

District I
1225 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, 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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address Trove Energy, LLC 1919 North Turner Hobbs, NM 88240		² OGRID Number 226495 37A488
⁴ Property Code 319560 (TBD)		³ API Number 30-015-44422
⁵ Property Name Trove Energy SWD		⁶ Well No. 1

7. Surface Location
(To be verified by field survey)

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
N	13	24S	28E		994	FSL	2508	FWL	EDDY

8. Proposed Bottom Hole Location
(To be verified by field survey)

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
N	13	24S	28E		994	FSL	2508	FWL	EDDY

9. Pool Information

Pool Name SWD; Devonian - SWD-1691	Pool Code 96101
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Additional Well Information

¹¹ Work Type N	¹² Well Type SWD	¹³ Cable/Rotary R	¹⁴ Lease Type P	¹⁵ Ground Level Elevation 2966'
¹⁶ Multiple No	¹⁷ Proposed Depth 15,200'	¹⁸ Formation Devonian	¹⁹ Contractor TBD	²⁰ Spud Date 10/15/2017
Depth to Ground water ~35'		Distance from nearest fresh water well 950'		Distance to nearest surface water 2750'

☒ We will be using a closed-loop system in lieu of lined pits

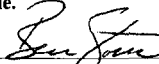
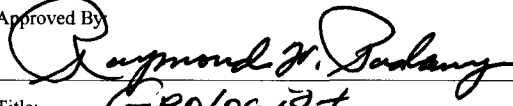
21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surface	26.5"	20.0"	94.0 lb/ft	550'	1600	SURFACE
Intermdt	17.5"	13.375"	68.0 lb/ft	2750'	1525	SURFACE
Production	12.25"	9.625"	53.5 lb/ft	9,600'	1800	SURFACE
Liner	8.5	7.625"	39.0 lb/ft	9,300'-14,100'	400	TOL

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	5000	8000	Hydril, Cameron or Equivalent

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC <input type="checkbox"/> and/or 19.15.14.9 (B) NMAC <input type="checkbox"/> , if applicable. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Ben Stone		Approved By: 	
Title: Agent for Trove Energy, LLC		Title: Geologist	
E-mail Address: ben@sosconsulting.us		Approved Date: 9-5-17 Expiration Date: 9-5-19	
Date: 8/15/2017	Phone: 903-488-9850	Conditions of Approval Attached: C-108 Compliance	

**File C-103 Completion Report
Pressure M.I.T.**

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State of New Mexico
Energy, Minerals & 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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- 44422	Pool Code 96101	Pool Name SWD; DEVONIAN
Property Code 319560	Property Name TROVE ENERGY SWD	
OGRID No. 326495	Operator Name TROVE ENERGY, LLC.	
		Well Number 1
		Elevation 2966'

Surface Location

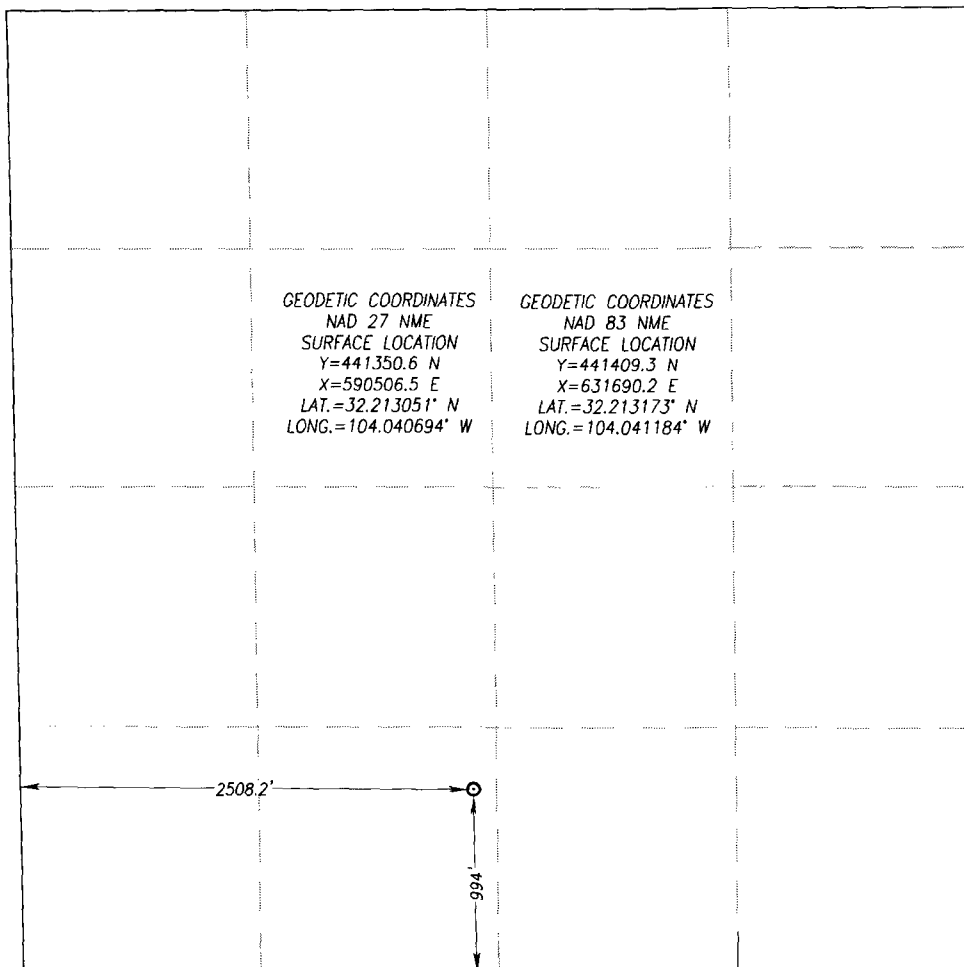
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	13	24-S	28-E		994	SOUTH	2508.2	WEST	EDDY

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	Joint or Infill	Consolidation Code	Order No.

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



OPERATOR CERTIFICATION	
<i>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unEDDYsed 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i>	
 Signature	8/15/17 Date
Ben Stone Printed Name	
ben@sosconsulting.us E-mail Address	
SURVEYOR CERTIFICATION	
<i>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.</i>	
JUNE 10, 2017 Date of Survey	
Signature & Seal of Professional Surveyor:	
Ronald J. Eidson Certificate Number	
12641 Ronald J. Eidson	
3239	
ACK JWSC W.O.: 17.11.0708	

Trove Energy, LLC
Trove Energy SWD Well No. 1
994' FSL & 2508' FWL
Section 13, Twp 24-S, Rng 28-E
Eddy County, New Mexico

Well Program - New Drill

Objective: Drill new well for commercial salt water disposal into the Devonian and Silurian; mudlogging and e-logging to determine final depths.

1. Geologic Information - Devonian Formation

The Devonian and Silurian both 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 to the north, south and east. 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.

Estimated Formation Tops:

B/Fresh Water	60'
Salado	1080'
Delaware Sand	2615'
Cherry Canyon	4725'
Bone Spring	8350'
Wolfcamp	9700'
Strawn	11700'
Atoka	12000'
Morrow	12550'
Devonian	14100'
TD Ordovician*	15200'
Ellenburger (est.)	19000'

*Please see narrative portion of drilling/pipe specs for TD options.

2. Drilling Procedure

- a. MIRU drilling rig and associated equipment. Set up H₂S wind direction indicators; brief all personnel on Emergency Evacuation Routes.
- b. All contractors conduct safety meeting prior to current task. All equipment inspected daily. Repair / replace as required.
- c. Well spud operations commence.
- d. Mud logger monitoring returns; cuttings & waste hauled to specified facility. (Sundance, Lea County)
- e. After surface casing set/drilled; if H₂S levels >20ppm detected, implement H₂S Plan accordingly. (e.g., cease operations, shut in well, employ H₂S safety trailer & personnel safety devices, install flare line, etc. - refer to plan.)
- f. Spills contained & cleaned up immediately. Repair or otherwise correct the situation within 48 hours before resuming operations. Notify OCD within 24 hours. Remediation started ASAP if required. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.
- g. Sundry forms filed as needed - casing, cement, etc. - operations continue to completion.

Well Program - New Drill (cont.)

3. Casing program - Casing designed as follows:

STRING	HOLE SZ	DEPTH	CSG SZ	COND	WT/GRD	CLLPS/BRS	TNSN
						(Minimum Safety Factors)	
Surface	26.5"	0-550'	20.0"	New	94.0 lb. J/K-55	1.125/1.1	1.8
Intermediate	17.5"	0-2750'	13.375"	New	68.0 lb. K-55	1.125/1.1	1.8
2nd Inter	12.25"	0-9,600'	9.625"	New	53.5 lb. P-110	1.125/1.1	1.8
Prod/ Liner*	8.5"	9,300'-14,100'	7.625"	New	39.0 lb. P-110	1.125/1.1	1.8
Openhole*	6.5" hole	14,100'-15,200'	OH	n/a	n/a	n/a	n/a

Notes:

- ✓ On both Intermediate casing strings, the cement will be designed to circulate to surface. Both strings will have cement bond logs run (radial, CET or equivalent) to surface.
- ✓ While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.
- ✓ * Based on mudlogging and e-logs, 7.625" casing shoe is expected to be set at 14,100'. Similarly, TD may be from 15,000' to 15,200' as determined by logging and suitable porosity has been exposed. IN ANY EVENT, maximum openhole interval would be from 14,100' to 15,200' and sundry notice will document such events and a C-105 completion report filed within 60 days.

4. Cementing Program:

Surface – LEAD Slurry: 1,300 sacks of Class C containing 4% gel + 2% CaCl₂ + .4 pps defoamer + .125 pps cello flake + 3 pps Koal Seal. Weight 13.7 ppg, yield 1.68 ft³/sack; **TAIL Slurry:** 300 sacks of Class C Neet containing 2% CaCl₂. Weight 14.8 ppg, yield 1.34 ft³/sack; 100% excess, circulate to surface.

1st Intermediate – LEAD Slurry: 1,325 sacks of Class C containing 4% gel + .4 pps defoamer + .125 pps cello flake + 5% NaCl. Weight 13.2 ppg, yield 1.83 ft³/sack; **TAIL Slurry:** 200 sacks of Class C Neet. Weight 14.8 ppg, yield 1.32 ft³/sack; 50% excess, circulate to surface.

Production – LEAD Slurry: 1,285 sacks of Class H containing 10% gel + .4 pps defoamer + .125 pps cello flake + 1 pps Koal Seal + 5% NaCl. Weight 11.9 ppg, yield 2.473 ft³/sack; **TAIL Slurry:** 515 sacks of Class H containing 2% retarder + .2 pps defoamer. Weight 15.6 ppg, yield 1.18 ft³/sack; 30% excess, circulate to surface.

Liner – Slurry: 400 sacks of Class H containing .3% retarder + .7% fluid loss additive + .2% dispersant + .4 pps defoamer + .1% Anti-Settling agent. Weight 15.2 ppg, yield 1.32 ft³/sack. 30% excess; TOC calculated @ Top of Liner 9,300'.

5. Pressure Control - BOP diagram is attached to this application. All BOP and related equipment shall comply with well control requirements as described NMOCD Rules and Regulations and API RP 53, Section 17. Minimum working pressure of the BOP and related equipment required for the drilling shall be 5000 psi. The NMOCD Artesia district office shall be notified a minimum of 4 hours in advance for a representative to witness BOP pressure tests. The test shall be performed by an independent service

Well Program - New Drill (cont.)

company utilizing a test plug (no cup or J-packer). The results of the test shall be recorded on a calibrated test chart submitted to the OCD district office. Test shall be conducted at:

- a. Installation;
- b. after equipment or configuration changes;
- c. at 30 days from any previous test, and;
- d. anytime operations warrant, such as well conditions

6. Mud Program & Monitoring - Mud will be balanced for all operations as follows:

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0-550'	FW Spud Mud	8.5-9.2	70-40	20	12	NC	10.0
550'-2750'	Brine Water	9.8-10.2	28-32	NC	NC	NC	10.0
2750'-9,600'	FW/Gel	8.7-9.0	28-32	NC	NC	NC	9.5-10.5
9,600'-14,100'	XCD Brine Mud	11.0-12.5	45-48	20	10	<5	9.5-10.5
14,100'-15,200'	FW Mud	8.4-8.6	28-30	NC	NC	NC	9.5-10.5

Mud and all cuttings monitored w/ cuttings recovered for disposal. Returns shall be visually and electronically monitored. In the event of H₂S, mud shall be adjusted appropriately by weight and H₂S scavengers.

7. Auxiliary Well Control and Monitoring – Hydraulic remote BOP operation, mudlogging to monitor returns.

8. H₂S Safety - This well and related facilities are not expected to have H₂S releases. However, there may be H₂S in the area. There are no private residences or public facilities in the area but a contingency plan has been developed. Trove Energy, LLC will have a company representative available to personnel throughout all operations. If H₂S levels greater than 10ppm are detected or suspected, the Trove Energy H₂S Contingency Plan will be implemented at the appropriate level.

H₂S Safety - There is a low risk of H₂S in this area. The operator will comply with the provisions of NMAC 19.15.11 and BLM Onshore Oil and Gas Order #6.

- a) Monitoring - all personnel will wear monitoring devices.
- b) Warning Sign - a highly visible H₂S warning sign will be placed for obvious viewing at the vehicular entrance point onto location.
- c) Wind Detection - two (2) wind direction socks will be placed on location.
- d) Communications - will be via cellular phones and/or radios located within reach of the driller, the rig floor and safety trailer when applicable.
- e) Alarms - will be located at the rig floor, circulating pump / reverse unit area and the flareline and will be set for visual (red flashing light) at 15 ppm and visual and audible (115 decibel siren) at 20 ppm.
- f) Mud program - If H₂S levels require, proper mud weight, safe drilling practices and H₂S scavengers will minimize potential hazards.

Well Program - New Drill (cont.)

g) Metallurgy - all tublars, pressure control equipment, flowlines, valves, manifolds and related equipment will be rated for H2S service if required.

The Trove Energy H2S Contingency Plan will be implemented if levels greater than 10ppm H2S are detected.

9. Logging, Coring and Testing – Trove Energy, LLC expects to run;

- a. Mud logging through the interval will ensure the target interval remains Devonian and Silurian.
- b. CBL (Radial, CET or equivalent) on both intermediate casing strings.
- c. Standard porosity log suite from TD to approximately 9,000'.
- d. No corings or drill tests will be conducted. (The well may potentially be step rate tested in the future if additional injection pressures are required.)

10. Potential Hazards - No abnormal pressures or temperatures are expected.

No loss of circulation is expected to occur with the exception of drilling into the target disposal zone. All personnel will be familiar with the safe operation of the equipment being used to drill this well.

The maximum anticipated bottom-hole pressure is 7500 psi and the maximum anticipated bottom-hole temperature is 185° F.

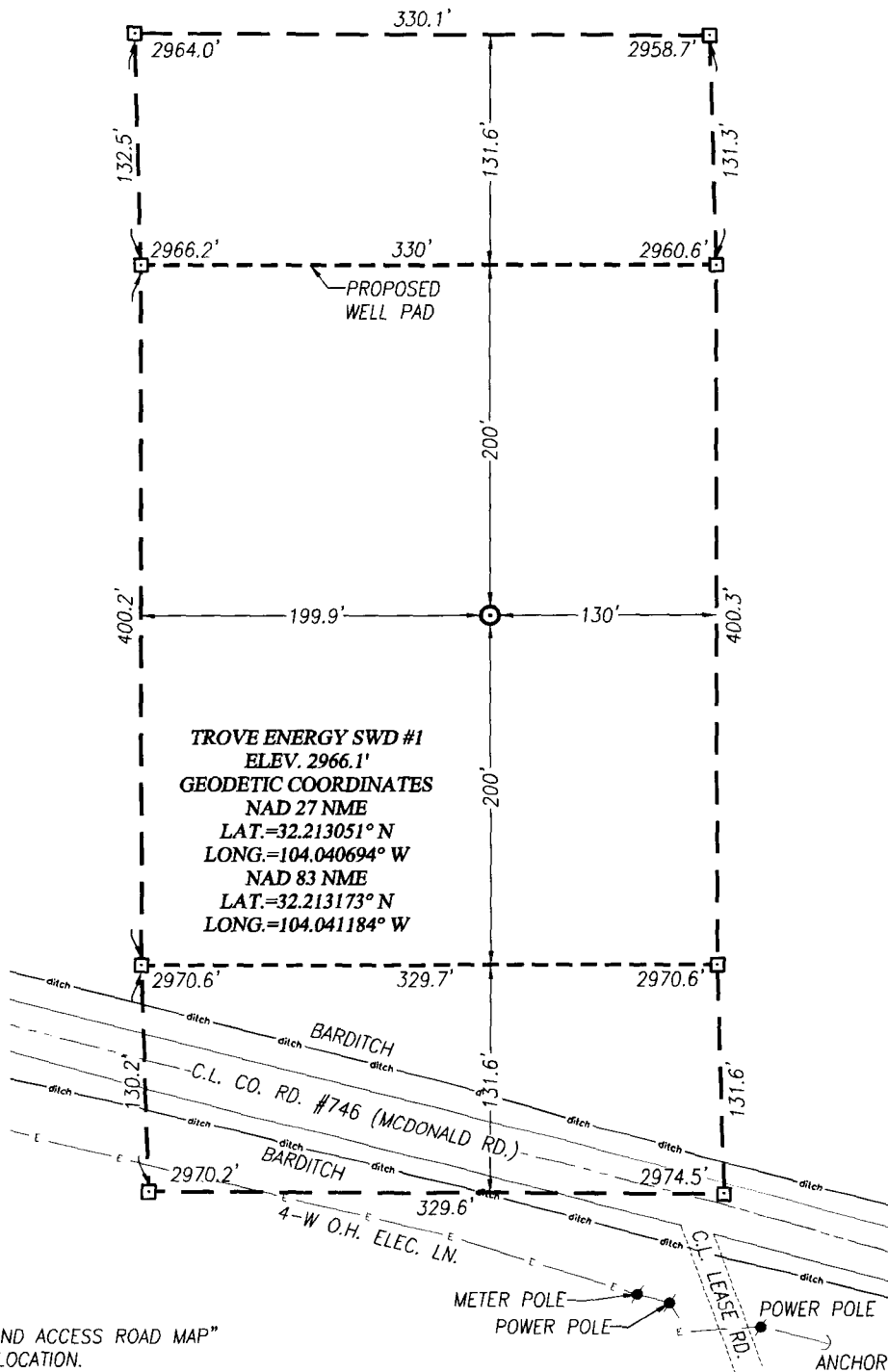
11. Waste Management - All drill cuttings and other wastes associated with and drilling operations will be transported to the Lea County Sundance facility (or alternate), permitted by the Environmental Bureau of the New Mexico Oil Conservation Division.

12. Anticipated Start Date - Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take six to seven weeks. Installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval. 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. At the time of this submittal, and subject to the availability of the drilling contractor, the anticipated start date is:

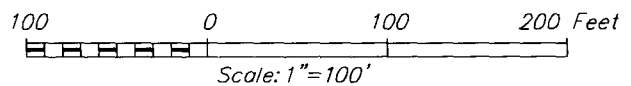
October 15, 2017.

13. Configure for Salt Water Disposal – Subsequent to SWD permit approval from OCD and 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 BLM and OCD test procedures. (Notify NMOCDD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity. Anticipated daily maximum volume is 25,000 bpd and average of 15,000 bpd at a maximum surface injection pressure of 2820 psi (0.2 psi/ft to uppermost injection interval, i.e., casing shoe). If satisfactory disposals rates cannot be achieved at default pressure of .2 psi/ft, Trove Energy, LLC will conduct a step-rate test and apply for an injection pressure increase 50 psi below parting pressure.

WELL SITE PLAN



NOTE:
 SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP"
 FOR PROPOSED ROAD LOCATION.



DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF CO. RD. 721 (PULLEY ROAD) AND
 CO. RD. 748 (MCDONALD ROAD), GO SOUTHEAST APPROX. 0.2
 MILES. THIS LOCATION IS NORTH 300 FEET.

TROVE ENERGY SURFACE & REGULATORY SERVICES

**TROVE ENERGY SWD #1 WELL LOCATED 994 FEET FROM THE
 SOUTH LINE AND 2508.2 FEET FROM THE WEST LINE OF
 SECTION 13, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO**

PROVIDING SURVEYING SERVICES
 SINCE 1946

JOHN WEST SURVEYING COMPANY

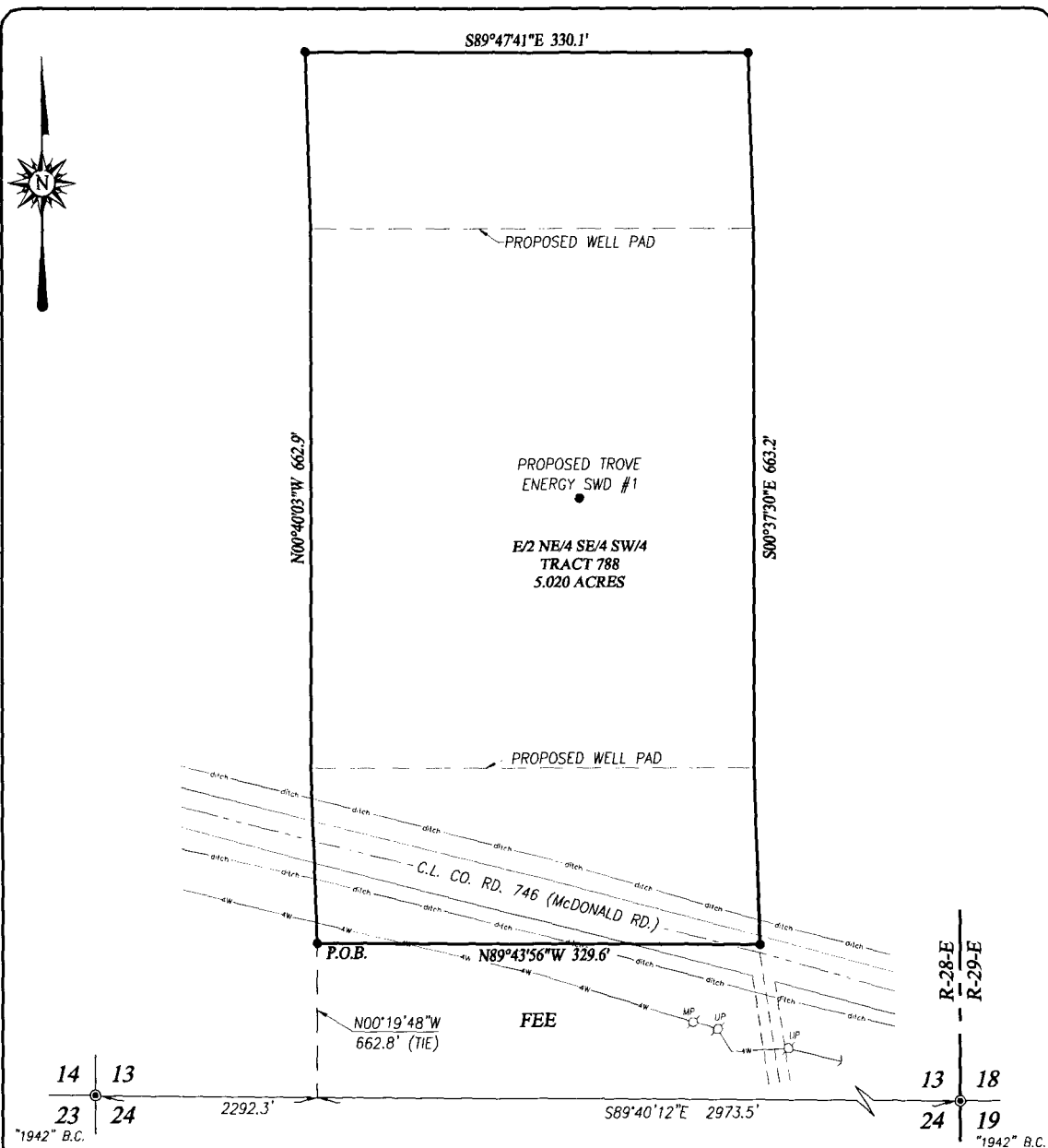
412 N. DAL PASO HOBBS, N.M. 88240
 (505) 393-3117 www.jwest.biz

Survey Date: 6/10/17

CAD Date: 7/25/17

Drawn By: ACK





DESCRIPTION:

A TRACT SITUATED IN THE E/2 NE/4 SE/4 SW/4 OF SECTION 13, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

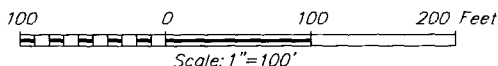
BEGINNING AT THE SOUTHWEST CORNER WHICH LIES N00°19'48"W 662.8 FEET AND S89°40'12"E 2292.3 FEET FROM THE SOUTHWEST CORNER; THEN N00°40'03"W 662.9 FEET; THEN S89°47'41"E 330.1 FEET; THEN S00°37'30"E 663.2 FEET; THEN N89°43'56"W 329.6 FEET TO THE POINT OF BEGINNING AND CONTAINING 5.020 ACRES MORE OR LESS.

LEGEND

- - DENOTES FOUND CORNER AS NOTED
- - DENOTES SET SPIKE NAIL
- ⊙ - DENOTES UTILITY POLE AS NOTED
- UP - UTILITY POLE
- MP - METER POLE
- - DENOTES GUY/ANCHOR WIRE
- - DENOTES BARDITCH
- - DENOTES 4 WIRE ELECTRIC LINE

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.



I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH THIS IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT THIS IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 07/26/2017

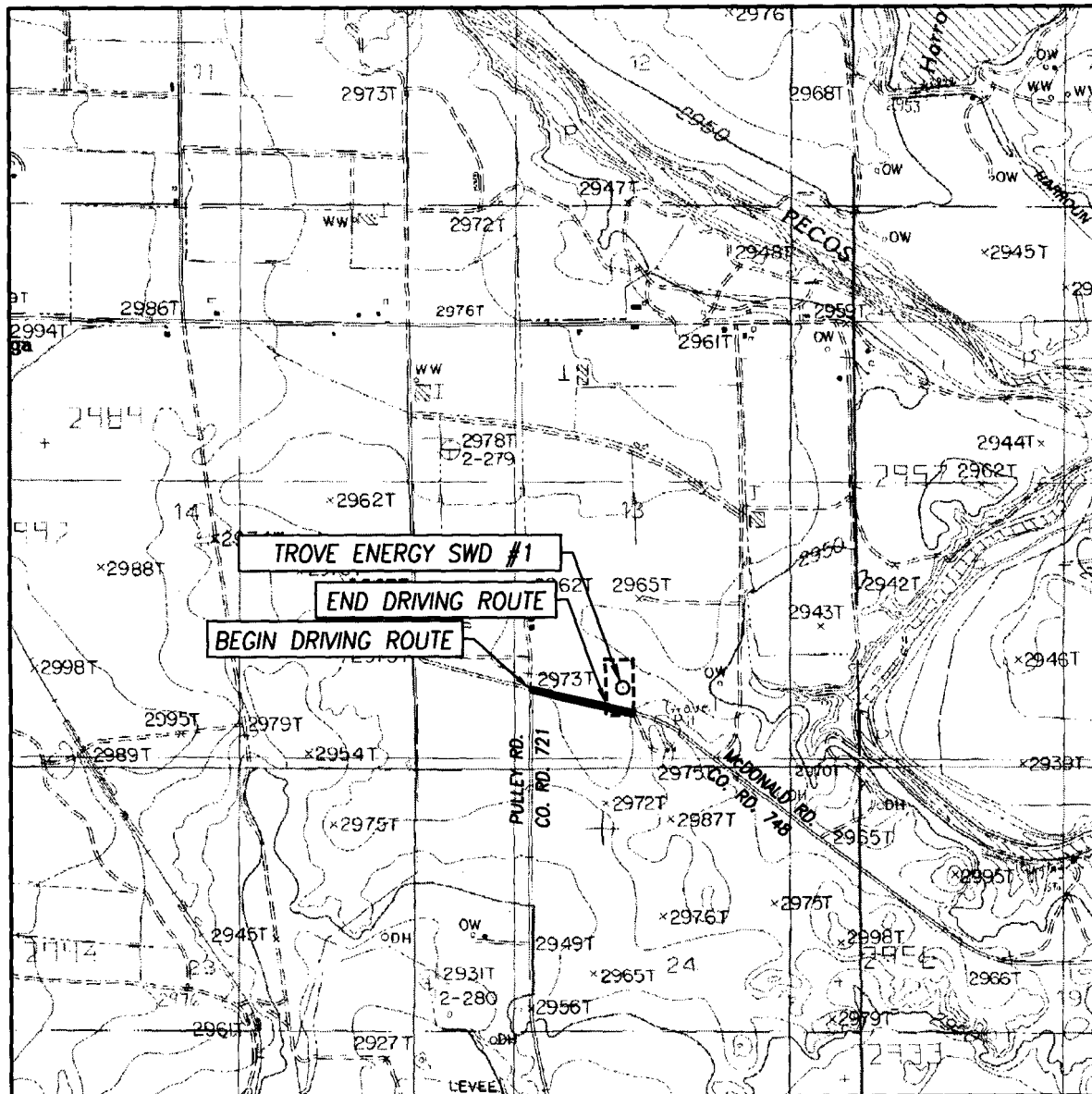
PROVIDING SURVEYING SERVICES
SINCE 1946

JOHN WEST SURVEYING COMPANY

TROVE ENERGY SURFACE & REGULATORY SERVICES

SURVEY FOR TRACT 788 TO THE TROVE ENERGY SWD #1
SITUATED IN THE E/2 NE/4 SE/4 SW/4 OF SECTION 13,
TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

TOPOGRAPHIC AND ACCESS ROAD MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
MALAGA, N.M. - 10'

SEC. 13 TWP. 24-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 994' FSL & 2508.2' FWL

ELEVATION 2966'

OPERATOR TROVE ENERGY SURFACE
& REGULATORY SERVICES

EDDYSE TROVE ENERGY SWD

U.S.G.S. TOPOGRAPHIC MAP
MALAGA, N.M.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF CO. RD. 721 (PULLEY ROAD)
AND CO. RD. 748 (MCDONALD ROAD), GO SOUTHEAST APPROX.
0.2 MILES. THIS LOCATION IS NORTH 300 FEET.



PROVIDING SURVEYING SERVICES
SINCE 1946

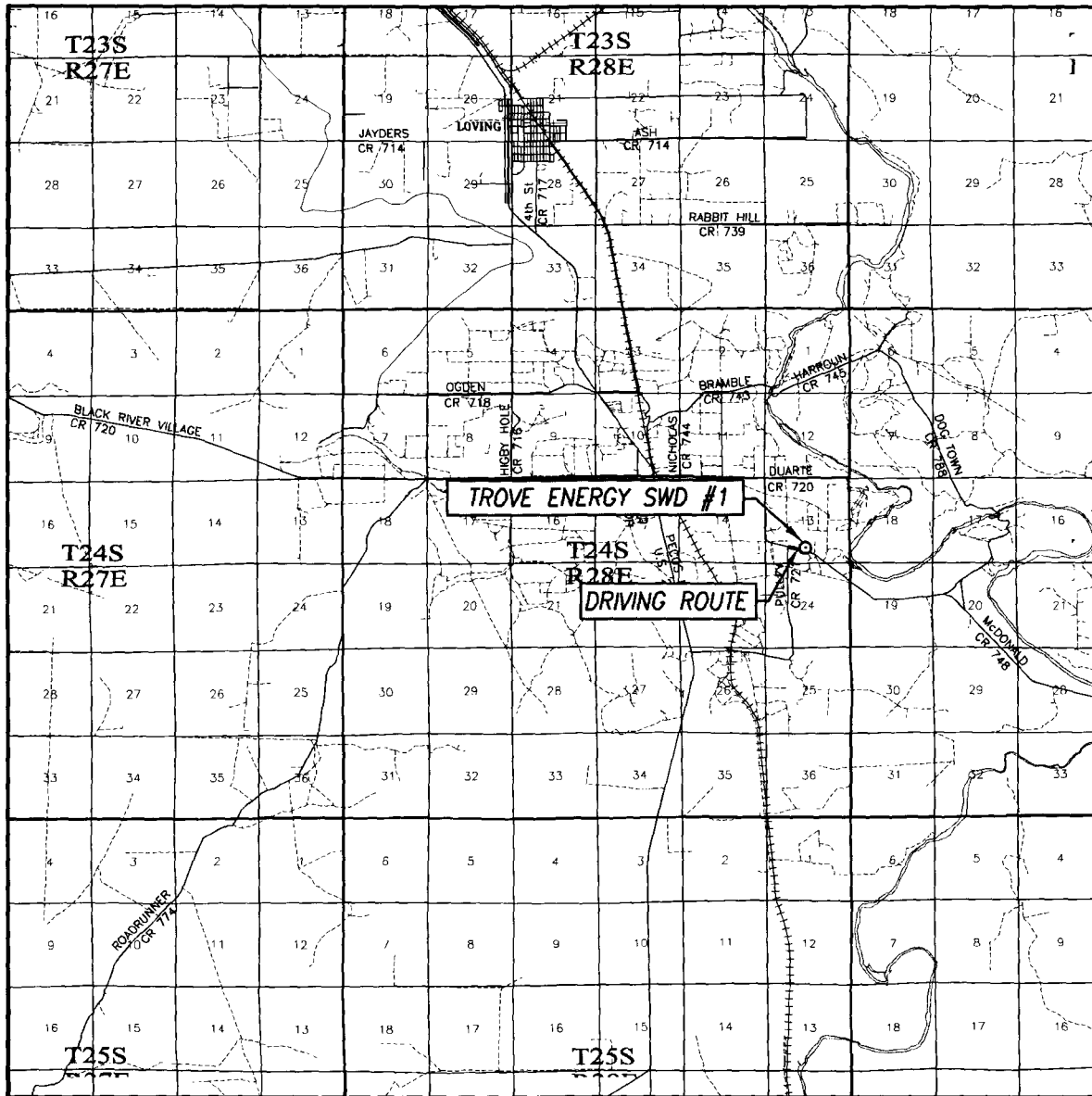
JOHN WEST SURVEYING COMPANY

412 N. DAL PASO HOBBS, N.M. 88240

(575) 393-3117 www.jwsc.biz

TBPLS# 10021000

VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 13 TWP. 24-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 994' FSL & 2508.2' FWL

ELEVATION 2966'

OPERATOR TROVE ENERGY SURFACE & REGULATORY SERVICES

LEASE TROVE ENERGY SWD

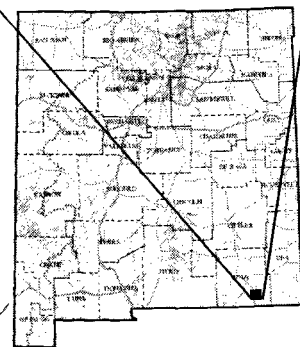
PROVIDING SURVEYING SERVICES
SINCE 1946

JOHN WEST SURVEYING COMPANY

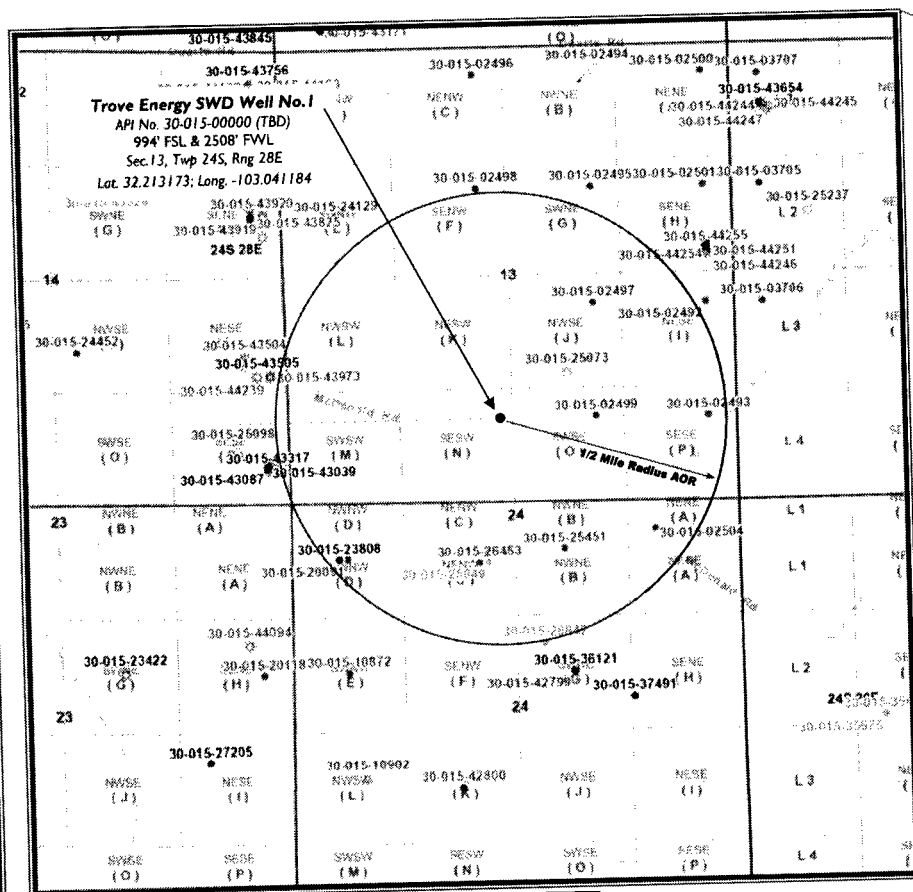
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Trove Energy SWD Well No.1 - Area of Review / Overview Map (Attachment to NMOCD Form C-108, Application for Authority to Inject.)

2.0 miles SE of Malaga, NM



Eddy County, New Mexico



TroveEnergy

SOS Consulting, LLC



WELL SCHEMATIC - PROPOSED Trove Energy SWD Well No.1

API 30-015-xxxxx

994' FSL & 2508' FWL, SEC. 13-T24S-R28E
EDDY COUNTY, NEW MEXICO

SWD; Devonian (96101)

Spud Date: 10/01/2017

SWD Config Dt: 10/25/2017

