

NM1-62

Permit Review

Griswold, Jim, EMNRD

From: Robert Rhodes <rrhodes@nmjc.edu>
Sent: Wednesday, September 21, 2016 6:36 PM
To: Griswold, Jim, EMNRD
Subject: FW: Sundance West Permit Conditions and review
Attachments: Report 9-16-16.docx

Jim

Attached is the report for the Sundance West Project.

We have Invoiced Gordon Environmental and will notify you if there are any issues.

Thanks Robert

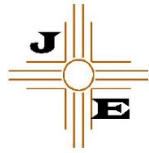
Dr. Robert Rhodes
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New Mexico Junior College
1 Thunderbird Circle
Hobbs, New Mexico 88240
[575-602-9201](tel:575-602-9201) cellular
rrhodes@nmjc.edu

From: jwjengr@aol.com [mailto:jwjengr@aol.com]
Sent: Tuesday, September 20, 2016 2:57 PM
To: Robert Rhodes <rrhodes@nmjc.edu>; jim.griswold@state.nm.us
Subject: Sundance West Permit Conditions and review

Here are my final comments on the review of Gordon Environmental redline submittal on Sundance West. Please call with any questions or comments.

Jim

James W. Jordan, PE
Jordan Engineering, LLC
PO Box 92584
Albuquerque, NM 87199
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September 20, 2016

Submitted by e-mail

Mr. Robert Rhodes, Ph.D
Assistant to the President for Governmental and Community Affairs
New Mexico Junior College
1 Thunderbird Circle
Hobbs, NM 88240

Re: New Mexico Junior College (NMJC)
Evaluation of Sundance West, Inc.
Application for Permit
NM Energy, Minerals, and Natural Resources Department
EMNRD Contract No. 14-521-0700-0124

Dear Mr. Rhodes:

Pursuant to the above referenced contract Jordan Engineering, LLC (JE) has completed the review of the Evaluation of Sundance West, Inc. (Sundance West) Application for Permit.

The following are JE comments and recommendations for permit issuance on the Sundance West permit application (Application) prepared by Gordon Environmental, Inc. (GEI) dated August 2016.

VOLUME I

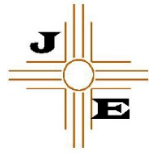
- 1) **19.15.36.8C.(2) pg I-14.** Has a NMDOT Driveway permit been obtained for this access? Please provide correspondence with NMDOT or driveway permit.
- 2) **19.15.36.17B(6).** The Permit Plans do not show location of pumping into or suction out of the lined ponds for the purposes of a sacrificial sheet of 60-mil HDPE. Detail 8 on Sheet 16 shows sacrificial liner in road portion only. In case of emergency where will pond be drained from?

VOLUME II Section 3

- 3) **Section 1 Site Plan** Figure II.3.2. The rule requires overall map (drawing) depicting areas of exposure and public roads subject to exposure.

VOLUME IIIA Section 4

- 4) The curve number utilized in HELP model runs was set at 82 but the drainage calculations in **Section 3** used 62. Please justify.



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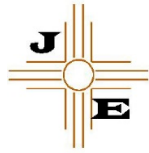
Recommended Permit Conditions:

- 1) The Applicant shall contact the NMDOT and obtain if necessary an access permit off of NM18.
- 2) Prior to construction of the landfill, evaporation ponds, stabilization & solidification area and process area the Applicant shall provide the Division with complete construction drawings.
- 3) As part of the construction drawings the Applicant shall show the location of pond discharge for the purposes of identifying the location of the sacrificial liner. In addition the Applicant shall provide a detailed description of processes and equipment for the process area.
- 4) The H₂S Plan does not contain the radius of exposure as called out as Figure II.3.2. The Applicant shall provide prior to obtaining permit.
- 5) The Applicant shall submit to the Division an updated Closure/Post Closure estimate that does not assume 12" of intermediate cover in the Closure estimate and for analytical testing of water in the Vadose Zone monitoring wells as required by the Division during Post Closure.
- 6) The Applicant shall provide to the Division an updated rainfall and erosion calculations on all areas except the landfill area as part of the required construction drawings.
- 7) After closure of Sundance Services, Inc. the Applicant shall update surface water calculations utilizing actual field data from the closed facility.
- 8) The Applicant shall notify the Division 30-day prior to installation of vadose monitoring wells. The actual locations may be modified by geotechnical conditions encountered in the field.

Please call me with your questions or comments.

Sincerely,

James W. Jordan, P.E.
Managing Member



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May 25, 2015

Submitted by e-mail

Mr. Robert Rhodes, Ph.D
Vice President of Training and Outreach Center
New Mexico Junior College
1 Thunderbird Circle
Hobbs, NM 88240

Re: New Mexico Junior College (NMJC)
Evaluation of Sundance West, Inc.
Application for Permit
NM Energy, Minerals, and Natural Resources Department
EMNRD Contract No. 14-521-0700-0124

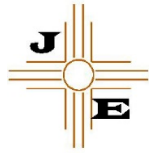
Dear Mr. Rhodes:

Pursuant to the above referenced contract Jordan Engineering, LLC (JE) has completed the review of the Evaluation of Sundance West, Inc. (SSI) Application for Permit.

The following are JE comments on the SSI permit application (Application) prepared by Gordon Environmental, Inc. (GEI) dated April 2015.

VOLUME I

- 1) **Section 1**, provide quarter-quarter section, township and range on **Figure I.1. 19.15 36.8C.(2)**
- 2) **Section 1.3**, pg I-5, Phase I- Initial Operations, 5th sentence. After "9.5 acre-feet" insert the word "each". Please provide calculations for the pond volumes.
- 3) **Section 1**, Table I.4. The Produced Water Tanks operational capacity is 6bbl/day for both 20 tanks and 10 tanks. Please explain or revise.
- 4) **19.15.36.8C.(2) pg I-14**. Has a NMDOT Driveway permit been obtained for this access? Are acceleration/deceleration lanes provided on US 18? Figure I.1
- 5) **19.15.36.8C.(4), pg I-16**. The Permit Plans do not chemical storage areas. Please provide.
- 6) **19.15.36.8C.(11), pg I-18**. The Multi-Sector General Permit for Stormwater Discharges has been updated. Please provide proper date.
- 7) **19.15.36.8C.(15)(a), pg I-19**. The text states in one sentence that Figure I.1 identifies streams, springs, and watercourses with (sic) the vicinity of the Facility. In the next



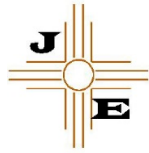
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sentence a statement is made there are no defined watercourses or streams in the vicinity. Why was “springs” not included in the statement?

- 8) **19.15.36.8C.(15)(f), pg I-20** A statement is made that Potentiometric groundwater surface data for the Santa Rosa Sandstone is not available. Is the drilling data for the hazardous waste site to the east available through the State of New Mexico?
- 9) **19.15.36.13A.(5)(f), pg I-33.** Strike the words “fresh” from the last sentence.
- 10) **19.15.36.13J. pg I-37.** The name of operator needs to be on proposed sign not facility name. Please correct spelling of Emergency.
- 11) **19.15.36.13M. pg I-38.** The Multi-Sector General Permit for Stormwater Discharges has been updated. Please provide proper date.
- 12) **19.15.36.14A.(3) . pg I-38.** Table I.7 should mention of incompatible waste.
- 13) **19.15.36.14A.(8) pg I-47.** Please state which final cover system Sundance West will install- “prescriptive or alternate or final cover system”
- 14) **19.15.36.14B.(2) pg I-47.** The text describes groundwater at 675 ft below the site. However later in the paragraph a discussion is presented describing depth to groundwater at approximately 60 ft. Please elaborate. Is the “groundwater” in MP-4P groundwater as defined by rule. **The reviewer also recommending a vadose monitoring program is submitted in lieu of a Groundwater Monitoring Plan.**
- 15) **19.15.36.14C.(9) pg I-54, Figure I.6.** Please specify the *k* values of the 12” Vegetation layer and 12” Intermediate Cover utilized in the HELP model run.
- 16) **19.15.36.14D.(2)(c) pg I-57.** It is not clear where the transition from smooth liner to textured liner takes place, please discuss that it will not take place within 5 ft of the toe of slope.
- 17) **19.15.36.14E.(2) pg I-58.** In response to this section please insert ½ inch before “angular stones”.
- 18) **19.15.36.17B(6).** **The Permit Plans do not show location of pumping into or suction out of the lined ponds for the purposes of a sacrificial sheet of 60-mil HDPE.**

VOLUME II Section 1

- 19) **Section 2.4. pg II.1-10** Has a NMDOT Driveway permit been obtained for this access? Are acceleration/deceleration lanes provided on US 18? **Figure I.1**
- 20) **Section 2.4. Figure II.1.4,** please label figure showing directional arrows to the closest cities.
- 21) **Section 3.2. pg II.1-12.** In paragraph please state the training is annual.
- 22) **Section 4.2. pg II.1-13.** The H₂S plan states that all incoming vehicles will be screened. Remove “randomly”. Show location of the “1000 gallons of chemicals” on Permit Drawings.
- 23) **Section 5.0. pg II.1-15.** Is the Facility going to accept certain non-exempt waste as defined in the rule?



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- 24) **Section 5.3** pg II.1-17 Last sentence states “Soils may be temporarily stored and covered above intermediate or final grade”. Is this referring to contaminated soils? If do strike this sentence. Contaminated soils cannot be placed above final grade.
- 25) **Section 5.6** pg II.1-23. Remove CH₄ from discussion in first paragraph.
- 26) **Attachment II.1.A.** pg II.1.A-2. Add permit and permit conditions to Annual Training Schedule.
- 27) **Attachment II.1.G, Section 2.1** pg II.1.G-2. In the first paragraph deficiencies need to be corrected immediately not in 90 days.

VOLUME II Section 2

- 28) **Section 3.2.2.b** pg II.2-7. Add personnel will be also positioned upwind of the cap.

VOLUME II Section 3

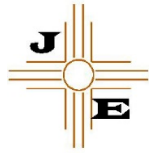
- 29) **Section 1 Site Plan** Figure II.3.2. The rule requires overall map (drawing) depicting areas of exposure and public roads subject to exposure.
- 30) **Section 3.2.1.** Is the facility going to provide permanent H₂S monitors in the tank farm area? Please show the locations of the H₂S monitors for Evaporation Ponds 7-9.
- 31) **Section 4.2.1.** Figure II.3.4. The evacuation route takes personnel through the active landfill, please show route that does not take them through active areas.

VOLUME II Section 4

- 32) **Section 2.10** pg II.4-10 and Figure 11.4.3. Second paragraph, please provide *k* values for 12-inch erosion layer and 12-inch intermediate cover.
- 33) **Section 3.1** pg II.4-13. Add “or vadose zone” after groundwater.
- 34) **Attachment II.4.A.1 Closure/Post Closure Cost Estimate.** The C/PC cost estimate is expected to change prior to issuance of permit therefore reviewer did not review for actual dollar amounts but instead reviewed the document for completeness. It was found to be acceptable in general.

VOLUME II Section 5

- 35) **Section 2.0** pg II.5-5 first paragraph. Add “promptly” after “as notified and”.
- 36) **Section 3.2** pg II.5-9 Table II.5.5. Please provide capacity of equipment and communications gear.
- 37) **Section 5.0** pg II.5-19 Table II.5.9. Please note in Table that water should not be used on petroleum fires.
- 38) **Section 5.2** pg II.5-21. Note that the Plan amendments must be provided to OCD within 5 days.



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VOLUME II Section 8

- 39) General Comment: The Applicant discusses the groundwater at 60' in MP-4P in length and detail and the facility complies with the 100' setback to groundwater in the landfill and processing area. The reviewer does not believe the water bearing zone is "groundwater" but is perched water zone. The reviewer recommends that the Applicant prior to accepting waste provide the Division with a vadose zone monitoring plan that increases the number of monitoring wells at strategic locations based on the surface mapping of the Chinle Red Bed (Figure II.8.4). The proposed MP-2P upgradient and MP-4P downgradient wells are too far apart to be effective monitoring locations.
- 40) **Section 3.0** Table II.8.2. BETX results are not shown as required. Same comment on Table II.8.3.

VOLUME II Section 9

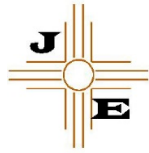
- 41) **Section 2.0**, pg II.9-3. In Line 4 remove schedule 80 polyvinyl chloride (PVC). The Permit Drawings do not reference PVC.

VOLUME IIIA Section 1

- 42) **Section 5.0**, pg III.1-8. The text a 2% slope on the floor of the ponds but Permit Drawings show 1.41%. Correct Permit Drawings to reflect 2% min grade. Provide markings on pond slopes to indicate 3.5' freeboard. Provide calculations showing pond capacity of 9.5ac-ft.
- 43) **Section 5.0**, pg III.1-9. First paragraph mentions minimum 10' design width of pond top platform. The Design Drawings show an excess of 20' please state true width. 10' is extremely narrow to facilitate normal vehicular traffic.
- 44) **Section 6.0**, pg III.1-12. Third paragraph states that a sacrificial 60-mil HDPE layer will be welded at points of active discharge. The Design Drawings do not show locations of pond discharge in case of maintenance. Please provide.
- 45) **Section 7.0**, pg III.1-13. First paragraph fifth sentence, after the word "which" remove the word "may" and replace with "will". This ensures consistency with statements provided elsewhere in the Application.

VOLUME IIIA Section 3

- 46) The surface water calculations were reviewed for methodology and consistency and deeming acceptable for the Landfill area. The review could not be completed due to the Stabilization and Solidification, Pond Area and Processing Area not being included in the calculations. In addition bare virgin ground was assumed in obtaining flow and curve numbers east of the site when those areas have been developed or disturbed. Recommend Applicant resubmit all drainage calculations of all areas prior to construction of Facility as a permit condition.



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- 47) The Applicant should review the anticipated Q_{25} and velocity values. These values are quite high.

VOLUME IIIA Section 4

- 48) The HELP Model utilized has mirrored the NMED procedure which is extremely conservative. The rule states that the USEPA (or other approved method) HELP model be utilized. Please verify the OCD has approved the use of the NMED model.
- 49) **Section 6.2.1.**, pg III.4-7. Please state the k values for the 24-inch protective layer.
- 50) **Section 6.2.2.1**, pg III.4-8. The Applicant “assumed” a k value for the protective soil layer and leak detection layer. Why was this assumed, geotechnical testing was performed on the material on site.
- 51) **Section 6.2.2.2**, pg III.4-9. The precipitation and temperature data was used from the El Paso, TX location. Revise to Hobbs, NM database. Justify evaporative zone depth of 18 inches.
- 52) **Section 6.3.2.1**, pg III.1-13. Again an assumed k value was used for infiltration layer for alternate final cover design. If that data is available for geotechnical testing, utilize.
- 53) **Section 6.2.2.2**, pg III.1-14. Explain why an evaporative zone depth of 28-inches was utilized in this HELP model run when 18-inches was utilized in the alternative liner design.
- 54) **Section 7.0**, pg III.1-26. Please provide engineering calculations showing the geotextiles will not plug using soils with 5% fines or greater.
- 55) **Attachment III.4.A HELP Model Output Files.** Justify input values for wilting point, leaf index, evaporative zone depths, ect. The curve number utilized in HELP model runs was set at 82 but the drainage calculations in **Section 3** used 62. If Applicant is utilizing the NMED HELP model please use their required input values.

VOLUME IIIB Section 8

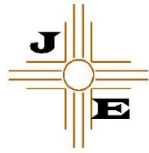
- 56) **Section 3.0** pg III.8-4. The Table presented in this Section shows a FS of 1.47 under static conditions that is less than the recommended FS on pg 1.5. Please elaborate.
- 57) Were the forces calculated in this Section applied to the liner strength analysis presented in **Volume III Section 7**?

VOLUME IIIB Section 9

- 58) **Section 3.0.** The rainfall and wind erosion calculation were performed for the landfill portion only. Reviewer recommends that prior to operations in other areas of the Facility these calculations are provided to the Division.

VOLUME IIIB Section 9

- 59) **Section 3.0** pg III.10-4. The settlement calculated in the foundation indicates a resulting settlement of -0.074 resulting in a leachate pipe slope of 1.93%. This is below the minimum value of 2%. Reviewer recommends that the construction plan submitted



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prior to cell construction the leachate collect slope be increased to compensate for settlement in the term of the landfill life including post closure.

VOLUME IIIB Section 11

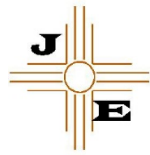
- 60) **Section 3.3** pg III.11-6. The referenced Figure III.11.2 does not show dimensions from evaporators to exterior of ponds. The reviewer needs the distance to ensure spray does not escape lined area of the evaporation ponds.
- 61) **Section 3.4** pg III.11-10. The discussion on water droplet size and travel distances alternate between 100 microns and 150 microns, in addition it is unclear which shut down speed the evaporators will utilize (12 mph or 14 mph). Please elaborate further. Provide wind rose in the Section to verify wind directions at the Facility.

VOLUME IV Section 1

- 62) **Section 2.1** pg IV.1-2. The paragraph discusses “perched water”. The reviewer agrees that the water present in MP-4P is perched rather than “groundwater” as discussed in previous Sections. Suggest revising Application to reflect this nomenclature.
- 63) **Section 2.5** pg IV.2-23. Second paragraph discusses the groundwater potentiometric groundwater surface at 150 ft or greater beneath the site. Is this discussion talking about perched water or groundwater? The paragraph then states that groundwater is 675 ft to 1,075 ft below site. Clarify groundwater.
- 64) **Section 2 Attachment IV.2.D.** In sample ID # 1001152-02 (Tank). Please identify location of “Tank”. The Acetone result was 600 ug/L.

Engineering Drawings

- 65) **Sheet 3 of 19.** Call out setbacks from property line. Identify type of storage tanks and call out waterline bisecting the site.
- 66) **Sheet 4 of 19.** Call slope in Stabilization and Solidification Area.
- 67) **Sheet 8 of 19.** It appears run-on from north and east areas and process and Stabilization Areas are not accounted for. Include prior to construction.
- 68) **Sheet 12 of 19.** Call out k values in Details 5/12 and 6/12.
- 69) **Sheet 14 of 19.** Call out d_{50} of the rip-rap. The Q values and velocities are significant.
- 70) **Sheet 16 of 19.** Show detail of sacrificial liner protecting base liner at liquid pump out areas.
- 71) **Sheet 17 of 19.** The cross sections show a 1.41% leading to leak detection sumps. Minimum by rule is 2%. Correct on construction drawing and resubmit to Division.



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Please call me with your questions or comments.

Sincerely,

James W. Jordan, P.E.
Managing Member

December 19, 2018

Mr. James W. Jordan, PE
Jordan Engineering, LLC
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Albuquerque, NM 87199

Project: **Sundance West Mud Management System**
Lea County, New Mexico

Jim,

This office has performed a structural engineering review of sheets S-0 thru S-4 of the submittal document for the above referenced project prepared by OnSite Structural Engineering and stamped by Douglas B. Reeves, PE dated 9-5-18. These drawings describe the concrete slabs, ramps, and retaining walls associated with the Mud Load Out Facility on this project. Our comments are as follows:

Design Drawings by OnSite Engineering:

Sheet S-0

1. CONCRETE – revise minimum concrete cover dimension at “Formed Concrete Not In Contact With Ground” from $\frac{1}{2}$ ” to $\frac{3}{4}$ ” per ACI 318-08 Chap. 7.7.1 (Slabs, Walls, Joists)
2. CONCRETE – update ACI 503R-89 code reference to ACI 503R-93 and add reference ACI 355.4-11 for Post-Installed Adhesive Anchors in Concrete.

Sheet S-1

1. Revise Plan @ Mudout Facility reference for details “1A/S3” to “1A/S2” and from “1B/S3” to “1B/S2”.
2. At West Side Ramp and East Side Ramp sections specify epoxy that is suitable for use under static and **seismic** loading conditions in cracked and uncracked concrete.

Sheet S-3

1. Section 2A: Clarify epoxy dowel length (7/16” and 5/16” dimensions must be a typo).
2. Sections 2B and 2C: Clarify reference to detail “2/S1”. This detail does not exist in this plan set.
3. At Sections 2A, 2B and 2C: Specify epoxy that is suitable for use under static and **seismic** loading conditions in cracked and uncracked concrete.

Sheet S-4

1. Section 4: Clarify reference to “3/S1”. This detail does not exist.

Page 1 of 2

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M i k e J . W a l l a P . E .

L a r r y E . K e n n e d y

Structural Design:

The structural design of ramp slabs, concrete flume slabs, retaining walls, and counterforts appears adequate with appropriate reinforcing steel, cover dimensions, concrete strength and air content. The only design questions which need clarified are:

1. The cattle guard support beams are not currently indicated to be anchored to the concrete walls that support them – is anchorage necessary to prevent displacement?
2. Should the tops of walls be constructed with a $\frac{3}{4}$ " chamfer to prevent chipping or cracking at edges?
3. The control joint layout for the lower slab indicates a condition where sections of slab around the perimeter have an aspect ratio of 2:1 between joints. This may create a situation where transverse surface cracks develop at the middle of the long dimension. This joint layout should be adjusted to prevent this condition.

Please contact me if you have questions regarding this information.

Sincerely,
Walla Engineering Ltd. by,



Michael J. Walla P.E.
President

MJW/Hs

Page 2 of 2

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