

**1RF-478 ZEUS
CONTAINMENT,
FACILITY ID
[fVV2203339361]
Variance Request
Burial in Place/OCD
Certified Letter**

**[371643] Solaris Water
Midstream, LLC
02/23/2024**

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Dylan M. Fuge
Deputy Secretary

Dylan Fuge, Division Director (Acting)
Oil Conservation Division



BY ELECTRONIC AND CERTIFIED MAIL (TRACKING NO. 7018 0040 0000 3405 7458)

February 23, 2024
Mr. Chad Gallagher
Solaris Water Midstream, LLC
9651 Katy Fwy, Suite 400
Houston, TX 77024

RE: [371643] Solaris Water Midstream, LLC - 1RF-478, ZEUS CONTAINMENT, FACILITY ID [fVV2203339361]

Dear Mr. Gallagher,

The New Mexico Oil Conservation Division (OCD) received your variance request on February 7, 2024, for Solaris Water Midstream, LLC's [371643] (Solaris) 1RF-478, ZEUS CONTAINMENT, Facility ID [fVV2203339361]. Solaris specifically requested a variance to 19.15.34.14(B) NMAC which states, "The operator shall close a recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility." Instead of transferring the synthetic liner to a division approved facility, Solaris proposes to bury the liner in place at the time of closure. The OCD has considered this variance request and denies the request for the following reasons:

- Although, 19.15.17 NMAC allows for burial in place for a temporary pit, the OCD does not agree with Solaris that a recycling containment permitted/registered under 19.15.34 NMAC should be treated similarly as a temporary pit permitted/registered under 19.15.17 NMAC. A temporary pit permitted/registered under 19.15.17 NMAC is required to be closed out within six months from the date the operator releases the drilling or workover rig from the first well using the pit. Whereas 19.15.34 NMAC allows a recycling containment to be registered for a 5-year period and annually thereafter with OCD approval. Furthermore, 19.15.17 NMAC states that the volume of a temporary pit shall not exceed 10-acre feet; 19.15.34 NMAC does not have a size limitation for a recycling containment.
- Solaris failed to demonstrate that approval of the variance would provide equal or better protection of fresh water, public health, and the environment.

If you have any questions concerning this notice, please contact me at 575-909-0269 or Victoria.Venegas@emnrd.nm.gov.

Take Care,

Victoria Venegas

Victoria Venegas • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave. Artesia, NM 88210
(575) 909-0269 | Victoria.Venegas@emnrd.nm.gov
<https://www.emnrd.nm.gov/ocd/>



Statement Explaining Why the Applicant Seeks a Variance

The prescriptive mandates of the Rule that are the subject of this variance request are presented below with emphasis added:

19.15.34.14 B. The operator shall close a recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility.

R.T. Hicks Consultants and Solaris Water Midstream strongly believe that the environmental and financial costs caused by compliance with the mandate to transfer materials to a division approved facility are not commensurate with any perceived benefit to fresh water, public health, or the environment. Moreover, other OCD allows on-site burial of synthetic liners under Rule 17 and OCD has approved burial of synthetic liners under Rule 29. While Solaris has a responsibility to shareholders to save cost where there is no benefit, their responsibility to shareholders includes identifying methods that provide higher protection of public health and the environment where the mandates of the rule and the alternative provide equal protection of groundwater and surface water.

Discussion of OCD Rules Applicable to In-Place Liner Burial as Disposal

In addition to 19.15.34.14.B, Rule 34 prohibits disposal of oil field waste as stated below:

19.15.34.20 DISPOSITION OF PRODUCED WATER AND OTHER OIL FIELD WASTE: Except as authorized by 19.15.17 NMAC, 19.15.26.8 NMAC, 19.15.30 NMAC, 19.15.34 NMAC or

19.15.36 NMAC, persons, including transporters, shall not dispose of produced water or other oil field waste:

- A. on or below the surface of the ground, in a pit or in a pond, lake, depression or watercourse;*
- B. in another place or in a manner that may constitute a hazard to fresh water, public health, or the environment; or*
- C. in a permitted pit or registered or permitted surface waste management facility without permission of the owner or operator of the pit or facility.*

Oil field waste is defined in 19.15.2.7.O as:

(3) "Oil field waste" means non-domestic waste resulting from the exploration, development, production or storage of oil or gas pursuant to Paragraph (21) of Subsection B of Section 70-2-12 NMSA 1978 and the oil field service industry, the transportation of crude oil or natural gas, the treatment of natural gas or the refinement of crude oil pursuant to Paragraph (22) of Subsection B of Section 70-2-12 NMSA 1978, including waste generated from oil field remediation or abatement activity regardless of the date of release. Oil field waste does not include waste not generally associated with oil and gas industry operations such as tires, appliances or ordinary garbage or refuse unless generated at a division-regulated facility, and does not include sewage, regardless of the source.

The liner system associated with Rule 34 containments and the Zeus containments does not fit the definition of "oilfield waste". While Rule 34 liner systems hold oil field waste (e.g., treated, and untreated produced water), industries and governments routinely employ identical or similar liner systems for various uses, such as:

- mineral extraction (e.g., potash, tailings evaporation ponds, heap leach pads for metals extraction),
- municipal solid waste management landfills,
- municipal wastewater treatment, and
- acid mine drainage treatment ponds.

Rule 17 allows on-site burial of liners used for temporary (reserve) pits and *requires* liner burial over and in contact with oil field waste (buried stabilized cuttings and drilling mud). While Rule 17 excludes on-site burial for Multi-Well Fluid Management (MWFM) pit liners, liner burial is an integral part of the closure of reserve (temporary) pits.

Mr. Hicks was an author of the 2013 NMOGA version of Rule 17 and a consulting expert for the hearing. After recently examining the financial and environmental costs of liner disposal for Rule 34 containments (known as MWFM pits in Rule 17), Mr. Hicks concludes with a high degree of certainty that the exclusion of MWFM pits from on-site burial was an oversight by NMOGA based upon now obvious financial facts. If an expert at the hearing presented the following demonstration of equal or better protection of fresh water, public health, and the environment, Mr. Hicks believes that the Commission would have included on-site burial of liner systems for MWFM pits.

Proposed On-Site Deep Burial Protocol for Containment Liner Systems

While complying with all other requirements of 19.15.34.14, on-site burial at this facility proposes the following as an integral part of this variance request:

1. The liner foundation (i.e., "soil" in 19.15.34.14.B) beneath the bottom of the containment is exposed and inspected by a qualified person for stained or wet areas.
2. Any stained or wet areas are included in one or more 5-point composite samples to determine if concentrations in earth material are higher than the parameters listed in Table 1 of Rule 34.
3. If testing beneath the bottom liner demonstrate concentrations are less than the closure criteria for recycling containments (Table1), the operator's contractor removes the liner systems from the side slopes to the bottom of the containment.
4. A qualified person examines then samples and obtains laboratory test results of the soil beneath the side slope liner using the same protocols employed beneath the liner system at the bottom of the containment.
5. If testing beneath the side slopes demonstrate concentrations are less than the closure criteria for recycling containments (Table1 of Rule 34), the contractor proceeds with reclamation.
6. The contractor obtains evidence (photographic or survey) that the top surface of the liners scheduled for burial are at least 5-feet beneath the final grade for the reclaimed containment.
7. Common sense permits a conclusion that the liner systems, due to their extremely low permeability, would not exceed the closure criteria concentrations of Table 1 if evaluated by a laboratory. Therefore, this protocol does not call for testing of the liner systems prior to burial.

The cross sections from the engineering plans for the Zeus I, II and III containments, presented below, demonstrate that burial at or below the prescribed depth is practical. Limited excavation to ensure the depth of burial may be necessary.

Demonstration That the Variance Will Provide Equal or Better Protection of Fresh Water, Public Health, and the Environment

Removal and landfill disposal of the liner system from Zeus II would cost \$464,117 per the OCD approved closure/reclamation estimate. While this cost reflects equipment to remove the liner, transport to a landfill and a tipping fee, the cost is also a reflection of the mass of emissions that will enter the atmosphere and the volume of truck traffic that will cause a threat to public safety. Liner

removal and landfill disposal for all three nearly identical containments would exceed \$1,000,000 and, relative to on-site burial (total cost of on-site burial *and* reclamation is \$485,700), will triple the emissions to the atmosphere and the risk posed by truck traffic on public roads.

Fresh Water

With respect to possible impacts to surface water, the principal risk is surface exposure of the liner systems due to erosion and negative impacts to the watercourse (visual impairment, water flow pattern changes and possible deleterious impacts due to residual microplastics) caused by HDPE solids. The Zeus containments lie near the axis of San Simon Swale – an area of deposition of alluvium derived from Hat Mesa to the north, not erosion. Exposure of the containment area by erosion will occur within the span of geologic time. When exposure occurs, millions of years from now, the synthetic liners will be chemically degraded by oxidation and other processes consistent with the Second Law of Thermodynamics (increasing entropy). A quick Google search resulted in a reviewed publication¹ that provides an estimate of a 5000-year degradation half-life for buried HDPE pipe. Given that 50,000 years is ten half-lives for an HDPE pipe and exposure due to erosion may occur in 5,000,000 years (more or less), we conclude that the buried HDPE liner system, including any microplastic particles, will not exist in a sufficient mass to present an environmental or regulatory concern millions of years from now.

With respect to impacts to groundwater, we considered the difference between on-site burial of the HDPE liners versus transport to a landfill that uses a similar HDPE liner system to protect groundwater. Common sense permits a conclusion that on-site burial of the liner system provides equal protection of groundwater as burial in a landfill lined with an HDPE liner system similar that used in Rule 34 containments.

Hicks Consultants concludes with a high degree of scientific certainty that the on-site liner burial proposal provides equal protection of groundwater and fresh water as compliance with 19.15.34.14 B.

Public Health

Liner removal and landfill disposal for all three nearly identical containments would exceed \$1,000,000 and creates significant emissions to the atmosphere. The carbon footprint of tailpipe emission is only the last part of the long chain of events that includes petroleum production, refining and transport of fuel. Unnecessary emissions is a public health concern due to documented impacts of carbon emission to earth's climate. Unnecessary truck traffic on public and lease roads is also an obvious risk to public safety/health.

On-site burial of the liner systems eliminates emissions due to transport to a landfill as well as the attendant risk to public health and safety caused by large truck traffic on lease roads and public roads. Thus, we conclude that on-site burial provides better protection of the environment and public health.

Environment

Our analysis of the proposed variance request provides the greatest amount of environmental protection. We considered the obvious risks to the following environmental concerns:

- Wildlife, migratory birds, special status species of concern, native plant communities, and livestock (vehicular accidents, noise, surface disturbance, soil compaction, invasive species)
- visibility and visual resources due to dust generation

- cave/karst resources
- air quality and greenhouse gas emissions

If the variance is *not* approved, disposing of the liner will require loading and transport that will not occur with the proposed alternative. These activities will cause the greatest risk to wildlife (noise, dust, vehicular accidents, human activity), native plant communities (compaction and importation of non-native and invasive species brought to the site on truck tires and in the imparted “clean earth”) and livestock (open gates, vehicular accidents). Transport of waste from the site and transport of clean soil for filling the excavation on unpaved lease roads will generate the most dust and create a visual impact as well as degrade air quality. The noise generated from the heavy truck traffic will impact wildlife and the action may have to be postponed to avoid negative effects during breeding season.

In addition the amount of Greenhouse Gas Emissions to the atmosphere are exponentially increased in the remove and haul option. Emissions are anticipated to be at their highest level during the build and closure phases of the project. The variance proposal will mitigate emissions during the closure phase by decreasing the amount of the of earth-moving activity, heavy equipment use, and truck traffic,

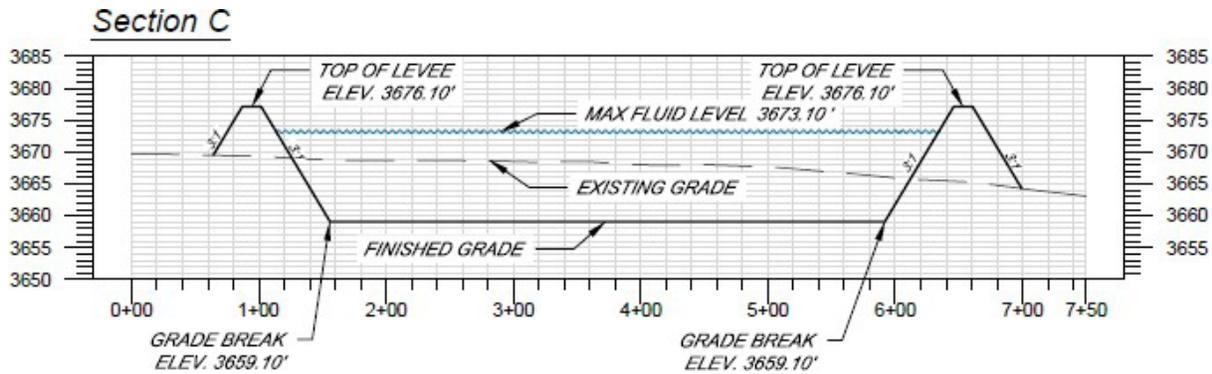
Conclusion

RT Hicks Consultants firmly believes that science supports the proposed alternative of disposal in place which obviously provides “equal or better protection of fresh water, public health, and the environment”. The risks to fresh water, public health and the environment are greatly mitigated by the proposed variance request. Common sense permits a conclusion that on-site burial of the liner system provides equal protection of groundwater as burial in a landfill lined with an HDPE liner system.

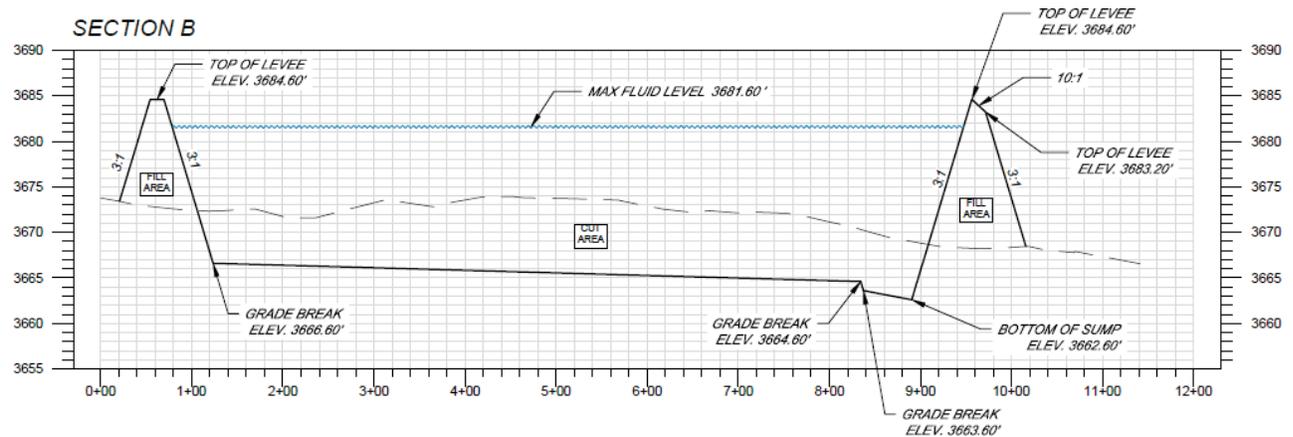
¹ <https://pubs.acs.org/doi/pdf/10.1021/acssuschemeng.9b06635>

Selected Cross Sections of Zeus I, II, III Containments

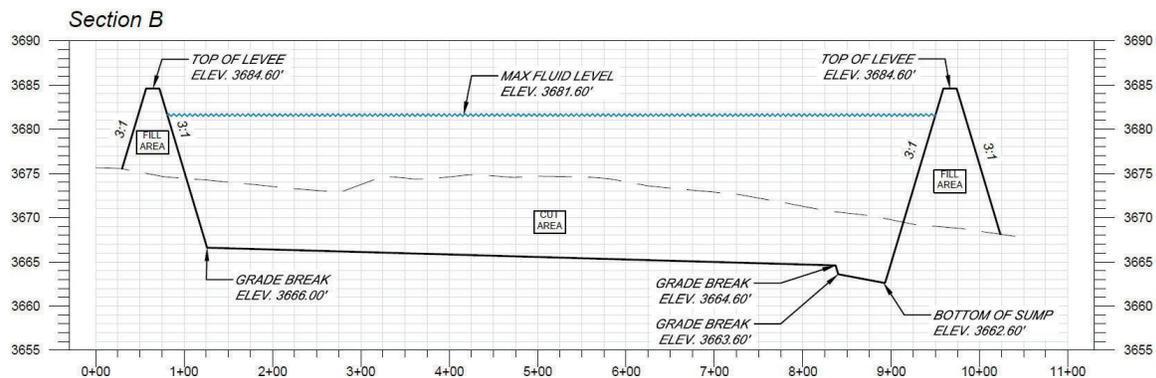
Zeus I Cross Section



Zeus Deuce Cross Section



Zeus Tres Cross Section



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

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: Recycling Facility Recycling Containment*
Type of action: Permit Registration
 Modification Bonding/Closure Extension
 Closure Other (explain) _____

* At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Solaris Midstream LLC OGRID #: 371643
Address: 9811 Katy Freeway, Suite 900, Houston, TX, 77024
Facility or well name (include API# if associated with a well): Zeus Containment
OCD Permit Number: 1RF-478 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr: O&P Section: 35 Township: 21S Range: 32E County: Lea
Surface Owner: Federal State Private Tribal Trust or Indian Allotment

2.
 Recycling Facility:
Location of (if applicable): Latitude: 32.428995 N Longitude: 103.638084 W approximately (NAD83)
Proposed Use: Drilling* Completion* Production* Plugging *
**The re-use of produced water may NOT be used until fresh water zones are cased and cemented*
 Other, requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.
 Fluid Storage
 Above ground tanks Recycling containment Activity permitted under 19.15.17 NMAC explain type _____
 Activity permitted under 19.15.36 NMAC explain type: _____ Other explain _____
 For multiple or additional recycling containments, attach design and location information of each containment
 Closure Report (required within 60 days of closure completion): Recycling Facility Closure Completion Date: _____

3.
 Recycling Containment :
 Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable) Latitude: 32.42936 N Longitude: 103.63979 W approx. (NAD83)
 For multiple or additional recycling containments, attach design and location information of each containment
 Lined Liner type: Thickness See Attached Engineer Drawings1 LLDPE HDPE PVC Other _____
 String-Reinforced
Liner Seams: Welded Factory Other Volume: See Attachment Drawings and Plans Dimensions _____
 Recycling Containment Closure Completion Date: _____

4.

Bonding:

Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC (These containments are limited to only the wells owned or operated by the owners of the containment.)

Bonding in accordance with 19.15.34.15(A)(1). Amount of bond \$ _____ (work on these facilities cannot commence until bonding amounts are approved)

Attach closure cost estimate and documentation on how the closure cost was calculated. (See Transmittal Letter)

5.

Fencing:

Four-foot height, four strands of barbed wire evenly spaced between one and four feet **IF REQUESTED BY DISTRICT OFFICE**

Alternate. Please specify: Game Fence

6.

Signs:

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation. See Variance

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

<u>General siting</u>	
<u>Ground water is less than 50 feet below the bottom of the Recycling Containment.</u> NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells FIGURES 1-2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality FIGURE 3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division FIGURE 4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map FIGURE 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. FEMA map FIGURE 6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site FIGURE 7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image FIGURE 8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. FIGURES 1 and 7 - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. FIGURE 9 - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

9.

Recycling Facility and/or Containment Checklist:

Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

- Design Plan - based upon the appropriate requirements.
- Operating and Maintenance Plan - based upon the appropriate requirements.
- Closure Plan - based upon the appropriate requirements.
- Site Specific Groundwater Data -
- Siting Criteria Compliance Demonstrations -
- Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

10.

Operator Application Certification:

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

Name (Print): Drew Dixon Title: SVP- Land and Regulatory
 Signature: *Drew Dixon* Date: 02/07/2024
 e-mail address drew.dixon@ariswater.com Telephone: 832-304-9028

11.

OCD Representative Signature: _____ **Approval Date:** _____

Title: _____ **OCD Permit Number:** _____

- OCD Conditions _____
- Additional OCD Conditions on Attachment

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996

January 8, 2024

Ms. Leigh Barr
EMNRD - Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505
Via E-Mail

Ms. Victoria Venegas
NMOCD - District 2
811 S. First St.
Artesia, NM 88210
Via E-Mail

RE: Solaris Water Midstream, LLC, Zeus, Zeus Deuce & Zeus Tres Containments

Dear Ms. Barr and Ms. Venegas:

On behalf Solaris Water Midstream, LLC (Solaris), R.T. Hicks Consultants prepared the following attachments:

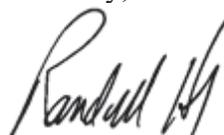
1. OCD Denial of Zeus Tres Submission & Hicks Consultants Response to 12-12-23
OCD Denial of Zeus Tres Submission
2. Variance Request for On-Site Deep Burial of Liner Systems In Lieu of
Transport/Disposal to Landfill
3. Closure Cost Estimate for Zeus I, II & III

Separate from this letter are C-147 Modifications for Zeus, Zeus II, and Zeus III to reflect a variance for on-site burial of the liner in lieu of transport and disposal to a landfill.

Upon OCD review of the variance request and any response by Hicks Consultants to address questions/comments, we will revisit previously-submitted closure cost estimates and prepare revisions to reflect on-site deep burial in lieu of transport to and disposal in a landfill.

We look forward to working with OCD to reduce risks to the environment and public health by allowing on-site burial of Rule 34 containment liner systems. Upon OCD final approval of the variance request, Solaris will consult the landowner to explain the proposed protocol for reclamation after cessation of operations.

Sincerely,

 tants

Randall T. Hicks PG
Principal

Copy: Solaris Water Midstream, LLC

RESPONSE to COST ESTIMATE DENIAL for Zeus III and III

Randall Hicks

From: Venegas, Victoria, EMNRD <Victoria.Venegas@emnrd.nm.gov>
Sent: Tuesday, December 12, 2023 9:54 AM
To: 'Chad Gallagher'; Drew Dixon
Cc: r@rthicksconsult.com
Subject: Zeus Tres Containment

Good morning Mr. Gallagher,

NMOCD has reviewed the recycling containment permit application and related documents, submitted by [371643] SOLARIS WATER MIDSTREAM, LLC for the proposed Zeus Tres Containment in O-35-21S-32E, Lea County, New Mexico. Note, the OCD will not approve the request to close-out the containments at the same time. [371643] SOLARIS WATER MIDSTREAM, LLC must follow the closure requirements of 19.15.34.14(A) – (D) NMAC. The application is denied for the following reasons:

- NMOC doesn't approve the closure cost provided in the application. The estimated closure cost should be based on today's costs. The closure cost must include all requirements of 19.15.34.14 CLOSURE AND SITE RECLAMATION REQUIREMENTS FOR RECYCLING CONTAINMENTS as shown in the closure cost itemized quote provided by Solaris for 1RF-509 - ZEUS DEUCE. NMOCD will accept increasing the bond as long as the bond clearly states it covers all registered/approved facilities along with site locations. The bond must include the permit number of each facility.
- [371643] SOLARIS WATER MIDSTREAM, LLC needs to submit a modification request on Form C-147 for the two approved containments (1RF-478 and 1RF-509) for the reclamation and revegetation portion of the rule and demonstrate that it provides equal or better protection of fresh water, public health, and the environment.
- [371643] SOLARIS WATER MIDSTREAM, LLC also needs to propose a time limit on conducting the reclamation and revegetation; for example: all containments are proposed to be reclaimed at the same time; however, in the event the facilities are not closed out within the same time frame (include a specific number of days), the reclamation and revegetation of each facility will proceed within (include a specific number of days) after the closure of containment.
- For 1RF-509 - ZEUS DEUCE [371643] SOLARIS WATER MIDSTREAM, LLC provided the closure cost estimate of \$812,748.58, [371643] SOLARIS WATER MIDSTREAM, LLC must include in the modification request the reason for changing this estimated cost and provide a justification. The same modification request must be submitted by [371643] SOLARIS WATER MIDSTREAM, LLC for 1RF-478 - ZEUS CONTAINMENT with an approved bond in place for \$298,606.50.

Please let me know if you have any additional questions.

Regards,

Victoria Venegas • Environmental Specialist
 Environmental Bureau
 EMNRD - Oil Conservation Division
 506 W. Texas Ave. Artesia, NM 88210

ZEUS TRES CONTAINMENT CLOSURE COST
SOLARIS MIDSTREAM WATERS

RESPONSE TO 12-12-23 OCD DENIAL OF ZEUS TRES SUBMISSION

- NMOC doesn't approve the closure cost provided in the application. The estimated closure cost should be based on today's costs. The closure cost must include all requirements of 19.15.34.14 CLOSURE AND SITE RECLAMATION REQUIREMENTS FOR RECYCLING CONTAINMENTS as shown in the closure cost itemized quote provided by Solaris for 1RF-509 - ZEUS DEUCE. NMOCD will accept increasing the bond as long as the bond clearly states it covers all registered/approved facilities along with site locations. The bond must include the permit number of each facility.

Response

We queried Charger Services, and the closure costs represent today's prices.

The revised closure cost uses the Solaris estimate remove fluids from the containment (the first work element)

1. Remove all fluids, contents and synthetic liners and the transfer of these materials to a division approved facilities-(See Variance Request)

The Charger estimate includes all requirements of NMAC 19.15.34.14 listed below

2. The operator shall test the soils beneath the containment for contamination with a five-point composite sample (The sample shall be analyzed for the constituents listed in Table I of 19.15.34.14. Depending upon the laboratory results, additional testing may be required, or closure may proceed).
3. The containment's location is to be reclaimed to a safe and stable condition that blends with the surrounding undisturbed area. Topsoil and subsoil shall be replaced to their original relative positions and contoured to achieve erosion control, long-term stability, and preservation of surface water flow patterns.
4. The disturbed area will be reseeded in the first favorable growing season following the closure.
5. Any additional costs related to substantially restoring the impacted surface area to the condition that existed prior to the construction of the recycling containment.

The Hicks Consultants estimate for the closure report (Presentation of results of testing) is in the cost estimate.

The single bond for all three containments will include the information presented below and a clear statement that the bond applies to all three containments.

Facility	Registration Number.	Latitude	Longitude
Zeus Containment	IRF-478	32.428995	-103.638084
Zeus Deuce Containment	IRF-509	32.43321	-103.63973
Zeus Tres Containment	To be assigned	32.432593	-103.640347

ZEUS TRES CONTAINMENT CLOSURE COST
SOLARIS MIDSTREAM WATERS

- [371643] SOLARIS WATER MIDSTREAM, LLC needs to submit a modification request on Form C-147 for the two approved containments (1RF-478 and 1RF-509) for the reclamation and revegetation portion of the rule and demonstrate that it provides equal or better protection of fresh water, public health, and the environment.

Response

We attach the requested C-147s with a variance request for OCD consideration.

- [371643] SOLARIS WATER MIDSTREAM, LLC also needs to propose a time limit on conducting the reclamation and revegetation; for example: all containments are proposed to be reclaimed at the same time; however, in the event the facilities are not closed out within the same time frame (include a specific number of days), the reclamation and revegetation of each facility will proceed within (include a specific number of days) after the closure of containment.

Response

Solaris will begin reclamation and revegetation efforts within 60 days after submission of the closure report (Results of laboratory testing of for the first containment that ceases operation.

- For 1RF-509 - ZEUS DEUCE [371643] SOLARIS WATER MIDSTREAM, LLC provided the closure cost estimate of \$812,748.58, [371643] SOLARIS WATER MIDSTREAM, LLC must include in the modification request the reason for changing this estimated cost and provide a justification. The same modification request must be submitted by [371643] SOLARIS WATER MIDSTREAM, LLC for 1RF-478 - ZEUS CONTAINMENT with an approved bond in place for \$298,606.50.

Response

Upon careful examination of the Zeus Deuce and Zeus cost estimates, we realized that the estimate for Zeus did not explicitly include removal and disposal of the liner system. Adding the liner removal/disposal cost of \$464,117 to the \$298,606 estimate for Zeus illustrates that the difference between an appropriate cost estimate for Zeus (762,723) and the cost estimate for Zeus II (812,748) is only about 10%. We believe that Patriot assumed that Solaris would remove/dispose of the liner and Solaris/Hicks assumed that liner/removal was an obvious work element of Patriot.

The attached variance request provides the justification for changing the closure cost estimate for Zeus I and Zeus II while combining the closure of all three containments into a single closure project.

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996

ZEUS, ZEUS DEUCE & ZEUS TRES IN-GROUND CONTAINMENTS

Financial Assurance Cost Estimate

Attached are:

1. Solaris Water Midstream LLC cost estimate to remove standing fluids in the above-referenced containments, transfer fluids via pipeline and dispose into the adjacent Zeus SWD.
2. Charger Services cost estimate to obtain closure samples in accordance with the protocol outlined in the Variance Request to allow on-site burial of the liner systems in lieu of transport and disposal to an OCD-approved facility.

RT Hicks Consultants will assist with the sampling as necessary and prepare the Closure Report for the site. Charger Services closure sampling cost is estimated at \$8100.00 (attached). RT Hicks Consultants cost for closure report preparation/submittal is 7500.00.

Total cost is presented below.

<i>Solaris Water Midstream, LLD</i>	<i>\$ 5000.00</i>
<i>Charger Services</i>	<i>\$552,675.00</i>
<i>RT Hicks Consultants</i>	<i>\$ 7500.00</i>
 <i>Total</i>	 <i>\$565,175.00</i>

As indicated in the various attachments, all closure requirements of Rule 34 are included as line items of each cost estimate.

CHARGER SERVICES

23 W. INDUSTRIAL LOOP
 MIDLAND, TEXAS 79701
 (432) 218 - 7674

MATT.HOLM@CHARGERSERVICES.COM
 (432)-425-0270



ESTIMATE

ARIS
 Zeus 1, Deuce, & Tres Reclaim Package (Deep Bury)
 11/3/2023

DATE	ACTIVITY	QUANTITY	RATE	TOTAL
Reclaim Earthwork	<p>This is pricing a package to reclaim all 3 sites, Zeus 1, 2, & 3. Mobilize equipment to site.</p> <p>Existing Ponds estimated dimensions (3) 436' x 779' floor (3) 700' x 1000' outside to outside 15' top of wall Average 19' deep 3:1 slopes</p> <p>Dirt & liner reclaim of pond consist of- Deep bury all liner(s) 10' below ground level, backfill pond area with uncontaminated soil from pond walls. Pond area will be reclaimed to natural elevations and water flow patterns. All stockpiled strippings will be put down last to ensure ground has been completely returned to native design.</p>	3.00	\$161,900.00	\$485,700.00
Soil and contamination testing	<p>Environmental soil testing Before earthwork can begin the soil must be tested for contamination in case of liner leakage. Cost include trip, labor, materials, and laboratory testing of 10 tests.</p>	3.00	\$2,700.000	\$8,100.00
Seeding	<p>Broadcast seeding of pond area Seed will be a native mix for Lea County NM Includes purchase of seed mix and placement</p>	3.00	\$1,500.00	\$4,500.00
Fence Removal	<p>Fence removal and disposal Fence estimated at 3,400 ft per pond This includes removal of all posts, braces, wire, fabric, gates, and hardware.</p>	3.00	\$18,125.00	\$54,375.00

Total	\$552,675.00
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From: [Jeffery Cook](#)
To: [Chad Gallagher](#); lisa@rthicksconsult.com
Cc: [Randall Hicks](#)
Subject: Solaris Zeus I, II, III Reclamation cost estimate.
Date: Tuesday, January 2, 2024 3:00:28 PM
Attachments: [image001.png](#)

Chad,

Below is our closure cost estimate for disposal of residual fluid prior to removal of the liner, sampling and reclamation.

Solaris Water Midstream anticipates that residual fluid at the time of scheduled closure/reclamation in Zeus I, II, and III will not exceed 100,000 bbls. Solaris does not fill the containments to capacity unless there is a schedule use for the fluids. A volume of 33,000 bbls each represents about 3-4 feet of fluid in the containment, which is sufficient to keep the liner in place during high wind. Solaris would use in-house staff and vendors to transfer the fluid to the Zeus SWD a total cost of \$0.10/bbl. Thus, the cost of residual fluid removal is \$10,000.

Thanks,

Jeffery Cook

Director, Facilities Engineering & Construction

(c) 713-614-3644

Jeffery.cook@ariswater.com



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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 316943

CONDITIONS

Operator: SOLARIS WATER MIDSTREAM, LLC 907 Tradewinds Blvd, Suite B Midland, TX 79706	OGRID: 371643
	Action Number: 316943
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	None	2/23/2024