

STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION

APPLICATION OF SOLARIS WATER  
MIDSTREAM, LLC FOR APPROVAL OF  
SALT WATER DISPOSAL WELL,  
EDDY COUNTY, NEW MEXICO.

CASE NO. \_\_\_\_\_

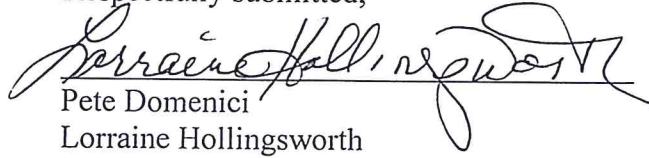
APPLICATION

Solaris Water Midstream, LLC (Solaris), by and through undersigned counsel of record, hereby applies for an order approving a salt water disposal well in Eddy County, New Mexico. In support of this Application, Solaris states as follows:

1. Solaris proposes to drill Roadrunner SWD #1, located 830 feet from the North line and 200 feet from the east line of Section 33, Township 25 South, Range 27 East, NMPM, Eddy County, New Mexico.
2. Solaris seeks authority to inject salt water into the Devonian and Silurian-Fusselman formations at a depth of 13,305 to 14,325 feet:
3. Form C-108, dated July 3, 2018, and Amended Form C-108, dated November 7, 2018 for the subject well are attached hereto as Exhibit A.
4. The granting of this application with prevent waste and protect correlative rights.
5. A Proposed Advertisement and the Road Runner SWD #1 Notice of Application Recipients are attached hereto.

WHEREFORE, Solaris requests that this application be set for hearing before an Examiner of the Oil Conservation Division on April 4, 2019, and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lorraine Hollingsworth", is written over a horizontal line.

Pete Domenici

Lorraine Hollingsworth

320 Gold Ave. SW, Suite 1000

Albuquerque, New Mexico 87102

505-883-6250

[pdomenici@domenicilaw.com](mailto:pdomenici@domenicilaw.com)

[lhollingsworth@domenicilaw.com](mailto:lhollingsworth@domenicilaw.com)

*Attorneys for Solaris Water Midstream, LLC*

PROPOSED ADVERTISEMENT

CASE NO. \_\_\_\_\_ . **Application of Solaris Water Midstream, LLC for approval of a salt water disposal well, Eddy County, New Mexico.** Applicant seeks an order approving disposal of salt water in the Devonian and Silurian-Fusselman formations at depths of 13,305 to 14325 feet through the Roadrunner SWD #1 well, located 830 feet from the North line and 200 feet from the east line of Section 33, Township 25 South, Range 27 East, NMPM, Eddy County, New Mexico.

## Road Runner SWD #1

Owner Category	Name	Address
Well Operator	Solaris Water Midstream, LLC	9811 Katy Freeway STE 700, Houston, TX 77024
Well Operator	EOG Resources, Inc.	4000 N. Big Spring, Suite 500, Midland, TX 79705
Lessee	EOG A Resources, Inc.	105 S. 4th St., Artesia, NM 882102
Lessee	EOG Y Resources, Inc.	105 S. 4th St., Artesia, NM 882102
Lessee	OXY Y-1 Company	P. O. Box 27570, Houston, TX 772277
Lessee	EOG M Resources	105 S. 4th St., Artesia, NM 882102
Lessee	Chevron USA, Inc.	6301 Deauville, Midland, TX 79706
Lessee	COG Operating, LLC	600 W. Illinois Ave., Midland, TX 79701
Lessee	Chevron Midcontinent, LP	6301 Deauville, Midland, TX 79706
Lessee	ABO Empire, LLC	P. O. Box 900, Artesia, NM 88211
Mineral Owner	David and Laverne Maley	P. O. Box 519, Carlsbad, NM 88221
Mineral Owner	Bureau of Land Management	620 E. Greene Street, Carlsbad, NM 88220
Mineral Owner	State of New Mexico	310 Old Sante Fe Trail, Sante Fe, NM 87501
Surface Owner	David and Laverne Maley	P. O. Box 519, Carlsbad, NM 88221
Surface Owner	Bureau of Land Management	620 E. Greene Street, Carlsbad, NM 88220



## APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance \_\_\_\_\_ X \_\_\_\_\_ Disposal  
Storage Application qualifies for administrative approval? \_\_\_\_\_ X Yes \_\_\_\_\_ No
- II. OPERATOR: Solaris Water Midstream, LLC  
ADDRESS: 907 Tradewinds Boulevard, Midland, TX 79701  
CONTACT PARTY: Bonnie Atwater PHONE: 432-203-9020
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes \_\_\_\_\_ X \_\_\_\_\_ No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- \*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Whitney McKee TITLE: Engineering Tech  
SIGNATURE: [Signature] DATE: 11/7/18  
E-MAIL ADDRESS: whitney.mckee@solarismidstream.com
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: 7/6/18

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

Application for Authorization to Inject

Well Name: Road Runner SWD 1

III – Well Data (The Wellbore Diagram is Included as Attachment 1)

A.

(1) General Well Information:

Operator: Solaris Water Midstream, LLC

Lease Name & Well Number: Roadrunner SWD #1

Well Footage: 830' FNL & 200' FEL

Location: Sec 33, T25S-R27E

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	24"	20"	94.0 lb/ft	500'	700	Surface	Circulation
Intermediate 1	17-1/2"	13-3/8"	68.0 lb/ft	2,700'	1,600	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	53.50 lb/ft	10,150'	2,700	Surface	Circulation
Liner	8.5"	7-5/8"	39 lb/ft	13,305'	230	9,950' (TOL)	CBL

(3) Tubing Information:

5-1/2" (23II) Internal Plastic Coated Tubing swedged down to 5" (18II) with setting depth of 13,285'

(4) Packer Information: Lok-set or equivalent packer set at 13,285'. Representative packer details are included in Attachment 1.

B.

(1) Injection Formation Name: Devonian and Silurian - Fusselman formations

(2) Injection Interval: Open-hole Injection between 13,305' – 14,325'

(3) Drilling Purpose: New Drill for Salt Water Disposal

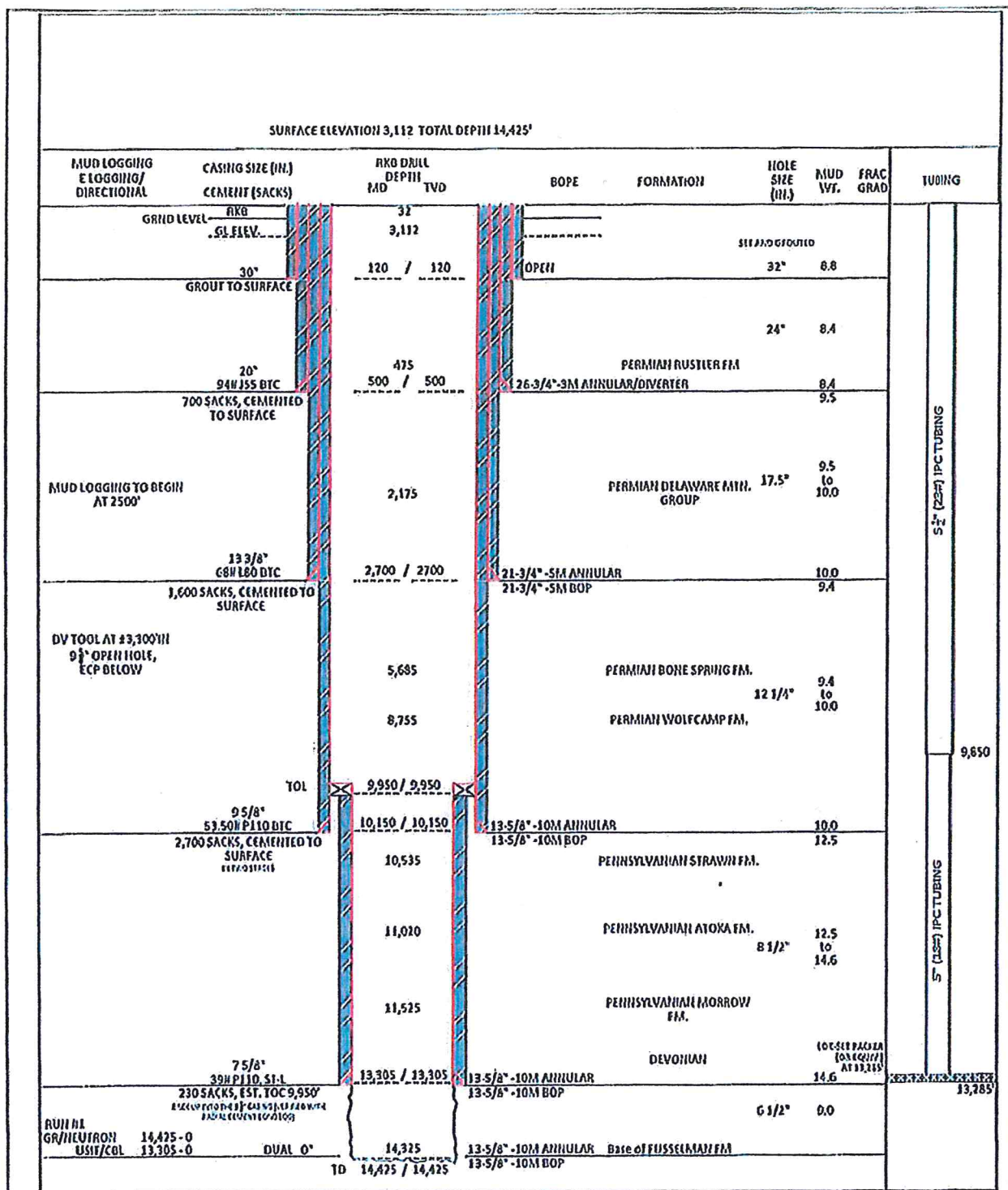
(4) Other Perforated Intervals: No other perforated intervals exist.

(5) Overlying Oil and Gas Zones :

- Delaware (2,175')
- Bone Springs (5,685')
- Wolfcamp (8,755')
- Atoka (11,020')
- Morrow (11,525')

Underlying Oil and Gas Zones: No underlying oil and gas producing formations





# ROAD RUNNER SWD #1

SECTION 28 T-25-S, T27-E

830' FNL & 200' FEL

EDDY COUNTY, NEW MEXICO

PIH 1650/11M.00

JUNE 2018



**ALI CONSULTING**  
COMPLETION • DESIGN • ENGINEERING • PLANNING • LOGISTICS  
ENVIRONMENTAL • INVESTMENT

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SIZE  
A

SCALE

NTS

WELL BORE DATA SHEET

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
Phone (678) 583-6181 Fax (678) 583-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone (678) 748-1853 Fax (678) 748-0720

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

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3460 Fax (505) 476-3462

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-102  
Revised August 1, 2011

Submit one copy to appropriate  
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-45099	Pool Code 97969	Pool Name SWD; Devonian-Silurian
Property Code 321647	Property Name ROADRUNNER SWD	Well Number 1
OGRID No. 371643	Operator Name SOLARIS WATER MIDSTREAM	Elevation 3121'

Surface Location


UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	33	25 S	27 E		830	NORTH	200	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

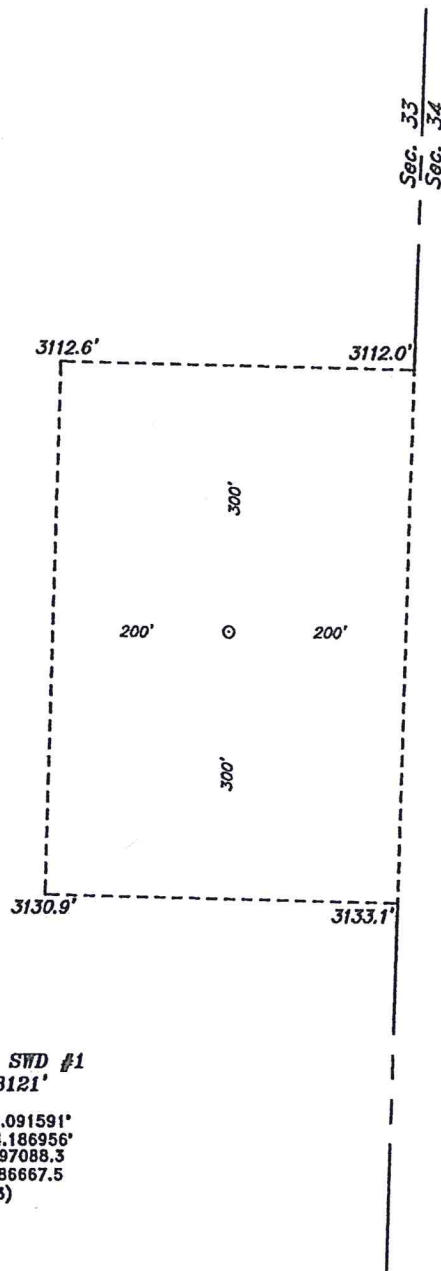
Dedicated Acres 5.50	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

N:397810.5 E:581549.5 (NAD 83)	N:397888.6 E:584219.6 (NAD 83)	<b>SURFACE LOCATION</b> Lat - N 32.091591° Long - W 104.186956° NMSPCE- N 397088.3 E 586667.5 (NAD-83)	N:397923.3 E:586887.1 (NAD 83)
			<b>OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  Signature _____ Date _____ <b>Bonnie Atwater</b> Printed Name bonnie.atwater@solarismidstream.com Email Address
			<b>SURVEYOR CERTIFICATION</b> I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.  NOVEMBER 5, 2018 Date Surveyed Signature & Seal of Professional Surveyor  Certificate No. Gary L. Jones 7977 Dated: 11/05/18
N:395159.5 E:581496.4 (NAD 83)	N:395212.4 E:586824.0 (NAD 83)		
			0' 500' 1000' 1500' 2000' SCALE: 1" = 1000' WO Num.: 34179
N:392508.0 E:581441.7 (NAD 83)			



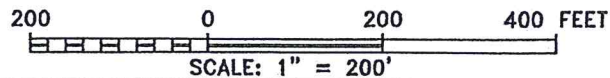
**SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**



**ROADRUNNER SWD #1  
ELEV. - 3121'**

Lal - N 32.091591'  
Long - W 104.186956'  
NMSPCE- N 397088.3  
E 586667.5  
(NAD-83)

CARLSBAD, NM IS  $\pm 30$  MILES TO THE NORTH OF LOCATION.



**SOLARIS WATER MIDSTREAM**

REF: ROADRUNNER SWD #1 / WELL PAD TOPO

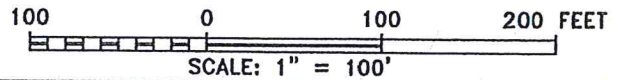
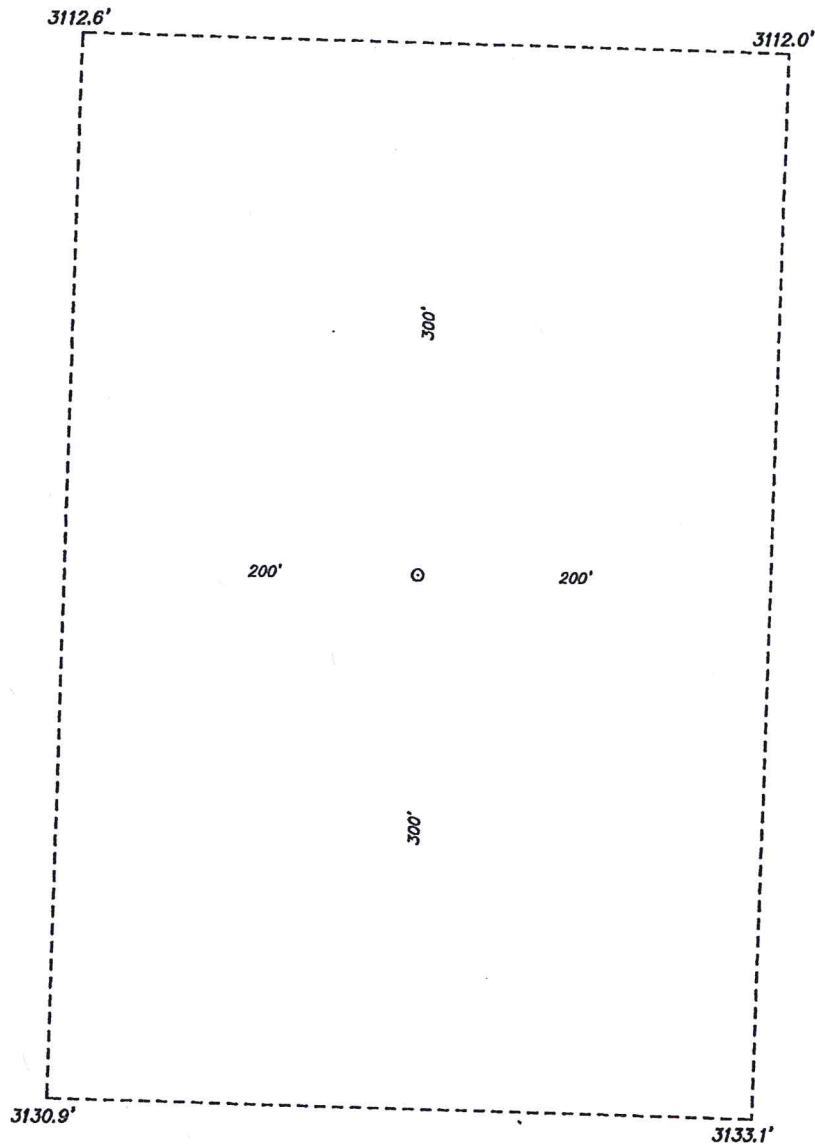
*THE ROADRUNNER SWD #1 LOCATED 830' FROM  
THE NORTH LINE AND 200' FROM THE EAST LINE OF  
SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.*

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P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 -- Office  
(575) 392-2206 -- Fax  
basinsurveys.com

W.O. Number: 34179 | Drawn By: K. GOAD | Date: 11-06-2018 | Survey Date: 11-05-2018 | Sheet 1 of 1 Sheets

**SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**



**SOLARIS WATER MIDSTREAM**

REF: ROADRUNNER SWD #1 / WELL-PAD TOPO

THE ROADRUNNER SWD #1 LOCATED 830' FROM  
THE NORTH LINE AND 200' FROM THE EAST LINE OF  
SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

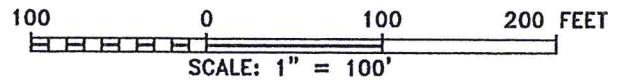
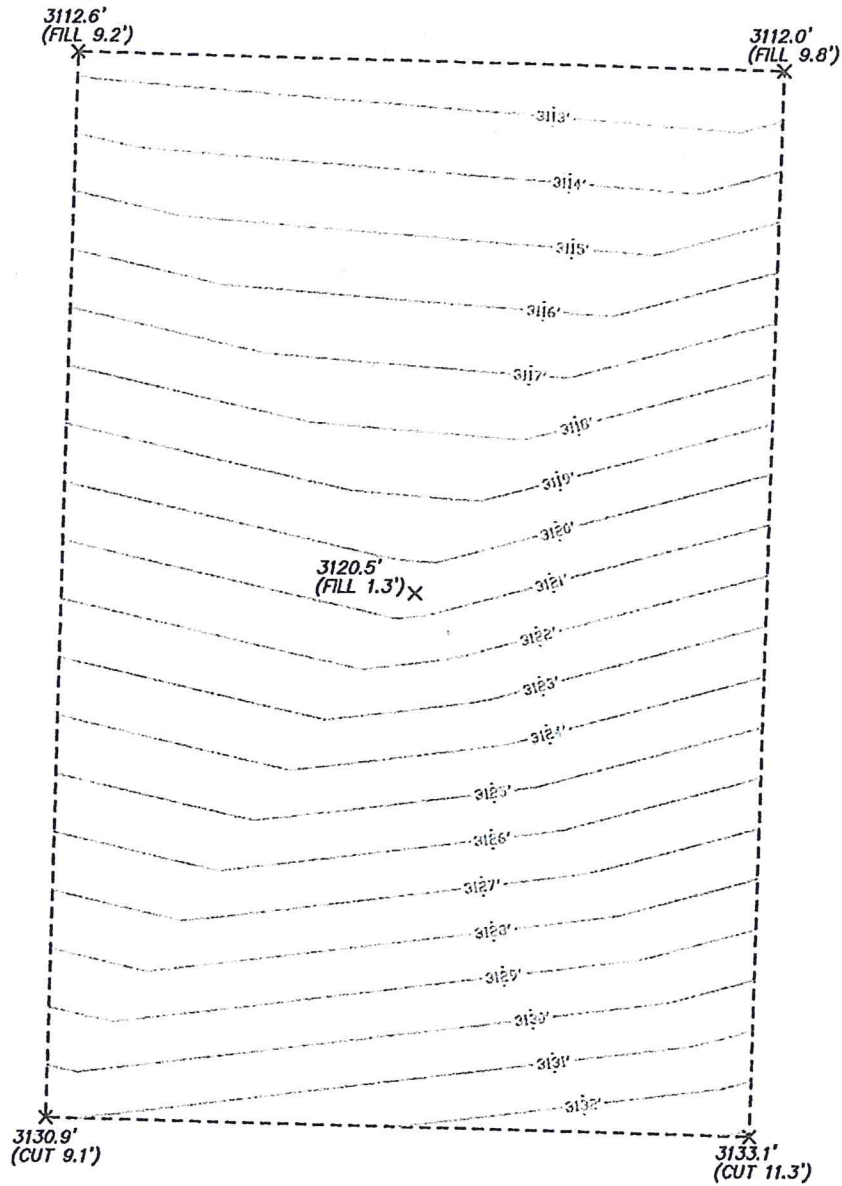
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Hobbs, New Mexico 88241 basin-surveys.com

W.O. Number: 34179 | Drawn By: K. GOAD | Date: 11-06-2018 | Survey Date: 11-05-2018 | Sheet 1 of 1 Sheets



**SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**



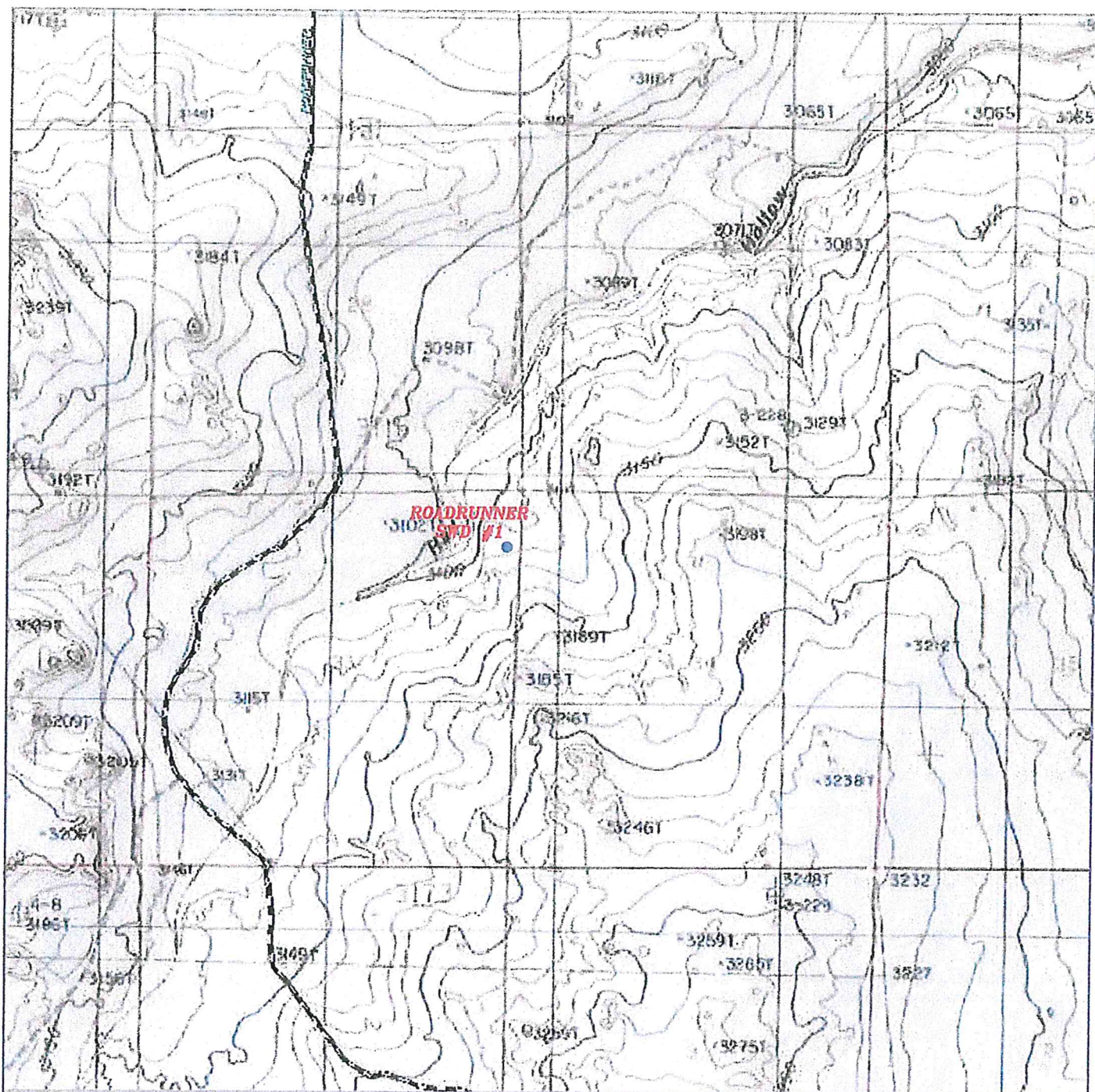
	<b>SOLARIS WATER MIDSTREAM</b>
	REF: ROADRUNNER SWD #1 / CUT & FILL
	THE ROADRUNNER SWD #1 LOCATED 830' FROM THE NORTH LINE AND 200' FROM THE EAST LINE OF SECTION 33, TOWNSHIP 25 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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W.O. Number: 34179	Drawn By: K. GOAD	Date: 11-06-2018	Survey Date: 11-05-2018	Sheet 1 of 1 Sheets
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### ROADRUNNER SWD #1

Located 830' FNL & 200' FEL  
 Section 33, Township 25 South, Range 27 East,  
 N.M.P.M., Eddy County, New Mexico.



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 (575) 392-2206 - Fax  
 basin-surveys.com

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

W.O. Number: KJG - 34179

Survey Date: 11-05-2018

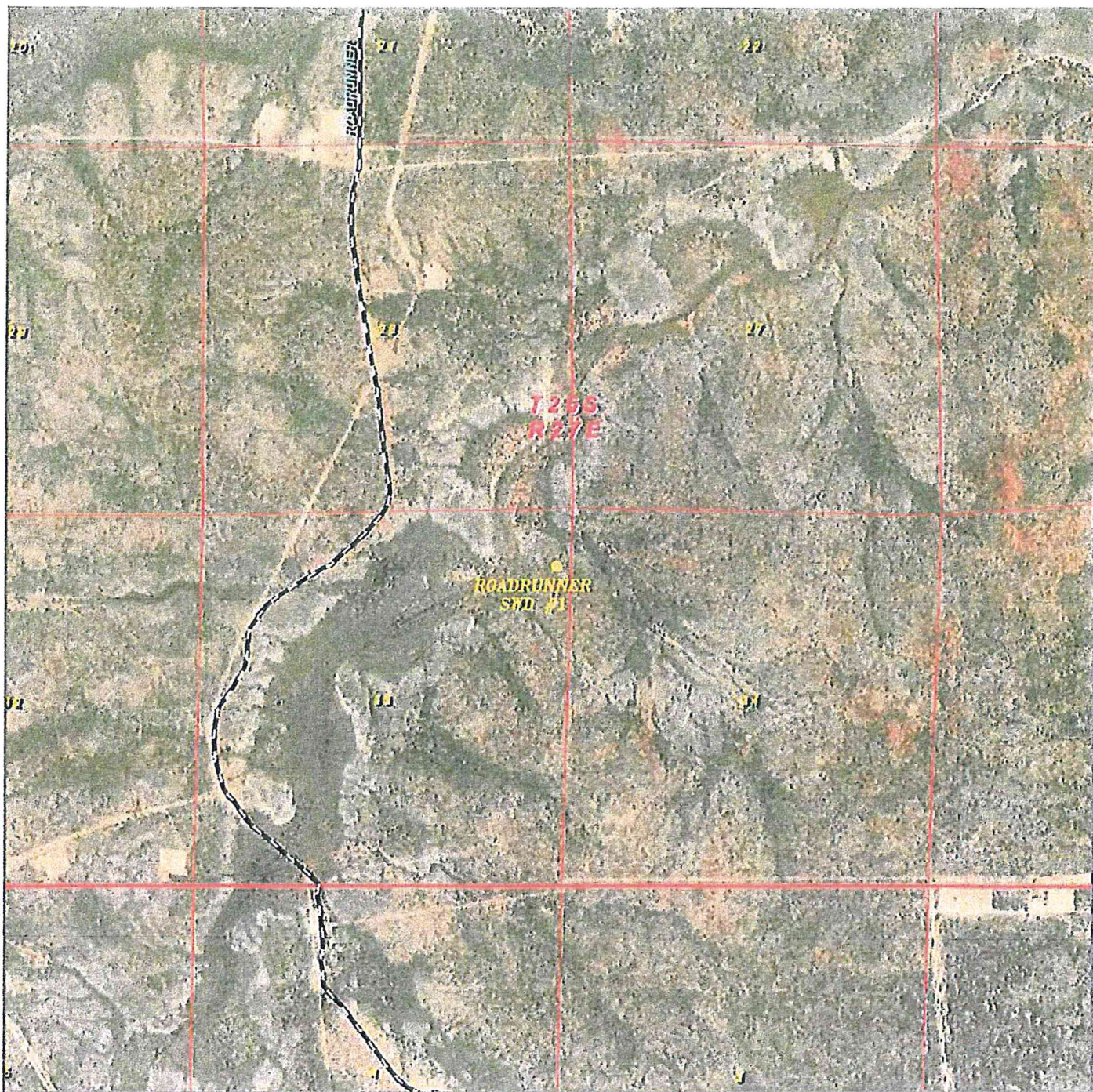
YELLOW TINT - USA LAND

BLUE TINT - STATE LAND

NATURAL COLOR - FEE LAND







## ROADRUNNER SWD #1

Located 830' FNL & 200' FEL  
 Section 33, Township 25 South, Range 27 East,  
 N.M.P.M., Eddy County, New Mexico.



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 (575) 392-2206 -- Fax  
 basin-surveys.com

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

W.O. Number: KJG - 34179

Survey Date: 11-05-2018

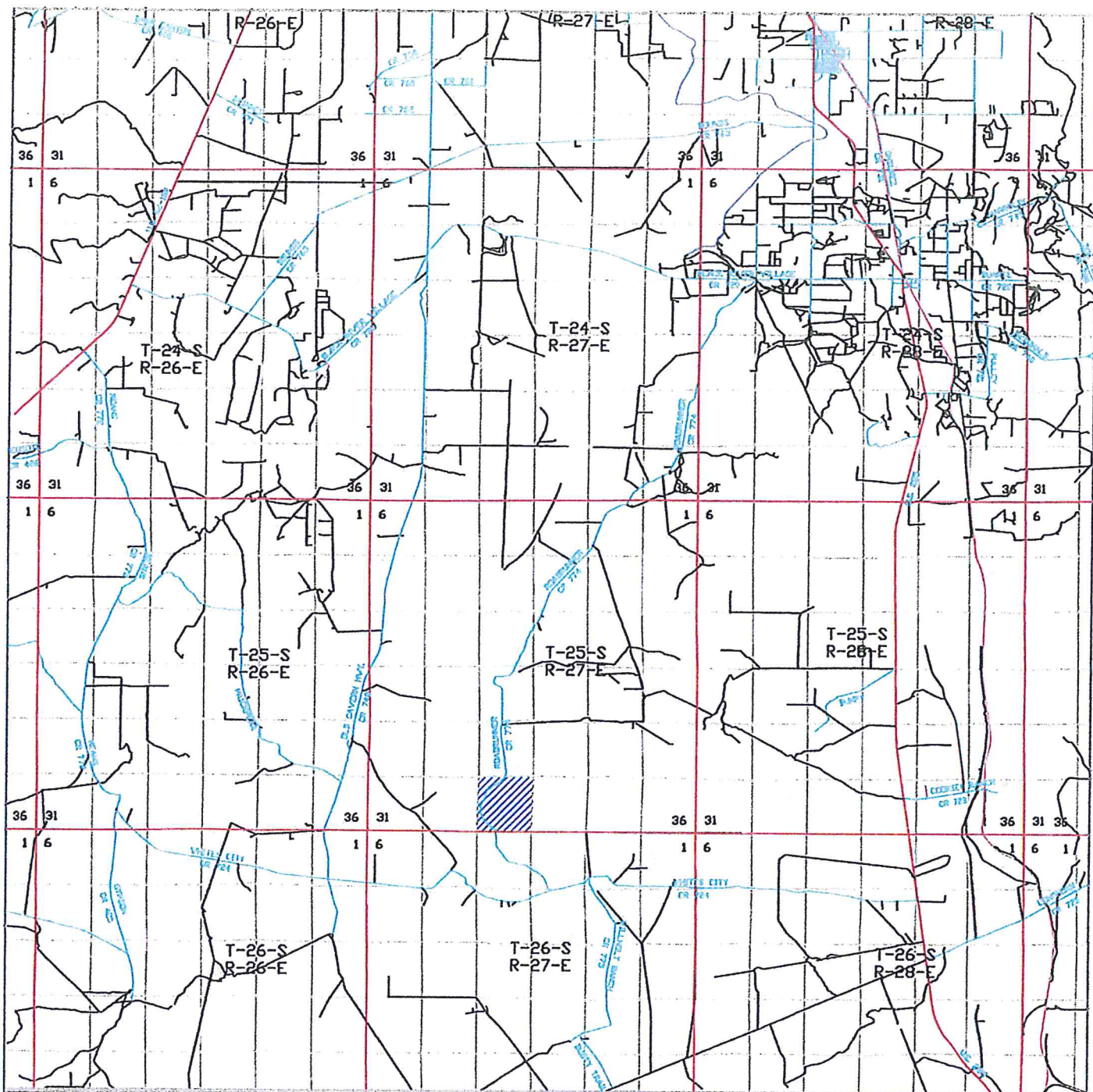
YELLOW TINT -- USA LAND

BLUE TINT -- STATE LAND

NATURAL COLOR -- FEE LAND







### ROADRUNNER SWD #1

Located 830' FNL & 200' FEL  
Section 33, Township 25 South, Range 27 East,  
N.M.P.M., Eddy County, New Mexico.



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Hobbs, New Mexico 88241  
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(575) 392-2206 -- Fax  
basinsurveys.com

0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

W.O. Number: KJG 34179

Survey Date: 11-05-2018

YELLOW TINT -- USA LAND

BLUE TINT -- STATE LAND

NATURAL COLOR -- FEE LAND



\*NMOC Oil and Gas Map

**Solaris Water Midstream, LLC**

**1.50-mile AOR tabulation for Roadrunner SWD #1 (top of injection interval is 13,305')  
(Form C-108 - Item VI)**

Well Name	API	Well Type	Operator	Location	Footage Location	Total Depth	Penetrate Inj. Zone
Skeen 2 26 27 State #001H	30-015-41046	O	Chevron USA, Inc.	D-02-26S-27E	175' FNL & 400' FWL	7,786	No
White City 21 25 27 Federal Com #005H	30-015-42976	O	Chevron USA, Inc.	N-21-25S-27E	330' FSL & 1923' FWL	12,173	No
White City 21 25 27 Federal Com #005H	30-015-42975	O	Chevron USA, Inc.	M-21-25S-27E	330' FSL & 990' FWL	7,451	No
Midnight Sun 2 26 27 #005H	30-015-43040	O	Chevron USA, Inc.	D-02-26S-27E	175' FNL & 775' FWL	13,894	No
HH CE 26 23 Federal 001 #001H	30-015-45423	G	Chevron USA, Inc.	D-35-25S-27E	245' FNL & 985' FWL	n/a	No
HH CE 26 23 Federal 001 #002H	30-015-45424	G	Chevron USA, Inc.	D-35-25S-27E	245' FNL & 1010' FWL	n/a	No
HH CE 26 23 Federal 001 #003H	30-015-45425	G	Chevron USA, Inc.	D-35-25S-27E	245' FNL & 1035' FWL	n/a	No
HH CE 26 23 Federal 001 #004H	30-015-45426	G	Chevron USA, Inc.	D-35-25S-27E	245' FNL & 1060' FWL	n/a	No
Cottonwood Hills 32 State Com #005H	30-015-41628	O	Cimarex Energy Co.	P-32-25S-27E	330' FSL & 330' FEL	7,480	No
Leonardo BKL Federal Com #001	30-015-22763	G	EOG Y Resources, Inc.	G-28-25S-27E	1980' FNL & 1980' FEL	12,712	No
Scrabble BLE Federal #001	30-015-36341	G	EOG Y Resources, Inc.	F-03-26S-27E	1880' FNL & 1980' FWL	n/a	No
Pre-Ongard Well #001	30-015-01146	O	Pre-Ongard Well Operator	A-28-25S-27E	660' FSL & 660' FEL	n/a	No
Pre-Ongard Well #001	30-015-23971	O	Pre-Ongard Well Operator	A-32-25S-27E	660' FSL & 660' FEL	n/a	No

\* NMOC Oil and Gas Map



25S 27E



20

21

22

BLM

BLM

29

BLM  
28

27

David &  
LaVerne Maley

David &  
LaVerne Maley

Road Runner SWD #1

BLM  
32

BLM

33

BLM

34

BLM

BLM

BLM

5

4

3

Forehand  
Ranches, Inc.

26S 27E

8

9

10

**Legend**

**Mineral Owner**

▢ All Minerals Owned by BLM

▢ Minerals Owned by SLO

**Surface Owner**

▢ BLM

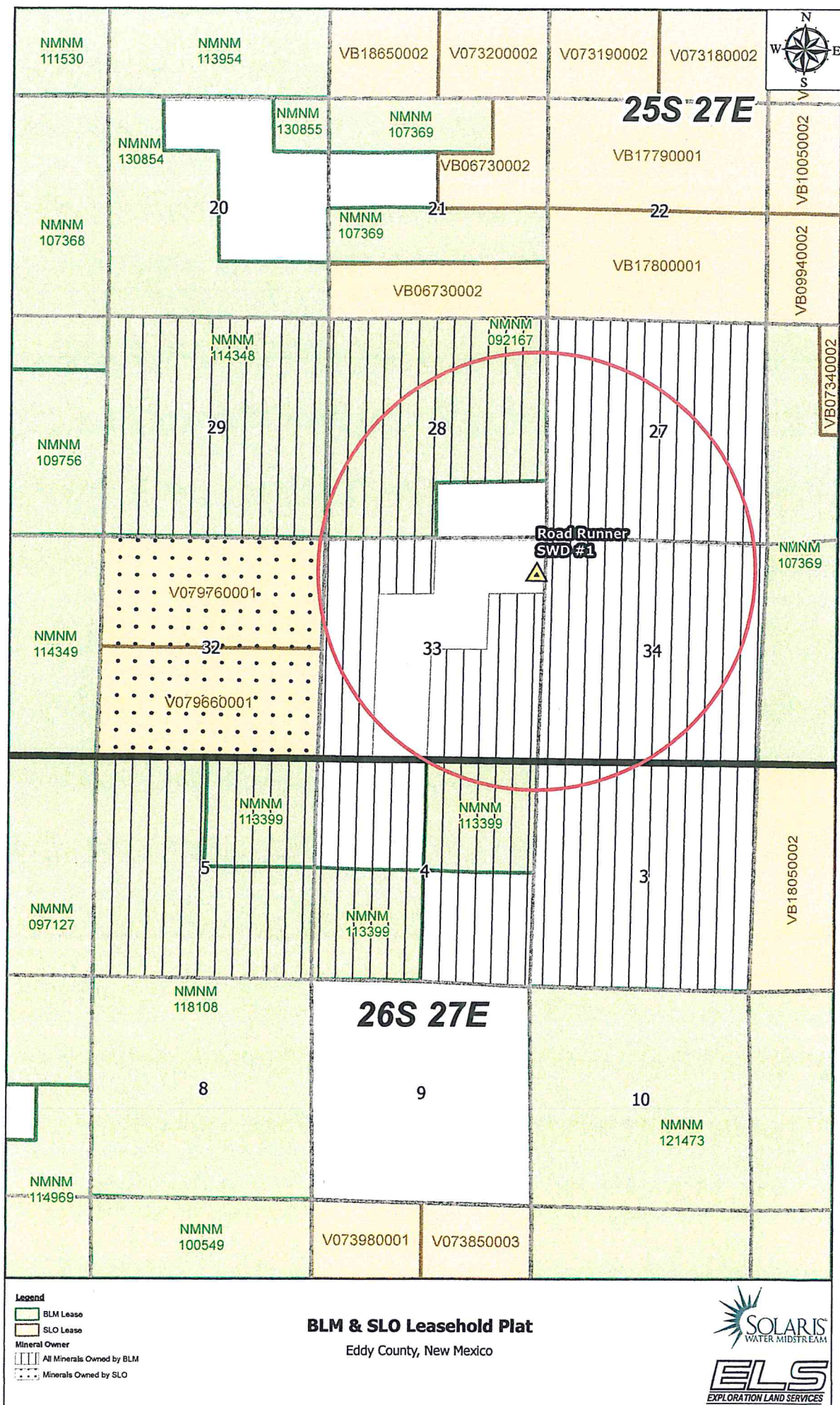
▢ Private Owner

**Surface & Mineral  
Ownership Plat**

Eddy County, New Mexico









CARLSBAD  
**CURRENT-ARGUS**

**AFFIDAVIT OF PUBLICATION**

Ad No.  
0001276559

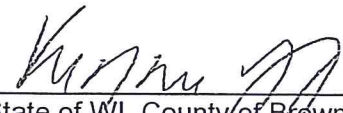
DOMENICI LAW FIRM, P.C.  
320 GOLD AVENUE SW SUITE 1000  
ALBUQUERQUE NM 87102

I, a legal clerk of the **Carlsbad Current-Argus**,  
a newspaper published daily at the City of  
Carlsbad, in said county of Eddy, state of New  
Mexico and of general paid circulation in said  
county; that the same is a duly qualified  
newspaper under the laws of the State wherein  
legal notices and advertisements may be  
published; that the printed notice attached  
hereto was published in the regular and entire  
edition of said newspaper and not in supplement  
thereof on the date as follows, to wit:

02/08/19

  
Legal Clerk

Subscribed and sworn before me this  
8th of February 2019.

  
State of WI, County of Brown  
NOTARY PUBLIC

11/9/22  
My Commission Expires

**APPLICATION FOR  
AUTHORIZATION  
TO INJECT**

NOTICE IS HEREBY GIVEN:  
That Solaris Water Mid-  
stream, LLC, 9811 Katy  
Freeway, Suite 900,  
Houston, TX 77024, is re-  
questing that the New  
Mexico Oil Conservation  
Division administratively  
approve the APPLICATION  
FOR AUTHORIZATION TO  
INJECT as follows:

PURPOSE: The intended  
purpose of the injection  
well is to dispose of salt  
water produced from per-  
mitted oil and gas wells.

WELL NAME AND  
LOCATION: Road Runner  
SWD #1, 830' FNL & 200'  
FEL, Section 33, Township  
25S, Range 27E, Eddy  
County, New Mexico  
NAME AND DEPTH OF  
DISPOSAL ZONE:  
Devonian-Silurian  
(13,305'-14,325')

EXPECTED MAXIMUM IN-  
JECTION RATE: 30,000  
Bbls/day

EXPECTED MAXIMUM IN-  
JECTION PRESSURE: 2,661  
psi (surface)

Objections or requests for  
hearing must be filed with  
the New Mexico Oil Con-  
servation Division within  
fifteen (15) days. Any ob-  
jection or request for  
hearing should be mailed  
to the Oil Conservation  
Division, 1220 South St.  
Francis Dr., Santa Fe, New  
Mexico, 87505. Additional  
information may be ob-  
tained by contacting  
Whitney McKee (Solaris-  
Regulatory Technician) at  
432-203-9020.

Pub: Feb. 8, 2019  
Legal ad #1276559

Ad#:0001276559  
P O :  
# of Affidavits :0.00



## Road Runner SWD #1

Owner Category	Name	Address
Well Operator	Solaris Water Midstream, LLC	9811 Katy Freeway STE 700, Houston, TX 77024
Well Operator	EOG Resources, Inc.	4000 N. Big Spring, Suite 500, Midland, TX 79705
Lessee	EOG A Resources, Inc.	105 S. 4th St., Artesia, NM 882102
Lessee	EOG Y Resources, Inc.	105 S. 4th St., Artesia, NM 882102
Lessee	OXY Y-1 Company	P. O. Box 27570, Houston, TX 772277
Lessee	EOG M Resources	105 S. 4th St., Artesia, NM 882102
Lessee	Chevron USA, Inc.	6301 Deauville, Midland, TX 79706
Lessee	COG Operating, LLC	600 W. Illinois Ave., Midland, TX 79701
Lessee	Chevron Midcontinent, LP	6301 Deauville, Midland, TX 79706
Lessee	ABO Empire, LLC	P. O. Box 900, Artesia, NM 88211
Mineral Owner	David and Laverne Maley	P. O. Box 519, Carlsbad, NM 88221
Mineral Owner	Bureau of Land Management	620 E. Greene Street, Carlsbad, NM 88220
Mineral Owner	State of New Mexico	310 Old Sante Fe Trail, Sante Fe, NM 87501
Surface Owner	David and Laverne Maley	P. O. Box 519, Carlsbad, NM 88221
Surface Owner	Bureau of Land Management	620 E. Greene Street, Carlsbad, NM 88220



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**CHARLESTON, NH 03820**

**OFFICIAL USE**



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Extra Services & Fees (check box, add fee if appropriate)

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$2.20

Total Postage and Fees \$5.70

Sent To **U.S. BLM**

Street and Apt. No., or PO Box No. **620 E. Greene St.**

City, State, ZIP+4<sup>®</sup> **Carlsbad, NM 88220**

PS Form 3800, April 2015 Edition See Reverse for Instructions

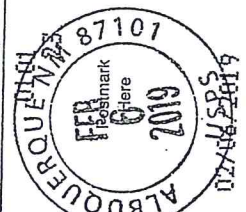
9927 2496 0000 0760 9702

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**HUDLAND, TX 79706**

**OFFICIAL USE**



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Extra Services & Fees (check box, add fee if appropriate)

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$2.20

Total Postage and Fees \$5.70

Sent To **Chevron USA, Inc.**

Street and Apt. No., or PO Box No. **6301 Deauville**

City, State, ZIP+4<sup>®</sup> **Midland, Texas 79706**

PS Form 3800, April 2015 Edition See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3.

Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

Article Addressed to:

**U.S. BLM**  
**620 E. Greene St.**  
**Carlsbad, NM 88220**

Article Addressed to:

**U.S. BLM**  
**620 E. Greene St.**  
**Carlsbad, NM 88220**



9590 9402 3313 7196 6966 73

Article Number (Transfer from service label)

**916 0910 0000 9642 1268**

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature **X** *[Signature]* ☐ Agent ☐ Addressee

B. Received by (Printed Name) **FEB 9 2019** ☐ Date of Delivery

D. Is delivery address different from item 1? ☐ Yes ☐ No  
If YES, enter delivery address below:

3. Service Type

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express <sup>®</sup>
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail <sup>™</sup>
<input checked="" type="checkbox"/> Certified Mail <sup>®</sup>	<input type="checkbox"/> Registered Mail Restricted Delivery
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation <sup>™</sup>
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Insured Mail	<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)

**SENDER: COMPLETE THIS SECTION**

1. Article Addressed to:

**Chevron USA, Inc.**  
**6301 Deauville**  
**Midland, Texas 79706**

1. Article Addressed to:

**Chevron USA, Inc.**  
**6301 Deauville**  
**Midland, Texas 79706**



9590 9402 3313 7196 6967 03

2. Article Number (Transfer from service label)

**7016 0710 0000 9642 1237**

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature **X** *[Signature]* ☐ Agent ☐ Addressee

B. Received by (Printed Name) **Martinez** ☐ Date of Delivery

D. Is delivery address different from item 1? ☐ Yes ☐ No  
If YES, enter delivery address below:

3. Service Type

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express <sup>®</sup>
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail <sup>™</sup>
<input checked="" type="checkbox"/> Certified Mail <sup>®</sup>	<input type="checkbox"/> Registered Mail Restricted Delivery
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation <sup>™</sup>
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Insured Mail	<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)



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ARTESIA, NM 88210

**Postmark**  
FEB 06 2019  
ALBUQUERQUE NM 87101  
USPS

**Postage** \$2.20  
**Total Postage and Fees** \$8.50

**Extra Services & Fees (check box, add fee to postage)**

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

**Sent To**  
EOG Resources, Inc.  
105 S. 4th Street  
Artesia, NM 88210  
City, State, Zip+4®  
PS Form 3800, April 2015 SEN 7530-02-000-9071 See Reverse for Instructions

0227 2496 0000 0760 9702

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HOUSTON, TX 77227

**Postmark**  
FEB 06 2019  
ALBUQUERQUE NM 87101  
USPS

**Postage** \$2.20  
**Total Postage and Fees** \$8.50

**Extra Services & Fees (check box, add fee to postage)**

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

**Sent To**  
OXY Y-I Company  
PO Box 27570  
Houston, Texas 77227  
City, State, Zip+4®  
PS Form 3800, April 2015 SEN 7530-02-000-9071 See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3.  
Print your name and address on the reverse so that we can return the card to you.  
Attach this card to the back of the mailpiece, or on the front if space permits.

Article Addressed to:

EOG Resources, Inc.  
105 S. 4th Street  
Artesia, NM 88210



9590 9402 3313 7196 6967 27

Article Number (Transfer from service label)

216 0910 0000 9642 1213

**COMPLETE THIS SECTION ON DELIVERY**

**A. Signature**  
X *[Signature]*  
**B. Received by (Printed Name)**  
Darryl Atkins  
**C. Date of Delivery**  
FEB 11 2019

**D. Is delivery address different from item 1?** ☐ Yes ☐ No  
If YES, enter delivery address below:

104 S. 4th

**3. Service Type**

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™
<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Insured Mail	<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3.  
Print your name and address on the reverse so that we can return the card to you.  
Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

OXY Y-I Company  
PO Box 27570  
Houston, Texas 77227



9590 9402 3313 7196 6967 10

2. Article Number (Transfer from service label)

2014 0910 0000 9642 1220

**COMPLETE THIS SECTION ON DELIVERY**

**A. Signature**  
X *[Signature]*  
**B. Received by (Printed Name)**  
Darryl Atkins  
**C. Date of Delivery**

**D. Is delivery address different from item 1?** ☐ Yes ☐ No  
If YES, enter delivery address below:

**3. Service Type**

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™
<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Insured Mail	<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)



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MIDLAND, TX 79705

Certified Mail Fee \$3.50

Extra Services & Fees (check box, add fee to postage)

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$2.20

Total Postage and Fees \$8.50

Sent To: BOG Resources, Inc.  
4000 N. Big Spring, Suite 500  
Pholand, Texas 79705  
 City, State, ZIP+4<sup>®</sup>

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

9027 2496 0000 0160 9102

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SANTA FE, NM 87501

Certified Mail Fee \$3.50

Extra Services & Fees (check box, add fee to postage)

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$2.20

Total Postage and Fees \$8.50

Sent To: NM State Land Office  
30 Old Santa Fe Trail  
Santa Fe NM 98501  
 City, State, ZIP+4<sup>®</sup>

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

0617 2496 0000 0160 9102

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CARLSBAD, NM 88221

Certified Mail Fee \$3.50

Extra Services & Fees (check box, add fee to postage)

<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$2.20

Total Postage and Fees \$8.50

Sent To: David + Laverne Mailey  
PO Box 519  
Carlsbad NM 88221  
 City, State, ZIP+4<sup>®</sup>

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

0448 0969 0000 0106 5102

**SENDER: COMPLETE THIS SECTION**

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Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

David + Laverne Mailey  
 PO Box 519  
 Carlsbad, NM 88221

2. Article Number (Transfer from service label)

7015 3010 0000 6360 8440

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature [Signature] ☐ Agent

B. Received by (Printed Name) Alfred [Signature] ☐ Addressee

C. Date of Delivery Feb 11 2019

D. Is delivery address different from item 1? ☐ Yes  
 If YES, enter delivery address below: ☐ No

3. Service Type

<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express <sup>®</sup>
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail <sup>™</sup>
<input checked="" type="checkbox"/> Certified Mail <sup>®</sup>	<input type="checkbox"/> Registered Mail Restricted Delivery
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation <sup>™</sup>
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery
<input type="checkbox"/> Insured Mail (over \$500)	



**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3.

Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**COG Operating LLC**  
600 W. Illinois Ave  
Midland, Texas 79701

3. Service Type

☐ Adult Signature  
☒ Adult Signature Restricted Delivery  
☐ Certified Mail®  
☐ Certified Mail Restricted Delivery  
☐ Collect on Delivery  
☐ Collect on Delivery Restricted Delivery  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

2. Article Number (Transfer from service label)

7016 0910 0000 9642 1244

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

☒ Agent  
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes  
If YES, enter delivery address below: ☐ No

**Jennifer Cholewicki** 2/11/19

3. Service Type

☐ Adult Signature  
☒ Adult Signature Restricted Delivery  
☐ Certified Mail®  
☐ Certified Mail Restricted Delivery  
☐ Collect on Delivery  
☐ Collect on Delivery Restricted Delivery  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

2. Article Number (Transfer from service label)

7016 0910 0000 9642 1244

PS Form 3811, July 2015 PSN 7530-02-000-9053

**SENDER: COMPLETE THIS SECTION**

Complete items 1, 2, and 3.

Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**A30 Empire LLC**  
PO Box 900  
Artesia, NM 88211

3. Service Type

☐ Adult Signature  
☒ Adult Signature Restricted Delivery  
☐ Certified Mail®  
☐ Certified Mail Restricted Delivery  
☐ Collect on Delivery  
☐ Collect on Delivery Restricted Delivery  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

2. Article Number (Transfer from service label)

7016 0910 0000 9642 1251

PS Form 3811, July 2015 PSN 7530-02-000-9053

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**ARTESIA, NM 88211**

Certified Mail Fee \$3.50

Extra Services & Fees (check box, add fee and rate)

☐ Return Receipt (hardcopy) \$0.00

☐ Return Receipt (electronic) \$0.00

☐ Certified Mail Restricted Delivery \$0.00

☐ Adult Signature Required \$0.00

☐ Adult Signature Restricted Delivery \$0.00

Postage \$2.20

Total Postage and Fees \$8.50

Sent To: **A30 Empire LLC**  
Street and Apt. No., or PO Box No.  
**PO Box 900**  
City, State, ZIP+4®  
**Artesia, NM 88211**

**U.S. Postal Service™**  
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**MIDLAND, TX 79701**

Certified Mail Fee \$3.50

Extra Services & Fees (check box, add fee and rate)

☐ Return Receipt (hardcopy) \$0.00

☐ Return Receipt (electronic) \$0.00

☐ Certified Mail Restricted Delivery \$0.00

☐ Adult Signature Required \$0.00

☐ Adult Signature Restricted Delivery \$0.00

Postage \$2.20

Total Postage and Fees \$8.50

Sent To: **COG Operating LLC**  
Street and Apt. No., or PO Box No.  
**600 W. Illinois Ave**  
City, State, ZIP+4®  
**Midland, Texas 79701**







**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Secondary Recovery Pressure Maintenance ☒ Disposal Storage  
Application qualifies for administrative approval? ☒ Yes No
- II. OPERATOR: Solaris Water Midstream, LLC  
ADDRESS: 9811 Katy Freeway, Suite 900, Houston, TX 77024  
CONTACT PARTY: Bonnie Atwater PHONE: 432-203-9020
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? Yes ☒ No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- \*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Katy Welch TITLE: Land Manager  
SIGNATURE: Katy Welch DATE: 7/3/2018  
E-MAIL ADDRESS: Katy.Welch@Solarismidstream.com
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: \_\_\_\_\_

### III. WELL DATA

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

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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

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

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

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

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

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

---

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



Application for Authorization to Inject

Well Name: Road Runner SWD 1

**III – Well Data** (*The Wellbore Diagram is included as Attachment 1*)

A.

**(1) General Well Information:**

Operator: Solaris Water Midstream, LLC

Lease Name & Well Number: Road Runner SWD 1

Well Footage: 902' FSL & 2,404' FEL

Location: S28 T25S R27E

**(2) Casing Information:**

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	24"	20"	94.0 lb/ft	500'	700	Surface	Circulation
Intermediate 1	17-1/2"	13-3/8"	68.0 lb/ft	2,700'	1,600	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	53.50 lb/ft	10,150'	2,700	Surface	Circulation
Liner	8.5"	7-5/8"	39 lb/ft	13,305'	230	9,950' (TOL)	CBL

**(3) Tubing Information:**

5-1/2" (23#) Internal Plastic Coated Tubing swedged down to 5" (18#) with setting depth of 13,285'

**(4) Packer Information:** Lok-set or equivalent packer set at 13,285'. Representative packer details are included in *Attachment 1*.

B.

**(1) Injection Formation Name:** Devonian and Silurian - Fusselman formations

**(2) Injection Interval:** Open-hole injection between 13,305' – 14,325'

**(3) Drilling Purpose:** New Drill for Salt Water Disposal

**(4) Other Perforated Intervals:** No other perforated intervals exist.

**(5) Overlying Oil and Gas Zones :**

- Delaware (2,175')
- Bone Springs (5,685')
- Wolfcamp (8,755')
- Atoka (11,020')
- Morrow (11,525')

**Underlying Oil and Gas Zones:** No underlying oil and gas producing formations



## **V – Well and Lease Maps**

A well map and lease map are included in *Attachment 2*.

## **VI – AOR Well List**

A list of the wells within the 1-mile AOR is included in *Attachment 2*.

## **VII – Proposed Operation**

- (1) Proposed Maximum Injection Rate: 30,000 bpd  
Proposed Average Injection Rate: 15,000 bpd
- (2) A closed system will be used.
- (3) Proposed Maximum Injection Pressure: 2,661 psi (surface)  
Proposed Average Injection Pressure: approximately 1,500 – 2,000 psi (surface)
- (4) Source Water Analysis: It is expected that the injectate will consist of produced water from production wells completed in the Wolfcamp and Bone Springs formations, the main oil and gas producing zones in the area. Analysis of water from these formations is included in *Attachment 3*.
- (5) Injection Formation Water Analysis: The proposed well will be injecting water into the Devonian and Silurian-Fusselman formations which are known to be compatible with formation water from the Wolfcamp and Bone Springs formations. Water analyses from Silurian-Fusselman could not be located; however, water analyses from the Devonian formation in the area are included in *Attachment 4*.

## **VIII – Geologic Description**

The proposed injection interval includes the Devonian and Silurian-Fusselman formations from 13,305 – 14,325 feet. These formations 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.

The freshwater formation is the Rustler at a depth of approximately 475 feet. Water well depths in the area range from 80 – 245 feet below ground surface.

## **IX – Proposed Stimulation Program**

A small cleanup acid job may be used to remove mud and drill cuttings from the formation. However, no other formation stimulation is currently planned.

## **X – Logging and Test Data**

Logs will be submitted to the Division upon completion of the well.

## **XI – Fresh Groundwater Samples**

Based on a review of data from the New Mexico Office of the State Engineer, no fresh groundwater wells are located within 1-mile of the proposed SWD location. A water well map of the area is included in *Attachment 5*.

## **XII – No Hydrologic Connection Statement**

No faulting is present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing program has been designed to insure there will be no hydrologic connection between the injection interval and overlying USDWs.

*Attachment 6* includes a letter from a knowledgeable and qualified expert stating that risk of seismic activity from the proposed injection activities is minimal, at best.

## **XIII – Proof of Notice**

A Public Notice was filed with the Carlsbad Current Argus newspaper.

*Attachment 7* includes a list of parties (OCD District Office, landowner, and leasehold operators within 1-mile) to whom copies of the application were provided.

*Attachment 7* includes an affidavit for the public notice and delivery confirmations for the OCD District Office, landowner, and leasehold operator notices of application.

# Attachments

**Attachment 1: Wellbore Diagram**

**Attachment 2: Area of Review Well Map, Lease Map, and Well Details**

**Attachment 3: Source Water Analyses**

**Attachment 4: Injection Formation Water Analyses**

**Attachment 5: Water Well Map**

**Attachment 6: Induced Seismicity Assessment Letter**

**Attachment 7: Public Notice Affidavit and Notice of Application Confirmations**



**Attachment 1**  
**Wellbore Diagram**

SURFACE ELEVATION 3,112 TOTAL DEPTH 14,425'

MUD LOGGING E LOGGING/ DIRECTIONAL	CASING SIZE (IN.) CEMENT (SACKS)	RKB DRILL DEPTH MD TVD	BOPE	FORMATION	HOLE SIZE (IN.)	MUD WT.	FRAC GRAD	TUBING
GRND LEVEL	RKB	32						
GL FLEV.		3,112						
30"		120 / 120	OPEN		32"	8.8		
GROUT TO SURFACE								
					24"	8.4		
20" 94# J55 BTC		475 500 / 500		PERMIAN RUSTLER FM				
700 SACKS, CEMENTED TO SURFACE			26-3/4"-3M ANNULAR/DIVERTER			8.4		
						9.5		
MUD LOGGING TO BEGIN AT 2500'		2,175		PERMIAN DELAWARE MTN. GROUP	17.5"	9.5 to 10.0		
13 3/8" 68# L80 BTC		2,700 / 2700	21-3/4"-5M ANNULAR			10.0		
1,600 SACKS, CEMENTED TO SURFACE			21-3/4"-5M BOP			9.4		
DV TOOL AT ±3,300'IN 9 5/8" OPEN HOLE, ECP BELOW		5,685		PERMIAN BONE SPRING FM.	12 1/4"	9.4 to 10.0		
		8,755		PERMIAN WOLFCAMP FM.				
TOL		9,950 / 9,950						9,850
9 5/8" 53.50# P110 BTC		10,150 / 10,150	13-5/8"-10M ANNULAR			10.0		
2,700 SACKS, CEMENTED TO SURFACE IN TWO STAGES			13-5/8"-10M BOP			12.5		
		10,535		PENNSYLVANIAN STRAWN FM.				
		11,020		PENNSYLVANIAN ATOKA FM.	8 1/2"	12.5 to 14.6		
		11,525		PENNSYLVANIAN MORROW FM.				
7 5/8" 39# P110, ST-L		13,305 / 13,305	13-5/8"-10M ANNULAR	DEVONIAN		14.6		
230 SACKS, EST. TOC 9,950' BACK UP INTO THE 9 5/8" CASING (TRAFFICED WITH RADIAL CEMENT ECP LOG)			13-5/8"-10M BOP					13,285'
RUN #1 GR/NEUTRON 14,425 - 0 USIT/CBL 13,305 - 0	DUAL 0"	14,325	13-5/8"-10M ANNULAR	Base of FUSSELMAN FM	6 1/2"	9.0		
		TD 14,425 / 14,425	13-5/8"-10M BOP					

## ROAD RUNNER SWD #1

SECTION 28 T-25-S, R-27-E  
902' FSL & 2,404' FEL  
EDDY COUNTY, NEW MEXICO

PN # 1680.NM.00

JUNE 2018



**ALL CONSULTING**  
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ENGINEERING • ENVIRONMENTAL

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SIZE  
A

SCALE

NTS

WELL BORE DATA SHEET



## A-3 and AL-2 LOK-SET Retrievable Casing Packers

Product Family No. H64630 and H64628

### APPLICATION

The A-3™ LOK-SET™ packer combines advantages of a retrievable packer with the features of a permanent packer. An ability to lock down tubing forces makes the A-3 suitable for a broad range of applications, including production, injection, zone isolation, and remedial operations. The AL-2™ LOK-SET packer is similar to the A-3, and has a larger bore.

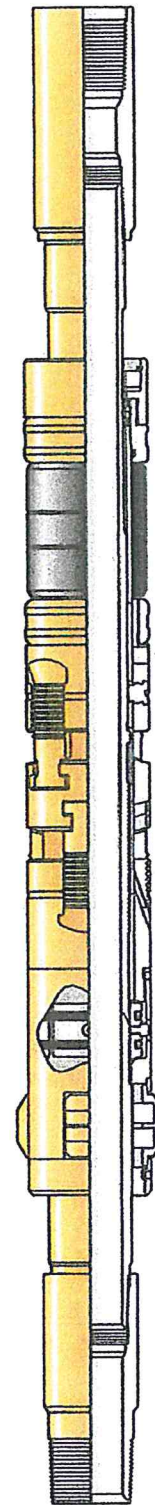
### Advantages

- Holds pressure from above and below, without relying on set-down weight, tubing tension, or hydraulic hold down
- Provides tubing anchoring with tension applied, suitable for pumping wells or injection, controlling tubing forces related to change fluid temperatures
- Opposed, non-transferring, dovetail slips prevent packer movement associated with changing differential pressures, while allowing the landing of the tubing in tension, neutral or compression
- Right-hand tubing rotation controls setting and releasing
- Packing element compression locks in by ratcheting action of lock segments, which restricts rotation to one direction

### Accessories

To provide a simple and reliable injection system for retrieving an injection string without having to unseat the packer:

L-10 or L-316 on-off sealing connectors, Product Family Nos. H68420 and H68422. Baker Hughes blanking plug can be used in the seating nipple profile of the on-off sealing connector to provide a means of plugging the lower zone while the tubing is being pulled.



**A-3 LOK-SET**  
Retrievable Casing Packer  
Product Family No. H64630

## SPECIFICATION GUIDES

A-3" LOK-SET Retrievable Casing Packer, Product Family No. H64630

Casing			Packer				
OD		Weight *	Size	Nom ID		Max Gage Ring OD	
In.	mm	lb/ft		In.	mm	In.	mm
4	101.6	9.5-12.9	41A2	1.500	38.1	3.244	82.4
4-1/2	114.3	21.6-23.6	41A2	1.500	38.1	3.244	82.4
4	101.6	9.5	41A4	1.500	38.1	3.423	112.4
4-1/2	114.3	18.8	41A4	1.500	38.1	3.423	112.4
		13.5-17.7	41B			3.578	90.9
		11.6-13.5	43A2			3.786	96.2
		9.5-10.5	43A4			3.786	96.2
5	127.0	15-18	43B	1.978	50.2	4.140	105.2
		11.5-15	43C			4.265	108.3
5-1/2	139.7	26	43C	1.978	50.2	4.265	108.3
		20-23	45A2			4.515	114.7
		15.5-20	45A4			4.656	118.3
		13-15.5	45B			4.796	121.8
6	152.4	26	45B	1.978	50.2	4.796	121.8
		20-23	45C			5.078	129.0
		15-18	45D			5.171	131.3
		34	45E			5.421	137.7
6-5/8	168.3	24-32	45F	1.978	50.2	5.499	139.7
		24	47A2			5.671	144.0
		17-24	45G			5.796	147.2
		17-20	47A4			5.827	148.0
7	177.8	38	47A2	2.441	62.0	5.671	144.0
		32-35	47A4			5.827	148.0
		26-29	47B2			5.933	152.0
		23-26	47B4			6.093	154.8
7-5/8	193.7	17-20	47C2	2.441	62.0	6.281	159.5
		33.7-39	47C4			6.468	164.3
		24-29.7	47D2			6.687	169.9
		20-24	47D4			6.827	173.4
8-5/8	219.1	44-49	49A2	3.500	88.9	7.327	186.1
		32-40	49A4			7.546	191.7
		20-28	49B			7.796	198.0
9-5/8	244.5	47-53.5	51A2	3.500	88.9	8.234	209.1
		40-47	51A4			8.452	214.7
		29.3-36	51B			8.603	218.6

AL-2" Large Bore LOK-SET Retrievable Casing Packer Product Family No. H34628

Casing			Packer					
OD		Weight *	Size	Nom ID		Max Gage Ring OD		Max Diameter of Compressed Drag Block
In.	mm	lb/ft		In.	mm	In.	mm	In.
5-1/2	139.7	20	45A2 x 2-3/8	2.375	60.3	4.562	115.9	4.592
		15.5-17	45A4 x 2-3/8			4.656	118.3	4.750
		13	45B x 2-3/8			4.796	121.8	4.902
6	152.4	26	45B x 2-3/8	2.375	60.3	4.796	121.8	4.902

- When selecting a packer for a casing weight common to two weight ranges (same OD), choose the packer size shown for the lighter of the two weight ranges. Example: for 7-in. (177.8 mm) OD 26 lb/ft casing use packer size 47B4. Under certain circumstances the other packer size may be run, such as when running in mixed casing strings.
- Repair kits, including such items as packing elements, seal rings, etc., are available for redressing Baker Retrievable Packers. Contact your Baker Hughes representative. Use only Baker Hughes repair parts.



**Attachment 2**

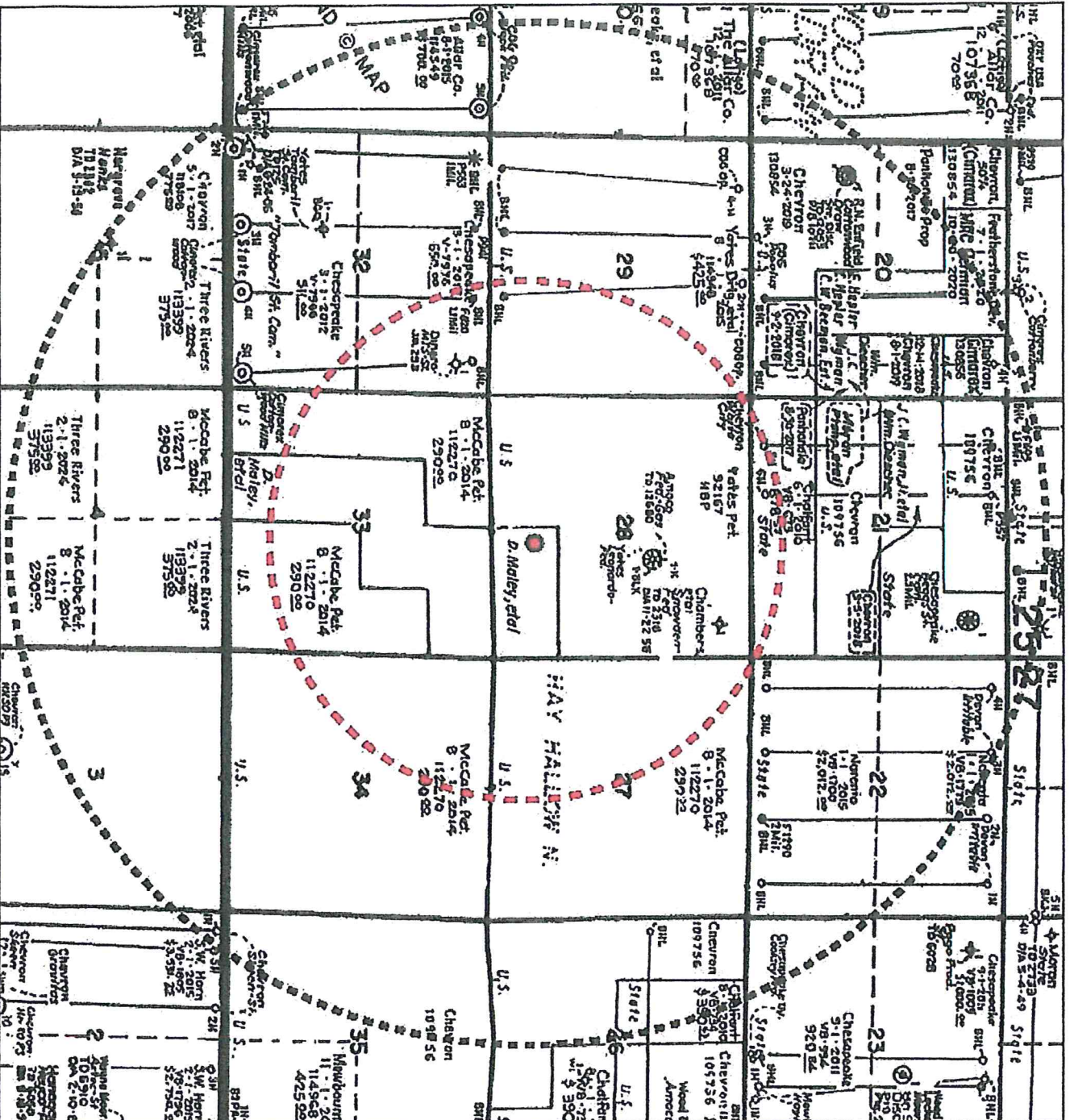
**Area of Review Well Map, Lease Map, and Well Details**








- Legend**
- Proposed SWD
  - 1 - mile Radius
  - 2 - mile Radius



Road Runner SWD #1		
Offset Leases		
Eddy County, NM		
Proj Mgr: JDA	July 02, 2018	Mapped by: BJB
<i>Prepared by:</i>		
		

One Mile AOR Tabulation for Road Runner SWD #1 (Top of Injection Interval: 13,305')								
Well Name	API#	Well Type	Operator	Spud Date	Location (Sec., Tn., Rng.)	Footage Location	Total Depth	Penetrate Inj. Int.?
LEONARDO BKL FEDERAL COM #001	30-015-22763	G	EOG Y RESOURCES, INC.	1/17/1979	G-28-25S-27E	1980 FNL 1980 FEL	12712	No
WHITE CITY 21 25 27 FEDERAL COM #005H	30-015-42975	O	CHEVRON U S A INC	5/19/2015	Sec 21 T25S R27E Mer NMP	330 FSL 990 FWL	7451	No
WHITE CITY 21 25 27 FEDERAL COM #006H	30-015-42976	O	CHEVRON U S A INC	4/23/2015	Sec 21 T25S R27E Mer NMP	330 FSL 1923 FWL	12276	No
Snowden-Federal	30-015-01146	O	Chambers & Kennedy & J.M.C. Ritchie	10/15/1958	Sec 26 T25S R27E	660 FNL 660 FEL	2318	No
M.T.S. State	30-015-23971	O	Dinero Operating Company	11/28/1981	Sec 32 T25S R27E	660 FNL 660 FEL	293	No

No wells within the 1-mile AOR penetrate the injection interval.



**Attachment 3**  
**Source Water Analyses**

Wolfcamp



## Water Analysis

Date: 23-Aug-11

2708 West County Road, Hobbs NM 88240

Phone (575) 392-5556 Fax (575) 392-7307

Analyzed For

*Brushy Draw 1#1*

Company	Well Name	County	State
	BD	Lea	New Mexico

*Eddy* 1-265-295

Sample Source

Swab Sample

Sample #

1

Formation

Depth

Specific Gravity	1.170	SG @ 60 °F	1.172
pH	8.30	Sulfides	Absent
Temperature (°F)	70	Reducing Agents	

### Cations

Sodium (Calc)	in Mg/L	77,982	in PPM	66,520
Calcium	in Mg/L	4,000	in PPM	3,413
Magnesium	in Mg/L	1,200	in PPM	1,024
Soluble Iron (FE2)	in Mg/L	10.0	in PPM	9

### Anions

Chlorides	in Mg/L	130,000	in PPM	110,922
Sulfates	in Mg/L	250	in PPM	213
Bicarbonates	in Mg/L	127	in PPM	108

Total Hardness (as CaCO3)	in Mg/L	15,000	in PPM	12,799
Total Dissolved Solids (Calc)	in Mg/L	213,549	in PPM	182,209
Equivalent NaCl Concentration	in Mg/L	182,868	in PPM	158,031

### Scaling Tendencies

\*Calcium Carbonate Index 507,520

Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable

\*Calcium Sulfate (Gyp) Index 1,000,000

Below 500,000 Remote / 500,000 - 10,000,000 Possible / Above 10,000,000 Probable

\*\*This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.

Remarks RW=048@70F

Report # 3188



Sec 22, T25S, R28E

North Permian Basin Region

P.O. Box 740

Sundown, TX 79372-0740

(806) 229-8121

Lab Team Leader - Sheila Hernandez

(432) 495-7240

Bone Spring

## Water Analysis Report by Baker Petrolite

Company:		Sales RDT:	33514.1
Region:	PERMIAN BASIN	Account Manager:	TONY HERNANDEZ (576) 910-7135
Area:	ARTESIA, NM	Sample #:	534665
Lease/Platform:	PINOCHLE 'BPN' STATE COM	Analysis ID #:	106795
Entity (or well #):	2 H	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 534665 @ 75 F					
Sampling Date:	03/10/11	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	03/18/11	Chloride:	109618.0	3091.92	Sodium:	70275.7	3059.82
Analyst:	SANDRA GOMEZ	Bicarbonate:	2135.0	34.99	Magnesium:	195.0	18.04
		Carbonate:	0.0	0.	Calcium:	844.0	42.12
TDS (mg/l or g/m3):	184911.1	Sulfate:	747.0	15.55	Strontium:	220.0	5.02
Density (g/cm3, tonne/m3):	1.113	Phosphate:			Barium:	0.8	0.01
Anion/Cation Ratio:	1	Borate:			Iron:	6.5	0.23
		Silicate:			Potassium:	889.0	22.22
					Aluminum:		
Carbon Dioxide:	0.50 PPM	Hydrogen Sulfide:		0 PPM	Chromium:		
Oxygen:		pH at time of sampling:		7	Copper:		
Comments:		pH at time of analysis:			Lead:		
		pH used in Calculation:		7	Manganese:	0.100	0.
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	1.08	188.52	-1.20	0.00	-1.18	0.00	-0.11	0.00	0.58	0.29	1.72
100	0	1.10	208.05	-1.29	0.00	-1.20	0.00	-0.15	0.00	0.35	0.29	2.36
120	0	1.12	224.17	-1.38	0.00	-1.19	0.00	-0.17	0.00	0.16	0.00	3.17
140	0	1.13	243.17	-1.42	0.00	-1.18	0.00	-0.18	0.00	0.00	0.00	4.21

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 five scales.

Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

**Attachment 4**  
**Injection Formation Water Analyses**



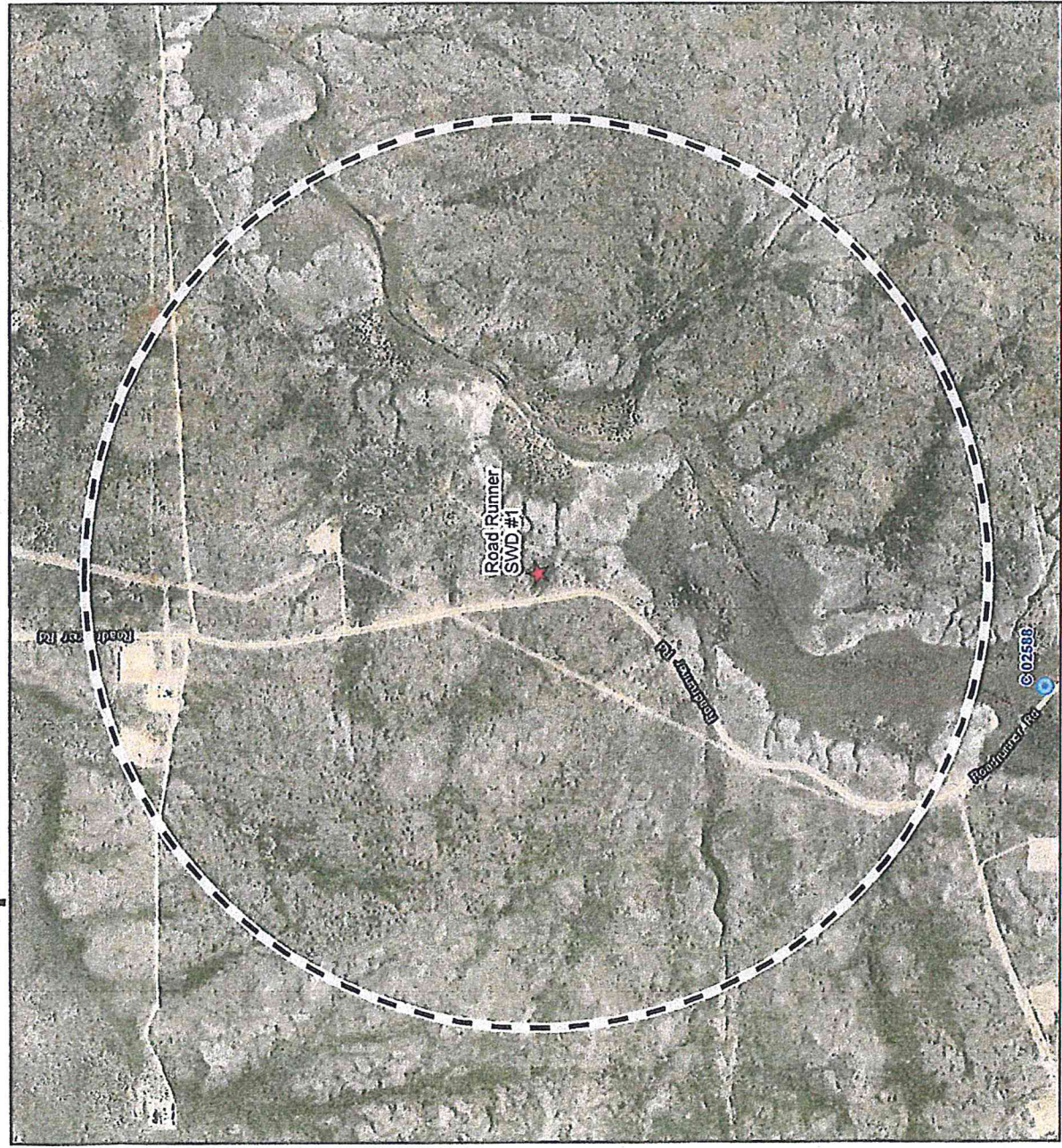
wellname	api	section	township	range	county	state	formation	sampledate	ph	specificgravity	specificgravity_temp_f	tds_mgl	relativity_ohm_cm	relativity_ohm_cm_temp_f	conductivity	conductivity_temp_f	sodium_mgl	calcium_mgl	magnesium_mgl	chloride_mgl	bicarbonate_mgl	sulfate_mgl
JURINEGAN POINT #001	3001510200	5	24S	25E	EDDY	NM	DEVONIAN	12/2/1964 0:00	7			203100	0.36	72	22596	64	6072	1002	132	10110	175	2220
WHITE CITY FERN GAS COM UNIT 1 #001	3001500408	29	24S	26E	EDDY	NM	DEVONIAN	3/1/1960 0:00	7	1.012	60									10110	653	1316

Source: GeoTech (<http://geotech.nm.edu/geotech/Water/producedwater.aspx>)

**Attachment 5**  
**Water Well Map**

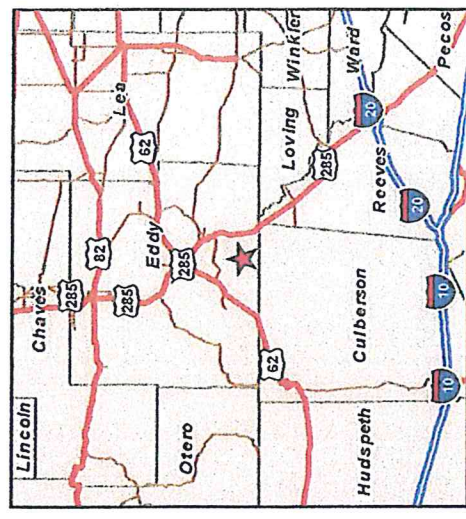


# Proposed SWD & Water Wells within 1 mile



## Legend

- ★ Proposed SWD
- Water Well (WATERS)
- Proposed SWD 1-mi Buffer



<b>Road Runner SWD #1</b>			
County: Eddy, NM	Date: 7/2/2018		
Lat: 32.096231 Long: -104.194050	PM: J Daniel Arthur Map: Ben Bockelmann		

1:22,000

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Attachment 6**

**Induced Seismicity Assessment Letter**



July 2, 2018

Mr. Phillip Goetze, P.G.  
NM EMNRD – Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Subject: Induced Seismicity Potential Statement for the Road Runner SWD #1

Dear Mr. Goetze,

This letter provides information regarding the seismic potential associated with injection operations associated with Solaris Water Midstream, LLC's (Solaris), proposed Road Runner SWD #1, hereinafter referred to as the "Subject Well".

As outlined herein, based on my experience as an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low fault slip potential (FSP) of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

The Subject Well, is located 902' FSL & 2,404' FEL of Section 28, in T25-S and R27-E of Eddy County, New Mexico. Historically, the Eddy County area has experienced very limited recorded seismic activity (per the U.S. Geological Survey [USGS] earthquake catalog database). There have been two known seismic events located within a 25-mile radius of the proposed subject well. The closest recorded seismic event was a M3.9 that occurred on April 11, 1974, and was located approximately 15.1 miles north of the subject well (See Exhibit 1). The second closest recorded seismic event was a M3.1 that occurred on March 18, 2012, and was located approximately 21.8 miles northeast of the Subject Well. The closest Class IID well injecting into the same formations (Devonian-Silurian) of the Subject Well is approximately 2.63 miles to the southeast (See Exhibit 1).

Solaris does not own either 2D or 3D seismic reflection data in the area of the Subject Well. Fault data from USGS indicates that the closest known fault is approximately 10.85 miles northwest of the Subject Well and a second small inferred fault segment is approximately 11.82 miles to the northeast (See Exhibit 1).

In a recent paper written by Snee and Zoback (2018) entitled "State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity," the authors found that large groups of mostly north-south striking Precambrian basement faults, predominantly located along the

Central Basin Platform, the western Delaware Basin, and large parts of the Northwest Shelf (which includes Eddy and Lea counties, New Mexico) have low FSP at the modeled fluid-pressure perturbation. The map in Exhibit 2 depicts the low probability risk of FSP for the Delaware Basin and Northwest Shelf areas (Snee and Zoback 2018).

Geologic analysis indicates that the proposed Devonian-Silurian injection zone is overlain by approximately 200 to 400 feet of Woodford Shale, which is the upper confining zone and will serve as a barrier for upward injection fluid migration. Additionally, the Simpson Group that lies directly below the Montoya Formation will act as a lower confining zone to prohibit fluids from migrating downward into the underlying Ellenburger Formation and Precambrian basement rock. See the stratigraphic column for the Delaware Basin included in Exhibit 3.

In the Eddy and Lea Counties area of New Mexico, the Simpson Group is comprised of a series of Middle to Upper Ordovician carbonates, several sandstones, and sandy shales that range from approximately 350 to 650 feet thick (Jones 2008). This group of rocks is capped by the limestones of the Bromide Formation, which is approximately 200 feet thick in this area (Jones 2008). The closest deep well drilled into the Precambrian basement was completed by the Skelly Oil Company in 1975. This well is located in Section 17, Range 36E, Township 25S of Lea County (API No.30-025-25046) and encountered 602 feet of Ellenburger Formation before reaching the top of the Precambrian granite at a depth of 18,920 feet. Based on the estimated thickness of the Simpson Group and Ellenburger Formation in this area, the Precambrian basement should be approximately 1,000 to 1,200 feet below the bottom of the proposed injection zones in the Subject Well.

#### **Conclusion**

As an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low FSP of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

Sincerely,  
ALL Consulting



J. Daniel Arthur, P.E., SPEC  
President and Chief Engineer

Enclosures  
References  
Exhibits



## **References**

Ball, Mahlon M. 1995. "Permian Basin Province (044)." In *National Assessment of United States Oil and Gas Resources—Results, Methodology, and Supporting Data*. U.S. Geological Survey. <https://certmapper.cr.usgs.gov/data/noga95/prov44/text/prov44.pdf> (accessed June 18, 2018).

Green, G.N., and G.E. Jones. 1997. "The Digital Geologic Map of New Mexico in ARC/INFO Format." U.S. Geological Survey Open-File Report 97-0052. <https://mrdata.usgs.gov/geology/state/state.php?state=NM> (accessed June 14, 2018).

Jones, Rebecca H. 2008. "The Middle-Upper Ordovician Simpson Group of the Permian Basin: Deposition, Diagenesis, and Reservoir Development." [http://www.beg.utexas.edu/resprog/permianbasin/PBGSP\\_members/writ\\_synth/Simpson.pdf](http://www.beg.utexas.edu/resprog/permianbasin/PBGSP_members/writ_synth/Simpson.pdf) (accessed June 19, 2018).

Snee, Jens-Erik Lund, and Mark D. Zoback. 2018. "State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity." *The Leading Edge* 37, no. 2 (February 2018): 127-34.

U.S. Geological Survey (USGS). No date. Earthquakes Hazard Program: Earthquake Catalog. <https://earthquake.usgs.gov/earthquakes/search/> (accessed June 14, 2018).



## **Exhibits**

Induced Seismicity Potential Statement for the Road Runner SWD #1  
July 2, 2018

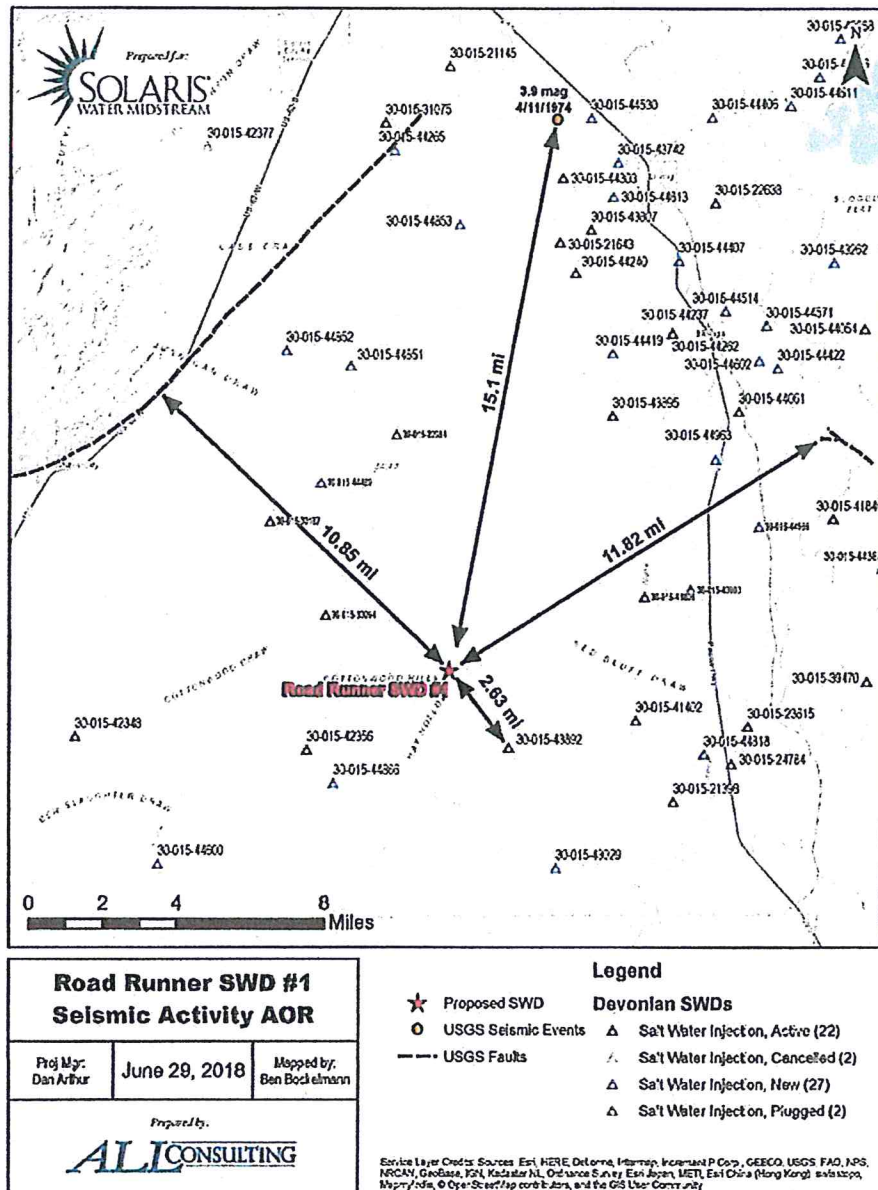


Exhibit 1. Map Showing the Distances from Known and Inferred Faults, Seismic Event, and Closest Deep Injection Well



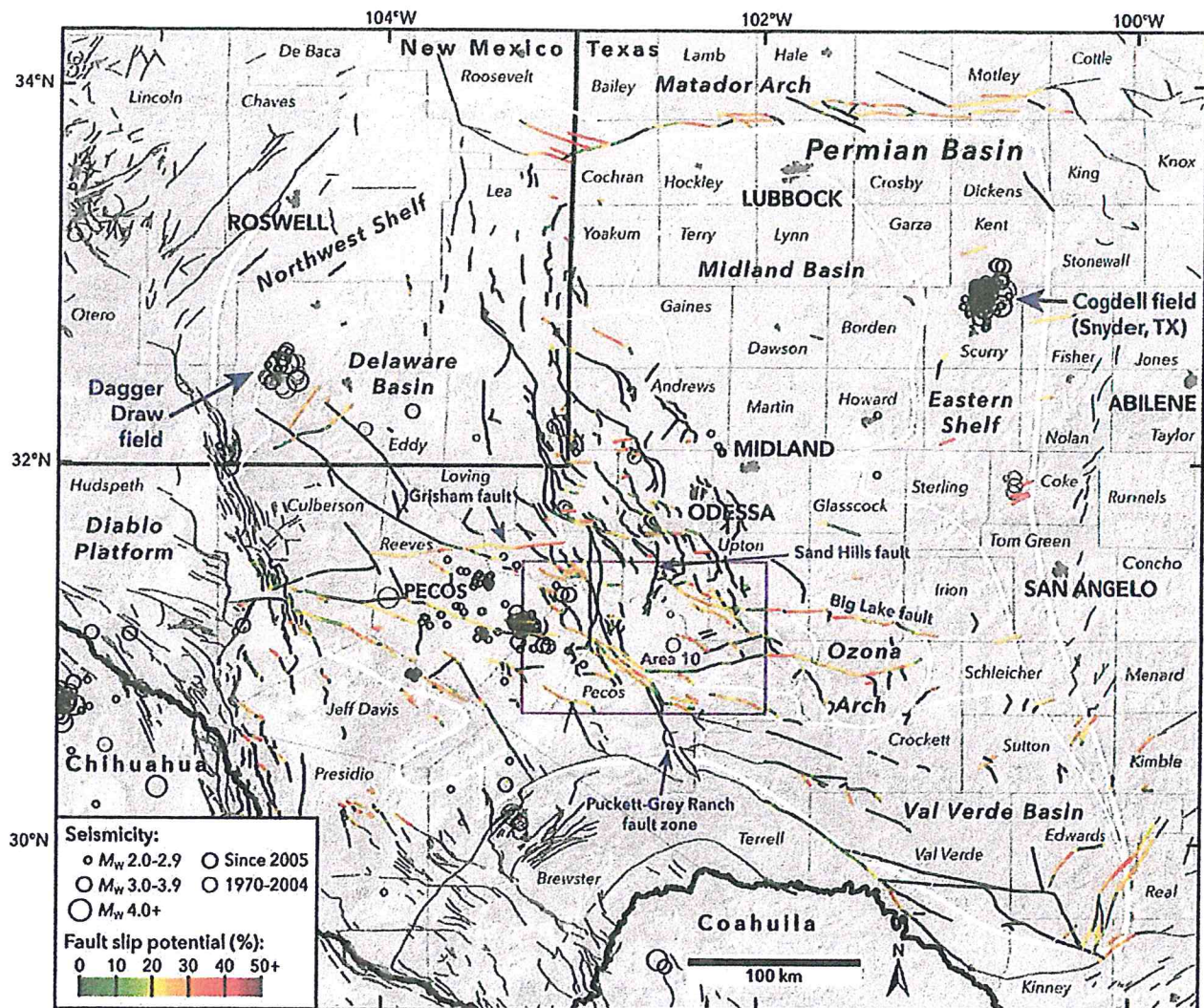
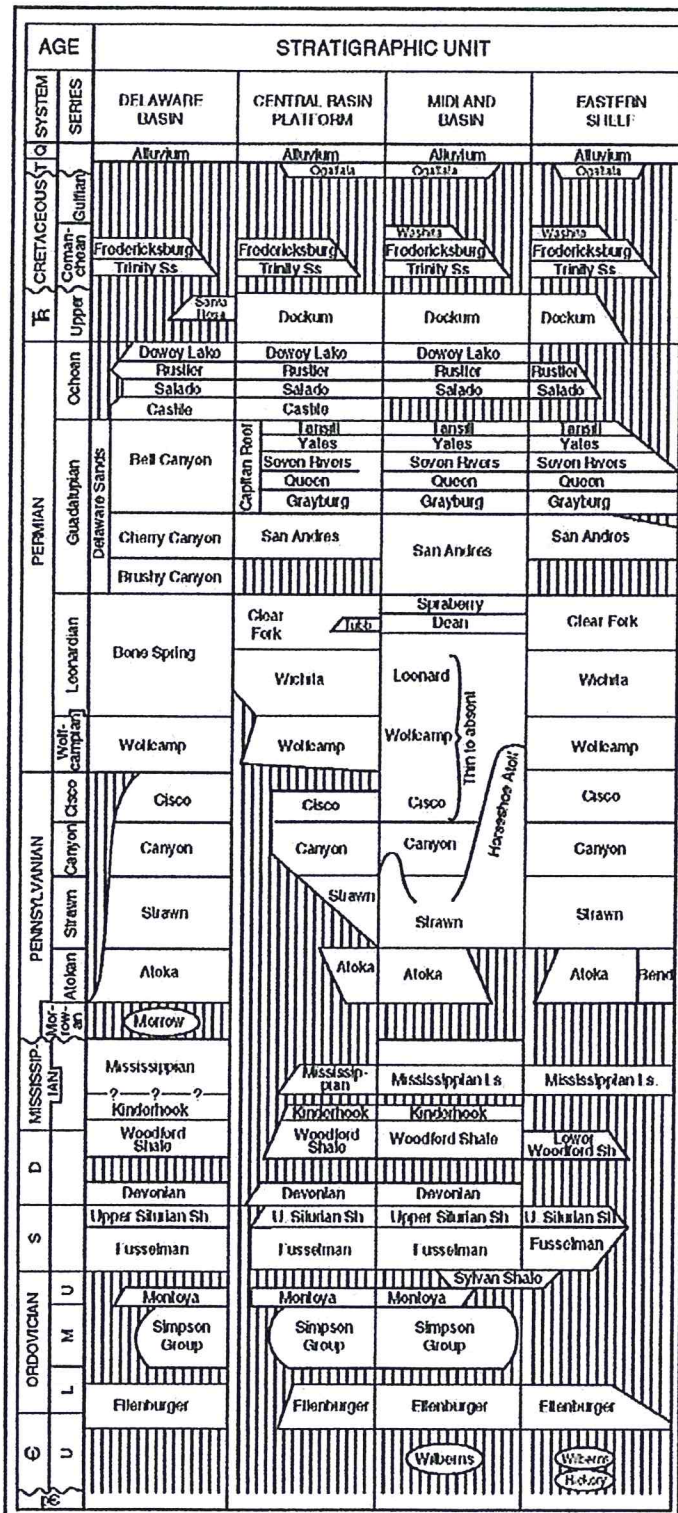


Exhibit 2. Results of the Snee and Zoback (2018) Probabilistic FSP Analysis Across the Permian Basin



**Induced Seismicity Potential Statement for the Road Runner SWD #1**  
**July 2, 2018**



**Exhibit 3. Delaware Basin Stratigraphic Chart (Ball 1995)**

**Attachment 7**

**Public Notice Affidavit and Notice of Application Confirmations**



CARLSBAD  
**CURRENT-ARGUS**

**AFFIDAVIT OF PUBLICATION**

Ad No.  
0001252814

ALL CONSULTING  
1718 SOUTH CHEYENNE AVE


TULSA OK 74119

I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

06/28/18

  
Legal Clerk

Subscribed and sworn before me this  
28th of June 2018.

  
State of WI, County of Brown  
NOTARY PUBLIC

  
My Commission Expires

Ad#:0001252814  
P O : 0001252814  
# of Affidavits :0.00

**APPLICATION FOR AUTHORIZATION  
TO INJECT**

NOTICE IS HEREBY GIVEN: That Solaris Water Midstream, LLC, 9811 Katy Freeway, Suite 900, Houston, TX 77024, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

WELL NAME AND LOCATION: Maley Road Runner SWD #1

SW ¼ SE ¼, Section 28, Township 25S,  
Range 27E

902' FSL & 2,404' FEL

Eddy County, NM

NAME AND DEPTH OF DISPOSAL ZONE:

Devonian-Silurian (13,305' - 14,400')

EXPECTED MAXIMUM INJECTION RATE:30,000  
Bbls/day

EXPECTED MAXIMUM INJECTION PRESSURE:  
2,661 psi (surface)

Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within fifteen (15) days. Any objection or request for hearing should be mailed to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505.

Additional information may be obtained by contacting Bonnie Atwater (Solaris - Regulatory Technician) at 432-203-9020.

Pub: June 28, 2018 #1252814

TARA MONDLOCH  
Notary Public  
State of Wisconsin

Road Runner SWD # 1 Notice of Application Recipients				
Entity	Address	City	State	Zip Code
Landowner				
David and Lavern Maley	P.O. Box 2459	Carlsbad	NM	88220
OCD District				
OCD District 2	811 S. First St.	Artesia	NM	88210
Leasehold Operators				
Amoco Production Company	1017 Stanolind Rd	Hobbs	NM	88240
Chalfant Properties, Inc.	P. O. Box 3123	Midland	TX	79702
Chesapeake Operating, Inc.	P. O. Box 18496	Oklahoma City	OK	73154
Chevron USA Inc.	6301 Deauville Blvd.	Midland	TX	79706
Cimarex Energy Company	202 S. Cheyenne Ave.	Tulsa	OK	74103
COG Production, LLC	600 W. Illinois Ave.	Midland	TX	79701
EOG Resources	5509 Champions Dr.	Midland	TX	79706
McCabe Petroleum Corporation	P. O. Box 11188	Midland	TX	79701
Yates Petroleum Inc.	P.O. Box 1933	Roswell	NM	88201