W03/2017

TYPES 61)

PMAM1730755987

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -1220 South St. Francis Drive, Santa Fe, NM 87505



		ADI	MINISTRA	TIVE APP	LICATIO	N CHECKL	IST	
TH	IIS CHECKLIST	IS MANDATO	ORY FOR ALL ADMIN	ISTRATIVE APPLICATION			N RULES AND R	EGULATIONS
Applic	[DHC-D	Standard Ownhole C-Pool Coi [WFX-	Location] [NSP Commingling] mmingling] [O Waterflood Expa [SWD-Salt Water	P-Non-Standard [CTB-Lease Colling	Proration Unionmingling] Storage] [O (-Pressure Ma VI-Injection Pr	t] [SD-Simultan [PLC-Pool/Leas LM-Off-Lease Mo intenance Expar essure Increase	se Commingl easurement] nsion]]	ling]
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[3]			ATE AND COM N INDICATED		RMATION F	REQUIRED TO	PROCESS 7	THE TYPE
	val is accura	ite and co	I: I hereby certify mplete to the best information and	st of my knowle	dge. I also un	derstand that no		
	N	lote: Staten	nent must be compl	eted by an individ	ual with manage	rial and/or superviso	ory capacity.	
Ber	Stone		Q		– Ager	nt for Solaris Wate	r Midstream,	LLC 10/31/17
Print o	or Type Name		Signatufe	an Jane		le p en@sosconsulting nail Address	g.us	Date



October 31, 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 the proposed Athena 28 SWD Well No.1, to be located in Section 28, 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 Athena 28 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 November 2, 2017 in 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 federal minerals offset; a copy of this application has been submitted to the BLM, Carlsbad Field 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

Only 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:
 - Proposed average and maximum daily rate and volume of fluids to be injected;
 - 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,
 - 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 water wells (1 is monitor) within one mile of the proposed SWD well. Analysis on 1 is INCLUDED.
- 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 9 offset lessees and/or operators within ½ mile and federal minerals BLM and 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: S	iOS Consulting, LLC agent for Sola	aris Water Midstream	, LLC	
SIGNATURE	: <u>L</u>	San		DATE:	10/31/2017	

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:

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.



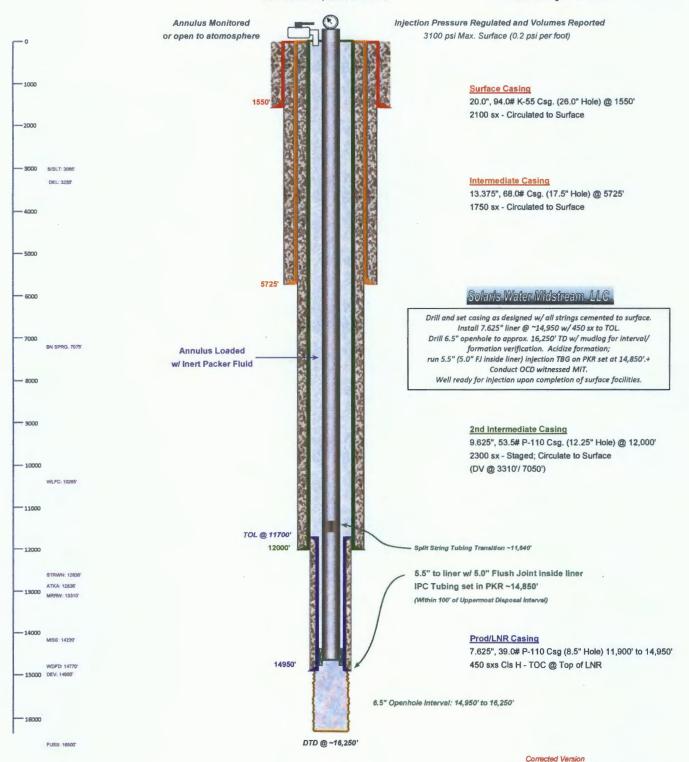
WELL SCHEMATIC - PROPOSED Athena 28 SWD Well No.1

API 30-025-xxxxx

2198' FNL & 350' FWL, SEC. 28-T20S-R34E LEA COUNTY, NEW MEXICO

SWD; Devonian-Silurian (97869)

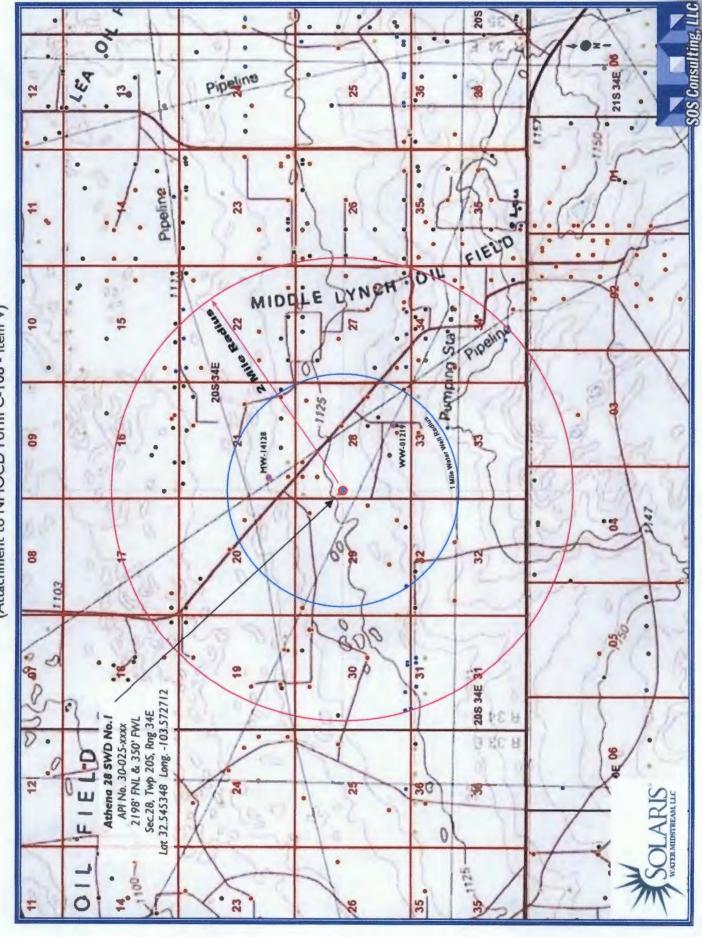
Spud Date: 12/15/2017 SWD Config Dt: 1/15/2018





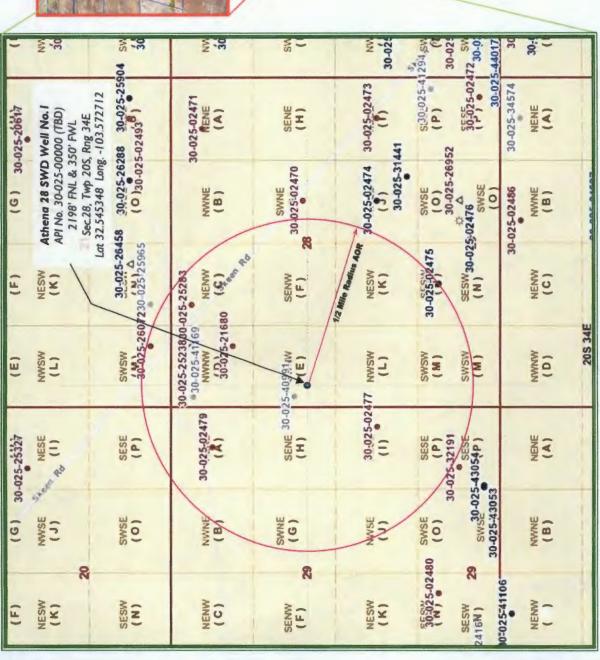
Athena 28 SWD No.1 - Area of Review / 2 Miles

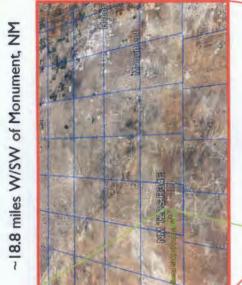
(Attachment to NMOCD Form C-108 - Item V)



Athena 28 SWD Well No.1 - Area of Review / Overview Map

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







Lea County, New Mexico





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

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

Athena 28 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 20,000 bpd at a maximum surface injection pressure of 2900 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 Wolfcamp Morrow

Item VII.5 – Water Analysis of Disposal Zone Water

Devonian

Water Analyses follow this page.

SOURCE ZONE

DELAWARE	
	I ah ID

API No 3002508367 **Sample ID** 4347

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 alkainity_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 co2_mgL strontium_mgL o2_mgL

manganese_mgL anionremarks

Remarks

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



SOURCE ZONE

			Lab ID	
API N	300250242	a	Sample ID	4916
AFIN	300200242	•	Sample No	
Well N	ame LEA UNIT	005	5	

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

iron_mgL sulfate_mgL 992

barium_mgL hydroxide_mgL

magnesium_mgL h2s_mgL co2_mgL strontium_mgL o2_mgL

manganese_mgL anionremarks

Remarks

BONE SPRING

5196

SOURCE ZONE

WOLFCAMP	I ah ID

API No 3001520138 Sample ID 5688

Well Name MAHUN STATE 001

Location ULSTR 16 22 S 22 E Lat/Long 32.39340 -104.70979

1800 N 1980 W County Eddy

Sample No

Operator (when sampled)

Field ROCKY ARROYO Unit F

Sample Date 5/17/1968 Analysis Date

Sample Sourc DST Depth (if known)

Water Typ

ph 8.6 alkalinity_as_caco3_mgL

ph_temp_F hardness_as_caco3_mgL

specificgravity hardness_mgL

specificgravity_temp_F resistivity_ohm_cm

tds_mgL 35495 resistivity_ohm_cm_temp_

tds_mgL_180C conductivity

chloride_mgL 19000 conductivity_temp_F

sodium_mgL carbonate_mgL

calcium_mgL bicarbonate_mgL 830 iron_mgL sulfate_mgL 2500

barium_mgL hydroxide_mgL

magnesium_mgL h2s_mgL

potassium_mgL co2_mgL

strontium_mgL o2_mgL

manganese_mgL anionremarks

Remarks

SOS Consulting LLC

SOURCE ZONE

MORROW	
	l ah ID

API No 3002520756 Sample ID 2434

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

Sample No

Operator (when sampled)

Field CINTA ROJA Unit K

Sample Date Analysis Date

Sample Sourc DST Depth (if known)

Water Typ

ph alkainity_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.)



DISPOSAL ZONE

DEVONIAN			Lab ID	
API No.	3002508483		Sample ID	5733
Well Name	BELL LAKE UNIT	006	Sample No	

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

 660
 S
 1980
 E
 County
 Lea

Operator (when sampled)

Water Type

Field BELL LAKE NORTH Unit O
Sample Date Analysis Date

Sample Source HEATER/TREATER Depth (if known)

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 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.)



DISPOSAL ZONE

DEVONIAN	
DETORIAN	Lab ID

API No. 3002521082 **Sample ID** 5720

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

Sample No

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

SOS Consulting 11 C

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 16,250' BGL (Below Ground Level) the well will TD approximately 1,750 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 14,500' 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 16,250'.

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. One is a monitor well and water analyses from the other is included with this application.

C-108 ITEM XI - WATER WELLS IN AOR

Athena 28 Water Well Locator Map



Well shown was sampled – analysis follows on next page.



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:	1171018001	
Lease:	Jeff Water Well	Sample Date:		
Sample Point:	Section 34 T20S R34E	Recieved Date:	10/18/2017	
Region:	New Mexico	Log Out Date:	10/20/2017	

Solaris Water Midstream, Solaris, Jeff Water Well, Section 34 T205 R34E

Field	Data		Analysis of Sample					
			Anions:	mg/L	meq/L	Cations:	mg/L	meg/L
Initial Temperature (°F):		190	Chloride (Cl'):	120	3.4	Sodium (Na*):	234	10.2
Final Temperature (°F):		80	Sulfate (SO ₄ ²):	210	4.4	Potassium (K ⁺):	3	0.1
Initial Pressure (psi):		1250	Borate (H ₃ BO ₃):	1	0.0	Magnesium (Mg ^{2*}):	7	0.6
Final Pressure (psi):		15				Calcium (Ca ²⁺):	5	0.3
			l			Strontium (Sr2+):	0	0.0
pH:						Barium (Ba ²⁺):	ND	
pH:		8.6				tron (Fe ²⁺):	4.4	0.2
			Phosphate (PO ₄ ³):	ND		Manganese (Mn ²⁺):	ND	
						Total Hardness:	44	
Alkalinity by Titration:	mg/L	meq/L						
Bicarbonate (HCO ₃):	272	4.5						
aqueous CO ₂ (ppm):	ND							
aqueous H ₂ S (ppm):	1							
Calculated TDS (mg/L):		857						
Density/Specific Gravity (g/		0.9978						
Measured Density/Specific	Gravity							
			Anion EPM Total:		12	Cation EPM Total:		11
			% RPD of Cations/Anions:		8.0%	ND = Not	Determined	

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi		0.000	0.18	1.055	-2.39	0.000	-2.64	0.000
92°F	152 psi		0.000	0.16	0.906	-2.39	0.000	-2.59	0.000
104°F	289 psi		0.000	0.21	1.179	-2.39	0.000	-2.54	0.000
117°F	427 psi		0.000	0.26	1.458	-2.39	0.000	-2.48	0.000
129°F	564 psi		0.000	0.31	1.737	-2.38	0.000	-2.42	0.000
141°F	701 psi		0.000	0.36	2.010	-2.36	0.000	-2.34	0.000
153°F	838 psi		0.000	0.41	2.270	-2.34	0.000	-2.27	0.000
166°F	976 psi		0.000	0.46	2.512	-2.32	0.000	-2.18	0.000
178°F	1113 psi		0.000	0.51	2.734	-2.30	0.000	-2.10	0.000
190°F	1250 psi		0.000	0.56	2.935	-2.27	0.000	-2.01	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	-2.39	0.000	-6.16	0.000	3.01	0.636	1.88	3.134
92°F	152 psi	-2.39	0.000	-6.18	0.000	2.88	0.636	1.90	3.135
104°F	289 psi	-2.38	0.000	-6.19	0.000	2.83	0.636	1.99	3.148
117°F	427 psi	-2.37	0.000	-6.20	0.000	2.80	0.636	2.08	3.158
129°F	564 psi	-2.36	0.000	-6.20	0.000	2.77	0.636	2.16	3.166
141°F	701 psi	-2.33	0.000	-6.21	0.000	2.76	0.636	2.24	3.172
153°F	838 psi	-2.30	0.000	-6.21	0.000	2.76	0.636	2.32	3.177
166°F	976 psi	-2.26	0.000	-6.21	0.000	2.76	0.636	2.39	3.180
178°F	1113 psi	-2.22	0.000	-6.20	0.000	2.77	0.636	2.45	3.183
190°F	1250 psi	-2.18	0.000	-6.20	0.000	2.78	0.636	2.51	3.185

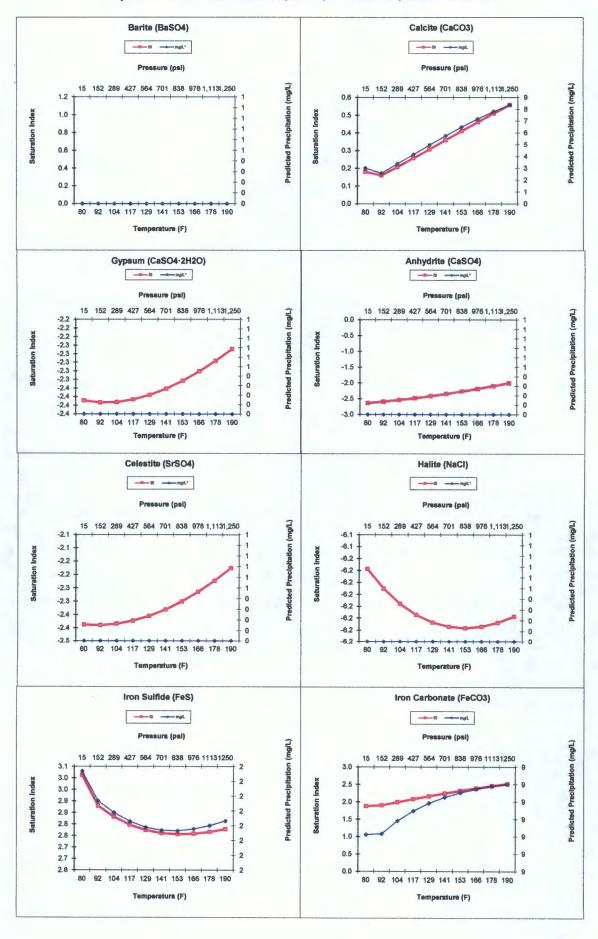
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

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; %CO2 is not included in the calculations.



Sample ID: Solaris Water Midstream, Solaris, Jeff Water Well, Section 34 T205 R34E



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.

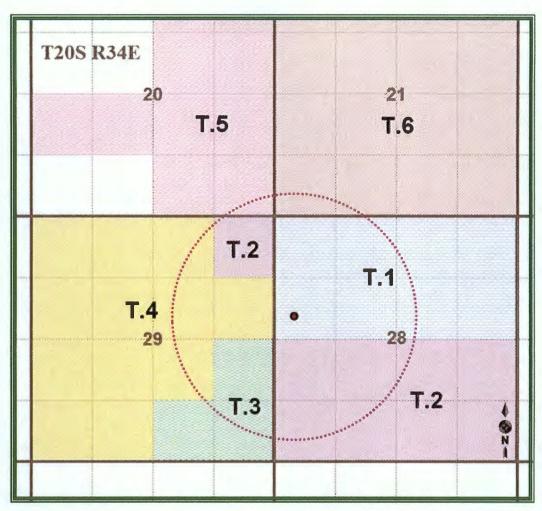
Ben Stone, Partner SOS Consulting, LLC

Project: Solaris Water Midstream, LLC

Athena 28 SWD No.1 Reviewed 10/19/2017

Athena 28 SWD Well No.1 - Leasehold Plat

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





LEGEND

- T.1 Berry Ranch; BC Operating, Inc.
- T.2 NMNM-0039256; Mobil Producing TX & NM
- T.3 NMNM-108977; EOG Resources, Inc.
- T.4 NMNM-128367; EOG Resources, Inc.
- T.5 NMNM-013276; Oxy USA WTP, LP
- T.6 NMLC-0070315; Keystone OG NM, LLC, others

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

SURFACE OWNER

1 BERRY RANCH P.O. Box 160

Eunice, New Mexico 88231 Certified: 7015 0640 0007 9482 9781

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

Fee Lease - Berry Ranch.; (T.1 on plat.)

Operator

2 BC OPERATING, INC.

P.O. Box 50820

Midland, TX 79710

Certified: 7015 0640 0007 9482 9774

BLM Lease NMNM-0039256; (T.2 on plat.)

Lessee

3 MOBIL PRODUCING TEXAS & NM, INC.

P.O. Box 2305

Houston, TX 77252-2305

Certified: 7015 0640 0007 9482 9767

BLM Lease NMNM-108977 & NMNM-128367; (T.3 & T.4 on plat.)

Lessee & Operator

2 EOG RESOURCES, INC.

5509 Champions Drive

Midland, TX 79706

Certified: 7015 0640 0007 9482 9750

Operator

5 DIAMONDBACK RESOURCES, LLC

303 Veterans Airpark Ln., Ste.1100

Midland, TX 79705

Certified: 7015 0640 0007 9482 9743

BLM Lease NMNM-013276; (T.5 on plat.)

Lessee

6 OXY USA, INC.

6001 Deauville Blvd.

Midland, TX 79706

Certified: 7015 0640 0007 9482 9736

BLM Lease NMLC-0070315; (T.6 on plat.)

7 KEYSTONE OG NM, LLC (ET AL)

P.O. Box 916107

Fort Worth, TX 76191-6107

Certified: 7015 0640 0007 9482 9729

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

BLM Lease NMLC-0070315; (T.6 on plat - cont.)

Operators

FASKEN OIL & RANCH, LTD 6101 Holiday Hill Road Midland, TX 79707

Certified: 7015 0640 0007 9482 9712

9 RHCJ ENTERPRISES, LLC P.O. Box 6055 Hobbs, NM 88241 Certified: 7015 0640 0007 9482 9705

OFFSET MINERALS OWNER (Notified via USPS Certified Mail)

10 U.S. DEPARTMENT OF INTERIOR Bureau of Land Management Oil & Gas Division 620 E. Greene St. Carlsbad, NM 88220 Certified: 7015 0640 0007 9482 9699

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 31, 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 Athena 28 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 28, Township 20 South, Range 34 East in Lea County, New Mexico.

The published notice states that the interval will be from 14,500 feet to 16,250 feet into the Devonian, Silurian and Fusselman formations.

Following is the notice published in the Hobbs News Sun, Hobbs, New Mexico on or about November 2, 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 Athena 28 SWD No.1, is located 2198' FNL and 350' FWL, Section 28, 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 14,500' to 16,250' at a maximum surface pressure of 2900 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 18.8 miles west/ southwest of Monument, 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 is posted on the SOS Consulting *ShareFile* site and is available for immediate download.

Use the URL link https://sosconsulting.sharefile.com/d-s21ca56e57814352a

(Please Note: The ShareFile service is powered by Citrix Systems and is completely secure.*)

The link to this file will be active for 30 days from the date of this letter. Your company can access and download the file a maximum of five (5) times. (One copy may be downloaded and shared as needed among your company.)

Alternatively, you may call SOS Consulting, LLC at 903-488-9850, or email info@sosconsulting.us, and the same PDF file copy will be expedited to you via email.

Please use the subject "Athena SWD Nov2017 PDF Copy Request".

Thank you for your attention in this matter.

Best regards,

Ben Stone, SOS Consulting, LLC

Agent for Solaris Water Midstream, LLC

Cc: Application File

Sen Jone

SOS Consulting is committed to providing superior quality work using technology to assist clients and interested parties in obtaining the documentation required. SOS will continue to utilize methods for reducing papers copies and are less energy and resource intensive.

We hope you'll partner with us and appreciate these efforts.

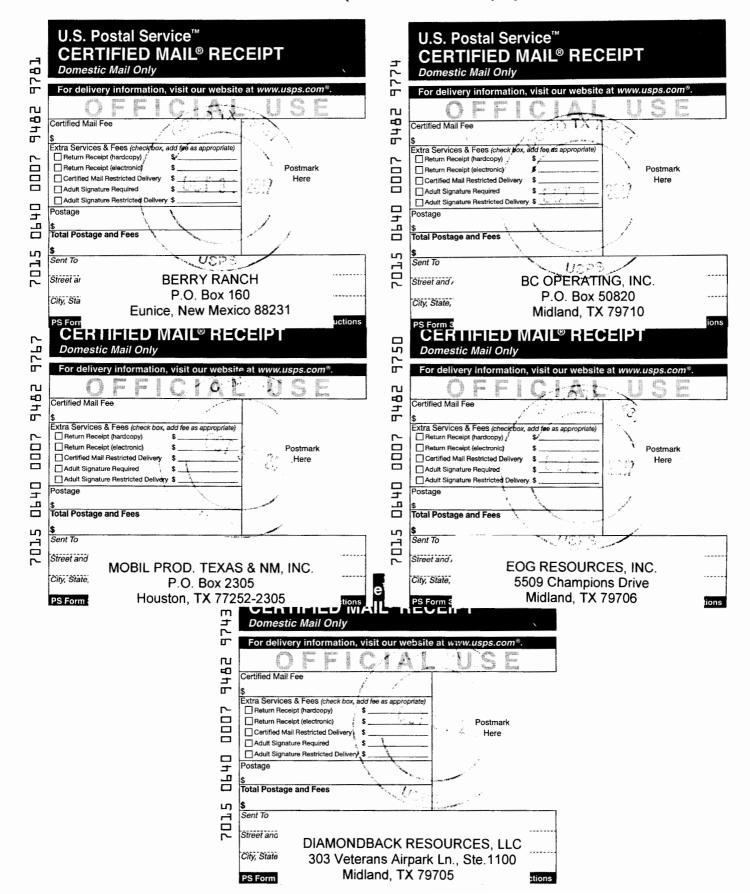
^{*} You will be asked for your email, name and company.

This will not be used by anyone except keeping track of the file downloads.

You will not be solicited by SOS or anyone else. Data is stored on Citrix Systems servers only.

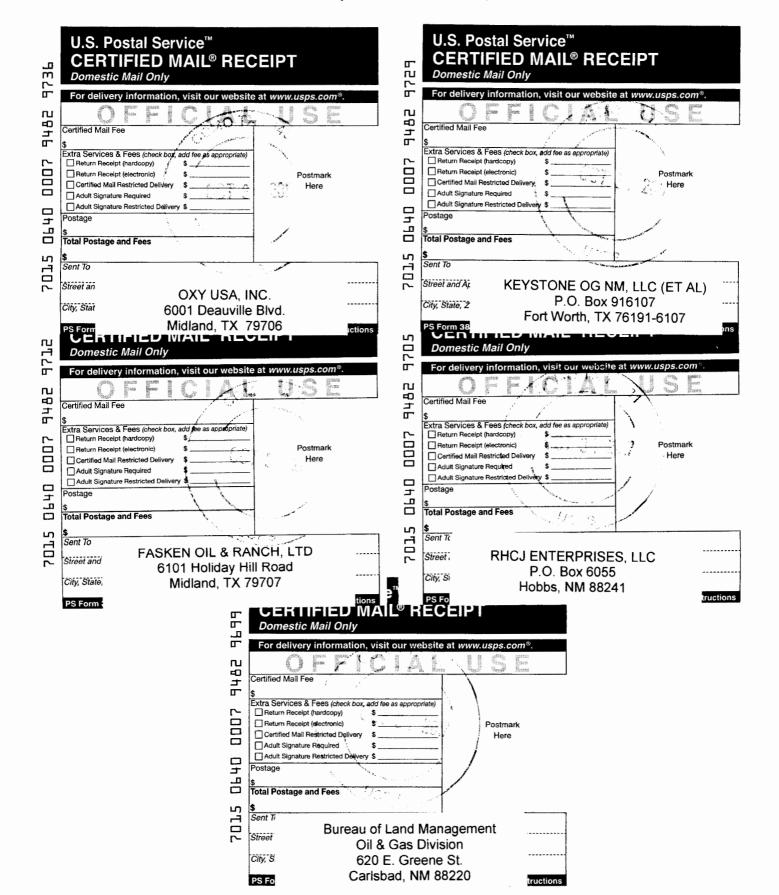
C-108 - Item XIV

Proof of Notice (Certified Mail Receipts)



C-108 - Item XIV

Proof of Notice (Certified Mail Receipts - cont.)



C-108 - Item XIV

Proof of Notice – Legal Notice Newspaper of General Circulation

LEGAL NOTICE November 2, 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 Athena 28 SWD No.1, is located 2198' FNL and 350' FWL, Section 28. 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 14,500' to 16,250' at a maximum surface pressure of 2900 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 18.8 miles west/ southwest of Monument, 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. #32205

PRECEINED OCH

The above is the "Proof Copy" sent from the Hobbs News-Sun.

The affidavit of publication will be forwarded as soon as it is received.

McMillan, Michael, EMNRD

From:

ben@sosconsulting.us

Sent:

Sunday, November 5, 2017 12:27 PM

To:

McMillan, Michael, EMNRD

Subject:

Affidavit - Solaris Athena SWD...

Attachments:

Affidavit_Athena_Solaris_20171105001.pdf

Mike,

Athena SWD No.1 affidavit attached. Hard copy via U.S. mail

thanks, Ben

505 Consulting, LLC
Ph. 903.488.9850 Fax 866.400.7628
P.O. Box 100 - Corno, TX 75431

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

This electronic message and all attachments are confidential, and are intended only for the use of the individual to whom it is addressed; information may also be legally privileged. This transmission is sent in trust for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, you are hereby notified that any use, dissemination, distribution or reproduction of this transmission is strictly prohibited and may be unlawful. If you are not the intended recipient, you must delete this message and any copy of it, (in any form) without disclosing it if this message has been sent to you in error, please notify the sender by replying to this transmission, or by calling SOS Consulting, LLC. 903-488-9850. Unloss expressly stated in this e-mail. nothing in this message should be construed as a digital or electronic signature. Thank you for your cooperation.

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 November 02, 2017 and ending with the issue dated November 02, 2017.

Publisher

Sworn and subscribed to before me this 2nd day of November 2017.

Business Manager

My-commission explicit

January 29, 2019

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico

My Commission Expires 29

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

LEGAL NOTICE November 2, 2017

Solaris Water Midetrean LLC, 701-Tradewinds Blvd.
Suite C, Midland, TX 7970e, is filling 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 Athena 28 SWD No.1 is located 2108 FNL, and 350 FNL, Section 28, Township 20 South, Range S4 East, Lea County New Mexico. Produced water from size production will be commercially disposed into the Devonian, Silurian and Fusselman formations at a depth of 14.500 to 16.250 at a maximum surface pressure. The proposed SWD well is located approximately 18.8 miles west/ southwest of Monument. MM.

67104420

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00202076

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

Affidavit of Publication

STATE OF NEW MEXICO COUNTY OF LEA

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Sworn and subscribed to before me this 2nd day of November 2017.

Business Manager

My commission expires

January 29, 2019 (Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico

State of New Mexico

My Commission Expires 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 November 2, 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 Athena 28 SWD No.1, is located 2198' FNL and 350' FWL, Section 28, 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 14,500' to 16,250' at a maximum surface pressure of 2900 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 18.8 miles west/ southwest of Monument, N-M.

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.

RECEIVED OCD

67104420

BEN STONE SOS CONSULTING, LLC. P.O. BOX 300 COMO, TX 75431 00202076



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 replaced, O=orphaned, C=the file is closed)	has been ned, e is		ıarter: ıarter	s are	1=Nv small	W 2=N	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (N	/ 4=SE) (NAD8:	E) (NAD83 UTM in meters)	જિ	(In feet)		
		POD												
		Sub-		0	000							>	Water	
POD Number	Code	basin	County 64 16 4 Sec	641	6 4	Sec	Tws	Rng	×	¥	DepthWellD	Depth Well Depth Water Column	lumn	
CP 00799 POD1		C	LE	4	3 4	34	20S	34E	999989	636666 3599364*	100			
CP 00800 POD1		CP	LE	7	2 2	22	20S	34E	637007	3603994* 💨	220			
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	999	
CP 01352 POD1		CP	LE		1 4	34	20S	34E	636559	3599716	1270	785	485	
CP 01389 POD1		CP	LE	-	1 1	34	20S	34E	635726	3600733 🔩	1250	1005	245	
									7	Average Depth to Water:	o Water:	776 feet	*	
										Minim	Minimum Depth:	651 feet	*	
										Maximu	Maximum Depth:	1005 feet	*	

Record Count: 7

PLSS Search:

Range: 34E Section(s): 20-22, 27-29, Township: 20S

*UTM location was derived from PLSS - see Help

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.

11/22/17 10:34 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

C-108 Review	v Checklist: •	1/03/2017	11/0 k	12017 Reply Date:	Suspended: [Ver 15]		
					ts/Orders:		
Well No Well Name(s): Athe	en 2 8	· S (سي.			
API: 30-0 25-Rendir	Spud Dat	re: TOD 1	New or Old:	(UIC Class II	Primacy 03/07/1982) Adam, RESTALL		
Footages 3 SI FWL	Lot	or Unit <u>E</u> Sec <u>2</u> (7 Tsp 20	5 Rge 3 4 E	Primacy 03/07/1982) Aday Notally County Lea 1-06 Lunium 1-08-2		
General Location: 20 20 6	mile su	1 Hubbs Pool: 5	CO', D	evonien- 5	Pool No.: 47869		
BLM 100K Map: HObbs	Operator: mid	stream, cu	OGRID	371643 onta	ict: Asent		
COMPLIANCE RULE 5.9: Total We	lis:_ _ Inactiv	re: Fincl AssurOk	Compl.	Order? NA is	5.9 OK? Y Date: 11-27-20/7		
WELL FILE REVIEWED (Current	Status:	oposed					
WELL DIAGRAMS: NEW: Proposed	or RE-ENTER:	: Before Conv. O After C	Conv. C	ogs in Imaging:	N/A-		
Planned Rehab Work to Well:			M. 1995	/A			
Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)		Cement Sy or Cf	Cement Top and Determination Method		
Planned _or Existing _Surface	201/2011	1550	Stage Tool	2100	SurFuel Vista		
Planned_or Existing Interm/Prod	1741/13/1	5725		1750	Surpace Wisus		
Planned_or ExistingInterm/Prod	12/11/9911	12000		2 300	SurFreelVistal		
Planned_or Existing _ Prod/Liner	C217844	1/700		450	1-00/6-13-6		
Planned_or ExistingLiner							
Planned_or Existing_OH PERF	14500-		Inj Length	Comr	pletion/Operation Details:		
Planned_or Existing _ OH PERF	16250		1750				
Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops	Drilled TD <u>/ しゃ</u>	NEW PBTD Supraced		
Adjacent Unit: Litho. Struc. Por.		+ud	14770	NEW TD	_ NEW PBTD Sapeacet		
Confining Unit: Litho. Struc. Por.		* DV	W1 4458	NEW Open Hole	or NEW Perfs O		
Proposed Inj Interval TOP		*projected		Tubing Size	in. Inter Coated? 6"/Ling		
Proposed Inj Interval BOTTOM		depths		Proposed Packer Depth /4400 ft Min. Packer Depth /440 @100-ft limit)			
Confining Unit: Litho. Struc. Por.							
Adjacent Unit: Litho. Struc. Por. Proposed Max. Surface Press. 2900 psi AOR: Hydrologic and Geologic Information Admin. Inj. Press. 2900 (0.2 psi per ft)							
			. 11				
POTASH: R-111-P_ V Noticed	P BLM Sec Or	d WIPP Noticed?	<i>⊈∦</i> Salt/Sa	lado T: <u>/ 760</u> B:_ <u>33</u>	NW: Cliff House fm		
FRESH WATER: Aquifer Max Depth 10 0 HYDRO AFFIRM STATEMENT By Qualified Person							
NMOSE Basin: (Apitan) CAPITAN REEF (thru) adj NA No. Wells within 1-Mile Radius? 2 FW Analysis							
Disposal Fluid: Formation Source	(s) Suring	ULELAMP, morru.	s? 🗸	On Lease O Opera	ator Only () or Commercial (
Disposal Int: Inject Rate (Avg/Max			,		L L		
HC Potential: Producing Interva							
AOR Wells: 1/2-M Radius Map	•			~)	l l		
Penetrating Wells: No. Active We	/ h	•		,	i		
Penetrating Wells: No. P&A Well	•						
RULE 26.7(A): Identified Tracts?	✓ Affected Pe	rsons: BC OP	enatin	s mobil DOST	PM () N. Date 10-31-2017 PCYSFARE N. Date 10-31-2017		
Order Conditions: Issues:				1 1 1			
Add Order Cond:							