



Ameredeve II, LLC

2901 Via Fortuna Suite 600 • Austin, Texas 78746 • Phone (737) 300-4700

April 4, 2023

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

RE: O60K AST  
DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498  
Facility ID# fVV2234954815  
Section 5 T26S R36E, Lea County

Ameredeve Operating respectfully submits modification to DeSoto Springs #3 Recycling Facility/Inground Containment permit application to include registration for O60K AST (above ground steel tank containment) constructed as a part of the above recycling facility. This submission is a modification of prior submission dated January 16, 2023, which was denied by NMOCD on February 23, 2023, and will provide clarification and supplemental information to address elements of concern. The denial communication will follow this cover letter.

This registration package includes:

- C 147
- Site map of O60K AST is shown on Plate 1. Constructed on existing pad north of inground containment.
- Updated information regarding depth to water and wellhead protection to supplement siting criteria presented in original permit for this facility. (Plate 2 and 3)
- Design and Construction Plan
- Operations and Maintenance Plan
- Closure Plan
- Appendix A: Well logs
- Appendix B: Technical Specifications
- Appendix C: Variance requests
  - Fencing
  - Levee Slope
  - Anchor Trench
  - Primary liner as dual (2) layer 40-mil LLDPE
  - Secondary liner as 60-mil HDPE

Please contact me with any questions.

Sincerely,

*Shane McNeely*

Shane McNeely  
Ameredev II, LLC

April 4, 2023

Released to Imaging: 4/14/2023 11:41:16 AM



Ameredev II, LLC

**From:** [Venegas, Victoria, EMNRD](#)  
**To:** [Andrew Parker](#); [Laura Parker](#)  
**Subject:** [EXTERNAL] 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]  
**Date:** Thursday, February 23, 2023 12:50:50 PM

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**1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815].**

Good afternoon Mr. Parker,

NMOCD has reviewed the recycling containment permit modification and related documents, submitted by AMEREDEV OPERATING, LLC [372224] on January 10, 2023, for 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] in Unit Letter G, Section 05, Township 26S, Range 36E, Lea County, New Mexico. The modification request is denied for the following reasons:

- Please clarify if, as stated on page 23, "*A Tank Tech Above-Ground Storage Tank Containment is used at the DeSoto Springs recycling facility*" because:
  - The application includes the spec sheet of an Epic 360 Tank from Mustang Extreme Environmental Services, LLC (pages 48-52), and also;
  - The application includes a letter proposing using a Tank Tech LLC Model 600 and the corresponding technical specifications for this tank (Pages 30-37).
- The design on page 30 doesn't match the description in the cover letter on page 2. Also, do not refer the reader to another permit for information (page 2, Dagger 2).
- On page 39, please describe the AST that is actually in place (red text)
- On page 39, General, the document mentions "*Appendix Engineering Drawings, Liner Specifications, Set Up.*" There is no such Appendix in the application.
- Page 40. Liner and Leak detection system: Please, describe the liner system specific to the AST in place (remove red text)
- The liner/leak detection system described on page 2 requires a variance to the rule.
- The application must include the variance request to the rule for slopes and trenches specific to the AST.
- Page 54. Monitoring Inspections and Reporting.
  1. The application mentions, "*Weekly inspections shall occur when there is 1-foot depth or more of produced water in the containment. Monthly inspections shall occur when there is less than the 1-foot depth of produced water in the containment, as well as when the ASTs are emptied and prior to refilling.*"
  2. This would require a variance request to the rule. Per 19.15.34.13 OPERATIONAL REQUIREMENTS FOR RECYCLING CONTAINMENTS, the operator shall inspect the recycling containment and associated leak detection systems weekly while it contains fluids.
- Remove C-147 on pages 26 to 28. Please remove all the red text from the application. Only include text specific to the actual AST.

Please let me know if you have any additional questions.

Regards,

**Victoria Venegas** • Environmental Specialist  
Environmental Bureau  
EMNRD - Oil Conservation Division  
(575) 909-0269 | [Victoria.Venegas@emnrd.nm.gov](mailto:Victoria.Venegas@emnrd.nm.gov)  
<https://www.emnrd.nm.gov/oed/>



State of New Mexico
Energy Minerals and Natural Resources
Department Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

Recycling Facility and/or Recycling Containment

Type of Facility: [ ] Recycling Facility [X] Recycling Containment\*
Type of action: [ ] Permit [X] Registration
[X] Modification [ ] 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: Ameredev II, LLC (For multiple operators attach page with information) OGRID #: 37224
Address: 2901 Via Fortuna, Suite 600 Austin, TX 78746
Facility or well name (include API# if associated with a well): DeSoto Springs #3 Recycling Facility
OCD Permit Number: 1RF-498 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr A,B, G, H Section 5 Township 26S Range 36E County: Lea
Surface Owner: [ ] Federal [ ] State [X] Private [ ] Tribal Trust or Indian Allotment

2. [ ] Recycling Facility:
Location of recycling facility (if applicable): Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ 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.
[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: O60 K AST
[ ] Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable): Latitude 32.0760575 Longitude -103.2829402 NAD83
[ ] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [ ] Liner type: Thickness \_\_\_\_\_ mil [ ] LLDPE [ ] HDPE [ ] PVC [ ] Other \_\_\_\_\_
[ ] String-Reinforced Primary liner: Dual (2) 40 mil LLDPE; Secondary liner 60 mil HDPE
Liner Seams: [X] Welded [ ] Factory [ ] Other \_\_\_\_\_ Volume: 60K bbl Dimensions: Height: 12 ft 3.5 in; Diameter 191 ft
[ ] 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.

5.

**Fencing:**

Four foot height, four strands of barbed wire evenly spaced between one and four feet

Alternate. Please specify \_\_\_\_\_ Game Fencing 8 ft with single strand barbed wire on top

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** See original permit application for Recycling Facility and inground containment RF- 498

*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.*

| <b>General siting</b>   |  |
|---|--|
| <b>Ground water is less than 50 feet below the bottom of the Recycling Containment.</b> Plate 2<br>NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><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. Plate 3<br>- Written confirmation or verification from the municipality; written approval obtained from the municipality | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> NA |
| Within the area overlying a subsurface mine.<br>- Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Within an unstable area.<br>- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Within a 100-year floodplain. FEMA map  | <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).<br>- Topographic map; visual inspection (certification) of the proposed site   | <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.<br>- Visual inspection (certification) of the proposed site; aerial photo; satellite image   | <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. Plate 3<br>- 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.<br>- 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 – See original permit application for Siting Criteria. Supplemental DTW and Wellhead protection is included in this submission document.
- 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.

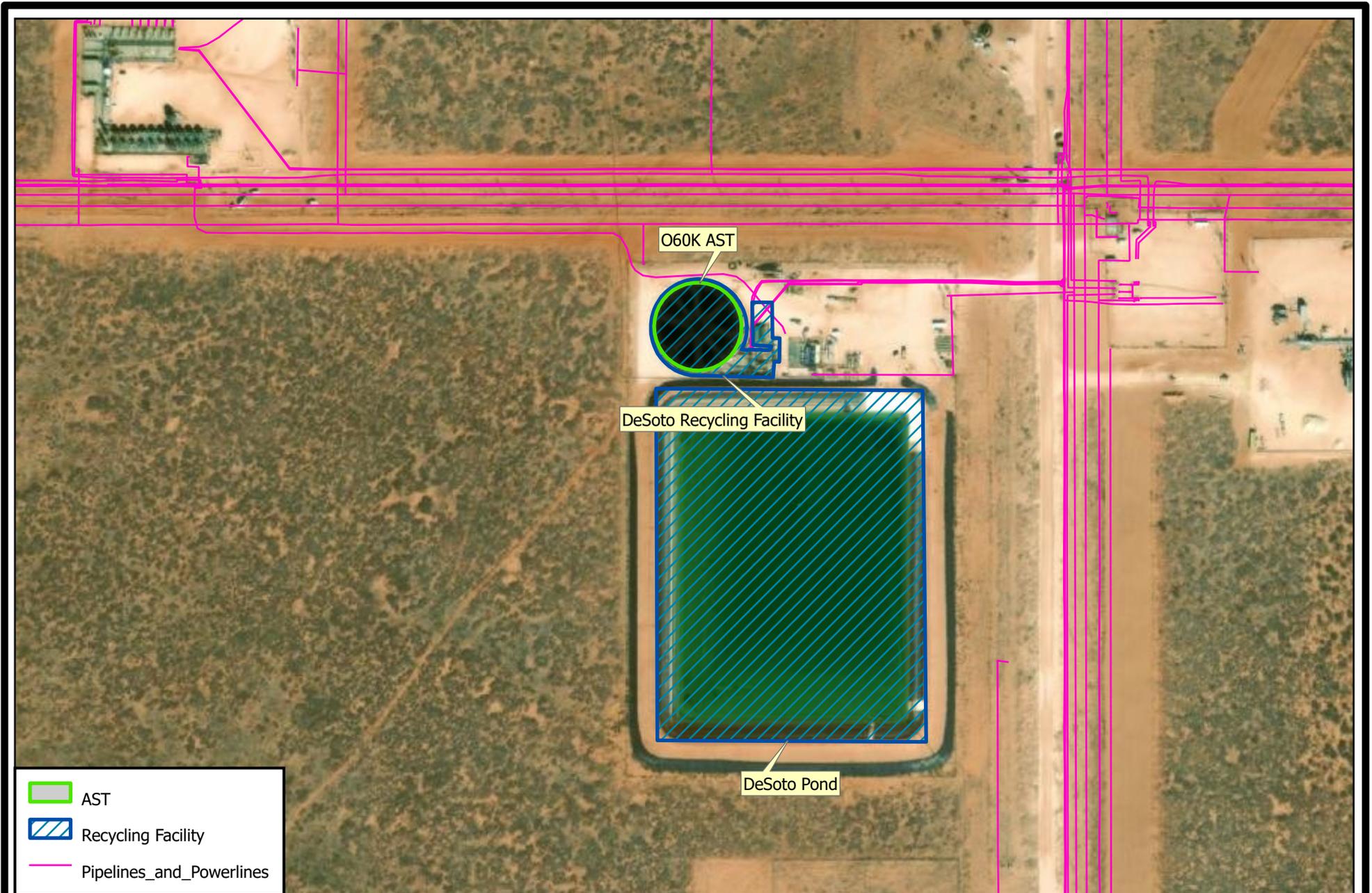
Name (Print): Shane McNeely Title: Engineer  
 Signature: *Shane McNeely* Date: 4/11/2023  
 e-mail address: smcneely@amerev.com Telephone: 737-300-4729

11.

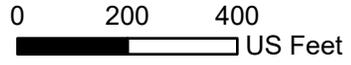
OCD Representative Signature: *Victoria Venegas* Approval Date: 04/14/2023

Title: Environmental Specialist OCD Permit Number: 1RF-498

- OCD Conditions \_\_\_\_\_
- Additional OCD Conditions on Attachment



 AST  
 Recycling Facility  
 Pipelines\_and\_Powerlines



|  |
|--|
| Site Map O60K AST  |
| DeSoto Springs #3 Recycling Containment<br>and Recycling Facility RF-498 [fVV2234954815] |

|            |
|------------|
| Plate 1    |
| 01/10/2023 |

# Supplemental Siting Criteria



Amerdev II, LLC

DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498 Facility ID# fVV2234954815  
O60K AST Registration

## Supplemental Siting Criteria

### Depth to Water

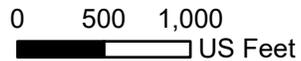
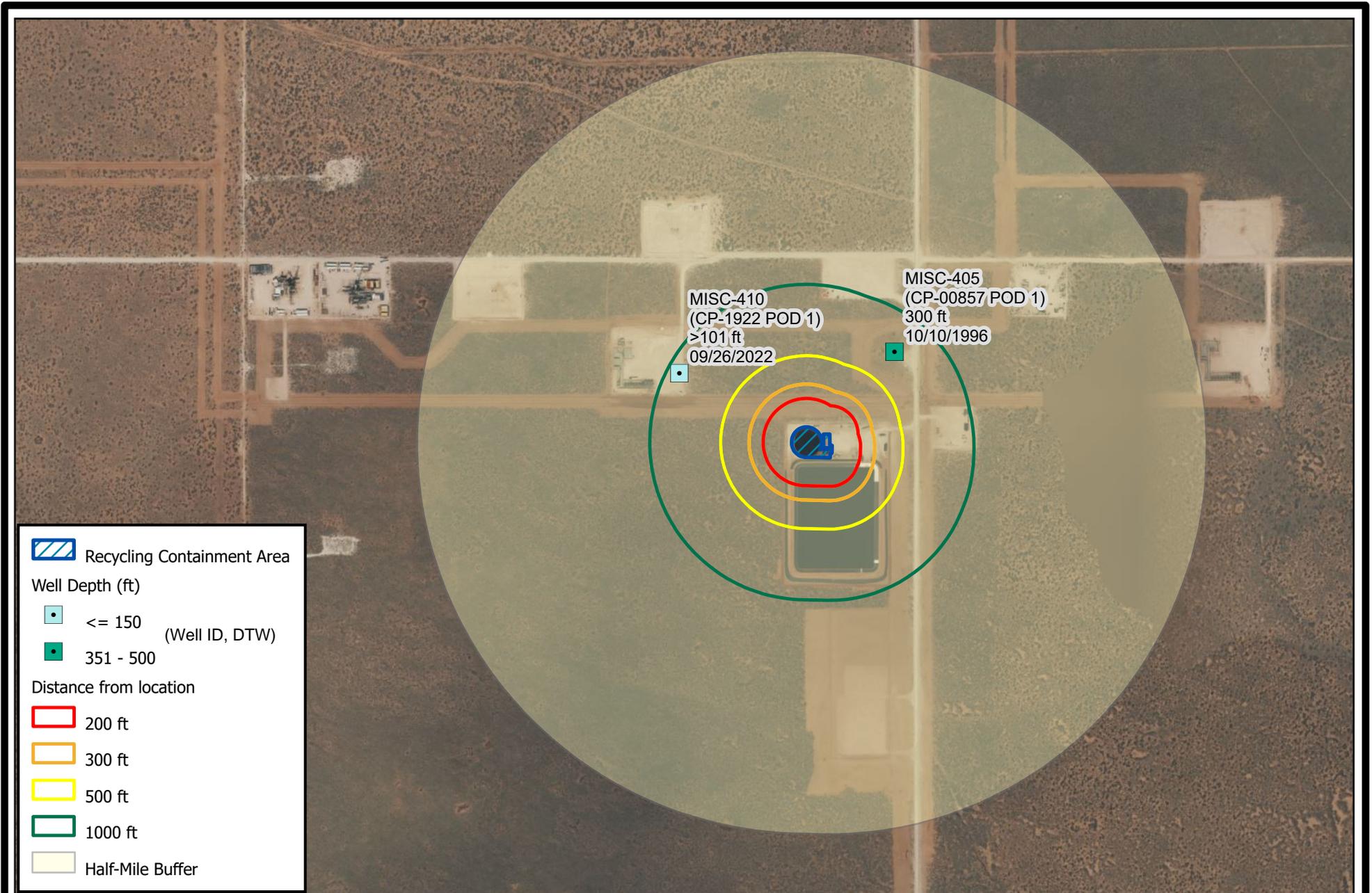
The depth-to-water borehole and water well nearest to the containment are mapped on Plate 2, well log follows in Appendix A:

- MISC-410 (CP-1922 POD 1) is located 0.2 mile to the northwest of the DeSoto Springs #3 containments. Depth of the water is noted as >101-feet. This borehole has been plugged.

### Wellhead Protection

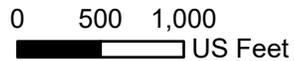
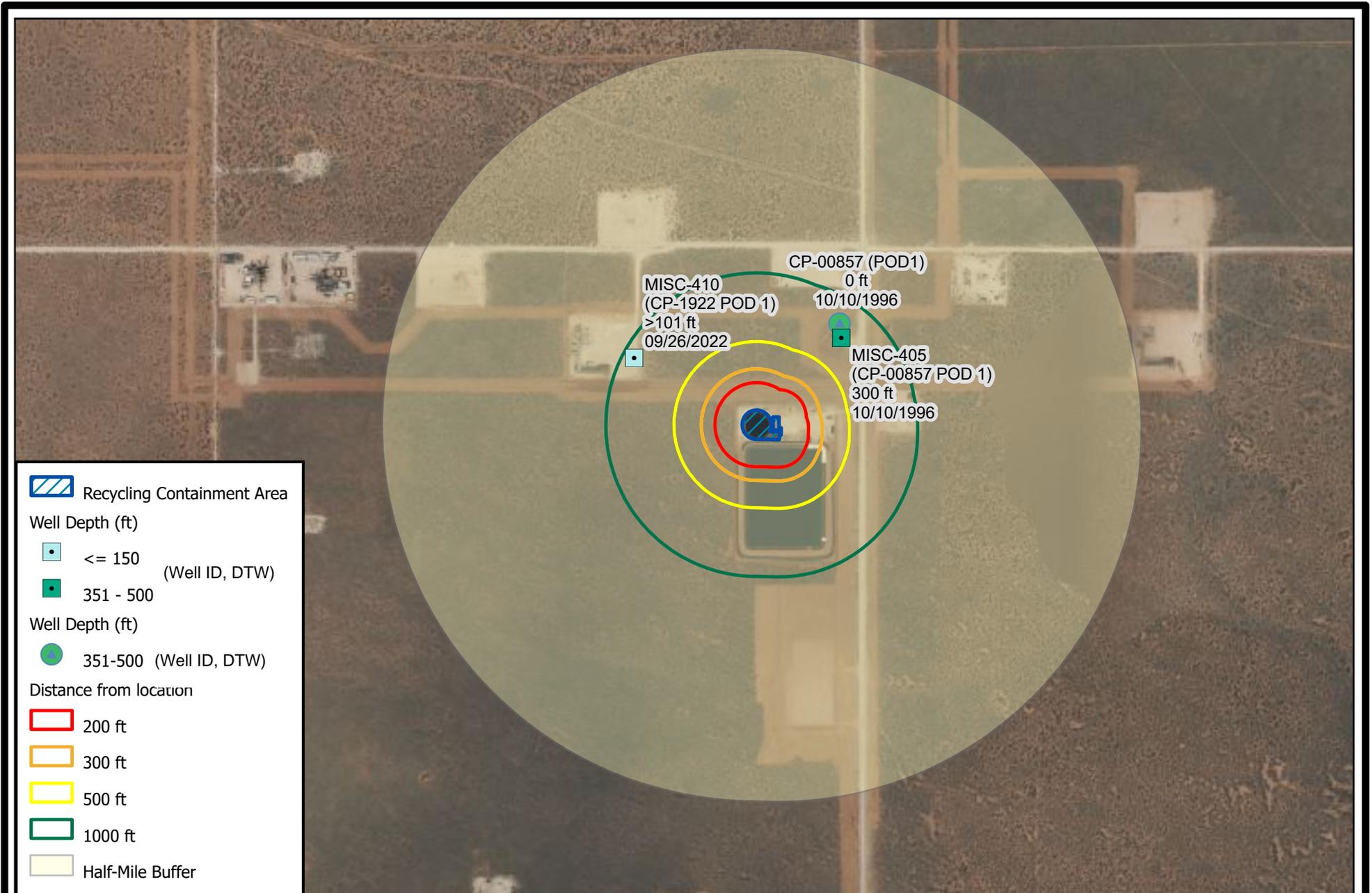
Wellhead protection is maintained with closest fresh water source > 500 ft from AST is mapped on Plate 3, Point of Diversion Summary follows in Appendix A.

- MISC-405 (CP-00857 POD 1) which is located within 921 ft. to the northeast of the DeSoto Springs #3 containments. Depth of water bearing strata is noted as 300-feet. The location shown is corrected from OSE documented well location based on visual observation.



|   |
|---|
| Depth to Water "O60K AST"   |
| DeSoto Springs #3 Recycling Containment and Recycling Facility RF-498 [fVV2234954815] |

|            |
|------------|
| Plate 2    |
| 01/09/2023 |



Wellhead Protection "O60K AST"

DeSoto Springs #3 Recycling Containment and Recycling Facility RF-498 [fVV2234954815]

Plate 3

01/09/2023

# Design and Construction Plan Operations and Maintenance Plan Closure Plan



Ameredev II, LLC

DeSoto Springs #3 Recycling Containment and Recycling Facility  
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## Design and Construction Plan

### General

O60K AST is designed and constructed to confine produced water, to prevent releases and to prevent overtopping due to wave action or rainfall to meet or exceed standards put forth by 19.15.34.12 NMAC.

A Tank Tech, LLC Model 600 above ground water storage tank was used at this site. Tank Tech specifications and affirmation from a Professional Engineer are attached in Appendix B.

Solmax is the manufacturer for the geomembrane liners and leak detection geogrid materials. Liner specifications are attached in Appendix B.

The AST was constructed by Mustang Extreme Environmental Services, LLC. This Design and Construction Plan demonstrates that the AST was constructed in accordance with 19.15.34.12 NMAC.

### Foundation for AST Containment

O60K AST is constructed on an existing pad constructed for the associated recycling facility. Plate 1 shows the Site Map.

The foundation consists of a firm, unyielding base, smooth and free of rocks, debris, sharp edges, or irregularities to prevent the liner's rupture or tear. A geotextile was placed under the secondary liner to reduce stress-strain that may compromise liner's integrity. Any stripped topsoil has been stockpiled for reuse during closure activities.

### Containment construction

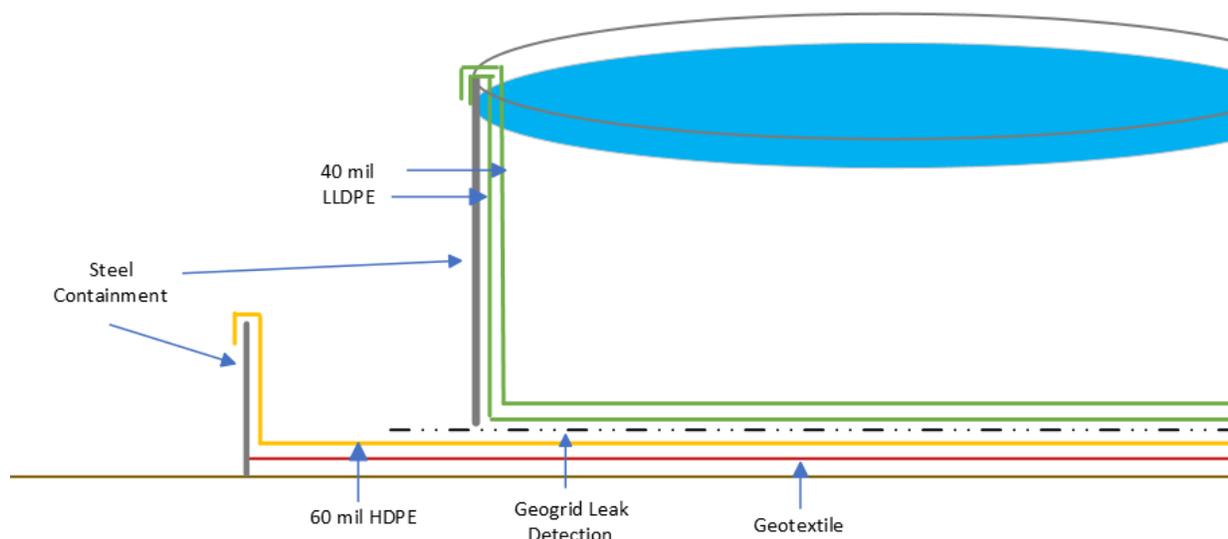
The AST is constructed of upright steel panels 12 ft 3.5 inches in height. The structure diameter is 191 ft with a capacity of 62,719 barrels. The AST upright steel panels preclude any risk of surface run-on. Additionally, the secondary liner is attached to upright steel panels as used for tank battery secondary containments. Adequate access is provided for inspection and maintenance. *A variance request from the defined levee slope requirement is provided in Appendix C.*

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### Liner and Leak Detection System:

The liner and leak detection system meets or exceeds specifications put forth in the 19.15.34.12. A (4).

Schematic for liner system is as follows (not to scale).



- Primary Liner: Dual (2 layers) 40 mil LLDPE attached to steel containment wall with clips.
- Leak Detection: 200 mil Geogrid placed between primary and secondary liners.
- Secondary Liner: 60 mil HDPE
- Steel wall containment with secondary liner attached with clips.
- Geotextile underlayment
- Employed bird netting on top of containment is not depicted in this schematic.

Per 19.15.34.12 A. (4) NMAC. "All primary (upper) liners in a recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. All primary liners shall be 30-mil flexible PVC, 45-mil LLDPE string reinforced or 60-mil HDPE liners. Liner compatibility will meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications."

**In O60K AST a dual (double layer) 40 mil LLDPE is used as the primary liner. Variance request attached in Appendix C**

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Per 19.15.34.12 A. (4) NMAC. "Secondary liners shall be 30-mil LLDPE string reinforced or equivalent with a hydraulic conductivity no greater than  $1 \times 10^{-9}$  cm/sec. Liner compatibility will meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications."

**For O60K AST the secondary liner is a 60 mil HDPE. Variance request attached in Appendix C.**

Unlike inground containments, the build of this AST requires that the primary and secondary liners are attached to the upright steel walls of the AST with clamps. As the build of the AST system is not consistent with the anchor trench requirement as described in the Rule, a *variance request from anchor trench as described in the Rule is attached in Appendix C.*

The leak detection system, appropriate for site's condition, is constructed with a properly designed drainage and collection system with a **200 mil geonet** placed between the primary (dual upper 40 mil LLDPE) liners and secondary (lower 60 mil HDPE) liner. This geonet extends beyond the 12 ft steel walls of the AST. The slope is such to facilitate the flow of any fluids along the geonet where it can be visibly seen within the secondary liner containment, to allow the earliest possible leak detection. Any visible or pooling fluids resulting from a leak would be removed with a hydrovac or sump pump for disposal to an NMOCD approved facility. This system meets NMOCD requirements.

Liner seams have been minimized and oriented up and down, not horizontally on the wall of the AST. Factory welded seams were used as much as possible. Minimal field seams were employed in both the primary and secondary liners and both were overlapped 4-6 inches and thermally sealed and tested by qualified personnel.

The injection or withdrawal of fluids from the containment is accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes (or other hydrostatic force or mechanical damage). These lines will not penetrate the liner system.

## Signs

Ameredev has posted signs, not less than 12 inches by 24 inches with lettering 2 inches or greater in height in a conspicuous place along the fence surrounding the container, where it can be easily read. It contains the operator's name, the location of the site by quarter-quarter unit letter, section, township and range and emergency numbers.

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## **Fencing**

Ameredev has fenced the recycling containment and facilities in a manner to deter unauthorized human access and wildlife and shall maintain the fences in good repair. All gates are closed and locked when responsible personnel are not onsite. This AST is enclosed by 8-foot game fence topped with a single strand of barbed wire. *A variance request is attached in Appendix C.*

## **Netting**

The O60K AST is netted to be protective of wildlife, including migratory birds. On at least a monthly basis, Ameredev shall inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

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## Operations and Maintenance Requirements

### General

Ameredev will maintain and operate the recycling containments in accordance 19.15.34.11 NMAC with the following plan to contain liquids to prevent contamination of fresh water and protect public health and the environment.

The recycling containment may hold produced water for use in connection with drilling, completions, producing or processing oil and/or gas. Such fluids may include freshwater, brackish water, recycled and treated water, fluids added to water to facilitate well drilling or completion, water produced with oil and gas, flowback from operations, water generated by an oil or gas processing facility or other waters that are gathered for well drilling or completion. It may not include hazardous waste or be used for disposal of produced water or other oilfield waste.

Any releases from the recycling and re-use of produced water shall be remediated in accordance with 19.15.29 NMAC. An oil absorbent boom or other device is maintained on site to contain any unanticipated release.

Ameredev will monitor for and remove any visible oil from the surface of the AST with an oil absorbent boom or other device, which will be maintained on site. Removed fluid shall be transported off-site to a division approved disposal facility.

At least three feet of freeboard shall always be maintained.

The injection or withdrawal of fluids from the containment is accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses and/or pipes.

The facility will be operated to prevent the collection of surface run-on.

These activities shall occur in a manner consistent with hydrogen sulfide gas provisions in 19.15.11 NMAC or NORM provisions in 19.15.35 NMAC, as applicable.

The O60K AST shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. Cessation of operations must be reported to the appropriate division district office. An extension to this determination of cessation of operations, not to exceed 6 months, may be

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requested from NMOCD via OCD Permitting portal using a C 147 long form with cover letter describing request.

### Inspections:

- Must occur **weekly** when **any** volume of fluid is present within the containment.
- A log of these inspections should be maintained and available for review on request per NMOCD.
- Inspections to include:
  - Leak detection system and for evidence of fluid in secondary containment.
  - Visible liner integrity/potential compromise by fluid jets or impact from installation and removal of hoses or pipes.
  - Liner secured with clips.
  - Freeboard/fluid levels
  - Noting and removal/appropriate disposal of visible oil on surface.
  - Integrity of berms/prevention of surface run-on.
  - Integrity of netting
  - Presence of wildlife/birds (any found must be reported to appropriate wildlife agency.)
  - Integrity of fencing
  - Assessment of tank panels/compromise of the steel structure.
  - Presence of H2S

### Leak Detection

If the liner develops a leak or is compromised above the liquid's surface, then Ameredev will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or will seek an extension from NMOCD.

If the primary liner is compromised below the fluid's surface, determined by inspection of the liner or from evidence of produced water in the leak detection system, all fluid shall be removed above the damage or leak and Ameredev will notify NMOCD within 48 hours of discovery. The liner shall then be cleaned and repaired or replaced by qualified personnel.

### Reporting of identified leaks/damage to liner integrity:

- There is no allowable volume for leaks. Any volume of fluid identified with the leak detection system (that is not proven through testing to be unimpacted fluid, i.e. condensation) must be reported within 48 hours. A plan for intervention, including

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dropping the fluid level to below the leak and a plan for repair and/or extension request, if indicated, should be included in report.

- Liner damage *above* fluid level is expected to be repaired within 48 hours of discovery or seek extension from NMOCD.
- Communication should be via the OCD Permitting Portal using the C 147 long form with an explanatory cover letter.

**Reporting of water transfer and usage:**

- Monthly report of volumes of water received (fresh and produced water separately) and volumes leaving facility via online permitting portal using C 148 form (updated January 2022). Use one C 148 per facility, current forms have place for reporting volumes for inground and AST containments.
- Records of sources and disposition of water must be kept and available for NMOCD review upon request.

**Containments may be used for 5 years from the date the registration is initially filed with NMOCD.** This may or may not correlate with the date of start of use. Annual extension may be requested by online submission of C-147 (long form) with an attached summary of inspections *30 days prior to registration expiration.*

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## Closure Plan

Once operations have ceased, Ameredev will remove all fluids within 60 days and close the containment within six months from the date operations are ceased. An extension for the removal of fluids, not to exceed 2 months may be requested. An extension to close the containment may be requested, not to exceed six months. Extensions will be requested through the OCD online process using a C-147 long form with an explanatory cover letter.

## Containment Deconstruction

Residual fluids in the containments will be removed and sent to disposal at a division-approved facility.

Following removal of fluids, all solid contents, synthetic liners, and leak detection materials will be removed and transported to a division-approved facility.

Deconstruction of the steel walls and other infrastructure will occur according to the manufacturer's recommendations (Tank Tech).

## Soil Sampling

After removal of containments, Ameredev will test the soils beneath the containment for contamination with a five-point composite sample to include any areas which may have been impacted as observed by stained or wet soils. Soil samples will be analyzed for the constituents of concern as listed in Table I of 19.15.34.14 NMAC.

If all contaminant concentrations are less than or equal to the parameters listed in Table I, then Ameredev can proceed to backfill with non-waste containing, uncontaminated, earthen material.

If any contaminant concentration is higher than the parameters listed in Table I, the division may require additional delineation upon review of the results and Ameredev must receive NMOCD approval before proceeding with closure.

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## Closure Report

Within 60 days of completion of closure, Ameredev will submit a closure report to document all closure activities, including required attachments, demonstrating sampling results with laboratory certificate of analysis, details of any remediation, backfilling, capping or covering as necessary. The closure report shall certify that all information in the report and attachments are correct and that Ameredev has complied with all applicable closure requirements and conditions specified in division rules or directives. All pertinent communications with NMOCD will be included in the report. Closure report to be submitted through the OCD permitting portal using a C-147 long form with explanatory cover letter.

## Remediation, Restoration, & Reclamation

If constituents of concern exceed Closure Criteria per Table 1 of 19.15.34 NMAC, NMOCD may require remediation prior to restoration and reclamation activities. Please refer to the above section "Soil Sampling" for additional details.

If Closure Criteria is met per Table 1 of 19.15.34 NMAC, Ameredev will:

- If the location remains in-use for oil and gas production, the location will be restored to an active production site.
- If the location will not be in-use for oil and gas production, the site will be restored and reclaimed to the condition that existed prior to the construction of the recycling containment.
  - ✓ Reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.
  - ✓ Topsoils and subsoils shall be replaced to their original relative positions and contoured to achieve erosion control, long-term stability, and preservation of surface water flow patterns.
  - ✓ The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.
  - ✓ Reclamation will be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498 Facility ID# fVV2234954815  
O60K AST Registration

The re-vegetation and reclamation obligations imposed by federal, state trust land or tribal agencies on lands managed by those agencies shall supersede these provisions provided they provide equal or better protection of fresh water, human health, and the environment.

Ameredev will notify NMOCD when this process is complete via OCD online using form C 147.

# Appendix A

## Well Logs



Ameredev II, LLC



2904 W 2nd St.  
Roswell, NM 88201  
voice: 575.624.2420  
fax: 575.624.2421  
www.atkinseng.com

~~July 8, 2022~~ 10/12/2022

DII-NMOSE  
1900 W 2<sup>nd</sup> Street  
Roswell, NM 88201

*Hand Delivered to the DII Office of the State Engineer*

Re: Resubmitted Well Record CP-1922 Pod-1

To whom it may concern:

Attached please find a corrected well log & record and a plugging record that was originally filed on 9/30/2022, corrected is in duplicate, for a one (1) soil borings, CP-1922 Pod-1.

If you have any questions, please contact me at 575.499.9244 or [lucas@atkinseng.com](mailto:lucas@atkinseng.com).

Sincerely,

A handwritten signature in black ink that reads "Lucas Middleton". The signature is written in a cursive style.

Lucas Middleton

Enclosures: as noted above

OSE DII OCT 12 2022 PM2:04



# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

|   |   |                             |   |  |  |  |                                |                    |
|---|---|-----------------------------|---|--|--|--|--------------------------------|--------------------|
| <b>1. GENERAL AND WELL LOCATION</b>   | OSE POD NO. (WELL NO.)<br><b>POD-1</b>  |                             | WELL TAG ID NO.<br>n/a                                  |  | OSE FILE NO(S).<br>CP-1922                       |  |                                |                    |
|   | WELL OWNER NAME(S)<br>Ameredev Operating, LLC   |                             |   |  | PHONE (OPTIONAL)<br>737-300-4700                 |  |                                |                    |
|   | WELL OWNER MAILING ADDRESS<br>2901 Via Fortuna Suite 600  |                             |   |  | CITY<br>Austin                                   | STATE<br>TX  | ZIP<br>78746                   |                    |
|   | WELL LOCATION (FROM GPS)  | DEGREES<br>32               | MINUTES<br>4  | SECONDS<br>38.51   | N  | * ACCURACY REQUIRED: ONE TENTH OF A SECOND                           |                                |                    |
|   |   | LONGITUDE<br>103            | 17  | 9.02   | W  | * DATUM REQUIRED: WGS 84   |                                |                    |
| DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE<br><b>SW NW NE Sec.5 T26S R36S NMPM</b> |   |                             |   |  |  |  |                                |                    |
| <b>2. DRILLING &amp; CASING INFORMATION</b>   | LICENSE NO.<br>1249   |                             | NAME OF LICENSED DRILLER<br>Jackie D. Atkins            |  |  | NAME OF WELL DRILLING COMPANY<br>Atkins Engineering Associates, Inc. |                                |                    |
|   | DRILLING STARTED<br>9/21/2022   | DRILLING ENDED<br>9/21/2022 | DEPTH OF COMPLETED WELL (FT)<br>temporary well material | BORE HOLE DEPTH (FT)<br>±101   | DEPTH WATER FIRST ENCOUNTERED (FT)<br>n/a        |  |                                |                    |
|   | COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)   |                             |   |  | STATIC WATER LEVEL IN COMPLETED WELL (FT)<br>n/a | DATE STATIC MEASURED<br>9/26/2022                                    |                                |                    |
|   | DRILLING FLUID: <input type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES – SPECIFY:  |                             |   |  |  |  |                                |                    |
|   | DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input checked="" type="checkbox"/> OTHER – SPECIFY: Hollow Stem Auger |                             |   |  |  | CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>  |                                |                    |
|   | DEPTH (feet bgl)  |                             | BORE HOLE DIAM (inches)                                 | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE (add coupling diameter)   | CASING INSIDE DIAM. (inches)   | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|   | FROM  | TO                          |   |  |  |  |                                |                    |
|   | 0   | 101                         | ±6.25"  | Boring-HSA   | --   | --   | --                             | --                 |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
| <b>3. ANNULAR MATERIAL</b>  | DEPTH (feet bgl)  |                             | BORE HOLE DIAM. (inches)                                | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL                      | AMOUNT (cubic feet)                              | METHOD OF PLACEMENT  |                                |                    |
|   | FROM  | TO                          |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |
|   |   |                             |   |  |  |  |                                |                    |

USE OF OCT 12 2022 PM 2:04

FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 01/28/2022)

|          |                 |             |
|----------|-----------------|-------------|
| FILE NO. | POD NO.         | TRN NO.     |
| LOCATION | WELL TAG ID NO. | PAGE 1 OF 2 |





# PLUGGING RECORD



**NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC**

**I. GENERAL / WELL OWNERSHIP:**

State Engineer Well Number: CP-1922

Well owner: Ameredev Operating, LLC Phone No.: 737-300-4700

Mailing address: 2901 Via Fortuna Suite 600

City: Austin State: Texas Zip code: 78746

**II. WELL PLUGGING INFORMATION:**

- 1) Name of well drilling company that plugged well: Jackie D. Atkins ( Atkins Engineering Associates Inc.)
- 2) New Mexico Well Driller License No.: 1249 Expiration Date: 04/30/23
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Shane Eldridge, Cameron Pruitt
- 4) Date well plugging began: 7/26/2022 Date well plugging concluded: 7/26/2022
- 5) GPS Well Location: Latitude: 32 deg, 4 min, 38.51 sec  
Longitude: 103 deg, 17 min, 9.02 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 101 ft below ground level (bgl),  
by the following manner: water level probe
- 7) Static water level measured at initiation of plugging: n/a ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 9/12/2022
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

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10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

| <u>Depth</u><br>(ft bgl) | <u>Plugging Material Used</u><br>(include any additives used) | <u>Volume of Material Placed</u><br>(gallons) | <u>Theoretical Volume of Borehole/ Casing</u><br>(gallons) | <u>Placement Method</u><br>(tremie pipe, other) | <u>Comments</u><br>("casing perforated first", "open annular space also plugged", etc.) |
|--------------------------|---|---|--|---|---|
| 0-10'                    | Hydrated Bentonite  | Approx. 15 gallons                            | 15 gallons   | Augers  |   |
| 10'-101'                 | Drill Cuttings  | Approx. 145 gallons                           | 145 gallons  | Boring  |   |

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| MULTIPLY             | BY | AND OBTAIN |
|----------------------|----|------------|
| cubic feet x 7.4805  | =  | gallons    |
| cubic yards x 201.97 | =  | gallons    |

**III. SIGNATURE:**

I, Jackie D. Atkins, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

*Jackie D. Atkins*

Signature of Well Driller

10/4/2022

Date

# 6\_CP-1922\_WellLog-packet-forsign-DTW-16

Final Audit Report

2022-10-04

|                 |  |
|-----------------|--|
| Created:        | 2022-10-04                                   |
| By:             | Lucas Middleton (lucas@atkinseng.com)        |
| Status:         | Signed                                       |
| Transaction ID: | CBJCHBCAABAAzK7AaPUzEPE-3Y1tAUQrH1E(AYSYz3H5 |

## "6\_CP-1922\_WellLog-packet-forsign-DTW-16" History

-  Document created by Lucas Middleton (lucas@atkinseng.com)  
2022-10-04 - 2:26:57 PM GMT - IP address: 64.17.71.25
-  Document emailed to Jack Atkins (jack@atkinseng.com) for signature  
2022-10-04 - 2:27:56 PM GMT
-  Email viewed by Jack Atkins (jack@atkinseng.com)  
2022-10-04 - 2:58:39 PM GMT - IP address: 64.90.153.232
-  Document e-signed by Jack Atkins (jack@atkinseng.com)  
Signature Date: 2022-10-04 - 3:00:40 PM GMT - Time Source: server- IP address: 64.90.153.232
-  Agreement completed.  
2022-10-04 - 3:00:40 PM GMT

05E DIT OCT 12 2022 PM 2:04



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
 (quarters are smallest to largest) (NAD83 UTM in meters)

|                 |                   |                   |            |            |            |          |          |
|-----------------|-------------------|-------------------|------------|------------|------------|----------|----------|
| <b>Well Tag</b> | <b>POD Number</b> | <b>Q64 Q16 Q4</b> | <b>Sec</b> | <b>Tws</b> | <b>Rng</b> | <b>X</b> | <b>Y</b> |
| NA              | CP 00857 POD1     | 1 2 2             | 05         | 26S        | 36E        | 662244   | 3550380  |

**Driller License:** 1184      **Driller Company:** WEST TEXAS WATER WELL SERVICE

**Driller Name:** COLLIS, ROBERT E. (LD)

|                                     |                                      |                                 |
|-------------------------------------|--------------------------------------|---------------------------------|
| <b>Drill Start Date:</b> 10/09/1996 | <b>Drill Finish Date:</b> 10/10/1996 | <b>Plug Date:</b>               |
| <b>Log File Date:</b> 01/15/1997    | <b>PCW Rcv Date:</b>                 | <b>Source:</b> Shallow          |
| <b>Pump Type:</b>                   | <b>Pipe Discharge Size:</b>          | <b>Estimated Yield:</b> 100 GPM |
| <b>Casing Size:</b>                 | <b>Depth Well:</b> 365 feet          | <b>Depth Water:</b>             |

|                                       |            |               |                               |
|---------------------------------------|------------|---------------|-------------------------------|
| <b>Water Bearing Stratifications:</b> | <b>Top</b> | <b>Bottom</b> | <b>Description</b>            |
|                                       | 300        | 365           | Sandstone/Gravel/Conglomerate |

|                                 |   |  |
|---------------------------------|---|--|
| <b>Meter Number:</b> 18966      | <b>Meter Make:</b>  |  |
| <b>Meter Serial Number:</b>     | <b>Meter Multiplier:</b> 1.0000                           |  |
| <b>Number of Dials:</b> 1       | <b>Meter Type:</b> Diversion                              |  |
| <b>Unit of Measure:</b> Gallons | <b>Return Flow Percent:</b>                               |  |
| <b>Usage Multiplier:</b>        | <b>Reading Frequency:</b> Quarterly (No Reading Expected) |  |

|                             |             |               |
|-----------------------------|-------------|---------------|
| <b>**YTD Meter Amounts:</b> | <b>Year</b> | <b>Amount</b> |
|                             | 2017        | 0             |

|                                      |                                   |  |
|--------------------------------------|-----------------------------------|--|
| <b>Meter Number:</b> 19007           | <b>Meter Make:</b> OCTAVE         |  |
| <b>Meter Serial Number:</b> 19235055 | <b>Meter Multiplier:</b> 1.0000   |  |
| <b>Number of Dials:</b> 9            | <b>Meter Type:</b> Diversion      |  |
| <b>Unit of Measure:</b> Gallons      | <b>Return Flow Percent:</b>       |  |
| <b>Usage Multiplier:</b>             | <b>Reading Frequency:</b> Monthly |  |

**Meter Readings (in Acre-Feet)**

| Read Date  | Year | Mtr Reading | Flag | Rdr | Comment | Mtr Amount Online |
|------------|------|-------------|------|-----|---------|-------------------|
| 02/01/2017 | 2017 | 2599614     | A    | RPT |         | 0                 |
| 04/01/2017 | 2017 | 2627531     | A    | RPT |         | 3.598             |
| 05/01/2017 | 2017 | 2631319     | A    | RPT |         | 0.488             |
| 06/01/2017 | 2017 | 2652251     | A    | RPT |         | 2.698             |
| 07/01/2017 | 2017 | 2720508     | A    | RPT |         | 8.798             |
| 08/01/2017 | 2017 | 2782114     | A    | RPT |         | 7.941             |
| 09/01/2017 | 2017 | 2858989     | A    | RPT |         | 9.909             |
| 10/01/2017 | 2017 | 2906622     | A    | RPT |         | 6.140             |

**Meter Readings (in Acre-Feet)**

| Read Date  | Year | Mtr Reading | Flag | Rdr | Comment | Mtr Amount Online |
|------------|------|-------------|------|-----|---------|-------------------|
| 11/01/2017 | 2017 | 2912696     | A    | RPT |         | 0.783             |
| 12/01/2017 | 2017 | 2998304     | A    | RPT |         | 11.034            |
| 02/01/2018 | 2018 | 3146658     | A    | RPT |         | 19.122            |
| 03/01/2018 | 2018 | 3212353     | A    | RPT |         | 8.468             |
| 04/01/2018 | 2018 | 3286487     | A    | RPT |         | 9.555             |
| 05/01/2018 | 2018 | 3381113     | A    | RPT |         | 12.197            |
| 06/01/2018 | 2018 | 3470486     | A    | RPT |         | 11.520            |
| 07/01/2018 | 2018 | 3547614     | A    | RPT |         | 9.941             |
| 09/01/2018 | 2018 | 3569776     | A    | RPT |         | 2.857             |
| 12/01/2018 | 2018 | 4076874     | A    | RPT |         | 65.362            |
| 01/01/2019 | 2018 | 4181523     | A    | RPT |         | 13.489            |
| 02/01/2019 | 2019 | 4296954     | A    | RPT |         | 14.878            |
| 03/01/2019 | 2019 | 4346796     | A    | RPT |         | 6.424             |
| 04/01/2019 | 2019 | 4365803     | A    | RPT |         | 2.450             |
| 05/01/2019 | 2019 | 4418132     | A    | RPT |         | 6.745             |
| 07/31/2019 | 2019 | 0           | A    | RPT |         | 0                 |
| 09/30/2019 | 2019 | 325518      | A    | RPT |         | 41.957            |
| 10/31/2019 | 2019 | 388564      | A    | RPT |         | 8.126             |
| 12/31/2019 | 2019 | 622880      | A    | RPT |         | 30.202            |
| 01/19/2020 | 2020 | 672026      | A    | RPT |         | 6.335             |
| 01/19/2020 | 2020 | 0           | A    | RPT |         | 0                 |
| 01/31/2020 | 2020 | 336667      | A    | RPT |         | 1.033             |
| 03/31/2020 | 2020 | 9198198     | A    | RPT |         | 27.195            |
| 08/31/2020 | 2020 | 25497766    | A    | RPT |         | 50.022            |
| 09/30/2020 | 2020 | 29234202    | A    | RPT |         | 11.467            |
| 11/30/2020 | 2020 | 36579854    | A    | RPT |         | 22.543            |
| 12/31/2020 | 2020 | 40821185    | A    | RPT |         | 13.016            |
| 01/31/2021 | 2021 | 45738623    | A    | RPT |         | 15.091            |

| **YTD Meter Amounts: | Year | Amount  |
|----------------------|------|---------|
|                      | 2017 | 51.389  |
|                      | 2018 | 152.511 |
|                      | 2019 | 110.782 |
|                      | 2020 | 131.611 |
|                      | 2021 | 15.091  |

---

|                             |          |                             |              |
|-----------------------------|----------|-----------------------------|--------------|
| <b>Meter Number:</b>        | 19056    | <b>Meter Make:</b>          | MASTER METER |
| <b>Meter Serial Number:</b> | 19814845 | <b>Meter Multiplier:</b>    | 10.0000      |
| <b>Number of Dials:</b>     | 6        | <b>Meter Type:</b>          | Diversion    |
| <b>Unit of Measure:</b>     | Gallons  | <b>Return Flow Percent:</b> |              |
| <b>Usage Multiplier:</b>    |          | <b>Reading Frequency:</b>   | Quarterly    |

---

**Meter Readings (in Acre-Feet)**

| Read Date  | Year | Mtr Reading | Flag | Rdr Comment | Mtr Amount Online |
|------------|------|-------------|------|-------------|-------------------|
| 11/30/2020 | 2020 | 38460       | A    | RPT         | 0                 |
| 12/31/2020 | 2020 | 42150       | A    | RPT         | 0.113             |
| 01/31/2021 | 2021 | 49850       | A    | RPT         | 0.236             |

---

| <b>**YTD Meter Amounts:</b> |  | Year | Amount |
|-----------------------------|--|------|--------|
|                             |  | 2020 | 0.113  |
|                             |  | 2021 | 0.236  |

---

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

File CP-857



**NEW MEXICO OFFICE OF THE STATE ENGINEER**



**Update Well Location**

Date: 03/27/2020      POD No.: CP-00857-POD1      OSE Staff: Chris Angel

**Instructions:**

Use this form to correct or update POD location(s) based on In-Office Geospatial Applications. Update WATERS by creating a UWL transaction in the pertinent file number(s). Create and image a map, if necessary.

**Current Location:**

|  |  |   |                           |                       |
|--|--|---|---------------------------|-----------------------|
| NM State Plane (NAD83) - In feet   | NM West Zone <input type="checkbox"/>    | X (in feet):<br>Y (in feet):                  |                           |                       |
|  | NM Central Zone <input type="checkbox"/> |   |                           |                       |
|  | NM East Zone <input type="checkbox"/>    |   |                           |                       |
| UTM (NAD83) - In meters  | UTM Zone 13N <input type="checkbox"/>    | Easting (in meters):<br>Northing (in meters): |                           |                       |
|  | UTM Zone 12N <input type="checkbox"/>    |   |                           |                       |
| Lat/Long (WGS84) - To 1/10 <sup>th</sup> of second<br><input type="checkbox"/> Check if seconds are decimal format | Lat:                                     | deg   | min                       | sec                   |
|  | Long:                                    | deg   | min                       | sec                   |
| Other Location Information (complete the below, if applicable):  |  |   |                           |                       |
| PLSS Quarters or Halves: <u>SW1/4NE1/4NE1/4</u>  |  | Section: <u>05</u>                            | Township: <u>26 South</u> | Range: <u>36 East</u> |
| County: <u>Lea</u>   |  | Subasin: <u>Capitan</u>                       |                           |                       |

**Updated Location:**

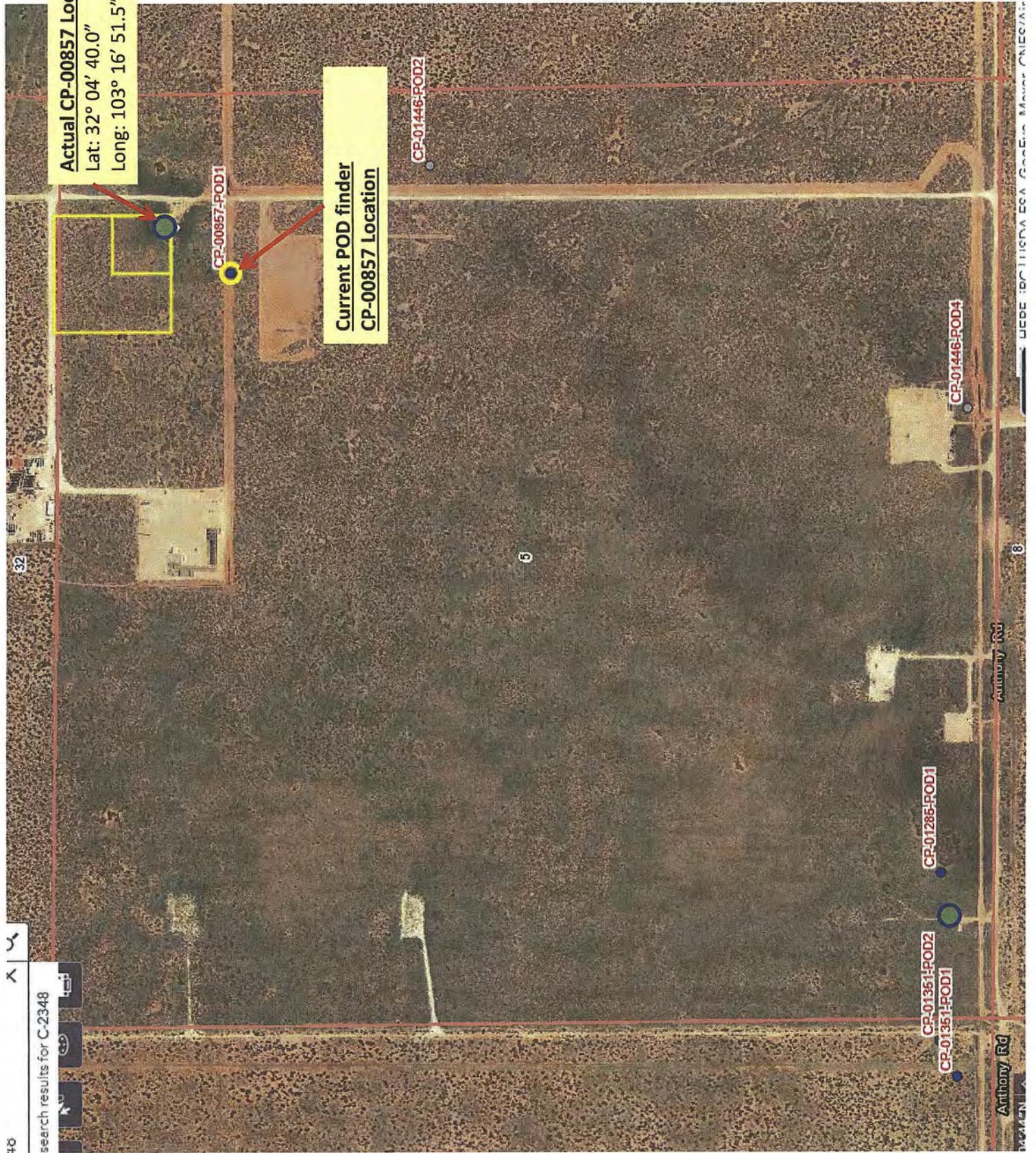
|  |  |   |                           |                       |             |     |
|--|--|---|---------------------------|-----------------------|-------------|-----|
| NM State Plane (NAD83) - In feet   | NM West Zone <input type="checkbox"/>    | X (in feet):<br>Y (in feet):                  |                           |                       |             |     |
|  | NM Central Zone <input type="checkbox"/> |   |                           |                       |             |     |
|  | NM East Zone <input type="checkbox"/>    |   |                           |                       |             |     |
| UTM (NAD83) - In meters  | UTM Zone 13N <input type="checkbox"/>    | Easting (in meters):<br>Northing (in meters): |                           |                       |             |     |
|  | UTM Zone 12N <input type="checkbox"/>    |   |                           |                       |             |     |
| Lat/Long (WGS84) - To 1/10 <sup>th</sup> of second<br><input type="checkbox"/> Check if seconds are decimal format | Lat: <u>32</u>                           | deg   | <u>04</u>                 | min                   | <u>40.0</u> | sec |
|  | Long: <u>103</u>                         | deg   | <u>16</u>                 | min                   | <u>51.5</u> | sec |
| Other Location Information (complete the below, if applicable):  |  |   |                           |                       |             |     |
| PLSS Quarters or Halves: <u>SE1/4NW1/4NE1/4NE1/4</u>   |  | Section: <u>05</u>                            | Township: <u>26 South</u> | Range: <u>36 East</u> |             |     |
| County: <u>Lea</u>   |  | Subasin: <u>Capitan</u>                       |                           |                       |             |     |

**Comments:**

A GPS was used to locate the well on the attached map.

Update Well Location Form, Rev. 12/11/18

File No.: CP-857      Trn. No.: 670905







# Appendix B

## Technical Specifications



Ameredev II, LLC

# FWN&A

Structural Engineering

December 12, 2018

Washington Crossing Field Services, LLC  
5707 Southwest Parkway  
Suite 1-275  
Austin, Texas 78735

Re: Desoto Springs Containment – 32.076, -103.282844

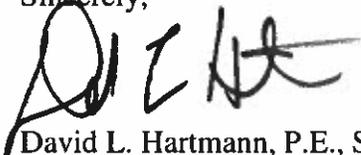
To whom it may concern,

It is proposed to use a Tank Tech, LLC Model 600 above ground water storage tank to store water at the above referenced site. The Model 600 is 12'-3 1/2" tall with a diameter of 190'-11 7/8". It has a storage capacity of 62,719 barrels or 2,634,189 gallons.

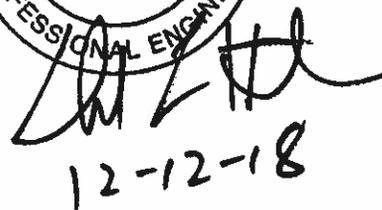
The Model 600 tank was designed for loads in accordance with the International Building Code, 2015 Edition. The capacity of the various structural components was determined in accordance with the International Building Code, 2015 Edition and its various referenced Standards.

If there is any additional information that we may be able to provide at this time, please feel free to contact me at your convenience.

Sincerely,



David L. Hartmann, P.E., S.E.  
Principal  
dhartmann@fwna-eng.com





# TANK TECH



Tank Tech, LLC can provide  
engineering services and fabrication  
for any custom size above  
ground storage tank.

**TANK TECH IS MORE THAN JUST A TANK COMPANY**



Tank Tech, LLC is a Fort Worth, Texas based company that provides high capacity industrial modular fluid storage tanks throughout the United States. Our mission is to provide the highest quality tank to mitigate your environmental risk and decrease your overall footprint. This is the solution to earthen pits for drilling fluids, water reclamation and water storage.

Tank Tech Tanks are designed and certified by a professional structural engineer and fabricated by our sister steel company to the strictest quality standards. Our rolled steel panels are made of high quality grade 50 domestic (U.S.A.) steel that should exceed the customers expectations.

In addition, our tanks will be equipped with supply and discharge lines that can be manufactured to fit any application.

Tank Tech offers leasing and the sale of our tanks. Our operations team will erect and dismantle your tank and our VP of operations has over 30 years of experience in the construction industry.

# TANK TECH MODELS & SPECS



| TANK TECH MODEL                   | 400       | 425        | 600        |
|-----------------------------------|-----------|------------|------------|
| Capacity (Barrels)                | 40,290    | 43,555     | 62,719     |
| Capacity (Barrels) w/8" Freeboard | 38,276    | 41,193     | 59,317     |
| Capacity (Gallons)                | 1,692,180 | 1,829,298  | 2,634,198  |
| Structure Diameter (ft)           | 160'-0"   | 159'-2"    | 191'-0"    |
| Excavation Diameter (ft)          | 180'      | 190'       | 221'       |
| Panel Height (ft)                 | 11'-3"    | 12'-3 1/2" | 12'-3 1/2" |
| Number of Panels                  | 16        | 25         | 20         |
| Truck Loads                       | 3         | 3          | 3          |



## Why Tank Tech, LLC should be incorporated into your operation

- Designed and **certified** by a licensed Professional Engineer with over 25 years of structural engineering experience.
- We offer the highest quality tanks to **mitigate** your environmental risk and decrease your overall footprint.
- Our tank height of 11' & 12' **minimizes** wildlife encroachment and transport.
- Each tank utilizes a geotextile mat and liner **customized** for the installation.
- Perfect **alternative** to earthen pits for fracking, drilling, water reclamation and water storage.
- Tank Tech can custom design, engineer, and fabricate any size/type tank to accommodate the **customers needs**.
- Mobility allows the tank to be installed on the most **effective area** of the job site.



Side view of Model 600 with 6" fill line.



Front view of Tank Tech Model 600.



Tank Tech uses High Density Polyethylene for all mechanical applications.



Tank Tech employee checking water level on Model 425.

An example of a Water Reclamation Project/Tank Farm.



Typical supply/discharge mechanical system.



Tank Tech's Bird netting system with cabling/center pole/netting.



Example of safety clamps on Tank Tech Model 600 tank.





# TECHNICAL DATA SHEET

## LLDPE Series, 40 mils

### White Reflective, Smooth

2801 Boul. Marie-Victorin Varennes, Quebec Canada J3X 1P7  
 Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America: 1-800-571-3904 www.Solmax.com www.solmax.com

| PROPERTY  | TEST METHOD | FREQUENCY <sup>(1)</sup> | UNIT<br>Imperial |                 |
|---|-------------|--------------------------|------------------|-----------------|
| <b>SPECIFICATIONS</b>                                       |             |                          |                  |                 |
| Thickness (min. avg.)                                       | ASTM D5199  | Every roll               | mils             | 40.0            |
| Thickness (min.)  | ASTM D5199  | Every roll               | mils             | 36.0            |
| Melt Index - 190/2.16 (max.)                                | ASTM D1238  | 1/Batch                  | g/10 min         | 1.0             |
| Sheet Density (8)   | ASTM D792   | Every 10 rolls           | g/cc             | ≤ 0.939         |
| Carbon Black Content  | ASTM D4218  | Every 2 rolls            | %                | 2.0 - 3.0       |
| Carbon Black Dispersion                                     | ASTM D5596  | Every 10 rolls           | Category         | Cat. 1 & Cat. 2 |
| OIT - standard (avg.)                                       | ASTM D3895  | 1/Batch                  | min              | 100             |
| Tensile Properties (min. avg) (2)                           | ASTM D6693  | Every 2 rolls            |                  |                 |
| Strength at Break   |             |                          | ppi              | 168             |
| Elongation at Break   |             |                          | %                | 800             |
| 2% Modulus (max.)   | ASTM D5323  | Per formulation          | ppi              | 2400            |
| Tear Resistance (min. avg.)                                 | ASTM D1004  | Every 5 rolls            | lbf              | 22              |
| Puncture Resistance (min. avg.)                             | ASTM D4833  | Every 5 rolls            | lbf              | 62              |
| Dimensional Stability                                       | ASTM D1204  | Certified                | %                | ± 2             |
| Multi-Axial Tensile (min.)                                  | ASTM D5617  | Per formulation          | %                | 30              |
| Oven Aging - % retained after 90 days                       | ASTM D5721  | Per formulation (5)      |                  |                 |
| STD OIT (min. avg.)   | ASTM D3895  |                          | %                | 35              |
| HP OIT (min. avg.)  | ASTM D5885  |                          | %                | 60              |
| UV Resistance - % retained after 1600 hr                    | ASTM D7238  | Per formulation (5)      |                  |                 |
| HP-OIT (min. avg.)  | ASTM D5885  |                          | %                | 35              |
| Low Temperature Brittleness                                 | ASTM D746   | Certified                | °F               | - 106           |
| <b>SUPPLY SPECIFICATIONS</b> (Roll dimensions may vary ±1%) |             |                          |                  |                 |
| Color (one side) (4)  |             | -                        |                  | White           |

## NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
4. Smooth edge may not have the same consistent shade of color as the membrane itself. The colored layer may cause the carbon black content results to be higher than 3%.
5. Certified by core (black) formulation on geomembrane roll or molded plaque.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.

\* All values are nominal test results, except when specified as minimum or maximum.

\* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

(Rev. 03 / 2018-05-31)



**SOLMAX**

**LIST OF GEOMEMBRANE ROLLS**

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7  
 Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com



Project Name : PO 3292-2 - Odessa, TX

Reference Number : 111550

Project Number : 3292-2

Packing Slip Number : 224726

| Roll Number                                  | Product Code    | Resin Lot Number | Manufactured Date | Resin Melt Index              | Resin Density | OIT                         | HPOIT                       | ESCR SP-NCTL                       |
|--|-----------------|------------------|-------------------|-------------------------------|---------------|-----------------------------|-----------------------------|------------------------------------|
|  |                 |                  |                   | 190/2.16<br>g/10 min<br>D1238 | g/cc<br>D1505 | Spec Result<br>min<br>D3895 | Spec Result<br>min<br>D5885 | Spec Roll Tested<br>hours<br>D5397 |
| <u>LLDPE 40 mils White Reflective Smooth</u> |                 |                  |                   |                               |               |                             |                             |                                    |
| 5-35524                                      | 1008348-56350-1 | CJB810750        | 23-mars-18        | 0.32                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35539                                      | 1008348-56350-1 | CJB810750        | 24-mars-18        | 0.32                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35540                                      | 1008348-56350-1 | CJB810750        | 24-mars-18        | 0.32                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35542                                      | 1008348-56350-1 | CJB810500        | 24-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35543                                      | 1008348-56350-1 | CJB810500        | 24-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35550                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35551                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35552                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35553                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35554                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35556                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |
| 5-35557                                      | 1008348-56350-1 | CJB810500        | 25-mars-18        | 0.36                          | 0.919         | 100 > 120                   |                             | N/A                                |

Quantity (rolls) :

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.



# MANUFACTURING QUALITY CONTROL

## Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7  
 Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name PO 3292-2 - Odessa, TX

Reference Number : 111550

Project Number : 3292-2

Packing Slip Number : 224726



Product 1008348-56350-1

LLDPE 40 mils White Reflective Smooth

CE Certificate = LL-40-SS-WB

| Properties       | Thickness<br>ave / min. | Geo-<br>membrane<br>Density | Carbon<br>Black<br>Content | Carbon<br>Black<br>Dispersion | Tensile           |        |                   |             | Tear<br>Resist. | Puncture<br>Resist. | Dimension.<br>Stability | Asperity<br>Height<br>in / out |
|------------------|-------------------------|-----------------------------|----------------------------|-------------------------------|-------------------|--------|-------------------|-------------|-----------------|---------------------|-------------------------|--------------------------------|
|                  |                         |                             |                            |                               | Yield<br>Strength | Elong. | Break<br>Strength | Elong.      |                 |                     |                         |                                |
| Unit             | mils                    | g/cc                        | %                          | Cat. 1 and 2                  | ppi               | %      | ppi               | %           | lbs             | lbs                 | %                       | mils                           |
| Test Method      | D5199                   | D1505/D792                  | D4218 /<br>D1603           | D5596                         | D6693             |        |                   |             | D1004           | D4833               | D1204                   |                                |
| Frequency        | Each roll               |                             | 1/2 ro                     | 1/10 ro                       | 1/2 ro            |        |                   |             | 1/5 ro          | 1/5 ro              | Certied                 | N/A                            |
| Specification    | 40.0 / 36.0             | ≤ 0.939                     | 2.0 -<br>3.0               | Cat. 1 -<br>Cat. 2            |                   |        | 168               | 800         | 22              | 62                  | ± 2                     |                                |
| 5-35524 MD<br>XD | 40.6 / 39               | 0.937                       | 2.68                       | 10/10<br>Views                |                   |        | 211<br>214        | 873<br>980  | 25.7<br>27.1    | 92.9                |                         | /                              |
| 5-35539 MD<br>XD | 40.1 / 39               | 0.937                       | 2.25                       | 10/10<br>Views                |                   |        | 211<br>197        | 864<br>915  | 25.6<br>26.9    | 90.4                |                         | /                              |
| 5-35540 MD<br>XD | 40.4 / 39               | 0.937                       | 2.25                       | 10/10<br>Views                |                   |        | 211<br>197        | 864<br>915  | 25.1<br>27.3    | 88.9                |                         | /                              |
| 5-35542 MD<br>XD | 40.6 / 39               | 0.937                       | 2.39                       | 10/10<br>Views                |                   |        | 210<br>206        | 860<br>939  | 25.1<br>27.3    | 88.9                |                         | /                              |
| 5-35543 MD<br>XD | 40.6 / 39               | 0.937                       | 2.23                       | 10/10<br>Views                |                   |        | 213<br>209        | 866<br>942  | 25.1<br>27.3    | 88.9                |                         | /                              |
| 5-35550 MD<br>XD | 41.4 / 40               | 0.936                       | 2.59                       | 10/10<br>Views                |                   |        | 221<br>217        | 913<br>1011 | 25.9<br>27.7    | 88.6                |                         | /                              |
| 5-35551 MD<br>XD | 40.7 / 39               | 0.936                       | 2.68                       | 10/10<br>Views                |                   |        | 215<br>222        | 878<br>1031 | 25.9<br>27.7    | 88.6                |                         | /                              |
| 5-35552 MD<br>XD | 40.9 / 39               | 0.936                       | 2.68                       | 10/10<br>Views                |                   |        | 215<br>222        | 878<br>1031 | 25.9<br>27.7    | 88.6                |                         | /                              |
| 5-35553 MD<br>XD | 40.8 / 39               | 0.937                       | 2.83                       | 10/10<br>Views                |                   |        | 218<br>220        | 894<br>1028 | 25.0<br>27.2    | 90.9                |                         | /                              |
| 5-35554 MD<br>XD | 40.9 / 40               | 0.937                       | 2.83                       | 10/10<br>Views                |                   |        | 218<br>220        | 894<br>1028 | 25.0<br>27.2    | 90.9                |                         | /                              |
| 5-35556 MD<br>XD | 40.6 / 39               | 0.937                       | 2.59                       | 10/10<br>Views                |                   |        | 210<br>216        | 855<br>1021 | 25.0<br>27.2    | 90.9                |                         | /                              |
| 5-35557 MD<br>XD | 40.8 / 40               | 0.937                       | 2.51                       | 10/10<br>Views                |                   |        | 225<br>216        | 926<br>1001 | 25.0<br>27.2    | 90.9                |                         | /                              |

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.



CoA Date: 02/13/2018

## Certificate of Analysis

|  |   |
|--|---|
| Shipped To: SOLMAX<br>2801 BOUL MARIE-VICTORIN<br>VARENNES QC J3X 1P7<br>CANADA<br><br>Recipient: Marcotte<br>Fax: | Delivery #: 89611704<br>PO #: 116755-0<br>Weight: 188300.000 LB<br>Ship Date: 02/13/2018<br>Package: BULK<br>Mode: Hopper Car<br>Car #: CPCX815050<br>Seal No: 110664 |
|--|---|

Product:  
 MARLEX 7104 POLYETHYLENE in Bulk  
 Additive levels have been tested and meet minimum the specification for this lot.  
 As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).

Lot Number: CJB810500

| Property   | Test Method | Value | Unit    |
|------------|-------------|-------|---------|
| Melt Index | ASTM D1238  | 0.36  | g/10min |
| Density    | D1505       | 0.919 | g/cm3   |

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPCHEM).  
**However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**

KEVIN AYRES  
 QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Melissa Alexander at +-832-813-4244



CoA Date: 02/14/2018

## Certificate of Analysis

|  |   |
|--|---|
| Shipped To: SOLMAX<br>2801 BOUL MARIE-VICTORIN<br>VARENNES QC J3X 1P7<br>CANADA<br><br>Recipient: Marcotte<br>Fax: | Delivery #: 89612650<br>PO #: 116787-0<br>Weight: 196150.000 LB<br>Ship Date: 02/14/2018<br>Package: BULK<br>Mode: Hopper Car<br>Car #: NAHX620433<br>Seal No: 122023 |
|--|---|

Product:  
 MARLEX 7104 POLYETHYLENE in Bulk  
 Additive levels have been tested and meet minimum the specification for this lot.  
 As a result, Standard OIT (by ASTM D 3895) is greater than 120 minutes (nominal value, not tested on every lot).

Lot Number: CJB810750

| Property   | Test Method | Value | Unit    |
|------------|-------------|-------|---------|
| Melt Index | ASTM D1238  | 0.32  | g/10min |
| Density    | D1505       | 0.919 | g/cm3   |

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPCHEM).  
**However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**

KEVIN AYRES  
 QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Melissa Alexander at +-832-813-4244

**Laura Parker**

---

**From:** Jorge Hernandez <jhernandez@solmax.com>  
**Sent:** Monday, March 27, 2023 12:45 PM  
**To:** Laura Parker  
**Subject:** [EXTERNAL] Re: AST liner information Ameredev II, LLC

Laura,

This is what I got from our internal technical manager:

40-mil unreinforced LLDPE is similar to string-reinforced material, but does not contain tensile elements that create stress concentrations under certain types of loads. While reinforced products attempt to resist puncture and tear by tensile strength, unreinforced LLDPE was developed to maintain barrier performance under higher loads than can be resisted by tensile elements under extreme geotechnical loads. By providing much better linear and multi-axial elongation capacity, tensile stresses are relieved, stopping the poisson effect deformation that can lead to puncture in reinforced products. Unreinforced LLDPE thereby provides equal or better groundwater protection than string-reinforced products under extreme loads such as tank foundations and hydrostatic conditions.

Regards,

**Jorge Hernandez**

Value Engineer

(m) +1 713 828 7653 | jhernandez@solmax.com  
19103 Gundle Road, Houston, Texas, 77073, USA



This message contains private and confidential information. Any unauthorized disclosure is strictly prohibited. If you received it by mistake, please advise the sender and then delete it.

Please consider the environment before printing this email.

On Mar 16, 2023, at 09:49, Laura Parker <lparker@ameredev.com> wrote:

You don't often get email from [lparker@ameredev.com](mailto:lparker@ameredev.com). [Learn why this is important](#)

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning Mr. Hernandez,

I wanted to follow up regarding the information requested below to compare 40 mil LLDPE liners with NMOCD regulatory requirements and EPA testing. Please let me know if you can obtain this technical information for us to use in writing variance request.

Thank you,



# TECHNICAL DATA SHEET

## HDPE Series, 60 mils

Black, Smooth

2801 Boul. Marie-Victorin Varennes, Quebec Canada J3X 1P7  
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America: 1-800-571-3904 www.Solmax.com www.solmax.com

| PROPERTY                              | TEST METHOD | FREQUENCY <sup>(1)</sup> | UNIT<br>Imperial |                 |
|---------------------------------------|-------------|--------------------------|------------------|-----------------|
| <b>SPECIFICATIONS</b>                 |             |                          |                  |                 |
| Thickness (min. avg.)                 | ASTM D5199  | Every roll               | mils             | 60.0            |
| Thickness (min.)                      | ASTM D5199  | Every roll               | mils             | 54.0            |
| Melt Index - 190/2.16 (max.)          | ASTM D1238  | 1/Batch                  | g/10 min         | 1.0             |
| Sheet Density (8)                     | ASTM D792   | Every 10 rolls           | g/cc             | ≥ 0.940         |
| Carbon Black Content                  | ASTM D4218  | Every 2 rolls            | %                | 2.0 - 3.0       |
| Carbon Black Dispersion               | ASTM D5596  | Every 10 rolls           | Category         | Cat. 1 & Cat. 2 |
| OIT - standard (avg.)                 | ASTM D3895  | 1/Batch                  | min              | 100             |
| Tensile Properties (min. avg.) (2)    | ASTM D6693  | Every 2 rolls            |                  |                 |
| Strength at Yield                     |             |                          | ppi              | 132             |
| Elongation at Yield                   |             |                          | %                | 13              |
| Strength at Break                     |             |                          | ppi              | 243             |
| Elongation at Break                   |             |                          | %                | 700             |
| Tear Resistance (min. avg.)           | ASTM D1004  | Every 5 rolls            | lbf              | 42              |
| Puncture Resistance (min. avg.)       | ASTM D4833  | Every 5 rolls            | lbf              | 120             |
| Dimensional Stability                 | ASTM D1204  | Certified                | %                | ± 2             |
| Stress Crack Resistance (SP-NCTL)     | ASTM D5397  | 1/Batch                  | hr               | 500             |
| Oven Aging - % retained after 90 days | ASTM D5721  | Per formulation          |                  |                 |
| HP OIT (min. avg.)                    | ASTM D5885  |                          | %                | 80              |
| UV Res. - % retained after 1600 hr    | ASTM D7238  | Per formulation          |                  |                 |
| HP-OIT (min. avg.)                    | ASTM D5885  |                          | %                | 50              |
| Low Temperature Brittleness           | ASTM D746   | Certified                | °F               | - 106           |

### SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)

## NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.

\* All values are nominal test results, except when specified as minimum or maximum.

\* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.



Mustang Extreme Environmental Services

July 22, 2020

Attn: Alex Skousen | Operations Manager  
Re: Hydraulic Conductivity – Solmax HDPE 60 mil

Dear Mr. Skousen:

Solmax International Inc. hereby certifies that the HDPE geomembrane 60 mil, black smooth, has a hydraulic conductivity (ATMD E 96) lower than  $1 \times 10^{-12}$  cm/s.

Hoping the above information will be satisfactory.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mauricio Ossa".

Mauricio Ossa  
Global Technical Engineering Manager

● T +1 800 435-2008



GSE ENVIRONMENTAL, LLC | A SOLMAX COMPANY  
19103 GUNDLE ROAD, HOUSTON, TX 77073, USA

SOLMAX.COM

# Appendix C

## Variations



Ameredev II, LLC

DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498 Facility ID# fVV2234954815  
O60K AST Registration

## Variance Requests

Ameredev respectfully requests the following variances to 19.15.34.16 NMAC as listed below. A variance to fencing is requested as the utilized fence is felt to be better than what is prescribed. Variance requests for levee slopes, anchor trench, primary and secondary liners are requested due the nature of the build of an above ground steel tanks (ASTs) with vertical walls as compared to inground containments.

### Fencing

**9.15.34.12. D (2) NMAC** prescribes that recycling containments are fenced with a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

Ameredev used an 8-foot game fence with a single strand of barbed wire attached above the game fencing. This will more effectively deter wildlife or human intrusion which may otherwise go under or climb over prescribed fencing, therefore, meeting or exceeding above requirements to provide equal or better protection of fresh water; public health; and the environment.

### Levee Slopes

**9.15.34.12. A (2) NMAC.** ...The operator shall construct the containment in a levee with an inside grade no steeper than two horizontal feet to one vertical foot (2H:1V). The levee shall have an outside grade no steeper than three horizontal feet to one vertical foot (3H:1V). The top of the levee shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance.

The prescribed slopes apply to a lined inground containment. The O60K AST is a modular fluid storage tank which has upright steel walls that provide the structure for the containment, prevents surface run-on, and allows for inspection and maintenance between the 12-foot high tank wall which support the primary liners and the secondary vertical steel wall which supports the secondary liner (see schematic in Design and Construction Plan). This AST tank was designed and certified by a professional structural engineer (see technical specifications and associated letter from professional engineer) and provides an alternative to inground containments for produced water storage. This structure provides equal or better protection of fresh water, public health, and the environment than the prescribed inside and outside levee slopes.

DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498 Facility ID# fVV2234954815  
O60K AST Registration

## Anchor Trenches

**9.15.34.12. A (3) NMAC.** ...The edges of all liners shall be anchored in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

The prescribed anchor trench for securing the liner system pertains to inground containments. The O60K AST is an above ground modular fluid storage tank which has upright steel walls and therefore no anchor trench can be utilized. The liner system is anchored to the steel walls by clips or clamps. (Please see schematic in Design and Construction Plan). This system has been engineered and installed in a manner to provide equal protection of fresh water, public health, and the environment.

## Primary Liners

**9.15.34.12. A (4) NMAC.** All primary (upper) liners in a recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. All primary liners shall be 30-mil flexible PVC, 45-mil LLDPE string reinforced or 60-mil HDPE liners. Liner compatibility shall meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications.

Ameredev has utilized a dual 40-mil LLDPE liner as the primary liner. The primary liner of a produced water containment is meant to act as the primary protective barrier, withstanding UV and chemical insult, to protect from any potential impact to fresh water, public health, or the environment. The prescribed liners do not take into consideration the upright steel walls of an AST containment.

40-mil LLDPE is more flexible and will more readily conform to the structure of the above ground tank. While reinforced products attempt to resist puncture and tear by tensile strength, unreinforced LLDPE was developed to maintain barrier performance under higher loads than can be resisted by tensile elements under extreme geotechnical loads. By providing much better linear and multi-axial elongation capacity, tensile stresses are relieved, stopping the poisson effect deformation that can lead to puncture in reinforced products. Unreinforced LLDPE thereby provides equal or better groundwater protection than string-reinforced products under extreme loads such as tank foundations and hydrostatic conditions (see email from Solmax technical support in Appendix A). Field seaming is reduced as it is produced in large sheets. The dual liner will require that a leak penetrate 2 40-mil LLDPE liners prior to reaching the secondary liner. Technical specifications and email from technical support for the Solmax 40 mil LLDPE liners are included in Appendix B. This primary liner system will provide equal protection of fresh water, public health, and the environment.

DeSoto Springs #3 Recycling Containment and Recycling Facility  
1RF-498 Facility ID# fVV2234954815  
O60K AST Registration

## Secondary Liners

**9.15.34.12. A (4) NMAC.** Secondary liners shall be 30-mil LLDPE string reinforced or equivalent with a hydraulic conductivity no greater than  $1 \times 10^{-9}$  cm/sec. Liner compatibility shall meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications.

Ameredev has utilized a 60-mil HDPE liner as the secondary liner, which is attached to an outer steel wall containment with clamps (see schematic in Design and Construction Plan). The purpose of a secondary liner is to contain any produced water fluids that may leak through the primary liner. Liner thickness and hydraulic conductivity are important to this purpose. The 60-mil HDPE liner provides a better barrier as it is thicker and denser than the prescribed 30-mil LLDPE. A letter from the Technical Engineering Manager for the liner manufacturer certifies that the 60-mil HDPE liner has a hydraulic conductivity less than  $1 \times 10^{-12}$ . (Please refer to liner specifications and above letter in Appendix B). The 60 mil HDPE liner provides superior protection from UV and chemical exposure (thus an NMOCD approved primary liner) than the prescribed liners. This liner provides equal or better protection of fresh water, public health, and the environment than the prescribed 30-mil string reinforced LLDPE.

**Venegas, Victoria, EMNRD**

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**From:** Venegas, Victoria, EMNRD  
**Sent:** Friday, April 14, 2023 11:18 AM  
**To:** Andrew Parker; Laura Parker; 'Shane McNeely'  
**Subject:** 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. Application ID: 206140  
**Attachments:** C-147 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] Modification 04.14.2023.pdf

**1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815].**

Good morning Mr. Parker,

NMOCD has reviewed the recycling containment permit modification and related documents, submitted by AMEREDEV OPERATING, LLC [372224] on April 11, 2023, for 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] in Unit Letter G, Section 05, Township 26S, Range 36E, Lea County, New Mexico. AMEREDEV OPERATING, LLC [372224] requested variances from 19.15.34 NMAC for 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] AST related to 19.15.34. NMAC

The following variances specific to the AST have been 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 and no anchor trenches is approved.
- The variance to NMAC 19.15.34.12.D to install an 8-foot game fence with a single strand of barbed wire attached above the game fencing is approved.
- The variance to 19.15.34.12.A.(4) NMAC for the installation on the AST containment of a dual 40-mil non-reinforced LLDPE primary liner and a 60-mil HLDPE as the secondary liner is approved. The proposed new liner system cross-section is as follows:
  - Primary Liner: Dual (2 layers) 40 mil LLDPE attached to steel containment wall with clips.
  - Leak Detection: 200 mil Geogrid placed between primary and secondary liners.
  - Secondary Liner: 60 mil HDPE
  - Steel wall containment with secondary liner attached with clips.
  - Geotextile underlayment

The form C-147 and related documents for the modification of permit 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] is approved with the following conditions of approval:

- **AMEREDEV OPERATING, LLC [372224] will comply with all conditions previously approved for permit 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. No changes to the operations procedures, maintenance, and monitoring procedures, or closing procedures will be made aside from the addition of storage volume in the AST (60,000.00 BBL). 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] must operate as originally permitted.**
- 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] permit expires on August 24, 2023.
- A minimum of 3-feet freeboard must be maintained at 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operations of the 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] is considered ceased and a notification of cessation of operations should be sent electronically to [OCD Permitting](#). A request to extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through [OCD Permitting](#). If after that 6-month extension period, 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] is not utilized

at a minimum of 20% fluid capacity, no additional extensions would be granted, and the operator would be directed to remove all fluids and proceed with the closure requirements.

- AMEREDEV OPERATING, LLC [372224] shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on OCD form C-148 via [OCD Permitting](#) even if there is zero activity.
- AMEREDEV OPERATING, LLC [372224] must inspect the 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] recycling containment and associated leak detection systems weekly while it contains fluids per 19.15.34.13(A). AMEREDEV OPERATING, LLC [372224] shall maintain a current log of such inspections and make the log available for review by the division upon request.

Please let me know if you have any additional questions.

Regards,

**Victoria Venegas** • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

(575) 909-0269 | [Victoria.Venegas@emnrd.nm.gov](mailto:Victoria.Venegas@emnrd.nm.gov)

<https://www.emnrd.nm.gov/oed/>



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**District IV**  
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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**

COMMENTS

Action 206140

**COMMENTS**

|  |   |
|--|---|
| Operator:<br>AMEREDEV OPERATING, LLC<br>2901 Via Fortuna<br>Austin, TX 78746 | OGRID:<br>372224                                    |
|  | Action Number:<br>206140                            |
|  | Action Type:<br>[C-147] Water Recycle Long (C-147L) |

**COMMENTS**

| Created By | Comment   | Comment Date |
|------------|---|--------------|
| vvenegas   | NMOCD has reviewed and approved the recycling containment permit modification and related documents, submitted by AMEREDEV OPERATING, LLC [372224] on April 11, 2023, for 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. • AMEREDEV OPERATING, LLC [372224] will comply with all conditions previously approved for permit 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. No changes to the operations procedures, maintenance, and monitoring procedures, or closing procedures will be made aside from the addition of storage volume in the AST (60,000.00 BBL). 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] must operate as originally permitted. | 4/14/2023    |

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CONDITIONS  
 Action 206140

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**CONDITIONS**

| Created By | Condition   | Condition Date |
|------------|---|----------------|
| venegas    | NMOCD has reviewed and approved the recycling containment permit modification and related documents, submitted by AMEREDEV OPERATING, LLC [372224] on April 11, 2023, for 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. • AMEREDEV OPERATING, LLC [372224] will comply with all conditions previously approved for permit 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815]. No changes to the operations procedures, maintenance, and monitoring procedures, or closing procedures will be made aside from the addition of storage volume in the AST (60,000.00 BBL). 1RF-498 - DESOTO SPRINGS #3 FACILITY ID [fVV2234954815] must operate as originally permitted. | 4/14/2023      |