DATE IN 10/13/2017	SUSPENSE	ENGINEER PRG	LOGGED IN 10/13/2017	TYPE SWD	APP NO. pMAM1729656095

ABOVE THIS LINE FOR DIVISION USE ONLY

15-day period Start 10-16-2017

NEW MEXICO OIL CONSERVATION DIVISION
- 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

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- SWD-1701
- Solaris water midstream
- well 37643
- Okemos SWD #1
- 30-025-- Pending

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

RECEIVED OCD 2017 OCT 13 P 3:05

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☒ Application is One Which Requires Published Legal Notice

[D] ☒ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

POD

- SWD; Devonian-Silurian 97869

[E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **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.

Ben Stone		Agent for Solaris Water Midstream, LLC	10/12/17
Print or Type Name	Signature	Title	Date

ben@sosconsulting.us
e-mail Address

SOS Consulting, LLC

October 12, 2017

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

Attn: Mr. David Catanach, Director

Re: Application of Solaris Water Midstream, LLC to permit for salt water disposal in the proposed Okeanso SWD Well No.1, to be located in Section 36, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico.

Dear Mr. Catanach,

Please find enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request to permit for disposal, the Okeanos SWD No.1.

Solaris Water Midstream seeks to optimize efficiency, both economically and operationally, of its operations and to offer additional disposal options for operators in southeast New Mexico. Approval of this application is consistent with that goal as well as the NMOCD's mission of preventing waste and protection of correlative rights.

Published legal notice will run on or about October 13, 2017 in the edition of the Hobbs News-Sun and all offset operators and other interested parties have been notified individually. The legal notice affidavit will be forwarded when received. This application also includes a wellbore schematic, area of review maps, leaseholder plats and other required information for a complete Form C-108. The well is located on private land and minerals with state minerals offsetting; a copy of this application has been submitted to the State Land Office, Oil and Gas Division.

I respectfully request that the approval of this salt water disposal well proceed swiftly and if you or your staff requires additional information or has any questions, please do not hesitate to call or email me.

Best regards,

Ben Stone, Partner
SOS Consulting, LLC
Agent for Solaris Water Midstream, LLC

Cc: Application attachment and file

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: ***Salt Water Disposal*** and the application ***QUALIFIES*** for administrative approval.

II. OPERATOR: ***Solaris Water Midstream, LLC***
ADDRESS: ***701 Tradewinds Blvd., Suite C, Midland, TX 79706***

CONTACT PARTY: ***Agent: SOS Consulting, LLC – Ben Stone (903) 488-9850***

III. WELL DATA: ***All well data and applicable wellbore diagrams are ATTACHED.***

IV. ***This is not an expansion of an existing project.***

V. ***A map is attached*** 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. A tabulation is attached of data on all wells of public record within the area of review which penetrate the proposed injection zone. ***There are NO (0) Wells in the subject AOR.*** The data includes a description of each well's type, construction, date drilled, location, depth, and a schematic of any plugged well illustrating all plugging detail.

VII. ***The following data is ATTACHED*** 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. ***Appropriate geologic data on the injection zone is ATTACHED*** 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. ***Stimulation program – a conventional acid job may be performed to clean and open the formation.***

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

*XI. ***There are 2 domestic water wells within one mile of the proposed salt water disposal well. Analyses will be forwarded.***

XII. ***An affirmative statement is ATTACHED that available geologic and engineering data has been examined and no evidence was found*** of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. ***"Proof of Notice" section on the next page of this form has been completed and ATTACHED. There are 6 offset lessees and/or operators within ½ mile and NM state minerals - all have been noticed. Well location is PRIVATE.***

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: ***Ben Stone*** TITLE: ***SOS Consulting, LLC agent for Solaris Water Midstream, LLC***

SIGNATURE: _____ DATE: ***10/12/2017***

E-MAIL ADDRESS: ***ben@sosconsulting.us***

* 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

FORM C-108 – APPLICATION FOR AUTHORIZATION TO INJECT (cont.)

III. WELL DATA – ***The following information and data is included (See ATTACHED Wellbore Schematic):***

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 ***pursuant to the following criteria is ATTACHED.***

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.

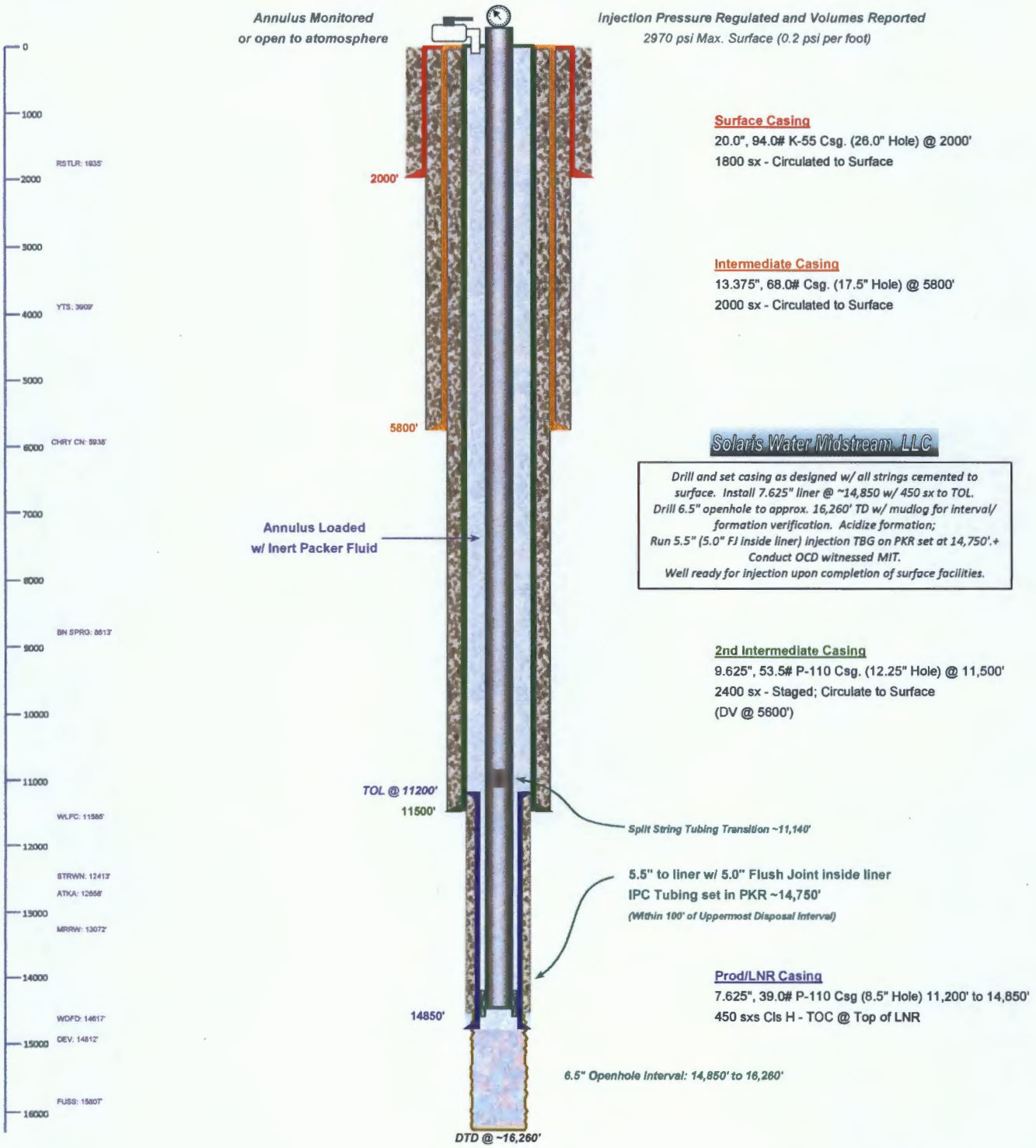
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

SOLARIS WATER MIDSTREAM, LLC

WELL SCHEMATIC - PROPOSED
Okeanos SWD Well No.1

API 30-025-xxxxx
789' FSL & 507' FWL, SEC. 36-T20S-R34E
LEA COUNTY, NEW MEXICO

SWD; Devonian-Silurian (97869)
Spud Date: 1/15/2018
SWD Config Dt: 2/15/2018



Surface Casing
20.0", 94.0# K-55 Csg. (26.0" Hole) @ 2000'
1800 sx - Circulated to Surface

Intermediate Casing
13.375", 68.0# Csg. (17.5" Hole) @ 5800'
2000 sx - Circulated to Surface

Solaris Water Midstream, LLC

Drill and set casing as designed w/ all strings cemented to surface. Install 7.625" liner @ ~14,850 w/ 450 sx to TOL. Drill 6.5" openhole to approx. 16,260' TD w/ mudlog for interval/ formation verification. Acidize formation; Run 5.5" (5.0" FJ inside liner) injection TBG on PKR set at 14,750'.+ Conduct OCD witnessed MIT. Well ready for injection upon completion of surface facilities.

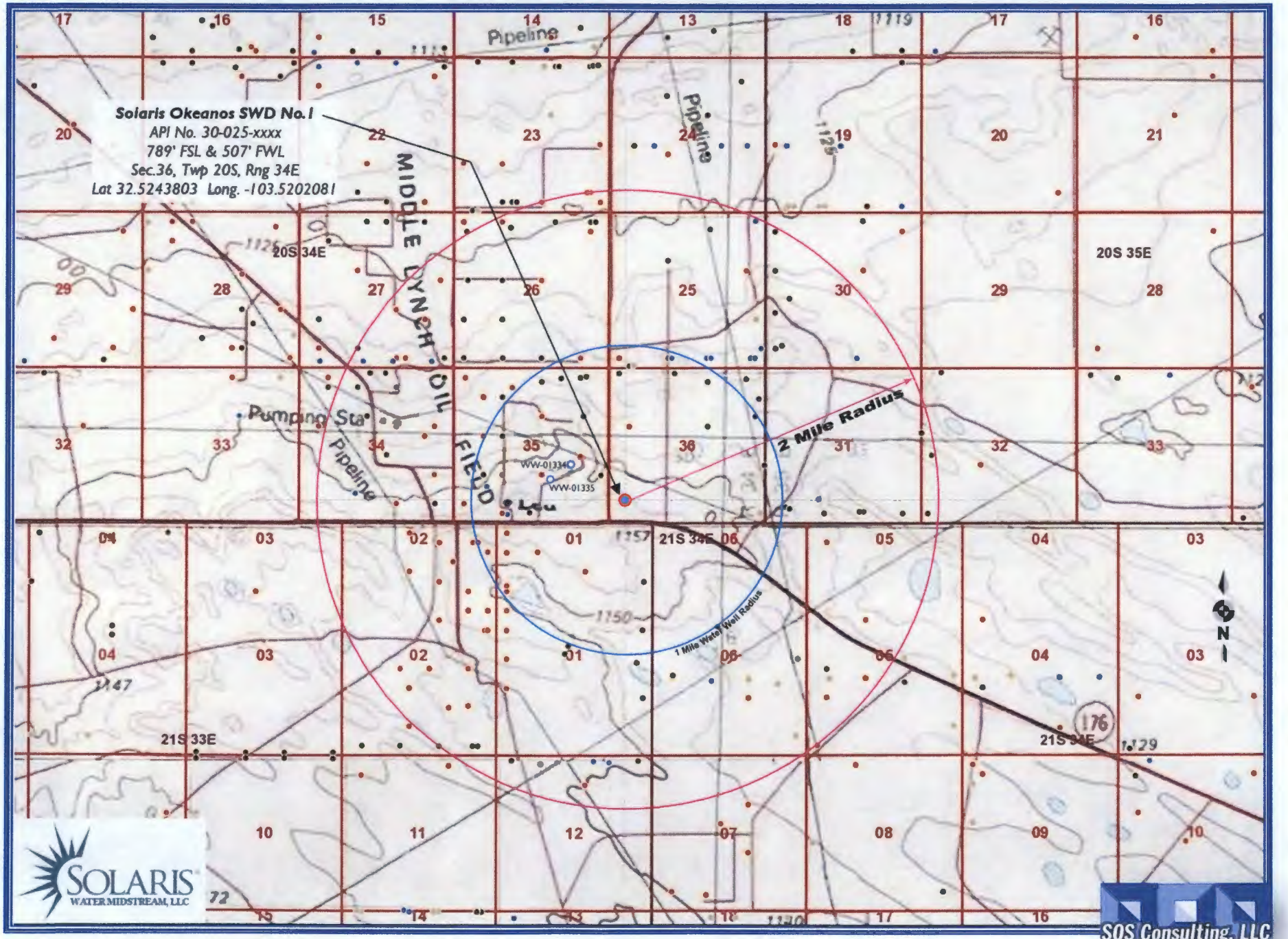
2nd Intermediate Casing
9.625", 53.5# P-110 Csg. (12.25" Hole) @ 11,500'
2400 sx - Staged; Circulate to Surface
(DV @ 5600')

Prod/LNR Casing
7.625", 39.0# P-110 Csg (8.5" Hole) 11,200' to 14,850'
450 sxs Cls H - TOC @ Top of LNR

SOS Consulting, LLC
Drawn by: Ben Stone, Rvs'd 11/09/2017

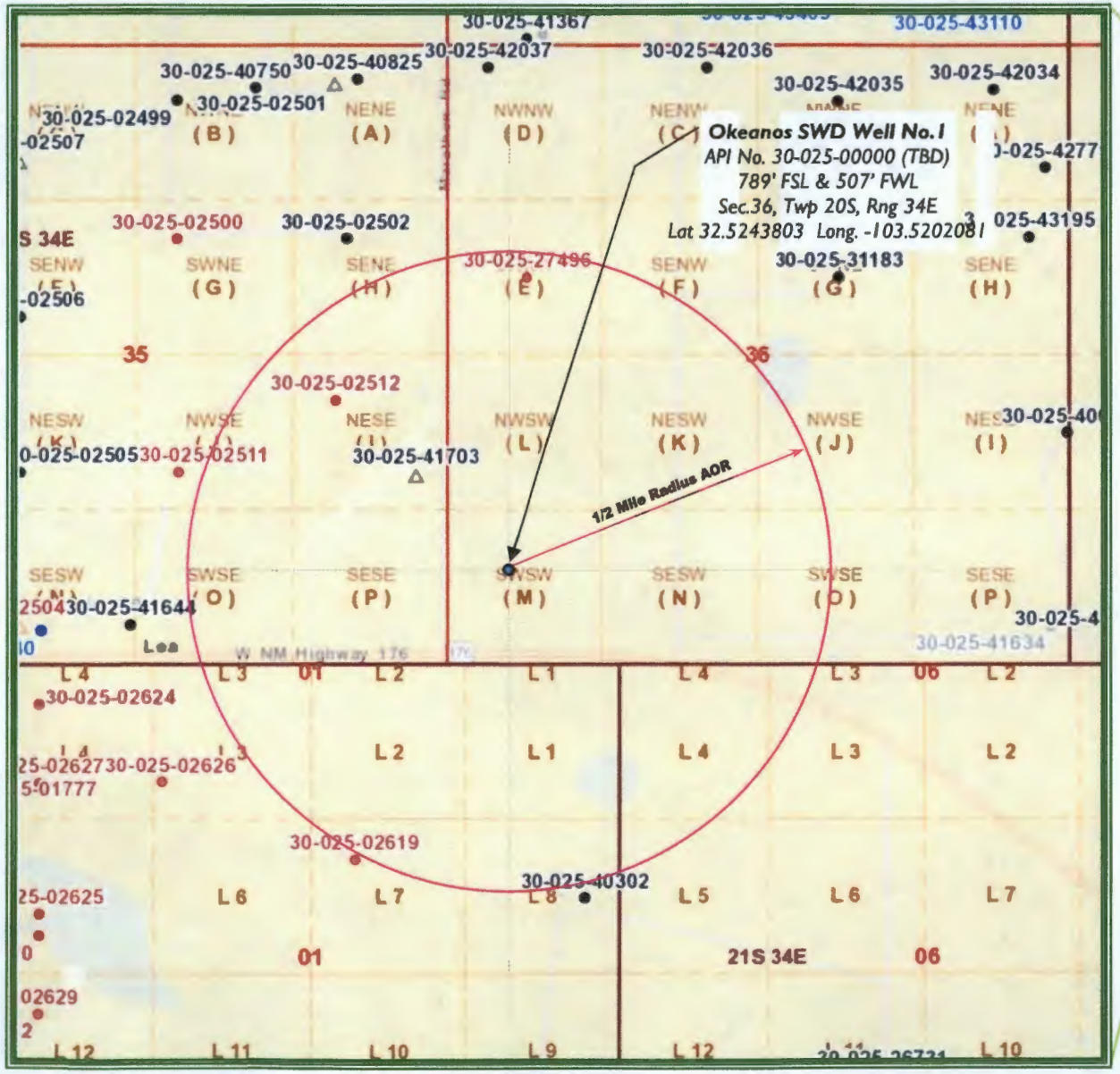
Solaris Okeanos SWD No.1 - Area of Review / 2 Miles

(Attachment to NMOCD Form C-108 - Item V)

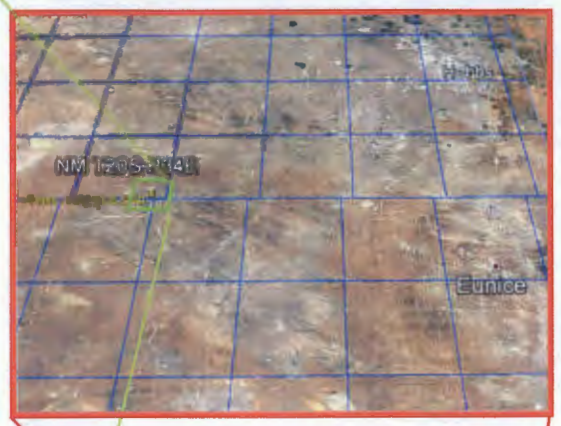


Okeanos SWD Well No.1 - Area of Review / Overview Map

(Attachment to NMOCD Form C-108, Application for Authority to Inject.)



~21.9 miles W/NW of Eunice, NM



Lea County, New Mexico

SOLARIS WATER MIDSTREAM, LLC

SOS Consulting, LLC

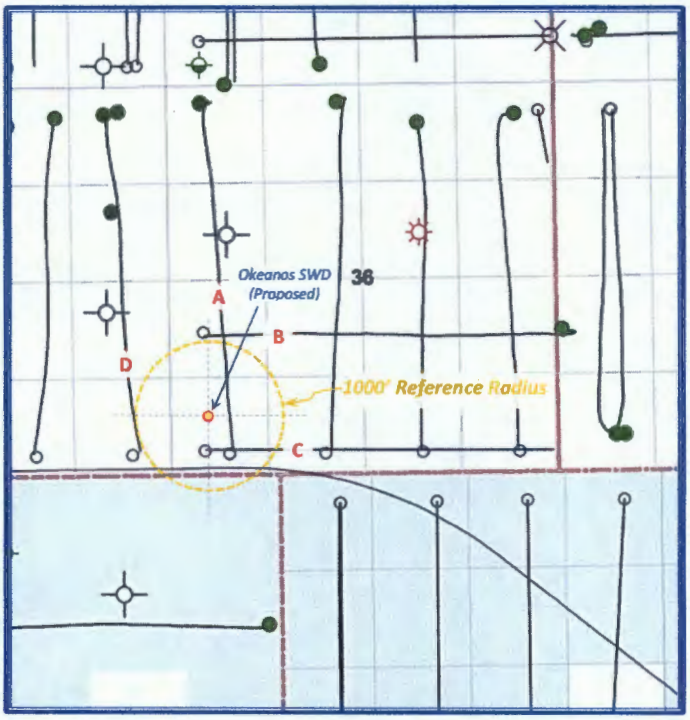
C-108 - Item VI

Area of Review Well Data

THERE ARE NO WELLS WHICH PENETRATE THE PROPOSED DEVONIAN FORMATION IN THE ONE-HALF MILE AREA of REVIEW

Okeanos SWD No.1 – AOR / Horizontal Completions

(Attachment to NMOCD Form C-108 - Item V)



COG Operating, LLC

A. 30-025-42037 – Stratosphere 36 State Com No.6H
D-36-20S-34E
Horizontal Completion: Bone Spring @ 11,300' +/-
Nominal distance to proposed vertical SWD: 315 feet

B. 30-025-40618 – Stratosphere 36 State No.1H
I-36-20S-34E
Horizontal Completion: Bone Spring @ 10200'-11600' +/-
Nominal distance to proposed vertical SWD: 1144feet

C. 30-025-41634 - Stratosphere 36 State No.2 – CANCELLED APD
P-36-20S-34E; *Nominal distance to SWD: N/A*

Cimarex Energy Co.

D. 30-025-40825 – Lynch 35 No.1H
A-35-20S-34E
Horizontal Completion: Bone Spring @ 11,300' +/-
Nominal distance to proposed vertical SWD: 1010 feet

SOS Consulting, LLC

C-108 ITEM X – LOGS and AVAILABLE TEST DATA

A Standard Suite of Logs will be run after drilling the well and submitted to the Division.

C-108 ITEM VII – PROPOSED OPERATION

Okeanos SWD No.1

Commercial SWD Facility

Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take approximately 6-8 weeks. Facility construction including installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval but at a different location from the well. In any event, it is not expected for the construction phase of the project to last more than 60 days, depending on availability of contractors and equipment. The operator has negotiated a Surface Owner Agreement for the facility and well site.

Configure for Salt Water Disposal

Prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the completion workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per OCD test procedures. (Notify NMOCD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity.

Operational Summary

The SWD facility will not be fenced so that trucks may access for load disposal 24/7.

The well and injection equipment will be a closed system and equipped with pressure limiting devices and volume meters. The annulus, loaded with an inert, anti-corrosion packer fluid, will be monitored for pressure.

The tanks will be equipped with telemetry devices and visual alarms to alert the operator and customers of full tanks or an overflow situation.

Anticipated daily maximum volume is 25,000 bpd and an average of 15,000 bpd at a maximum surface injection pressure of 2970 psi (.2 psi/ft gradient – maximum pressure will be adjusted If the top of interval is modified after well logs are run).

Potential releases will be contained and cleaned up immediately. The operator shall repair or otherwise correct the situation within 48 hours before resuming operations. OCD will be notified within 24 hours of any release greater than 5 bbls. If required, remediation will start as soon as practicable. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as necessary and appropriate.

C-108 ITEM VII – PRODUCED WATER ANAYLSES

Item VII.4 – Water Analysis of Source Zone Water

Delaware
Bone Spring
Morrow
Wolfcamp

Item VII.5 – Water Analysis of Disposal Zone Water

Devonian

Water Analyses follow this page.

C-108 Item VII.5 - Produced Water Data

Solaris Water Midstream, LLC - Solaris Okeanos SWD No.1

SOURCE ZONE

DELAWARE

Lab ID

Sample ID 4347

API No 3002508367

Sample No

Well Name BELL LAKE UNIT 007

Location ULSTR 01 24 S 33 E **Lat / Long** 32.25143 -103.51924

660 N 660 E **County** Lea

Operator (when sampled)

Field SWD Unit 1

Sample Date Analysis Date

Sample Sourc UNKNOWN Depth (if known)

Water Typ

ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	87686	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	53920	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	391
iron_mgL		sulfate_mgL	749
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Solaris Water Midstream, LLC - Solaris Okeanos SWD No.1

SOURCE ZONE

BONE SPRING

Lab ID

Sample ID 4916

API No 3002502429

Sample No

Well Name LEA UNIT 005

Location ULSTR 12 20 S 34 E **Lat / Long** 32.58504 -103.51106

1980 S 1980 E **County** Lea

Operator (when sampled)

Field LEA Unit J

Sample Date Analysis Date

Sample Sourc DST Depth (if known)

Water Typ

ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	202606	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	118100	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	5196
iron_mgL		sulfate_mgL	992
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Solaris Water Midstream, LLC - Solaris Okeanos SWD No.1

SOURCE ZONE

MORROW

Lab ID

Sample ID 2434

Sample No

API No 3002520756

Well Name CUSTER MOUNTAIN UNIT 001

Location ULSTR 09 24 S 35 E **Lat / Long** 32.22999 -103.37431

1980 S 1980 W **County** Lea

Operator (when sampled)

Field CINTA ROJA Unit K

Sample Date Analysis Date

Sample Sourc DST Depth (if known)

Water Typ

ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	282741	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	176800	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	161
iron_mgL		sulfate_mgL	650
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)

SOS Consulting, LLC

C-108 – Item VII.5

Water Analysis – Source Zone – Wolfcamp

WATER ANALYSIS REPORT

Lab ID No. : Analysis Date: June 9, 1992

Company : B.T-A Oil Production
Field : Corbin, Wolfcamp, South
Lease/Unit : French
Well ID. : 1
Sample Loc.: Well Head

Sampled By : Pro - Kem
Sample Date: 5/28/92
Salesperson: Curtis Baze
Formation : Wolfcamp
Location : SE/SE, Sec 24, T18S, R32E

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
Calcium as Ca++	7,699	385	Hydroxyl as OH-	0	0
Magnesium as Mg++	1,895	155	Carbonate as CO3=	0	0
Sodium as Na+ (Calc)	52,740	2,293	Bicarbonate as HCO3-	180	3
Barium as Ba++	Not Determined		Sulfate as SO4=	500	10
Oil Content	0		Chloride as Cl-	99,977	2,820

Total Dissolved Solids, Calculated: 162,993 mg/L.

Calculated Resistivity: 0.062 ohm-meters
mg/L. Hydrogen Sulfide: 0
mg/L. Carbon Dioxide: 120
mg/L. Dissolved Oxygen: Not Determined

pH: 7.000
Specific Gravity 60/60 F.: 1.118
Saturation Index @ 80 F.: +0.435
@ 140 F.: +1.340

Total Hardness: 27,000 mg/L. as CaCO3
Total Iron: 5.00 mg/L. as Fe++

Calcium Sulfate Scaling Potential
Not Present

Estimated Temperature of Calcium Carbonate Instability is 61 F.

Analyst 01:54 PM

PROBABLE MINERAL COMPOSITION

COMPOUND	MG/L	MEQ/L
Ca(HCO3)2	240	3.0
CaSO4	709	10.4
CaCl2	20,623	371.6
Mg(HCO3)2	0	0.0
MgSO4	0	0.0
MgCl2	7,398	155.4
NaHCO3	0	0.0
Na2SO4	0	0.0
NaCl	134,052	2,293.1

C-108 Item VII.5 - Produced Water Data

Solaris Water Midstream, LLC - Solaris Okeanos SWD No.1

DISPOSAL ZONE

DEVONIAN

Lab ID

Sample ID 5733

Sample No

API No. 3002508483

Well Name BELL LAKE UNIT 006

Location ULSTR 06 23 S 34 E **Lat / Long** 32.32821 -103.50663

660 S 1980 E **County** Lea

Operator (when sampled)

Field BELL LAKE NORTH Unit O

Sample Date Analysis Date

Sample Source HEATER/TREATER Depth (if known)

Water Type

ph	7	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	71078	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	42200	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	500
iron_mgL		sulfate_mgL	1000
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Solaris Water Midstream, LLC - Solaris Brininstool SWD No.1

DISPOSAL ZONE

DEVONIAN

Lab ID

Sample ID 5720

API No. 3002521082

Sample No

Well Name ANTELOPE RIDGE UNIT 003

Location ULSTR 34 23 S 34 E **Lat / Long** 32.25922 -103.46068

1980 S 1650 W **County** Lea

Operator (when sampled)

Field ANTELOPE RIDGE Unit K

Sample Date 11/14/1967 Analysis Date

Sample Source UNKNOWN Depth (if known)

Water Type

ph	6.9	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	80187	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	47900	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	476
iron_mgL		sulfate_mgL	900
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)

SOS Consulting, LLC

C-108 – Item VIII

Geologic Information

The Devonian and Silurian (including Fusselman) consist of carbonates including light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of taking water are present within the subject formations in the area. Depth control data was inferred from deep wells in the vicinity. If the base of Devonian and top of Silurian and/or Ordovician rocks come in as expected the well will only be drilled deep enough for adequate logging rathole.

At a proposed depth of 16,260' BGL (Below Ground Level) the well will TD approximately 1,500 feet below the estimated top of the Devonian. Mud logging through the interval will ensure the target interval remains in Devonian and Silurian. Once Devonian is determined, the casing shoe depth will be set at an approximate maximum upper depth of 14,850' BGL. Injection will occur through the resulting openhole interval. If the base of Silurian and top of Ordovician rocks come in as expected the well will only be drilled deep enough for adequate logging rathole; estimated total depth approximately 16,300'.

The Devonian is overlain by the Woodford Shale and lower Silurian (Fusselman) rock is underlain by the Ordovician; Simpson, McKee and Ellenburger.

Fresh water in the area is generally available from the Santa Rosa formation. State Engineer's records show water wells in the area with a depth to groundwater of 90 to 150 feet.

There are two water wells located within one mile of the proposed SWD. Water analyses from both are included in this application.

C-108 ITEM XI – WATER WELLS IN AOR

All PODs located at two geographic coordinate locations.
Ssamples were taken and analyses will be forward when available.

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced and no longer serves this file, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(acre-ft per annum)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	q q q 64 16 4	Sec	Twn	Rng	X	Y
[illegible]	CP	COM	0	BERRY RANCH/GLENNS WW SERV INC	LE	[illegible]			Artesian	1 2 4	35	20S	34E	638402	3599879
[illegible]	CP	COM	0	BERRY RANCH/GLENNS WW SERV INC	LE	[illegible]			Artesian	4 1 4	35	20S	34E	638205	3599736
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	1 2 4	35	20S	34E	638402	3599879
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	1 2 4	35	20S	34E	638402	3599879
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	1 2 4	35	20S	34E	638402	3599879
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	4 1 4	35	20S	34E	638205	3599736
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	4 1 4	35	20S	34E	638205	3599736
[illegible]	CP	PRO	0	COG OPERATING	LE	[illegible]			Artesian	4 1 4	35	20S	34E	638205	3599736
[illegible]	CP	COM	100	LEA TOWNSITE WATER RESOURCES	LE	[illegible]			Artesian	1 2 4	35	20S	34E	638402	3599879
[illegible]	CP	COM	100	LEA TOWNSITE WATER RESOURCES	LE	[illegible]			Artesian	4 1 4	35	20S	34E	638205	3599736

Record Count: 10

PLSS Search:

Section(s): 35, 36 **Township:** 20S **Range:** 34E

Sorted by: File Number

No PODs found

PLSS Search:

Section(s): 1 **Township:** 21S **Range:** 33E

PODs not within one mile.

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	q q q 64 16 4	Sec	Twn	Rng	X	Y
[illegible]	CP	PRO	0	DALE CROCKETT	LE	[illegible]			Shallow	2 1	06	21S	34E	639838	3598306
[illegible]	CP	SAN	3	ENRON GAS PROCESSING CO	LE	[illegible]			Shallow	4 2 4	06	21S	34E	640754	3597413

Record Count: 2

PLSS Search:

Section(s): 6 **Township:** 21S **Range:** 34E

Sorted by: File Number

2 wells sampled – Analyses will be forwarded upon receipt.

C-108 Item XI

Water Wells Within One Mile

2 wells are shown to be within one mile of the proposed Okeanos SWD.

Samples were obtained. The analyses will be forwarded when received.

C-108 ITEM XI – WATER WELLS IN AOR

Depth to Ground Water

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced. O=orphaned. C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00654 POD1	CP	LE		4	4	12	20S	34E	640103	3605947*	60		
CP 00655 POD1	CP	LE		3	1	14	20S	34E	637294	3605108*	210		
CP 00656 POD1	CP	LE	4	4	4	04	20S	34E	635342	3607391*	225		
CP 00657 POD1	CP	LE		3	3	17	20S	34E	632465	3604239*	165		
CP 00665	CP	LE		1	4	24	20S	34E	639740	3603128*	698	270	428
CP 00750 POD1	CP	LE		3	4	07	20S	34E	631639	3605834*	320		
CP 00799 POD1	CP	LE	4	3	4	34	20S	34E	636666	3599364*	100		
CP 00800 POD1	CP	LE	2	2	2	22	20S	34E	637007	3603994*	220		
CP 01204 POD1	CP	LE	3	1	1	25	20S	34E	638755	3602250	370		
CP 01288 POD1	CP	LE	4	4	2	34	20S	34E	637134	3600204	1255	758	497
CP 01289 POD1	CP	LE	4	4	2	34	20S	34E	637037	3600261	1222	651	571
CP 01330 POD1	CP	LE	4	2	1	34	20S	34E	636197	3600483	1349	684	665
CP 01334 POD1	CP	LE	1	2	4	35	20S	34E	638402	3599879	1253	733	520
CP 01335 POD1	CP	LE	4	1	4	35	20S	34E	638205	3599736	1307	735	572
CP 01352 POD1	CP	LE	3	1	4	34	20S	34E	636559	3599716	1270	785	485
CP 01389 POD1	CP	LE	1	1	1	34	20S	34E	635726	3600733	1250	1005	245

Average Depth to Water: **702 feet**

Minimum Depth: **270 feet**

Maximum Depth: **1005 feet**

Record Count: 16

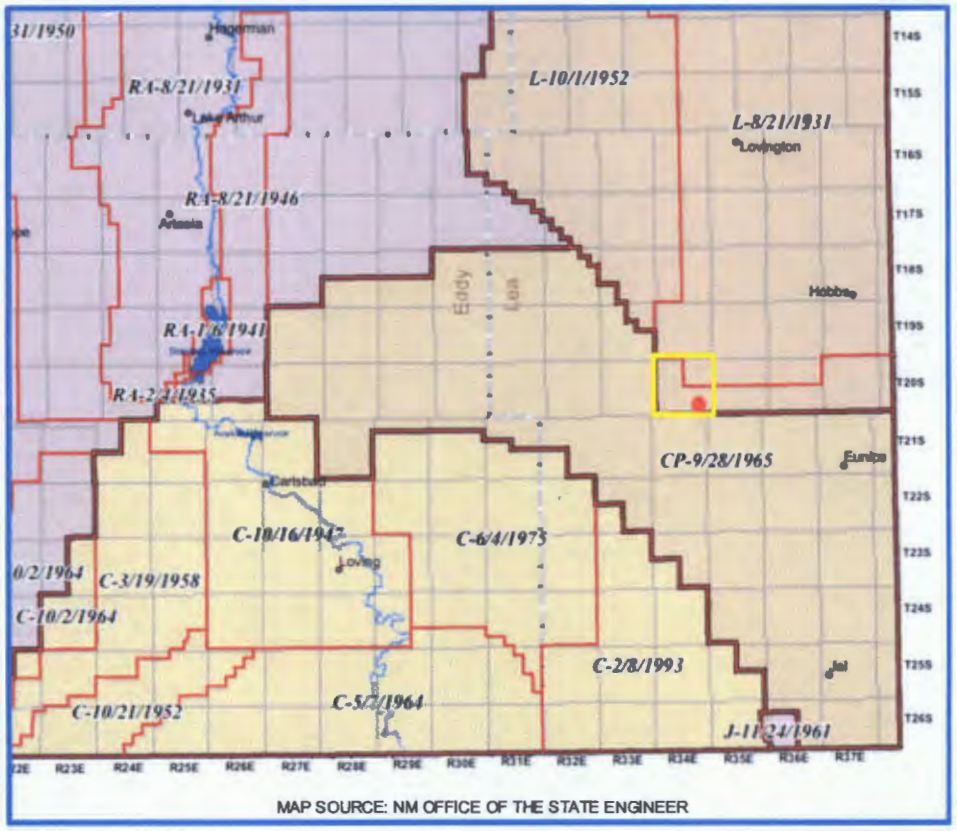
PLSS Search:

Township: 20S Range: 34E

***UTM location was derived from PLSS - see Help**

C-108 - Item XI

Groundwater Basins - Water Column / Depth to Groundwater



MAP SOURCE: NM OFFICE OF THE STATE ENGINEER

The subject well is located within the Lea County Basin one township north and east of the Capitan Basin.

Fresh water in the area is generally available from the Santa Rosa and similar aged deposits of the basin. State Engineer's records show water wells in 20S-34E with a minimum depth to water at 270 feet.

There are two (2) water wells located within one mile of the proposed SWD. Analysis for both are included.

SOS Consulting, LLC

C-108 ITEM XII – GEOLOGIC AFFIRMATION

We have examined available geologic and engineering data and have found no evidence of open faults or other hydrologic connection between the disposal interval and any underground sources of drinking water.

Ben Stone, Partner
SOS Consulting, LLC

Project: Solaris Water Midstream, LLC
Okeanos SWD No.1
Reviewed 10/11/2017

C-108 ITEM XIII – PROOF OF NOTIFICATION

IDENTIFICATION AND NOTIFICATION OF INTERESTED PARTIES

Exhibits for Section

Leasehold Plat

List of Interested Parties

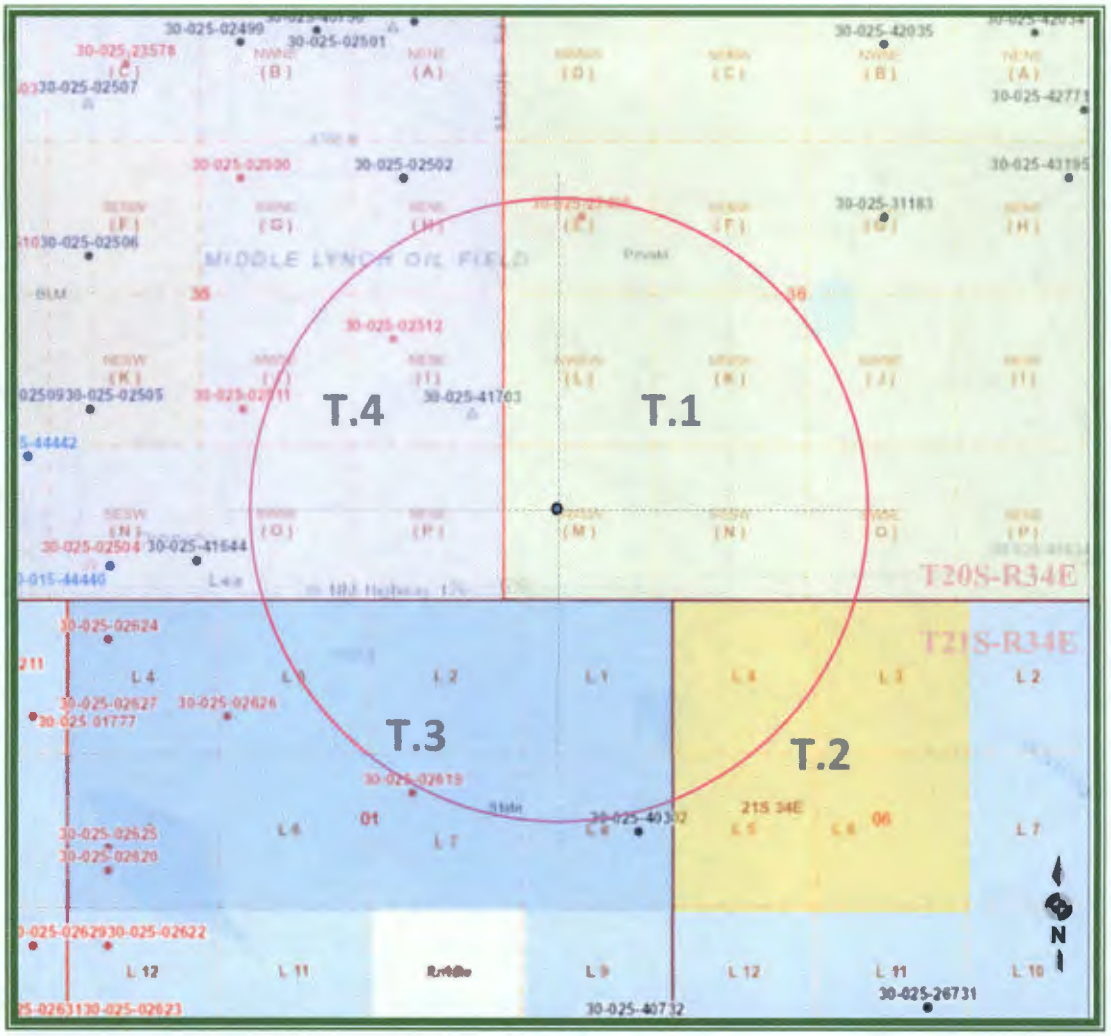
Notification Letter to Interested Parties

Proof of Certified Mailing

Published Legal Notice

Okeanos SWD Well No.1 - Leasehold Plat

(Attachment to NMOCD Form C-108, Application for Authority to Inject.)



SOLARIS WATER MIDSTREAM, LLC

LEGEND

T.1 – S&S, Inc.; COG Operating, LLC

T.2 – VB-1384; GMT Exploration & W/2 VB-3900;
Devon Energy Production Co.

T.3 – VB-1382/ 1383; COG Operating, LLC

T.4 – Berry Ranch; Cimarex, Burk Royalty, BC Operating

SOS Consulting, LLC

C-108 ITEM XIII – PROOF OF NOTIFICATION
INTERESTED PARTIES LIST

SURFACE OWNER

1 S&S, INC.
P.O. Box 1046
Eunice, New Mexico 88231
Certified: 7015 3010 0001 3789 9927

MINERALS LESSEES and/or OPERATORS (All Notified via USPS Certified Mail)

Fee Lease – S&S, Inc.; (T.1 on plat.)
Operator
2 COG OPERATING, LLC
2208 W. Main Street
Artesia, New Mexico 88210-3720
Certified: 7015 3010 0001 3789 9910

State Lease VB-1384 & W/2 VB-3900; (T.2 on plat.)
Lessee
3 GMT EXPLORATION
1560 Broadway, Ste.2000
Denver, CO 80202
Certified: 7015 3010 0001 3789 9903

W/2 Lessee
4 DEVON ENERGY PRODUCTION CO., LP
333 W. Sheridan Avenue
OKC, OK 73102-5010
Certified: 7015 3010 0001 3789 9897

State Lease VB-1382/ 1383; (T.3 on plat.)
Lessee & Operator
COG OPERATING, LLC
2208 W. Main Street
Artesia, New Mexico 88210-3720

Fee Lease – Berry Ranch; (T.4 on plat.)
Operators
5 CIMEREX ENERGY COMPANY
600 N. Marienfeld Street, Ste.600
Midland, TX 79701
Certified: 7015 3010 0001 3789 9880

6 BURK ROYALTY COMPANY
P.O. Box 94903
Wichita Falls, TX 76308
Certified: 7015 3010 0001 3789 9873

C-108 ITEM XIII – PROOF OF NOTIFICATION
INTERESTED PARTIES LIST (cont.)

Fee Lease – Berry Ranch; (T.4 on plat - cont.)
Operators

7 BC OPERATING, INC.
P.O. Box 50820
Midland, TX 79710
Certified: 7015 3010 0001 3789 9866

OFFSET MINERALS OWNER (Notified via USPS Certified Mail)

8 STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504
Certified: 7015 3010 0001 3789 9859

REGULATORY

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed original and copy)
1220 S. St. Francis Dr.
Santa Fe, NM 87505

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed copy)
1625 S. French Drive
Hobbs, NM 88240

October 12, 2017

NOTIFICATION TO INTERESTED PARTIES
via U.S. Certified Mail – Return Receipt Requested

To Whom It May Concern:

Solaris Water Midstream, LLC, Midland, Texas, has made application to the New Mexico Oil Conservation Division to drill and complete for salt water disposal the Okeanos SWD Well No.1. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 36, Township 20 South, Range 34 East in Lea County, New Mexico.

The published notice states that the interval will be from 14,850 feet to 16,260 feet.

Following is the notice published in the Hobbs News-Sun, Hobbs, New Mexico on or about October 13, 2017.

LEGAL NOTICE

Solaris Water Midstream, LLC, 701 Tradewinds Blvd., Suite C, Midland, TX 79706, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Okeanos SWD No.1, is located 789' FSL and 507' FWL, Section 36, Township 20 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 14,850' to 16,260' at a maximum surface pressure of 2970 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 21.9 miles west/ northwest of Eunice, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.

You have been identified as a party who may be interested as an offset lessee or operator.

You are entitled to a full copy of the application. A full copy in PDF format on a mini-CD will be arriving within a few days of this notice. If you do not receive it, please call or email SOS Consulting, LLC at 903-488-9850, info@sosconsulting.us, and a copy will be expedited to you and may also be sent via email if preferred.

Thank you for your attention in this matter.

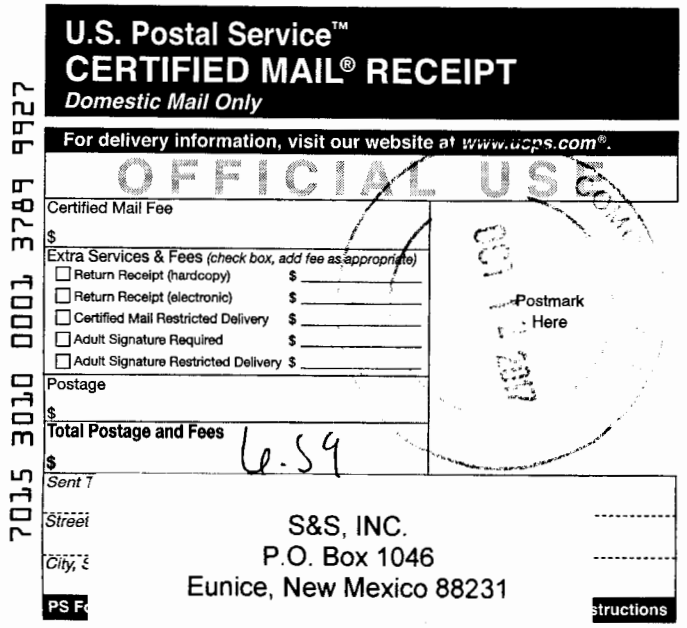
Best regards,

Ben Stone, SOS Consulting, LLC
Agent for Solaris Water Midstream, LLC

Cc: Application File

C-108 - Item XIV

Proof of Notice (Certified Mail Receipts)



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Total Postage and Fees
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City, S

S&S, INC.
P.O. Box 1046
Eunice, New Mexico 88231

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Total Postage and Fees
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COG OPERATING, LLC
2208 W. Main Street
Artesia, New Mexico 88210

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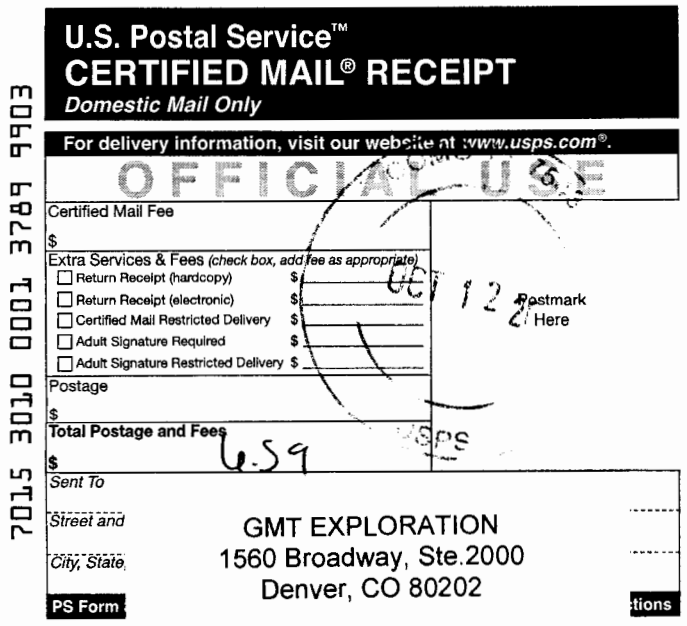

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Denver, CO 80202

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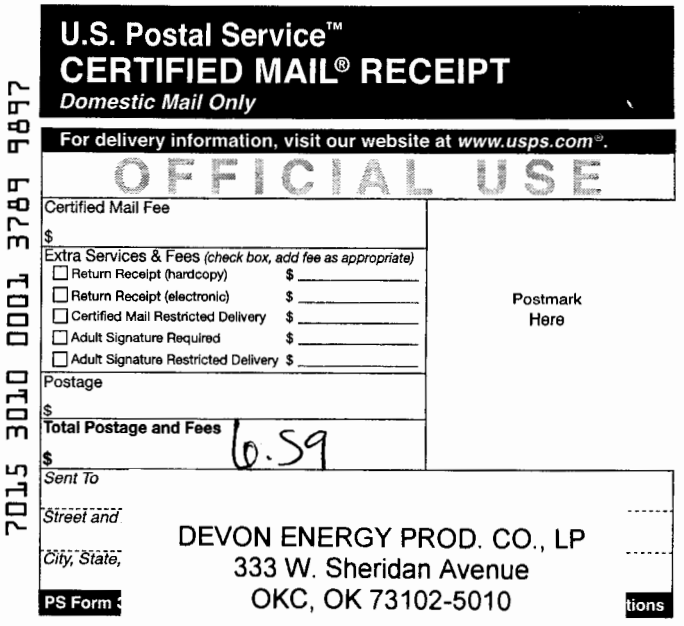

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DEVON ENERGY PROD. CO., LP
333 W. Sheridan Avenue
OKC, OK 73102-5010

PS Form … tions

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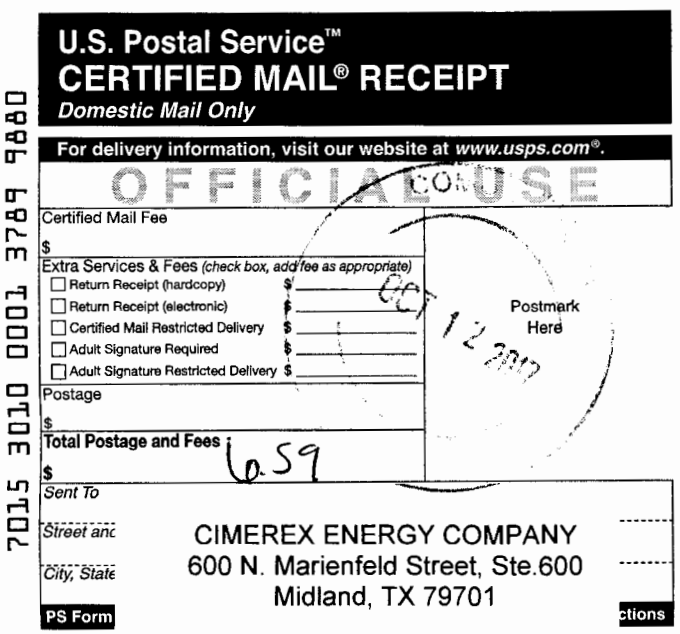
C-108 - Item XIV

Proof of Notice (Certified Mail Receipts – cont.)



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CIMEREX ENERGY COMPANY
600 N. Marienfeld Street, Ste.600
Midland, TX 79701

PS Form

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Midland, TX 79710

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STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504

PS Form

7015 3010 0001 3789 9859

C-108 - Item XIV

Proof of Notice – Legal Notice
Newspaper of General Circulation

LEGAL NOTICE
October 13, 2017

Solaris Water Midstream, LLC, 701 Tradewinds Blvd., Suite C, Midland, TX 79706, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Okeanos SWD No.1, is located 789' FSL and 507' FWL, Section 36, Township 20 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 14,850' to 16,260' at a maximum surface pressure of 2970 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 21.9 miles west/ northwest of Eunice, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or email info@sosconsulting.us.
#32155

The above is the "Proof Copy" sent from the Artesia Daily Press.
The affidavit of publication will be forwarded as soon as it is received.

McMillan, Michael, EMNRD

From: ben@sosconsulting.us
Sent: Thursday, October 19, 2017 10:50 AM
To: McMillan, Michael, EMNRD
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1
Attachments: Affidavit_Solaris_Okeanos001.pdf; WolfcampSourcelZone.pdf

Hi Mike,

Here's the affidavit and WC analysis.

Fresh water is at the lab now.

Thanks,
Ben

SOS Consulting, LLC
Ph. 903.488.9850 Fax 866.400.7628
P.O. Box 300 - Cumo, TX 75431

Visit us on the web at www.sosconsulting.us!

--------- Original Message ---------
Subject: Solaris Water Midstream LLC Okeanos SWD Well NO.1
From: "McMillan, Michael, EMNRD" <Michael.McMillan@state.nm.us>
Date: 10/13/17 4:43 pm
To: "Ben Stone" <ben@sosconsulting.us>

Ben:

I need the following
I need affidavit of publication

Water samples from the Wolfcamp and water samples of nearby wells

As a result, your application has been suspended.

Mike

Michael McMillan

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
October 13, 2017
and ending with the issue dated
October 13, 2017.

Publisher

Sworn and subscribed to before me this 13th day of October 2017.

Business Manager

My commission expires
January 29, 2019
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGALS

LEGAL NOTICE
October 13, 2017

Solaris Water Midstream, LLC, 701 Tradewinds Blvd., Suite C, Midland, TX 79706, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Okeanos SWD No.1, is located 789' FSL and 507' FWL, Section 36, Township 20 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 14,850' to 16,260' at a maximum surface pressure of 2970 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 21.9 miles west/ northwest of Eunice, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.
#32155

67104420 00201058

BEN STONE
SOS CONSULTING, LLC.
P.O. BOX 300
COMO, TX 75431

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
October 13, 2017
and ending with the issue dated
October 13, 2017.

Publisher

Sworn and subscribed to before me this
13th day of October 2017.

Business Manager

My commission expires
January 29, 2019
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGALS

LEGAL NOTICE
October 13, 2017

Solaris Water Midstream, LLC, 701 Tradewinds Blvd., Suite C, Midland, TX 79706, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Okeanos SWD No.1, is located 789' FSL and 507' FWL, Section 36, Township 20 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 14,850' to 16,260' at a maximum surface pressure of 2970 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 21.9 miles west/ northwest of Eunice, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.
#32155

67104420 00201058

BEN STONE
SOS CONSULTING, LLC.
P.O. BOX 300
COMO, TX 75431

RECEIVED OCD
2017 OCT 23 P 1:

1220 South St. Francis

Santa Fe, New Mexico

505-476-3448

Michael.mcmillan@state.nm.us

Oilfield Labs of America
3302 Pilot Ave
Midland, Texas 79706
1-855-OIL-LAB1

Report Date: 10/20/2017

Complete Water Analysis

Customer:	Solaris Water Midstream	**Account Rep:**	Katy Welch
Operator:	Solaris	**Sample ID:**	1171018003
Lease:	Dillon Water Well	**Sample Date:**	
Sample Point:	Section 35 T205 R34E	**Recieved Date:**	10/18/2017
Region:	New Mexico	**Log Out Date:**	10/20/2017

Solaris Water Midstream, Solaris, Dillon Water Well ,Section 35 T205 R34E

Initial Temperature (°F):	190
Final Temperature (°F):	80
Initial Pressure (psi):	1250
Final Pressure (psi):	15

pH:	
pH:	8.7

Alkalinity by Titration:	**mg/L**	**meq/L**
Bicarbonate (HCO_3):	234	3.8

aqueous CO_2 (ppm):	ND
aqueous H_2S (ppm):	1
Calculated TDS (mg/L):	720
Density/Specific Gravity (g/cm^3):	0.9977
Measured Density/Specific Gravity	

Anions:	**mg/L**	**meq/L**
Chloride (Cl^-):	60	1.7
Sulfate (SO_4^{2-}):	170	3.5
Borate (H_3BO_3):	ND	
Phosphate (PO_4^{3-}):	ND	
Anion EPM Total:		9

Cations:	**mg/L**	**meq/L**
Sodium (Na^+):	218	9.5
Potassium (K^+):	2	0.1
Magnesium (Mg^{2+}):	4	0.3
Calcium (Ca^{2+}):	5	0.3
Strontium (Sr^{2+}):	ND	
Barium (Ba^{2+}):	0.1	0.0
Iron (Fe^{2+}):	26.6	1.0
Manganese (Mn^{2+}):	0.2	0.0
Total Hardness:	30	
Cation EPM Total:		11

% RPD of Cations/Anions:	20.4%
ND = Not Determined	

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.75	0.071	0.27	1.509	-2.45	0.000	-2.70	0.000
92°F	152 psi	0.64	0.067	0.26	1.434	-2.45	0.000	-2.65	0.000
104°F	289 psi	0.54	0.062	0.30	1.637	-2.45	0.000	-2.60	0.000
117°F	427 psi	0.46	0.057	0.34	1.849	-2.44	0.000	-2.54	0.000
129°F	564 psi	0.39	0.052	0.38	2.065	-2.43	0.000	-2.47	0.000
141°F	701 psi	0.33	0.046	0.42	2.278	-2.42	0.000	-2.40	0.000
153°F	838 psi	0.28	0.042	0.46	2.484	-2.40	0.000	-2.32	0.000
166°F	976 psi	0.24	0.037	0.50	2.679	-2.38	0.000	-2.24	0.000
178°F	1113 psi	0.21	0.034	0.54	2.860	-2.35	0.000	-2.15	0.000
190°F	1250 psi	0.19	0.031	0.58	3.027	-2.32	0.000	-2.06	0.000

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi		0.000	-6.48	0.000	4.04	0.789	2.73	18.937
92°F	152 psi		0.000	-6.50	0.000	3.92	0.789	2.77	18.907
104°F	289 psi		0.000	-6.51	0.000	3.86	0.789	2.85	19.011
117°F	427 psi		0.000	-6.52	0.000	3.82	0.789	2.93	19.089
129°F	564 psi		0.000	-6.53	0.000	3.78	0.789	3.00	19.148
141°F	701 psi		0.000	-6.53	0.000	3.76	0.789	3.07	19.191
153°F	838 psi		0.000	-6.53	0.000	3.74	0.789	3.14	19.223
166°F	976 psi		0.000	-6.53	0.000	3.73	0.789	3.20	19.247
178°F	1113 psi		0.000	-6.53	0.000	3.73	0.789	3.25	19.266
190°F	1250 psi		0.000	-6.52	0.000	3.73	0.789	3.30	19.279

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

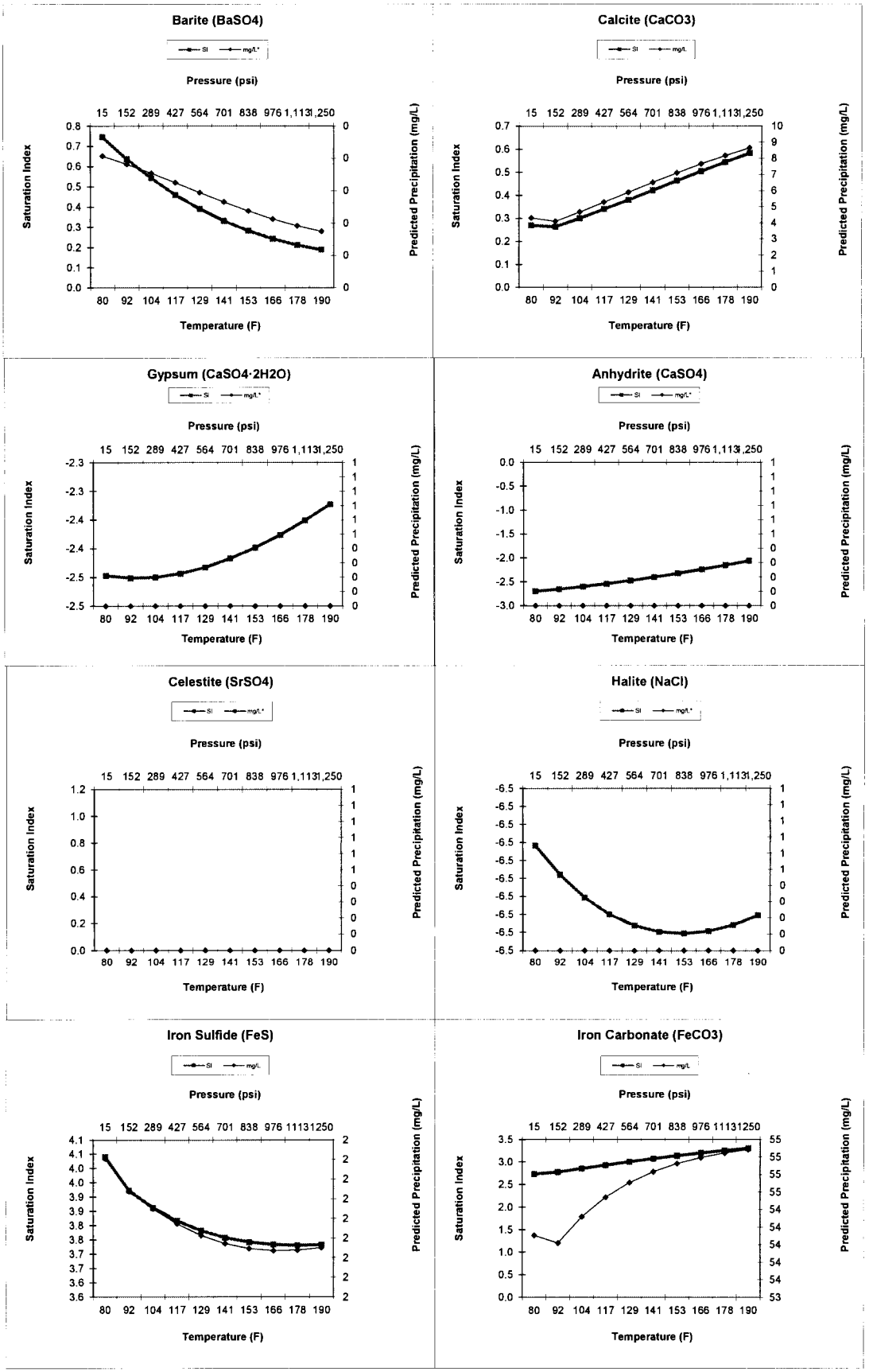
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

[redacted]

Comments: _____

Sample ID: Solaris Water Midstream, Solaris, Dillon Water Well ,Section 35 T205 R34E



Oilfield Labs of America
3302 Pilot Ave
Midland, Texas 79706
1-855-OIL-LAB1

Report Date: 10/24/2017

Complete Water Analysis

Customer:	Solaris Water Midstream	**Account Rep:**	Katy Welch
Operator:	Solaris	**Sample ID:**	1171018002
Lease:	Hannah Water Well	**Sample Date:**	
Sample Point:	Section 35 T205 R34E	**Recieved Date:**	10/18/2017
Region:	New Mexico	**Log Out Date:**	10/24/2017

Solaris Water Midstream, Solaris, Hannah Water Well ,Section 35 T205 R34E

Initial Temperature (°F):	190
Final Temperature (°F):	80
Initial Pressure (psi):	1250
Final Pressure (psi):	15

pH:	
pH:	8.8

Alkalinity by Titration:	**mg/L**	**meq/L**
Bicarbonate (HCO_3):	293	4.8

aqueous CO_2 (ppm):	ND
aqueous H_2S (ppm):	1
Calculated TDS (mg/L):	1304
Density/Specific Gravity (g/cm^3):	0.9979
Measured Density/Specific Gravity	

Anions:	**mg/L**	**meq/L**
Chloride (Cl^-):	701	19.8
Sulfate (SO_4^{2-}):	110	2.3
Borate (H_3BO_3):	ND	
Phosphate (PO_4^{3-}):	ND	
Anion EPM Total:		27
% RPD of Cations/Anions:		101.5%

Cations:	**mg/L**	**meq/L**
Sodium (Na^+):	185	8.0
Potassium (K^+):	1.1	0.0
Magnesium (Mg^{2+}):	3.8	0.3
Calcium (Ca^{2+}):	2.5	0.1
Strontium (Sr^{2+}):	ND	
Barium (Ba^{2+}):	ND	
Iron (Fe^{2+}):	7.5	0.3
Manganese (Mn^{2+}):	0.1	0.0
Total Hardness:	22	
Cation EPM Total:		9
ND = Not Determined		

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi		0.000	0.14	0.529	-3.02	0.000	-3.27	0.000
92°F	152 psi		0.000	0.15	0.540	-3.02	0.000	-3.23	0.000
104°F	289 psi		0.000	0.18	0.642	-3.02	0.000	-3.17	0.000
117°F	427 psi		0.000	0.21	0.747	-3.02	0.000	-3.11	0.000
129°F	564 psi		0.000	0.25	0.853	-3.01	0.000	-3.05	0.000
141°F	701 psi		0.000	0.28	0.956	-2.99	0.000	-2.98	0.000
153°F	838 psi		0.000	0.32	1.054	-2.97	0.000	-2.90	0.000
166°F	976 psi		0.000	0.36	1.146	-2.95	0.000	-2.82	0.000
178°F	1113 psi		0.000	0.40	1.231	-2.93	0.000	-2.73	0.000
190°F	1250 psi		0.000	0.43	1.308	-2.90	0.000	-2.64	0.000

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi		0.000	-5.50	0.000	3.61	0.783	2.38	5.413
92°F	152 psi		0.000	-5.52	0.000	3.50	0.782	2.43	5.416
104°F	289 psi		0.000	-5.53	0.000	3.43	0.782	2.51	5.422
117°F	427 psi		0.000	-5.54	0.000	3.38	0.782	2.58	5.427
129°F	564 psi		0.000	-5.55	0.000	3.34	0.782	2.64	5.431
141°F	701 psi		0.000	-5.55	0.000	3.31	0.782	2.71	5.435
153°F	838 psi		0.000	-5.55	0.000	3.29	0.782	2.77	5.437
166°F	976 psi		0.000	-5.55	0.000	3.27	0.782	2.83	5.439
178°F	1113 psi		0.000	-5.55	0.000	3.26	0.782	2.88	5.441
190°F	1250 psi		0.000	-5.54	0.000	3.26	0.782	2.92	5.442

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

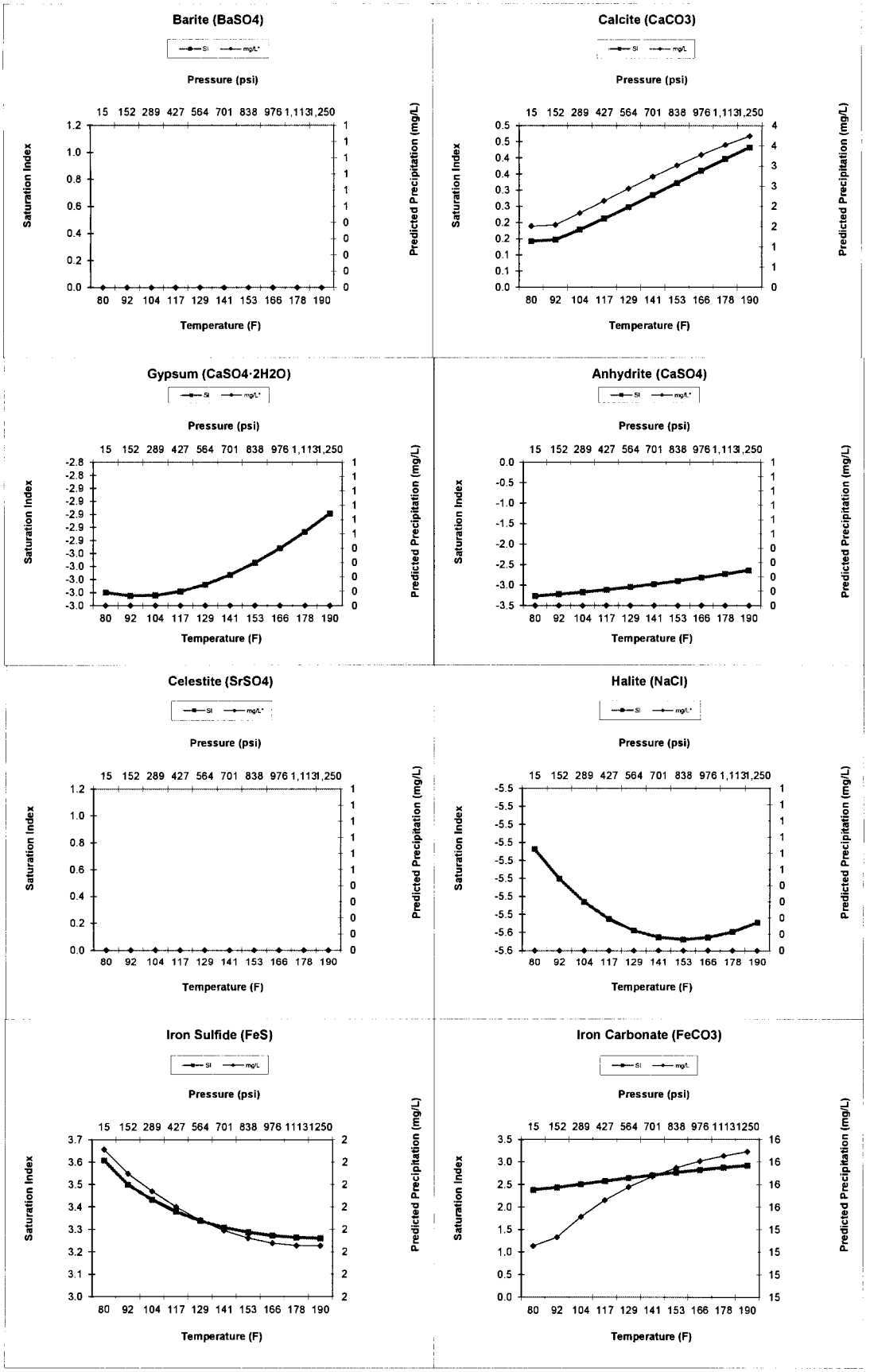
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

[redacted]

Comments: _____

Sample ID: Solaris Water Midstream, Solaris, Hannah Water Well ,Section 35 T205 R34E



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 01334 POD1		CP	LE	1	2	4	35	20S	34E	638402	3599879	1253	733	520
CP 01335 POD1		CP	LE	4	1	4	35	20S	34E	638205	3599736	1307	735	572

Average Depth to Water: **734 feet**

Minimum Depth: **733 feet**

Maximum Depth: **735 feet**

Record Count: 2

PLSS Search:

Section(s): 35-36 **Township:** 20S **Range:** 34E

11/6/17 10:57 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

C-108 Review Checklist: Received ________ Add. Request: ________ Reply Date: ________ Suspended: ________ *[Ver 15]*

ORDER TYPE: WFX / PMX / (SWD) Number: ________ Order Date: ________ Legacy Permits/Orders: ________

Well No. #1 Well Name(s): Okeanos SWD

API : 30-0 25-pending Spud Date: TBD New or Old: ____ (*UIC Class II Primacy 03/07/1982*)

Footages 784 FSL 507 FWL Lot ____ or Unit ____ Sec 36 Tsp 20S Rge 34E County Lea

General Location: ~30 miles / SW Hobbs Pool: SWD; Devonian-Silurian Pool No.: 97869

BLM 100K Map: Hobbs Operator: Solaris Water Midstream, LLC OGRID: 371643 Contact: Ben Stone, Agent

COMPLIANCE RULE 5.9: Total Wells: 3 Inactive: 0 Fincl Assur: OK Compl. Order? N/A **IS 5.9 OK?** Y **Date:** ________

WELL FILE REVIEWED ○ Current Status: Proposed

WELL DIAGRAMS: NEW: Proposed ✓ or **RE-ENTER:** Before Conv. ○ After Conv. ○ Logs in Imaging: ________

Planned Rehab Work to Well: ________

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Stage Tool	Cement (Sx) or Cf	Cement Top and Determination Method
Planned __or Existing __Surface	26"/20"	676		900	Surface
Planned__or Existing __ Interm/Prod	17½"/13⅜"	4181		1550	Surface/Visual
Planned__or Existing __Interm/Prod	12¼"/9⅝"	11,5[illegible]		2400	Surface/Visual
Planned__or Existing __ Prod/(Liner)	8½"/7⅝"	14850		450	11200/C-B-L
Planned__or Existing __ Liner					
Planned__or Existing __(OH) PERF	14850/16260		Inj Length		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		WD	14617
Confining Unit: Litho. Struc. Por.		DV	14812
Proposed Inj Interval TOP:			
Proposed Inj Interval BOTTOM:			
Confining Unit: Litho. Struc. Por.			
Adjacent Unit: Litho. Struc. Por.			

Completion/Operation Details:

Drilled TD 16260 PBTD ________
NEW TD ________ NEW PBTD ________
NEW Open Hole ✓ or NEW Perfs ○
Tubing Size 4½ in. Inter Coated? ________
Proposed Packer Depth 14750 ft
Min. Packer Depth 14750 (100-ft limit)
Proposed Max. Surface Press. 2970 psi
Admin. Inj. Press. 2970 (0.2 psi per ft)

(5½" surface & 4½"/Liner)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P NA Noticed? ✓ **BLM Sec Ord** ○ **WIPP** ○ Noticed? ____ **Salt/Salado** T: ____ B: ____ **NW: Cliff House fm** ____

FRESH WATER: Aquifer 100 S Max Depth Santa Rosa **HYDRO AFFIRM STATEMENT By Qualified Person** ✓

NMOSE Basin: Lea **CAPITAN REEF:** thru adj NA **No. Wells within 1-Mile Radius?** 2 FW Analysis Y

Disposal Fluid: Formation Source(s) Delaware, Bone Spring Analysis? ________ On Lease ○ Operator Only ○ or Commercial ○

Disposal Int: Inject Rate (Avg/Max BWPD): 15k/25k Protectable Waters? N/A Source: ________ System: (Closed) or Open

HC Potential: Producing Interval? ____ Formerly Producing? ____ Method: Logs/DST/P&A/Other ________ 2-Mile Radius Pool Map ○

AOR Wells: 1/2-M Radius Map? Y Well List? Y Total No. Wells Penetrating Interval: 0 Horizontals? ________

Penetrating Wells: No. Active Wells 0 Num Repairs? ____ on which well(s)? ________ Diagrams? ____

Penetrating Wells: No. P&A Wells 0 Num Repairs? ____ on which well(s)? ________ Diagrams? ____

NOTICE: Newspaper Date 10/19/2017 Mineral Owner S&S, Inc Surface Owner S&S, Inc N. Date October 13, 2017

RULE 26.7(A): Identified Tracts? ____ Affected Persons: COG Operating, Devon, GMT N. Date October 13, 2017

Order Conditions: Issues: C-B-L 500 above top liner to base liner

Add Order Cond: ________

McMillan, Michael, EMNRD

From: Kautz, Paul, EMNRD
Sent: Thursday, November 9, 2017 2:31 PM
To: McMillan, Michael, EMNRD; ben@sosconsulting.us
Cc: Goetze, Phillip, EMNRD; Jones, William V, EMNRD
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

I agree that the Surface Casing should be set 25' below top of Rustler Anhydrite.

Paul Kautz
Hobbs District Geologist
Energy Minerals Natural Resources Dept.
Oil Conservation Division
1625 N. French Dr.
Hobbs, NM 88240
575-393-6161 ext. 104

From: McMillan, Michael, EMNRD
Sent: Thursday, November 9, 2017 2:11 PM
To: ben@sosconsulting.us
Cc: Kautz, Paul, EMNRD <paul.kautz@state.nm.us>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Jones, William V, EMNRD <WilliamV.Jones@state.nm.us>
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

Ben:
After looking at casing programs of wells within the same section, the OCD is requesting that Solaris take a look at those casing programs. I look at the surface casing for the BTA Alpine 9012 JVP Well No. 2 (API 30-025-42771) with the surface to either the top of the Rustler, and another intermediate in the Delaware.
COG Operating Stratosphere Well No. 4H 30-025-42035 had a similar casing design

Another alternative is to run the liner to surface and circulate the cement behind the casing.

From: ben@sosconsulting.us [mailto:ben@sosconsulting.us]
Sent: Monday, November 6, 2017 11:08 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

Here you go Mike... I thought I sent it but not sure - some of these Solaris are starting to run together but I think they're at the end of their permitting efforts for this go-round.

Thanks,
Ben

SOS Consulting, LLC
Ph. 903-488-9850 Fax 866.400.7429
P.O. Box 300 - Como, TX 75431

Visit us on the web at www.sosconsulting.us!

--------- Original Message ---------
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1
From: "McMillan, Michael, EMNRD" <Michael.McMillan@state.nm.us>
Date: 11/6/17 11:39 am
To: "ben@sosconsulting.us" <ben@sosconsulting.us>

Send the updated wellbore schematic.

I thought you had previously sent a wellbore diagram.

The one I am looking at does not have tubing size, and the overlap of intermediate/liner is difficult to determine.

Mike

From: McMillan, Michael, EMNRD
Sent: Tuesday, October 24, 2017 10:57 AM
To: 'ben@sosconsulting.us' <ben@sosconsulting.us>
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

Thanks
Mike

From: ben@sosconsulting.us [mailto:ben@sosconsulting.us]
Sent: Tuesday, October 24, 2017 10:55 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

Mike,

Fresh water wells analyses attached.

Thanks,

Ben

Visit us on the web at www.sosconsulting.us!

--------- Original Message ---------

Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1
From: "McMillan, Michael, EMNRD" <Michael.McMillan@state.nm.us>
Date: 10/19/17 11:52 am
To: "ben@sosconsulting.us" <ben@sosconsulting.us>

Thanks

Mike

From: ben@sosconsulting.us [mailto:ben@sosconsulting.us]
Sent: Thursday, October 19, 2017 10:50 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Subject: RE: Solaris Water Midstream LLC Okeanos SWD Well NO.1

Hi Mike,

Here's the affidavit and WC analysis.

Fresh water is at the lab now.

Thanks,

Ben

Visit us on the web at www.sosconsulting.us!

--------- Original Message ---------

Subject: Solaris Water Midstream LLC Okeanos SWD Well NO.1
From: "McMillan, Michael, EMNRD" <Michael.McMillan@state.nm.us>
Date: 10/13/17 4:43 pm
To: "Ben Stone" <ben@sosconsulting.us>

Ben:

I need the following
I need affidavit of publication

Water samples from the Wolfcamp and water samples of nearby wells

As a result, your application has been suspended.

Mike

Michael McMillan

1220 South St. Francis

Santa Fe, New Mexico

505-476-3448

Michael.mcmillan@state.nm.us