Initial Application Part I

Received: **07/30/2019**

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

RECEIVED:	REVIEWER:	TYPE:	APP NO:
07/30/2019		SWD	pMAM1921257860

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Geological & Engineering Bureau –
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: Solaris Water Midstream, LLC **OGRID Number: 371643**
Well Name: Trivette Fed SWD No. 1 **API:**
Pool: SWD; Devonian- Silurian **Pool Code: 97869**

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

SWD-2220

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ■ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ■ Offset operators or lease holders
B. ☐ Royalty, overriding royalty owners, revenue owners
C. ■ Application requires published notice
D. ☐ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ■ Surface owner
G. ■ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

July 25, 2019
Date

Ramona Hovey – Agent of Solaris Water Midstream
Print or Type Name

Ramona Hovey
Signature

(512) 600-1777
Phone Number

ramona@lonquist.com
e-mail Address

Received by OCD: 7/30/2019 3:11:53 PM

July 26, 2019

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

RE: TRIVETTE FED SWD NO. 1 AUTHORIZATION TO INJECT

To Whom It May Concern:

Attached for your review is Form C-108, Application for Authorization to Inject, and its supplemental documents prepared for Solaris Water Midstream, LLC's (Solaris") Trivette Fed SWD No. 1. In addition, Forms C-101 and C-102 have also been included with this package. Notices have been sent to offset operators, leaseholders and the surface owner. Proof of notice will be sent to the OCD upon receipt.

Any questions should be directed towards Solaris Water Midstream, LLC's agent Lonquist & Co., LLC.

Regards,

Ramona K. Hovey
Sr. Petroleum Engineer
Lonquist & Co., LLC

(512) 600-1777
ramona@lonquist.com

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___X___Disposal _____Storage
Application qualifies for administrative approval? ___X___Yes _____No

II. OPERATOR: Solaris Water Midstream, LLC

ADDRESS: 701 Tradewinds Blvd., Suite C, Midland, TX 79706

CONTACT PARTY: Whitney McKee PHONE: 432-203-9020

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes ___X___No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Ramona Hovey TITLE: Consulting Engineer – Agent for Solaris Water Midstream

SIGNATURE: Ramona Hovey DATE: 7/25/2019

E-MAIL ADDRESS: ramona@lonquist.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Solaris Water Midstream, LLC

WELL NAME & NUMBER: Trivette Fed SWD No. 1

WELL LOCATION: 990’ FNL 215’ FWL (FOOTAGE LOCATION) | D (UNIT LETTER) | 23 (SECTION) | 26S (TOWNSHIP) | 30E (RANGE)

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 18.125”

Casing Size: 16.00”

Cemented with: 946 sx. ***or*** _____ ft^3

Top of Cement: surface

Method Determined: circulation

Intermediate Casing

Hole Size: 14.750”

Casing Size: 13.375”

Cemented with: 914 sx. ***or*** _____ ft^3

Top of Cement: surface

Method Determined: circulation

Production Casing

Hole Size: 12.250”

Casing Size: 9.625”

Cemented with: 2924 sx. ***or*** _____ ft^3

Top of Cement: surface

Method Determined: circulation

Liner

Hole Size: 8.500”

Casing Size: 7.625”

Cemented with: 485 sx. ***or*** _____ ft^3

Top of Cement: 12,026’

Method Determined: calculation

Total Depth: 18,333’

Injection Interval

16,533 feet to 18,333 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 5.5", 20 lb/ft, HCL-80, BTC from 0' – 11,826' and 5", 18 lb/ft, HCL-80, LTC from 11,826' – 16,483'
Lining Material: Duoline

Type of Packer: Nickel Plated Double Grip Retrievable Packer or Equivalent

Packer Setting Depth: 16,483'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? ___X___Yes _____No

   If no, for what purpose was the well originally drilled?
   _____

2. Name of the Injection Formation: Devonian, Fusselman

3. Name of Field or Pool (if applicable): SWD; Devonian-Silurian 97869_____

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

   No, new drill.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

   Bell Canyon: 3,721'
   Cherry Canyon: 4,627'
   Brushy Canyon: 5,877'
   Bone Spring: 7,574'
   Wolfcamp: 12,126'
   Strawn: 13,544'
   Atoka: 13,679'
   Morrow: 14,354'

Solaris Water Midstream, LLC

Trivette Fed SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Trivette Fed SWD
Well No.	1
Location	S-23 T-26S R-30E
Footage Location	990’ FNL & 215’ FWL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	16”	13.375”	9.625”	7.625”
WT	0.495”	0.480”	0.545”	0.500”
ID	15.010”	12.415”	8.535”	6.625”
Drift ID	14.822”	12.259”	8.379”	6.500”
COD	17.000”	13.375”	10.625”	7.625”
Weight	84 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	J-55 BTC	L-80, EZ-GO FJ3	HCP-110 BTC	Q-125 EZ-GO FJ3
Hole Size	18.125”	14.75"	12.25”	8.5”
Depth Set	1378’	3,718’	12,226’	12,026’ – 16,533’

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	HALCEM™	HALCEM™	NEOCEM™ IL2	NEOCEM™
Lead Cement Volume (sacks)	635	628	Stage 1: 1725 Stage 2: 342	-
Lead Cement Density (ft3/sack)	1.664	1.664	Stage 1: 2.731 Stage 2: 2.732	-
Tail Cement	HALCEM™	HALCEM™	NEOCEM™/HALCEM™	VERSACEM™
Tail Cement Volume (sacks)	311	286	Stage 1: 623 Stage 2: 233	485
Tail Cement Density (ft3/sack)	1.332	1.332	Stage 1: 1.056 Stage 2: 1.336	1.223
Cement Excess	100%	100%	100%, 0%	50%
Total Sacks	946	914	2,924	485
TOC	Surface	Surface	Surface	8,300’
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	5.5” 5.0”
WT	0.361” 0.362”
ID	4.778” 4.276”
Drift ID	4.653” 4.151”
COD	6.050” 5.563”
Weight	20 lb/ft 18 lb/ft
Grade	HCL-80 BTC HCL-80 LTC
Depth Set	0’ – 11,826’ 11,826’ – 16,483’

Tubing will be lined with Duoline.

4. Packer Description

Nickel Plated Double Grip Retrievable Packer or Equivalent

B. Completion Information

1. Injection Formation: Devonian, Fusselman

2. Gross Injection Interval: 16,533'-18,333'

   Completion Type: Open Hole

3. Drilled for injection.

4. See the attached wellbore schematic.

5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Bell Canyon	3,721'
Cherry Canyon	4,627'
Brushy Canyon	5,877'
Bone Spring	7,574'
Wolfcamp	12,126'
Strawn	13,544'
Atoka	13,679'
Morrow	14,354'

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injected:

   Average Volume: 30,000 BPD
   Maximum Volume: 40,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

   Average Injection Pressure: 2,480 PSI (surface pressure)
   Maximum Injection Pressure: 3,307 PSI (surface pressure)

4. The injection fluid is to be locally produced water. It is expected that the source water will predominantly be from the Avalon, Bone Spring, and Delaware formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Avalon, Bone Spring, Delaware, Morrow, and Wolfcamp.

5. The disposal interval is non-productive. No water samples are available from the surrounding area.

VIII. Geological Data

Devonian Formation Lithology:

The Devonian formation is a dolomitic ramp carbonate that occurs below the Woodford shale and above the Fusselman formation. Strata found in the Devonian formation include two major groups, the Wristen Buildups and the Thirtyone Deepwater Chert, with the Wristen being more abundant. The Wristen Groups is composed of mixed limestone and dolomites with mudstone to grainstone and boundstone textures. Porosity in the Wristen group is a result of both primary and secondary development. Present are moldic, vugular, karstic (including collapse breccia) features that allow for higher porosities and permeabilities. The Thirtyone Formation contains two end-member reservoir facies, skeletal packstones/grainstones and spiculitic chert, with most of the porosity and permeability found in the coarsely crystalline cherty dolomite. These particular characteristics allow for this formation to be a tremendous Salt Water Disposal horizon.

Fusselman Formation Lithology:

The Silurian/Ordovician Fusselman Formation is stratigraphically below the Wristen Group and is above and separated from the Montoya Formation by the Sylvan Shale. The Sylvan Shale is the lower confining layer for the proposed Trivette Fed SWD No. 1 well. Fusselman facies include a laminated skeletal wackestone in the upper part and a buildup complex in the lower part composed of ooid and bryozoan grainstones. These grainstones can also be potentially prolific zones for disposal.

A. Injection Zone: Devonian-Silurian Formation

Formation	Depth
Rustler	1,001’
Salado (Top of Salt)	1,264’
Lamar	3,698’
Bell Canyon	3,721’
Cherry Canyon	4,627’
Brushy Canyon	5,877’
Bone Spring	7,574’
Wolfcamp	12,126’
Strawn	13,544’
Atoka	13,679’
Morrow	14,354’
Mississippian Lime	16,196’
Woodford	16,409’
Devonian	16,533’

B. Underground Sources of Drinking Water

No water wells exist within a one-mile radius of the proposed well. Water wells outside a one-mile radius in the surrounding area have an average depth of 635 feet and an average water depth of 226 feet generally producing from the Carlsbad Basin. The upper Rustler may also be another USDW and will be isolated from the Salado by setting 16” surface casing at 1,239 feet.

IX. Proposed Stimulation Program

50,000 gallon acid job

X. Logging and Test Data on the Well

There are no logs or test data on the well. During the process of drilling and completion resistivity, gamma ray, and density logs will be run.

XI. Chemical Analysis of Fresh Water Wells

Because there are no water wells that exist within a one-mile radius of the proposed well, chemical analysis of fresh water wells were not retrieved for the proposed well.

SOLARIS WATER MIDSTREAM, LLC
Trivette Fed SWD #1
Section 23-T26S-R30E
990' FNL & 215' FWL
Eddy County, New Mexico
GEOLOGICAL PROGNOSIS
7/19/2019

GL: 3,096' (est.)
KB: 3,118' (+22' est.)
Proposed Injection Interval: 16,533' – 18,333'

Tops	Depths (est.)	Subsea (est.)
Rustler	1,001'	+2,147'
Salado	1,264'	+1,884'
Lamar	3,698'	-550'
Bell Canyon	3,721'	-573'
Cherry Canyon	4,627'	-1,479'
Brushy Canyon	5,877'	-2,729'
Bone Spring	7,574'	-4,426'
Wolfcamp	12,126'	-8,978'
Strawn	13,544'	-10,396
Atoka	13,679'	-10,531
Morrow	14,354'	-11,206
Mississippian Lime	16,196'	-13,048
Woodford	16,409'	-13,261
Devonian	16,533'	-13,385
TD	18,333'	-15,185