, Inspection, and Maintenance Plan, Volume II.1; Permit Plans, Sheets 8, 9, 10, and 14

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
13	(12) in the case of an application to permit a new or expanded landfill, a leachate management plan that describes the anticipated amount of leachate that will be generated and the leachate's handling, storage, treatment and disposal, including final post closure options;	Leachate Collection/Management Plan: Landfill: 36.18.D(3)(a); 36.8C(12) adopts 36.14C(5), (6), & (10) and 36.14F. See Part 3 below.	Leachate Management Plan, Volume II.9
14	(13) in the case of an application to permit a new or expanded landfill, a gas safety management plan that complies with the requirements of Subsection O of 19.15.36.13 NMAC;	Landfill Gas Safety Management Plan: Landfill: 36.13.O; 36.14.G; H; 36.8C(13) adopts 36.13O. See Part 2 below.	Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-23)
15	(14) a best management practice plan to ensure protection of fresh water, public health, safety and the environment;		Operations, Inspection, and Maintenance Plan, Volume II.1
16	(15) geological/hydrological data including:	Ponds/Pits: 36.17.A hydrologic report	Hydrogeology, Volume IV.2
17	(a) a map showing names and location of streams, springs or other watercourses, and water wells within one mile of the site;	Landfill: 36.13.B(1-2); Landfarm: 36.13. B(1-2); Ponds/Pits: 36.13. B(1-2);	Watercourse and Water Well, Figure IV.2.5
18	(b) laboratory analyses, performed by an independent commercial laboratory, for major cations and anions; BTEX; RCRA metals; and TDS of ground water samples of the shallowest fresh water aquifer beneath the proposed site;		Hydrogeology, Volume IV.2, Attachment IV.2.D
19	(c) depth to, formation name, type and thickness of the shallowest fresh water aquifer;	Landfill: 36.13.A.(1); Landfarm: 36.13.A.(2); 36.13.A.(3); Ponds/Pits: 36.13.A.(5);	Hydrogeology, Volume IV.2
20	(d) soil types beneath the proposed surface waste management facility, including a lithologic description of soil and rock members from ground surface down to the top of the shallowest fresh water aquifer;		Hydrogeology, Volume IV.2, Attachments IV.2.A and IV.2.B
21	(e) geologic cross-sections;		Geological Cross Sections: Figures IV.2.21, IV.2.22, and IV.2.23
22	(f) potentiometric maps for the shallowest fresh water aquifer, and		Groundwater Potentiometric Surface (Lower Dockum Group), Figure IV.2.13
23	(g) porosity, permeability, conductivity, compaction ratios and swelling characteristics for the sediments on which the contaminated soils will be placed;		Summary of Laboratory Geotechnical Testing Results, Table IV.2.6; Summary of Calculated Porosities, Table IV.2.7; Summary of Calculated Permeabilities, Table IV.2.8; Summary of Standard Proctor Densities and Optimum Moistures, Table IV.2.9; Summary of Swell/Collapse Characteristics, Table IV.2.10
24	(16) certification by the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge, after reasonable inquiry; and		Volume I
25	(17) other information that the division may require to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, safety or the environment and that the surface waste management facility will comply with division rules and orders.		"Other information" will be provided upon request from OCD.

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
PART 2 19.15.36.13 NMAC - SITING AND OPERATIONAL REQUIREMENTS APPLICABLE TO ALL PERMITTED SURFACE WASTE MANAGEMENT FACILITIES:			
	36.13 A. Depth to ground water. (1) No landfill shall be located where ground water is less than 100 feet below the lowest elevation of the design depth at which the operator will place oil field waste. (2) No landfill that accepts soil or drill cuttings with a chloride concentration that exceeds 500 mg/kg shall be located where ground water is less than 100 feet below the lowest elevation at which the operator will place oil field waste. See Subsection A of 19.15.36.15 NMAC for oil field waste acceptance criteria. (3) No landfill that accepts soil or drill cuttings with a chloride concentration that is 500 mg/kg or less shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste. (4) No small landfill shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste. (5) No other surface waste management facility shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.	19.15.36.8.C(15)(c) depth to, formation name, type and thickness of the shallowest fresh water aquifer;	Volume I: Siting, Volume IV.1 (pg. IV.1-2); Hydrogeology, Volume IV.2 (pg. IV.2-48)
26	36.13 B. Siting Requirements: No surface waste management facility shall be located: (1) within 200 feet of a watercourse, lakebed, sinkhole or playa lake; (2) within an existing wellhead protection area or 100-year floodplain; (3) within, or within 500 feet of, a wetland; (4) within the area overlying a subsurface mine; (5) within 500 feet from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application; or (6) within an unstable area, unless the operator demonstrates that engineering measures have been incorporated into the surface waste management facility design to ensure that the surface waste management facility's integrity will not be compromised.	19.15.36.8.C(2) topographic map 19.15.36.8.C(15)(a) a map showing names and location of streams, springs or other watercourses, and water wells within one mile of the site;	Volume I: Siting, Volume IV.1 (pg. IV.1-2 through IV.1-5), Figures IV.1.1 through IV.1.11
27	36.13 C. Size: No surface waste management facility shall exceed 500 acres.	19.15.36.8.C(2) plat	Volume I: Siting, Volume IV.1 (pg. IV.1-6)
28	36.13 D. Form C-133: The operator shall not accept oil field wastes transported by motor vehicle at the surface waste management facility unless the transporter has a form C-133, authorization to move liquid waste, approved by the division.	19.15.36.8.C(6) waste management plan	Volume I (pg. I-34): Oilfield Waste Management Plan, Volume II.2 (pg. II.2-4)
29	36.13 E. The operator shall not place oil field waste containing free liquids in a landfill or landfarm cell.	19.15.36.8.C(6) waste management plan	Volume I (pg. I-34): Oilfield Waste Management Plan, Volume II.2 (pg. II.2-4), Attachment II.2.C
30	36.13 F. Surface waste management facilities shall accept only exempt or non-hazardous waste, except as provided in Paragraph (3) of Subsection F of 19.15.36.13 NMAC.	19.15.36.8.C(6) waste management plan	Volume I (pg. I-35): Oilfield Waste Management Plan, Volume II.2 (pg. II.2-3)
31	The operator shall not accept hazardous waste at a surface waste management facility. The operator shall not accept wastes containing NORM at a surface waste management facility except as provided in 19.15.35 NMAC.	19.15.36.8.C(6) waste management plan	Volume I (pg. I-35): Oilfield Waste Management Plan, Volume II.2 (pg. II.2-4), Attachment II.2.A
32	(1) Exempt oil field wastes. The operator shall require a certification on form C-138, signed by the generator or the generator's authorized agent, that represents and warrants that the oil field wastes are generated from oil and gas exploration and production operations, are exempt waste and are not mixed with non-exempt waste. The operator shall have the option to accept such certifications on a monthly, weekly or per load basis. The operator shall maintain and shall make the certificates available for the division's inspection.		
33	(2) Non-exempt, non-hazardous, oil field wastes. The operator shall require a form C-138, oil field waste document, signed by the generator or its authorized agent. This form shall be accompanied by acceptable documentation to determine that the oil field waste is non-hazardous.		Volume I (pg. I-35): Oilfield Waste Management Plan, Volume II.2 (pg. II.2-4), Attachment II.2.A

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
34	(3) Emergency non-oil field wastes. The operator may accept non-hazardous, non-oil field wastes in an emergency if ordered by the department of public safety. The operator shall complete a form C-138 , oil field waste document, describing the waste, and maintain the same, accompanied by the department of public safety order, subject to division inspection.		Volume I (pg. I-36); Oilfield Waste Management Plan, Volume II.2 (pg. II.2-4), Attachment II.2.A
35	36.13 G. Records: The operator of a commercial facility shall maintain records reflecting the generator, the location of origin, the location of disposal within the commercial facility, the volume and type of oil field waste, the date of disposal and the hauling company for each load or category of oil field waste accepted at the commercial facility. The operator shall maintain such records for a period of not less than five years after the commercial facility's closure, subject to division inspection.	19.15.36.8.C(6) waste management plan	Volume I (pg. I-36); Oilfield Waste Management Plan, Volume II.2 (pg. II.2-8)
36	36.13 H. Disposal at a commercial facility shall occur only when an attendant is on duty unless loads can be monitored or otherwise isolated for inspection before disposal. The surface waste management facility shall be secured to prevent unauthorized disposal.		Volume I (pg. I-36); Oilfield Waste Management Plan, Volume II.2 (pg. II.2-3)
37	36.13 I. To protect migratory birds, tanks exceeding eight feet in diameter, and exposed pits and ponds shall be screened, netted or covered. Surface waste management facilities shall be fenced in a manner approved by the division.		Volume I (pg. I-37); Migratory Bird Protection Plan, Volume II.6
38	36.13 J. Sign: Surface waste management facilities shall have a sign , readable from a distance of 50 feet and containing the operator's name; surface waste management facility permit or order number; surface waste management facility location by unit letter, section, township and range; and emergency telephone numbers.		Volume I (pg. I-32), Figure I.4 ; Operations, Inspection, and Maintenance Plan, Volume II.1, Figure II.1.3.A
39	36.13 K. The operators shall comply with the spill reporting and corrective action provisions of 19.15.30 NMAC or 19.15.29 NMAC.		Volume I (pg. I-37); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-14); Contingency Plan, Volume II.5
40	36.13 L. Each operator shall have an inspection and maintenance plan that includes the following: (1) monthly inspection of leak detection sumps including sampling if fluids are present with analyses of fluid samples furnished to the division; and maintenance of records of inspection dates, the inspector and the leak detection system's status; (2) semi-annual inspection and sampling of monitoring wells as required, with analyses of ground water furnished to the division; and maintenance of records of inspection dates, the inspector and ground water monitoring wells' status; and (3) inspections of the berms and the outside walls of pond levees quarterly and after a major rainfall or windstorm, and maintenance of berms in such a manner as to prevent erosion.	19.15.36.8.C(7) inspection and maintenance plan <i>This requirement is duplicative of C7 above.</i>	Volume I (pg. I-39); Operations, Inspection, and Maintenance Plan, Volume II.1
41	36.13 M. Each operator shall have a plan to control run-on water onto the site and run-off water from the site, such that: (1) the run-on and run-off control system shall prevent flow onto the surface waste management facility's active portion during the peak discharge from a 25-year storm ; and (2) run-off from the surface waste management facility's active portion shall not be allowed to discharge a pollutant to the waters of the state or United States that violates state water quality standards.	19.15.36.8.C(11) stormwater run on/off management plan	Volume I (pg. I-39); Operations, Inspection, and Maintenance Plan, Volume II.1; Drainage Calculations, Volume III.3; Permit Plans, Sheets 8, 9, 10, and 14

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
57	36.13 O. Gas safety management plan. Each operator ... a landfill shall have a gas safety management plan.... The plan shall also include final post closure monitoring and control options.	19.15.36.8.C(13) gas safety management plan For ACD, accept any attachment labeled Gas Safety Management Plan.	Volume I (pg. I-42); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-23); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5 Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-12)
58	36.13 P. Training program. Each operator shall conduct an annual training program for key personnel that includes general operations, permit conditions, emergencies proper sampling methods and identification of exempt and non-exempt waste and hazardous waste. The operator shall maintain records of such training, subject to division inspection, for five years.	For ACD, accept any attachment labeled Training Program	
PART 3 19.15.36.14 NMAC - SPECIFIC REQUIREMENTS APPLICABLE TO LANDFILLS			
59	36.14A. General operating requirements.		
60	(1) The operator shall confine the landfill's working face to the smallest practical area and compact the oil field waste to the smallest practical volume. The operator shall not use equipment that may damage the integrity of the liner system in direct contact with a geosynthetic liner.		Volume I (pg. I-43); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-21)
61	(2) The operator shall prevent unauthorized access by the public and entry by large animals to the landfill's active portion through the use of fences, gates, locks or other means that attain equivalent protection.		Volume I (pg. I-43); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-7)
62	(3) The operator shall prevent and extinguish fires.	These are Permit Conditions, but not required to be ACD.	
63	(4) The operator shall control litter and odors.		
64	(6) The operator shall not excavate a closed cell or allow others to excavate a closed cell except as approved by the division.		
65	(6) The operator shall provide adequate cover for the landfill's active face as needed to control dust, debris, odors or other nuisances, or as otherwise required by the division.		Volume I (pg. I-45); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-21)
66	(7) For areas of the landfill that will not receive additional oil field waste for one month or more, but have not reached the final waste elevation, the operator shall provide intermediate cover....		Volume I (pg. I-46); Operations, Inspection, and Maintenance Plan, Volume II.1 (pg. II.1-21)
67	(8) Landfill cell closure: When the operator has filled a landfill cell, the operator shall close it pursuant to the conditions contained in the surface waste management facility permit and the requirements of Paragraph (2) of Subsection D of 19.15.36.18 NMAC. The operator shall notify the division's environmental bureau at least three working days prior to a landfill cell's closure.		Volume I (pg. I-47); Closure/Post-closure Plan, Volume II.4 (pg. II.4-10)
68	36.14B. Ground water monitoring program. The operator shall ... establish a ground water monitoring program ... which shall include a ground water monitoring work plan, a sampling and analysis plan, a ground water monitoring system and a plan for reporting ground water monitoring results. The ground water monitoring system shall consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from the uppermost aquifer that: (1) represent the quality of background ground water that leakage from a landfill has not affected; and (2) represent the quality of ground water passing beneath and down gradient of the surface waste management facility.	19.15.36.8.C(7) inspection and maintenance plan	Volume I (pg. I-47); Vadose Zone Monitoring Plan, Volume II.8; Hydrogeology, Volume IV.2

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
69	<p>36.14C. Landfill design specification. New landfill design systems shall include a base layer and a lower geomembrane liner (e.g., composite liner), a leak detection system, an upper geomembrane liner, a leachate collection and removal system, a leachate collection and removal system protective layer, an oil field waste zone and a top landfill cover.</p>	<p>19.15.36.8.C(5) technical data and design drawings For ACD, accept any plan that refers to Landfill Design that has all of the required elements shown in bold. Details will be part of Technical Review. This is duplicative of 36.8C(xx) above.</p>	<p>Volume I (pg. I-48); Liner COA Plan, Volume II.7; Engineering Design, Volume III.1; HELP Model, Volume III.4; Geosynthetic Application and Compatibility Documentation, Volume III.6; Permit Plans</p>
70	<p>(1) Base layer: The base layer shall, at a minimum, consist of two feet of clay soil compacted to a minimum 90 percent standard proctor density (ASTM D-698) with a hydraulic conductivity of 1×10^{-7} cm/sec or less. In areas where no ground water is present, the operator may propose an alternative base layer design, subject to division approval.</p>		<p>Volume I (pg. I-48); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
71	<p>(2) Lower geomembrane liner: The lower geomembrane liner shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division.</p>		<p>Volume I (pg. I-49); Liner COA Plan, Volume II.7; Engineering Design, Volume III.1; HELP Model, Volume III.4; Geosynthetic Application and Compatibility Documentation, Volume III.6; Permit Plans</p>
72	<p>(3) Leak detection system: The operator shall place the leak detection system, which shall consist of two feet of compacted soil with a saturated hydraulic conductivity of 1×10^{-5} cm/sec or greater, between the lower and upper geomembrane liners. The leak detection system shall consist of a drainage and collection system placed no more than six inches above the lower geomembrane liner in depressions and sloped so as to facilitate the earliest possible leak detection at designated collection points. Drainage piping shall be designed to withstand chemical attack from oil field waste and leachate and structural loading and other stresses and disturbances from overlying oil field waste, cover materials, equipment operation, expansion or contraction, and to facilitate clean-out maintenance. The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe. The slope of the landfill sub-grade and drainage pipes and laterals shall be at least two percent grade; i.e., two feet of vertical drop per 100 horizontal feet. The piping collection network shall be comprised of solid and perforated pipe having a minimum diameter of four inches and a minimum wall thickness of schedule 80. The operator shall seal a solid drainage pipe to convey collected liquids to a corrosion-proof sump or sumps located outside the landfill's perimeter for observation, storage, treatment or disposal. The operator may install alternative designs as approved by the division.</p>		<p>Volume I (pg. I-49); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
73	<p>(4) The operator shall place the upper geomembrane liner, which shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division, over the leak detection system.</p>		<p>Volume I (pg. I-51); Liner COA Plan, Volume II.7; Engineering Design, Volume III.1; HELP Model, Volume III.4; Geosynthetic Application and Compatibility Documentation, Volume III.6; Permit Plans</p>

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74	<p>(5) The operator shall place the leachate collection and removal system, which shall consist of at least two feet of compacted soil with a saturated hydraulic conductivity of 1 x 10-2 cm/sec or greater, over the upper geomembrane liner to facilitate drainage.</p> <p>The leachate collection and removal system shall consist of a drainage and collection and removal system placed no more than six inches above the upper geomembrane liner in depressions and sloped so as to facilitate the maximum leachate collection.</p> <p>Piping shall be designed to withstand chemical attack from oil field waste or leachate and structural loading and other stresses and disturbances from overlying oil field waste, cover materials, equipment operation, expansion or contraction and to facilitate clean-out maintenance.</p> <p>The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe.</p> <p>The slope of the upper geomembrane liner and drainage lines and laterals shall be at least two percent grade; i.e., two feet of vertical drop per 100 horizontal feet.</p> <p>The piping collection network shall be comprised of solid and perforated pipe having a minimum diameter of four inches and a minimum wall thickness of schedule 80.</p> <p>The operator shall seal a solid drainage pipe to convey collected fluids outside the landfill's perimeter for storage, treatment and disposal. The operator may install alternative designs as approved by the division.</p>		<p>Volume I (pg. I-51); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
75	<p>(6) The operator shall place the leachate collection and removal system protection layer, which shall consist of a soil layer at least one foot thick with a saturated hydraulic conductivity of 1 x 10-2 cm/sec or greater, over the leachate collection and removal system.</p>		<p>Volume I (pg. I-52); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
76	<p>(7) The operator shall place oil field waste over the leachate collection and removal system protective layer.</p>		<p>Volume I (pg. I-53); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
77	<p>(8) The top landfill cover design shall consist of the following layers (top to bottom):</p> <p>a soil erosion layer composed of at least 12 inches of fertile topsoil re-vegetated in accordance with the post closure provisions of Subparagraph (b) of Paragraph (2) of Subsection D of 19.15.36.18 NMAC;</p> <p>a protection or frost protection layer composed of 12 to 30 inches of native soil;</p> <p>a drainage layer composed of at least 12 inches of sand or gravel with a saturated hydraulic conductivity of 1 x 10-2 cm/sec or greater and a minimum bottom slope of four percent,</p> <p>a hydraulic barrier-layer-geomembrane (minimum of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division);</p> <p>and a gas vent or foundation layer composed of at least 12 inches of sand or gravel above oil field waste with soils compacted to the minimum 80 percent Standard Proctor Density. The operator shall install the top landfill cover within one year of achieving the final landfill cell waste elevation.</p> <p>...</p>		<p>Volume I (pg. I-53); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
78	<p>(9) Alternatively, the operator may propose a performance-based landfill design system using geosynthetics or geocomposites, including geogrids, geonets, geosynthetic clay liners, composite liner systems, etc., when supported by EPA's "hydrologic evaluation of landfill performance" (HELP) model or other division- approved model.</p> <p>The operator shall design the landfill to prevent the "bathtub effect".</p> <p>The bathtub effect occurs when a more permeable cover is placed over a less permeable bottom liner or natural subsoil.</p>		<p>Volume I (pg. I-54); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>
79	<p>(10) External piping, e.g., leachate collection, leak detection and sump removal systems shall be designed for installation of a sidewall riser pipe.</p> <p>Pipes shall not penetrate the liner with the exception of gas vent or collection wells where the operator shall install a flexible clamped pipe riser through the top landfill cover liner that will accommodate oil field waste settling and will prevent tears.</p>		<p>Volume I (pg. I-54); Engineering Design, Volume III.1; HELP Model, Volume III.4; Permit Plans</p>

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84	<p>36.14F. The leachate collection and removal system protective layer and the soil component of the leak detection system shall consist of soil materials that shall be free of organic matter, shall have a portion of material passing the no. 200 sieve no greater than five percent by weight and shall have a uniformity coefficient (Cu) less than 6, where Cu is defined as D60/D10.</p> <p>Geosynthetic materials or geocomposites including geonets and geotextiles, if used as components of the leachate collection and removal or leak detection system, shall have a hydraulic conductivity, transmissivity and chemical and physical qualities that oil field waste placement, equipment operation or leachate generation will not adversely affect.</p> <p>These geosynthetics or geocomposites, if used in conjunction with the soil protective cover for liners, shall have a hydraulic conductivity designed to ensure that the liner's hydraulic head never exceeds one foot.</p>	<p>19.15.36.8.C(5) technical data and design drawings For ACD, accept any plan that refers to Leachate Collection and removal system protective layer. Details will be part of Technical Review.</p>	<p>Volume I (pg. I-59); Liner COA Plan, Volume II.7; HELP Model, Volume III.4</p>
85	<p>36.14G. Landfill gas control systems. If the gas safety management plan or requirements of other federal, state or local agencies require the installation of a gas control system at a landfill, the operator shall submit a plan for division approval, which shall include the following:</p>	<p>19.15.36.8.C(13) gas safety management plan</p>	<p>Volume I (pg. I-59); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>
86	<p>(1) the system's design, indicating the location and design of vents, barriers, collection piping and manifolds and other control measures that the operator will install (gas vent or collection wells shall incorporate a clamped and seamed pipe riser design through the top cover liner);</p>	<p>For ACD, accept any plan that refers to Landfill Gas Control System. Details will be part of Technical Review.</p>	<p>Volume I (pg. I-60); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>
87	<p>(2) if gas recovery is proposed, the design of the proposed gas recovery system and the system's major on-site components, including storage, transportation, processing, treatment or disposal measures required in the management of generated gases, condensates or other residues;</p>		<p>Volume I (pg. I-60); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>
88	<p>(3) if gas processing is proposed, a processing plan designed in a manner that does not interfere or conflict with the activities on the site or required control measures or create or cause danger to persons or property;</p>		<p>Volume I (pg. I-60); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>
89	<p>(4) if gas disposal is proposed, a disposal plan designed: (a) in a manner that does not interfere or conflict with the activities on the site or with required control measures; (b) so as not to create or cause danger to persons or property; and (c) with active forced ventilation, using vents located at least one foot above the landfill surface at each gas vent's location;</p>		<p>Volume I (pg. I-60); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>
90	<p>(5) physical and chemical characterization of condensates or residues that are generated and a plan for their disposal;</p>		<p>Volume I (pg. I-61); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5</p>

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91	(6) means that the operator will implement to prevent gas generation and lateral migration such that (a) the concentration of the gases the landfill generates does not exceed 25 percent of the lower explosive limit for gases in surface waste management facility structures (excluding gas control or recovery system components); and (b) the concentration of gases does not exceed the lower explosive limit for gases at the surface waste management facility boundary; and		Volume I (pg. I-61); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
92	(7) a routine gas monitoring program providing for monitoring at least quarterly; the specific type and frequency of monitoring to be determined based on the following: (a) soil conditions; (b) the hydrogeologic and hydraulic conditions surrounding the surface waste management facility; and (c) the location of surface waste management facility structures and property lines.		Volume I (pg. I-61); Operations, Inspection, and Maintenance Plan, Volume II.1; Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
93	36.14H. Landfill gas response. If gas levels exceed the limits specified in Paragraph (6) of Subsection G of 19.15.36.14 NMAC, the operator shall:	19.15.36.8.C(13) gas safety management plan	Volume I (pg. I-62); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
94	(1) immediately take all necessary steps to ensure protection of fresh water, public health, safety and the environment and notify the division;	For ACD, accept any plan that refers to Landfill Gas Response. Details will be part of Technical Review.	Volume I (pg. I-62); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
95	(2) within seven days of detection, record gas levels detected and a description of the steps taken to protect fresh water, public health, safety and the environment;		Volume I (pg. I-62); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
96	(3) within 30 days of detection, submit a remediation plan for gas releases that describes the problem's nature and extent and the proposed remedy; and		Volume I (pg. I-62); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
97	(4) within 60 days after division approval, implement the remediation plan and notify the division that the plan has been implemented.		Volume I (pg. I-62); Hydrogen Sulfide Prevention and Contingency Plan, Volume II.3; Contingency Plan, Volume II.5
PART 4 19.15.36.15 NMAC - SPECIFIC REQUIREMENTS APPLICABLE TO LANDFARMS			
98	36.15A. Oil field waste acceptance criteria. Only soils and drill cuttings predominantly contaminated by petroleum hydrocarbons shall be placed in a landfill. The division may approve placement of tank bottoms in a landfill if the operator demonstrates that the tank bottoms do not contain economically recoverable petroleum hydrocarbons. Soils and drill cuttings placed in a landfill shall be sufficiently free of liquid content to pass the paint filter test, and shall not have a chloride concentration exceeding 500 mg/kg if the landfill is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will place oil field waste or exceeding 1000 mg/kg if the landfill is located where ground water is 100 feet or more below the lowest elevation at which the operator will place oil field waste. The person tendering oil field waste for treatment at a landfill shall certify, on form C-138, that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content, and that the samples have been found to conform to these requirements. The landfill operator shall not accept oil field waste for landfill treatment unless accompanied by this certification.	19.15.36.8.C(6) waste management plan 36.15A is mostly Permit Conditions. Check for commitments to meet these requirements.	Not Applicable.

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No.	Permit Application Requirements	OCD Comments	Location in Application
99	36.15B. Background testing. Prior to beginning operation of a new landfill or to opening a new cell at an existing landfill at which the operator has not already established background, the operator shall take, at a minimum, 12 composite background soil samples, with each consisting of 16 discrete samples from areas that previous operations have not impacted at least six inches below the original ground surface, to establish background soil concentrations for the entire surface waste management facility. The operator shall analyze the background soil samples for TPH, as determined by EPA method 418.1 or other EPA method approved by the division; BTEX, as determined by EPA SW-846 method 8021B or 8260B; chlorides; and other constituents listed in Subsections A and B of 20.6.2.3103 NMAC, using approved EPA methods.		Not Applicable.
100	36.15C. Operation and oil field waste treatment.		Not Applicable.
101	(1) The operator shall berm each landfill cell to prevent rainwater run-on and run-off.	19.15.36.8.C(6) waste management plan 19.15.36.8.C(11) stormwater run on/off management plan 19.15.36.8.C(4) detailed construction/ installation diagrams	Not Applicable.
102	(2) The operator shall not place contaminated soils received after the effective date of 19.15.36 NMAC within 100 feet of the surface waste management facility's boundary.	19.15.36.8.C(6) waste management plan	Not Applicable.
103	(3) The operator shall not place contaminated soils received at a landfill after the effective date of 19.15.36 NMAC within 20 feet of a pipeline crossing the landfill.	19.15.36.8.C(6) waste management plan	Not Applicable.
104	(4) With 72 hours after receipt , the operator shall spread and disk contaminated soils in eight-inch or less lifts or approximately 1000 cubic yards per acre per eight-inch lift or biopile.	19.15.36.8.C(6) waste management plan	Not Applicable.
105	(5) The operator shall ensure that soils are disked biweekly and biopiles are turned at least monthly.	19.15.36.8.C(6) waste management plan	Not Applicable.
106	(6) The operator shall add moisture, as necessary, to enhance bioremediation and to control blowing dust.	19.15.36.8.C(6) waste management plan	Not Applicable.
107	(7) The application of microbes for the purposes of enhancing bioremediation requires prior division approval.	19.15.36.8.C(6) waste management plan	Not Applicable.
108	(8) Pooling of liquids in the landfill is prohibited. The operator shall remove freestanding water within 24 hours.		Not Applicable.
109	(9) The operator shall maintain records of the landfill's remediation activities in a form readily accessible for division inspection.		Not Applicable.
110	(10) The division's environmental bureau may approve other treatment procedures if the operator demonstrates that they provide equivalent protection for fresh water, public health, safety and the environment.	19.15.36.8.C(6) waste management plan 19.15.36.8.C(5) technical data and design drawings	Not Applicable.

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No.	Permit Application Requirements	OCD Comments	Location in Application
111	<p>36.15D. Treatment zone monitoring. The operator shall spread contaminated soils on the surface in eight- inch or less lifts or approximately 1000 cubic yards per acre per eight-inch lift. The operator shall conduct treatment zone monitoring to ensure that prior to adding an additional lift the TPH concentration of each lift, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed 2500 mg/kg and that the chloride concentration, as determined by EPA method 300.1, does not exceed 500 mg/kg if the landfill is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will place oil field waste or 1000 mg/kg if the landfill is located where ground water is 100 feet or more below the lowest elevation at which the operator will place oil field waste.</p> <p>The operator shall collect and analyze at least one composite soil sample, consisting of four discrete samples, from the treatment zone at least semi-annually using the methods specified below for TPH and chlorides.</p> <p>The maximum thickness of treated soils in a landfill cell shall not exceed two feet or approximately 3000 cubic yards per acre.</p> <p>When that thickness is reached, the operator shall not place additional oil field waste in the landfill cell until it has demonstrated by monitoring the treatment zone at least semi-annually that the contaminated soil has been treated to the standards specified in Subsection F of 19.15.36.15 NMAC or the contaminated soils have been removed to a division approved surface waste management facility.</p>	19.15.36.8.C(6) waste management plan	Not Applicable.
112	<p>36.15E. Vadose zone monitoring.</p>	Permit condition, but not needed for ACD.	Not Applicable.
113	<p>(1) Sampling. The operator shall monitor the vadose zone beneath the treatment zone in each landfill cell.</p> <p>The operator shall take the vadose zone samples from soils between three and four feet below the cell's original ground surface.</p>		Not Applicable.
114	<p>(2) Semi-annual monitoring program. The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone at least semi-annually using the methods specified below for TPH, BTEX and chlorides and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred.</p>		Not Applicable.
115	<p>(3) Five year monitoring program. The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone, using the methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC at least every five years and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred.</p>		Not Applicable.
116	<p>(4) Record keeping. The operator shall maintain a copy of the monitoring reports in a form readily accessible for division inspection.</p>		Not Applicable.
117	<p>(5) Release response. If vadose zone sampling results show that the concentrations of TPH, BTEX or chlorides exceed the higher of the PQL or the background soil concentrations, then the operator shall notify the division's environmental bureau of the exceedance, and shall immediately collect and analyze a minimum of four randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC.</p> <p>The operator shall submit the results of the re-sampling event and a response action plan for the division's approval within 45 days of the initial notification.</p> <p>The response action plan shall address changes in the landfill's operation to prevent further contamination and, if necessary, a plan for remediating existing contamination.</p>		Not Applicable.
118	<p>36.15F. Treatment zone closure performance standards. After the operator has filled a landfill cell to the maximum thickness of two feet or approximately 3000 cubic yards per acre, the operator shall continue treatment until the contaminated soil has been remediated to the higher of the background concentrations or the following closure performance standards. The operator shall demonstrate compliance with the closure performance standards by collecting and analyzing a minimum of one composite soil sample, consisting of four discrete samples.</p>	19.15.36.8.C(9) closure and post-closure care plan Permit condition, but not needed for ACD	Not Applicable.

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119	(1) Benzene, as determined by EPA SW-846 method 8021B or 8260B, shall not exceed 0.2 mg/kg.		Not Applicable.
120	(2) Total BTEX, as determined by EPA SW-846 method 8021B or 8260B, shall not exceed 50 mg/kg.		Not Applicable.
121	(3) The GRO and DRO combined fractions, as determined by EPA SW-846 method 8015M, shall not exceed 500 mg/kg. TPH, as determined by EPA method 418.1 or other EPA method approved by the division, shall not exceed 2500 mg/kg.		Not Applicable.
122	(4) Chlorides, as determined by EPA method 300.1, shall not exceed 500 mg/kg if the landfill is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will place oil field waste or 1000 mg/kg if the landfill is located where ground water is 100 feet or more below the lowest elevation at which the operator will place oil field waste.		Not Applicable.
123	(5) The concentration of constituents listed in Subsections A and B of 20.6.2.3103 NMAC shall be determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division. If the concentration of those constituents exceed the PQL or background concentration, the operator shall either perform a site specific risk assessment using EPA approved methods and shall propose closure standards based upon individual site conditions that protect fresh water, public health, safety and the environment, which shall be subject to division approval or remove pursuant to Paragraph (2) of Subsection G of 19.15.36.15 NMAC.		Not Applicable.
124	36.15G. Disposition of treated soils.	19.15.36.8.C(6) waste management plan 19.15.36.8.C(9) closure and post-closure care plan	Not Applicable.
125	(1) If the operator achieves the closure performance standards specified in Subsection F of 19.15.36.15 NMAC, then the operator may either leave the treated soils in place, or, with prior division approval, dispose or reuse of the treated soils in an alternative manner.	Permit condition, but not needed for ACD.	Not Applicable.
126	(2) If the operator cannot achieve the closure performance standards specified in Subsection F of 19.15.36.15 NMAC within five years or as extended by the division, then the operator shall remove contaminated soils from the landfill cell and properly dispose of it at a division-permitted landfill, or reuse or recycle it in a manner approved by the division.		Not Applicable.
127	(3) If the operator cannot achieve the closure performance standards specified in Subsection F of 19.15.36.15 NMAC within five years or as extended by the division, then the division may review the adequacy of the operator's financial assurance, as provided in Subsection G of 19.15.36.11 NMAC. In that event, the division may require the operator to modify its financial assurance to provide for the appropriate disposition of contaminated soil in a manner acceptable to the division.		Not Applicable.
128	(4) The operator may request approval of an alternative soil closure standard from the division, provided that the operator shall give division-approved public notice of an application for alternative soil closure standards in the manner provided in 19.15.36.9 NMAC. The division may grant the request administratively if no person files an objection thereto within 30 days after publication of notice; otherwise the division shall set the matter for hearing.		Not Applicable.
129	36.15H. Environmentally acceptable bioremediation endpoint approach.	19.15.36.8.C(6) waste management plan 19.15.36.8.C(9) closure and post-closure care plan	Not Applicable.
130	(1) A landfill operator may use an environmentally acceptable bioremediation endpoint approach to landfill management in lieu of compliance with the requirements of Paragraph (3) of Subsection F of 19.15.36.15 NMAC.	Permit condition, but not needed for ACD.	Not Applicable.
131	(2) In addition to the requirements specified in Subsection C of 19.15.36.8 NMAC, an operator who plans to use an environmentally acceptable bioremediation endpoint approach shall submit for the division's review and approval a detailed landfill operation plan for those landfill cells exclusively dedicated to the use of the environmentally acceptable bioremediation endpoint approach. At a minimum, the operations plan shall include detailed information on the native soils, procedures to characterize each lift of contaminated soil, operating procedures and management procedures that the operator shall follow.		Not Applicable.

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No.	Permit Application Requirements	OCD Comments	Location in Application
132	<p>(3) In addition to other operational requirements specified in 19.15.36.15 NMAC, the operator using an environmentally acceptable bioremediation endpoint approach shall comply with the following:</p> <p>(a) Native soil information required. The operator shall submit detailed information on the soil conditions present for each of its landfarm cells immediately prior to the application of the petroleum hydrocarbon- contaminated soils, including: treatment cell size, soil porosity, soil bulk density, soil pH, moisture content, field capacity, organic matter concentration, soil structure, SAR, EC, soil composition, soil temperature, soil nutrient (C:N:P) (calcium, nitrogen and phosphate) concentrations and oxygen content.</p> <p>(b) Characterization of contaminated soil. The operator shall submit a description of the procedures that it will follow to characterize each lift of contaminated soil or drill cuttings, prior to treating each lift of contaminated soil or drill cuttings, for petroleum hydrocarbon loading factor, TPH, BTEX, chlorides, constituents listed in Subsections A and B of 20.6.2.3103 NMAC, contaminated soil moisture, contaminated soil pH and API gravity of the petroleum hydrocarbons.</p> <p>(c) Operating procedures. The operator shall submit a description of the procedures, including a schedule, that it shall follow to properly monitor and amend each lift of contaminated soil in order to maximize bioremediation, including tilling procedures and schedule; procedures to limit petroleum hydrocarbon loading to less than five percent; procedures to maintain pH between six and eight; procedures to monitor and apply proper nutrients; procedures to monitor, apply and maintain moisture to 60 to 80 percent of field capacity, and procedures to monitor TPH concentrations.</p> <p>(d) Management procedures. The operator shall submit a description of the management procedures that it shall follow to properly schedule landfarming operations, including modifications during cold weather, record keeping, sampling and analysis, statistical procedures, routine reporting, determination and reporting of achievement of the environmentally acceptable bioremediation endpoint and closure and post-closure plans.</p>		Not Applicable.

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No.	Permit Application Requirements	OCD Comments	Location in Application
PART 5 19.15.36.17 NMAC - SPECIFIC REQUIREMENTS APPLICABLE TO EVAPORATION, STORAGE, TREATMENT AND SKIMMER PONDS:			
133	<p>36.17A. Engineering design plan. An applicant for a surface waste management facility permit or modification requesting inclusion of a skimmer pit; an evaporation, storage or treatment pond; or a below-grade tank shall submit ...</p> <p>a detailed engineering design plan, certified by a registered professional engineer, including operating and maintenance procedures;</p> <p>19.15.36.8.C(5) technical data and design drawings</p> <p>a closure plan; 19.15.36.8.C(9) closure and post-closure care plan</p> <p>and a hydrologic report that provides sufficient information and detail on the site's topography, soils, geology, surface hydrology and ground water hydrology to enable the division to evaluate the actual and potential effects on soils, surface water and ground water.</p> <p>19.15.36.8.C(15) geological/ hydrological data</p> <p>The plan shall include detailed information on dike protection and structural integrity, leak detection, including an adequate fluid collection and removal system;</p> <p>19.15.36.8.C(5) technical data and design drawings</p> <p>liner specifications and compatibility;</p> <p>19.15.36.8.C(5) technical data and design drawings</p> <p>freeboard and overtopping prevention;</p> <p>19.15.36.8.C(7) inspection and maintenance plan</p> <p>prevention of nuisance and hazardous odors such as H₂S;</p> <p>19.15.36.8.C(8) hydrogen sulfide prevention and contingency plan;</p> <p>19.15.36.8.C(7) inspection and maintenance plan</p> <p>an emergency response plan, unless the pit is part of a surface waste management facility that has an integrated contingency plan;</p> <p>19.15.36.8.C(10) contingency plan</p> <p>type of oil field waste stream, including chemical analysis;</p> <p>19.15.36.8.C(6) waste management plan</p> <p>climatological factors, including freeze-thaw cycles;</p> <p>36.17B. Construction, standards.</p>	<p>For ACD, accept any plan that refers to Engineering Design Plan and that has all of the required elements shown in bold. Details will be part of Technical Review.</p>	<p>Volume I (pg. I-62); Facility Management Plans, Volume II; Engineering Design and Calculations, Volume III; Siting and Hydrogeology, Volume IV; Permit Plans</p>
134		<p>19.15.36.8.C(5) technical data and design drawings</p>	<p>Volume I (pg. I-64); Liner COA Plan, Volume II.7; Permit Plans</p>
135	<p>(1) In general. The operator shall ensure each pit, pond and below-grade tank is designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment.</p>	<p>For ACD, accept any plan that refers to Construction Standards and that has all of the required elements shown in bold. Details will be part of Technical Review</p>	<p>Volume I (pg. I-64); Liner COA Plan, Volume II.7; Permit Plans</p>
136	<p>(2) Liners required. Each pit or pond shall contain, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.</p>		<p>Volume I (pg. I-64); Engineering Design, Volume III.1; Permit Plans</p>
137	<p>(3) Liner specifications.</p> <p>Liners shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division.</p> <p>Synthetic (geomembrane) liners shall have a hydraulic conductivity no greater than 1 x 10⁻⁹ cm/sec.</p> <p>Geomembrane liners shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions.</p> <p>Liner materials shall be resistant to ultraviolet light, or the operator shall make provisions to protect the material from sunlight.</p> <p>Liner compatibility shall comply with EPA SW-846 method 9090A.</p>		<p>Volume I (pg. I-64); Liner COA Plan, Volume II.7; Geosynthetic Application and Compatibility Documentation, Volume III.6; Permit Plans</p>

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
138	(4) Alternative liner media. The division may approve other liner media if the operator demonstrates to the division's satisfaction that the alternative liner protects fresh water, public health, safety and the environment as effectively as the specified media.	Optional/ 19.15.36.8.C(5) technical data and design drawings	Volume I (pg. I-65); Liner COA Plan, Volume II.7; Engineering Design and Calculations, Volume III; Permit Plans
139	(5) Each pit or pond shall have a properly constructed foundation or firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities, in order to prevent rupture or tear of the liner and an adequate anchor trench ; and shall be constructed so that the inside grade of the levee is no steeper than 2H:1V. Levees shall have an outside grade no steeper than 3H:1V. The levees' tops shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance. The operator shall minimize liner seams and orient them up and down , not across a slope. The operator shall use factory seams where possible. The operator shall ensure field seams in geosynthetic material are thermally seamed (hot wedge) with a double track weld to create an air pocket for non-destructive air channel testing. A stabilized air pressure of 35 psi, plus or minus one percent, shall be maintained for at least five minutes. The operator shall overlap liners four to six inches before seaming, and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope. The operator shall minimize the number of field seams in corners and irregularly shaped areas. There shall be no horizontal seams within five feet of the slope's toe. Qualified personnel shall perform field seaming.		Volume I (pg. I-65); Liner COA Plan, Volume II.7; Engineering Design, Volume III.1; Geosynthetic Application and Compatibility Documentation, Volume III.6; Permit Plans
140	(6) At a point of discharge into or suction from the lined pit, the liner shall be protected from excessive hydrostatic force or mechanical damage, and external discharge lines shall not penetrate the liner.		Volume I (pg. I-66); Permit Plans
141	(7) Primary liners shall be constructed of a synthetic material .		Volume I (pg. I-66); Engineering Design and Calculations, Volume III
142	(8) A secondary liner may be a synthetic liner or an alternative liner approved by the division. Secondary liners constructed with compacted soil membranes , i.e., natural or processed clay and other soils, shall be at least three feet thick, placed in six-inch lifts and compacted to 95 percent of the material's standard proctor density, or equivalent. Compacted soil membranes used in a liner shall undergo permeability testing in conformity with ASTM standards and methods approved by the division before and after construction. Compacted soil membranes shall have a hydraulic conductivity of no greater than 1 x 10 ⁻⁸ cm/sec. The operator shall submit results of pre-construction testing to the division for approval prior to construction.		Volume I (pg. I-66); Engineering Design, Volume III.1

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
143	<p>(9) Leak detection system: The operator shall place a leak detection system between the lower and upper geomembrane liners that consists of two feet of compacted soil with a saturated hydraulic conductivity of 1 x 10-5 cm/sec or greater to facilitate drainage.</p> <p>The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped so as to facilitate the earliest possible leak detection. Piping used shall be designed to withstand chemical attack from oil field waste or leachate;</p> <p>structural loading from stresses and disturbances from overlying oil field waste, cover materials, equipment operation or expansion or contraction;</p> <p>and to facilitate clean-out maintenance.</p> <p>The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe.</p> <p>The slope of the interior sub-grade and of drainage lines and laterals shall be at least a two percent grade, i.e., two feet vertical drop per 100 horizontal feet.</p> <p>The piping collection system shall be comprised of solid and perforated pipe having a minimum diameter of four inches and a minimum wall thickness of schedule 80.</p> <p>The operator shall seal a solid sidewall riser pipe to convey collected fluids to a collection, observation and disposal system located outside the perimeter of the pit or pond.</p> <p>The operator may install alternative methods as approved by the division.</p>		Volume I (pg. I-66); Pipe Loading Calculations, Volume III.5; Permit Plans
144	<p>(10) The operator shall notify the division at least 72 hours prior to the primary liner's installation so that a division representative may inspect the leak detection system before it is covered.</p>	Permit Condition, not ACD. Note if included in application.	Volume I (pg. I-67); Liner COA Plan, Volume II.7 (pg. II.7-1)
145	<p>(11) The operator shall construct pits and ponds in a manner that prevents overtopping due to wave action or rainfall, and maintain a three foot freeboard at all times.</p>		Volume I (pg. I-68); Evaporation Pond Calculations, Volume III.9; Wave Action Calculations, Volume III.10
146	<p>(12) The maximum size of an evaporation or storage pond shall not exceed 10 acre-feet.</p>	19.15.36.8.C(5) technical data and design drawings	Volume I (pg. I-68); Evaporation Pond Calculations, Volume III.9; Wave Action Calculations, Volume III.10
147	<p>36.17C. Operating standards.</p>	19.15.36.8.C(7) inspection and maintenance plan Permit Condition, not ACD. Note if included in application.	Volume I (pg. I-68); Operations, Inspection, and Maintenance Plan, Volume II.1;
148	<p>(1) The operator shall ensure that only produced fluids or non-hazardous waste are discharged into or stored in a pit or pond;</p> <p>and that no measurable or visible oil layer is allowed to accumulate or remain anywhere on a pit's surface except an approved skimmer pit.</p>	19.15.36.8.C(7) inspection and maintenance plan	Volume I (pg. I-68); Operations, Inspection, and Maintenance Plan, Volume II.1;
149	<p>(2) The operator shall monitor leak detection systems pursuant to the approved surface waste management facility permit conditions, maintain monitoring records in a form readily accessible for division inspection and report discovery of liquids in the leak detection system to the division within 24 hours.</p>		Oil Field Waste Management Plan, Volume II.2 Volume I (pg. I-68); Operations, Inspection, and Maintenance Plan, Volume II.1;
150	<p>(3) Fencing and netting.</p> <p>The operator shall fence or enclose pits or ponds to prevent unauthorized access and maintain fences in good repair.</p> <p>Fences are not required if there is an adequate perimeter fence surrounding the surface waste management facility.</p> <p>The operator shall screen, net, cover or otherwise render non-hazardous to migratory birds tanks exceeding eight feet in diameter and exposed pits and ponds. Upon written application, the division may grant an exception to screening, netting or covering requirements upon the operator's showing that an alternative method will adequately protect migratory birds or that the tank or pit is not hazardous to migratory birds.</p>		Volume I (pg. I-68); Operations, Inspection, and Maintenance Plan, Volume II.1; Migratory Bird Protection Plan, Volume II.6; Permit Plans

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
151	(4) Spray systems: The division may approve spray systems to enhance natural evaporation. The operator shall submit engineering designs for spray systems to the division's environmental bureau for approval prior to installation. The operator shall ensure that spray evaporation systems are operated so that spray-borne suspended or dissolved solids remain within the perimeter of the pond's lined portion.	19.15.36.8.C(5) technical data and design drawings	Volume I (pg. I-69); Operations, Inspection, and Maintenance Plan, Volume II.1; Evaporation Pond Calculations, Volume III.9
152	(5) Skimmer Pits Or Tanks: The operator shall use skimmer pits or tanks to separate oil from produced water prior to water discharge into a pond. The operator shall install a trap device in connected ponds to prevent solids and oils from transferring from one pond to another unless approved in the surface waste management facility permit.	Depending on the design, this may be an application requirement. 19.15.36.8.C(6) waste management plan 19.15.36.8.C(5) technical data and design drawings	Volume I (pg. I-69); Operations, Inspection, and Maintenance Plan, Volume II.1
153	36.17D. Below-grade tanks and sumps.	19.15.36.8.C(5) technical data and design drawings	Volume I (pg. I-70) Volume I (pg. I-70)
154	(1) Secondary containment and leak detection: The operator shall construct below-grade tanks with secondary containment and leak detection. The operator shall not allow below-grade tanks to overflow. The operator shall install only below-grade tanks of materials resistant to the tank's particular contents and to damage from sunlight.		
155	(2) The operator shall test sumps' integrity annually, and shall promptly repair or replace a sump that does not demonstrate integrity. The operator may test sumps that can be removed from their emplacements by visual inspection. The operator shall test other sumps by appropriate mechanical means. The operator shall maintain records of sump inspection and testing and make such records available for division inspection.		Volume I (pg. I-70); Operations, Inspection, and Maintenance Plan, Volume II.1
156	E. Closure required. The operator shall properly close pits, ponds and below-grade tanks within six months after cessation of use.	19.15.36.8.C(9) closure and post-closure care plan	Volume I (pg. I-70); Closure/Post-closure Plan, Volume II.4
PART 6			
157	19.15.36.18 NMAC - CLOSURE AND POST CLOSURE:		
158	36.18A. Surface waste management facility closure by operator.	19.15.36.8.C(9) closure and post-closure care plan	Volume I (pg. I-70); Closure/Post-closure Plan, Volume II.4
159	(1) The operator shall notify the division's environmental bureau at least 60 days prior to cessation of operations at the surface waste management facility and provide a proposed schedule for closure. Upon receipt of such notice and proposed schedule, the division shall review the current closure plan for adequacy and inspect the surface waste management facility.		Volume I (pg. I-70); Closure/Post-closure Plan, Volume II.4
160	(2) The division shall notify the operator within 60 days after the date of cessation of operations—specified in the operator's closure notice—of modifications of the closure plan and proposed schedule—or additional requirements—that it determines are necessary for the protection of fresh water, public health, safety or the environment.	A(2) through A(5) are permit conditions or regulatory requirements, but not application requirements.	
161	(3) If the division does not notify the operator of additional closure requirements within 60 days as provided, the operator may proceed with closure in accordance with the approved closure plan; provided that the director may, for good cause, extend the time for the division's response for an additional period not to exceed 60 days by written notice to the operator.		
162	(4) The operator shall be entitled to a hearing concerning a modification or additional requirement the division seeks to impose if it files an application for a hearing within 10 days after receipt of written notice of the proposed modifications or additional requirements.		
163	(5) Closure shall proceed in accordance with the approved closure plan and schedule and—modifications or additional requirements—the division imposes. During closure operations the operator shall maintain the surface waste management facility to protect fresh water, public health, safety and the environment.		

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
163	(6) Re-vegetate: Upon completion of closure, the operator shall re-vegetate the site unless the division has approved an alternative site use plan as provided in Subsection G of 19.15.36.18 NMAC. Re-vegetation, except for landfill cells, shall consist of establishment of a vegetative cover equal to 70 percent of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation) or scientifically documented ecological description consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintenance of that cover through two successive growing seasons.		Volume I (pg. I-71); Closure/Post-closure Plan, Volume II.4
164	36.18D. Surface waste management facility and cell closure and post closure standards. The following minimum standards shall apply to closure and post closure of the installations indicated, whether the entire surface waste management facility is being closed or only a part of the surface waste management facility.		Volume I (pg. I-75); Closure/Post-closure Plan, Volume II.4
165	(1) Oil treating plant closure. The operator shall ensure that: (a) tanks and equipment used for oil treatment are cleaned and oil field waste is disposed of at a division-approved surface waste management facility (the operator shall reuse, recycle or remove tanks and equipment from the site within 90 days of closure); (b) the site is sampled , in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods, for TPH, BTEX, major cations and anions and RCRA metals, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved; and (c) sample results are submitted to the environmental bureau in the division's Santa Fe office.		Volume I (pg. I-75); Closure/Post-closure Plan, Volume II.4
166	(2) Landfill cell closure. (a) The operator shall properly close landfill cells, covering the cell with a top cover pursuant to Paragraph (8) of Subsection C of 19.15.36.14 NMAC, with soil contoured to promote drainage of precipitation; side slopes shall not exceed a 25 percent grade (four feet horizontal to one foot vertical), such that the final cover of the landfill's top portion has a gradient of two percent to five percent, and the slopes are sufficient to prevent the ponding of water and erosion of the cover material. (b) The operator shall re-vegetate the area overlying the cell with native grass covering at least 70 percent of the landfill cover and surrounding areas, consisting of at least two grasses and not including noxious weeds or deep rooted shrubs or trees, and maintain that cover through the post closure period.		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4 Permit Plans
167	(3) Landfill post closure. Following landfill closure, the post closure care period for a landfill shall be 30 years. (a) A post closure care and monitoring plan shall include maintenance of cover integrity, maintenance and operation of a leak detection system and leachate collection and removal system and operation of gas and ground water monitoring systems. (b) The operator or other responsible entity shall sample existing ground water monitoring wells annually and submit reports of monitoring performance and data collected within 45 days after the end of each calendar year. The operator shall report any exceedance of a ground water standard that it discovers during monitoring pursuant to 19.15.29 NMAC.		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4 Permit Plans

OCD Part 36 Checklist
Sundance West Surface Waste Management Facility

No.	Permit Application Requirements	OCD Comments	Location in Application
168	<p>(4) Landfarm closure. The operator shall ensure that:</p> <p>(a) disking and addition of bioremediation enhancing materials continues until soils within the cells are remediated to the standards provided in Subsection F of 19.15.36.15 NMAC, or as otherwise approved by the division;</p> <p>(b) soils remediated to the foregoing standards and left in place are re-vegetated in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC;</p> <p>(c) landfarmed soils that have not been or cannot be remediated to the standards in Subsection F of 19.15.36.15 NMAC are removed to a division-approved surface waste management facility and the landfarm remediation area is filled in with native soil and re-vegetated in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC;</p> <p>(d) if treated soils are removed, the cell is filled in with native soils and re-vegetated in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC;</p> <p>(e) berms are removed;</p> <p>(f) buildings, fences, roads and equipment are removed, the site cleaned-up and tests conducted on the soils for contamination;</p> <p>(g) annual reports of vadose zone and treatment zone sampling are submitted to the division's environmental bureau until the division has approved the surface waste management facility's final closure; and</p> <p>(h) for an operator who chooses to use the landfarm methods specified in Subsection H of 19.15.36.15 NMAC, that the soil has an ECs of less than or equal to 4.0 mmhos/cm (dS/m) and a SAR of less than or equal to 13.0.</p>		Not Applicable.
169	36.18E. Pond and pit closure. The operator shall ensure that:		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
170	(1) liquids in the ponds or pits are removed and disposed of in a division-approved surface waste management facility;		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
171	(2) liners are disposed of in a division-approved surface waste management facility;		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
172	(3) equipment associated with the surface waste management facility is removed;		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
173	(4) the site is sampled, in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods for TPH, BTEX, metals and other inorganics listed in Subsections A and B of 20.6.2.3103 NMAC, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved; and		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
174	(5) sample results are submitted to the environmental bureau in the division's Santa Fe office.		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
175	<p>36.18F. Landfarm and pond and pit post closure.</p> <p>The post-closure care period for a landfarm or pond or pit shall be three years if the operator has achieved clean closure.</p> <p>During that period the operator or other responsible entity shall regularly inspect and maintain required re-vegetation.</p> <p>If there has been a release to the vadose zone or to ground water, then the operator shall comply with the applicable requirements of 19.15.30 NMAC and 19.15.29 NMAC.</p>		Volume I (pg. I-76); Closure/Post-closure Plan, Volume II.4
176	<p>G. Alternatives to re-vegetation. If the landowner contemplates use of the land where a cell or surface waste management facility is located for purposes inconsistent with re-vegetation, the landowner may, with division approval, implement an alternative surface treatment appropriate for the contemplated use, provided that the alternative treatment will effectively prevent erosion. If the division approves an alternative to re-vegetation, it shall not release the portion of the operator's financial assurance reserved for post-closure until the landowner has obtained necessary regulatory approvals and begun implementation of such alternative use.</p>		Volume I (pg. I-77);

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For State Use Only:

Form C-137
Revised August 1, 2011

Submit 1 Copy to Santa Fe Office

APPLICATION FOR SURFACE WASTE MANAGEMENT FACILITY

A meeting should be scheduled with the Division's Santa Fe office Environmental Bureau prior to pursuing an application for a surface waste management facility in order to determine if the proposed location is capable of satisfying the siting requirements of Subsections A and B of 19.15.36.13 NMAC for consideration of an application submittal.

1. Application: ☒ New ☐ Modification ☐ Renewal
2. Type: ☒ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfill ☐ Landfarm ☐ Other
3. Facility Status: ☒ Commercial ☐ Centralized
4. Operator: Sundance West, Inc.
Address: 1006 6th Street, Eunice, New Mexico 88231
Contact Person: Arif Mussani Phone: 575-394-2511
5. Location: South 1/2 Section 30 Township 21 South Range 38 East
6. Is this an existing facility? ☐ Yes ☒ No If yes, provide permit number
7. Attach the names and addresses of the applicant and principal officers and owners of 25 percent or more of the applicant. Specify the office held by each officer and identify the individual(s) primary responsible for overseeing management of the facility. (**SEE ATTACHED**)
8. Attach a plat and topographic map showing the surface waste management facility's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the surface waste management facility site; watercourses; fresh water sources, including wells and springs; and inhabited buildings within one mile of the site's perimeter.
9. Attach the names and addresses of the surface owners of the real property on which the surface waste management facility is sited and surface owners of the real property within one mile of the site's perimeter.
10. Attach a description of the surface waste management facility with a diagram indicating the location of fences and cattle guards, and detailed construction/installation diagrams of pits, liners, dikes, piping, sprayers, tanks, roads, fences, gates, berms, pipelines crossing the surface waste management facility, buildings and chemical storage areas.
11. Attach engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation and disposal method and detailed designs of surface impoundments.
12. Attach a plan for management of approved oil field wastes that complies with the applicable requirements contained in 19.15.36.13, 19.15.36.14, 19.15.36.15 and 19.15.36.17 NMAC.
13. Attach an inspection and maintenance plan that complies with the requirements contained in Subsection L of 19.15.36.13 NMAC.
14. Attach a hydrogen sulfide prevention and contingency plan that complies with those provisions of 19.15.3.118 NMAC that apply to surface waste management facilities.

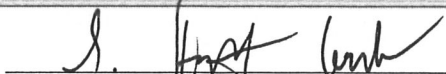
15. Attach a closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, safety and the environment (the closure and post closure plan shall comply with the requirements contained in Subsection D of 19.15.36.18 NMAC).
16. Attach a contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended (the Emergency Management Act).
17. Attach a plan to control run-on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC.
18. In the case of an application to permit a new or expanded landfill, attach a leachate management plan that describes the anticipated amount of leachate that will be generated and the leachate's handling, storage, treatment and disposal, including final post closure options.
19. In the case of an application to permit a new or expanded landfill, attach a gas safety management plan that complies with the requirements of Subsection O of 19.15.36.13 NMAC.
20. Attach a best management practice plan to ensure protection of fresh water, public health, safety and the environment.
21. Attach a demonstration of compliance with the siting requirements of Subsections A and B of 19.15.36.13 NMAC.
22. Attach geological/hydrological data including:
- (a) a map showing names and location of streams, springs or other watercourses, and water wells within one mile of the site;
 - (b) laboratory analyses, performed by an independent commercial laboratory, for major cations and anions; benzene, toluene, ethyl benzene and xylenes (BTEX); RCRA metals; and total dissolved solids (TDS) of ground water samples of the shallowest fresh water aquifer beneath the proposed site;
 - (c) depth to, formation name, type and thickness of the shallowest fresh water aquifer;
 - (d) soil types beneath the proposed surface waste management facility, including a lithologic description of soil and rock members from ground surface down to the top of the shallowest fresh water aquifer;
 - (e) geologic cross-sections;
 - (f) potentiometric maps for the shallowest fresh water aquifer; and
 - (g) porosity, permeability, conductivity, compaction ratios and swelling characteristics for the sediments on which the contaminated soils will be placed.
23. In the case of an existing surface waste management facility applying for a minor modification, describe the proposed change and identify information that has changed from the last C-137 filing.
24. The division may require additional information to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, safety or the environment and that the surface waste management facility will comply with division rules and orders

25. CERTIFICATION

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name: I. Keith Gordon, P.E.

Title: President

Signature: 

Date: August 15, 2016

E-mail Address: kgordon@gordonenvironmental.com

***Attachment to Form C-137
Sundance West, Inc.
Surface Waste Management Facility***

Question 7:

- a. Names/Addresses/Positions of all Applicant, Sundance West, Inc.'s officers:

Sue Mussani, President
14755 Preston Road, Suite 600
Dallas, Texas 75254

Arif Mussani, COO/Vice President
6739 Norway Rd
Dallas, TX 75230

Tariq Mussani, CFO/Secretary/Treasurer
5844 Meaders Lane
Dallas, Texas 75230

- b. Names/Addresses of all owners of 25% or more of Applicant, Sundance West, Inc.:

Sue Mussani
14755 Preston Road, Suite 600
Dallas, Texas 75254
Owns 100%

- c. Name of individual responsible for overseeing management of the proposed facility:

Arif Mussani, COO/Vice President

APPLICATION FOR PERMIT
SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY

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CERTIFICATION OF SERVICE
C-137 APPLICATION FOR SURFACE WASTE MANAGEMENT FACILITY

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19.15.36	Surface Waste Management Facilities

VOLUME II: FACILITY MANAGEMENT PLANS

<u>Section</u>	<u>Title</u>
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VOLUME III: ENGINEERING DESIGN AND CALCULATIONS

<u>Section</u>	<u>Title</u>
1	Engineering Design
2	Volumetrics Calculations
3	Drainage Calculations
4	HELP Model
5	Pipe Loading Calculations
6	Geosynthetic Application and Compatibility Documentation
7	Tensile Stress Analysis
8	Settlement Calculations
9	Evaporation Pond Calculations
10	Wave Action Calculations

APPLICATION FOR PERMIT
SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY

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2	Hydrogeology

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1	Cover Sheet and Drawing Index
2	Existing Site Conditions
3	Site Development Plan
4	Base Grading Plan
5	Final Grading Plan
6	East Phase Development Base Grading Plan
7	East Phase Development Intermediate and Final Grading Plan
8	Landfill Completion Drainage Plan
9	East Phase Development Drainage Plan
10	Drainage Channel Profiles and Typical Sections
11	Landfill Cross Sections
12	Liner System and Cover System
13	Leachate Collection System Details
14	Stormwater Drainage Details
15	Evaporation Pond Layout
16	Evaporation Pond Details
17	Evaporation Pond Cross Sections
18	Process Layout
19	Process Layout Cross Sections

**APPLICATION FOR PERMIT
SUNDANCE WEST**

**VOLUME I: PERMIT APPLICATION TEXT
PART 36: SURFACE WASTE MANAGEMENT FACILITIES**

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**APPLICATION FOR PERMIT
SUNDANCE WEST**

**VOLUME I: PERMIT APPLICATION TEXT
PART 36: SURFACE WASTE MANAGEMENT FACILITIES**

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I.B	PUBLIC NOTIFICATION
I.C	FINANCIAL ASSURANCE

APPLICATION FOR PERMIT SUNDANCE WEST

VOLUME I: PERMIT APPLICATION TEXT PART 36: SURFACE WASTE MANAGEMENT FACILITIES

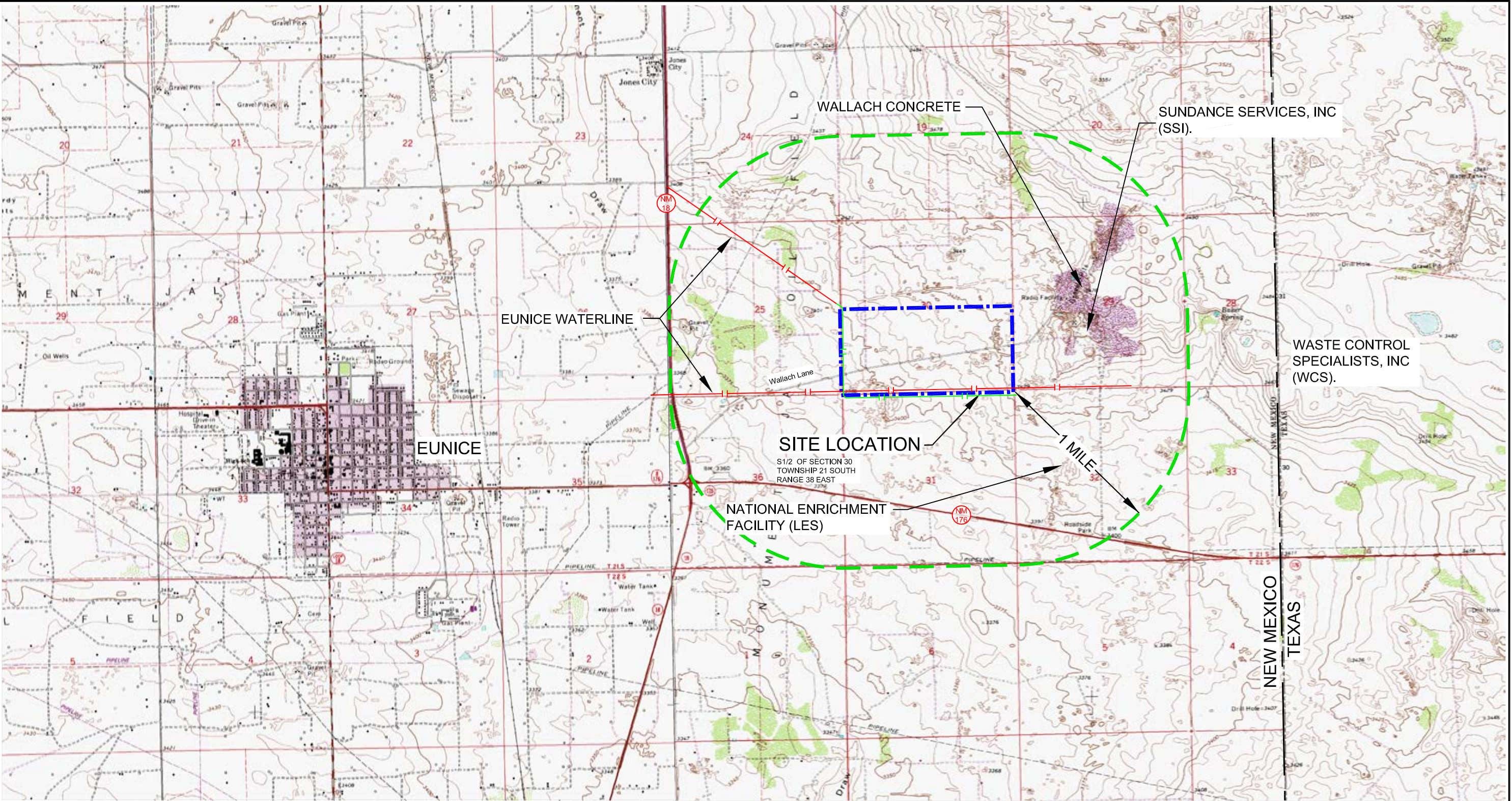
1.0 INTRODUCTION

Sundance West is a proposed new commercial Surface Waste Management Facility for oil field waste processing and disposal services. The proposed Sundance West Facility is subject to regulation under the New Mexico Oil and Gas Rules, specifically 19.15.36 NMAC, administered by the Oil Conservation Division (OCD). The Facility is designed in compliance with 19.15.36 NMAC, and will be constructed and operated in compliance with a Surface Waste Management Facility Permit issued by the OCD. The Facility is owned by, and will be constructed and operated by, Sundance West, Inc. (Sundance West).

Sundance West herein submits this Application for Permit (Application) for the proposed Sundance West Facility. This Application has been developed in order to address the specific standards of 19.15.36 NMAC. As a Surface Waste Management Facility per 19.15.2.7.S.11 NMAC, Sundance West will meet the siting, design, and operating requirements of 19.15.36 NMAC, as detailed in this Application. More specifically, the proposed Sundance West Facility is a “*commercial facility*” as defined in Section 19.15.36.7.A.(2) NMAC: “... *a surface waste management facility that is not a centralized facility*”, more specifically a landfill and a processing area.

1.1 Site Location

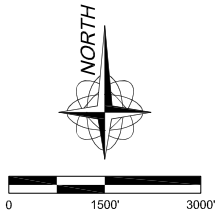
The Sundance West Site is located approximately 3 miles east of Eunice, 18 miles south of Hobbs, and approximately 1.5 miles west of the Texas/New Mexico state line in unincorporated Lea County, New Mexico (NM). The Sundance West Site is comprised of a 320-acre ± tract of land located in the South ½ of Section 30, Township 21 South, Range 38 East, Lea County, NM. Site access will be provided via NM 18 and Wallach Lane. A Site Location Map is provided as **Figure I.1**.



Based on Eunice NE, TX.- NM (1969) Photorevised (1979);
Eunice, NM (1969) Photorevised (1978);
Quadrangles, USGS 7.5' SERIES (1:24,000 Scale)


NOTE:
NO STREAMS, SPRINGS OR WATER COURSES WITHIN
1/2 MILE OF SITE

Drawing:P:\acad 2003\530.06.01\REVISED FIGURES(RAI 1)\SITE LOC REVISED 11 x17.dwg
Date/Time:Aug. 11, 2016-09:07:05 : LAYOUT: B (LS)
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SITE LOCATION MAP

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers

213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 07/22/2016	CAD: DWG NAME.dwg	PROJECT #: 530.06.01
DRAWN BY: DMI	REVIEWED BY: CWF	FIGURE I.1
APPROVED BY: IKG	gei@gordonenvironmental.com	

1.2 Site Description

The Sundance West Facility represents a new facility that will include a landfill and ancillary oilfield waste management infrastructure intended as a replacement for the current Sundance Services, Inc. (SSI) facility, which has operated adjacent to the proposed facility since approximately 1977 in accordance with OCD Permit No. NM 01-0003. Operations at the current Sundance Services, Inc. facility will be phased out and closed once the Application for the new Sundance West Facility has been approved by OCD and replacement infrastructure constructed. As a function (e.g., Landfill) becomes operational at Sundance West, that same function will be phased out at SSI. The Sundance West Facility will include two main components; a liquid oil field waste Processing Area and an oil field waste Landfill. Oil field wastes are anticipated to be delivered to the Sundance West Facility from oil and gas exploration and production operations in southeastern NM and west Texas. The Site Plan provided as **Figure I.2** identifies the locations of the Processing Area and Landfill facilities, and **Table I.1** provides a description of site acreages. Perimeter setbacks in excess of 100 ft are provided for surface water management and site access, as well as a buffer zone to adjacent properties.

TABLE I.1
Site Acreages
Sundance West

Description	Acres (±)
Sundance West Site: Total Tract (Facility Boundary)	320
Surface Waste Management Facility: Processing Area	80
Surface Waste Management Facility: Landfill	180

A Site Plan which identifies the layout of the proposed Sundance West Facility is provided as **Figure I.2**. Operations at the proposed Sundance West Facility, may be constructed in phases over a period of several years, as dictated by demand. The estimated Facility operational rates are presented in **Table I.2**, and the phased development sequence is described in Section 1.3 and **Table I.4**.

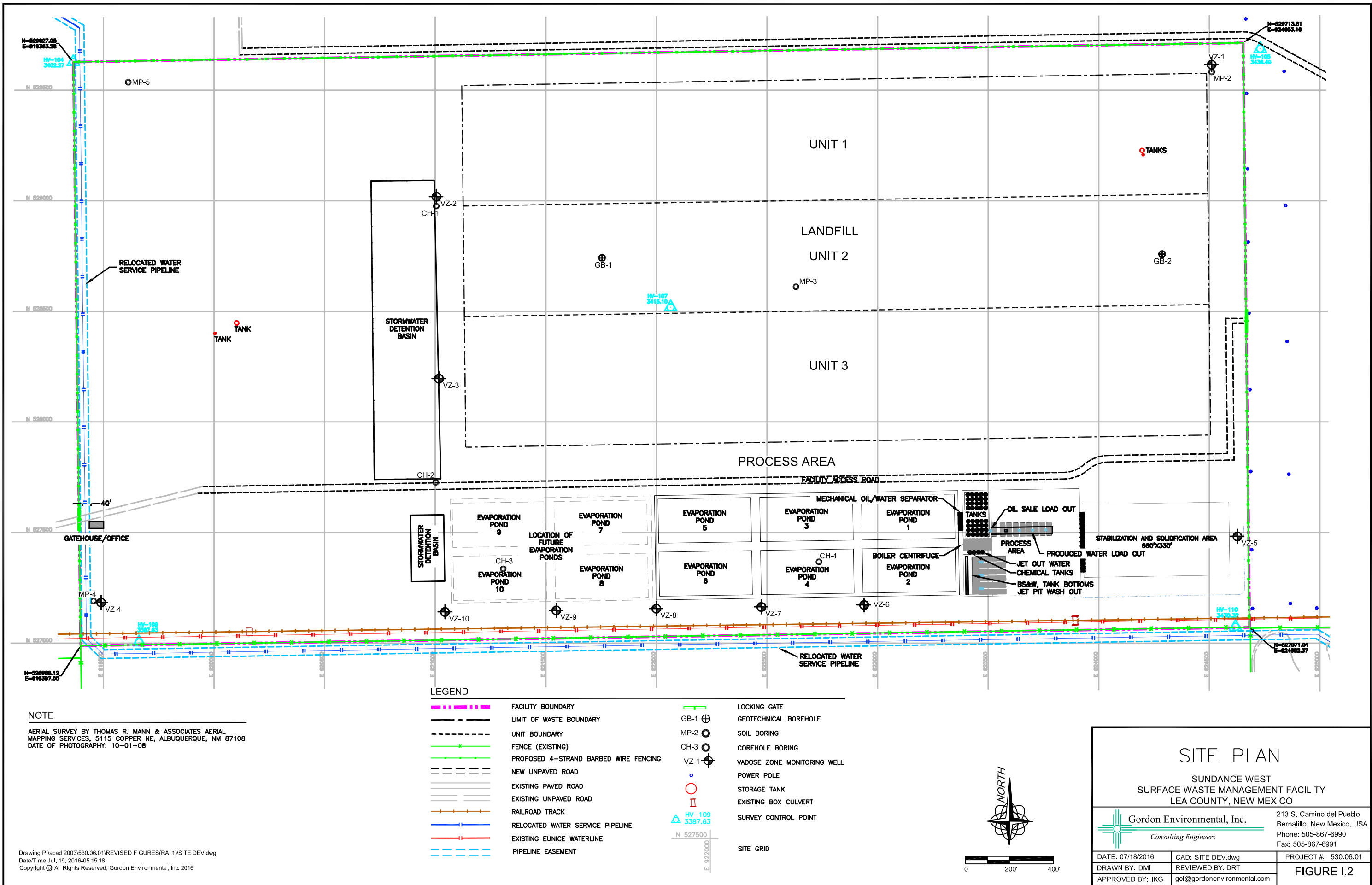


TABLE I.2
Estimated Operational Rates^{1,2,3}
Sundance West

Average Daily Liquid Operational Rate	9,000 bbl/day
Maximum Daily Liquid Operational Rate	10,000 bbl/day
Average Daily Solid Waste Acceptance Rate	2,500 cy/day
Maximum Daily Solid Waste Acceptance Rate	5,000 cy/day
Liquid Storage Capacity	787,000 bbl

Notes:

¹Subject to change. The estimated operational rates are based on familiarity with local oil and gas industry operations; therefore this list may be modified in response to changes in waste streams, market conditions, technology, etc.

The proposed Sundance West surface waste management facilities are listed in **Table I.3**, and identified on the Site Plan provided as **Figure I.2**.

TABLE I.3
Proposed Facilities¹
Sundance West

Description	No.
Oil field waste disposal landfill (180 acre ±)	1
Produced water load-out points	8
Produced water tanks	45
Evaporation ponds	10
Stabilization and Solidification Area	1
Crude oil recovery tanks	3
Oil sales tanks	2
Customer jet wash	1 (6 bays)

Note:

¹Subject to change. The proposed facilities are based on projected waste types and volumes; therefore this list may be modified in response to changes in waste streams, market conditions, technology, etc.

The improvements identified in **Table I.3** are discussed in detail in this Application. In addition, various support facilities, including: an office, waste acceptance/security, maintenance building, roads, break room, emergency shower & eyewash station, and stormwater detention basins are proposed for the new Facility (see **Engineering Design, Volume III**).

1.3 Development Sequence

The development sequence for the Sundance West Facility is proposed to be conducted in four primary phases (**Table I.4**). This phased development sequence is estimated to take place over a period of approximately four years from the issuance of the Permit, to allow for the planned closure and transfer of operations from the existing SSI facility. However, different combinations of these improvements may be constructed at any time. The phased development is projected as follows:

Phase I - Initial Operations. This Phase will include the development of the initial landfill cell, installation of four Produced Water Load-Out points, the complete tank farm berm, the 75 HP boiler circulating a heat transfer fluid to the twenty 1,000 bbl heated Produced Water Tanks, two Mechanical Oil/Water Separation Units, four Evaporation Ponds with a capacity of 9.5 acre-feet each, capable of evaporating 3,000 bbl per day of liquid, one 1,000 bbl heated Crude Oil Recovery Tank, the Oil Recovery Centrifuge and one 1,000 bbl Oil Sale Tank. This Phase will be completed within approximately one year of permitting.

Phase II - Jet-Out Pit Operation- This Phase of the operation will include installation of the six station, Jet-Out Pit for handling BS&W, Tank Bottoms, Oily Drilling Muds and Tank Wash-Outs, the addition of one 1,000 bbl Crude Oil Recovery Tank, and the construction of the 5-acre Stabilization and Solidification Area. This Phase will be completed within approximately two years of permitting.

Phase III- Expanded Produced Water Processing Operation. This Phase will include the installation of an additional two Produced Water Load-Out points, ten additional 1,000 bbl heated Produced Water Tanks, one additional Mechanical Oil/Water Separator, four additional 9.5 acre-foot ponds capable of evaporating an additional 5,000 bbl per day of liquid, and one additional Oil Sales Tank. This Phase will be completed within approximately three years of permitting.

TABLE I.4
Sundance West Development Sequence (Phasing)¹
Sundance West

Description	Summary	Year No. ²
Phase I - Initial Landfill & Produced Water Processing Operation.		
<ul style="list-style-type: none"> Initial Landfill Cell (13.5-acres) Produced water load-out points (4) Tank farm berm (complete) Boiler (75 HP) running a heat transfer fluid tank farm Produced Water Tanks (20), 1,000 bbl capacity³ Mechanical Oil/Water Separation Unit (2) Evaporation Ponds (4) capable of evaporating 3,000 bbl of liquid per day Crude Oil Recovery Tank (1), 1,000 bbl capacity Oil Recovery Centrifuge Oil Sale Tank (1), 1,000 bbl capacity 	The oil recovered from the Produced Water Processing Operations process is anticipated to be 6 bbl per day. This material will be pumped to the heated crude oil recovery tank for further processing before being pumped to the oil sale tank.	1
Phase II - Jet-Out Pit Operation.		
<ul style="list-style-type: none"> Jet-Out Pit (six-station) for handling basic sediment and water (BS&W), tank bottoms, oily drilling muds and tank wash-outs Additional crude oil recovery tank (1), 1,000 bbl capacity Install 5-acre Stabilization and Solidification Area 	The oil recovered from the top of the Jet-Out Pit will be pumped to a heated Crude Oil Recovery Tank installed in the Tank Farm. Oil recovery from the Produced Water Tanks will also be pumped to this tank. Water recovered from the Pit will be pumped to the Produced Water Receiving Tanks. Sediments from the Pit will be bucket-loaded out of the pit and transferred to the Stabilization and Solidification Area for processing prior to landfilling.	2
Phase III - Expanded Produced Water Processing Operation.		
<ul style="list-style-type: none"> Produced water load-out points (2) Additional Produced Water Tanks (10), 1,000 bbl capacity Additional (1) Mechanical Oil/Water Separation Unit Additional ponds (4) capable of evaporating an additional 4,000 bbl per day of liquid Additional Crude Oil Recovery Tank (1), 1,000 bbl capacity Additional Oil Sales Tank (1), 1,000 bbl capacity 	The additional oil recovered from the expanded Produced Water Processing Operation process, anticipated to be 6 bbl per day (for a total of 12 bbls per day), will be pumped to the Crude Oil Recovery tanks for further processing.	3
Phase VI - Ultimate Produced Water Processing Facility.		
<ul style="list-style-type: none"> Produced water load-out points (2) Additional Produced Water Tanks (15), 1,000 bbl capacity Additional (1) Mechanical Oil/Water Separation Unit Additional ponds (2) capable of evaporating an additional 2,000 bbl per day of liquid Additional Crude Oil Recovery Tank (1), 1,000 bbl capacity 	The additional oil recovered from the ultimate Produced Water Processing Facility will be pumped to the Crude Oil Recovery Tank for further processing.	4

Notes:

¹ The Sundance West site development sequence is subject to change. Different combination of these improvements may be constructed at any time.

² Estimated number of years after OCD Surface Waste Management Facility Permit issued

³ bbl = barrels of oil

Phase IV – Ultimate Produced Water Processing Facility. This final phase of development will include the installation of two additional Produced Water Load-Out points, fifteen additional 1,000 bbl Produced Water Tanks, one additional Mechanical Oil/Water Separation Unit, two additional 9.5 acre-foot ponds capable of evaporating an additional 2,000 bbl per day of liquid, and one additional 1,000 bbl Crude Oil Recovery Tank, this Phase will be completed within approximately four years of permitting.

1.4 Permit Application Format

For ease of review and reference, this Application for Permit has been organized into a four-volume set, in the same order and format as the current Rules for Surface Waste Management Facilities (19.15.36 NMAC). OCD Form C-137 (*Application for Surface Waste Management Facilities*) is provided as a preface to this **Volume**. The Permit Application Text provided in **Volume I** addresses the applicable requirements of 19.15.36 NMAC, by restating each requirement (**in bold**) followed by the appropriate response (*in italics*).

The Facility Management Plans provided in **Volume II** address the operation and closure of storage tanks, evaporation ponds, solid waste landfill and supporting infrastructure (i.e., stormwater drainage). Design data and supporting calculations in accordance with the applicable sections of 19.15.36 NMAC are presented in **Volume III**. **Volume IV** of this Application provides the results of focused site characterization and hydrogeological investigations for the entire 320 acre \pm site.

In many cases, the technical response to a particular item is so sufficiently detailed or complex that a separate graphic, table, report, plan, or calculation has been prepared. The applicable technical documents in this Application are cross-referenced in the narrative responses to each of the individual regulatory requirements as delineated in **Volume I**. Each section of each volume also includes, as applicable:

- Table of Contents
- List of Figures
- List of Tables
- List of Attachments

The Table of Contents for the entire four-volume Application is also included in each volume in order to assist in cross-referencing, along with the List of **Permit Plans (Table I.5)**. The four-volume Application is provided in four binders. Each binder is divided by tabs which identify the Volume and Section as referenced in the master Table of Contents.

TABLE I.5
List of Permit Plans

Sheet	Title
1	Cover Sheet and Drawing Index
2	Existing Site Conditions
3	Site Development Plan
4	Base Grading Plan
5	Final Grading Plan
6	East Phase Development Base Grading Plan
7	East Phase Development Intermediate and Final Grading Plan
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9	East Phase Development Drainage Plan
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16	Evaporation Pond Details
17	Evaporation Pond Cross Sections
18	Processing Area Layout
19	Process Layout Cross Sections

TABLE I.6
List of Acronyms and Definitions
Sundance West

<i>ADC</i>	<p><i>Alternative Daily Cover:</i> Materials that are suitable for use, with Department approval, as a replacement for the 6” daily cover layer include; tarps, foams, select C & D and other emerging technologies that conserve landfill capacity.</p>
<i>ASTM</i>	<i>American Society for Testing and Materials</i>
<i>BBL</i>	<i>Barrels; 42 gallons (oil)</i>
<i>BTEX</i>	<i>Benzene, Toluene, Ethylbenzene, and Xylenes</i>
<i>C/PC</i>	<p><i>Closure/Post-Closure:</i> C/PC refers to two independent steps following completion of facility operations:</p> <ul style="list-style-type: none"> • Closure typically refers to regrading the surface and repositioning of infrastructure to accommodate the post-closure. • Post-closure care refers to maintenance and monitoring after completion of closure.
<i>CQA</i>	<p><i>Construction Quality Assurance:</i> CQA is the process of applying field and laboratory testing, and construction observation to confirm that environmental control systems (e.g., liners and covers) are installed according to the design, regulatory requirements, and current industry standards.</p>
<i>FEMA</i>	<i>Federal Emergency Management Agency</i> , which administers the Flood Insurance Rate Map (FIRM) program.
<i>FML</i>	<p><i>Flexible Membrane Liner (or geomembrane):</i> Geosynthetic plastic liners are the standard design for the primary (upper) containment layer of the composite liner system, which in a RCRA Subtitle D (solid waste) Landfill is underlain by a compacted clay liner (CCL) or a geosynthetic clay liner (GCL).</p>
<i>GCL</i>	<p><i>Geosynthetic Clay Liner:</i> These are composite materials with geotextiles (fabrics) used in conjunction with dense bentonite clays, and are commonly used as the secondary lower liner in the landfill liner system.</p>
<i>HDPE</i>	<p><i>High Density Polyethylene:</i> This geomembrane (plastic) is the preferred material for FML landfill liners, and is typically installed in 60 – 100 mil thicknesses. HDPE is also used for leachate collection system piping and landfill gas management systems.</p>
<i>H₂S</i>	<i>Hydrogen Sulfide</i>
<i>LEL</i>	<i>Lower Explosive Limit</i> is the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 77 degrees Fahrenheit and atmospheric pressure.

<i>LFG</i>	<i>Landfill Gas:</i> Decomposing organic wastes in landfill environments typically produce LFG, which in MSW landfills is comprised of approximately 50% methane (CH ₄) and 50% carbon dioxide (CO ₂), both of which are odorless and colorless. C & D produce less gas, and at a slower rate, than other MSW waste streams (i.e., residential).
<i>mcf</i>	<i>Thousand Cubic Feet</i>
<i>mg/l</i>	<i>Milligrams Per Liter</i>
<i>MSW</i>	<i>Municipal Solid Waste:</i> Municipal Solid Waste is an industry term that includes residential, commercial, and some industrial wastes; and specifically excludes defined hazardous, radioactive, and infectious wastes. C & D is considered part of the MSW stream, and recyclables are subtracted if recovered.
<i>NMAC</i>	<i>New Mexico Administrative Code</i>
<i>NMDOT</i>	<i>New Mexico Department of Transportation:</i> The NMDOT is committed to providing safe and reliable transportation systems to the state of New Mexico. NMDOT also works closely with other state agencies on transportation related issues.
<i>NMPM</i>	<i>New Mexico Principal Meridian</i>
<i>NOI</i>	<i>Notice of Intent:</i> Application to USEPA for stormwater discharges associated with industrial activity under the NPDES program.
	<i>Notice of Inspection:</i> The written record of a compliance inspection by a regulatory agency.
<i>NORM</i>	<i>Naturally Occurring Radioactive Material</i>
<i>NPDES</i>	<i>National Pollutant Discharge Elimination System:</i> The federal permit program which requires all point sources discharging pollutants to waters of the United States to obtain a permit.
<i>NRCS</i>	<i>Natural Resources Conservation Service:</i> The federal agency with local offices that provide guidance on seeding of the final cover.
<i>OCD</i>	<i>Oil Conservation Division;</i> a division of the New Mexico Energy, Minerals, and Natural Resources Department
<i>OSE</i>	<i>Office of the State Engineer</i>
<i>PE</i>	<i>Professional Engineer</i>
<i>PSL</i>	<i>Protective Soil Layer:</i> All liners shall have a protective cover of at least two feet of granular soil. This protective cover shall, in addition to providing physical protection for the liner, facilitate the collection of leachate in the leachate collection system.

PVC	<i>Polyvinyl Chloride</i>
RAI	<i>Request for Additional Information;</i> typically issued by a regulatory agency to an Applicant in response to an Application.
RCRA	<i>Resource Conservation and Recovery Act;</i> the program administered by USEPA that sets national standards for solid waste management and disposal.
SWPPP	<i>Stormwater Pollution Prevention Plan:</i> Sites subject to the federal National Pollutant Discharge Elimination System (NPDES) regulations must prepare and implement a SWPPP. The Plan identifies potential pollutant sources and plans to mitigate/eliminate these sources.
TDS	<i>Total Dissolved Solids;</i> a measure of water quality
TPH	<i>Total Petroleum Hydrocarbons</i>
USEPA	<i>United States Environmental Protection Agency:</i> The federal entity responsible for administering the RCRA program. USEPA also sets national standards for air quality (NAPS) and stormwater quality (NPDES) protection.
USGS	<i>United State Geological Survey</i>
μm	<i>Micrometers</i>
UV	<i>Ultra-violet light;</i> one component of sunlight
WQCC	<i>Water Quality Control Commission (NMWQCC);</i> responsible for the protection of groundwater and surface water in New Mexico.

19.15.36.8 SURFACE WASTE MANAGEMENT FACILITY PERMITS AND APPLICATION REQUIREMENTS:

- A. Permit required.** No person shall operate a surface waste management facility (other than a small landfarm registered pursuant to Paragraph (1) of Subsection A of 19.15.36.16 NMAC) except pursuant to and in accordance with the terms and conditions of a division-issued surface waste management facility permit.

Sundance West proposes to operate a new Surface Waste Management Facility, pursuant to and in accordance with the terms and conditions of a Surface Waste Management Facility Permit issued by the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department.

- B. Permitting requirements.** Except for small landfarms registered pursuant to Paragraph (1) of Subsection A of 19.15.36.16 NMAC, new commercial or centralized facilities prior to commencement of construction, and existing commercial or centralized facilities prior to modification or permit renewal, shall be permitted by the division in accordance with the applicable requirements of Subsection C of 19.15.36.8 NMAC and 19.15.36.11 NMAC.

*Sundance West is requesting a new commercial Surface Waste Management Facility Permit in accordance with the applicable requirements of 19.15.36.8.C NMAC and 19.15.36.11 NMAC. The purpose of this Application is to detail the Facility design, capacity, and operational practices in accordance with the Rules. For ease of regulatory review, this Application provides the information required in applicable sections of 19.15.36 NMAC as delineated in this **Volume**.*

- C. Application requirements for new facilities, major modifications and permit renewals.** An applicant or operator shall file an application, form C-137, for a permit for a new surface waste management facility, to modify an existing surface waste management facility or for permit renewal with the environmental bureau in the division's Santa Fe office. The application shall include:
- (1) the names and addresses of the applicant and principal officers and owners of 25 percent or more of the applicant;**

*The purpose of this Application is to request a Permit for a new surface waste management facility, and to document Facility design, capacity, and proposed operational activities. The completed form C-137, provided for informational purposes, is located as the preface to this **Volume**. The names and addresses of the Applicant and principal officers and owners of 25 percent or more of the Applicant are listed on C-137.*

- (2) a plat and topographic map showing the surface waste management facility's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the surface waste management facility site; watercourses; fresh water sources, including wells and springs; and inhabited buildings within one mile of the site's perimeter;

*A Site Location Map that shows the Sundance West Facility plotted on the most current United States Geological Survey (USGS) Quadrangle map is provided as **Figure I.1**. The Site Location Map shows the Facility and the surrounding area, and **Figure I.3** is a detailed Site Topograph. A more detailed discussion of site characteristics and land use is provided in **Volume IV.1** (Siting Criteria). A "Partial Assignment and Assumption of Lease" for the Sundance West site is provided as **Attachment I.A**. Facility access is provided from NM-18 to Wallach Lane through an intersection that includes turning, acceleration and deceleration lanes.*

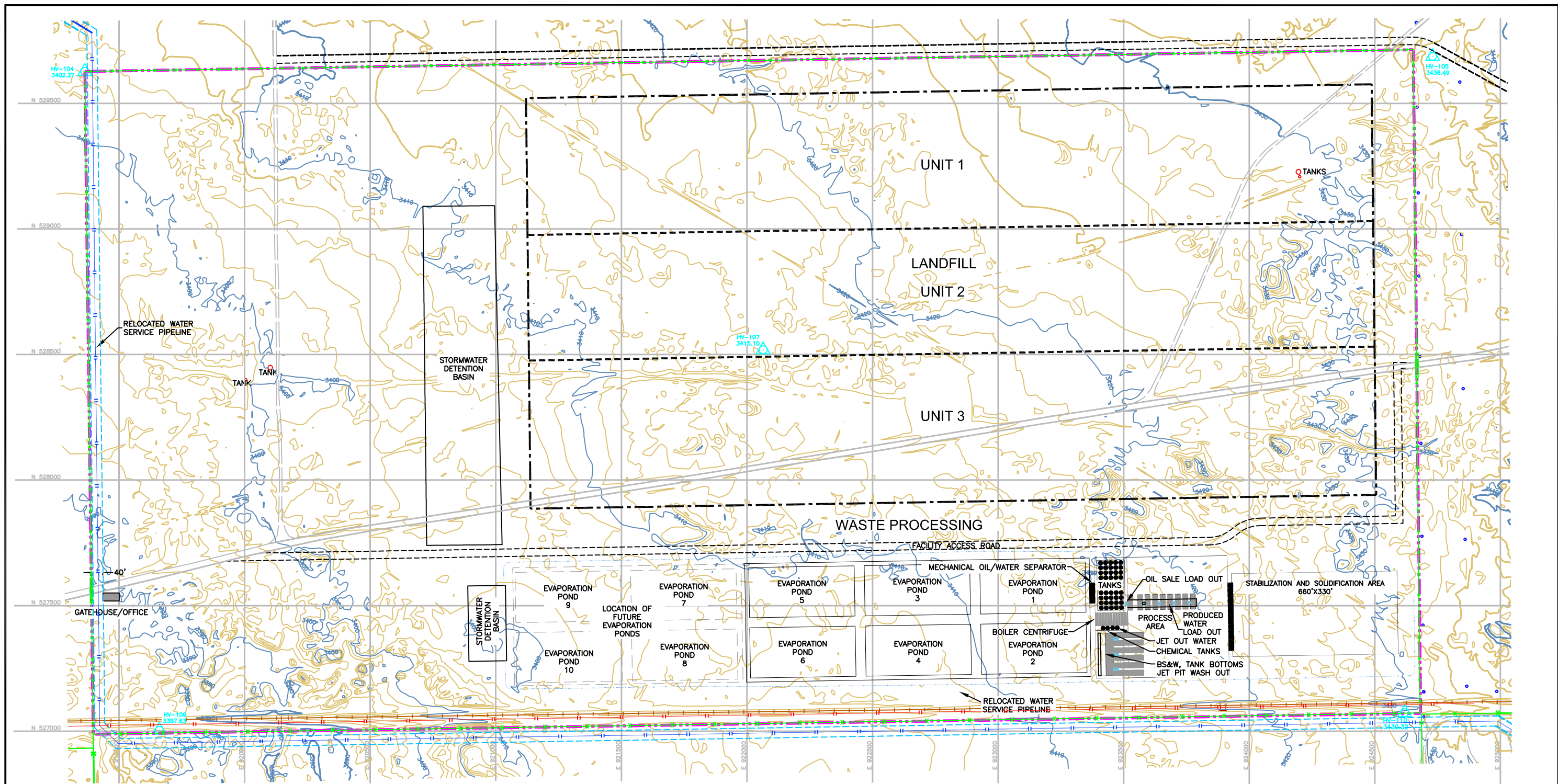
- (3) the names and addresses of the surface owners of the real property on which the surface waste management facility is sited and surface owners of the real property within one mile of the site's perimeter;

The owner of the real property on which the Surface Waste Management Facility is sited is:

Wallach Ranch, LLC
PO Box 3175
Midland, TX 79702

*Sundance West, Inc. has been assigned a long-term lease that allows for their use of this property as a Surface Waste Management Facility. **Attachment I.B** (Public Notification) includes a list of the names and addresses of real surface owners of the real property within one mile of the site's perimeter based on the data available from the Lea County Assessor's Office.*

- (4) a description of the surface waste management facility with a diagram indicating the location of fences and cattle guards, and detailed construction/installation diagrams of pits, liners, dikes, piping, sprayers, tanks, roads, fences, gates, berms, pipelines crossing the surface waste management facility, buildings and chemical storage areas;



NOTE
AERIAL SURVEY BY THOMAS R. MANN & ASSOCIATES AERIAL
MAPPING SERVICES, 5115 COPPER NE, ALBUQUERQUE, NM 87108
DATE OF PHOTOGRAPHY: 10-01-08

LEGEND			
	FACILITY BOUNDARY		EXISTING EUNICE WATERLINE
	LIMIT OF WASTE BOUNDARY		RELOCATED WATER SERVICE PIPELINE
	UNIT BOUNDARY		PIPELINE EASEMENT
	10' CONTOUR		LOCKING GATE
	2' CONTOUR		POWER POLE
	FENCE (EXISTING)		STORAGE TANK
	PROPOSED 4-STRAND BARBED WIRE FENCING		EXISTING BOX CULVERT
	NEW UNPAVED ROAD		SURVEY CONTROL POINT
	EXISTING PAVED ROAD		
	EXISTING UNPAVED ROAD		
	RAILROAD TRACK		
			SITE GRID

Drawing:P:\acad 2003\530.06.01\REVISED FIGURES(RAI 1)\SITE TOPO.dwg
Date/Time:Jul, 19, 2016-07:25:22
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SITE TOPOGRAPHIC MAP

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO



213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 07/18/2016	CAD: SITE TOPO.dwg	PROJECT #: 530.06.01
DRAWN BY: DMI	REVIEWED BY: DRT	FIGURE I.3
APPROVED BY: IKG	get@gordonenvironmental.com	

*Volume III.1 (Engineering Design) includes a set of **Permit Plans** which are listed on **Table I.5**. The **Permit Plans (Volume III.1)** indicates the location of roads, pipeline crossings, fences and gates. The **Permit Plans (Volume III.1)** provides construction and installation details on the landfill liner, and provides these details for the leachate collection system. Layout details for the processing area, which includes the produced water loadout tank farm, ponds, tanks, jet out pit and stabilization/solidification area is depicted in the **Permit Plans (Volume III.1)**; with additional details provided. The **Permit Plans (Volume III.1)** provide construction and installation details for the evaporation ponds including the mechanical evaporator locations.*

- (5) engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation and disposal method and detailed designs of surface impoundments;**

*The **Permit Plans** included in **Volume III.1** are provided at a reduced scale and establish the engineering design criteria for the Facility. The same drawings are submitted to the OCD with this Application as a full-size (24 x 36-inch) plan set. The List of **Permit Plans** is provided with the master Table of Contents and included as **Table I.5**. These **Permit Plans**, and the Certification Statement that prefaces this volume, have been signed and sealed by a Professional Engineer registered in the State of New Mexico. That engineer, who is a specialist in geotechnical engineering and waste containment design, is identified as follows:*

*I. Keith Gordon, P.E.
New Mexico Professional Engineer #10984
Principal, Gordon Environmental, Inc.
213 South Camino del Pueblo
Bernalillo, NM 87004
(505) 867-6990 Phone
(505) 867-6991 Fax*

- (6) a plan for management of approved oil field wastes that complies with the applicable requirements contained in 19.15.36.13 NMAC, 19.15.36.14 NMAC, 19.15.36.15 NMAC and 19.15.36.17 NMAC;**

*The Oil Field Waste Management Plan included as **Volume II.2** provides the applicable information required in 19.15.36.13.A through H, 19.15.36.14, 19.15.35.15, and 19.15.36.17 NMAC.*

- (7) an inspection and maintenance plan that complies with the requirements contained in Subsection L of 19.15.36.13 NMAC;**

*The Operations, Inspection, and Maintenance Plan included as **Volume II.1** provides the applicable information required in 19.15.36.13.L.(1) and (3).*

- (8) a hydrogen sulfide prevention and contingency plan that complies with those provisions of 19.15.11 NMAC that apply to surface waste management facilities;**

*The Hydrogen Sulfide Prevention and Contingency Plan included as **Volume II.3** provides information to ensure that the regulatory thresholds in 19.15.11 NMAC are not exceeded. In addition, the Contingency Plan provided as **Volume II.5** addresses the requirements of 19.15.36.13.N NMAC concerning contingencies to minimize hazards to fresh water, public health, safety or the environment.*

- (9) a closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, safety and the environment (the closure and post closure plan shall comply with the requirements contained in Subsection D of 19.15.36.18 NMAC);**

*The Closure/Post-closure (C/PC) Plan is provided as **Volume II.4**. The C/PC Plan addresses the information required in this section as well as 19.15.36.18.D NMAC; and provides the estimated third-party C/PC cost estimate (**Attachment II.4.A**) to address the requirements in this section.*

- (10) a contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended;**

*A Contingency Plan written in compliance with 19.15.36.13.N NMAC and the NMSA 1978 as referenced, is provided as **Volume II.5**.*

- (11) **a plan to control run-on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC;**

Volume III.1 provides the design for berms, conveyance channels, and detention ponds to control run-on/run-off during the peak discharge from a 25-year, 24-hour storm; and Volume III.3 provides the supporting calculations. The Sundance West Facility may be required to obtain a permit under the Multi-Sector General Permit for Stormwater Discharges promulgated June 4, 2015, and the Applicant will consult with the NMED Surface Water Quality Bureau for compliance requirements. Sundance West through adherence to the Operations, Inspection, and Maintenance Plan (Volume II.1) and construction of the detention structures described in this Application (Volume III.1), will prevent discharge of pollutants to the waters of the State or United States in violation of state water quality standards.

- (12) **in the case of an application to permit a new or expanded landfill, a leachate management plan that describes the anticipated amount of leachate that will be generated and the leachate's handling, storage, treatment and disposal, including final post closure options;**

The Leachate Management Plan included as Volume II.9 provides details including the anticipated volume of leachate that will be generated; and the leachate handling, storage, treatment and disposal technologies that will be employed during operations and final post-closure management options. Leachate management details are also described in Volume II.1 as well as the Permit Plans.

- (13) **in the case of an application to permit a new or expanded landfill, a gas safety management plan that complies with the requirements of Subsection O of 19.15.36.13 NMAC;**

In compliance with 19.15.36.13.O NMAC, landfill gas safety management is addressed in Section 6.6 of Volume II.1. The Hydrogen Sulfide (H₂S) Prevention and Contingency Plan is provided as Volume II.3.

- (14) **a best management practice plan to ensure protection of fresh water, public health, safety and the environment;**

Best management practices to ensure the protection of fresh water, public health, safety, and the environment, are described in detail in the Operations, Inspection, and Maintenance Plan (Volume II.1) as well as on the Permit Plans.

(15) geological/hydrological data including:

The Sundance West site is located in a hydrogeologic setting that is ideally selected for waste processing and disposal. This same locale was selected for Subtitle C (Waste Control Specialists) and Subtitle D (Lea County Landfill) disposal facilities, as well as the Nuclear Regulatory Commission-approved Louisiana Energy Services National Enrichment Facility.

Regional and site-specific hydrogeologic data are presented in Volume IV.2 (Hydrogeology). Additional site-specific hydrogeologic information is provided in a report and supplements by Gordon Environmental, Inc. (GEI) in Attachments IV.2.A and IV.2.B.

(a) a map showing names and location of streams, springs or other watercourses, and water wells within one mile of the site;

The USGS Quadrangle Map provided as Figure I.1 identifies streams, springs, and watercourses with the vicinity of the Sundance West Facility. There are no defined watercourses, streams or springs within ½ mile of the proposed facility. In addition, wells within the vicinity are identified on the Water Well Location Map provided as Figure IV.2.5. This map is based on data from the NM Office of the State Engineer. There are five wells identified within one mile of the proposed site: one domestic water supply well and four “other use” wells. Additional detail is provided in Volume IV.2 (Hydrogeology).

(b) laboratory analyses, performed by an independent commercial laboratory, for major cations and anions; BTEX; RCRA metals; and TDS of ground water samples of the shallowest fresh water aquifer beneath the proposed site;

Although the shallow water encountered in well MP-4P (re-named monitoring well VZ-4 as described in Volume II.8), installed during the April 2009 drilling program, is not within the shallowest fresh water aquifer beneath the site, Attachment IV.2.D includes the laboratory report for analysis of the water samples collected from well MP-4P. No groundwater was encountered in any of the borings or core holes drilled during the October 2009 drilling

program. More detailed data on local groundwater resources are provided in **Volume IV.2 (Hydrogeology)**.

(c) **depth to, formation name, type and thickness of the shallowest fresh water aquifer;**

*The Santa Rosa Sandstone (Lower Dockum Group) is considered to be the shallowest fresh water aquifer in the vicinity of the Sundance West site at a minimum depth of approximately 675 ft ± below grade. A detailed description of this aquifer, including potentiometric surface, depth and thickness, is provided in **Volume IV.2**.*

(d) **soil types beneath the proposed surface waste management facility, including a lithologic description of soil and rock members from ground surface down to the top of the shallowest fresh water aquifer;**

*A summary of the soil data obtained during GEI's site investigations is provided in **Table IV.2.2**. This table summarizes the standard engineering index properties (i.e., USCS soil classification; grain size distribution; natural dry density, Atterberg limits; and gravimetric moisture content) for selected soil samples obtained during the drilling program at Sundance West. **Table IV.2.2** also summarizes lab test results for Standard Proctor density and permeability. The soils laboratory testing was conducted in accordance with guidance provided by OCD. The site geology is described in detail in **Volume IV.2** including lithologic descriptions of the soil borings installed at the site.*

(e) **geologic cross-sections;**

*Geologic cross-sections of the site are provided as **Figures IV.2.8**, including a site map identifying the locations of the geological cross-section (**Figure IV.2.7**). These cross-sections are discussed in **Volume IV.2**.*

(f) **potentiometric maps for the shallowest fresh water aquifer; and**

*The precise potentiometric groundwater surface data for the Santa Rosa Sandstone is not well-defined in the immediate vicinity of the Facility. The Lower Dockum Group potentiometric surface contours (**Figure IV.2.13**) likely represent the minimum possible depth of water*

bearing units of the Santa Rosa Formation (Upper Dockum Group), and not necessarily the Santa Rosa Sandstone. The geometry of land surface and underlying geologic units, as well as groundwater saturations in the vicinity of the Sundance West site are depicted in the hydrogeologic cross-section shown on **Figure IV.2.8**. This diagram indicates that no shallow alluvial groundwater is present at the Sundance West site, consistent with site-specific drilling results. Based upon information projected from nearby petroleum wells, the shallowest potential water-bearing zone is the Santa Rosa Sandstone (Lower Dockum Group; **Figure IV.2.11**), which is approximately 675 ft \pm below grade at the Sundance West site.

- (g) **porosity, permeability, conductivity, compaction ratios and swelling characteristics for the sediments on which the contaminated soils will be placed;**

A detailed description of porosity, permeability, conductivity, compaction ratios, and swelling characteristics is provided in **Volume IV.2**. The calculated porosities and permeabilities are summarized in **Table IV.2.2**. **Table IV.2.2** also summarizes the standard proctor densities and optimum moistures; and summarizes the swell/collapse characteristics of the onsite soils.

- (16) **certification by the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge, after reasonable inquiry; and**

The certification is located in the preface to this **Volume** of the Application (i.e., Form C-137).

- (17) **other information that the division may require to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, safety or the environment and that the surface waste management facility will comply with division rules and orders.**

Sundance West will provide other applicable information reasonably requested by the OCD in order to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, safety or the environment. In addition, Sundance West will comply with applicable Rules and Orders issued by OCD.

- D. Application requirements for minor modifications.** An existing surface waste management facility applying for a minor modification shall file a form C-137 with the environmental bureau in the division's Santa Fe office describing the proposed change and identifying information that has changed from its last C-137 filing.

At this time, Sundance West is not seeking a minor modification. Sundance West will comply with this requirement when applicable.

- E. Determination that an application is administratively complete.** Upon receipt of an application for a surface waste management facility permit or modification or renewal of an existing surface waste management facility permit, the division shall review the application for administrative completeness. To be deemed administratively complete, the application shall provide information required by Subsection C or D (as applicable) of 19.15.36.8 NMAC. The division shall notify the applicant in writing when it deems the application administratively complete. If the division determines that the application is not administratively complete, the division shall notify the applicant of the deficiencies in writing within 30 days after the application's receipt and state what additional information is necessary.

No response required.

19.15.36.9 NOTICE REQUIREMENTS FOR NEW SURFACE WASTE MANAGEMENT FACILITIES, MAJOR MODIFICATIONS OR RENEWALS AND ISSUANCE OF A TENTATIVE DECISION:

- A.** Upon receipt of notification of the division's determination that the application is administratively complete, the applicant for a new surface waste management facility permit, permit renewal or major modification shall give written notice of the application, by certified mail, return receipt requested, to the surface owners of record within one-half mile of the surface waste management facility, the county commission of the county where the surface waste management facility site is located, the appropriate city officials if the surface waste management facility site is within city limits or within one-half mile of the city limits, and affected federal, tribal or pueblo governmental agencies. The notice shall contain the information in Paragraphs (1) through (4) of Subsection F of 19.15.36.9 NMAC. The division may extend the distance requirements for notice if the division determines that the proposed surface waste management facility has the potential to adversely impact fresh water, public health, safety or the environment at a distance greater than one-half mile. The applicant shall furnish proof that it has given the required notices.

*Draft Public Notification language is provided in **Attachment I.B**. The Draft Public Notification was prepared in accordance with 19.15.36.9.F(1) through (4) NMAC. Following OCD approval, Public Notification will be provided in compliance with 19.15.36.9.A NMAC, to the surface owners of record located within one-half mile of the Facility. Owners of record, as determined by the Lea County Assessor's Office, are listed in **Attachment I.B**, and include the State Land Office (SLO) and Bureau of Land Management (BLM). Additionally, the Public Notification will be provided to the Lea County Commission. The Facility is not located within one-half mile of any city limit and therefore no additional federal, tribal or pueblo governmental agencies are affected.*

- B. The division shall distribute notice of its determination that an application for a new surface waste management facility or for a renewal or major modification of an existing surface waste management facility is administratively complete to persons who have requested notification of division and commission hearing dockets within 30 days following the date that the division determines the application to be administratively complete.**

No response required.

- C. A person wishing to comment on an application prior to the division's preliminary consideration of the application may file comments within 30 days, or as extended by the director, after the later of the date when the applicant mails the notice required by Subsection A of 19.15.36.9 NMAC or the date when the division distributes the notice provided in Subsection B of 19.5.36.9 NMAC.**

No response required.

- D. Within 60 days after the end of the public comment period provided in Subsection C of 19.15.36.9 NMAC, the division shall issue a tentative decision concerning the application, renewal or modification, including proposed conditions for approval or reasons for disapproval, as applicable. The division shall mail notice of the tentative decision, together with a copy of the decision, by certified mail, return receipt requested, to the applicant and shall post notice on the division's website, together with a copy of the tentative decision.**

No response required.

- E. Within 30 days after receiving the division's tentative decision, the applicant shall provide notice of the tentative decision by:**
- (1) publishing a display ad in English and Spanish, in a form approved by the division, in a newspaper of general circulation in this state and in a newspaper of general circulation in the county where the surface waste management facility is or will be located; the display ad shall be at least three inches by four inches and shall not be published in the newspaper's legal or classified sections;**
 - (2) mailing notice by first class mail or e-mail to persons, as identified to the applicant by the division, who have requested notification of applications generally, or of the particular application, including persons who have filed comments on the particular application during the initial public comment period, and who have included in such comments a legible return address or e-mail address; and**
 - (3) mailing notice by first class or e-mail to affected local, state, federal or tribal governmental agencies, as determined and identified to the applicant by the division.**

Sundance West will comply with the notification requirements identified in 19.15.39.9.E NMAC. It is proposed that the display ad be published in the Albuquerque Journal and the Hobbs News-Sun, both of which are newspapers in general circulation in the State of New Mexico and Lea County.

- F. This notice issued pursuant to Subsection E of 19.15.36.9 NMAC shall include:**
- (1) the applicant's name and address;**
 - (2) the surface waste management facility's location, including a street address if available, and sufficient information to locate the surface waste management facility with reference to surrounding roads and landmarks;**
 - (3) a brief description of the proposed surface waste management facility;**
 - (4) the depth to, and TDS concentration of, the ground water in the shallowest aquifer beneath the surface waste management facility site;**
 - (5) a statement that the division's tentative decision is available on the division's website, or, upon request, from the division clerk, including the division clerk's name, address and telephone number;**
 - (6) a description of alternatives, exceptions or waivers that may be under consideration in accordance with Subsection G of 19.15.36.18 NMAC or 19.15.36.19 NMAC;**
 - (7) a statement of the comment period and of the procedures for requesting a hearing on the application; and**
 - (8) a brief statement of the procedures the division shall follow in making a final decision.**

Sundance West will, upon receiving OCD's Tentative Decision, issue Public Notification of Tentative Decision in compliance with this section.

19.15.36.10 COMMENTS AND HEARING ON APPLICATION:

- A.** A person, whether or not such person has previously submitted comments, may file comments or request a hearing on the application by filing their comments or, in accordance with 19.15.4.9 NMAC, a hearing request with the division clerk within 30 days after the date that the applicant issued public notice of the division's tentative decision. A request for a hearing shall be in writing and shall state specifically the reasons why a hearing should be held. The division shall schedule a public hearing on the application if, in addition to the requirements in 19.15.4.9 NMAC:
- (1)** the division has proposed to deny the application or grant it subject to conditions not expressly required by rule, and the applicant requests a hearing;
 - (2)** the director determines that there is significant public interest in the application;
 - (3)** the director determines that comments have raised objections that have probable technical merit; or
 - (4)** determination of the application requires that the division make a finding, pursuant to Paragraph (3) of Subsection F of 19.15.2.7 NMAC, whether a water source has a present or reasonably foreseeable beneficial use that contamination would impair.
- B.** If the division schedules a hearing on an application, the hearing shall be conducted according to 19.15.14.1206 through 19.15.14.1215 NMAC.

No response required.

19.15.36.11 FINANCIAL ASSURANCE REQUIREMENTS:

- A.** Centralized facilities. Upon notification by the division that it has approved a permit but prior to the division issuing the permit, an applicant for a new centralized facility permit shall submit acceptable financial assurance in the amount of \$25,000 per centralized facility, or a statewide "blanket" financial assurance in the amount of \$50,000 to cover all of that applicant's centralized facilities, unless such applicant has previously posted a blanket financial assurance for centralized facilities.

No response required, as Sundance West is a proposed "Commercial Facility" per 19.15.36.7.A(2) NMAC.

- B.** New commercial facilities or major modifications of existing commercial facilities. Upon notification by the division that it has approved a permit for a new commercial facility or a major modification of an existing commercial facility but prior to the division issuing the permit, the applicant shall submit acceptable

financial assurance in the amount of the commercial facility's estimated closure and post closure cost, or \$25,000, whichever is greater. The commercial facility's estimated closure and post closure cost shall be the amount provided in the closure plan the applicant submitted unless the division determines that such estimate does not reflect a reasonable and probable closure and post closure cost, in which event, the division shall determine the estimated closure and post closure cost and shall include such determination in its tentative decision. If the applicant disagrees with the division's determination of estimated closure and post closure cost, the applicant may request a hearing as provided in 19.15.36.10 NMAC. If the applicant so requests, and no other person files a request for a hearing regarding the application, the hearing shall be limited to determination of estimated closure and post closure cost.

*Once OCD has approved the Sundance West Application for Permit, Sundance West will submit financial assurance for \$1,048,611, as detailed in the C/PC Cost Estimate Tables provided as **Attachment II.4.A**. The C/PC Cost Estimate will be reviewed prior to issuance of the Permit, and also prior to each new Phase of site development (see **Table I.4**). This amount represents the closure costs and post closure care requirements that will be required for Phase I of the development. This estimate will be revised upon review and approval of the Engineer's C/PC Cost Estimate prior to issuance of the new permit, and as each Phase of the development is conducted.*

- C. Terms of financial assurance. The financial assurance shall be on division-prescribed forms, payable to the state of New Mexico and conditioned upon the surface waste management facility's proper operation, site closure and post closure monitoring in compliance with state of New Mexico statutes, division rules and the surface waste management facility permit terms. The applicant shall notify the division of a material change affecting the financial assurance within 30 days of discovery of such change.**

Sundance West will comply with this requirement.

- D. Forfeiture of financial assurance. The division shall give the operator 20 days notice and an opportunity for a hearing prior to forfeiting financial assurance.**

No response required.

E. Forms of financial assurance. The division may accept the following forms of financial assurance.

- (1) Surety bonds.** A surety bond shall be executed by the applicant and by a corporate surety licensed to do business in the state, and shall be non-cancelable.
- (2) Letters of credit.** A letter of credit shall be issued by a bank organized or authorized to do commercial banking business in the United States, shall be irrevocable for a term of not less than five years and shall provide for automatic renewal for successive, like terms upon expiration, unless the issuer has notified the division in writing of non-renewal at least 90 days before its expiration date. The letter of credit shall be payable to the state of New Mexico in part or in full upon receipt from the director or the director's authorized representative of demand for payment accompanied by a notice of forfeiture.
- (3) Cash accounts.** An applicant may provide financial assurance in the form of a federally insured or equivalently protected cash account or accounts in a financial institution, provided that the operator and the financial institution shall execute as to each such account a collateral assignment of the account to the division, which shall provide that only the division may authorize withdrawals from the account. In the event of forfeiture pursuant to Subsection C of 19.15.36.18 NMAC, the division may, at any time and from time to time, direct payment of all or part of the balance of such account (excluding interest accrued on the account) to itself or its designee for the surface waste management facility's closure.

Once the Permit is approved and prior to issuance, Sundance West will elect a financial assurance mechanism pursuant to 19.15.36.11.E NMAC. Documentation will be included in Attachment I.C once OCD approves the Application for Permit. The amount of the mechanism will represent the closure costs and post-closure care requirements that will be required for Phase I of the development, as identified in the C/PC Cost Estimate Summary provided as Attachment II.4.A. The C/PC Cost Estimate will be reviewed prior to issuance of the Permit, and also prior to each new Phase of site development (see Table I.4).

F. Replacement of financial assurance.

- (1) The division may allow an operator to replace existing forms of financial assurance with other forms of financial assurance that provide equivalent coverage.**
- (2) The division shall not release existing financial assurance until the operator has submitted, and the division has approved, an acceptable replacement.**

Sundance West will comply with this requirement.

- G. Review of adequacy of financial assurance.** The division may at any time not less than five years after initial acceptance of financial assurance for a commercial facility, or whenever the operator applies for a major modification of the commercial facility's permit, initiate a review of such financial assurance's adequacy. Additionally, whenever the division determines that a landfarm operator has not achieved the closure standards specified in Paragraph (3) of Subsection G of 19.15.36.15 NMAC, the division may review the adequacy of the landfarm operator's financial assurance, without regard to the date of its last review. Upon determination, after notice to the operator and an opportunity for a hearing, that the financial assurance is not adequate to cover the reasonable and probable cost of a commercial facility's closure and post closure monitoring, the division may require the operator to furnish additional financial assurance sufficient to cover such reasonable and probable cost, provided that the financial assurance required of a commercial facility permitted prior to the effective date of 19.15.36 NMAC shall not exceed \$250,000 except in the event of a major modification of the commercial facility. If such a commercial facility applies for a major modification, the division shall determine the applicable financial assurance requirement based on the total estimated closure and post closure cost of the commercial facility as modified, without regard to the \$250,000 limit.

Sundance West will comply with this requirement.

19.15.36.12 PERMIT APPROVAL, DENIAL, REVOCATION, SUSPENSION, MODIFICATION OR TRANSFER:

A. Granting of permit.

- (1)** The division may issue a permit for an new surface waste management facility or major modification upon finding that an acceptable application has been filed, that the conditions of 19.15.36.9 NMAC and 19.15.36.11 NMAC have been met and that the surface waste management facility or modification can be constructed and operated in compliance with applicable statutes and rules and without endangering fresh water, public health, safety or the environment.

Sundance West will comply with the public notice requirements of 19.15.36.9 NMAC and the financial assurance requirements of 19.15.36.11 NMAC, as necessary to achieve Permit approval. Attachment I.B includes the current list of property owners within one-half mile of the Facility, which will be updated prior to formal notice. Following OCD review and approval of the Application, Sundance West will distribute the public notice in accordance with 19.15.36.9 NMAC. Attachment I.C provides the proposed C/PC Cost Estimate that will be the basis for the financial assurance mechanism to be put into place in accordance with 19.15.36.11 NMAC upon approval of the Permit. This Application provides the required plans

and engineering calculations to construct and operate the Facility in compliance with applicable statutes and Rules that ensure fresh water, public health, safety, or the environment will be protected.

- (2) Each permit the division issues for a new surface waste management facility shall remain in effect for 10 years from the date of its issuance. If the division grants a permit for a major modification of a surface waste management facility, the permit for that surface waste management facility shall remain in effect for 10 years from the date the division approves the major modification.**

This Application requests a Permit in accordance with 19.15.36.8 NMAC. A new Application for Permit Renewal will be submittal to OCD at least 120 days prior to the expiration of the Permit granted in response to this Application (i.e., 10 years).

- (a) A surface waste management facility permit may be renewed for successive 10-year terms. If the holder of a surface waste management facility permit submits an application for permit renewal at least 120 days before the surface waste management facility permit expires, and the operator is not in violation of the surface waste management facility permit on the date of its expiration, then the existing surface waste management facility permit for the same activity shall not expire until the division has approved or denied an application for renewal. If the division has not notified the operator of a violation, if the operator is diligently pursuing procedures to contest a violation or if the operator and the division have signed an agreed compliance order providing for remedying the violation, then the surface waste management facility permit shall continue in effect as above provided notwithstanding the surface waste management facility permit violation's existence. A surface waste management facility permit continued under this provision remains fully effective and enforceable.**

This Application requests a Permit in accordance with 19.15.36.8 NMAC.

- (b) An application for permit renewal shall include and adequately address the information necessary for evaluation of a new surface waste management facility permit as provided in Subsection C of 19.15.36.8 NMAC. Previously submitted materials may be included by reference provided they are current, readily available to the division and sufficiently identified so that the division may retrieve them.**

This Application requests a Permit in accordance with 19.15.36.8 NMAC.

- (c) The operator shall give public notice of the renewal application in the manner prescribed by 19.15.36.9 NMAC. The division shall grant an application for renewal if the division finds that an acceptable application has been filed, that the conditions of 19.15.36.9 NMAC and 19.15.36.11 NMAC have been met and that the surface waste management facility can be operated in compliance with applicable statutes and rules and without endangering fresh water, public health, safety or the environment.**

Sundance West will continue to comply with the public notice requirements of 19.15.36.9 NMAC and the financial assurance requirements of 19.15.36.11 NMAC, as necessary to achieve Permit renewal. This Application provides the required plans and engineering calculations to construct and operate the Facility in compliance with applicable statutes and Rules that ensure fresh water, public health, safety, and the environment will be protected.

- (3) The division shall review each surface waste management facility permit at least once during the 10-year term, and shall review surface waste management facility permits to which Paragraph (2) of Subsection A of 19.15.36.12 NMAC does not apply at least every five years. The review shall address the operation, compliance history, financial assurance and technical requirements for the surface waste management facility. The division, after notice to the operator and an opportunity for a hearing, may require appropriate modifications of the surface waste management facility permit, including modifications necessary to make the surface waste management facility permit terms and conditions consistent with statutes, rules or judicial decisions.**

Sundance West will make available all necessary operational, compliance, financial assurance and other technical documents to OCD at any time during the 10 year permit period for the completion of a mid-term review. Sundance West will respond to OCD requests for updates to address changes in regulatory standards.

- B. Denial of permit. The division may deny an application for a surface waste management facility permit or modification of a surface waste management facility permit if it finds that the proposed surface waste management facility or modification may be detrimental to fresh water, public health, safety or the environment. The division may also deny an application for a surface waste**

management facility permit if the applicant, an owner of 25 percent or greater interest in the applicant or an affiliate of the applicant has a history of failure to comply with division rules and orders or state or federal environmental laws; is subject to a division or commission order, issued after notice and hearing, finding such entity to be in violation of an order requiring corrective action; or has a penalty assessment for violation of division or commission rules or orders that is unpaid more than 70 days after issuance of the order assessing the penalty. An affiliate of an applicant, for purposes of Subsection B of 19.15.36.12 NMAC, shall be a person who controls, is controlled by or under is common control with the applicant or a 25 percent or greater owner of the applicant.

No response required.

- C. Additional requirements.** The division may impose conditions or requirements, in addition to the operational requirements set forth in 19.15.36 NMAC, that it determines are necessary and proper for the protection of fresh water, public health, safety or the environment. The division shall incorporate such additional conditions or requirements into the surface waste management facility permit.

Sundance West will comply with any additional requirements or conditions imposed by OCD intended to protect fresh water, public health, safety or the environment, and comply with any applicable permit conditions.

- D. Revocation, suspension or modification of a permit.** The division may revoke, suspend or impose additional operating conditions or limitations on a surface waste management facility permit at any time, for good cause, after notice to the operator and an opportunity for a hearing. The division may suspend a surface waste management facility permit or impose additional conditions or limitations in an emergency to forestall an imminent threat to fresh water, public health, safety or the environment, subject to the provisions of NMSA 1978, Section 70-2-23, as amended. If the division initiates a major modification it shall provide notice in accordance with 19.15.36.9 NMAC. Suspension of a surface waste management facility permit may be for a fixed period of time or until the operator remedies the violation or potential violation. If the division suspends a surface waste management facility's permit, the surface waste management facility shall not accept oil field waste during the suspension period.

No response required.

- E. Transfer of a permit.** The operator shall not transfer a permit without the division's prior written approval. A request for transfer of a permit shall identify officers, directors and owners of 25 percent or greater in the transferee. Unless the director otherwise orders, public notice or hearing are not required for the transfer request's approval. If the division denies the transfer request, it shall

notify the operator and the proposed transferee of the denial by certified mail, return receipt requested, and either the operator or the proposed transferee may request a hearing with 10 days after receipt of the notice. Until the division approves the transfer and the required financial assurance is in place, the division shall not release the transferor's financial assurance.

Sundance West will comply with this requirement.

19.15.36.13 SITING AND OPERATIONAL REQUIREMENTS APPLICABLE TO ALL PERMITTED SURFACE WASTE MANAGEMENT FACILITIES: EXCEPT AS OTHERWISE PROVIDED IN 19.15.36 NMAC.

Siting documentation is detailed in Volume IV.1 to demonstrate that the operation of the Facility will protect public health and the environment. This section confirms the remote location, absence of any residential housing within over one mile of the Facility boundary, absence of churches, schools, parks or other unrelated business in the area. With the location of the National Enrichment Facility as the neighbor to the south, and the WCS hazardous waste processing and disposal facility to the east, open pasture and oil field production facilities surrounding the Sundance West Facility, the location is ideally suited for development as a surface waste management facility.

A. Depth to ground water.

- (1) No landfill shall be located where ground water is less than 100 feet below the lowest elevation of the design depth at which the operator will place oil field waste.**

Groundwater is demonstrated to be more than 100 ft below the lowest elevation of the design depth of the landfill where oil field waste will be placed. Additional detail is provided in Volume IV.1 (Siting) and in Volume IV.2 (Hydrogeology).

- (2) No landfarm that accepts soil or drill cuttings with a chloride concentration that exceeds 500 mg/kg shall be located where ground water is less than 100 feet below the lowest elevation at which the operator will place oil field waste. See Subsection A of 19.15.36.15 NMAC for oil field waste acceptance criteria.**

Not Applicable. Sundance West does not propose to operate a landfarm permitted under 19.15.36.15 NMAC.

- (3) No landfarm that accepts soil or drill cuttings with a chloride concentration that is 500 mg/kg or less shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

Not Applicable. Sundance West does not propose to operate a landfarm permitted under 19.15.36.15 NMAC.

- (4) No small landfarm shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

Not Applicable.

- (5) No other surface waste management facility shall be located where ground water is less than 50 feet below the lowest elevation at which the operator will place oil field waste.

*Groundwater is not located less than 50 ft below the lowest elevation of the processing area where oil field waste will be placed. Additional detail is provided in **Volume IV.1** (Siting) and in **Volume IV.2** (Hydrogeology). The closest water-bearing zone is over 675 ft \pm below ground surface.*

B. No surface waste management facility shall be located:

- (1) within 200 feet of a watercourse, lakebed, sinkhole or playa lake;

*The Facility is not located within 200 feet of a watercourse, lakebed, sinkhole or playa lake. Documentation regarding the locations of watercourses, lakebeds, sinkholes and playa lakes with respect to the Sundance West site is provided in **Volume IV.1**.*

- (2) within an existing wellhead protection area or 100-year floodplain;

*The Facility is not located within an existing wellhead protection area or 100-year floodplain. Documentation regarding wellhead protection areas and 100-year floodplains is provided in **Volume IV.1**.*

- (3) within, or within 500 feet of, a wetland;

*The Facility is not located within 500 ft of a wetland. Documentation regarding wetlands in the vicinity of the Sundance West site is provided in **Volume IV.1**.*

- (4) **within the area overlying a subsurface mine;**

The Facility is not located in an area overlying a known subsurface mine. Documentation of mines, mills, and quarries is provided in Volume IV.1.

- (5) **within 500 feet from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application; or**

The Facility is not located within 500 ft of the nearest permanent residence, school, hospital, institution, or church. Land use setback documentation is provided in Volume IV.1.

- (6) **within an unstable area, unless the operator demonstrates that engineering measures have been incorporated into the surface waste management facility design to ensure that the surface waste management facility's integrity will not be compromised.**

As documented in Volume IV.1, the Sundance West Facility is not located in an unstable area.

C. No surface waste management facility shall exceed 500 acres.

The Sundance West Facility will not exceed 500 acres. Total acreage for the Sundance West site is 320 ± acres. The Sundance West Facility will include two main components; a liquid oil field waste Processing Area (80 acres ±), and an oil field waste Landfill (180 acres ±); therefore the Sundance West Facility comprises 320 acres ±. A copy of the "Partial Assignment and Assumption of Lease" for the Sundance West site, which describes the size of the site and the site boundary is provided in Attachment I.A. Table I.1 provides details regarding site facilities and acreages.

D. The operator shall not accept oil field wastes transported by motor vehicle at the surface waste management facility unless the transporter has a form C-133, authorization to move liquid waste, approved by the division.

Sundance West will comply with this requirement. The Oil Field Waste Management Plan provided as Volume II.2 requires that, prior to acceptance of any liquid waste, the transporter must provide the Facility with a Division-approved Form C-133.

- E. The operator shall not place oil field waste containing free liquids in a landfill or landfarm cell. The operator shall use the paint filter test, as prescribed by the EPA (EPA SW-846, method 9095) to determine conformance of the oil field waste to this criterion.**

Sundance West will comply with this requirement. The Oil Field Waste Management Plan (Volume II.2) requires that, prior to acceptance of any oil field waste in the landfill portion of the Facility, the material will pass the paint filter test. Solidification, if necessary, will be accomplished in the lined stabilization and solidification area and described in Operation, Inspection, and Maintenance Plan (Volume II.1).

- F. Surface waste management facilities shall accept only exempt or non-hazardous waste, except as provided in Paragraph (3) of Subsection F of 19.15.36.13 NMAC. The operator shall not accept hazardous waste at a surface waste management facility. The operator shall not accept wastes containing NORM at a surface waste management facility except as provided in 19.15.35 NMAC. The operator shall require the following documentation for accepting oil field wastes, and both the operator and the generator shall maintain and make the documentation available for division inspection.**

Sundance West will comply with this requirement. The Oil Field Waste Management Plan (Volume II.2) provides a detailed description of oil field waste acceptance protocol. Included in this Plan are Form C-138 certification, and certification frequency. Sundance West will maintain and make documentation of this available for OCD inspection.

- (1) Exempt oil field wastes. The operator shall require a certification on form C-138, signed by the generator or the generator's authorized agent, that represents and warrants that the oil field wastes are generated from oil and gas exploration and production operations, are exempt waste and are not mixed with non-exempt waste. The operator shall have the option to accept such certifications on a monthly, weekly or per load basis. The operator shall maintain and shall make the certificates available for the division's inspection.**

Sundance West will comply with this requirement. The Oil Field Waste Management Plan (Volume II.2) provides a detailed description of oil field waste acceptance protocol. Included in this Plan is the Form C-138 certification and additional documentation that the oil field waste is Resource Conservation and Recovery Act (RCRA) exempt.

- (2) **Non-exempt, non-hazardous, oil field wastes.** The operator shall require a form C-138, oil field waste document, signed by the generator or its authorized agent. This form shall be accompanied by acceptable documentation to determine that the oil field waste is nonhazardous.

Sundance West will comply with this requirement. The Oil Field Waste Management Plan (Volume II.2) provides a detailed description of oil field waste acceptance protocol. Included in this Plan is the Form C-138 certification and additional documentation that any non-exempt oil field waste is non-hazardous.

- (3) **Emergency non-oil field wastes.** The operator may accept non-hazardous, non-oil field wastes in an emergency if ordered by the department of public safety. The operator shall complete a form C-138, oil field waste document, describing the waste, and maintain the same, accompanied by the department of public safety order, subject to division inspection.

Sundance West will comply with this requirement.

- G. **The operator of a commercial facility shall maintain records reflecting the generator, the location of origin, the location of disposal within the commercial facility, the volume and type of oil field waste, the date of disposal and the hauling company for each load or category of oil field waste accepted at the commercial facility. The operator shall maintain such records for a period of not less than five years after the commercial facility's closure, subject to division inspection.**

Sundance West will comply with this requirement. The Oil Field Waste Management Plan (Volume II.2) provides a detailed description of oil field waste acceptance recordkeeping forms. The forms in this Plan include the information required in this subsection and will be maintained and retained for a period of not less than five years following Facility closure. Sundance West will make these records available for OCD inspection upon request.

- H. **Disposal at a commercial facility shall occur only when an attendant is on duty unless loads can be monitored or otherwise isolated for inspection before disposal. The surface waste management facility shall be secured to prevent unauthorized disposal.**

Disposal operations at Sundance West will only be conducted when an attendant is on duty. Sundance West may conduct Facility operations 24 hours a day, 7 days a week. The Facility will be secured with barbed wire fencing, and locking gates to prevent any unauthorized access or disposal when an attendant is not on duty. A truck with an acceptable load of oil field waste

that may arrive while the facility is closed may park in a designated area outside the fence until a qualified inspection can take place upon the arrival of an attendant. In this case, the temporarily parked load will be inspected for any leakage and will be required to have any valves or access ports secured and locked to prevent spillage or tampering.

- I. To protect migratory birds, tanks exceeding eight feet in diameter, and exposed pits and ponds shall be screened, netted or covered. Upon the operator's written application, the division may grant an exception to screening, netting or covering upon the operator's showing that an alternative method will protect migratory birds or that the surface waste management facility is not hazardous to migratory birds. Surface waste management facilities shall be fenced in a manner approved by the division.**

*Sundance West herein requests an exception to 19.15.36.13.I NMAC. The Migratory Bird Protection Plan presented as **Volume II.6** describes an alternate methodology to the screening requirement of the storage ponds. This Plan describes visual inspections and migratory bird retrieval and clean-up procedures should bird(s) require decontamination. The Engineering Design (**Volume III.1**) provides a process design for produced waters and other liquids that will remove the oils present in these materials prior to discharge through the evaporation ponds.*

- J. Surface waste management facilities shall have a sign, readable from a distance of 50 feet and containing the operator's name; surface waste management facility permit or order number; surface waste management facility location by unit letter, section, township and range; and emergency telephone numbers.**

*The proposed Site Entrance Sign is provided as **Figure I.4**. The sign was designed in compliance with the requirements of 19.15.36.13.J NMAC. A 4-ft by 8-ft sign with 3-inch lettering will identify the Facility operator as Sundance West, Inc., and will include the Facility permit number, location and emergency phone numbers.*

- K. The operators shall comply with the spill reporting and corrective action provisions of 19.15.30 NMAC or 19.15.29 NMAC.**

SUNDANCE WEST, INC.

SURFACE WASTE MANAGEMENT FACILITY

OIL CONSERVATION DIVISION # _____

S $\frac{1}{2}$ of Section 30, T21S, R38E

HOURS OF OPERATION: 24 HOURS PER DAY - 7 DAYS PER WEEK

SITE RESTRICTIONS:

NO Hazardous Waste
NO Scavenging
NO Smoking
NO Fires
NO Disposal When Attendant Not on Duty
NO Trespassing – Authorized Personnel Only

FOLLOW SITE RULES:

Check-in at Gatehouse
OBEY Posted Speed Limits
OBEY Signs and Traffic Barriers
OBEY Instructions by Site Staff
Loads Subject to Inspection
Unload Only as Directed
Untarped Loads May Be Penalized

EMERGENCY CONTACT (24 HOURS): 575.394.2511 OR 911
OCD: 575.393.6161 OCD EMERGENCY LINE: 575.370.3186

SITE ENTRANCE SIGN

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO



Gordon Environmental, Inc.
Consulting Engineers

213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 04/04/16

CAD: ENTRANCE SIGN.dwg

PROJECT #: 530.06.01

DRAWN BY: DMI

REVIEWED BY: DRT

APPROVED BY: IKG

get@gordonenvironmental.com

FIGURE I.4

*The Sundance West Facility is specifically designed to prevent pollutants from entering surface and groundwater, as demonstrated through the Facility Management Plans (**Volume II**), and the Engineering Design and Calculations (**Volume III**) and the **Permit Plans (Volume III.1)** presented in this Application. Successful implementation of the engineering design and operational programs will ensure compliance with 19.15.30 NMAC. The Sundance West Contingency Plan (**Volume II.5**) is designed to comply with the notification and corrective action as required in 19.15.29 NMAC.*

- L. Each operator shall have an inspection and maintenance plan that includes the following:**
- (1) monthly inspection of leak detection sumps including sampling if fluids are present with analyses of fluid samples furnished to the division; and maintenance of records of inspection dates, the inspector and the leak detection system's status;**
 - (2) semi-annual inspection and sampling of monitoring wells as required, with analyses of ground water furnished to the division; and maintenance of records of inspection dates, the inspector and ground water monitoring wells' status; and**
 - (3) inspections of the berms and the outside walls of pond levees quarterly and after a major rainfall or windstorm, and maintenance of berms in such a manner as to prevent erosion.**

*The Operations, Inspection, and Maintenance Plan for the Sundance West Facility is provided as **Volume II.1**. The Plan describes in detail the methods and frequency for inspections, sampling, recordkeeping, and maintenance for the leak detection sumps, and containment berms.*

- M. Each operator shall have a plan to control run-on water onto the site and run-off water from the site, such that:**
- (1) the run-on and run-off control system shall prevent flow onto the surface waste management facility's active portion during the peak discharge from a 25-year storm; and**
 - (2) run-off from the surface waste management facility's active portion shall not be allowed to discharge a pollutant to the waters of the state or United States that violates state water quality standards.**

***Volume III** (Engineering Design and Calculations) provides the design for berms, conveyance channels, and detention capacity to control run-on/run-off for at least the peak discharge from a 25-year 24-hour storm. Sundance West will prevent discharge of pollutants to the waters of the State or United States in violation of state water quality standards through adherence to*

the Operations, Inspection, and Maintenance Plan (Volume II.1), and construction of the detention ponds described in this Application. If required after consultation with New Mexico Environment Department (NMED), Sundance West will obtain a permit under the Multi-Sector General Permit for Stormwater Discharges (promulgated June 4, 2015).

- N. Contingency plan. Each operator shall have a contingency plan. The operator shall provide the division's environmental bureau with a copy of an amendment to the contingency plan, including amendments required by Paragraph (8) of Subsection N of 19.15.36.13 NMAC; and promptly notify the division's environmental bureau of changes in the emergency coordinator or in the emergency coordinator's contact information. The contingency plan shall be designed to minimize hazards to fresh water, public health, safety or the environment from fires, explosions or an unplanned sudden or non-sudden release of contaminants or oil field waste to air, soil, surface water or ground water. The operator shall carry out the plan's provisions immediately whenever there is a fire, explosion or release of contaminants or oil field waste constituents that could threaten fresh water, public health, safety or the environment; provided that the emergency coordinator may deviate from the plan as necessary in an emergency situation. The contingency plan for emergencies shall:**
- (1) describe the actions surface waste management facility personnel shall take in response to fires, explosions or releases to air, soil, surface water or ground water of contaminants or oil field waste containing constituents that could threaten fresh water, public health, safety or the environment;**
 - (2) describe arrangements with local police departments, fire departments, hospitals, contractors and state and local emergency response teams to coordinate emergency services;**
 - (3) list the emergency coordinator's name; address; and office, home and mobile phone numbers (where more than one person is listed, one shall be named as the primary emergency coordinator);**
 - (4) include a list, which shall be kept current, of emergency equipment at the surface waste management facility, such as fire extinguishing systems, spill control equipment, communications and alarm systems and decontamination equipment, containing a physical description of each item on the list and a brief outline of its capabilities;**
 - (5) include an evacuation plan for surface waste management facility personnel that describes signals to be used to begin evacuation, evacuation routes and alternate evacuation routes in cases where fire or releases of wastes could block the primary routes;**
 - (6) include an evaluation of expected contaminants, expected media contaminated and procedures for investigation, containment and correction or remediation;**
 - (7) list where copies of the contingency plan will be kept, which shall include the surface waste management facility; local police departments, fire departments and hospitals; and state and local emergency response teams;**

- (8) indicate when the contingency plan will be amended, which shall be within five working days whenever:**

 - (a) the surface waste management facility permit is revised or modified;**
 - (b) the plan fails in an emergency;**
 - (c) the surface waste management facility changes design, construction, operation, maintenance or other circumstances in a way that increases the potential for fires, explosions or releases of oil field waste constituents that could threaten fresh water, public health, safety or the environment or change the response necessary in an emergency;**
 - (d) the list of emergency coordinators or their contact information changes; or**
 - (e) the list of emergency equipment changes;**
- (9) describe how the emergency coordinator or the coordinator's designee, whenever there is an imminent or actual emergency situation, will immediately;**

 - (a) activate internal surface waste management facility alarms or communication systems, where applicable, to notify surface waste management facility personnel; and**
 - (b) notify appropriate state and local agencies with designated response roles if their assistance is needed;**
- (10) describe how the emergency coordinator, whenever there is a release, fire or explosion, will immediately identify the character, exact source, amount and extent of released materials (the emergency coordinator may do this by observation or review of surface waste management facility records or manifests, and, if necessary, by chemical analysis) and describe how the emergency coordinator will concurrently assess possible hazards to fresh water, public health, safety or the environment that may result from the release, fire or explosion (this assessment shall consider both the direct and indirect hazard of the release, fire or explosion);**
- (11) describe how, if the surface waste management facility stops operations in response to fire, explosion or release, the emergency coordinator will monitor for leaks, pressure buildup, gas generation or rupture in valves, pipes or the equipment, wherever this is appropriate;**
- (12) describe how the emergency coordinator, immediately after an emergency, will provide for treating, storing or disposing of recovered oil field waste, or other material that results from a release, fire or explosion at a surface waste management facility;**
- (13) describe how the emergency coordinator will ensure that no oil field waste, which may be incompatible with the released material, is treated, stored or disposed of until cleanup procedures are complete; and**
- (14) provide that the emergency coordinator may amend the plan during an emergency as necessary to protect fresh water, public health, safety or the environment.**

*The Contingency Plan included as **Volume II.5** provides detailed information in response to 19.15.36.13.N.1 through 14 NMAC.*

- O. Gas safety management plan.** Each operator of a surface waste management facility that includes a landfill shall have a gas safety management plan that describes in detail procedures and methods that will be used to prevent landfill-generated gases from interfering or conflicting with the landfill's operation and protect fresh water, public health, safety and the environment. The plan shall address anticipated amounts and types of gases that may be generated, an air monitoring plan that includes the vadose zone and measuring, sampling, analyzing, handling, control and processing methods. The plan shall also include final post closure monitoring and control options.

Sundance West does not believe that this Section applies to the proposed Facility. Landfill Gas (LFG) is typically produced when there is a significant supply of readily putrescible organic material, moisture; and a lack of oxygen in the fill. Oil field wastes do not contain significant amounts of putrescible wastes and will not provide a suitable environment for LFG production. Typical oil field wastes will not generate significant quantities of LFG, nor the requisite pressure to promote migration. Conventional LFG monitoring and control systems would not be necessary or effective; and the waste matrix itself would inhibit migration or collection if it contained primarily soils and <5% degradable organics.

*However, a gas monitoring program consisting of testing incoming vehicles during unloading will be utilized to ensure that hydrogen sulfide (H₂S) gas concentrations do not exceed 10 parts per million (ppm) on-site or at the property boundary. Areas around the landfill disposal cells, treating plant, liquid solidification, and evaporation ponds will utilize monitors that issue a visual and audible signal at 10 ppm H₂S to ensure compliance with regulatory alert levels. Routine gas monitoring of the proposed groundwater monitoring wells will also be conducted. Monitoring points may be added or replaced as necessary. Gas safety management details are presented in **Volume II.1**, **Volume II.5**, and the H₂S Prevention and Contingency Plan (**Volume II.3**).*

- P. Training program.** Each operator shall conduct an annual training program for key personnel that includes general operations, permit conditions, emergencies proper sampling methods and identification of exempt and non-exempt waste and hazardous waste. The operator shall maintain records of such training, subject to division inspection, for five years.

Sundance West will comply with this requirement. The Operation, Inspection, and Maintenance Plan (Volume II.1) describes in detail the training programs for site personnel. Training records will be maintained by Sundance West for OCD inspection for a period of not less than five years.

19.15.36.14 SPECIFIC REQUIREMENTS APPLICABLE TO LANDFILLS:

A. General operating requirements.

- (1) The operator shall confine the landfill's working face to the smallest practical area and compact the oil field waste to the smallest practical volume. The operator shall not use equipment that may damage the integrity of the liner system in direct contact with a geosynthetic liner.**

Sundance West will follow accepted principles of landfill engineering for waste placement, compaction and covering methods. Operations will be conducted to maintain a confined working face so that it is sufficiently wide to provide for the safe unloading of trucks, but no greater than necessary. It is estimated that the typical thickness of each daily cell will be approximately 10 to 15 ft, with working slopes not greater than 2:1. In order to compact the waste to the smallest practical volume, the lifts will be spread in layers approximately 2 ft thick and worked by a high ground-pressure bulldozer or equivalent. The Engineering Design (Volume III.1) and the Liner Construction Quality Assurance (CQA) Plan (Volume II.7) mandate a 2 ft thick protective soil layer over the geosynthetic liner. The Operations, Inspection, and Maintenance Plan (Volume II.1) addresses daily fill face activities in detail provided to protect the liners during operations.

- (2) The operator shall prevent unauthorized access by the public and entry by large animals to the landfill's active portion through the use of fences, gates, locks or other means that attain equivalent protection.**

The Sundance West facility will be enclosed with barbed wire fencing, and locking gates (Figure I.2). This will prevent unauthorized access by the public or entry by large animals (Engineering Design, Volume III.1).

(3) The operator shall prevent and extinguish fires.

Sundance West will provide adequate means to prevent and extinguish fires. Fire protection measures are described in detail in the Contingency Plan (Volume II.5). Measures to prevent and control fires are listed in Table I.7, which are augmented by focused employee training.

TABLE I.7
Fire Prevention and Control
Sundance West

1. Fire Prevention Measures

- *Routine cleaning of debris from equipment, particularly radiators.*
- *Random inspections of incoming loads at the Facility Gatehouse to prevent unauthorized waste acceptance.*
- *Training of equipment operators to identify suspect (“hot”) loads and measures for mitigation (e.g., covering smoldering waste with stockpiled soil).*
- *Coordination with local fire response professionals for input on fire prevention and control.*
- *Incompatible waste.*

2. Fire Control Procedures

- *The placement and maintenance of fire extinguishers in all mobile equipment and on-site structures.*
- *Locating cover material or borrow areas near the working face that can be used to smother fires.*
- *Ensuring water availability from the water truck and/or detention basins.*
- *Implementation of a site-wide communication network to optimize mobilization of appropriate response personnel and equipment.*
- *Employee training.*
- *Well established emergency response procedures.*

(4) The operator shall control litter and odors.

As described in the Operations, Inspection, and Maintenance Plan (Volume II.1), Sundance West will be operated using proven disposal practices to minimize and control litter and odor. The waste stream will consist primarily of contaminated soils, which are not prone to wind-blown dispersion. The size of the actual working face will be minimized to facilitate compacting and covering the waste. Also, depending on wind direction and/or velocity,

portable litter fences may be used to control blowing debris, in addition to the perimeter fencing; and most operations can be conducted below the grade of the perimeter berms as necessary.

Staff members will closely monitor the area adjacent to the working face for waste and litter. Litter will be removed and disposed of on a regular basis and within 24-hours if the waste has a potential for diversion or being transported by vectors. In order to control litter and mitigate potential odors, the active working face will typically be covered at the end of each operating day with at least 6 inches of daily cover, or an approved alternative daily cover material, when the solid waste contains significant amounts of waste prone to become windblown. The prevailing wind is from the south and southeast, and adjacent land uses to the north and northwest are open pasture/oil exploration.

- (5) The operator shall not excavate a closed cell or allow others to excavate a closed cell except as approved by the division.**

Excavation of permanently closed cells is not anticipated; however, if a permanently closed cell needs to be excavated, such excavation will be conducted only after prior approval has been obtained from OCD.

- (6) The operator shall provide adequate cover for the landfill's active face as needed to control dust, debris, odors or other nuisances, or as otherwise required by the division.**

*Soil cover, or an approved alternate cover, will be applied to the active face as needed. Approximately 3,000,000 cy of soil equivalent to 15% of the gross airspace, has been devoted to cover operations. In addition to the activities described in the response to 19.15.36.14.A.4 NMAC above regarding debris, odors, or other nuisances, Sundance West will implement dust control measures as outlined in **Table I.8**.*

TABLE I.8
Dust Control
Sundance West

A water truck will be available to apply water or approved recycled waters to the access roads and active areas within the Facility, as needed to reduce dust. In addition, the posted speed limit will be 15 mph inside the Facility. Listed below are routine operations that are the most likely sources of dust, along with recommended primary and secondary control measures:

- **Disposal Operations -**
 - *Primary Control Measure: Pave high-traffic areas, apply water to unpaved roads as necessary, enforce speed limit posted on site.*
 - *Secondary Control Measure: Apply dust surfactant to unpaved portions of the Facility, provide additional pavement.*
- **Excavations -**
 - *Primary Control Measure: Pre-water areas prior to and during excavation. Water areas of excavation and haul roads during and at the end of each day to form a dust-binding soil crust.*
 - *Secondary Control Measure: Phase work to reduce the amount of disturbed surfaces, apply additional water, work at lower elevations (i.e., below-grade) and when wind velocity is high.*
- **Stockpiles -**
 - *Primary Control Measure: Pre-water areas prior to excavation. Apply water to short-term stockpiles and when transporting soils.*
 - *Secondary Control Measure: Control vehicle access to the area. Apply dust surfactant to long-term stockpiles and apply seed/mulch to prevent erosion.*
- **Track out extending onto public roadways –**
 - *Primary Control Measure: Pave on-site entrance road, sweep as necessary.*
 - *Secondary Control Measure: Apply recycled asphalt, gravel pads or similar materials at the transition from unpaved to paved roadways.*
- **Unpaved roadways and parking areas –**
 - *Primary Control Measure: Limit vehicle speed via posting speed limits; apply water, use aggregate or caliche.*
 - *Secondary Control Measure: Apply water and surfactants to unpaved roads and parking lots, as needed, provide additional pavement.*

- (7) **For areas of the landfill that will not receive additional oil field waste for one month or more, but have not reached the final waste elevation, the operator shall provide intermediate cover that shall be:**
- (a) **approved by the division;**
 - (b) **stabilized with vegetation; and**
 - (c) **inspected and maintained to prevent erosion and manage infiltration or leachate during the oil field waste deposition process.**

Sundance West will place an intermediate cover at least 6-inches thick, in addition to daily cover, over areas of the landfill that will not receive further oil field waste for one month or more, but have not reached final elevation. Areas of intermediate cover will be properly sloped to promote clean run-off and minimize leachate generation, and may be used for temporary

*cover stockpiles. Intermediate cover may be seeded with temporary grasses such as rye if the area will not be subject to additional landfiling within 12 months. If long-term re-vegetation is required, native grass will be applied after consultation with the local Natural Resources Conservation Service (NRCS) representative (see Closure/Post-closure Plan, **Volume II.4**). Areas of intermediate cover will be inspected periodically for erosion and settlement, and prompt regrading and maintenance action will be initiated as required. An Intermediate Cover Inspection and Maintenance Plan is provided as **Attachment II.1.G**.*

- (8) When the operator has filled a landfill cell, the operator shall close it pursuant to the conditions contained in the surface waste management facility permit and the requirements of Paragraph (2) of Subsection D of 19.15.36.18 NMAC. The operator shall notify the division's environmental bureau at least three working days prior to a landfill cell's closure.**

*Sundance West will close a landfill cell when it has been filled to final grade in accordance with the conditions established in the Surface Waste Management Facility Permit, 19.15.36.18.D(2) NMAC, and the Closure/Post-closure Plan provided in **Volume II.4** of this Application. Sundance West will install an alternative final cover system in accordance with 19.15.36.14.C(8) NMAC (see **Permit Plans, Volume III.1**). Sundance West will notify OCD at least three working days prior to the landfill cell closure.*

- B. Ground water monitoring program. If fresh ground water exists at a site, the operator shall, unless otherwise approved by the division, establish a ground water monitoring program, approved by the division's environmental bureau, which shall include a ground water monitoring work plan, a sampling and analysis plan, a ground water monitoring system and a plan for reporting ground water monitoring results. The ground water monitoring system shall consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from the uppermost aquifer that:**
 - (1) represent the quality of background ground water that leakage from a landfill has not affected; and**
 - (2) represent the quality of ground water passing beneath and down gradient of the surface waste management facility.**

*Sundance West presents information in **Volume IV.2** (Hydrogeology) relating to the confirmed absence of groundwater resources beneath the proposed Facility. Justification for not monitoring the uppermost aquifer reportedly in excess of 675 ft ± below the site is specifically outlined in **Volume IV.2**. For this reason Sundance is proposing to monitor the vadose zone*

*encountered onsite in monitoring well (re-named monitoring well VZ-4, as discussed in **Volume II.8**), located in the southwest corner of the Sundance West site. Monitoring well VZ-4 is located downgradient of the proposed Sundance West disposal and processing areas, and appears to capture limited vadose water at the interface of the Chinle and Ogallala/Antlers/Gatuña (OAG). This interface in VZ-4 was measured at approximately 60 ft below ground surface (1/12/10). A Vadose Zone Monitoring Plan is included in **Volume II.8** to discuss sampling and analysis.*

C. Landfill design specification. New landfill design systems shall include a base layer and a lower geomembrane liner (e.g., composite liner), a leak detection system, an upper geomembrane liner, a leachate collection and removal system, a leachate collection and removal system protective layer, an oil field waste zone and a top landfill cover.

*Sundance West will construct a liner designed consistent with the requirements of 19.15.36.14.C NMAC at the proposed Facility. The liner design is described in **Volume III.1** (Engineering Design) and will be installed on a compacted subgrade and employ the prescriptive 60-mil high-density polyethylene (HDPE) liner as both the lower and upper components of the double-liner system (see **Permit Plans, Volume III.1**). The leak detection system will consist of a 200-mil geonet installed between the upper and lower geosynthetic liner system that will drain to the sump areas and confirm the integrity of the liner system. A 200-mil geonet will be installed above the upper geosynthetic liner system to reduce any potential for hydrostatic head on the primary liner. The entire liner system will be protected with 2 ft of compacted soil. The proposed alternative liner system was evaluated with the HELP Model (**Volume III.4**) and confirmed to be equivalent to the prescriptive liner system.*

*The liner system is detailed in the **Permit Plans (Volume III.1)**; and in the Liner CQA Plan (**Volume II.7**) provides geosynthetics specifications; and compatibility documentation is demonstrated in **Volume III.6**.*

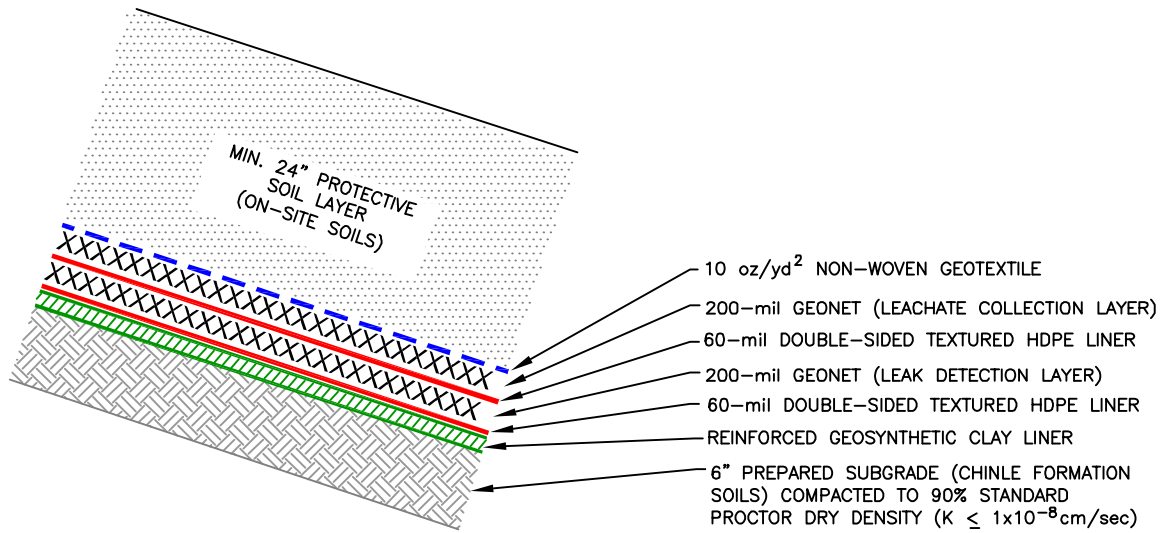
- (1) The base layer shall, at a minimum, consist of two feet of clay soil compacted to a minimum 90 percent standard proctor density (ASTM D-698) with a hydraulic conductivity of 1×10^{-7} cm/sec or less. In areas where no ground water is present, the operator may propose an alternative base layer design, subject to division approval.**

*Sundance West is proposing to install the primary synthetic liner on a 6-inch-thick subgrade, compacted to 90% standard proctor density followed by a geosynthetic clay liner (GCL) with a hydraulic conductivity of 5×10^{-9} cm/sec or less as the alternative base layer design. Calculations and technical properties of the compacted subgrade system and GCL are included in **Volume III**. The **Permit Plans (Volume III.1)** provide design elements of the subgrade component of the composite liner. The proposed alternative liner subgrade was evaluated with the **HELP Model (Volume III.4)** in conjunction with the proposed liner system and confirmed to provide protection equivalent or greater as to the prescriptive liner system.*

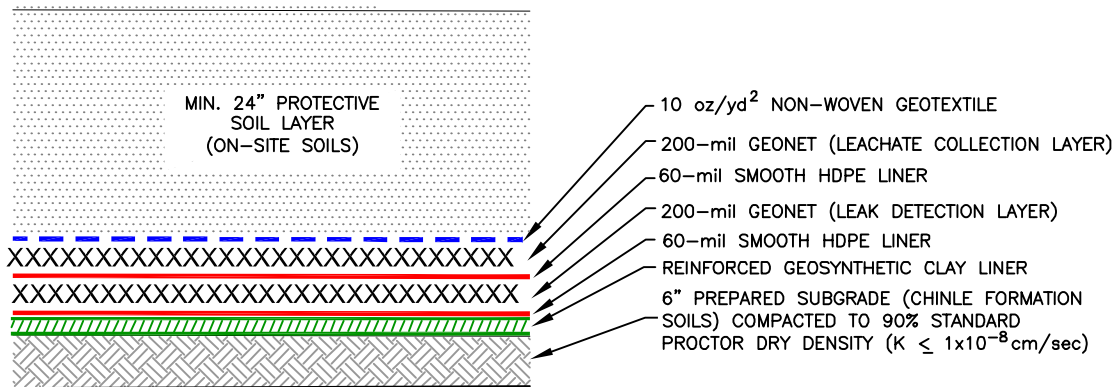
- (2) The lower geomembrane liner shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division.**

*The proposed liner design for the Sundance West Landfill will employ the prescriptive 60-mil high-density polyethylene (HDPE) liner as the lower component of the liner system. HDPE has proven itself over numerous years to provide vastly superior performance to the 30-mil flexible polyvinylchloride (PVC) material that is also prescribed. The ease of seaming and testing HDPE also enhance its use in this application. The liner system is shown on **Figure I.5** and in the **Permit Plans (Volume III.1)**. The **Liner CQA Plan (Volume II.7)** provides geosynthetics specifications; and compatibility documentation is demonstrated in **Volume III.6**.*

- (3) The operator shall place the leak detection system, which shall consist of two feet of compacted soil with a saturated hydraulic conductivity of 1×10^{-5} cm/sec or greater, between the lower and upper geomembrane liners. The leak detection system shall consist of a drainage and collection system placed no more than six inches above the lower geomembrane liner in depressions and sloped so as to facilitate the earliest possible leak detection at designated collection points. Drainage piping shall be designed to withstand chemical attack from oil field waste and leachate and structural loading and other stresses and disturbances from overlying oil field waste, cover materials, equipment operation, expansion or contraction, and to facilitate clean-out maintenance. The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe. The slope of the landfill sub-grade and drainage pipes and laterals shall be at least two percent grade; *i.e.*, two feet of vertical drop per 100 horizontal feet. The piping collection network shall be comprised of solid and perforated pipe having a minimum diameter of four inches**



SIDEWALL LINER SYSTEM



FLOOR LINER SYSTEM

LINER SCHEMATIC

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO



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Consulting Engineers

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DATE: 01/05/2015

CAD: LINER SCHEM.dwg

PROJECT #: 530.06.01

DRAWN BY: DMI

REVIEWED BY: DRT

APPROVED BY: JKG

gei@gordonenvironmental.com

FIGURE I.5

and a minimum wall thickness of schedule 80. The operator shall seal a solid drainage pipe to convey collected liquids to a corrosion-proof sump or sumps located outside the landfill's perimeter for observation, storage, treatment or disposal. The operator may install alternative designs as approved by the division.

*Sundance West proposes to install a leak detection system consisting of a 200-mil geonet between the lower (primary) and upper (secondary) liners, as the preferred alternative to the prescriptive 2-ft of compacted soil with a saturated hydraulic conductivity (k_{sat}) of 1×10^{-5} cm/sec. The geonet will have a minimum hydraulic conductivity (k) of 10 cm/sec. Calculations, compatibility, demonstrations and technical properties of the leak detection system are included in **Volume III** which document superior performance vs. the prescriptive design. The **Permit Plans (Volume III.1)** provide design elements of the leak detection system including:*

- *Minimum 2.8% slope on the liner and leak detection system vs. $\geq 2\%$ standard*
- *Sump and riser pipe details*
- *Solid and perforated pipe details*
- *Composite liner (i.e., FML/GCL) beneath the entire double-lined footprint*

The Engineering Design (Volume III.1) and the Permit Plans provide detailed specifications demonstrating that the performance of the materials exceed the prescriptive standards. This use of the geonet in this alternative liner cross-section was evaluated with the HELP Model (Volume III.4) and confirmed to provide protection superior to the prescriptive liner system.

- (4) The operator shall place the upper geomembrane liner, which shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division, over the leak detection system.**

*Sundance West will construct a liner design that will employ the prescriptive 60-mil high-density polyethylene (HDPE) liner as the upper component of the liner system. The liner system is shown on **Figure I.5** and the **Permit Plans (Volume III.1)**; and the Liner CQA Plan (**Volume II.7**) provides geosynthetics specifications; and compatibility documentation is demonstrated in **Volume III.6**.*

- (5) The operator shall place the leachate collection and removal system, which shall consist of at least two feet of compacted soil with a saturated hydraulic conductivity of 1×10^{-2} cm/sec or greater, over the upper geomembrane**

liner to facilitate drainage. The leachate collection and removal system shall consist of a drainage and collection and removal system placed no more than six inches above the upper geomembrane liner in depressions and sloped so as to facilitate the maximum leachate collection. Piping shall be designed to withstand chemical attack from oil field waste or leachate and structural loading and other stresses and disturbances from overlying oil field waste, cover materials, equipment operation, expansion or contraction and to facilitate clean-out maintenance. The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe. The slope of the upper geomembrane liner and drainage lines and laterals shall be at least two percent grade; *i.e.*, two feet of vertical drop per 100 horizontal feet. The piping collection network shall be comprised of solid and perforated pipe having a minimum diameter of four inches and a minimum wall thickness of schedule 80. The operator shall seal a solid drainage pipe to convey collected fluids outside the landfill's perimeter for storage, treatment and disposal. The operator may install alternative designs as approved by the division.

Sundance West is proposing to install a leachate collection and removal system consisting of a 200-mil geocomposite above the upper (secondary) liner, as an alternative to the prescriptive 2 ft of compacted soil with a saturated hydraulic conductivity of 1×10^{-5} cm/sec. The geocomposite will have a minimum hydraulic conductivity (k) of 10 cm/sec. This collection zone will be protected with two ft of compacted soil with a hydraulic conductivity of 1×10^{-5} cm/sec. This component of the alternative liner cross-section was evaluated with the HELP Model (Volume III.4) and confirmed to provide protection and performance equivalent to the prescriptive liner system. Drainage piping consisting of appropriately sized HDPE pipe will be installed to monitor for leakage. Calculations, compatibility, and technical properties of the leak detection system are included in Volume III, Engineering Design and Calculations. Permit Plans (Volume III.1) provides design elements of the leachate collection and removal system including:

- *Minimum 2% slope on the liner and leak detection system*
- *Solid and perforated pipe details*
- *Sump and riser pipe*
- *Composite liner (*i.e.*, FML/GCL) under each leak detection sump*

The Engineering Design (Volume III.1) and the Permit Plans provide detailed specifications for the piping collection systems demonstrating that the materials exceed the prescriptive standards.

- (6) **The operator shall place the leachate collection and removal system protection layer, which shall consist of a soil layer at least one foot thick with a saturated hydraulic conductivity of 1×10^{-2} cm/sec or greater, over the leachate collection and removal system.**

Sundance West is proposing to install a 200-mil geonet protected by 2-ft of uncompacted soil with a minimum k_{sat} of 1×10^{-5} cm/sec, or greater, as the protection layer over the leachate collection and removal system. This component of the alternative liner cross-section was evaluated with the HELP Model (Volume III.4) and confirmed to provide protection and performance superior to the prescriptive liner system. HELP Modeling results indicate a maximum head of 2.0 inches on the liner vs. the design standard of ≤ 12 inches.

- (7) **The operator shall place oil field waste over the leachate collection and removal system protective layer.**

Sundance West proposes to place oil field waste over the PSL for the leachate collection and removal system. The first lift, up to 5 ft in thickness, will consist of select uncompacted materials screened for items that could damage the liner (i.e., pipes, metal, etc.).

- (8) **The top landfill cover design shall consist of the following layers (top to bottom): a soil erosion layer composed of at least 12 inches of fertile topsoil re-vegetated in accordance with the post closure provisions of Subparagraph (b) of Paragraph (2) of Subsection D of 19.15.36.18 NMAC; a protection or frost protection layer composed of 12 to 30 inches of native soil; a drainage layer composed of at least 12 inches of sand or gravel with a saturated hydraulic conductivity of 1×10^{-2} cm/sec or greater and a minimum bottom slope of four percent, a hydraulic barrier-layer-geomembrane (minimum of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division); and a gas vent or foundation layer composed of at least 12 inches of sand or gravel above oil field waste with soils compacted to the minimum 80 percent Standard Proctor Density. The operator shall install the top landfill cover within one year of achieving the final landfill cell waste elevation. The operator shall ensure that the final landfill design elevation of the working face of the oil field waste is achieved in a timely manner with the date recorded in a field construction log. The operator shall also record the date of top landfill cover installation to document the timely installation of top landfill covers. The operator shall provide a minimum of three working days notice to the division in advance of the top landfill cover's installation to allow the division to witness the top landfill cover's installation.**

Sundance West proposes an alternative final cover system as described in 19.15.36.14.C(9) NMAC. The final cover design is an evapotranspiration (ET) cap consisting of on-site soils. This is a more sustainable design than the prescriptive standard, as it does not require importation of off-site materials (i.e., HDPE from Houston) or extensive maintenance due to potential slippage (Figure I.6).

- (9) **Alternatively, the operator may propose a performance-based landfill design system using geosynthetics or geocomposites, including geogrids, geonets, geosynthetic clay liners, composite liner systems, etc., when supported by EPA’s “hydrologic evaluation of landfill performance” (HELP) model or other division-approved model. The operator shall design the landfill to prevent the “bathtub effect”. The bathtub effect occurs when a more permeable cover is placed over a less permeable bottom liner or natural subsoil.**

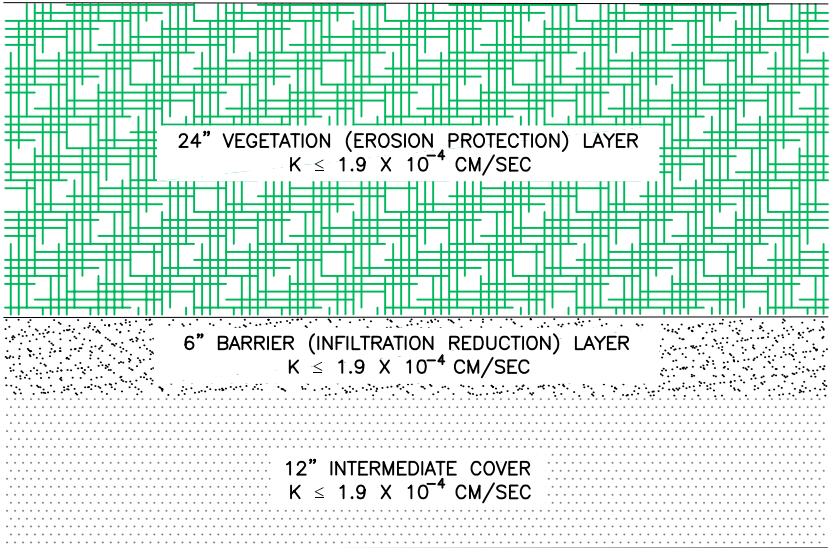
Sundance West has undertaken an evaluation of the materials and climate of the Facility based on the United States Environmental Protection Agency’s (USEPA) HELP Model and is proposing an alternative final cover system (Figure I.6) based on the ET technology. The proposed final cover will include 2 ft of vegetation cover on top of a 0.5-ft barrier layer as demonstrated in Volume III.4.

- (10) **External piping, e.g., leachate collection, leak detection and sump removal systems shall be designed for installation of a sidewall riser pipe. Pipes shall not penetrate the liner with the exception of gas vent or collection wells where the operator shall install a flexible clamped pipe riser through the top landfill cover liner that will accommodate oil field waste settling and will prevent tears.**

Sundance West proposes to install the necessary piping to transfer liquids collected in the leak detection and leachate collection sumps up the sideslope and through the proposed alternative final cover system on the sideslope. This will allow for the measurement and removal of liquids that accumulate in either system. Risers for both systems will be constructed of 12 in dia. HDPE; and there are no pipe penetrations of either the primary or secondary liners.

D. Liner specifications and requirements.

- (1) **General requirements.**



FINAL COVER DETAIL

FINAL COVER PROFILE

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO



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Consulting Engineers

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DATE: 07/14/2016	CAD: FINAL COVER.dwg	PROJECT #: 530.06.01
DRAWN BY: DMI	REVIEWED BY: DRT	FIGURE I.6
APPROVED BY: IKG	get@gordonenvironmental.com	

- (a) **Geomembrane liner specifications.** Geomembrane liners shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division. Geomembrane liners shall have a hydraulic conductivity no greater than 1×10^{-9} cm/sec. Geomembrane liners shall be composed of impervious, geosynthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. Liners shall also be resistant to ultraviolet light, or the operator shall make provisions to protect the material from sunlight. Liner compatibility shall comply with EPA SW-846 method 9090A.

*Sundance West proposes a landfill liner design that will employ the prescriptive 60-mil HDPE liner as the upper component and the lower component of the liner system. The liner system is shown on the **Permit Plans (Volume III.1)**; the Liner CQA Plan (**Volume II.7**) provides geosynthetics specifications and installation standards; and compatibility documentation is demonstrated in **Volume III.6**.*

- (b) **Liners shall be able to withstand projected loading stresses, settling and disturbances from overlying oil field waste, cover materials and equipment operations.**

*The liner system will be able to withstand projected loading stresses, settling, and disturbances from overlying oil field waste, cover materials and equipment operations as demonstrated in the Liner Stress Analysis (**Volume III.7**), and Settlement Calculations (**Volume III.8**).*

- (c) **The operator shall construct liners with a minimum of two percent slope to promote positive drainage and to facilitate leachate collection and leak detection.**

*Sundance West will construct the liner with a 2.8% slope to promote positive drainage and to facilitate leachate collection and leak detection. The liner system design is shown on the **Permit Plans (Volume III.1)**.*

(2) Additional requirements for geomembranes.

- (a) **Geomembranes shall be compatible with the oil field waste to be disposed. Geomembranes shall be resistant to chemical attack from the oil field waste or leachate. The operator shall demonstrate this**

by means of the manufacturer's test reports, laboratory analyses or other division-approved method.

The liner system geosynthetics specifications are provided in the CQA Plan (Volume II.7); and compatibility documentation is demonstrated in Volume III.6.

- (b) **Geosynthetic material the operator installs on a slope greater than 25 percent shall be designed to withstand the calculated tensile forces acting upon the material. The design shall consider the maximum friction angle of the geosynthetic with regard to a soil-geosynthetic or geosynthetic-geosynthetic interface and shall ensure that overall slope stability is maintained.**

There are no liner systems designed for slopes greater than 25%. The liner system will be able to withstand calculated tensile forces acting upon the material as demonstrated in the Liner Stress Analysis (Volume III.7), and Settlement Calculations (Volume III.8).

- (c) **The operator shall thermally seal (hot wedge) field seams in geosynthetic material with a double track weld to create an air pocket for non-destructive air channel testing. In areas where double-track welding cannot be achieved, the operator may propose alternative thermal seaming methods. A stabilized air pressure of 35psi, plus or minus one percent, shall be maintained for at least five minutes. The operator shall overlap liners four to six inches before seaming, and shall orient seams parallel to the line of maximum slope; i.e., oriented along, not across, the slope. The operator shall minimize the number of field seams in corners and irregularly shaped areas. The operator shall use factory seams whenever possible. The operator shall not install horizontal seams within five feet of the slope's toe. Qualified personnel shall perform all field seaming.**

The Engineering Design (Volume III.1) and Liner CQA Plan (Volume II.7) provide detailed specifications for the installation of geosynthetics in compliance with this section, including:

- *Foundation preparation*
- *Maximum (4:1) and minimum slopes (2.8%)*
- *Thermal seaming and testing procedures*
- *Field seams that will be oriented parallel to the line of maximum slope.*
- *Minimizing the number of field seams in corners and irregularly shaped areas.*
- *No horizontal seams within 5 ft of the toe of slope.*

All liner systems will be installed by qualified contractors with a least 10 million square ft of geosynthetic installation experience.

E. Requirements for the soil component of composite liners.

- (1) The operator shall place and compact the base layer to 90 percent standard proctor density on a prepared sub-grade.**

Sundance West is proposing to place and compact the base layer to 90% Standard Proctor Density on a prepared subgrade of in situ soils per the CQA Plan (Volume II.7). Calculations and technical properties of the subgrade are included in Volume III, the Permit Plans provides design elements of the subgrade component of the composite liner.

- (2) The soil surface upon which the operator installs a geosynthetic shall be free of stones greater than one half inch in any dimension, organic matter, local irregularities, protrusions, loose soil and abrupt changes in grade that could damage the geosynthetic.**

Sundance West will install the GCL on a surface that is free of angular stones (maximum 1/2-inch), organic matter, local irregularities, protrusions, loose soil or abrupt changes in grade that could potentially damage the GCL (Volume II.7). Technical properties of the geosynthetic are provided in the CQA Plan, Volume II.7. The Permit Plans (Volume III.1) provide installation guidance for the geosynthetic component of the composite liner.

- (3) The operator shall compact a clay soil component of a composite liner to a minimum of 90 percent standard proctor density, which shall have, unless otherwise approved by the division, a plasticity index greater than 10 percent, a liquid limit between 25 and 50 percent, a portion of material passing the no. 200 sieve (0.074 mm and less fraction) greater than 40 percent by weight; and a clay content greater than 18 percent by weight.**

Sundance West proposes to install a GCL below the synthetic liner. The soil subgrade below the GCL will be in situ materials with superior foundation characteristics to the fine-grained soils specified. Calculations and technical properties of the GCL and compacted soil subgrade system are included in Volume III. The Permit Plans (Volume III.1) provide design elements of this component of the composite liner. This component of the alternative liner system was evaluated with the HELP Model (Volume III.4) and confirmed to provide protection and performance equivalent to the prescriptive liner system.

- F. The leachate collection and removal system protective layer and the soil component of the leak detection system shall consist of soil materials that shall be free of organic matter, shall have a portion of material passing the no. 200 sieve no greater than five percent by weight and shall have a uniformity coefficient (Cu) less than 6, where Cu is defined as D_{60}/D_{10} . Geosynthetic materials or geocomposites including geonets and geotextiles, if used as components of the leachate collection and removal or leak detection system, shall have a hydraulic conductivity, transmissivity and chemical and physical qualities that oil field waste placement, equipment operation or leachate generation will not adversely affect. These geosynthetics or geocomposites, if used in conjunction with the soil protective cover for liners, shall have a hydraulic conductivity designed to ensure that the liner's hydraulic head never exceeds one foot.**

*Sundance West proposes to install a leak detection system consisting of a 200-mil geonet between the primary and secondary liners. The geocomposite has a minimum k value of 10 cm/sec. Calculations, compatibility, demonstrations and technical properties of the leak detection system are included in **Volume III**. The **Permit Plans** provide design elements of the leak detection system including:*

- *Minimum 2.8% slope on the liner and leak detection system*
- *Sump and riser pipe detail*
- *Composite liner (i.e., FML/GCL) under each leak detection sump*

*This component of the alternative liner cross-section was evaluated with the **HELP Model (Volume III.4)** and confirmed to provide protection and performance equivalent to the prescriptive liner system.*

- G. Landfill gas control systems. If the gas safety management plan or requirements of other federal, state or local agencies require the installation of a gas control system at a landfill, the operator shall submit a plan for division approval, which shall include the following:**
- (1) the system's design, indicating the location and design of vents, barriers, collection piping and manifolds and other control measures that the operator will install (gas vent or collection wells shall incorporate a clamped and seamed pipe riser design through the top cover liner);**

Not Applicable. LFG is generated from the decomposition of readily degradable organic material, such as paper and other organic household and commercial wastes. The primary by-products, typically comprising over 99% of LFG by volume, are methane and carbon dioxide as stated in USEPA's AP-42 "Emission Factor Documentation" (08/19/97):

AP 42 – 2.4 Municipal Solid Waste Landfills

2.4.4 Emissions

Methane (CH₄) and CO₂ are the primary constituents of landfill gas, and are produced by microorganisms within the landfill under anaerobic conditions. Transformations of CH₄ and CO₂ are mediated by microbial populations that are adapted to the cycling of materials in anaerobic environments.

LFG is produced when there is a significant supply of readily putrescible organic material and moisture; plus a lack of oxygen. Oil field wastes do not provide a suitable environment for LFG production, and over 95% of the projected waste types would be subtracted from the decomposition equation used to demonstrate compliance with air quality requirements. Typical oil field wastes will not generate significant quantities of LFG, or the requisite pressure to promote migration. Conventional landfill gas monitoring and control systems are not necessary or effective, and the waste matrix itself would inhibit migration or collection if it contained < 5% degradable organics.

In addition, the New Mexico Environment Department (NMED) and USEPA do not mandate the installation of LFG controls until the landfill reaches a design capacity of over 3.2 million cubic yards (cy); or if migration is confirmed. Of this volume, typically over 75% is assumed to be organic waste subject to decomposition (as opposed to <5% of oil field waste). A surface waste management facility would need a design capacity of 64 million cy to qualify for landfill gas controls under NMED and USEPA standards, and Sundance West has a design capacity of 17 million ± cubic yards.

- (2) if gas recovery is proposed, the design of the proposed gas recovery system and the system's major on-site components, including storage, transportation, processing, treatment or disposal measures required in the management of generated gases, condensates or other residues;**

Sundance West does not propose to conduct gas recovery or processing, as it will not be practical.

- (3) if gas processing is proposed, a processing plan designed in a manner that does not interfere or conflict with the activities on the site or required control measures or create or cause danger to persons or property;**
- (4) if gas disposal is proposed, a disposal plan designed:**

- (a) in a manner that does not interfere or conflict with the activities on the site or with required control measures;
- (b) so as not to create or cause danger to persons or property; and
- (c) with active forced ventilation, using vents located at least one foot above the landfill surface at each gas vent's location;
- (5) physical and chemical characterization of condensates or residues that are generated and a plan for their disposal;

Not Applicable.

- (6) means that the operator will implement to prevent gas' generation and lateral migration such that
 - (a) the concentration of the gases the landfill generates does not exceed 25 percent of the lower explosive limit for gases in surface waste management facility structures (excluding gas control or recovery system components); and
 - (b) the concentration of gases does not exceed the lower explosive limit for gases at the surface waste management facility boundary; and

In addition the following factors which inhibit the potential generation of other explosive gases (i.e., CH₄):

- *The oil field waste proposed to be accepted by Sundance West is primarily non-putrescible (i.e., < 5%).*
- *The semi-arid climate characteristics of Lea County (low precipitation e.g., 12 inches of annual rainfall) (Volume IV.1).*
- *Low potential for moisture contribution from other sources, due to the installation of engineered control systems that divert run-on away from the disposal area.*
- *Waste is encapsulated by multilayered liner and cover systems.*

- (7) a routine gas monitoring program providing for monitoring at least quarterly; the specific type and frequency of monitoring to be determined based on the following:
 - (a) soil conditions;
 - (b) the hydrogeologic and hydraulic conditions surrounding the surface waste management facility; and
 - (c) the location of surface waste management facility structures and property lines.

Sundance West will implement a routine gas monitoring program for H₂S as outlined in Volume II.3; Hydrogen Sulfide Prevention and Contingency Plan and Volume II.1; Operations, Inspection, and Maintenance Plan.

H. Landfill gas response. If gas levels exceed the limits specified in Paragraph (6) of Subsection G of 19.15.36.14 NMAC, the operator shall:

- (1) immediately take all necessary steps to ensure protection of fresh water, public health, safety and the environment and notify the division;**
- (2) within seven days of detection, record gas levels detected and a description of the steps taken to protect fresh water, public health, safety and the environment;**
- (3) within 30 days of detection, submit a remediation plan for gas releases that describes the problem's nature and extent and the proposed remedy; and**
- (4) within 60 days after division approval, implement the remediation plan and notify the division that the plan has been implemented.**

Sundance West will comply with this section in the event that landfill gas is detected in the groundwater monitoring system; and emergency response to elevated H₂S levels is addressed in Volume II.3; Hydrogen Sulfide Prevention and Contingency Plan.

19.15.36.15 SPECIFIC REQUIREMENTS APPLICABLE TO LANDFARMS:

Not Applicable. Sundance West does not propose to operate an OCD regulated landfill.

19.15.36.16 SMALL LANDFARMS:

Small landfarms as defined in Paragraph (5) of Subsection A of 19.15.36.7 NMAC are exempt from 19.15.36 NMAC except for the requirements specified in 19.15.36.16 NMAC.

Not Applicable.

19.15.36.17 SPECIFIC REQUIREMENTS APPLICABLE TO EVAPORATION, STORAGE, TREATMENT AND SKIMMER PONDS:

- A. Engineering design plan. An applicant for a surface waste management facility permit or modification requesting inclusion of a skimmer pit; an evaporation, storage or treatment pond; or a below-grade tank shall submit with the surface waste management facility permit application a detailed engineering design plan, certified by a registered profession engineer, including operating and maintenance procedures; a closure plan; and a hydrologic report that provides sufficient information and detail on the site's topography, soils, geology, surface**

hydrology and ground water hydrology to enable the division to evaluate the actual and potential effects on soils, surface water and ground water. The plan shall include detailed information on dike protection and structural integrity; leak detection, including an adequate fluid collection and removal system; liner specifications and compatibility; freeboard and overtopping prevention; prevention of nuisance and hazardous odors such as H₂S; an emergency response plan, unless the pit is part of a surface waste management facility that has an integrated contingency plan; type of oil field waste stream, including chemical analysis; climatological factors, including freeze-thaw cycles; a monitoring and inspection plan; erosion control; and other pertinent information the division requests.

*The proposed Sundance West Facility includes both a Processing Area and a Landfill. The Processing Area design includes (at full build-out) 10 evaporation ponds. **Volume III** (Engineering Design and Calculations), certified by I. Keith Gordon, P.E., provides the detailed engineering design plan for the proposed surface waste management facility, including:*

- *liner details*
- *calculations detailing dike protection and structural integrity*
- *leak detection system*
- *liner specifications and compatibility documentation*
- *freeboard and overtopping (wave action) analysis*
- *erosion control*
- *fluid collection and removal system*

Volume II (Facility Management Plans) describes:

- *operation and maintenance procedures*
- *Closure/Post-closure Plan*
- *H₂S Prevention and Contingency Plan*
- *emergency response plan*
- *monitoring and inspection plan*
- *oil field waste management plan*
- *Contingency Plan*
- *chemical analysis*

Volume IV (Siting and Hydrogeology) describes:

- *site topography*
- *soils*
- *geology*
- *surface hydrology*
- *groundwater hydrology*
- *climatology*

B. Construction, standards.

- (1) In general.** The operator shall ensure each pit, pond and below-grade tank is designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment.

The Liner CQA Plan (Volume II.7) provides detailed procedures for the proper construction of the berms and liner system in compliance with the Permit Plans (Volume III.1). The Processing Area, including pits, and ponds, is designed and will be constructed and operated so as to protect fresh water, safety, and the environment.

- (2) Liners required.** Each pit or pond shall contain, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

Sundance West will comply with this requirement. Volume III.1 provides the detail for the primary liner, secondary liner, and leak detection system that will be installed for each evaporation pond in compliance with these requirements.

- (3) Liner specifications.** Liners shall consist of a 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner approved by the division. Synthetic (geomembrane) liners shall have a hydraulic conductivity no greater than 1×10^{-9} cm/sec. Geomembrane liners shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. Liner materials shall be resistant to ultraviolet light, or the operator shall make provisions to protect the material from sunlight. Liner compatibility shall comply with EPA SW-846 method 9090A.

The liner system design for the Processing Area ponds has been designed consistent with Section 19.15.36.17.B.(3) NMAC. The liner design will employ the prescriptive 60-mil HDPE liner as the upper component and the lower component of the liner system. The leak detection system will consist of a 200-mil HDPE geonet installed between the upper and secondary liner system that will drain to the sump areas. HDPE is the preferred material for waste containment based on over 30 years of successful applications.

*The liner system is shown on the **Permit Plans (Volume III.1)**; and the Liner CQA Plan (Volume II.7) provides geosynthetics specifications; and compatibility documentation is demonstrated in Volume III.6.*

- (4) Alternative liner media.** The division may approve other liner media if the operator demonstrates to the division's satisfaction that the alternative liner protects fresh water, public health, safety and the environment as effectively as the specified media.

The liner design will employ the prescriptive 60-mil HDPE liner as the upper component and lower component of the liner system. The alternative leak detection system will consist of a 200-mil geonet installed between the upper and secondary liner system draining towards the sump areas.

- (5) Each pit or pond shall have a properly constructed foundation or firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities, in order to prevent rupture or tear of the liner and an adequate anchor trench; and shall be constructed so that the inside grade of the levee is no steeper than 2H:1V. Levees shall have an outside grade no steeper than 3H:1V. The levees' tops shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance. The operator shall minimize liner seams and orient them up and down, not across a slope. The operator shall use factory seams where possible. The operator shall ensure field seams in geosynthetic material are thermally seamed (hot wedge) with a double track weld to create an air pocket for non-destructive air channel testing. A stabilized air pressure of 35 psi, plus or minus one percent, shall be maintained for at least five minutes. The operator shall overlap liners four to six inches before seaming, and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope. The operator shall minimize the number of field seams in corners and irregularly shaped areas. There shall be no horizontal seams within five feet of the slope's toe. Qualified personnel shall perform field seaming.**

The Engineering Design (Volume III.1) and Liner CQA Plan (Volume II.7) provide detailed specifications for the installation of geosynthetics in compliance with this section, including:

- *Foundation preparation*
- *Maximum (3:1) and minimum slopes (2.8%)*
- *Thermal seaming and testing procedures*
- *Field seams that will be oriented parallel to the line of maximum slope*
- *Minimizing the number of field seams in corners and irregularly shaped areas*

- *No horizontal seams within five ft of the toe of slope*

Liner systems will be installed by qualified contractors with a least 10 million square ft of geosynthetics installation experience.

- (6) At a point of discharge into or suction from the lined pit, the liner shall be protected from excessive hydrostatic force or mechanical damage, and external discharge lines shall not penetrate the liner.**

*The liner details shown on the **Permit Plans (Volume III.1)** indicate the methods used to protect the liner. To address the hydrostatic forces and potential mechanical damage to the primary liner as a result of pumping into or suction out of the lined ponds; an additional sheet of 60-mil HDPE liner will be welded overtop of the primary liner in the areas that these activities are expected to be conducted. The **Permit Plans** shows the location of the additional 60-mil HDPE layer. There are no liner pipe penetrations in the facility design with the exception of the leak detection riser at the top of the slope.*

- (7) Primary liners shall be constructed of a synthetic material.**

See response to 19.15.36.17.B.(3) NMAC.

- (8) A secondary liner may be a synthetic liner or an alternative liner approved by the division. Secondary liners constructed with compacted soil membranes, i.e., natural or processed clay and other soils, shall be at least three feet thick, placed in six-inch lifts and compacted to 95 percent of the material's standard proctor density, or equivalent. Compacted soil membranes used in a liner shall undergo permeability testing in conformity with ASTM standards and methods approved by the division before and after construction. Compacted soil membranes shall have a hydraulic conductivity of no greater than 1×10^{-8} cm/sec. The operator shall submit results of pre-construction testing to the division for approval prior to construction.**

Sundance West is not proposing a secondary alternate liner constructed of a soil component. Sundance West proposes to utilize a secondary liner option consisting of 60-mil HDPE. See response to 19.15.36.17.B.(4) NMAC.

- (9) The operator shall place a leak detection system between the lower and upper geomembrane liners that consists of two feet of compacted soil with a saturated hydraulic conductivity of 1×10^{-5} cm/sec or greater to facilitate**

drainage. The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped so as to facilitate the earliest possible leak detection. Piping used shall be designed to withstand chemical attack from oil field waste or leachate; structural loading from stresses and disturbances from overlying oil field waste, cover materials, equipment operation or expansion or contraction; and to facilitate clean-out maintenance. The material placed between the pipes and laterals shall be sufficiently permeable to allow the transport of fluids to the drainage pipe. The slope of the interior sub-grade and of drainage lines and laterals shall be at least a two percent grade, i.e., two feet vertical drop per 100 horizontal feet. The piping collection system shall be comprised of solid and perforated pipe having a minimum diameter of four inches and a minimum wall thickness of schedule 80. The operator shall seal a solid sidewall riser pipe to convey collected fluids to a collection, observation and disposal system located outside the perimeter of the pit or pond. The operator may install alternative methods as approved by the division.

*Sundance West is proposing to install an alternative leak detection system consisting of a 200-mil geonet between the primary and secondary liners. The geocomposite will have a minimum k value of 10 cm/sec. Calculations, compatibility, demonstrations and technical properties of the leak detection system are included in **Volume III**. The **Permit Plans (Volume III.1)** provide design elements of the leak detection system including:*

- *Minimum 2.8% slope on the liner and leak detection system*
- *Sump and riser pipe details*
- *Composite liner (i.e., FML/GCL) under each leak detection sump*

*The Engineering Design and the **Permit Plans (Volume III.1)** provide detailed specifications for the piping collection systems demonstrating that the materials exceed the prescriptive standards.*

- (10) The operator shall notify the division at least 72 hours prior to the primary liner's installation so that a division representative may inspect the leak detection system before it is covered.**

Sundance West will provide a milestone schedule to OCD in advance of liner construction, and notify OCD at least 72 hours prior to the primary liner installation.

- (11) The operator shall construct pits and ponds in a manner that prevents overtopping due to wave action or rainfall, and maintain a three foot freeboard at all times.**

Sundance West will comply with this requirement. Volume III provides detailed calculations demonstrating compliance with wave action, rainfall, and freeboard standards.

- (12) The maximum size of an evaporation or storage pond shall not exceed 10 acre-feet.**

Sundance West will comply with this requirement. The proposed ponds are each approximately 9.5 acre-ft in capacity. Volume III.1, Engineering Design provides detail calculations regarding capacity.

C. Operating standards.

- (1) The operator shall ensure that only produced fluids or non-hazardous waste are discharged into or stored in a pit or pond; and that no measurable or visible oil layer is allowed to accumulate or remain anywhere on a pit's surface except an approved skimmer pit.**

The Oil Field Waste Management Plan (Volume II.2) provides detailed procedures to ensure that only produced fluids are placed into or stored in a pit or pond, including load rejection procedures. The Operations, Inspection, and Maintenance Plan (Volume II.1) addresses measurable or visible oil layer.

- (2) The operator shall monitor leak detection systems pursuant to the approved surface waste management facility permit conditions, maintain monitoring records in a form readily accessible for division inspection and report discovery of liquids in the leak detection system to the division within 24 hours.**

Sundance West will comply with this requirement. The Operations, Inspection, and Maintenance Plan (Volume II.1) provides a more detailed description of monitoring, recordkeeping and procedures for management of liquids in the leak detection system.

- (3) Fencing and netting. The operator shall fence or enclose pits or ponds to prevent unauthorized access and maintain fences in good repair. Fences are not required if there is an adequate perimeter fence surrounding the surface waste management facility. The operator shall screen, net, cover or otherwise render non-hazardous to migratory birds tanks exceeding eight feet in diameter and exposed pits and ponds. Upon written application, the division may grant an exception to screening, netting or covering requirements upon the operator's showing that an alternative method will**

adequately protect migratory birds or that the tank or pit is not hazardous to migratory birds.

*The perimeter of the Sundance West Facility (i.e., the Processing Area and the Landfill) will be enclosed with barbed wire fencing and locking gates. The **Permit Plans (Volume III.1)** graphically describes the proposed locations of the existing and proposed perimeter fencing.*

*Sundance West requests an alternate method to the prescriptive migratory bird screening requirement. The **Migratory Bird Protection Plan (Volume II.6)** describes the proposed alternate methodology to the screening requirement of the storage ponds. This Plan describes visual inspections and migratory bird retrieval and clean-up procedures in the unlikely event that birds require decontamination.*

- (4) The division may approve spray systems to enhance natural evaporation. The operator shall submit engineering designs for spray systems to the division's environmental bureau for approval prior to installation. The operator shall ensure that spray evaporation systems are operated so that spray-borne suspended or dissolved solids remain within the perimeter of the pond's lined portion.**

*Sundance West proposes to install a spray system utilizing mechanical evaporators to enhance natural evaporation in the proposed ponds. The **Operations, Inspection, and Maintenance Plan (Volume II.1)** provides the design, operation and maintenance of the proposed system. The proposed mechanical evaporation system is designed to prevent spray-borne suspended or dissolved solids from exiting the perimeter of the pond's liner area. In addition, this system will not be operated when wind velocity exceeds twelve miles per hour (sustained) via automatic shut-off mechanisms. There is also a minimum setback between the ponds and the property line of 50 ft.*

- (5) The operator shall use skimmer pits or tanks to separate oil from produced water prior to water discharge into a pond. The operator shall install a trap device in connected ponds to prevent solids and oils from transferring from one pond to another unless approved in the surface waste management facility permit.**

*Sundance West will utilize tanks to process water accepted at the Facility that requires separation of oil from water as described in the **Operations, Inspection, and Maintenance Plan***

(Volume II.1). No oil processing is proposed in open pits, and oil residues will be removed from water prior to discharging into the evaporation ponds.

D. Below-grade tanks and sumps.

- (1) The operator shall construct below-grade tanks with secondary containment and leak detection. The operator shall not allow below-grade tanks to overflow. The operator shall install only below-grade tanks of materials resistant to the tank's particular contents and to damage from sunlight.**

Sundance West does not propose to construct or operate below-grade tanks at the proposed Facility.

- (2) The operator shall test sumps' integrity annually, and shall promptly repair or replace a sump that does not demonstrate integrity. The operator may test sumps that can be removed from their emplacements by visual inspection. The operator shall test other sumps by appropriate mechanical means. The operator shall maintain records of sump inspection and testing and make such records available for division inspection.**

The Sundance West Facility design includes below-grade sumps. The tank farm, landfill and evaporation pond containment will include leak detection systems and sumps which will be monitored in compliance with 19.15.36.17.D(2) NMAC.

E. Closure required. The operator shall properly close pits, ponds and below-grade tanks within six months after cessation of use.

Sundance West will comply with this requirement. The Closure/Post-closure Plan (Volume II.4) describes closure timeframes in detail.

19.15.36.18 CLOSURE AND POST CLOSURE:

A. Surface waste management facility closure by operator.

- (1) The operator shall notify the division's environmental bureau at least 60 days prior to cessation of operations at the surface waste management facility and provide a proposed schedule for closure. Upon receipt of such notice and proposed schedule, the division shall review the current closure plan for adequacy and inspect the surface waste management facility.**

Sundance West will comply with this requirement. The Closure/Post-closure Plan (Volume II.4) describes closure notification requirements in detail.

- (2) The division shall notify the operator within 60 days after the date of cessation of operations specified in the operator's closure notice of modifications of the closure plan and proposed schedule or additional requirements that it determines are necessary for the protection of fresh water, public health, safety or the environment.

No response required.

- (3) If the division does not notify the operator of additional closure requirements within 60 days as provided, the operator may proceed with closure in accordance with the approved closure plan; provided that the director may, for good cause, extend the time for the division's response for an additional period not to exceed 60 days by written notice to the operator.

Sundance West will comply with this requirement.

- (4) The operator shall be entitled to a hearing concerning a modification or additional requirement the division seeks to impose if it files an application for a hearing within 10 days after receipt of written notice of the proposed modifications or additional requirements.

Sundance West will comply with this requirement.

- (5) Closure shall proceed in accordance with the approved closure plan and schedule and modifications or additional requirements the division imposes. During closure operations the operator shall maintain the surface waste management facility to protect fresh water, public health, safety and the environment.

Sundance West will comply with this requirement.

- (6) Upon completion of closure, the operator shall re-vegetate the site unless the division has approved an alternative site use plan as provided in Subsection G of 19.15.36.18 NMAC. Re-vegetation, except for landfill cells, shall consist of establishment of a vegetative cover equal to 70 percent of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation) or scientifically documented ecological description consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintenance of that cover through two successive growing seasons.

Sundance West will comply with this requirement. The Closure/Post-closure Plan (Volume II.4) describes in detail revegetation and maintenance plans for the Facility.

B. Release of financial assurance.

- (1) When the division determines that closure is complete it shall release the financial assurance, except for the amount needed to maintain monitoring wells for the applicable post closure care period, to perform semi-annual analyses of such monitoring wells and to re-vegetate the site. Prior to the partial release of the financial assurance covering the surface waste management facility, the division shall inspect the site to determine that closure is complete.**

The Closure/Post-closure Plan (Volume II.4) provides the estimated amount, in current dollars, required for the Post-closure care and maintenance.

- (2) After the applicable post closure care period has expired, the division shall release the remainder of the financial assurance if the monitoring wells show no contamination and the re-vegetation in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC is successful. If monitoring wells or other monitoring or leak detection systems reveal contamination during the surface waste management facility's operation or in the applicable post closure care period following the surface waste management facility's closure the division shall not release the financial assurance until the contamination is remediated in accordance with 19.15.30 NMAC and 19.15.29 NMAC, as applicable.**

Sundance West will comply with this requirement.

- (3) In any event, the division shall not finally release the financial assurance until it determines that the operator has successfully revegetated the site in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC, or, if the division has approved an alternative site use plan, until the landowner has obtained the necessary regulatory approvals and begun implementation of the use.**

No response required.

C. Surface waste management facility closure initiated by the division. Forfeiture of financial assurance.

- (1) For good cause, the division may, after notice to the operator and an opportunity for a hearing, order immediate cessation of a surface waste management facility's operation when it appears that cessation is necessary to protect fresh water, public health, safety or the environment,**

or to assure compliance with statutes or division rules and orders. The division may order closure without notice and an opportunity for hearing in the event of an emergency, subject to NMSA 1978, Section 70-2-23, as amended.

No response required.

- (2) **If the operator refuses or is unable to conduct operations at a surface waste management facility in a manner that protects fresh water, public health, safety and the environment; refuses or is unable to conduct or complete an approved closure plan; is in material breach of the terms and conditions of its surface waste management facility permit; or the operator defaults on the conditions under which the division accepted the surface waste management facility's financial assurance; or if disposal operations have ceased and there has been no significant activity at the surface waste management facility for six months the division may take the following actions to forfeit all or part of the financial assurance:**
- (a) **send written notice by certified mail, return receipt requested, to the operator and the surety, if any, informing them of the decision to close the surface waste management facility and to forfeit the financial assurance, including the reasons for the forfeiture and the amount to be forfeited, and notifying the operator and surety that a hearing request or other response shall be made within 10 days of receipt of the notice; and**
 - (b) **advise the operator and surety of the conditions under which they may avoid the forfeiture; such conditions may include but are not limited to an agreement by the operator or another party to perform closure and post closure operations in accordance with the surface waste management facility permit conditions, the closure plan (including modifications or additional requirements imposed by the division) and division rules, and satisfactory demonstration that the operator or other party has the ability to perform such agreement.**

Sundance West will cooperate with OCD concerning this requirement and does not foresee any instance in which the Facility will not be operated in compliance with the Permit or Permit Conditions.

- (3) **The division may allow a surety to perform closure if the surety can demonstrate an ability to timely complete the closure and post closure in accordance with the approved plan.**

No response required.

- (4) If the operator and the surety do not respond to a notice of proposed forfeiture within the time provided, or fail to satisfy the specified conditions for non-forfeiture, the division shall proceed, after hearing if the operator or surety has timely requested a hearing, to declare the financial assurance's forfeiture. The division may then proceed to collect the forfeited amount and use the funds to complete the closure, or, at the division's election, to close the surface waste management facility and collect the forfeited amount as reimbursement.
- (a) The division shall deposit amounts collected as a result of forfeiture of financial assurance in the oil and gas reclamation fund.
 - (b) In the event the amount forfeited and collected is insufficient for closure, the operator shall be liable for the deficiency. The division may complete or authorize completion of closure and post closure and may recover from the operator reasonably incurred costs of closure and forfeiture in excess of the amount collected pursuant to the forfeiture.
 - (c) In the event the amount collected pursuant to the forfeiture was more than the amount necessary to complete closure, including remediation costs, and forfeiture costs, the division shall return the excess to the operator or surety, as applicable, reserving such amount as may be reasonably necessary for post closure monitoring and re-vegetation in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC. The division shall return excess of the amount retained over the actual cost of post closure monitoring and re-vegetation to the operator or surety at the later of the conclusion of the applicable post closure period or when the site re-vegetation in accordance with Paragraph (6) of Subsection A of 19.15.36.18 NMAC is successful.

No response required. The conditions listed are not anticipated.

- (5) If the operator abandons the surface waste management facility or cannot fulfill the conditions and obligations of the surface waste management facility permit or division rules, the state of New Mexico, its agencies, officers, employees, agents, contractors and other entities designated by the state shall have all rights of entry into, over and upon the surface waste management facility property, including all necessary and convenient rights of ingress and egress with all materials and equipment to conduct operation, termination and closure of the surface waste management facility, including but not limited to the temporary storage of equipment and materials, the right to borrow or dispose of materials and all other rights necessary for the surface waste management facility's operation, termination and closure in accordance with the surface waste management facility permit and to conduct post closure monitoring.

No response required. The conditions listed are not required.

D. Surface waste management facility and cell closure and post closure standards. The following minimum standards shall apply to closure and post closure of the installations indicated, whether the entire surface waste management facility is being closed or only a part of the surface waste management facility.

- (1) Oil treating plant closure. The operator shall ensure that:**
 - (a) tanks and equipment used for oil treatment are cleaned and oil field waste is disposed of at a division-approved surface waste management facility (the operator shall reuse, recycle or remove tanks and equipment from the site within 90 days of closure);**
 - (b) the site is sampled, in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods, for TPH, BTEX, major cations and anions and RCRA metals, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved; and**
 - (c) sample results are submitted to the environmental bureau in the division's Santa Fe office.**

Sundance West will implement the Closure/Post-closure Plan (Volume II.4) for closure activities in compliance with 19.15.36.18.D NMAC.

- (2) Landfill cell closure.**
 - (a) The operator shall properly close landfill cells, covering the cell with a top cover pursuant to Paragraph (8) of Subsection C of 19.15.36.14 NMAC, with soil contoured to promote drainage of precipitation; side slopes shall not exceed a 25 percent grade (four feet horizontal to one foot vertical), such that the final cover of the landfill's top portion has a gradient of two percent to five percent, and the slopes are sufficient to prevent the ponding of water and erosion of the cover material.**
 - (b) The operator shall re-vegetate the area overlying the cell with native grass covering at least 70 percent of the landfill cover and surrounding areas, consisting of at least two grasses and not including noxious weeds or deep rooted shrubs or trees, and maintain that cover through the post closure period.**

Sundance West will implement the Closure/Post-closure Plan (Volume II.4) for the Landfill cells. The Permit Plans (Volume III.1) provides the engineering design for the overall final grading contours for the Landfill. Sundance West proposed to install an alternate cover per 19.15.36.14.C(9) NMAC. The side slopes will be no greater than 25% (4 horizontal to 1 vertical) and the top crown will be constructed to a design grade of 5%. The alternate final

cover includes 12-inches of compacted impermeable materials (intermediate cover) overlain with a 2-ft thick barrier (infiltration layer; $k \leq 5.0 \times 10^{-5}$ cm/sec) that is capped with a 12-inch vegetative (erosion) layer, all graded to drain. The Landfill final cover details are shown in **Figure II.4.3** and on the **Permit Plans (Volume III.1)**. The final cover, as well as other disturbed areas of the site, will be seeded with native vegetation. Vegetation on the site will be established during the optimum planting period, whenever possible. Examples of seed types have been identified and recommended by the NRCS.

- (3) **Landfill post closure.** Following landfill closure, the post closure care period for a landfill shall be 30 years.
 - (a) A post closure care and monitoring plan shall include maintenance of cover integrity, maintenance and operation of a leak detection system and leachate collection and removal system and operation of gas and ground water monitoring systems.
 - (b) The operator or other responsible entity shall sample existing ground water monitoring wells annually and submit reports of monitoring performance and data collected within 45 days after the end of each calendar year. The operator shall report any exceedance of a ground water standard that it discovers during monitoring pursuant to 19.15.29 NMAC.

Sundance West will implement the Closure/Post-closure Plan, (Volume II.4) for the post-closure care and monitoring required.

- (4) **Landfarm closure.** The operator shall ensure that:

Not applicable; Sundance West is not proposing landfarm facilities.

E. Pond and pit closure. The operator shall ensure that:

- (1) liquids in the ponds or pits are removed and disposed of in a division-approved surface waste management facility;
- (2) liners are disposed of in a division-approved surface waste management facility;
- (3) equipment associated with the surface waste management facility is removed;
- (4) the site is sampled, in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods for TPH, BTEX, metals and other inorganics listed in Subsections A and B of 20.6.2.3103 NMAC, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved; and

- (5) **sample results are submitted to the environmental bureau in the division's Santa Fe office.**

Sundance West will comply with this requirement. The Closure/Post-closure Plan (Volume II.4) describes in detail facility decommissioning, including liquid, liner and equipment disposal; as well as sampling, testing, and reporting when closure of the Facility is implemented.

- F. Landfarm and pond and pit post closure. The post-closure care period for a landfarm or pond or pit shall be three years if the operator has achieved clean closure. During that period the operator or other responsible entity shall regularly inspect and maintain required revegetation. If there has been a release to the vadose zone or to ground water, then the operator shall comply with the applicable requirements of 19.15.30 NMAC and 19.15.29 NMAC.**

No response required.

- G. Alternatives to re-vegetation. If the landowner contemplates use of the land where a cell or surface waste management facility is located for purposes inconsistent with re-vegetation, the landowner may, with division approval, implement an alternative surface treatment appropriate for the contemplated use, provided that the alternative treatment will effectively prevent erosion. If the division approves an alternative to re-vegetation, it shall not release the portion of the operator's financial assurance reserved for post-closure until the landowner has obtained necessary regulatory approvals and begun implementation of such alternative use.**

If applicable, Sundance West will comply with this requirement.

19.15.36.19 EXCEPTIONS AND WAIVERS:

- A. In a surface waste management facility permit application, the applicant may propose alternatives to requirements of 19.15.36 NMAC, and the division may approve such alternatives if it determines that the proposed alternatives will provide equivalent protection of fresh water, public health, safety and the environment.**

Sundance West is requesting alternatives to the requirements consistent with the flexibility provided for:

- *LFG Control requirements per 19.15.36.13.O NMAC (this Volume)*
- *Groundwater monitoring per 19.15.36.14.B(1-2) NMAC (Volumes II.8 and IV.2)*
- *Geonet Detection and Drainage Layers per 19.15.36.14.C (Volume III.4)*

- *Final Cover per 19.15.36.14.C(9) NMAC (Volume III.4)*
- *Bird Control Alternatives per 19.15.36.19 NMAC (Volume II.6)*

Demonstrations and justifications have been provided in the referenced sections and associated technical documentation.

- B. The division may grant exceptions to, or waivers of, or approve alternatives to requirements of 19.15.36 NMAC in an emergency without notice or hearing. The operator requesting an exception or waiver, except in an emergency, shall apply for a surface waste management facility permit modification in accordance with Subsection C of 19.15.36.8 NMAC. If the requested modification is a major modification, the operator shall provide notice of the request in accordance with 19.15.36.9 NMAC.**

Sundance West will comply with this requirement.

19.15.36.20 TRANSITIONAL PROVISIONS:

Sundance West is a proposed new commercial Surface Waste Management Facility. No response required.

**APPLICATION FOR PERMIT
SUNDANCE WEST**

**VOLUME I: PERMIT APPLICATION TEXT
PART 36: SURFACE WASTE MANAGEMENT FACILITIES**

**ATTACHMENT I.A
PARTIAL ASSIGNMENT AND ASSUMPTION OF LEASE**

PARTIAL ASSIGNMENT AND ASSUMPTION OF LEASE

THIS PARTIAL ASSIGNMENT AND ASSUMPTION OF LEASE (this "**Agreement**") is made and entered into effective this 28th day of January, 2015 by and between Sundance Services, Inc., a New Mexico corporation ("**Assignor**"), and Sundance West, Inc., a New Mexico corporation, whose address is 1001 6th Street, Eunice, New Mexico 88231 ("**Assignee**") (individually referred to herein as a "**Party**" or collectively as the "**Parties**").

WHEREAS, Robert Paul Wallach, Ray Andrew Wallach, and Patricia Louise Wallach House (collectively, the "**Lessor**"), and Parabo, Inc., a New Mexico corporation ("**Lessee**"), entered into that certain Lease dated November 1, 1983 (the "**Lease**") affecting the real property described in Exhibit "A" attached hereto and incorporated herein for all purposes (the "**Leased Premises**");

WHEREAS, paragraph 16 of the Lease provides that the Lessee may assign or sublet the whole or any part of its rights thereunder;

WHEREAS, a Memorandum of Lease of even date reflecting the terms of said Lease was filed on November 30, 1983 in Book 422, Page 594, as Document No. 19587, Deed Records, Lea County, New Mexico, a copy of which is attached hereto and incorporated herein for all purposes as Exhibit "B" whether or not actually attached (the "**Memorandum of Lease**");

WHEREAS, Wallach LLC, as successor in interest to the Lessor pursuant to that certain Deed and Bill of Sale dated effective December 1, 2001, recorded in Book 1248, Page 50 as Document No. 43409, Deed Records, Lea County, New Mexico, and Assignor herein, as successor in interest to the Lessee, entered into that certain Agreement and Confirmation of Assignments and Successors in Interest dated December 17, 2012 wherein it was agreed and confirmed that Assignor succeeded to the interest of Lessee under the Lease and is the current Lessee. A copy of said Agreement and Confirmation of Assignments and Successors in Interest is attached hereto and incorporated herein for all purposes as Exhibit "C" (the "**Agreement and Confirmation**");

WHEREAS, Assignor desires to assign to Assignee, and Assignee desires to assume from Assignor, effective as of the date first written above (the "**Assumption Date**"), all of Assignor's rights and obligations under the Lease as to a portion of the Leased Premises only on the terms set forth below.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants contained herein and for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows, effective as of the Assumption Date:

1. **Partial Assignment.** Assignor assigns, transfers and conveys to Assignee all of Assignor's rights, title, obligations and interest in, to and under the Lease as to the East Half of Section 25 and that portion of the North Half of Section 36 which lies East of State Route 18 and North of U. S. Highway 176 (excluding the rest stop located on U. S. Highway 176), all in

Township 21 South, Range 37 East, N.M.P.M.; all of Section 30, Township 21 South, Range 38 East, N.M.P.M.; and the Southeast Quarter of Section 19, Township 21 South, Range 38 East, N.M.P.M., only.

2. Assumption. Assignee unconditionally assumes and shall perform the obligations of Assignor under the Lease that arise on or after the Assumption Date with regard to the East Half of Section 25 and that portion of the North Half of Section 36 which lies East of State Route 18 and North of U. S. Highway 176 (excluding the rest stop located on U. S. Highway 176), all in Township 21 South, Range 37 East, N.M.P.M.; all of Section 30, Township 21 South, Range 38 East, N.M.P.M.; and the Southeast Quarter of Section 19, Township 21 South, Range 38 East, N.M.P.M., only, and Assignee shall be bound by all the terms and conditions of the Lease that are applicable to the portion of the leasehold being assigned.

3. Miscellaneous.

(a) Each provision of this Agreement shall extend, bind and inure to the benefit of Assignor and Assignee and their respective permitted successors and assigns, including without limitation successor assignees of the Lease.

(b) This Agreement contains the entire agreement between the Parties, and all prior negotiations and agreements are merged in this Agreement. This Agreement may not be changed or modified or discharged, in whole or in part, except by a written instrument executed by the Party against whom enforcement of the change, modification, or discharge is sought.

(c) This Agreement may be executed in a number of identical counterparts which, taken together, shall constitute collectively one (1) agreement; in making proof of this Agreement, it shall not be necessary to produce or account for more than one such counterpart with each Party's signature. Further, this Agreement may be executed by both Assignor and Assignee by facsimile or by portable document format (.pdf) signature, such that execution of this Agreement by facsimile or by portable document format (.pdf) signature shall be deemed effective for all purposes as though this Agreement was executed as a "blue ink" original.

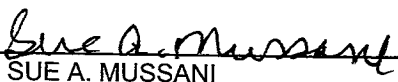
(d) If any term or provision of this Agreement or any application thereof shall be invalid or unenforceable, the remainder of this Agreement and any other application of such term shall not be affected thereby.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, Assignor and Assignee hereby execute this Agreement, effective as of the date set forth above.


ASSIGNOR:

**Sundance Services, Inc.,
a New Mexico corporation**

By: 
Name: SUE A. MUSSANI
Title: PRESIDENT

ASSIGNEE:

**Sundance West, Inc.,
a New Mexico corporation**

By: 
Name: ARIF MUSSANI
Title: CHIEF OPERATING OFFICER, VICE PRESIDENT

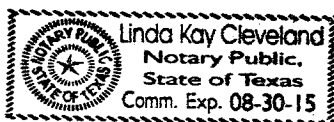
ACKNOWLEDGEMENT

STATE OF TEXAS

COUNTY OF DALLAS

§
§
§

The foregoing instrument was acknowledged before me on this 27TH day of January, 2015, by SUE A. MUSSANI, PRESIDENT on behalf of Sundance Services, Inc., a New Mexico corporation.



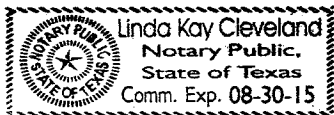
Linda Kay Cleveland
Notary Public, State of Texas - LINDA KAY CLEVELAND

STATE OF TEXAS

COUNTY OF DALLAS

§
§
§

The foregoing instrument was acknowledged before me on this 28TH day of January, 2015, by ARIF MUSSANI, COO, VP on behalf of Sundance West, Inc., a New Mexico corporation.



Linda Kay Cleveland
Notary Public, State of Texas - LINDA KAY CLEVELAND

EXHIBIT "A"
LEASED PREMISES

A parcel of land situated within Lea County, New Mexico and being more particularly described as follows:

The East Half of Section 25 and that portion of the North Half of Section 36 which lies East of State Route 18 and North of U. S. Highway 176 (excluding the rest stop located on U. S. Highway 176), all in Township 21 South, Range 37 East, N.M.P.M.;

All of Section 30, the Southeast Quarter of Section 19, and the South Half of Section 20, all in Township 21 South, Range 38 East, N.M.P.M.; and

The West Half, the Southeast Quarter, and the Southwest Quarter of the Northeast Quarter, Section 29, Township 21 South, Range 38 East, N.M.P.M.

EXHIBIT "B"
MEMORANDUM OF LEASE

To be attached.

12
422 594

19587

MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE, dated as of November 1, 1983, by and between Robert Paul Wallach, Ray Andrew Wallach and Patricia Louise Wallach House (collectively, "Lessor"), whose address is P. O. Box 3715, Midland, Texas 79702, and Farabo, Inc., a New Mexico corporation ("Lessee"), whose address is P. O. Box 1499, Hobbs, New Mexico 88241,

W I T N E S S E T H:

Lessor hereby leases to Lessee and Lessee hereby leases from Lessor, subject to the covenants and agreements set forth in that certain Lease dated as of November 1, 1983 (the "Lease"), made between Lessor and Lessee, certain premises ("Premises") consisting of the tract of land described in Exhibit "A" attached hereto and made a part hereof.

TO HAVE AND TO HOLD the Premises for a term commencing on November 1, 1983 and continuing until December 31, 2099, unless sooner terminated pursuant to the terms of the Lease, for the purpose of permitting Lessee to (i) dispose on the Premises, subject to applicable regulatory approvals, certain waste and debris as described in the Lease; (ii) process oil on the Premises; and (iii) conduct operations on the Premises consistent with such purposes including, but not limited to, the right of ingress and egress across the Premises from such operations of Lessee to New Mexico Highway 18 and U. S. Highway 176. Lessor has specifically granted Lessee the option to purchase the Premises, or portions thereof, subject to certain terms and provisions of the Lease.

Lessor and Lessee desire to record this Memorandum of Lease for the purpose of placing the public on notice of inquiry as to the specific provisions, terms, covenants and conditions of the Lease, all of which are incorporated herein by reference with the same force and effect as if herein set forth in full.

This Memorandum of Lease is being recorded in lieu of recording the Lease itself for the purpose of placing the public on notice of inquiry as to the specific provisions, terms, covenants and conditions thereof, and nothing herein contained is intended to or does change, modify or affect any of the terms or provisions of the Lease or the rights, duties, obligations, easements and covenants running with the land created thereby, all of which remain in full force and effect.

EXHIBIT

B

IN WITNESS WHEREOF, Lessor and Lessee have duly executed and sealed this Memorandum of Lease as of the day and year first above written.

Robert Paul Wallach
ROBERT PAUL WALLACH

Ray Andrew Wallach
RAY ANDREW WALLACH

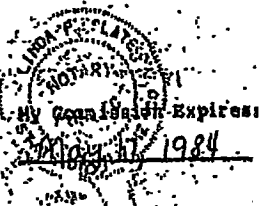
Patricia Louise Wallach House
PATRICIA LOUISE WALLACH HOUSE

PARABO, INC.

BY: *Cecil L. Brown*

STATE OF NEW MEXICO)
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this 23rd day of November, 1983, by Robert Paul Wallach.



Linda J. Slate
NOTARY PUBLIC

BOOK 422 PAGE 596

STATE OF NEW MEXICO) SS.
COUNTY OF LEA)

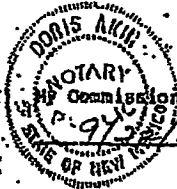
The foregoing instrument was acknowledged before me this
23rd day of November, 1983 by Ray Andrew Wallach.



Linda F. Slate
NOTARY PUBLIC

STATE OF NEW MEXICO) SS.
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this
23 day of November, 1983 by Patricia Louise Wallach House.



Doris Ann
NOTARY PUBLIC

STATE OF NEW MEXICO) SS.
COUNTY OF LEA)

The foregoing instrument was acknowledged before me this
23rd day of November, 1983, by Carl A. Brown
President of Parabo, Inc., a New Mexico
corporation, on behalf of said corporation;



Linda F. Slate
NOTARY PUBLIC

EXHIBIT "A"

A parcel of land situate within Lea County, New Mexico and being more particularly described as follows: The East Half of Section 25 and that portion of the North Half of Section 36 which lies East of State Route 18 and North of U. S. Highway 176 (excluding the rest stop located on U. S. Highway 176), all in Township 21 South, Range 37 East, N.M.P.M.; All of Section 30, the Southeast Quarter of Section 19, and the South Half of Section 20, all in Township 21 South, Range 38 East, N.M.P.M.; The West Half, the Southeast Quarter, and the Southwest Quarter of the Northeast Quarter, Section 29, Township 21 South, Range 38 East, N.M.P.M.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

NOV. 30 1983

11:23 AM
and recorded in Book
Page
The Notary Public
by *[Signature]*

19587



EXHIBIT "C"
AGREEMENT AND CONFIRMATION

To be attached.

**AGREEMENT AND CONFIRMATION OF
ASSIGNMENTS AND SUCCESSORS IN INTEREST**

AGREEMENT AND CONFIRMATION ("Agreement") made and entered into this 17th day of December, 2012 by and between WALLACH RANCH, LLC, a New Mexico limited liability company (referred to herein as "WALLACH LLC"), and SUNDANCE SERVICES, INC. a New Mexico corporation (referred to herein as "SUNDANCE").

WHEREAS, Robert Paul Wallach, Ray Andrew Wallach, Patricia Louise House, as Lessors (referred to collectively herein as the "Wallach Siblings"), entered into a certain Lease Agreement with Parabo, Inc., a New Mexico corporation, as Lessee (referred to herein as "Parabo"), on or about November 1, 1983, a copy of which is attached hereto and incorporated herein by reference and labeled Exhibit "A" (referred to herein as the "Lease Agreement");

WHEREAS, SUNDANCE was heretofore assigned and succeeded to the interest of Parabo, as Lessee under the Lease Agreement;

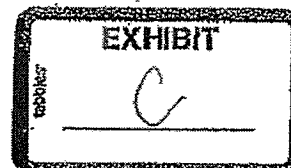
WHEREAS, as of December 1, 2001, the Wallach Siblings conveyed their interest in the real property covered by the Lease Agreement and assigned the Lease Agreement to WALLACH LLC and WALLACH LLC succeeded to the interests of the Wallach Siblings, as Lessor under the Lease Agreement; and

WHEREAS, the parties hereto want to confirm and affirm such assignments and successions of interests under the Lease Agreement.

NOW THEREFORE, the parties hereto agree as follows:

1. WALLACH LLC hereby confirms and affirms that it was assigned and succeeded to the interests of the Wallach Siblings under the Lease Agreement and is the current Lessor thereunder and acknowledges that SUNDANCE was assigned and succeeded to the interests of Parabo under the Lease Agreement and is the current Lessee thereunder.

2. SUNDANCE hereby confirms and affirms that it was assigned and succeeded to the interests of Parabo under the Lease Agreement and is the current Lessee thereunder and acknowledges that WALLACH LLC was assigned and succeeded to the interests of the Wallach Siblings under the Lease Agreement and is the current Lessor thereunder. As it relates to the assignment of the Lease Agreement from the Wallach Siblings to WALLACH LLC, to the extent necessary, SUNDANCE hereby waives its rights under Paragraph 18 of the Lease Agreement.



3. The undersigned have the right, power and authority to make the forgoing confirmation and affirmation for and on behalf of the parties to this Agreement, which shall be binding on their respective successors and assigns.

4. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

Dated this 17th day of December, 2012

WALLACH RANCH, LLC

By: *R. P. Wallach*
Robert Paul Wallach, Manager

SUNDANCE SERVICE, INC.

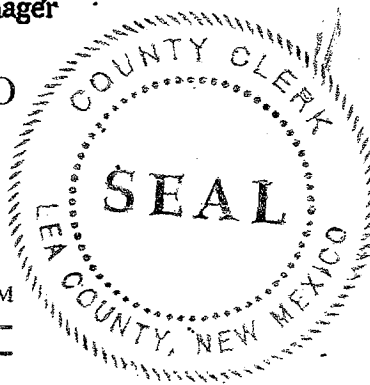
By: *Hanif Mussani*
Hanif Mussani, President

By: *Bernard Lee House, Jr.*
Bernard Lee House, Jr., Manager

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

FEB 03 2015

at 11:23 o'clock A M
and recorded in Book _____
Page _____
Pet Chappelle, Lea County Clerk
By: *[Signature]* Deputy



30922

**APPLICATION FOR PERMIT
SUNDANCE WEST**

**VOLUME I: PERMIT APPLICATION TEXT
PART 36: SURFACE WASTE MANAGEMENT FACILITIES**

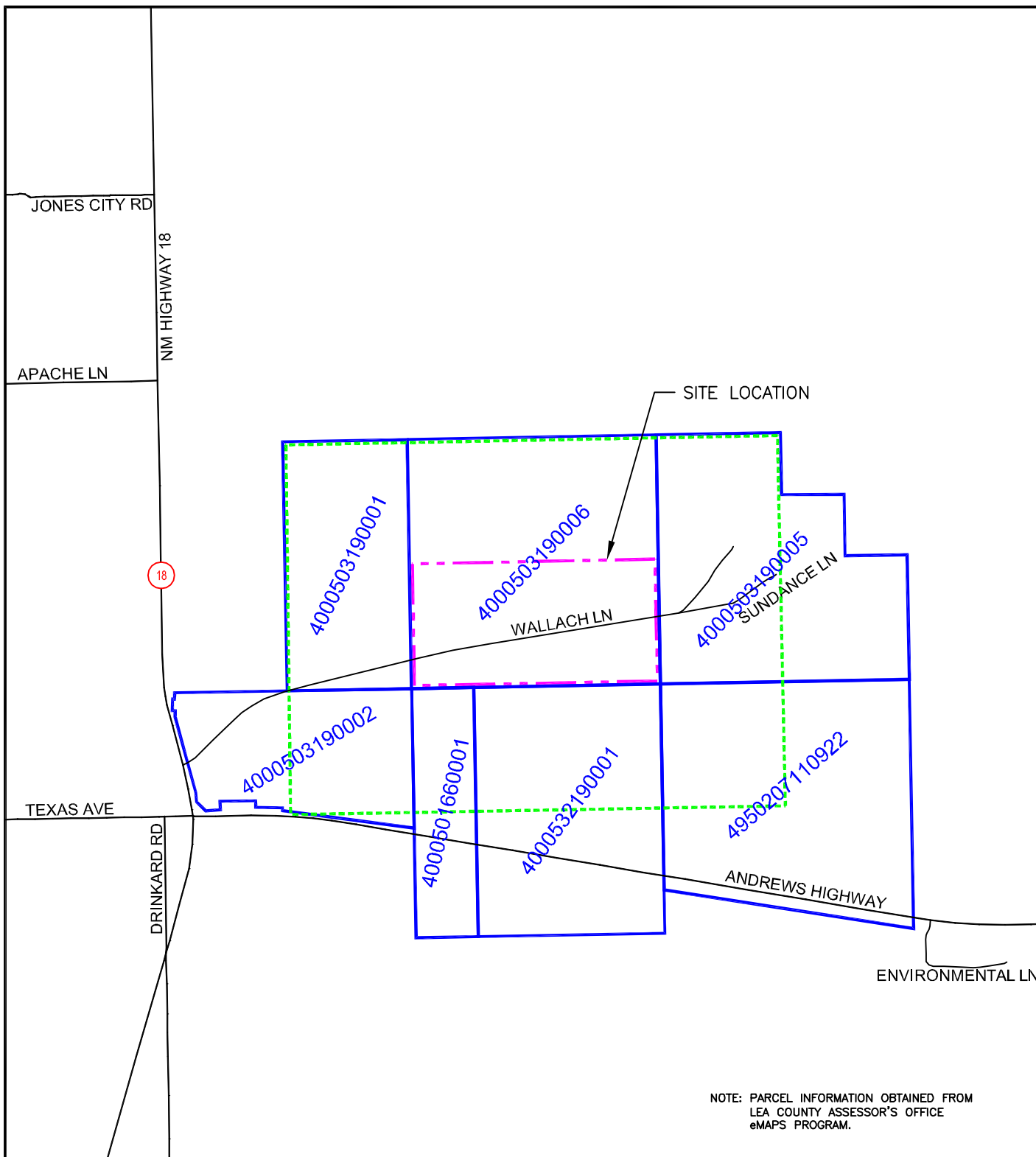
**ATTACHMENT I.B
PUBLIC NOTIFICATION**

NOTICE OF APPLICATION
SUNDANCE WEST – SURFACE WASTE MANAGEMENT FACILITY

Pursuant to 19.15.36, Oil Conservation Division Surface Waste Management Facilities regulations, Sundance West, Inc. is providing notice that the Oil Conservation Division (OCD) has deemed administratively complete an Application for Permit for a new Surface Waste Management Facility (Sundance West Facility). The Application for Permit was submitted to OCD by Sundance West, Inc. on 08/15/2016. Comments regarding the Application may be submitted to OCD within 30 days of Notice.

1. **Applicant's name and address:** Sundance West, Inc., P.O. Box 1737, Eunice, NM 88231; Telephone: 575.394.2511.
2. **Facility location and address:** The proposed Sundance West Facility is located approximately 3 miles east of Eunice, 18 miles south of Hobbs, and approximately 1.5 miles west of the Texas/New Mexico (NM) state line in unincorporated Lea County, NM. The Sundance West Site is comprised of a 320-acre \pm tract of land located in the South $\frac{1}{2}$ of Section 30, Township 21 South, Range 38 East, Lea County, NM. Site access will be provided via NM 18 and Wallach Lane.
3. **Brief description of surface waste management facility:** The proposed Sundance West Facility will include a liquid oil field waste Processing Area (80 acres \pm) and an oil field waste Landfill (180 acres \pm). At full build-out, the Processing Area will include an oil treatment facility consisting of an estimated 8 produced water load-out points, 45 produced water tanks, 10 evaporation ponds, 3 crude oil recovery tanks, and 2 oil sales tanks; as well as 1 stabilization and solidification area; and 1 customer jet wash (6 bays). The Landfill disposal footprint is 180 acres \pm with a waste capacity (airspace) of approximately 17.4 million cubic yards. In addition, various support facilities, including: a Gatehouse/Office, waste acceptance/security features, roads, emergency shower and eyewash station, and stormwater detention basins are proposed for the new Facility.
4. **Depth and quality of shallowest aquifer:** The permanent uppermost regional aquifer beneath the Sundance West site area lies at a depth of at least 675 to 1,075 feet (ft) below ground surface (bgs) in the Santa Rosa Formation of the Dockum Group. The depth to the intermittent perched water zone beneath the site is approximately 55 ft bgs (Well MP-4P), on top of, or within, the Chinle formation. Analytical results from a water sample collected from Well MP-4P (perched zone) show that three constituents (barium, fluoride, and iron) were detected at concentrations above the Water Quality Control Commission groundwater protection standard (GWPS); and the remaining analytes for which a GWPS is established were not detected above the laboratory method practical quantitation limit. Site-specific data collection from on-site drilling investigations demonstrates that the proposed site meets the requirement for a minimum separation distance of 100 ft between the base of the proposed landfill area and the uppermost regional aquifer; and for other non-landfill operations subject to the 50 ft vertical groundwater setback (i.e., lined ponds and process facilities) located south of the landfill footprint.

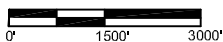
Interested parties may contact Jim Griswold, Bureau Chief, Oil Conservation Division at (505) 476-3465 for further information.



NOTE: PARCEL INFORMATION OBTAINED FROM
LEA COUNTY ASSESSOR'S OFFICE
eMAPS PROGRAM.

LEGEND

- SUNDANCE WEST FACILITY BOUNDARY
- 1/2 MILE RADIUS
- PARCEL IDENTIFICATION



1/2 MILE RADIUS MAP

SUNDANCE WEST
SURFACE WASTE MANAGEMENT FACILITY
LEA COUNTY, NEW MEXICO



213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 02/09/2015	CAD: .5 MILE RAD.dwg	PROJECT #: 530.06.01
DRAWN BY: DMI	REVIEWED BY: AY	FIGURE I.B-1
APPROVED BY: IKG	gei@gordonenvironmental.com	

**APPLICATION FOR PERMIT
SUNDANCE WEST**

**VOLUME I: PERMIT APPLICATION TEXT
PART 36: SURFACE WASTE MANAGEMENT FACILITIES**

**ATTACHMENT I.C
FINANCIAL ASSURANCE
TO BE PROVIDED UPON PERMIT APPROVAL**