

2RF-173 -
GRAVITAS AST
CONTAINMENT
FACILITY ID
[fVV2212248165]
C-147/Correspondence/
Conditions of Approval.

[371643] SOLARIS WATER
MIDSTREAM LLC
May 05, 2022.

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: [X] Recycling Facility [] Recycling Containment*
Type of action: [X] Permit [] Modification [] Closure
[] Registration [] Extension [] 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): Gravitas AST Containment
OCD Permit Number: 2RF-173 - FACILITY ID (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr: [fVV2212248165] Section: 2 Township: 26S Range: 27E County: Eddy
Surface Owner: [] Federal [X] State [] Private [] Tribal Trust or Indian Allotment

2. [X] Recycling Facility:
Location of (if applicable): Latitude: 32.0666862 N Longitude: 104.1649229 W approximately (NAD83)
Proposed Use: [X] Drilling* [X] Completion* [X] Production* [X] 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.
[X] Fluid Storage
[X] Above ground tanks [X] 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. [X] 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: 32.0666862 N Longitude: 104.1649229 W approx. (NAD83)
[] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [] Liner type: Thickness See Attached Engineer Drawings [X] LLDPE [] HDPE [] PVC [] Other
[] String-Reinforced
Liner Seams: [] Welded [] Factory [] Other Volume: 40,000 bbls 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 \$ _32,500.00_ (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

Alternate. Please specify: Secure Gate for Access Stairway

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.

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.

General siting	
Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells FIGURES 1-2	<input checked="" type="checkbox"/> Yes <input 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): Bradley Todd Carpenter Title: Operations Manager
 Signature: Todd Carpenter Date: 4/12/2022
 e-mail address todd.carpenter@solarismidstream.com Telephone: 432-413-0918

11.

OCD Representative Signature: Victoria Venegas Approval Date: 05/04/2022
 Title: Environmental Specialist OCD Permit Number: 2RF-173 - FACILITY ID
[fVV2212248165]
 OCD Conditions
 Additional OCD Conditions on Attachment

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Wednesday, May 4, 2022 2:20 PM
To: Michael Incerto; 'Todd Carpenter'; 'Teena Robbins'
Cc: r@rthicksconsult.com; rmann@slo.state.nm.us; 'Helen Gebhard'; Enviro, OCD, EMNRD
Subject: 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165]
Attachments: C-147. 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165].pdf

2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165]. Conditions of Approval

Mr. Incerto,

NMOCD has reviewed the recycling containment permit application and related documents, submitted by [371643] SOLARIS WATER MIDSTREAM LLC on April 13, 2022, for 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] in Unit Letter N, Section 02, Township 26S, Range 27E, Eddy County, New Mexico. [371643] SOLARIS WATER MIDSTREAM LLC requested variances from 19.15.34 NMAC for 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] related to 19.15.34. NMAC

The following variances have been approved:

- The variance to 19.15.34.14 NMAC Table I for the use of alternate analytical method 8015/8015M for total petroleum hydrocarbons (TPH) is approved.
- The variance to 19.15.34.14 NMAC Table I for the use of alternate analytical method EPA 300.0 or SM4500 for the analysis of chloride is approved.
- The variance to 19.15.34.12.A.(2) NMAC for the no side-slope requirement for the AST containment with vertical walls is approved.
- The variance to 19.15.34.12.A.(3) NMAC for the liners to be anchored to the top of the AST steel walls with clips and no anchor trenches is approved.
- The variance from 19.15.34.13.E NMAC for the installation of a Mega Bird X audible bird deterrence system, is approved.
- The variance to 19.15.34.12.A.(4) NMAC for the installation on the AST containment of a liner/leak detection system as described below, is approved:
 - The proposed AST containment will lie within a 3-foot musculwall secondary containment employ a 60-mil HDPE liner for fluid retention.
 - Slope to a sump to facilitate removal of precipitation and any released fluids within the musculwall secondary containment.
 - The proposed AST design includes:
 - Two 30-mil LLDPE liners as the primary liner system
 - A leak detection system between the two 30-mil liners
 - Geotextile material beneath the primary liner system
 - 200 mil geogrid beneath the geotextile that drains to a sump outside of the steel frame
 - 60-mil HDPE beneath the geogrid
- The variance to NMAC 19.15.34.12.D to install a gate or chain across the stairway between the ground surface and the open-top of the AST containment is approved. The operator shall place an appropriate sign on the gate or chain to prevent unauthorized human access to the open top of the containment and provide a mechanism to lock the gate when responsible personnel is not onsite.

The following variance has been denied.

- The variance to 19.15.34.13.B.(2) NMAC for a 2-foot freeboard has been denied. 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] must operate with the 3-foot freeboard as specified by rule.

The form C-147 and related documents for the 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] is approved with the following conditions of approval:

- The purpose of this permit is for oil and gas activities regulated under the NMAC 19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Section 70-2-12(B) NMSA 1978, which authorizes the division to regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas or both and Paragraph (21) of Section 70-2-12(B) NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.
- [371643] SOLARIS WATER MIDSTREAM LLC shall construct, operate, maintain, close, and reclaim the 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] in compliance with 19.15.34 NMAC.
- 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] is approved for three years of operation from the date of the permit application. 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] permit expires on April 13, 2025.
- [371643] SOLARIS WATER MIDSTREAM LLC cannot receive produced water in the 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] until after the original copy of the financial assurance has been accepted by NMOCD.
- Per Rule 19.15.34.15.A.(1) operators without existing financial assurance pursuant to 19.15.8 NMAC shall furnish financial assurance acceptable to the division in the amount of the recycling containment's estimated closure cost. The total closure cost for 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] consisting of one (1) above ground storage tank (AST) of 40,000 bbl of capacity in Unit Letter N, Section 02, Township 26S, Range 27E, Eddy County, New Mexico in the amount of \$32,500.00, satisfies the requirements of NMAC 19.15.34.15.A.(1).
- The financial assurance bond should be mailed to the Oil Conservation Division; Bonding and Compliance; 1220 South St Frances Drive; Santa Fe, NM 87505. NMOCD will notify you when the bond has been received and approved.
- [371643] SOLARIS WATER MIDSTREAM LLC shall notify NMOCD when construction of the 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] commences.
- [371643] SOLARIS WATER MIDSTREAM LLC shall notify NMOCD when recycling operations commence and cease at the 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165].
- A minimum of 3-feet freeboard must be maintained in 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] recycling containment, at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operation of the facility is considered ceased and notification of cessation of operations should be sent electronically to [OCD Online](#). An extension to extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through [OCD Online](#).
- [371643] SOLARIS WATER MIDSTREAM LLC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on NMOCD form C-148 through [OCD Online](#) even if there is zero activity. The new Form C-148 can be found at: <https://www.emnrd.nm.gov/ocd/wp-content/uploads/sites/6/Revised-C-148-Form-January-2022.pdf>
- [371643] SOLARIS WATER MIDSTREAM LLC will collect water samples from the windmill east of the AST each quarter and analyze these samples for conductance and chloride. [371643] SOLARIS WATER MIDSTREAM LLC must submit laboratory results to the Division for review.
- [371643] SOLARIS WATER MIDSTREAM LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field wastes at 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165].

Please reference number 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165] in all future communications.

Regards,

Victoria Venegas • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
(575) 909-0269 | Victoria.Venegas@state.nm.us
<http://www.emnrd.state.nm.us/OCD/>



Venegas, Victoria, EMNRD

From: Randall Hicks <r@rthicksconsult.com>
Sent: Friday, April 29, 2022 4:48 PM
To: Venegas, Victoria, EMNRD; 'Teena Robbins'; 'Michael Incerto'
Cc: 'Todd Carpenter'
Subject: [EXTERNAL] RE: Gravitas

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Ms. Venegas

My intent was to show how the proposed variance exceeds the standard approved protocol, which is:

In Volume I page 14, Plate 1, Design Sketch, the application describes the liners/leak detection

systems as:

Description of Leak Detection System

- ***40-mil LLDPE comprise primary liner and 30-mil LLDPE comprise the secondary liner***
- ***200-mil geogrid drainage layer lies between the primary and secondary liner per Plate 2***
- ***Geotextile between the geogrid and each liner***

So approval of the variance obviates the standard system described above and mandates that we follow the protocol outlined in the variance request.

Approval of the variance also obviates the standard variance :

The applicant proposes one layer of 40-mil LLDPE non-reinforced as a primary liner and a secondary liner comprised of one layer of 30-mil LLDPE non-reinforced material

As we would be employing 60-mil LLDPE via the two 30-mil for the secondary liner and 60-mil HDPE as the secondary liner....

Thanks for jumping on this.

Randall T. Hicks PG
R.T.Hicks Consultants LTD
901 Rio Grande Blvd. NW F-142
Albuquerque, NM 87104

505-238-9515 (mobile and best contact)
505-266-5004 (office land line)

From: Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Sent: Friday, April 29, 2022 4:09 PM
To: r@rthicksconsult.com; 'Teena Robbins' <Teena.Robbins@ariswater.com>; Michael Incerto <michael.incerto@solariswater.com>
Subject: Gravitas

Good afternoon Mr. Hicks,
Regarding Application ID 98144 Gravitas AST Containment, could you please clarify the following:

In Volume I page 8, "Statement Explaining Why the Applicant Seeks a Variance" the application describes the liners/leak detection systems as:

The proposed AST design (see design sketch) includes:

- *Two 30-mil LLDPE liners as the primary liner system*
- *A leak detection system between the two 30-mil liners*
- *Geotextile material beneath the primary liner system*
- *200 mil geogrid beneath the geotextile that drains to a sump outside of the steel frame*
- *60-mil HDPE beneath the geogrid*

Thus, the AST design

- 1. meets the Rule 34 mandate of a 60-mil primary liner*
- 2. exceeds the Rule 34 mandate of a 30-mil secondary liner*

In Volume I page 14, *Plate 1, Design Sketch*, the application describes the liners/leak detection systems as:

Description of Leak Detection System

- *40-mil LLDPE comprise primary liner and 30-mil LLDPE comprise the secondary liner*
- *200-mil geogrid drainage layer lies between the primary and secondary liner per Plate 2*
- *Geotextile between the geogrid and each liner*

Volume I "Variances and/or Equivalency Demonstrations for Above Ground Steel Tank Modular Recycling Storage Containments (AST) Primary and Secondary Liners" page 66, the applications says:

The applicant proposes one layer of 40-mil LLDPE non-reinforced as a primary liner and a secondary liner comprised of one layer of 30-mil LLDPE non-reinforced material

Could you please clarify which liner system -and the corresponding variances- are going to be used in Gravitass?. Thank you for your attention on this matter.

Regards,

Victoria Venegas • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

(575) 909-0269 | Victoria.Venegas@state.nm.us

<http://www.emnrd.state.nm.us/OCD/>



Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Tuesday, May 3, 2022 11:17 AM
To: Randall Hicks; rmann@slo.state.nm.us; 'Michael Incerto'
Cc: 'Todd Carpenter'; 'Teena Robbins'
Subject: RE: [EXTERNAL] Solaris (for Chevron) -C-147 Permit Application and Variance request Gravitas AST, Eddy County

2RF-173 - CONTAINMENT FACILITY ID GRAVITAS AST FACILITY ID [fVV2212248165]

Good morning,

It is NMOCD's opinion that as the containment operator, and per 19.015.13.15.A.1, [371643] SOLARIS WATER MIDSTREAM LLC must submit the closure cost estimate for 2RF-173 - GRAVITAS AST CONTAINMENT FACILITY ID [fVV2212248165].

Please email me a headed letter that states that the closure cost for 2RF-173 - CONTAINMENT FACILITY ID GRAVITAS AST FACILITY ID [fVV2212248165], in N-02-26S-27E, Eddy County NM, consisting of one (1) above ground tank of 40,000.00 bbl of capacity is \$___ .

Thank you for your cooperation on this matter.

Regards,

Victoria Venegas • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

(575) 909-0269 | Victoria.Venegas@state.nm.us

<http://www.emnrd.state.nm.us/OCD/>



From: Randall Hicks <r@rthicksconsult.com>
Sent: Wednesday, April 13, 2022 5:43 AM
To: Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; rmann@slo.state.nm.us; tMasterson@slo.state.nm.us
Cc: 'Michael Incerto' <michael.incerto@ariswater.com>; 'Todd Carpenter' <todd.carpenter@solariswater.com>; 'Chad Gallagher' <chad.gallagher@solarismidstream.com>; 'Helen Gebhard' <Helen.Gebhard@solariswater.com>; 'David Hamilton' <david@rthicksconsult.com>; 'Teena Robbins' <Teena.Robbins@ariswater.com>
Subject: [EXTERNAL] Solaris (for Chevron) -C-147 Permit Application and Variance request Gravitas AST, Eddy County

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Ms. Venegas

Attached is our demonstration of compliance with the surface owner notification requirements of Rule 34 for the Gravitas AST Containment and recycling facility.

Please note

1. Our research concluded that a localized body perched groundwater exists about 25 feet below land surface at the site. This shallow groundwater zone is not the regional aquifer and is not (cannot) be used beneficially. We include a variance request to allow use of the AST at this site.
2. The variance request calls for a significantly more robust design/construction of this 40,000 bbl AST as well as quarterly sampling of a windmill that is about 500 feet east of the AST.
3. In order to meet the stimulation schedule for Chevron, the AST will be placed in service on or soon after May 1.
4. After a thorough examination of the hydrogeologic data and development of the safeguards in the design/construction of the AST, Hicks Consultants is recommending that Solaris, for the benefit of Chevron, construct and use this AST for recycling produced water to meet the needs of Chevron's well stimulation schedule.
5. The produced water flowing into the Gravitast AST recycling facility originates from Chevron wells and the treated produced water from the facility is used for Chevron wells. Thus, the operation of the facility by Solaris for the benefit of the mineral leaseholder does not, in our opinion, trigger the need for closure/reclamation bonding by Solaris.

If OCD could review this application quickly, which will be uploaded to OCD.Online by Solaris Water Midstream later today, that would be helpful. We apologize for the short notice, but the increasing production in the Permian Basin is causing more recycling of produced water – a good thing for New Mexico and potentially for lowering prices at the pump.

Thanks for your attention to this submission.

From APRIL 14-25 I WILL BE RELATIVELY UNAVAILABLE – PLEASE CONTACT **DAVE HAMILTON**, KRISTIN POPE OR LISA CROFT FOR ASSISTANCE. I will be on an island for a 30th Anniversary trip that was to happen in April 2020.

Randall T. Hicks PG
R.T.Hicks Consultants LTD
901 Rio Grande Blvd. NW F-142
Albuquerque, NM 87104

505-238-9515 (mobile and best contact)
505-266-5004 (office land line)

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 104117

CONDITIONS

Operator: SOLARIS WATER MIDSTREAM, LLC 907 Tradewinds Blvd, Suite B Midland, TX 79706	OGRID: 371643
	Action Number: 104117
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	None	5/4/2022