Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:
3/28/2019		SWD	pMAM1907~~8~~7 56065

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

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

ADMINISTRATIVE APPLICATION CHECKLIST

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

Applicant: V-F Petroleum Inc. **OGRID Number:** 24010
Well Name: Northcott 24 SWD 1 **API:** 30-015-45743
Pool: SWD; Devonian **Pool Code:** 96101

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

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

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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

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

Brian Wood
Print or Type Name

Signature

3-28-19
Date

505 466-8120
Phone Number

brian@permitswest.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance XXX Disposal _____Storage
Application qualifies for administrative approval? XXX Yes _____No

II. OPERATOR: V-F PETROLEUM INC.

ADDRESS: PO BOX 1889, MIDLAND TX 79702

CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.) PHONE: 505 466-8120

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 XXX 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:

Northcott 24 SWD 1
30-015-45743
SWD; Devonian

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: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE: DATE: MARCH 26, 2019

E-MAIL ADDRESS: brian@permitswest.com

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

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

Side 2

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

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

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

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

Side 1

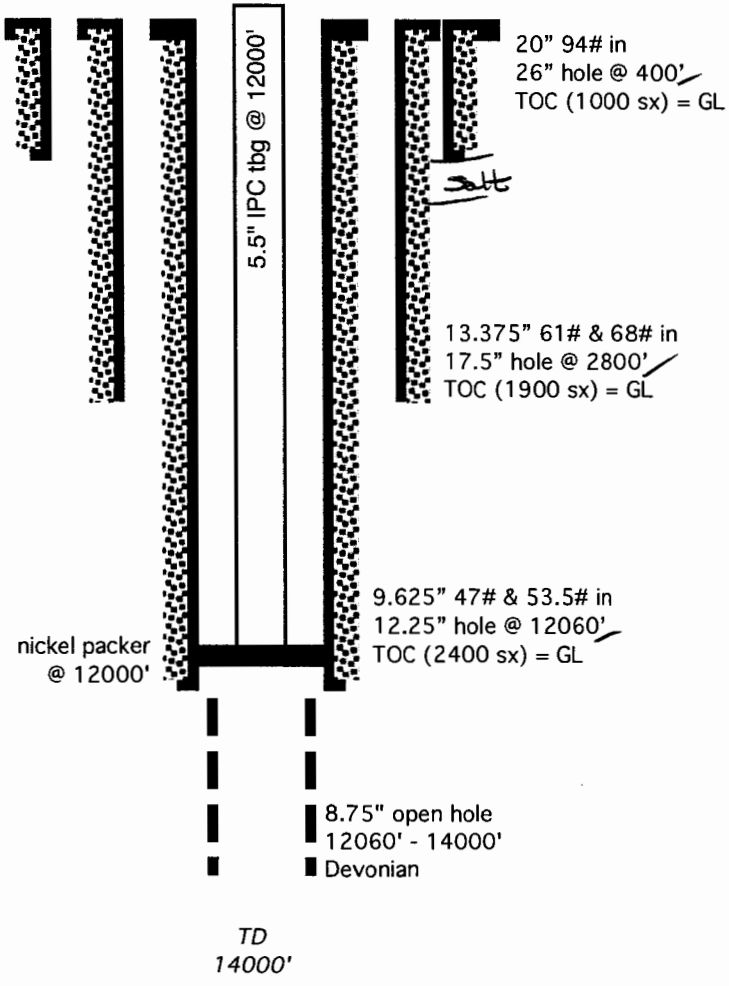
INJECTION WELL DATA SHEET

OPERATOR: V-F PETROLEUM INC.

WELL NAME & NUMBER: NORTHCOTT 24 SWD 1

WELL LOCATION:	2090 FNL & 2090 FEL	G	24	19 S	28 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



(not to scale)

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26" Casing Size: 20"

Cemented with: 1000 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CIRC.

Intermediate Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 1900 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CIRC.

Production Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 2400 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CIRCULATE & CBL

Total Depth: 12,060'(csg) & 14,000'(TD)

Injection Interval

8.75" HOLE SIZE 12,060 feet to 14,000'

~~(Perforated~~ or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 5.5" Lining Material: IPC

Type of Packer: ARROW NICKEL PLATED 10,000# WP

Packer Setting Depth: ≈12,000'

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

Additional Data

1. Is this a new well drilled for injection? XXX Yes _____ No

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

2. Name of the Injection Formation: DEVONIAN

3. Name of Field or Pool (if applicable): SWD;DEVONIAN (96101)

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. NO

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

   OVER: YATES (890'), SEVEN RIVERS (1300'), QUEEN (1700'), GRAYBURG (2200'), SAN ANDRES (2818'), BONE SPRING (3972'), WOLFCAMP (8894'), MORROW (10575')

   UNDER: NONE

I. Plan is to drill a 14,000' deep SWD; Devonian (96101) commercial saltwater disposal well. Disposal will be from 12,060' to 14,000' in the Devonian. See Exhibit A for a USGS map and C-102 form. (This replaces a 2018 plan to convert a nearby (155' northeast) SWD; Grayburg well (30-015-22892) to a SWD; Devonian well (SWD-1734). No conversion activity has occurred.)

II. Operator: V-F Petroleum Inc. (OGRID 24010)
Operator phone number: (432) 683-3344
Operator address: PO Box 1889, Midland TX 79702
Contact for Application: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease: NMSLO lease E0-5073-0005
Lease Size: 1,280 acres
Closest Lease Line: 2090'
Lease: all of Sections 24 & 36, T. 19 S., R. 28 E.
Surface Owner: NMSLO

A. (2) Surface casing (20", 94#) will be set at 400' in a 26" hole and cemented to GL with 1,000 sacks.

Intermediate casing (13.375", 61# & 68#) will be set at 2,800' in a 17.5" hole and cemented to GL with 1,900 sacks.

Production casing (9.625", 47# & 53.5#, L-80) will be set at 12,060' and cemented to GL with 2,400 sacks. Well will be completed open hole (8.75") Devonian from 12,060' to 14,000'.

A. (3) Tubing (5.5", IPC) will be set @ ≈12,000'. (Disposal interval will be 12,060' - 14,000'.)

A. (4) An Arrow 10,000# WP nickel-plated packer will be set @ ≈12,000' (or in any event, ≤100' above the top (12,060') of the open-hole.

B. (1) Disposal zone will be carbonates in the SWD; Devonian (NMOCD pool 96101). Estimated fracture gradient is ≈0.7 psi per foot.

B. (2) Disposal interval (12,060' to 14,000') will be open hole.

B. (3) This will be a new well drilled for disposal.

B. (4) No perforated intervals are in the well.

B. (5) Next higher oil or gas zone in the area of review is the Morrow. Morrow bottom is ≈11,280'. Top of open hole will be 12,060'. There is no lower producing oil or gas zone in the area of review. Closest Devonian producer is a Chevron well (30-015-05614) >16 miles ENE. Closest SWD; Devonian well (30-015-45443) is 1.9 miles south. That well has an approved APD, but has not been spudded.

IV. This is not an expansion of an existing injection project. It is disposal only.

V. Exhibit B shows and tabulates 53 wells (34 producers + 14 P&A + 5 WIW or SWD) within a 1-mile radius. Exhibit C shows 306 existing wells (227 oil or gas + 54 P&A + 25 water injectors or disposals) within a 2-mile radius.

Exhibit D maps and tabulates all operators (regardless of depth), leases, and lessors (only NMSLO and BLM) within a 1-mile radius. Exhibit E shows all leases and lessors (NMSLO and BLM) within a 2-mile radius.

VI. None of the 53 wells that are within 1-mile penetrated the Devonian (≈12,060'). Deepest well (30-015-21134) within 1-mile went to 11,650' in the Barnett shale. It is 5,274' east-southeast in J-19-19s-29e.

VII. 1. Average injection rate will be ≈15,000 bwpd.
Maximum injection rate will be 25,000 bwpd.

2. System will be open.
3. Average injection pressure will be ≈2000 psi. Maximum injection pressure will be 2412 psi (= 0.2 psi/foot x 12,060' (top of open hole)).
4. Water source will be produced water from Permian Basin wells. Exhibit F tabulates Township 19 South, Ranges 28 and 29 East analyses from New Mexico Produced Water Quality Database v.2. Samples from two Devonian wells show TDS ranged from 33,414 mg/l to 45,778 mg/l. No compatibility problems have been reported from two SWD; Devonian wells (30-015-41691 and 30-015-30828) 5.6 miles SE and SSE. A minimum 11,556,248 barrels have been disposed to date.
5. Closest Devonian producer (30-015-05614) is 16 miles northeast. Devonian water samples from Lea Unit 8 (30-025-02431) and Lea Unit 9 (30-025-02432) show:

Lea Unit Well	TDS (mg/L)	Chlorides (mg/L)	Sulfate (mg/L)
8	33,414	18,570	1,961
9	45,778	26,440	729

VIII. The Devonian is comprised of carbonates. It is an estimated 1940' thick in this well. Closest possible underground source of drinking water above the proposed disposal interval are the red beds from GL to 425'. There is ≈835' of salt and anhydrite below the red beds and 11,635' of separation between the bottom of the red beds and the top of the Devonian.

State Engineer records (Exhibit G) do not show any water wells within a 2-mile radius. However, a water well ("West Well" on USGS map) 1.2 miles north was found and sampled on February 22, 2018. It was revisited on February 23, 2019 and found dry. Analysis from 2018 is in Exhibit G. Northcott 24 SWD 1 is 1.95 miles northwest of the Capitan.

No underground source of drinking water is below the proposed disposal interval. Produced water is currently being injected in 24 wells and disposed in 3 wells within 19s-28e. Target zones are the Yates, Seven Rivers, Queen, Grayburg, San Andres, Cisco, and Canyon.

Formation tops are:

Quaternary = 0'
Salado = 350'
Base salt = 600'
Yates = 890'
Seven Rivers = 1300'
Grayburg = 2200'
San Andres = 2818' Delaware equiv
Bone Spring = 3972'
Wolfcamp = 8894'
Penn = 9595'
Cisco = 9660'
Strawn = 10,094'
Atoka = 10,358'
Morrow = 10,575'
Devonian = 12,060'
Proposed Disposal Zone = 12060' - 14,000'
TD: 14,000'

IX. The well will be stimulated with acid to clean out scale or fill.

X. CBL will run if cement does not circulate to surface

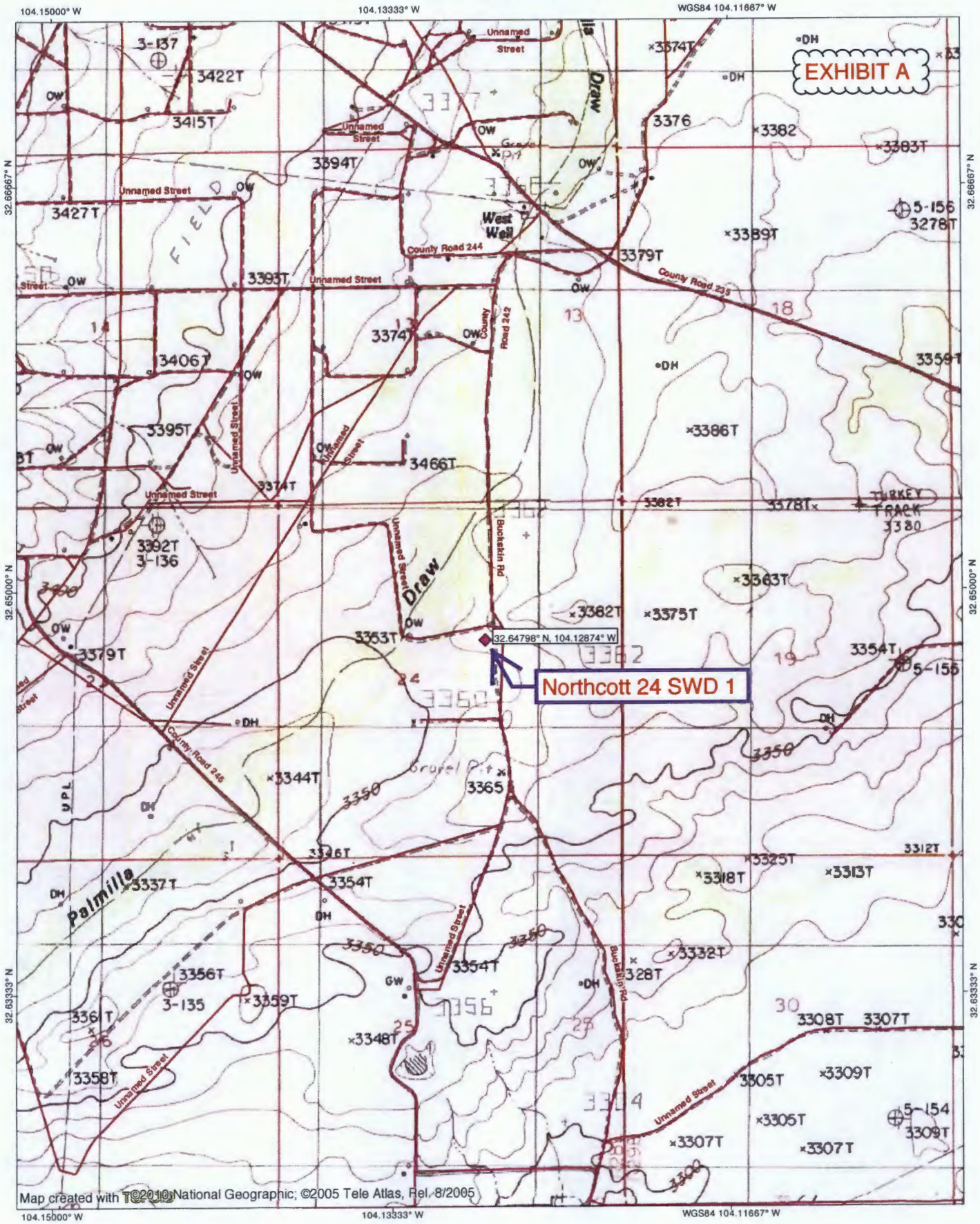
XI. No water well is within a mile. See Exhibit G for sample point and results of a water well that is 1.2 miles north.

XII. V-F Petroleum Inc. is not aware of any geologic or engineering data that may ~~indicate the~~ Devonian is in hydrologic connection with any underground source of water. There are 145 active Devonian saltwater disposal wells in New Mexico. Closest Quaternary fault (Guadalupe) is ≈60 miles west (Exhibit H).

Verbal confirmation Cory Walk

XIII. A legal ad (Exhibit I) was published on February 20, 2019. Notice (this application) is being sent to the surface owner (NMSLO), lessors (BLM & NMSLO), all oil and gas lessees (Charles Parcell, Elliott-Hall, Elliott Industries, S&J Operating, Stephens & Johnson, Devon, ZPZ, Mewbourne, Black Hills, Oxy USA, Concho/COG, MRC, John A. Yates, Oxy USA WTP), and all well operators regardless of depth (Apache, Colgate, Matador, Mewbourne, Read & Stephens, and Stephens & Johnson) within 1-mile (Exhibit J).

TOPO! map printed on 02/18/19 from "Untitled.tpo"



NATIONAL GEOGRAPHIC

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 miles
0.0 0.5 1.0 km

TN MN 7°

02/18/19

RECEIVED

FEB 18 2019

DISTRICT II-ARTESIA O.C.D.

DISTRICT I
1625 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 & 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

EXHIBIT A

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-45743	96101	SWD; Devonian

Property Code	Property Name	Well Number
324997	NORTHCOTT 24 SWD	1

OGRID No	Operator Name	Elevation
24010	V-F Petroleum Inc.	3362'

Surface Location

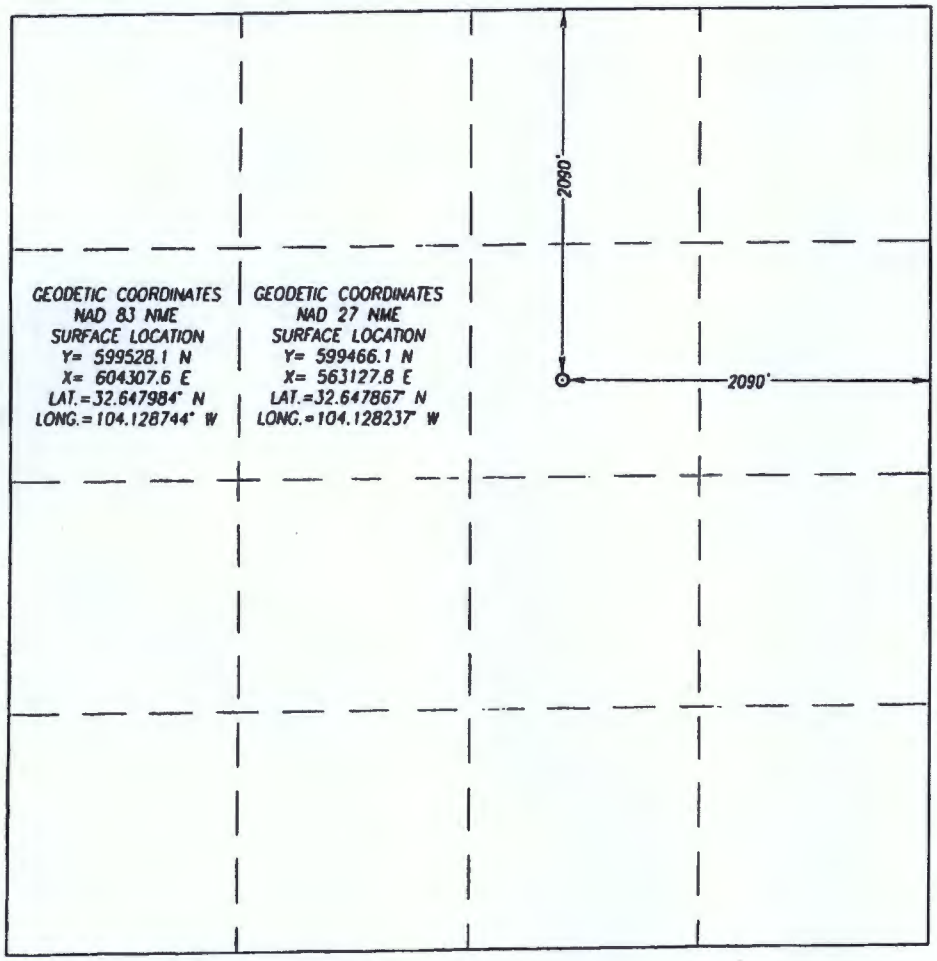
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	24	19-S	28-E		2090	NORTH	2090	EAST	EDDY

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	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 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 unleased 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

Eric Sprinkle 2/14/2019

Signature Date

Eric Sprinkle

Printed Name

eric@vfpetroleum.com

E-mail Address

SURVEYOR CERTIFICATION

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.

3239

JANUARY 30, 2019

Date of Survey

Signature and Seal of Professional Surveyor:

NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR

Ronald J Eidson 02/14/2019

Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

LSL JWSC W.O.: 19 11 0087

RP 2-18-19

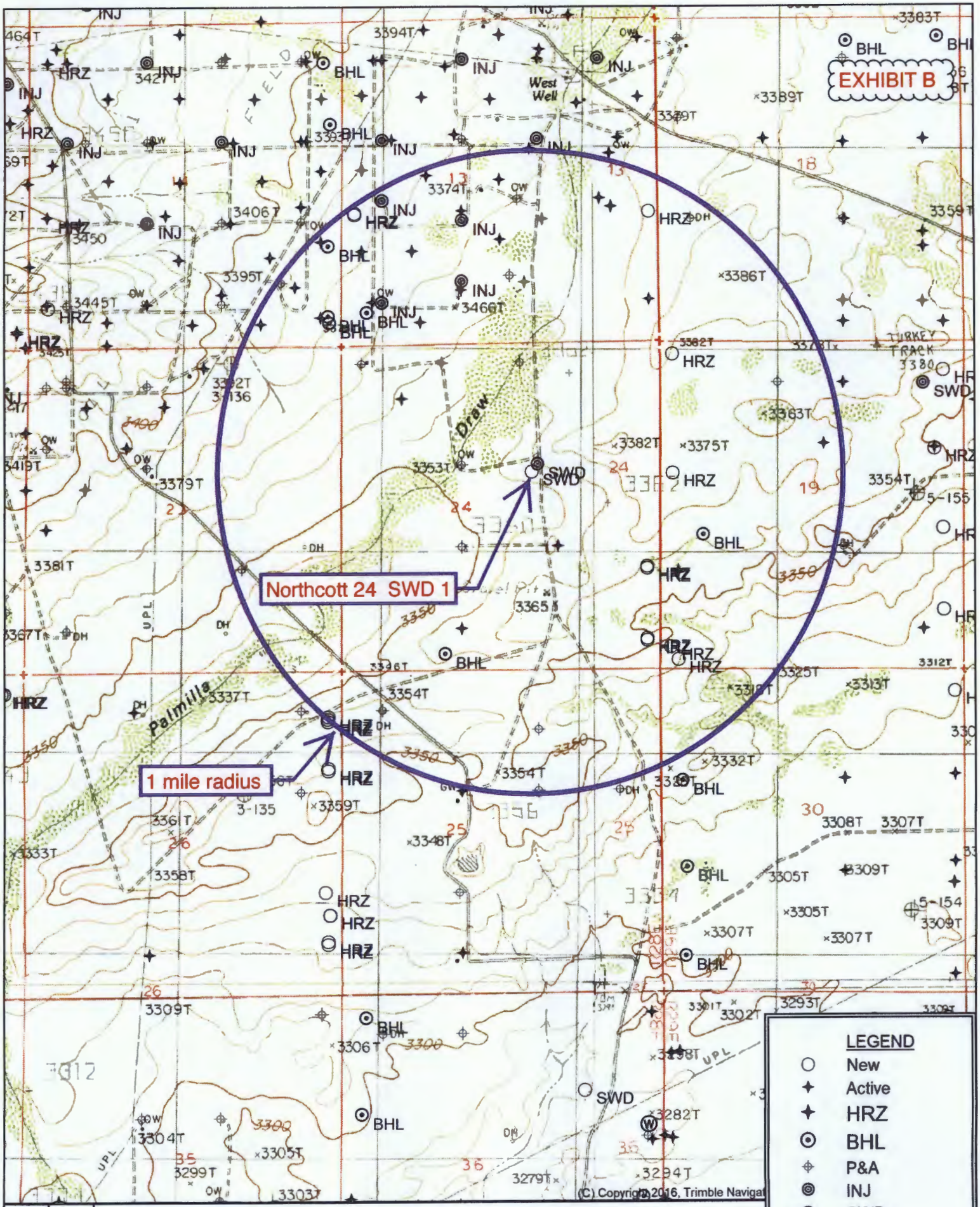


EXHIBIT B
Northcott 24 SWD 1
1 mile radius
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
Quad: ILLINOIS CAMP
Scale: 1 inch = 2,000 ft.
N
(C) Copyright 2016, Trimble Navigat

SORTED BY DISTANCE FROM NORTHCOTT 24 SWD 1

API	OPERATOR	WELL	TYPE	UNIT-SECTION	TVD	ZONE @ TD	FEET FROM NORTHCOTT 24 SWD 1
3001522892	V-F Petro	Northcott 003	S	G-24	10400	Upper Penn; Und Winchester	155
3001502300	Dominion OK TX	State A 001	P&A	F-24	2693	Millman; QN-GB, East	1156
3001527722	V-F Petro	Parkchester 24 State 001	O	J-24	11320	Millman; Yates-SR-QN-GB-SA, East	1290
3001502299	Continental	State A-24 001	P&A	K-24	3716	Wildcat; Delaware	1688
3001523390	Webb	Ruth 001	P&A	B-24	2531	Grbg Jackson; SR-QN-GB-SA	1768
3001537998	Mewbourne	Parkchester 24 ST 003H	O	C-24	7609	Scanlon; Bone Spring	2288
3001544674	Matador	Marbob 19 State Com 122H	O	2-19	Plan 8500	2nd Bone Spring Sand	2325
3001535689	Mewbourne	Parkchester 24 ST 002	G	D-24	11384	Winchester; Morrow (G)	2466
3001522478	Mewbourne	New Mexico CU State 002	G	N-24	10400	Winchester; Upper Penn (G)	2802
3001544688	Matador	Marbob 19 State Com 133H	O	3-19	8908	Scanlon Draw; Bone Spring	2930
3001544687	Matador	Marbob 19 State Com 123H	O	3-19	7858	Scanlon Draw; Bone Spring	2947
3001544673	Matador	Marbob 19 State Com 121H	O	1-19	Plan 8500	2nd Bone Spring Sand	2983
3001533944	Stephens & Johnson	East Millman Pool Unit 016Q	O	M-13	2673	Millman; Yates-SR-QN-GB-SA, East	3022
3001529832	Stephens & Johnson	Millman Oryx State 001	O	O-13	2803	Millman; Yates-SR-QN-GB-SA, East	3053
3001533543	Stephens & Johnson	East Millman Pool Unit 014Q	O	N-13	2732	Millman; Yates-SR-QN-GB-SA, East	3140
3001525065	EOG	East Millman 13 Federal Com 001	P&A	B-13	11300	Turkey Track Morrow	3174
3001510105	Stephens & Johnson	East Millman Pool Unit 006	I	N-13	2300	Millman; QN-GB	3271
3001510352	Dominion OK TX	State A 002	P&A	D-24	2282	Queen-Grayburg	3296
3001502239	Stephens & Johnson	East Millman Pool Unit 004	I	M-13	2280	Millman; QN-GB	3676

SORTED BY DISTANCE FROM NORTHCOTT 24 SWD 1

3001533220	Stephens & Johnson	East Millman Pool Unit 015Q	O	K-13	2677	Millman; Yates-SR-QN-GB-SA, East	3775
3001533540	Stephens & Johnson	East Millman Pool Unit 015T	O	M-13	2710	Millman; Yates-SR-QN-GB-SA, East	3782
3001541727	Mewbourne	Rattlesnake 13 PM State 001H	O	P-13	7554	2nd Bone Spring Sand	3884
3001528625	Stephens & Johnson	East Millman Pool Unit 007	O	L-13	2700	Millman; Yates-SR-QN-GB-SA, East	4069
3001529502	Stephens & Johnson	East Millman Pool Unit 009X	O	J-13	2700	Millman; Yates-SR-QN-GB-SA, East	4073
3001545273	Mewbourne	Rattlesnake 13 18 B3LK State Com 001H	O	M-13	Plan 8000	3rd Bone Spring Sand	4190
3001525648	Yeso	Connie C State 004	P&A	B-25	3494	Outpost Delaware	4194
3001545272	Mewbourne	Rattlesnake 13 18 B2LK State Com 001H	O	M-13	Plan 8000	3rd Bone Spring Sand	4205
3001502236	Stephens & Johnson	East Millman Pool Unit 003	I	K-13	2200	Millman; QN-GB	4212
3001544040	Apache	Palmillo 14 15 State 301H	O	P-14	7580	2nd Bone Spring Sand	4259
3001528104	Stephens & Johnson	East Millman Unit 225	O	P-14	2670	Millman; Yates-SR-QN-GB-SA, East	4264
3001544043	Apache	Palmillo 14 15 State 002H	O	P-14	7580	2nd Bone Spring Sand	4288
301525116	Southland Royalty	Scanlon DR ST Com 001	P&A	C-19	11350	Turkey Track; Morrow	4304
3001533422	Stephens & Johnson	East Millman Pool Unit 017	O	K-13	2710	Millman; Yates-SR-QN-GB-SA, East	4359
3001502232	Sun	East Millman Pool Unit Tract 7 005	P&A	J-13	2240	Millman; QN-GB, East	4401
3001531677	Stephens & Johnson	East Millman Pool Unit 013Q	O	L-13	2688	Millman; Yates-SR-QN-GB-SA, East	4471
3001530745	Stephens & Johnson	East Millman Pool Unit 012	O	L-13	2700	Millman; Yates-SR-QN-GB-SA, East	4519
3001529619	Stephens & Johnson	Millman Pennzoil State 001	O	I-13	3050	Millman; Yates-SR-QN-GB-SA, East	4546
3001502302	Yeso	Connie C State 017	P&A	D-25	2100	Outpost Delaware	4608
3001528932	Stephens & Johnson	East Millman Pool Unit 006Z	O	K-13	2700	Millman; Yates-SR-QN-GB-SA, East	4739

SORTED BY DISTANCE FROM NORTHCOTT 24 SWD 1

3001503597	Donnelly	Kinney ST 001	P&A	L-18	3010	Millman; Yates-SR-QN-GB-SA, East	4843
3001538045	Stephens & Johnson	East Millman Unit 233	O	P-14	2700	Millman; Yates-SR-QN-GB-SA, East	4908
3001538256	Matador	Marbob State 004	O	G-19	2563	Millman; Yates-SR-QN-GB-SA, East	4917
3001502231	Stephens & Johnson	East Millman Pool Unit 004	I	L-13	2250	Millman; QN-GB, East	5018
3001510604	Cima Capitan	Landenberger 001	P&A	J-23	2491	Millman (Und)	5057
3001527766	Stephens & Johnson	East Millman Unit 223	O	O-14	2675	Millman; Yates-SR-QN-GB-SA, East	5066
3001533667	Stephens & Johnson	East Millman Unit 226	O	I-14	2710	Millman; Yates-SR-QN-GB-SA, East	5069
3001529122	Stephens & Johnson	East Millman Pool Unit 008	O	F-13	2650	Millman; Yates-SR-QN-GB-SA, East	5077
3001502255	SDX	East Millman Unit 178	P&A	P-14	2389	Millman; Yates-SR	5126
3001534886	Stephens & Johnson	East Millman Pool Unit 009G	O	G-13	2715	Millman; Yates-SR-QN-GB-SA, East	5168
3001525366	Yeso	Connie C State 001	P&A	G-25	3500	Outpost Delaware	5184
3001545341	Apache	Palmillo 14 15 State 302H	O	I-14	8676	3rd Bone Spring Sand	5207
3001534889	Stephens & Johnson	East Millman Pool Unit 007A	O	H-13	2705	Millman; Yates-SR-QN-GB-SA, East	5232
3001521134	Coquina	Flag ST 001	P&A	J-19	11650	Wildcat; Barnett	5274
3001544908	Apache	Palmillo 26 State Com 316H	O	A-26	8713	3rd Bone Spring Sand	5291

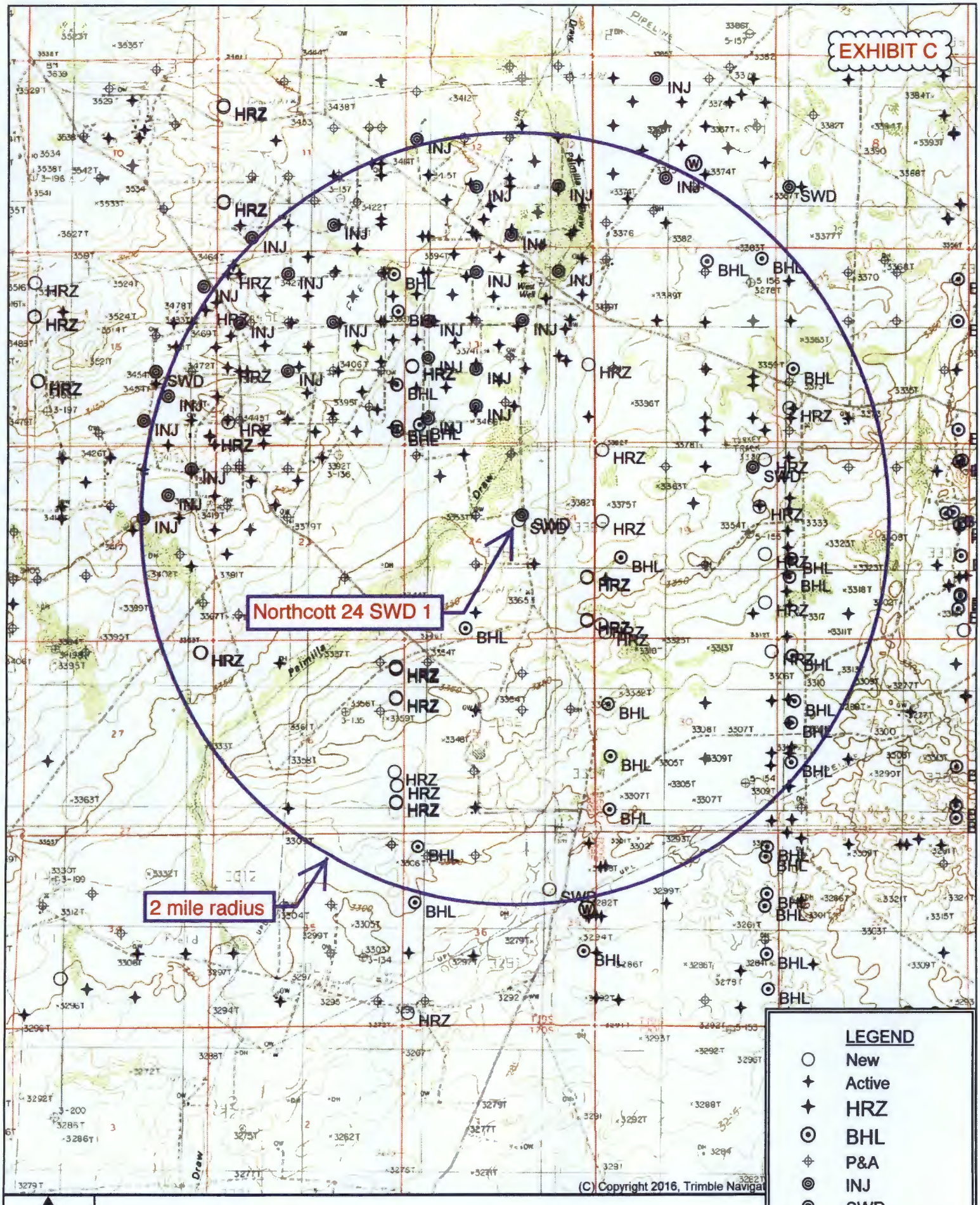
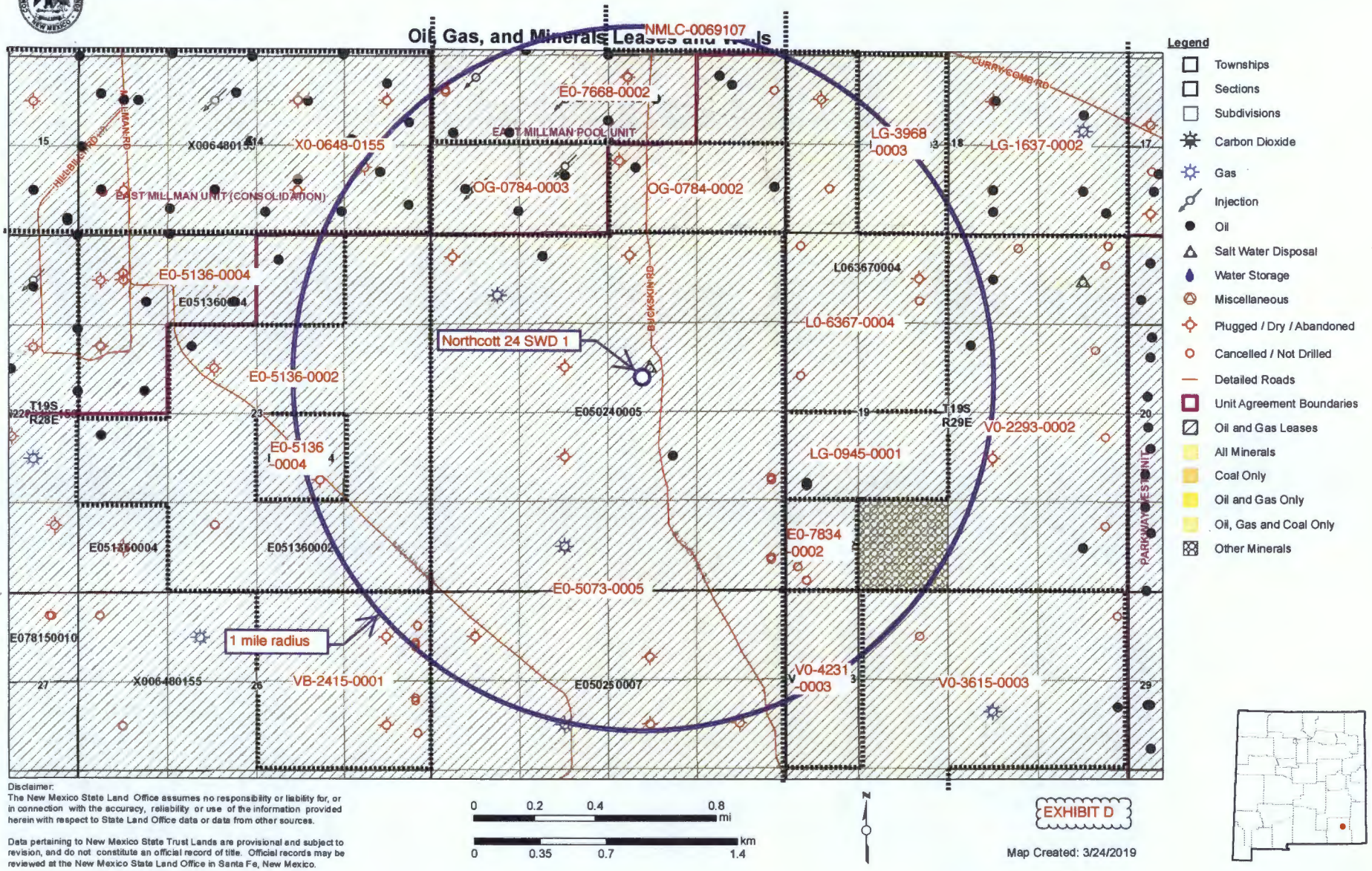


EXHIBIT C
Northcott 24 SWD 1
2 mile radius
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
Quad: ARTESIA
Scale: 1 inch = 3,333 ft.
N
(C) Copyright 2016, Trimble Navigat

New Mexico State Land Office



Legend

- Townships
- Sections
- Subdivisions
- Carbon Dioxide
- Gas
- Injection
- Oil
- Salt Water Disposal
- Water Storage
- Miscellaneous
- Plugged / Dry / Abandoned
- Cancelled / Not Drilled
- Detailed Roads
- Unit Agreement Boundaries
- Oil and Gas Leases
- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

0 0.2 0.4 0.8 mi

0 0.35 0.7 1.4 km

N

EXHIBIT D

Map Created: 3/24/2019

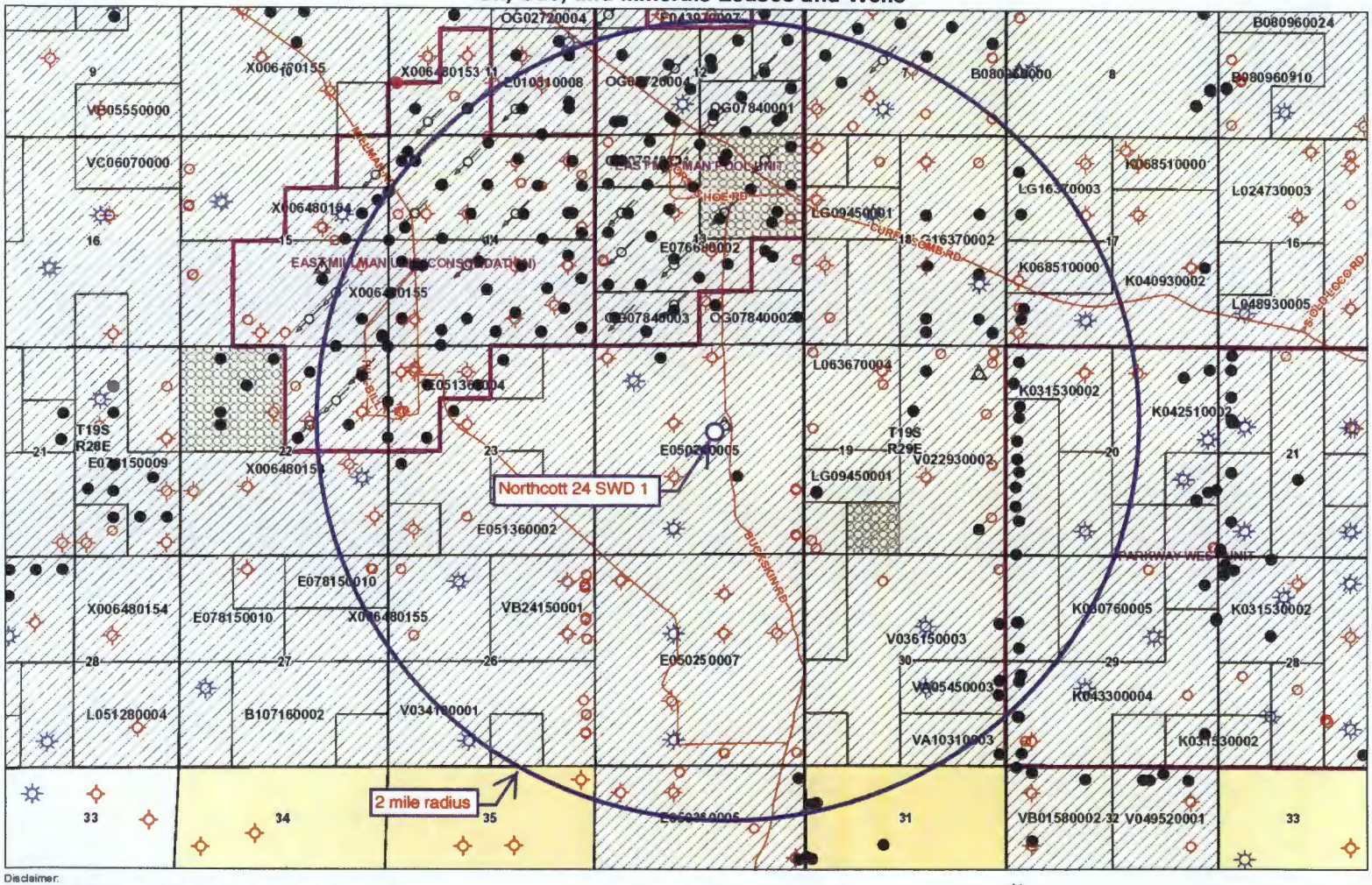
NORTHCOTT 24 SWD 1 AREA OF REVIEW LEASES

Aliquot Parts in Area of Review	Lessor	Lease	Lessee(s) of Record	Operators (all shallower than Devonian)
S2NE4 19S-28E	BLM	NMLC-0069107	Charles Parcell, Elliott-Hall, Elliott Industries	Stephens & Johnson
S2NW4 & N2S2 13-19S-28E	NMSLO	E0-7668-0002	S & J Operating	Stephens & Johnson, Mewbourne
S2SW4 13-19S-28E	NMSLO	OG-0784-0003	Stephens & Johnson	Stephens & Johnson, Mewbourne
S2SE4 13-19S-28E	NMSLO	OG-0784-0002	S & J Operating	Stephens & Johnson, Mewbourne
NESE & S2SE4 14-19S-28E	NMSLO	X0-0648-0155	Apache	Stephens & Johnson, Apache
E2E2, SWNE, & SWSE 23-19S-28E	NMSLO	E0-5136-0002	Devon	N/A
NWSE 23-19S-28E	NMSLO	E0-5136-0004	ZPZ	N/A
all 24-19S-28E	NMSLO	E0-5073-0005	Mewbourne	Mewbourne, V-F
N2 25-19S-28E	NMSLO	E0-5073-0005	Mewbourne	Colgate
NENE 26-19S-28E	NMSLO	VB-2415-0001	Mewbourne	Apache
E2SW4 18-19S-29E	NMSLO	LG-3968-0003	Black Hills	Mewbourne, V-F
W2SW4 18-19S-29E	NMSLO	L0-6367-0004	OXY USA Inc	N/A
SWSE 18-19S-29E	NMSLO	LG-1637-0002	Concho/COG	COG
W2E2 & SESW 19-19S-29E	NMSLO	V0-2293-0002	MRC	Matador
NW4 19-19S-29E	NMSLO	L0-6367-0004	OXY USA Inc	Read & Stevens, Matador
N2SW4 19-19S-29E	NMSLO	LG-0945-0001	Devon	Read & Stevens, Matador
SWSW 19-19S-29E	NMSLO	E0-7834-0002	John A Yates	Read & Stevens
NENW 30-19S-29E	NMSLO	V0-3615-0003	OXY USA WTP LP	N/A
W2NW4 30-19S-29E	NMSLO	V0-4231-0003	OXY USA WTP LP	Mewbourne

EXHIBIT D

New Mexico State Land Office

Oil, Gas, and Minerals Leases and Wells



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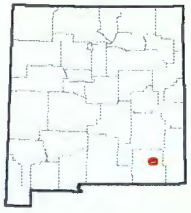
0 0.4 0.8 1.6 mi

0 0.5 1 2 km

N

EXHIBIT E

Map Created: 3/24/2019



All Constituents in mg/l

API	Section	Township	Range	Unit	Formation	TDS	Na	Ca	Fe	Mg	Cl	HCO3	SO4
3001502302	25	19S	28E	D	Queen	66874	23288	1804		608	39757	1154	262
3001502226	12	19S	28E	P	Artesia	100179					59426	1088	1050
3001502239	13	19S	28E	M	Artesia	122436					71810	1000	2404
3001502301	25	19S	28E	H	Delaware	55498					32420	601	984
3001502178	4	19S	28E	C	Artesia	140946					85640	450	2229
3001502280	21	19S	28E	G	Wolfcamp	118720					70200	2700	1080
3001502301	25	19S	28E	H	Queen								
3001502301	25	19S	28E	H	Queen								
3001502302	25	19S	28E	D	Artesia	66858					39750	1154	262
3001502303	26	19S	28E	A	Seven Rivers								
3001523998	16	19S	28E	G	Morrow	56555		1680	60	730	34080	866	13
3001510105	13	19S	28E	N	Artesia	113098					64800	1728	4104
3001538338	20	19S	29E	D	Bone Spring 2nd Ss	214079	68545	11436	36	1947	129500	110	0
3001538421	20	19S	29E	E	Bone Spring 2nd Ss	212073	68607	11378	31	2164	127200	122	0
3001539365	20	19S	29E	L	Bone Spring 2nd Ss	204892	66120	11033	41	1821	123300	134	0
3001539373	29	19S	29E	L	Bone Spring 2nd Ss	204175	66112	11002	43	1752	122800	98	0
3001539790	33	19S	29E	M	Bone Spring 2nd Ss	194362	62735	10730	33	1733	116600	134	0
3001539806	33	19S	29E	N	Bone Spring 2nd Ss	212965	67869	11454	40	2204	128700	146	0
3001540025	20	19S	29E	E	Bone Spring 3rd Ss	103835	32098	6912	84	1008	62300	281	0
3001540037	20	19S	29E	M	Bone Spring 2nd Ss	206939	68708	11434	41	1886	122200	146	0
3001540423	29	19S	29E	E	Bone Spring 2nd Ss	202518	66051	11044	45	1871	121000	134	0
3001540424	29	19S	29E	M	Bone Spring 2nd Ss	199175	65110	10607	27	1713	119200	134	0
3001540512	21	19S	29E	M	Bone Spring 1st Ss		101408	3045	12	671	162925	549	290
3001540515	29	19S	29E	P	Bone Spring 1st Ss		97526	2676	0	586	155601	927	310
3001540584	32	19S	29E	B	Bone Spring 1st Ss	213293	72011	3096	26	608	134925		603
3001540606	32	19S	29E	B	Bone Spring 1st Ss	243754	81606	2589	36	973	152761		3578
3001540777	12	19S	29E	K	Bone Spring 2nd Ss	211237	62106	11194	88	1452	133575		789
3001540778	12	19S	29E	H	Bone Spring 2nd Ss	220688	66570	12206	66	1590	137383		732
3001540822	22	19S	29E	D	Bone Spring 1st Ss	208209	71859	3449	40	701	129492		622

EXHIBIT F

All Constituents in mg/l

3001538421	20	19S	29E	E	Bone Spring 2nd Ss	218593	71348	11431	44	2171	130625		593
3001539806	33	19S	29E	N	Bone Spring 2nd Ss	211695	65999	10786	37	2077	129142		629
3001540025	20	19S	29E	E	Bone Spring 3rd Ss	76582	25463	2775	38	498	45756		930
3001540509	28	19S	29E	D	Bone Spring 1st Ss	208768	75798	3376	73	684	126019		536
3001543321	28	19S	29E	H	Bone Spring 3rd Ss	105001	35624	3951	18	690	62695		685
3001538334	22	19S	29E	D	Bone Spring 2nd Ss	209176	74633	3152	32	653	127957		559
3001539373	29	19S	29E	L	Bone Spring 2nd Ss	207229	72432	7735	62	1304	122859		588
3001539386	29	19S	29E	A	Bone Spring 2nd Ss	210082	79107	2905	16	645	124634		624
3001540035	32	19S	29E	B	Bone Spring 2nd Ss	204442	69490	2892	17	616	128687		738
3001540135	28	19S	29E	D	Bone Spring 1st Ss	216803	79610	2917	15	650	130755		662
3001540216	27	19S	29E	M	Bone Spring 2nd Ss	205198	76060	2957	69	598	122742		502
3001540289	27	19S	29E	M	Bone Spring 1st Ss	205841	75826	2827	98	580	123798		504
3001540584	32	19S	29E	B	Bone Spring 1st Ss	214766	78221	3072	15	673	129950		680
3001540587	20	19S	29E	I	Bone Spring 1st Ss	220041	82296	3071	19	678	131023		709
3001540781	12	19S	29E	H	Bone Spring 1st Ss	213636	79761	3295	22	662	127089		481
3001540822	22	19S	29E	D	Bone Spring 1st Ss	209470	75384	3145	35	658	127594		557
3001542809	21	19S	29E	I	Bone Spring 3rd Ss	117585	38613	4526	39	774	71782		550
3001540778	12	19S	29E	H	Bone Spring 2nd Ss	210922	63737	10725	60	1439	132273		617
3001542946	20	19S	29E	D	Bone Spring 3rd Ss	106366	34602	4236	19	736	64935		703
3001538605	21	19S	29E	E	Bone Spring 2nd Ss	187069	59558	9295	39	1457	112389	73	2422
3001539372	21	19S	29E	I	Bone Spring 2nd Ss	179727	56773	9354	42	1408	108290	73	2022
3001539373	29	19S	29E	L	Bone Spring 2nd Ss	207257	64962	11127	37	1762	125792	61	1442
3001540037	20	19S	29E	M	Bone Spring 2nd Ss	188897	58687	10476	29	1659	114294	49	1768
3001539386	29	19S	29E	A	Bone Spring 2nd Ss	207902	67569	9690	27	1472	126295	49	1128
3001540135	28	19S	29E	D	Bone Spring 1st Ss	79317	27817	1901	23	288	46791	573	1057
3001540423	29	19S	29E	E	Bone Spring 2nd Ss	191835	60132	10463	55	1576	116618	73	1132
3001540779	12	19S	29E	L	Bone Spring 1st Ss	210479	78858	3619	17	723	124000	488	639
3001540782	12	19S	29E	K	Bone Spring 2nd Ss	196138	62689	10129	36	1390	118800	98	929
3001538605	21	19S	29E	E	Bone Spring 2nd Ss	212439	70396	10624	35	1653	126800	49	777
3001540134	21	19S	29E	M	Bone Spring 2nd Ss	221551	66995	10754	24	2054	138800	37	652
3001540512	21	19S	29E	M	Bone Spring 1st Ss	167727	59396	2871	16	546	102000	317	748

All Constituents in mg/l

3001538335	21	19S	29E	D	Bone Spring 2nd Ss	207620	63676	10340	38	1579	129265	24	0
3001539328	28	19S	29E	P	Bone Spring 2nd Ss	209249	63419	10816	27	1939	130309	61	0
3001539386	29	19S	29E	A	Bone Spring 2nd Ss	210714	64075	11182	47	1749	130950	37	0
3001540135	28	19S	29E	D	Bone Spring 1st Ss	204699	70858	2959	31	647	127420	268	0
3001540206	28	19S	29E	D	Bone Spring 2nd Ss	210487	63900	10990	45	1916	130880	61	0
3001540217	28	19S	29E	C	Bone Spring 2nd Ss	200099	62122	10663	30	1899	122620	85	0
3001540508	27	19S	29E	L	Bone Spring 1st Ss	209710	72736	3012	71	575	130499	305	0
3001540513	21	19S	29E	M	Bone Spring 1st Ss	214315	74061	3014	60	687	133469	366	0
3001538333	27	19S	29E	D	Bone Spring 2nd Ss		56874	10448	40	1708	112925	146	540
3001538605	21	19S	29E	E	Bone Spring 2nd Ss		68390	10388	61	1720	130427	110	820
3001539374	21	19S	29E	L	Bone Spring 2nd Ss		69882	10737	28	1836	133839	49	760
3001540134	21	19S	29E	M	Bone Spring 2nd Ss		71254	10986	12	2354	138115	122	540
3001540511	20	19S	29E	I	Bone Spring 1st Ss		79272	3440	21	664	131794	366	500
3001540591	20	19S	29E	H	Bone Spring 1st Ss		68603	10342	23	1757	130837	73	800
3001540606	32	19S	29E	B	Bone Spring 1st Ss		78663	3352	0	651	130698	366	540
3001540782	12	19S	29E	K	Bone Spring 2nd Ss		72789	11481	40	1699	139551	61	620
3001538333	27	19S	29E	D	Bone Spring 2nd Ss		78323	9979	32	1800	145351	98	640
3001538338	20	19S	29E	D	Bone Spring 2nd Ss		57466	11211	23	2455	117396	110	540
3001538421	20	19S	29E	E	Bone Spring 2nd Ss		59008	11203	17	2524	119999	146	480
3001539372	21	19S	29E	I	Bone Spring 2nd Ss		58456	10738	40	1975	116569	110	640
3001539373	29	19S	29E	L	Bone Spring 2nd Ss		76748	10831	41	2005	145145	244	460
3001539386	29	19S	29E	A	Bone Spring 2nd Ss		82889	11278	58	2174	156139	134	520
3001540036	21	19S	29E	P	Bone Spring 2nd Ss		83934	10820	39	1849	155753	122	600
3001540037	20	19S	29E	M	Bone Spring 2nd Ss		88453	11171	27	2368	164953	122	440
3001540135	28	19S	29E	D	Bone Spring 1st Ss		92567	3277	21	696	152161	366	460
3001540207	28	19S	29E	O	Bone Spring 2nd Ss		76325	13728	0	2631	152008	122	640
3001540217	28	19S	29E	C	Bone Spring 2nd Ss		84893	11130	15	2281	159026	110	740
3001540289	27	19S	29E	M	Bone Spring 1st Ss		103455	3590	21	706	170216	378	400
3001540501	27	19S	29E	L	Bone Spring 2nd Ss		86090	13546	25	1952	164708	171	580
3001540506	27	19S	29E	H	Bone Spring 2nd Ss		84563	13920	39	2008	163345	98	740
3001540508	27	19S	29E	L	Bone Spring 1st Ss		85353	3256	28	620	141209	366	360

All Constituents in mg/l

3001540509	28	19S	29E	D	Bone Spring 1st Ss		93253	3591	16	683	153680	366	480
3001541380	30	19S	29E	I	Bone Spring 1st Ss		109466	2731	0	609	174338	549	440
3001540780	12	19S	29E	K	Bone Spring 1st Ss		93423	5621	0	1224	157841	415	470
3001540782	12	19S	29E	K	Bone Spring 2nd Ss		87943	20188	99	2702	179698	183	600
3001541014	21	19S	29E	P	Bone Spring 1st Ss		86063	5256	27	1154	145983	488	490
3001540512	21	19S	29E	M	Bone Spring 1st Ss		85156	5652	21	1173	145584	476	510
3001540591	20	19S	29E	H	Bone Spring 1st Ss		104490	5604	21	1237	175022	964	490
3001541008	22	19S	29E	E	Bone Spring 1st Ss		86589	5601	51	1217	147547	537	510
3001540509	28	19S	29E	D	Bone Spring 1st Ss		78139	5701	122	1195	134723	476	490
3001540511	20	19S	29E	I	Bone Spring 1st Ss		91931	5555	20	1182	155717	439	470
3001503554	3	19S	29E	F	Artesia	6605					1933	246	2296
3001503537	1	19S	29E	M	DEVONIAN	29011					16000	520	1500
3001503555	3	19S	29E	D	Artesia	5776					1926	184	1846
3001503563	5	19S	29E	F	Artesia	200307					118800	1641	2853
3001503597	18	19S	29E	L	Artesia	76473					43850	1260	2424
3001503612	32	19S	29E	D	Bone Spring	33760					15600	290	5500
3001503612	32	19S	29E	D	PENNSYLVANIAN	6420							
3001503615	34	19S	29E	P	Artesia	51629					25250	1964	6000
3001503615	34	19S	29E	P	Artesia	152978					82800	183	11900
3001503615	34	19S	29E	P	Artesia	66591					35200	1365	5200
3001540584	32	19S	29E	B	Bone Spring 1st Ss	195749	70891	3422	17	683	117441		964
3001540217	28	19S	29E	C	Bone Spring 2nd Ss	211734	70916	11464	16	2278	123941	98	0
3001540514	29	19S	29E	H	Bone Spring 1st Ss	203297	76713	3056	29	651	119809	390	0
3001540583	27	19S	29E	A	Bone Spring 1st Ss		94174	3444	25	695	155343	305	420
3001540592	28	19S	29E	I	Bone Spring 1st Ss		94735	3617	15	717	156241	231	480
3001540777	12	19S	29E	K	Bone Spring 2nd Ss		77378	11310	33	1609	145992	171	660
3001540779	12	19S	29E	L	Bone Spring 1st Ss		94968	3407	3	730	155973	659	480
3001540780	12	19S	29E	K	Bone Spring 1st Ss		90194	3568	0	718	149598	244	420
3001540782	12	19S	29E	K	Bone Spring 2nd Ss		77810	13519	232	1752	151421	183	540
3001540822	22	19S	29E	D	Bone Spring 1st Ss		95292	3405	14	671	156438	342	440
3001541008	22	19S	29E	E	Bone Spring 1st Ss		96553	3472	11	698	158477	550	440

All Constituents in mg/l

3001540516	29	19S	29E	H	Bone Spring 1st Ss	210488	74730	3363	39	728	129027		548
3001540781	12	19S	29E	H	Bone Spring 1st Ss	208284	75251	3375	18	677	126406		488
3001538476	32	19S	29E	A	Bone Spring 2nd Ss	203063	60960	10276	46	1680	127495		669
3001540507	27	19S	29E	H	Bone Spring 1st Ss	194044	69009	2891	47	594	119143		546
3001540583	27	19S	29E	A	Bone Spring 1st Ss	207101	72181	3108	45	663	128420		785
3001541007	21	19S	29E	I	Bone Spring 1st Ss	202394	71386	3167	66	688	124677		552
3001541014	21	19S	29E	P	Bone Spring 1st Ss	204994	71291	3070	33	665	127550		545
3001542809	21	19S	29E	I	Bone Spring 3rd Ss	115850	36308	4673	12	801	72335		564
3001539806	33	19S	29E	N	Bone Spring 2nd Ss	216504	62855	10959	36	2056	137871		647
3001540037	20	19S	29E	M	Bone Spring 2nd Ss	212555	61902	10789	34	1765	135296		786
3001540423	29	19S	29E	E	Bone Spring 2nd Ss	213597	61082	10818	31	1979	137006		753
3001540424	29	19S	29E	M	Bone Spring 2nd Ss	206242	59619	10150	26	1615	132172		701
3001510329	36	19S	29E	I	Artesia	43392					20700	1428	5589
3001538335	21	19S	29E	D	Bone Spring 2nd Ss	18243	5584	971	15	165	10069	220	1055
3001538334	22	19S	29E	D	Bone Spring 2nd Ss	142243	45640	6959	44	989	85871	37	1319
3001538335	21	19S	29E	D	Bone Spring 2nd Ss	172529	55589	8279	37	1270	104676	24	1100
3001538338	20	19S	29E	D	Bone Spring 2nd Ss	215251	67241	11580	33	1943	130663	49	1549
3001538421	20	19S	29E	E	Bone Spring 2nd Ss	222698	70153	11230	23	2195	135411	49	1399
3001538476	32	19S	29E	A	Bone Spring 2nd Ss	197878	63015	9639	55	1655	119391	110	1990
3001539365	20	19S	29E	L	Bone Spring 2nd Ss	192416	60668	10063	40	1543	116201	98	1863
3001539386	29	19S	29E	A	Bone Spring 2nd Ss	192324	60013	10466	27	1697	116431	61	1722
3001539790	33	19S	29E	M	Bone Spring 2nd Ss	168771	52934	9017	37	1376	102210	98	1308
3001540036	21	19S	29E	P	Bone Spring 2nd Ss	179518	56819	9252	57	1394	108013	98	2157
3001540134	21	19S	29E	M	Bone Spring 2nd Ss	158405	49315	8392	23	1577	95620	122	1731

DEVONIAN PRODUCED WATER SAMPLES (mg/L)

WELL	API	SECTION	TOWNSHIP	RANGE	FORMATION	TDS	CHLORIDE	SULFATE
Lea Unit 8	3002502431	12	20S	34E	Devonian	33414	18570	1961
Lea Unit 9	3002502432	13	20S	34E	Devonian	45778	26440	729

EXHIBIT FF

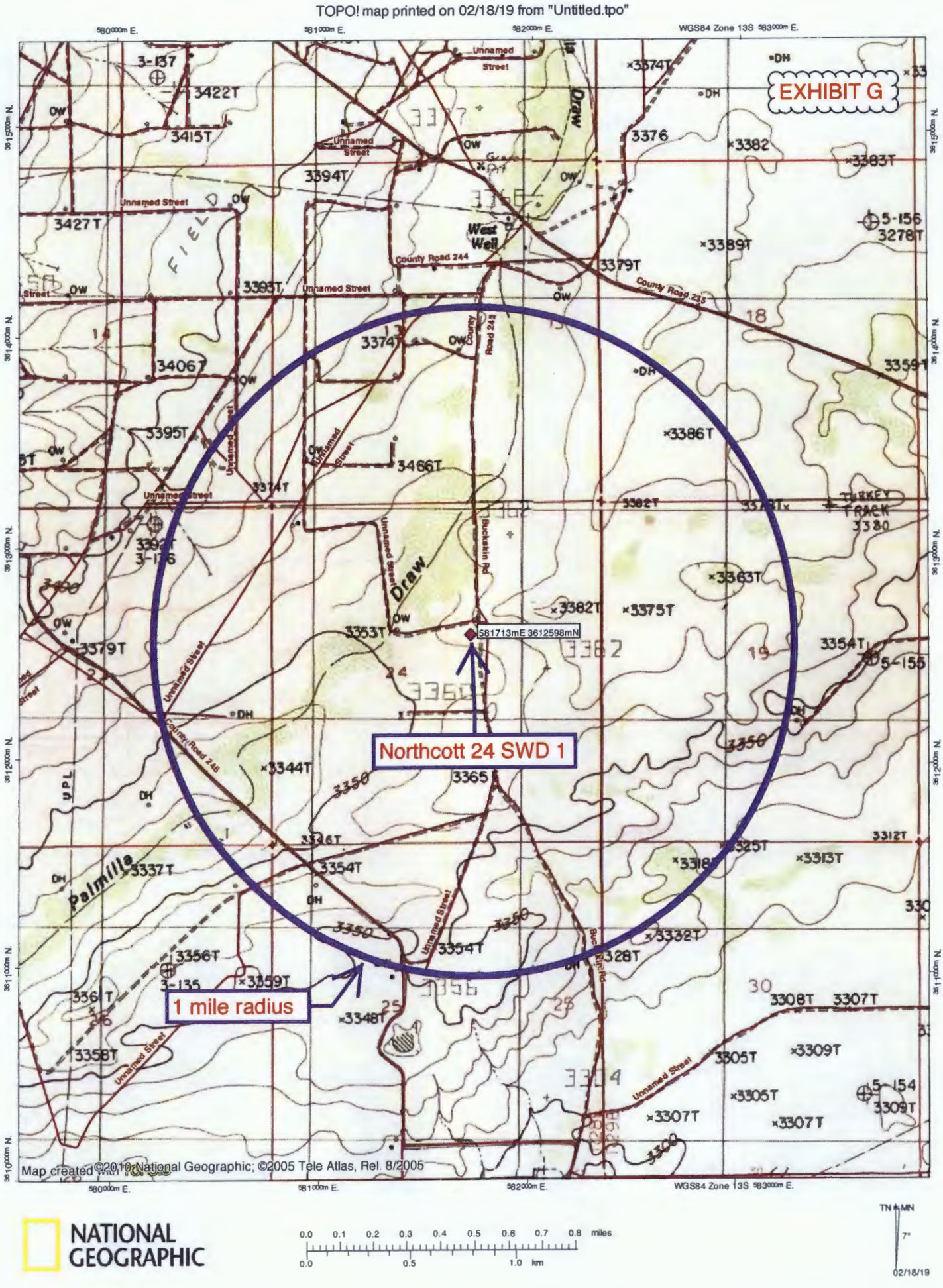

TOPO! map printed on 02/18/19 from "Untitled.tpo"
EXHIBIT G
Northcott 24 SWD 1
581713mE 3612598mN
1 mile radius
Map created ©2010 National Geographic; ©2005 Tele Atlas, Rel. 8/2005
NATIONAL GEOGRAPHIC
02/18/19

EXHIBIT G

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 581713 **Northing (Y):** 3612598 **Radius:** 3220

EXHIBIT G

Analytical Report
Lab Order **1802C89**
Date Reported: **3/13/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: V F Northcott SWD 3
Lab ID: 1802C89-001 **Matrix:** AQUEOUS

Client Sample ID: V-F NC Sec 18
Collection Date: 2/22/2018 9:51:00 AM
Received Date: 2/23/2018 10:06:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **dbf**	
N-Hexane Extractable Material	ND	9.84		mg/L	1	2/27/2018 12:00:00 PM	36707
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	160	10		mg/L	20	2/23/2018 7:50:21 PM	R49381
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3340	20.0	*	mg/L	1	3/1/2018 11:43:00 AM	36759

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

EXHIBIT G

WO#: 1802C89

Hall Environmental Analysis Laboratory, Inc.

13-Mar-18

Client: Permits West
Project: V F Northcott SWD 3

Sample ID	MB-36707	SampType:	MBLK	TestCode:	EPA Method 1664B				
Client ID:	PBW	Batch ID:	36707	RunNo:	49423				
Prep Date:	2/26/2018	Analysis Date:	2/27/2018	SeqNo:	1595614	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								
Silica Gel Treated N-Hexane Extrac	ND	10.0								

Sample ID	LCS-36707	SampType:	LCS	TestCode:	EPA Method 1664B				
Client ID:	LCSW	Batch ID:	36707	RunNo:	49423				
Prep Date:	2/26/2018	Analysis Date:	2/27/2018	SeqNo:	1595615	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	32.2	10.0	40.00	0	80.5	78	114			
Silica Gel Treated N-Hexane Extrac	15.2	10.0	20.00	0	76.0	64	132			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

EXHIBIT G

QC SUMMARY REPORT

WO#: 1802C89

Hall Environmental Analysis Laboratory, Inc.

13-Mar-18

Client: Permits West
Project: V F Northcott SWD 3

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions				
Client ID:	PBW	Batch ID:	R49381	RunNo:	49381				
Prep Date:		Analysis Date:	2/23/2018	SeqNo:	1594453	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions				
Client ID:	LCSW	Batch ID:	R49381	RunNo:	49381				
Prep Date:		Analysis Date:	2/23/2018	SeqNo:	1594454	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

EXHIBIT G

QC SUMMARY REPORT

WO#: 1802C89

Hall Environmental Analysis Laboratory, Inc.

13-Mar-18

Client: Permits West
Project: V F Northcott SWD 3

Sample ID	MB-36759	SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW	Batch ID:	36759		RunNo:	49477				
Prep Date:	2/27/2018	Analysis Date:	3/1/2018		SeqNo:	1598404	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-36759	SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW	Batch ID:	36759		RunNo:	49477				
Prep Date:	2/27/2018	Analysis Date:	3/1/2018		SeqNo:	1598405	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

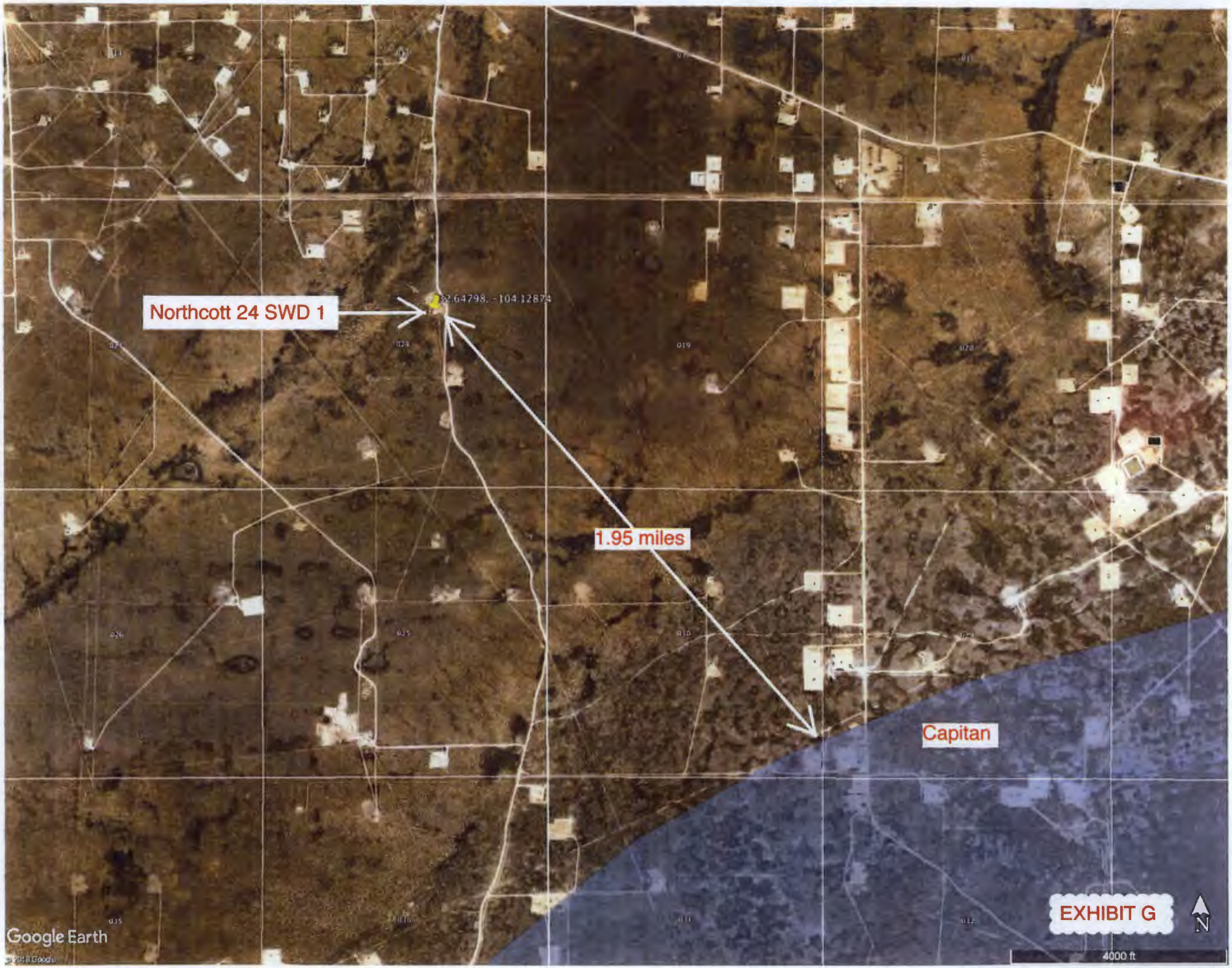

Northcott 24 SWD 1
32.64798, -104.12874
1.95 miles
Capitan
EXHIBIT G
N
Google Earth
4000 ft

EXHIBIT H

Seismic Risk Assessment

V-F Petroleum Inc.

Northcott 24 SWD No. 1

Section 24, Township 19 South, Range 28 East

Eddy County, New Mexico

Cory Walk

Cory Walk

B.S., M.S.

Geologist

Permits West Inc.

March 25, 2019

EXHIBIT H

GENERAL INFORMATION

Northcott 24 SWD #1 is located in the NE 1/4, section 24, T19S, R28E, about 17 miles northeast of Carlsbad, NM in the Permian Basin. V-F Petroleum Inc. proposes the injection zone to be within the Devonian formation through an open hole from 12,060'-14,000' below ground surface. This report assesses any potential concerns relating to induced seismicity along deep penetrating Precambrian faults or the connection between the injection zone and known underground potable water sources.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Searching the USGS earthquake catalog resulted in no (0) earthquakes above a magnitude 2.5 within 6 miles (9.7 km) of the proposed deep disposal site since 1970 (Fig 1). The nearest historical earthquake, according to this dataset, occurred in 2004 about 22 miles (~35 km) away and had a magnitude of 3.0.

Basement Faults and Subsurface Conditions

A structure contour map (Fig. 1) of the Precambrian basement shows the Northcott 24 SWD #1 is approximately 20 miles from 3 basement-penetrating faults inferred by Ewing et al (1990). Based on GIS data from Ruppel et al. (2009), **basic information about these faults are calculated and listed in Table 1.**

Snee and Zoback (2018) state, "In the western part of Eddy County, New Mexico, S_{Hmax} is ~north-south (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast-west-southwest in southern Lea County, New Mexico and the northernmost parts of Culberson and Reeves counties, Texas." Around the Northcott 24 SWD site, Snee and Zoback indicate a **S_{Hmax} direction of N010°E and an A_ϕ of 0.57, indicating an extensional (normal) stress regime.**

Induced seismicity is a growing concern of deep SWD wells. Relatively new software developed by the Stanford Center for Induced and Triggered Seismicity allows for the probabilistic screening of deeply penetrating faults near the proposed injection zone (Walsh et al., 2016; Walsh et al., 2017). This software uses parameters such as stress orientations, fault strike/dip, injection rates, fault friction coefficients, etc. to estimate the potential for fault slip. Using the best available data as input parameters (Table 2), the Fault Slip Potential (FSP) models suggest an eight (0.08) percent chance of slip on the nearest fault, inferred by Frenzel et al (1988) and Ewing et al. (1990), through the year 2040 (Fig 2; Table 1). **This model also suggests a minor pore pressure increase of 0.33 psi on the nearest fault (Fig. 3; Table 1) due to the proposed SWD well.**

GROUNDWATER SOURCES

Quaternary Alluvium acts as the principal aquifer used for potable ground water near the Northcott 24 SWD #1 location (Hendrickson and Jones, 1952). Nicholson and Clebsch (1961) state, "Potable ground water is not available below the Permian and Triassic unconformity but, because this boundary is not easily defined, the top of the Rustler anhydrite formation is regarded as the effective

EXHIBIT H

lower limit of 'potable' ground water." Around the Northcott 24 SWD #1, the top of a thick anhydrite unit interpreted to represent the Rustler Formation lies at a depth of ~375 feet bgs.

STRATIGRAPHY

Thick permeability barriers exist above (Woodford shale; 50 ft thick) and below (Simpson Group; 115 ft thick) the targeted Devonian injection zone (Plate 2, Comer et al., 1991; Fig. 8, Frenzel et al., 1988). Well data indicates ~11,500 ft of rock separating the top of the Devonian from the previously stated lower limit of potable water at the top of the Rustler anhydrite formation.

CONCLUDING STATEMENT

Geologic data evaluated around the Northcott 24 SWD #1 well show no potential structural or stratigraphic connection between the Devonian injection zone and any subsurface potable water sources. Based on Fault Slip Potential modeling there is an 8% probability (0.08) of inducing seismic activity along nearby deeply penetrating Precambrian faults.

EXHIBIT H

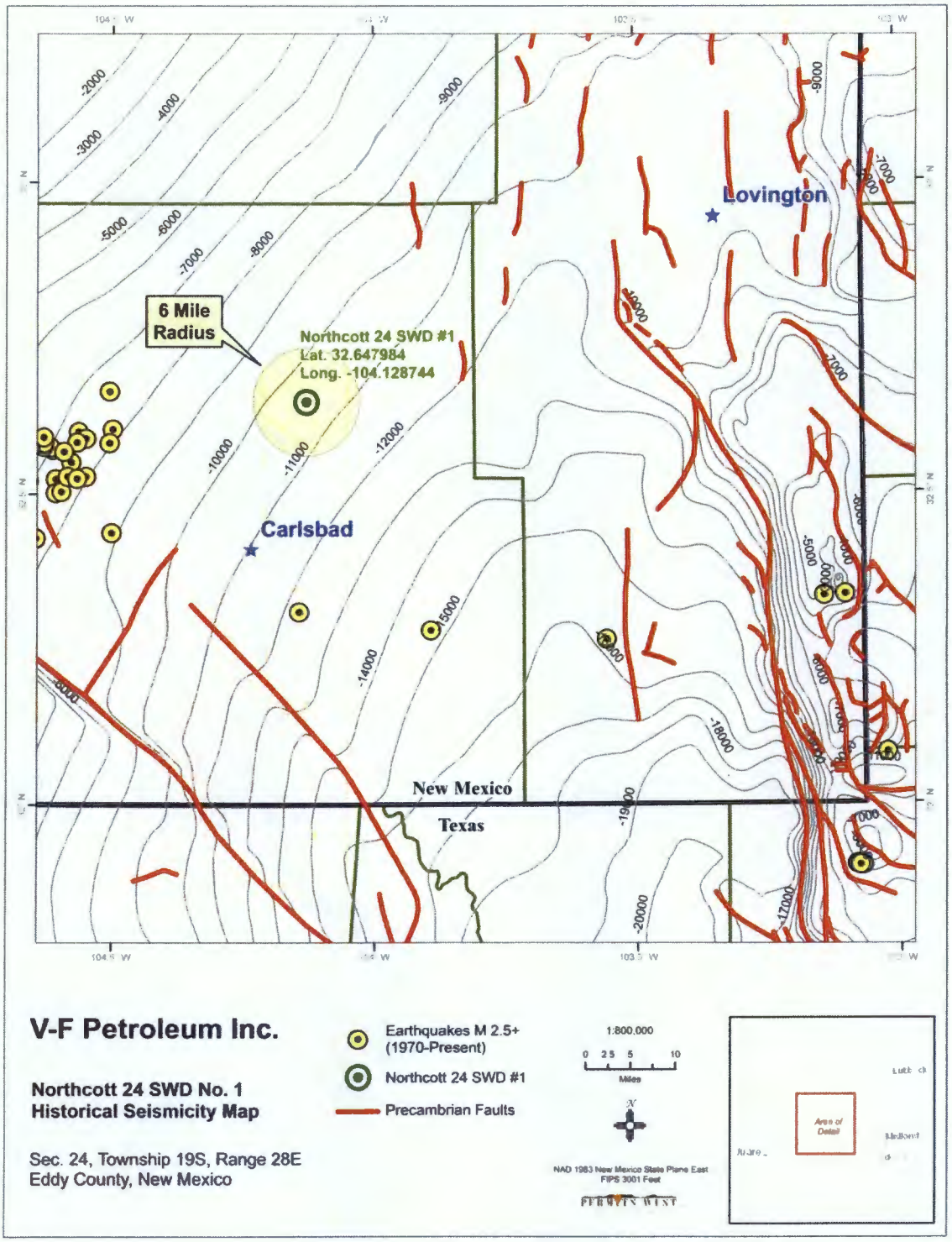


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Red lines represent the locations of Precambrian basement-penetrating faults (Ewing et al., 1990). The Northcott 24 SWD #1 well lies ~18 miles WSW of the closest deeply penetrating fault and 22 miles from the closest historic earthquake.

EXHIBIT H

Table 1: Nearby Basement Fault Information

ID	Distance from proposed Northcott 24 SWD (mi)	Strike (°)	Dip (°)	FSP	Pore Pressure change after 20 years (psi)
Fault 24	17.4	350	50	0.08	0.33
Fault 25	21.3	350	50	0.08	0.06
Fault 2	21.9	33	70	0.07	0.00

Table 2: Fault Slip Potential model input parameters

Faults	Value	Notes
Friction Coefficient	0.58	Ikari et al. (2011)
Dip Angle (deg)	70	Snee and Zoback (2018)
Stress		
Vertical stress gradient (psi/ft)	1.1	Hurd and Zoback (2012)
Max Horizontal Stress Direction (deg)	10	Snee and Zoback (2018)
Depth for calculations (ft)	14000	Proposed injection zone
Initial Reservoir Pressure Gradient (psi/ft)	0.7	calculated from mud wt (ppg) used in drilling at these depths
A Phi Parameter	0.57	Snee and Zoback (2018)
Reference Friction Coefficient	0.58	Ikari et al. (2011)
Hydrology		
Aquifer thickness (ft)	2000	Proposed injection zone
Porosity (%)	4	
Permeability (mD)	150	
Injection Rate (bbl/day)	25000	Maximum proposed injection rate

EXHIBIT H

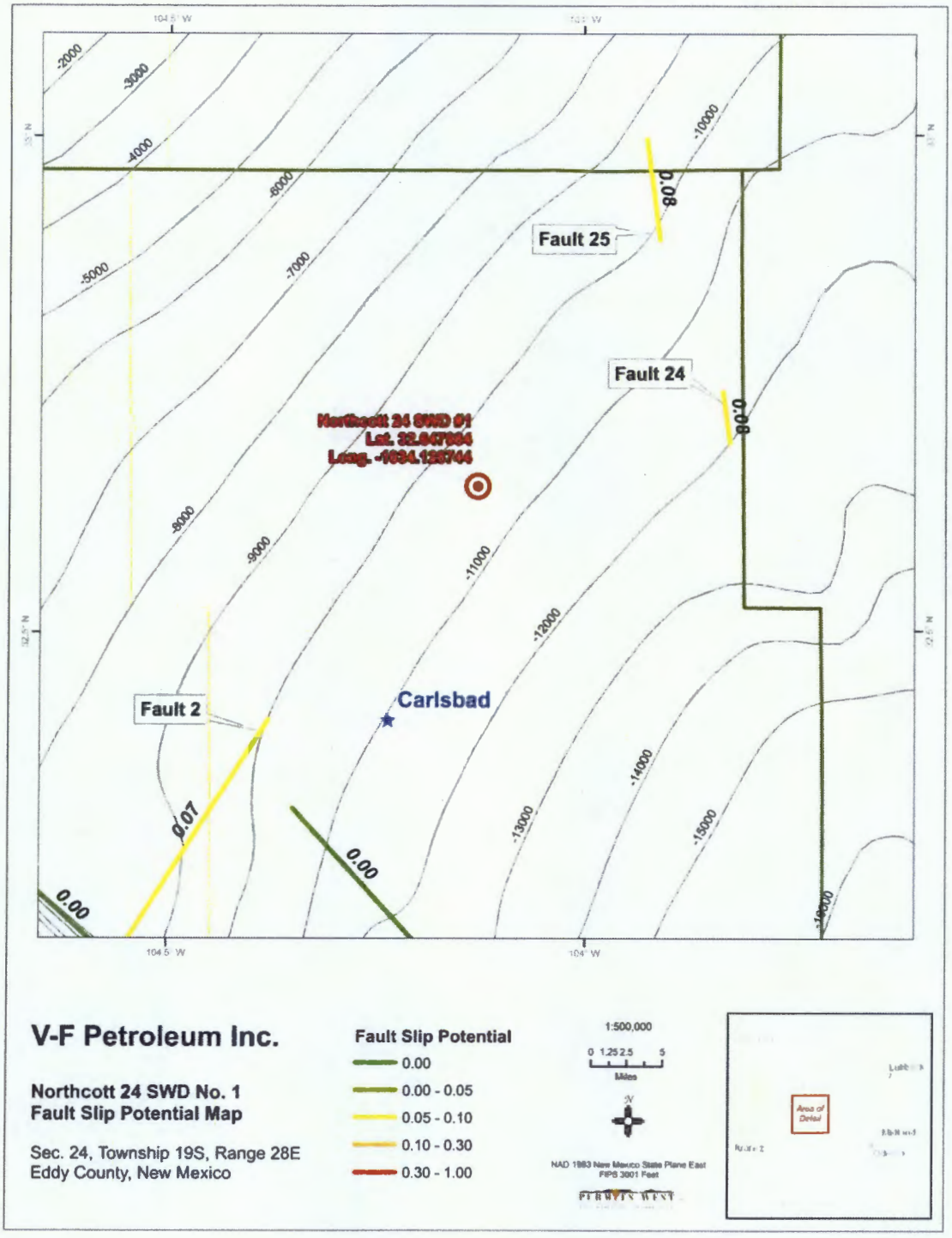


Figure 2. Precambrian fault map of southeastern New Mexico as mapped by Ewing et al. (1990). Faults are colored based on probability of fault slip as modeled using Fault Slip Potential software (Walsh and Zoback, 2016). Labeled values represent the calculated fault slip potential using the parameters indicated in Table 1. Contours show the top of the Precambrian basement in feet below sea level.

EXHIBIT H

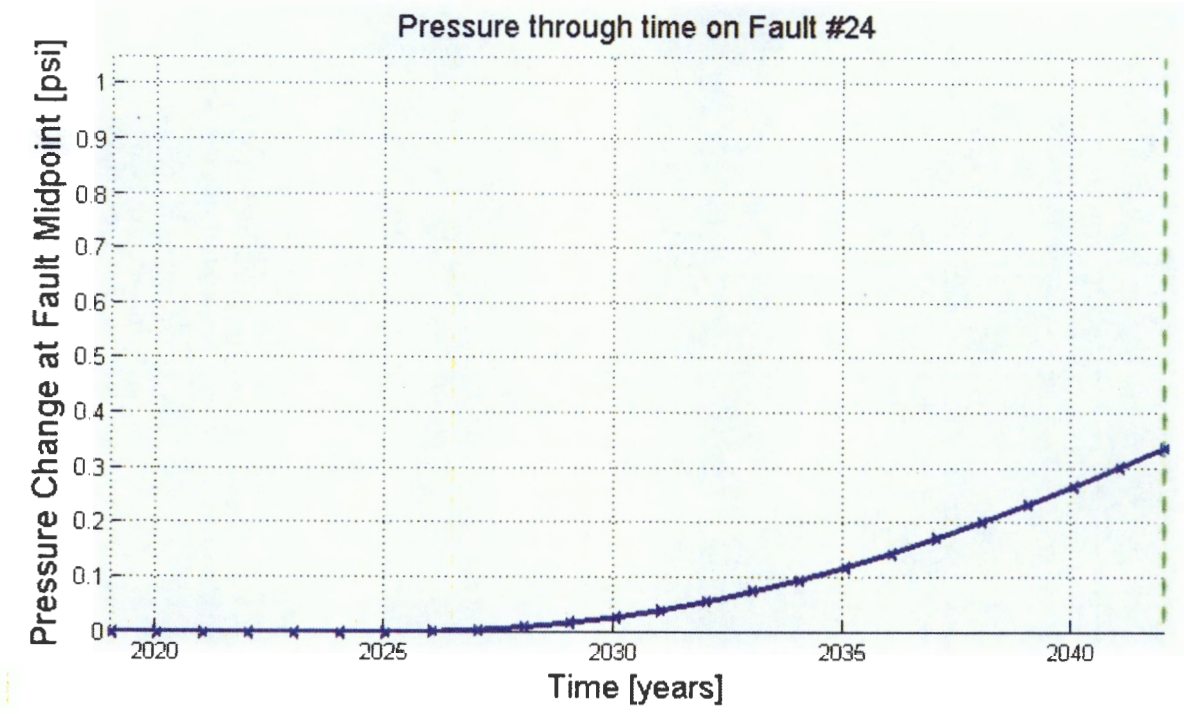


Figure 3. A scatter plot showing the modeled change of pore pressure on fault #24 through time, as a response to the proposed SWD well.

EXHIBIT H

References Cited

Comer, J. B., 1991, Stratigraphic Analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and Southeastern New Mexico: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 201, 63 p.

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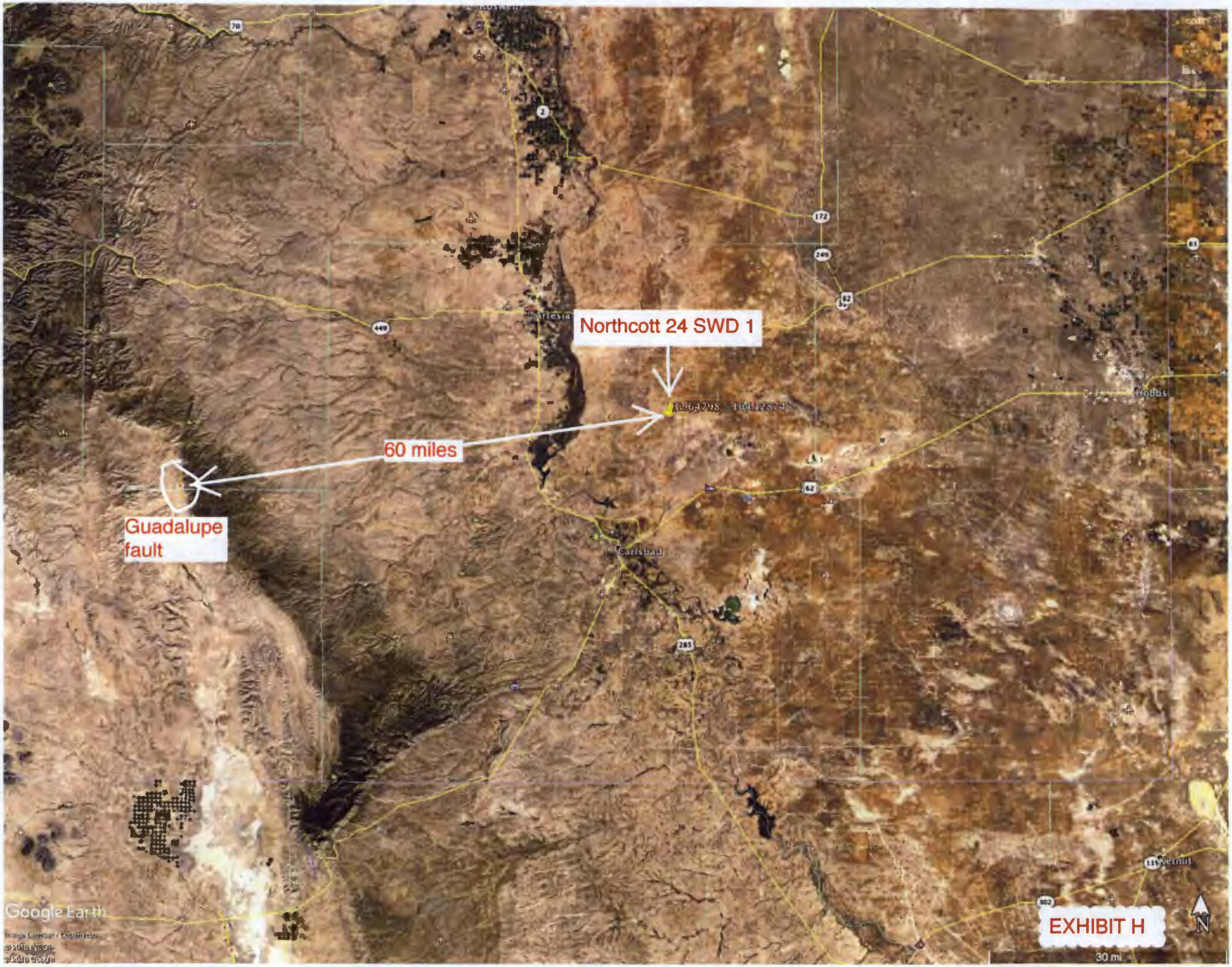
Zoback, M. L., and M. D. Zoback, 1980, State of stress in the conterminous United States: Journal of Geophysical Research, 85, no. B11, 6113–6156, https://doi.org/10.1029/JB085iB11p06113.


Northcott 24 SWD 1
60 miles
Guadalupe fault
Artesia
Carlsbad
Hobbs
Google Earth
EXHIBIT H
30 mi
N

CARLSBAD
CURRENT-ARGUS

EXHIBIT I

AFFIDAVIT OF PUBLICATION

Ad No.
0001277680

F. /
37 VERANO LOOP

SANTA FE NM 87508

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:

02/20/19

Legal Clerk

Subscribed and sworn before me this
20th of February 2019.

State of WI, County of Brown
NOTARY PUBLIC

9/19/21

My Commission Expires

V-F Petroleum Inc. will apply to drill the Northcott 24 SWD 1 as a saltwater disposal well. The well will dispose into the Devonian formation from 12,060' to 14,000'. It is 16 miles northeast of Carlsbad, NM at 2090 FNL & 2090 FEL Sec. 24, T. 19 S., R. 28 E., Eddy County, NM. Maximum disposal rate will be 25,000 bwpd. Maximum injection pressure will be 2,412 psi. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting: Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-8120.
Pub: Feb. 20, 2019

VICKY FELTY
NOTARY
PUBLIC
STATE OF WISCONSIN

Ad#:0001277680
P O :
# of Affidavits :0.00

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

EXHIBIT J

March 26, 2019

NM State Land Office
PO Box 1148
Santa Fe NM 87504

TYPICAL LETTER

V-F Petroleum Inc. is applying (see attached application) to drill the Northcott 24 SWD 1 as a saltwater disposal well. As required by NM Oil Conservation Division (NMOCD) rules, I am notifying you of the following proposal. This letter is a notice only. No action is needed unless you have questions or objections.

Well: Northcott 24 SWD 1 TD = 14,000'
Proposed Disposal Zone: Devonian (12,060' - 14,000')
Location: 2090' FNL & 2090' FEL Sec. 24, T. 19 S., R. 28 E., Eddy County, NM
Approximate Location: 16 miles northeast of Carlsbad, NM
Applicant Name: V-F Petroleum Inc. (432) 683-3344
Applicant's Address: PO Box 1889, Midland TX 79702

Submittal Information: Application for a saltwater disposal well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood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Carlsbad, NM 88220
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
GLORIETA, NM 87535-9998
MAR 27 2019
Postmark Here
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
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Adult Signature Restricted Delivery $
Postage
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Sent To Apache Corporation
303 Veterans Airpark Ln, #1000
Midland, TX 79705
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
GLORIETA, NM 87535-9998
MAR 27 2019
Postmark Here
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
7018 0680 0001 6412 5005


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Adult Signature Restricted Delivery $
Postage
Total Postage and Fees
Sent To Apache Corporation
2000 Post Oak Blvd #100
Houston, TX 77056-4400
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
GLORIETA, NM 87535-9998
MAR 27 2019
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Certified Mail Restricted Delivery
Adult Signature Required
Adult Signature Restricted Delivery $
Postage
Total Postage and Fees
Sent To Black Hills Gas Res, Inc
7001 Mt Rushmore Rd
Rapid City, SD 57702
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
GLORIETA, NM 87535-9998
MAR 27 2019
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140 Convent Ct
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Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
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Sent To COG Operating, LLC
600 W Illinois Ave
Midland, TX 79701
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
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P.O. Box 2064
Midland, TX 79702
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Sent To Colgate Operating, LLC
306 W Wall Street, Ste 500
Midland, TX 79701
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Adult Signature Required
Adult Signature Restricted Delivery $
Postage
Total Postage and Fees
Sent To Concho Oil & Gas
One Concho Ctr, 600 W Illinois Ave
Midland, TX 79701
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
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Adult Signature Restricted Delivery $
Postage
Total Postage and Fees
Sent To Devon Energy Prod Co
333 W Sheridan Ave
Oklahoma City, OK 73102
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
GLORIETA, NM 87535-9998
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Postage
Total Postage and Fees
Sent To Elliott Industries Ltd Ptnrshp
P.O. Box 1328
Santa Fe, NM 87504-1328
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
City, State, ZIP+4®
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Sent To Elliott-Hall Co
P.O. Box 1231
Ogden, UT 84402-1231
Street and Apt. No., or PO Box No. VE Northcott 24 SWD 1
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
GLORIETA, NM 87535-9998
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EOG Resources Assets LLC
5509 Champions Dr
Midland, TX 79706-2843
VE Northcott 24 SWD 1
7018 0680 0001 6411 3460


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Adult Signature Restricted Delivery
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Total Postage and Fees
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City, State, ZIP+4®
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
GLORIETA, NM 87535-9998
MAR 27 2019
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EOG Resources Inc
P.O. Box 4362
Houston, TX 77210-4362
VE Northcott 24 SWD 1
USPS
7018 0680 0001 6411 3477


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Total Postage and Fees
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City, State, ZIP+4®
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
GLORIETA, NM 87535-9998
MAR 27 2019
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John A Yates
105 S 4th Street
Artesia, NM 88210
VE Northcott 24 SWD 1
USPS
7018 0680 0001 6411 3484


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GLORIETA, NM 87535-9998
MAR 27 2019
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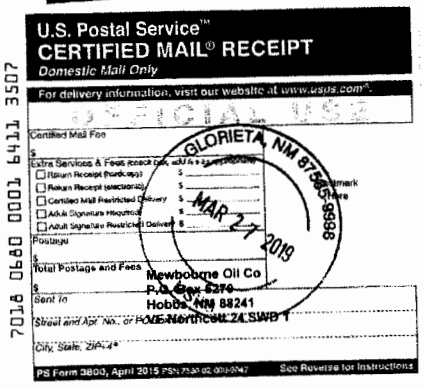
Matador Prod Company
One Lincoln Ctr, 5400 LBJ Fwy, Ste 1500
Dallas, TX 75240
VF Northcott 24 SWD 1
USPS
7018 0680 0001 6411 3491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MAR 27 2019
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Mewbourne Oil Co
P.O. Box 5270
Hobbs, NM 88241
VE Northcott 24 SWD 1
USPS
7018 0680 0001 6411 3507


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Mewbourne Oil Co
P.O. Box 7698
Tyler, TX 75711
VE Northcott 24 SWD 1
USPS
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MRC Permian Co
5400 LBJ Fwy, Ste 1500
Dallas, TX 75240
VE Northcott 24 SWD 1
USPS
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NM State Land Office
P.O. Box 1148
Santa Fe, NM 87504
VE Northcott 24 SWD 1
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Postage
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Sent To
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
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P.O. Box 27570
Houston, TX 77227-7570
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
GLORIETA, NM 87535-9998
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OXY USA WTP Limited Partnership
P.O. Box 4294
Houston, TX 77210
VE Northcott 24 SWD 1
USPS
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Roswell, NM 88202
VE Northcott 24 SWD 1
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Sharbro Energy LLC
P.O. Box 840
Artesia, NM 88211-0840
VE Northcott 24 SWD 1
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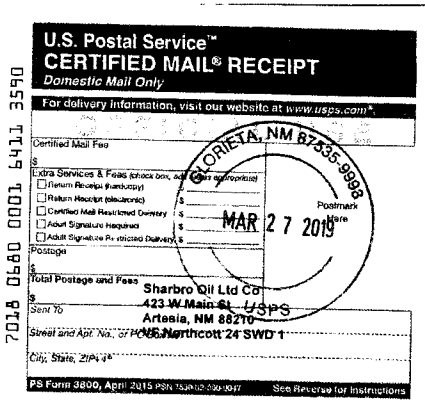
EXHIBIT J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Sharbro Oil Ltd Co
423 W Main St
Artesia, NM 88210
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Northcott 24 SWD 1
City, State, ZIP+4®
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Stephens & Johnson Op Co
P.O. Box 2249
Wichita Falls, TX 76307
Street and Apt. No., or PO Box No.
Northcott 24 SWD 1
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Vladin LLC
P.O. Box 100
Roswell, NM 88202-0100
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Northcott 24 SWD 1
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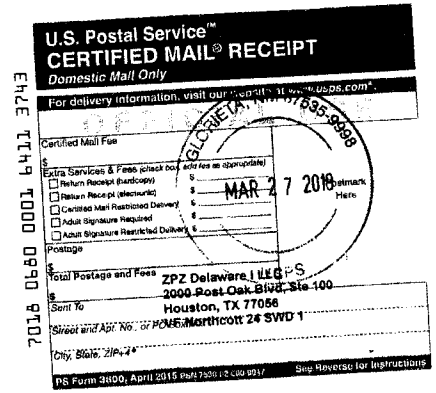
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ZPZ Delaware I LLC
2000 Post Oak Blvd, Ste 100
Houston, TX 77056
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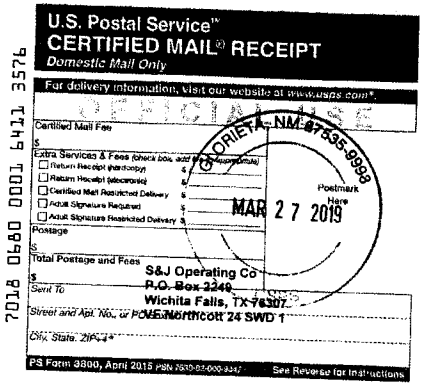
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Wichita Falls, TX 76307
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EXHIBIT J

McMillan, Michael, EMNRD

From:	McMillan, Michael, EMNRD
Sent:	Monday, April 15, 2019 3:50 PM
To:	'Brian Wood'
Cc:	Goetze, Phillip, EMNRD; Lowe, Leonard, EMNRD; Jones, William V, EMNRD; Chuck Moran (Charles_Moran@eogresources.com); 'fpi@t3wireless.com'
Subject:	Notification of Protest for Application to Inject -:Northcott 24 SWD #1 EOG
Attachments:	VFPetroleum Northcutt24SWD#1 EOG.pdf

RE: Northcott 24 SWD #1 (API 30-015-45743; Admin. Appl. No pMAM1908756065) Unit G; Sec 24, T19S, R28E, NMPM, Eddy County

Mr. Wood:

OCD was notified EOG Resources, Inc. that it is protesting this application. This party is identified as an affected person for the location being considered for the application. You are being notified that V-F Petroleum, Inc. wishes for this application to be considered, they must either go to hearing or may be reviewed administratively if the protest is withdrawn as a result of a negotiated resolution with this party. The application will be retained pending resolution of the protest. Please continue to provide OCD with information regarding the standing of this application. Please me call with any questions on this matter.

Contact for EOG Resources, Inc.
Chuck Moran
Landman
5509 Champions Drive
Midland, TX. 77046-0521
Phone: (432) 686-3684
E-mail: Charles_Moran@eogresources.com

Michael McMillan
1220 South St. Francis
Santa Fe, New Mexico
505-476-3448
Michael.mcmillan@state.nm.us

McMillan, Michael, EMNRD

From:	Charles Moran <Charles_Moran@eogresources.com>
Sent:	Monday, April 15, 2019 3:09 PM
To:	McMillan, Michael, EMNRD; Dawson, Scott, EMNRD; Goetze, Phillip, EMNRD; Lowe, Leonard, EMNRD
Cc:	fpi@t3wireless.com; Erin Lloyd
Subject:	[EXT] Protest-Northcott 24 SWD #1
Attachments:	Application for Northcott 24 SWD #1.pdf

Messer: McMillan, Dawson, Goetze and Lowe:

EOG Resources, Inc. protests the attached SWD applications of VF Petroleum, Inc.'s proposed Northcott 24 SWD #1. We request this application be set for hearing.

Chuck Moran
EOG Resources, Inc. – Midland Division
432-686-3684

McMillan, Michael, EMNRD

From: McMillan, Michael, EMNRD
Sent: Wednesday, April 17, 2019 10:09 AM
To: 'Brian Wood'
Subject: FW: Withdraw Protest- Northcott 24 SWD #1

FYI

Mike

From: McMillan, Michael, EMNRD
Sent: Wednesday, April 17, 2019 9:21 AM
To: 'Charles Moran' <Charles_Moran@eogresources.com>
Cc: fpi@t3wireless.com; Dawson, Scott, EMNRD <Scott.Dawson@state.nm.us>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Lowe, Leonard, EMNRD <Leonard.Lowe@state.nm.us>
Subject: RE: Withdraw Protest- Northcott 24 SWD #1

Thanks for the quick response. The application will now be placed back in administrative process

Mike

From: Charles Moran <Charles_Moran@eogresources.com>
Sent: Wednesday, April 17, 2019 9:17 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Cc: fpi@t3wireless.com; Dawson, Scott, EMNRD <Scott.Dawson@state.nm.us>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Lowe, Leonard, EMNRD <Leonard.Lowe@state.nm.us>
Subject: [EXT] Withdraw Protest- Northcott 24 SWD #1

Mr. McMillan: EOG has further reviewed the proposed Northcott 24 SWD #1 located 2090 FNL & 2090 FEL, Unit G of Sec. 24-19S-28E, Eddy County, New Mexico after discussions with VF Petroleum . At this time we withdraw our protest we filed by email on April 15, 2019.

Thank you.

Chuck Moran
EOG Resources, Inc. – Midland Division
432-686-3684

From: Charles Moran
Sent: Monday, April 15, 2019 4:08 PM
To: McMillan, Michael, EMNRD (Michael.McMillan@state.nm.us) <Michael.McMillan@state.nm.us>; Scott Dawson (scott.dawson@state.nm.us) <scott.dawson@state.nm.us>; phillip.goetze (phillip.goetze@state.nm.us) <phillip.goetze@state.nm.us>; Leonard Lowe (Leonard.Lowe@state.nm.us) <Leonard.Lowe@state.nm.us>
Cc: fpi@t3wireless.com; Erin Lloyd <Erin_Lloyd@eogresources.com>
Subject: Protest-Northcott 24 SWD #1

Messer: McMillan, Dawson, Goetze and Lowe:

McMillan, Michael, EMNRD

From: McMillan, Michael, EMNRD
Sent: Wednesday, April 17, 2019 9:21 AM
To: 'Charles Moran'
Cc: fpi@t3wireless.com; Dawson, Scott, EMNRD; Goetze, Phillip, EMNRD; Lowe, Leonard, EMNRD
Subject: RE: Withdraw Protest- Northcott 24 SWD #1

Thanks for the quick response. The application will now be placed back in administrative process

Mike

From: Charles Moran <Charles_Moran@eogresources.com>
Sent: Wednesday, April 17, 2019 9:17 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Cc: fpi@t3wireless.com; Dawson, Scott, EMNRD <Scott.Dawson@state.nm.us>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Lowe, Leonard, EMNRD <Leonard.Lowe@state.nm.us>
Subject: [EXT] Withdraw Protest- Northcott 24 SWD #1

Mr. McMillan: EOG has further reviewed the proposed Northcott 24 SWD #1 located 2090 FNL & 2090 FEL, Unit G of Sec. 24-19S-28E, Eddy County, New Mexico after discussions with VF Petroleum . At this time we withdraw our protest we filed by email on April 15, 2019.

Thank you.

Chuck Moran
EOG Resources, Inc. – Midland Division
432-686-3684

From: Charles Moran
Sent: Monday, April 15, 2019 4:08 PM
To: McMillan, Michael, EMNRD (Michael.McMillan@state.nm.us) <Michael.McMillan@state.nm.us>; Scott Dawson (scott.dawson@state.nm.us) <scott.dawson@state.nm.us>; phillip.goetze (phillip.goetze@state.nm.us) <phillip.goetze@state.nm.us>; Leonard Lowe (Leonard.Lowe@state.nm.us) <Leonard.Lowe@state.nm.us>
Cc: fpi@t3wireless.com; Erin Lloyd <Erin_Lloyd@eogresources.com>
Subject: Protest-Northcott 24 SWD #1

Messer: McMillan, Dawson, Goetze and Lowe:

EOG Resources, Inc. protests the attached SWD applications of VF Petroleum, Inc.'s proposed Northcott 24 SWD #1. We request this application be set for hearing.

Chuck Moran
EOG Resources, Inc. – Midland Division
432-686-3684

McMillan, Michael, EMNRD

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Cc: fpi@t3wireless.com; Dawson, Scott, EMNRD; Goetze, Phillip, EMNRD; Lowe, Leonard, EMNRD
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Cc: fpi@t3wireless.com; Erin Lloyd <Erin_Lloyd@eogresources.com>
Subject: Protest-Northcott 24 SWD #1

Messer: McMillan, Dawson, Goetze and Lowe:

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Chuck Moran
EOG Resources, Inc. – Midland Division
432-686-3684

McMillan, Michael, EMNRD

From: John Lodge <john@vfpetroleum.com>
Sent: Friday, April 26, 2019 4:15 PM
To: McMillan, Michael, EMNRD; Goetze, Phillip, EMNRD
Cc: T. M. Beall; jerry Gahr
Subject: [EXT] Fwd: V-F Northcott No.3 SWD, Section 24, T19S-R28E, Eddy County New Mexico

Gentlemen:

Pursuant to the prior discussions conducted between representatives of V-F Petroleum Inc. ("V-F") and Messrs. McMillan and Goetze of the NMOCD, please be advised that V-F operates the Northcott No. 3 Well as a Salt Water Disposal Well (API Number 30-015-22892) located in the referenced area that is currently injecting through perforations between 1,624' and 2,050'. V-F currently desires to either i) re-enter and deepen the Northcott No. 3 Well to the Devonian formation for disposal purposes, or ii) drill a new replacement wellbore (Northcott 24 SWD No. 1) to the Devonian formation for disposal purposes. Due to the potential unknown mechanical risks associated with the re-entry of Northcott No. 3 Well, it is the preference of V-F to drill the Northcott 24 SWD No. 1 as a new replacement wellbore, rather than re-enter and deepen the Northcott No. 3 Well.

As you are aware, V-F has submitted Form C-108 for the re-entry and deepening of the Northcott No. 3 Well, which has been approved by the OCD. Additionally, on March 28, 2019 V-F submitted Form C-108 for the drilling of the new Northcott 24 SWD No. 1 Well (located approximately 150' from the Northcott No. 3 Well) which has not been approved at this time. However, we have been advised that it would take approximately three (3) months to review this application, and if approved, it will be conditional based upon the relinquishment of the previously issued order for the re-entry and deepening of the Northcott No. 3 Well.

Our issue on this disposal project is one of timing. It is currently estimated that we could have a need to dispose of approximately 10,000 barrels per day of produced water on or before August 15, 2019, and given the current advisement on the potential approval of the Form C-108 for the drilling of the new Northcott 24 SWD No. 1 Well, there will not be sufficient time to drill, equip and install the required surface facilities for this new well in order to meet our needs. Consequently, we will have to assume the mechanical risk and commence operations for the re-entry of the Northcott No. 3 Well in order to meet our activity schedule, but this is not our preference.

If approval of Form C-108 for the drilling of the new Northcott 24 SWD No. 1 Well could be expedited such that we could commence drilling operations within fifteen (15) days, V-F would be happy to relinquish the previously issued order for the re-entry and deepening of the Northcott No. 3 Well.

We are most appreciative of your time in reviewing this matter and look forward to further advisement regarding same. Please note that we would be happy to come to your office in Santa Fe at your convience for further discussion on this matter.

Best Regards,

John E.Lodge
Business Development

V-F Petroleum Inc.
432-683-3344

FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V17]

DATE RECORD: First Rec: 3/28/19 **Admin Complete:** 3/28/19 **or Suspended:** 4/15/19 * EOG protest Add. Request/Reply: _____

ORDER TYPE: WFX / PMX / (SWD) Number: 2028 Order Date: 5/14/19 Legacy Permits/Orders: SWD-1734

Well No. 1 Well Name(s): Northcott 24 SWD * Protest WD 4/17/19

API : 30-0 15-45743 Spud Date: TBD New or Old (EPA): New (*UIC Class II Primacy 03/07/1982*)

Footages 2090' FNL / 2090' FEL Lot – or Unit G Sec 24 Tsp 19S Rge 28E County Eddy

General Location: ~16 miles NE of Carlsbad; SE of Millman field Pool: SWD; Devonian Pool No.: 96101

BLM 100K Map: Artesia Operator: V-F Petroleum INC. OGRID: 24010 Contact: B. Wood / Permits West

COMPLIANCE RULE 5.9: Total Wells: 97 Inactive: 1 **Fincl Assur:** OK Compl. Order? No **IS 5.9 OK?** Yes **Date:** 5/14/19 JMS

WELL FILE REVIEWED ✓ Current Status: New well as alternative to re-entry & deepening of existing Northcott No. 3

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

Planned Rehab Work to Well: NA-

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Stage Tool	Cement Sx or Cf	Cement Top and Determination Method
Planned ✓ or Existing __ **Surface**	26 / 20	0 to 400 ✓	Stage Tool	1000	Circulate to surf.
Planned ✓ or Existing __ **Interm/Prod**	17½ / 13 3/8	0 to 2800	None	1900	"
Planned ✓ or Existing __ **Interm/Prod**	12¼ / 9 5/8	0 to 12060	None	2400	" / CBL
Planned __ or Existing __ **Prod/Liner**	—	—	—	—	—
Planned __ or Existing __ **Liner**	—	—	—	—	—
Planned ✓ or Existing __ **OH / PERF**	8 3/4	12060 - 14000	Inj Length 1940		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		Mississippian	—
Confining Unit: (Litho.) Struc. (Por)	0	Woodford Sh	11900 (?)
Proposed Inj Interval TOP:	12060	Devonian	12060
Proposed Inj Interval BOTTOM:	14000	—	—
Confining Unit: Litho. Struc. Por.	2100'	Silurian	14100 (?)
Adjacent Unit: Litho. Struc. Por.		Ordovician	—

Completion/Operation Details:

Drilled TD — PBTD —

NEW TD 14000 NEW PBTD —

NEW Open Hole ✓ or NEW Perfs ○

Tubing Size 5.5 in. Inter Coated? Yes

Proposed Packer Depth 12000 ft

Min. Packer Depth 11960 (100-ft limit)

Proposed Max. Surface Press. 2412 psi

Admin. Inj. Press. 2412 (0.2 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P No *Noticed?* NA **BLM Sec Ord** No **WIPP** No *Noticed?* NA **Salt/Salado T:** 350 **B:** 600 **NW: Cliff House fm** —

USDW: Aquifer(s) Alluvial / Rustler / possible Ogallala Max Depth <200' **HYDRO AFFIRM STATEMENT By Qualified Person** ✓ (sample from ~1.2 mile from well)

NMOSE Basin: Capitan **CAPITAN REEF:** thru ___ adj ___ NA ✓ **No. GW Wells in 1-Mile Radius?** 0 FW Analysis? Yes-1.2 mile from well

Disposal Fluid: Formation Source(s) BS+WC+Artesia Grp + Upper Perm Analysis? Yes On Lease ○ Operator Only ○ or Commercial ✓

Disposal Interval: Inject Rate (Avg/Max BWPD): 15,000 / 25,000 Protectable Waters? No Source: Historically Adjacent Dev System: Closed or Open

HC Potential: Producing Interval? No Formerly Producing? No Method: Logs/DST/P&A/Other mudlog required 2-Mi Radius Pool Map ○

AOR Wells: 1/2-M ___ or ONE-M ✓ **RADIUS MAP/WELL LIST: Total Penetrating Wells:** 0 [AOR Hor: ___ AOR SWDs: ___]

Penetrating Wells: No. Active Wells 0 No. Corrective? 0 on which well(s)? — Diagrams? —

Penetrating Wells: No. P&A Wells 0 No. Corrective? 0 on which well(s)? — Diagrams? —

Induced-Seismicity Risk Assess: analysis submitted ✓ historical/catalog review ✓ fault-slip model ✓ **probability** Low

NOTICE: 1/2-M ___ or ONE-M ✓ : Newspaper Date 02/20/19 **Mineral Owner*** NMSLO & BLM (both noticed) Surface Owner NMSLO N. Date 03/27/19

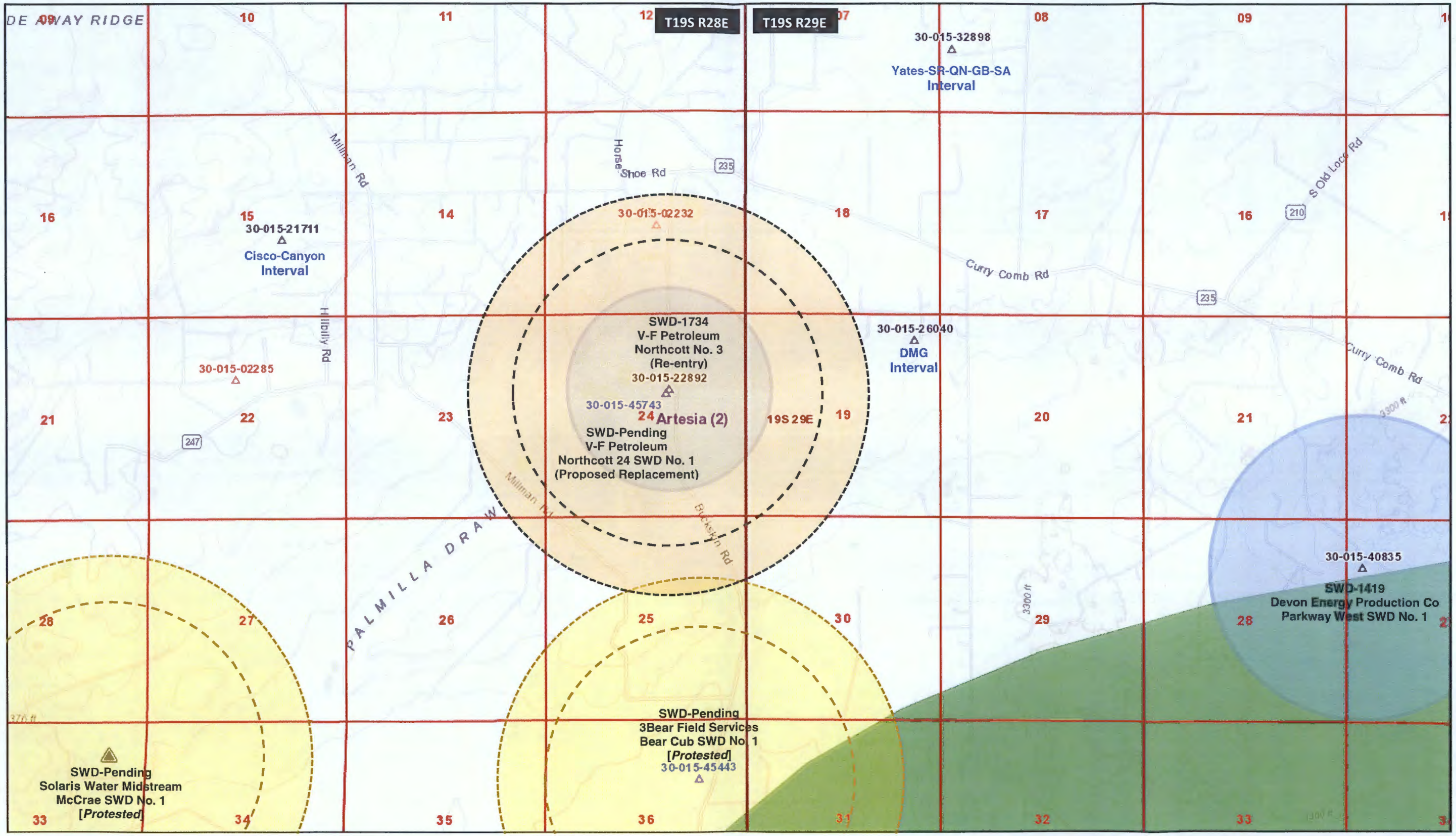
RULE 26.7(A): Identified Tracts? Yes **Affected Persons*:** Apache / COG / Devon / Elliot Ind. / Elliot & Hall / Black Hills / Colgate Op / EOG / Yates / Mewbourne / MRC / OXY + N. Date 03/27/19

* new definition as of 12/28/2018 [any the mineral estate of United States or state of New Mexico; SWD operators within the notice radius]

Order Conditions: **Issues:** SWD-1734; Devonian HC potential

Additional COAs: Rescind SWD-1734; CBL for 9 5/8 in casing into 13 3/8 casing; BH pressure; mudlog

Pending Application for High-Volume Devonian Disposal Well
Amended C-108 Application for Northcott 24 SWD No. 1 – V-F Petroleum Inc.



Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	175	175	red clay
175	194	19	sand and gravel -water
194	199	5	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER
ROSWELL, NM

Nov 20 8 38 AM '81

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Corky Glenn
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

SANTA FE

475336

Section 1. GENERAL INFORMATION

(A) Owner of well Threshold Development Co. Owner's Well No. _____
Street or Post Office Address 777 Tyler Street Suite 2A
City and State Fort Worth Texas 76102

Well was drilled under Permit No. CP 646 and is located in the:

a. _____ ¼ SW ¼ NW ¼ SE ¼ of Section 12 Township 19-S Range 29-E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD421

Address Box 692 Tatum, N.M. 88267

Drilling Began Oct. 29, Completed Nov. 3, 1981 Type tools Cable Size of hole 10 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 199 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 150 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
175	194	19		

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8 X	.156		1	200			150	200

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received November 20, 1981

Quad _____ FWL _____ FSL _____

File No. CP-646 Use OWD Location No. 19.29.7.41134