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

APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC TO APPROVE SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 20151

APPLICATION

NGL Water Solutions Permian, LLC ("NGL"), OGRID No. 372338, through its undersigned attorneys, hereby makes this application to the Oil Conservation Division pursuant to the provisions of N.M. Stat. Ann. § 70-2-12, for an order approving drilling of a salt water disposal well in Lea County, New Mexico. In support of this application, NGL states as follows:

(1) NGL proposes to drill the Tomahawk SWD #1 well at a surface location 220 feet from the North line and 2420 feet from the East line of Section 4, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well.

(2) NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,805' to 18,475'.

(3) NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day.

(4) NGL anticipates using an average pressure of 2,520 psi for this well, and it requests that a maximum pressure of 3,361 psi be approved for the well.

(5) A proposed C-108 for the subject well is attached hereto in Attachment A.

(6) The granting of this application will avoid the drilling of unnecessary wells, will prevent waste, and will protect correlative rights.

WHEREFORE, NGL requests that this application be set for hearing before an Examiner of the Oil Conservation Division on January 10, 2018; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS
& SISK, P.A.

By: Deana M. Bennett

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Deana Bennett
Post Office Box 2168
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Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
Attorneys for Applicant

CASE NO. _____: Application of NGL Water Solutions Permian, LLC for approval of salt water disposal well in Lea County, New Mexico. Applicant seeks an order approving disposal into the Silurian-Devonian formation through the Tomahawk SWD #1 well at a surface location 220 feet from the North line and 2420 feet from the East line of Section 4, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico for the purpose of operating a salt water disposal well. NGL seeks authority to inject salt water into the Silurian-Devonian formation at a depth of 16,805' to 18,475'. NGL further seeks approval of the use of 7 inch tubing inside the surface and intermediate casings and 5 ½ inch tubing inside the liner and requests that the Division approve a maximum daily injection rate for the well of 50,000 bbls per day. Said area is located approximately 16.9 miles northwest of Jal, New Mexico.

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

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: NGL WATER SOLUTIONS PERMIAN LLC **OGRID Number:** 372338
Well Name: TOMAHAWK SWD #1 **API:** TBD
Pool: SWD; SILURIAN-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.

CHRIS WEYAND
Print or Type Name

11/16/2018
Date

512-600-1764
Phone Number

Signature

CHRIS@LONQUIST.COM
e-mail Address

EXHIBIT A

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 __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: NGL WATER SOLUTIONS PERMIAN, LLC

ADDRESS: 1509 W WALL ST // STE 306 // MIDLAND, TX 79701

CONTACT PARTY: SARAH JORDAN PHONE: (432) 685-0005 x1989

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____ Yes __X__ No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

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

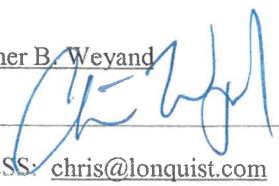
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Christopher B. Weyand TITLE: Consulting Engineer

SIGNATURE:  DATE: 11/16/2018

E-MAIL ADDRESS: chris@lonquist.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

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: NGL WATER SOLUTIONS PERMIAN, LLC

WELL NAME & NUMBER: TOMAHAWK SWD #1

WELL LOCATION:	220' FNL & 2,420' FEL	B	4	25S	34E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24.000"

Casing Size: 20.000"

Cemented with: 1,184 sx.

or _____ ft^3

Top of Cement: Surface

Method Determined: Circulation

1st Intermediate Casing

Hole Size: 17.500"

Casing Size: 13.375"

Cemented with: 4,983 sx.

or _____ ft^3

Top of Cement: Surface

Method Determined: Circulation

2nd Intermediate Casing

Hole Size: 12.250"

Casing Size: 9.625"

Cemented with: 3,295 sx.

or _____ ft^3

Top of Cement: Surface

Method Determined: Circulation

Production Liner

Hole Size: 8.500"

Casing Size: 7.625"

Cemented with: 330 sx.

or _____ ft^3

Top of Cement: 11,900'

Method Determined: Calculation

Total Depth: 18,475'

Injection Interval

16,805 feet to 18,475 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 26 lb/ft, P-110, TCPC from 0'- 11,800' and 5.500", 17 lb/ft, P-110 TCPC from 11,800' – 16,780'
Lining Material: Duoline

Type of Packer: 7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

Packer Setting Depth: 16,780'

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

Additional Data

1. Is this a new well drilled for injection? ___X___Yes _____No

   If no, for what purpose was the well originally drilled? N/A

2. Name of the Injection Formation: Devonian, Silurian, Fusselman and Montoya (Top 100')

3. Name of Field or Pool (if applicable): SWD; Silurian-Devonian

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, new drill.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
   Bone Spring: 9,144'
   Wolfcamp: 12,034'
   Strawn: 13,428'
   Atoka: 13,726'
   Morrow: 14,103'

Tomahawk SWD | **Location - Sec 4, 25S, 34E** | **TD** 18,475 | **Directions to Site** - 21.4m NW from Jal NM Lat/Long - 32.1661694, -103.4741444

Lea County NM | Drilling and Complete Cost - $10.69MM | AFE # | GL/KB 3,365

Vertical Injection - Devonian, Silurian, Fusselman, Montoya

Geologic Tops (MD ft)	Section	Problems	Bit/BHA	Mud	Casing	Logging	Cement (HOLD)	Injection String
Rustler Anhydrite 994 **Surface TD - 1400**	**Surface** Drill 24" 0' - 1400 Set and Cement 20" Casing	Loss Circulation Hole Cleaning Wellbore stability in the Red Beds Anhydrite in the Rustler	24" Tricone 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface	Spud Mud MW< 9.0	1420' of 20" K55 133ppf STC Centralizers - bottom 2 joints and every 3rd jt thereafter, Cement basket at 200'	No Logs	Lead -499 sx of HES Extenda Cem, 13.7ppg, 4.5hrs TT Tail - 685x of Halcem 3hr TT 25% Excess 1000psi CSD after 10hrs	
Saldado 1419 **1st Int TD - 5300**	**1st Intermediate** Drill 3900' of 17-1/2" Hole 1400' - 5300' Set and Cement 13-3/8" Casing	Seepage Losses Possible H2S Anhydrite Salt Sections	17-1/2" PDC 9-5/8" x 8" MM 9 jts: 8" DC 21 jts: 5" HWDP 5 " DP to surface		5M A Section Casing Bowl. Stage tool positioned at top of salt 5300' of 13-3/8" 68# HCL80 BTC Centralizers - bottom jt, every 3rd joint in open hole and 2 jt inside the surface casing	Mudlogger on site by 1650'	**Stage 2** - 1316 sx of Halcem 13.7ppg (60% XS) **Stage 1** - 3667 sx of Halcem 13.7ppg (60% XS)	11,800' of 7" P110 26# TCPC
ECP DV Tool - 5260 Delaware 5257 Cherry Canyon - 6235 Brushy 7928 **DV Tool - 9200** Bone Spring - 9144 **3rd Int Liner Top - 11,900** Wolfcamp - 12034 **2nd Int TD - 12,400**	**2nd Intermediate** Drill 7100' of 12-1/4" Hole 5300' - 12,400' Set 9-5/8" Intermediate Casing and Cement in 3 Stages	Hard Drilling in the Brushy Canyon Seepage to Complete Loss Water Flows Some Anhydrite H2S possible Production in the Bone Spring and Wolfcamp Ballooning is possible in Cherry Canyon and Brushy if Broken Down	12-1/4" PDC 8" MM 9jts: 8" DC 8" Drilling Jars 21 jts: 5" HWDP 5" DP to Surface	8.5 ppg OBM High Vis Sweeps UBD/MPD usig ADA	10M B Section 12400' of 9-5/8" 53.5# P110 BTC **Special Drift to 8.535"** **Externally Coat Between DV Tools** DV tool at at 9200' ECP DV Tool 40' Inside Previous Casing Centralizers - bottom jt, 100' aside of DV tool, every 3rd joint in open hole and 5 within the surface casing	MWD GR Triple combo + CBL of 13-3/8" Casing	**Stage 3: 0% Excess** Lead 663sx Neocem 12.9 ppg Tail 534sx Halcem 14.8ppg 1000psi CSD after 10 hrs Cement to Surface **Stage 2: 25% Excess** Lead 480sx Neocem 12.9 ppg Tail 650sx Halcem 14.8ppg 1000psi CSD after 10 hrs **Stage 1: 25% Excess** Lead 498sx Neocem 12.9 ppg Tail 471sx Halcem 14.8ppg. 1000psi CSD after 10hrs	4980 of 5-1/2" P110 17# TCPC Duoline Internally Coated Injection Tubing
Strawn - 13428 Atoka - 13726 Morrow - 14103 Miss Lst - 16283 Woodford - 16605 Perm Packer - 16,780 **3rd Int TD - 16,805**	**3rd Intermediate** Drill 4405' of 8-1/2" Hole 12400 - 16805' Set 7-5/8" Liner and Cement in Single Stage	High Pressure (up to 15ppg) and wellbore instability (fracturing) expected in the Atoka 150 target radius Hard Drilling in the Morrow Clastic	8-1/2" PDC 6-3/4" MM 9 jts: 6" DC 21 jts: 5" HWDP 5" DP to Surface	12.5 ppg OBM UBD/MPD using ADA	4905' of 7-5/8" 39# Q125 - **DTL (FJ4) FJ (Gas Tight)** **VersaFlex Packer Hanger** Centralizers on and 1 jt above shoe jt and then every 2nd jt.	MWD GR Triple combo, CBL of 9-5/8" Casing	330 sx of Halcem 13.7ppg Cement (30% XS)	7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and full Inconel 925 trim
Devonian - 16,785 **Fusselman - 17805** **Montoya - 18,375'** **TD - 18,475'**	**Injection Interval** Drill 1670' of 6-1/2" hole 16805' - 18475'	Chert is possible Well flows or LC is expected H2S encountered on the Striker 3 well BHT estimated at 280F	6-1/2" PDC 4-3/4"MM 9 jts: 4-3/4" DC 4-3/4" Drilling Jars 18 jts: 4" FH HWDP 4" FH DP to Surface	Drill with Brine water	Openhole completion	MWD GR Triple Combo with FMI, CBL of 7-5/8"	Brine Water in OH	

NGL Water Solutions Permian, LLC

Tomahawk SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Tomahawk SWD
Well No.	1
Location	S-4 T-25S R-34E
Footage Location	220' FNL & 2,420' FEL

2.

a. Wellbore Description

Casing Information				
Type	Surface	Intermediate	Production	Liner
OD	20"	13.375"	9.625"	7.625"
WT	0.635"	0.480"	0.545"	0.500"
ID	18.730"	12.415"	8.535"	6.625"
Drift ID	18.542"	12.259"	8.535"	6.500"
COD	21.00"	14.375"	10.625"	7.625"
Weight	133 lb/ft	68 lb/ft	53.5 lb/ft	39 lb/ft
Grade	K-55	HCL-80	P-110	Q-125
Hole Size	24"	17.5"	12.25"	8.5"
Depth Set	1,400'	5,300'	12,400'	16,805'

b. Cementing Program

Cement Information				
Casing String	Surface	Intermediate	Production	Liner
Lead Cement	Extenda Cem	-	Neocem, Neocem, Neocem	-
Lead Cement Volume	499	-	Stage 1: 498 sx Stage 2: 480 sx Stage 3: 663 sx	-
Tail Cement	Halcem	Halcem, Halcem	Versacem C, Halcem, Halcem	Halcem
Tail Cement Volume	685	Stage 1: 3,667 Stage 2: 1,316	Stage 1: 471 sx Stage 2: 650 sx Stage 3: 534 sx	330
Cement Excess	25%	60%	25%, 25%, 0%	35%
TOC	Surface	Surface	Surface	11,900'
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information		
OD	7"	5.5"
WT	0.362"	0.304"
ID	6.276"	4.892"
Drift ID	7.875"	6.050"
COD	6.151"	4.653"
Weight	26 lb/ft	17 lb/ft
Grade	P-110 TCPC	P-110 TCPC
Depth Set	0'-11,800'	11,800' -16,780'

Tubing will be lined with Duoline.

4. Packer Description

7-5/8" x 5-1/2" TCPC Permanent Packer with High Temp Elastomer and Full Inconel 925 trim

B. Completion Information

1. Injection Formation: Devonian, Silurian, Fusselman, Montoya (Top 100')
2. Gross Injection Interval: 16,805' – 18,475'

   Completion Type: Open Hole
3. Drilled for injection.
4. See the attached wellbore schematic.
5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Bone Spring	9,144'
Wolfcamp	12,034'
Strawn	13,428'
Atoka	13,726'
Morrow	14,103'

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injection:

   Average Volume: 40,000 BPD
   Maximum Volume: 50,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

   Average Injection Pressure: 2,520 PSI (surface pressure)
   Maximum Injection Pressure: 3,361 PSI (surface pressure)

4. The injection fluid is to be locally produced water. It is expected that the source water will predominantly be from the Bone Spring and Wolfcamp formations. Attached are produced water sample analyses taken from the closest wells that feature samples from the Delaware, Bone Spring, Wolfcamp, Strawn, Atoka, and Morrow formations.

5. The disposal interval is non-productive. No water samples are available from the surrounding area.

VIII. Geological Data

The Devonian formation is a dolomitic ramp carbonate that occurs below the Woodford shale and above the Fusselman formation. Strata found in the Devonian formation include two major groups, the Wristen Buildups and the Thirtyone Deepwater Chert, with the Wristen being more abundant. The Wristen Groups is composed of mixed limestone and dolomites with mudstone to grainstone and boundstone textures. Porosity in the Wristen group is a result of both primary and secondary development. Present are moldic, vugular, karstic (including collapse breccia) features that allow for higher porosities and permeabilities. The Thirtyone Formation contains two end-member reservoir facies, skeletal packstones/grainstones and spiculitic chert, with most of the porosity and permeability found in the coarsely crystalline cherty dolomite. These particular characteristics allow for this formation to be a tremendous Salt Water Disposal horizon.

A. Injection Zone: Siluro-Devonian Formation

Formation	Depth
Rustler	994'
Salado	1,419'
Delaware	5,257'
Cherry Canyon	6,235'
Brushy Canyon	7,928'
Bone Spring	9,144'
Wolfcamp	12,034'
Strawn	13,428'
Atoka	13,726'
Morrow	14,103'
Mississippian Lime	16,283'
Woodford	16,605'
Devonian	16,785'
Fusselman	17,805'
Montoya	18,375'

B. Underground Sources of Drinking Water

No water wells exists within one mile of the proposed Tomahawk SWD #1 location. Water wells in the surrounding area have an average depth of 293 ft and an average water depth of 241 ft generally producing from the Santa Rosa. The upper Rustler may also be another USDW and will be protected.

IX. Proposed Stimulation Program

Stimulate with up to 50,000 gallons of acid.

X. Logging and Test Data on the Well

There are no logs or test data on the well. During the process of drilling and completion resistivity, gamma ray, and density logs will be run.

XI. Chemical Analysis of Fresh Water Wells

No water wells exist within one mile of the proposed well location.

XII. Affirmative Statement of Examination of Geologic and Engineering Data

Based on the available engineering and geologic data we find no evidence of open faults or any other hydrologic connection between the disposal zone (in the proposed **Tomahawk SWD #1**) and any underground sources of drinking water.

NAME: John C. Webb

TITLE: Sr. Geologist

SIGNATURE: John C Webb

DATE: Nov. 4 2018

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 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	2. OGRID Number
NGL WATER SOLUTIONS PERMIAN, LLC 1509 W WALL ST, STE 306 MIDLAND, TX 79701	372338
	3. API Number TBD

4. Property Code	5. Property Name	6. Well No.
	TOMAHAWK SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
B	04	25S	34E	N/A	220'	NORTH	2,420'	EAST	LEA

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
	-	-	-		-	-	-	-	-

9. Pool Information

Pool Name	Pool Code
SWD; Silurian-Devonian	96101

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	SWD	R	Private	3,345'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	18,475'	Siluro-Devonian	TBD	ASAP

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water
241'	> 1 mile	505'

☐ 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	24"	20"	133 lb/ft	1,400'	1,184	Surface
Intermediate	17.5"	13.375"	68 lb/ft	5,300'	4,983	Surface
Production	12.25"	9.625"	53.5 lb/ft	12,400'	3,295	Surface
Prod. Liner	8.5"	7.625"	39 lb/ft	11,900' – 16,805'	330	11,900'
Tubing	N/A	7"	26 lb/ft	0' – 11,800'	N/A	N/A
Tubing	N/A	5.5"	17 lb/ft	11,800' – 16,780'	N/A	N/A

Casing/Cement Program: Additional Comments

See attached schematic.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydrualic/Blinds, Pipe	10,000 psi	8,000 psi	TBD – Schaffer/Cameron

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 ☐ and/or 19.15.14.9 (B) NMAC ☒ if applicable.** Signature:	OIL CONSERVATION DIVISION
	Approved By:
Printed name: Christopher B. Wevand	Title:
Title: Consulting Engineer	Approved Date: / Expiration Date:
E-mail Address: chris@lonquist.com	
Date: 11/15/2018 / Phone: (512) 600-1764	Conditions of Approval Attached

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, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	96101	SWD; Silurian-Devonian

[4] Property Code	[5] Property Name	[6] Well Number
	TOMAHAWK SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372338	NGL WATER SOLUTIONS PERMIAN, LLC	3345.00'±

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	04	25 S	34 E	N/A	220'	NORTH	2420'	EAST	LEA

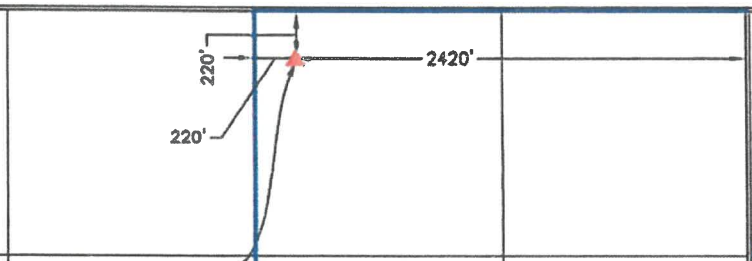
[11] Bottom Hole Location If Different From Surface

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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] 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.

[16]



PROPOSED TOMAHAWK SWD 1

NMSP–E (NAD27)
N: 425,190.52'
E: 766,013.42'

NMSP–E (NAD83)
N: 425,248.81'
E: 807,198.97'
Lat: N32°09'58.21"
Long: W103°28'26.92"

SECTION 04

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature — Date: 11/16/2018

Chris Weyand
Printed Name

chris@lonquist.com
E-mail Address

[18] SURVEYOR CERTIFICATION

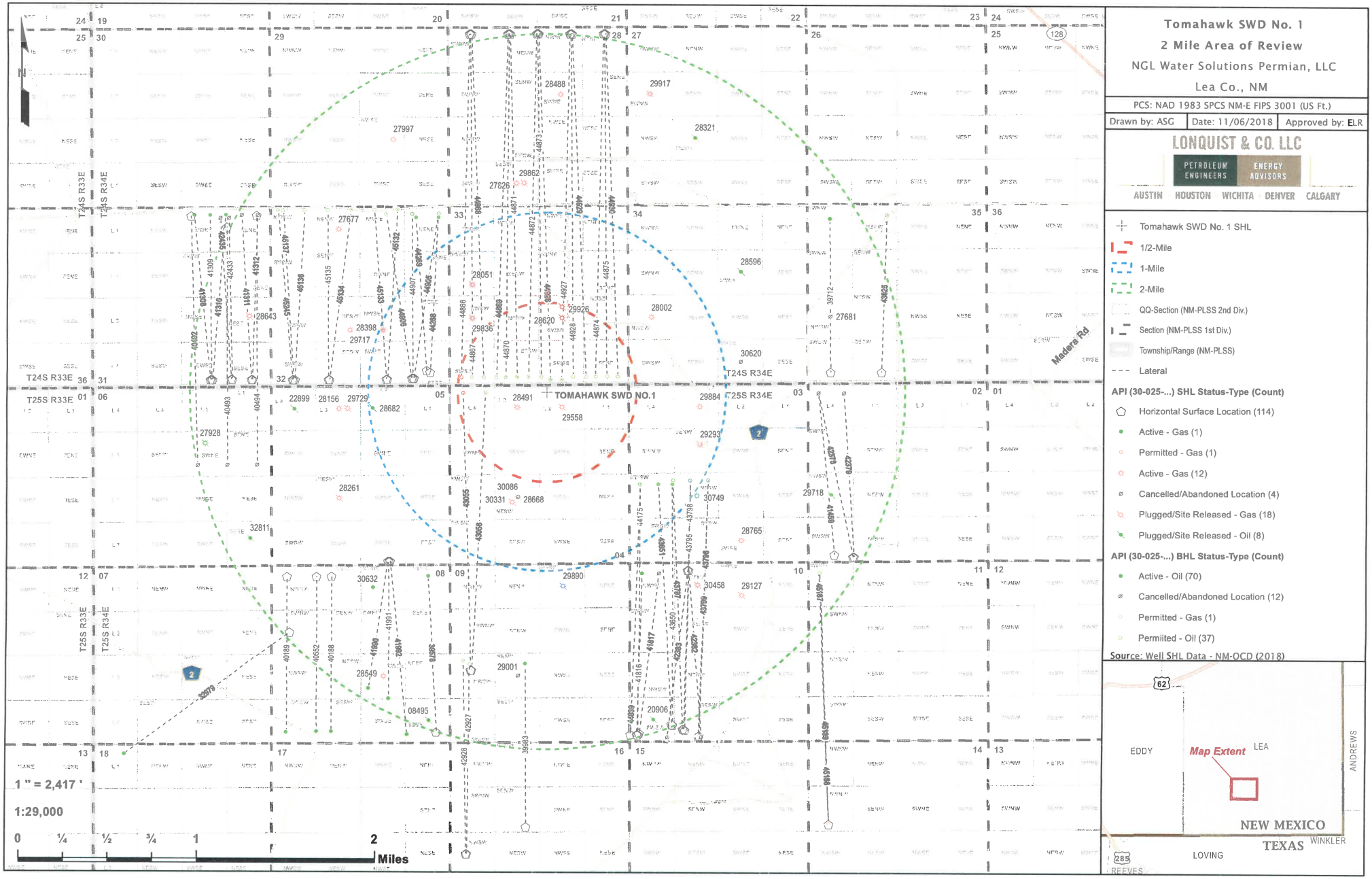
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

10/23/18
Date of Survey

Signature and Seal of Professional Surveyor

GODY A. CLARK
NEW MEXICO
23001
PROFESSIONAL SURVEYOR

23001
Certificate Number



Tomahawk SWD No. 1
2 Mile Area of Review
NGL Water Solutions Permian, LLC
Lea Co., NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: ASG	Date: 11/06/2018	Approved by: ELR

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY

- Tomahawk SWD No. 1 SHL
- 1/2-Mile
- 1-Mile
- 2-Mile
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (NM-PLSS)
- Lateral

API (30-025-...) SHL Status-Type (Count)

- Horizontal Surface Location (114)
- Active - Gas (1)
- Permitted - Gas (1)
- Active - Gas (12)
- Cancelled/Abandoned Location (4)
- Plugged/Site Released - Gas (18)
- Plugged/Site Released - Oil (8)

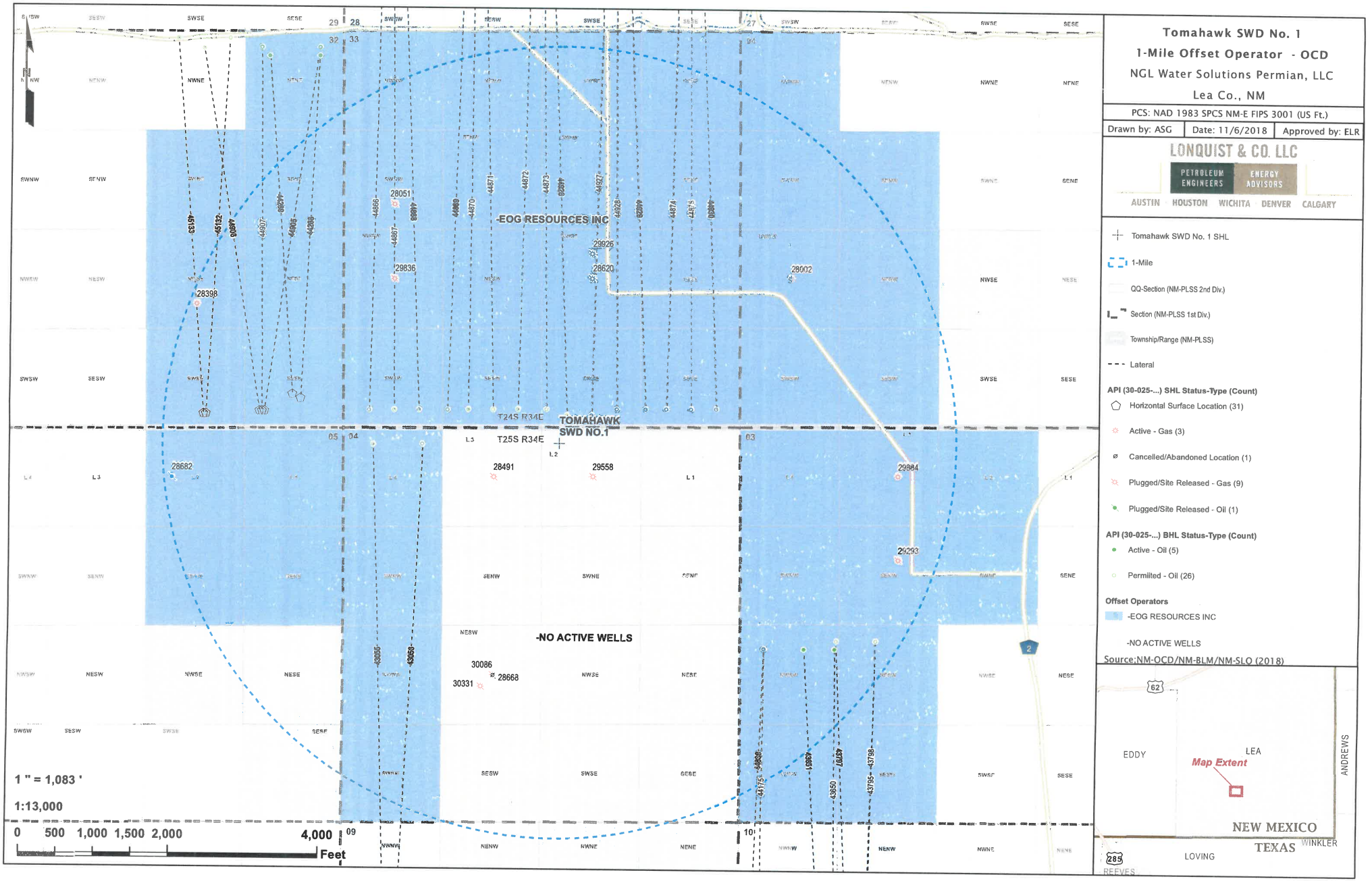
API (30-025-...) BHL Status-Type (Count)

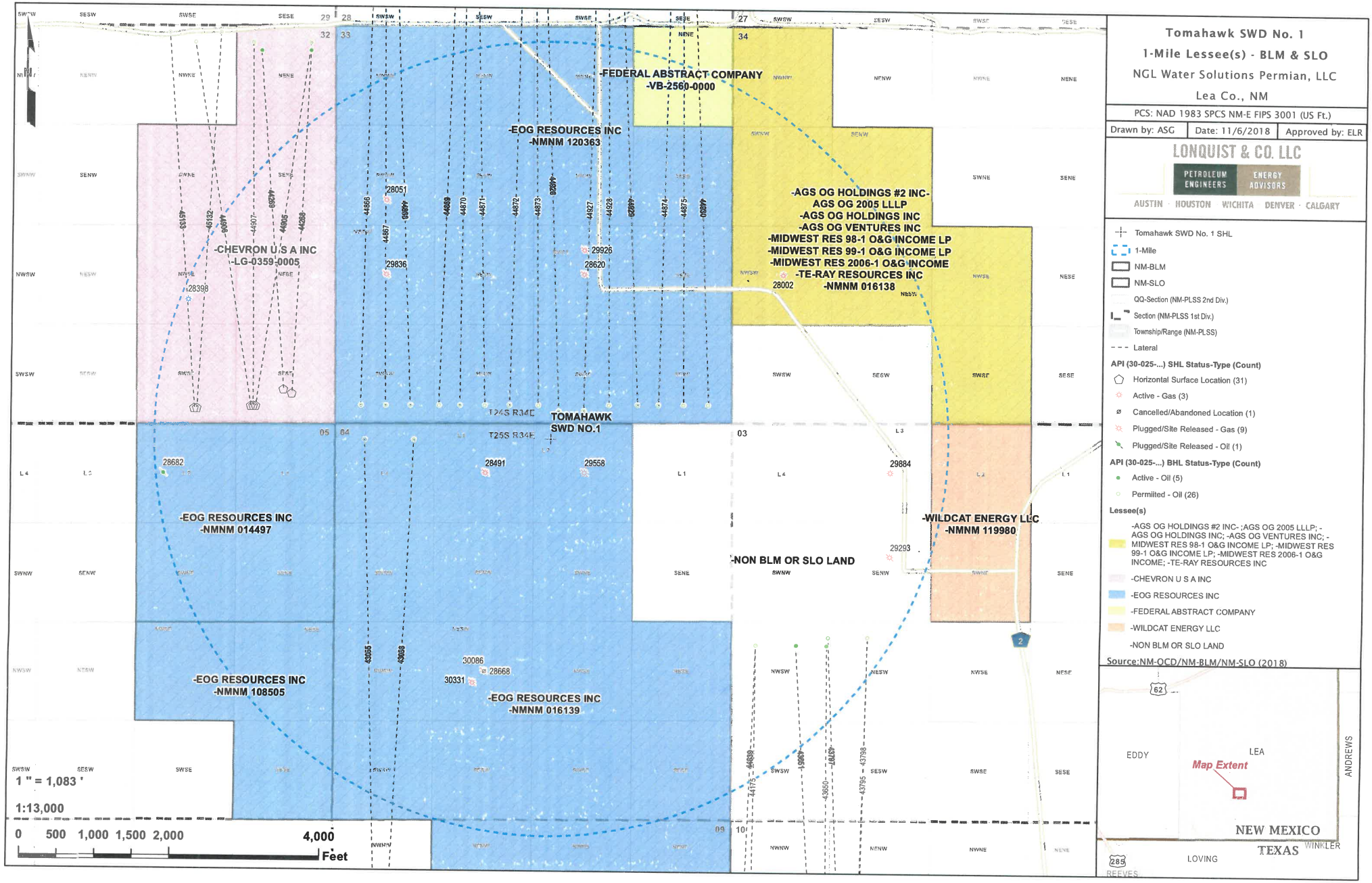
- Active - Oil (70)
- Cancelled/Abandoned Location (12)
- Permitted - Gas (1)
- Permitted - Oil (37)

Source: Well SHL Data - NM-OCD (2018)

Tomahawk SWD No. 1
1 Mile Area of Review List

API (30-025-...)	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE (NAD83 DD)	LONGITUDE (NAD83 DD)	DATE DRILLED
28002	PITCHFORK 34 FEDERAL COM #001	G	A	EOG RESOURCES INC	15435	32.17219160	-103.46417240	11/11/1982
28051	MADERA 33 FEDERAL COM #001	G	P	EOG RESOURCES INC	15130	32.17493820	-103.48122410	2/18/1982
28398	MADERA 32 STATE #002	G	A	EOG RESOURCES INC	15160	32.17131040	-103.48975370	10/5/1983
28491	VACA RIDGE 4 FEDERAL COM #001	G	P	EOG RESOURCES INC	15160	32.16494750	-103.47695160	12/17/1983
28620	MADERA 33 FEDERAL COM #002	G	P	EOG RESOURCES INC	15159	32.17220310	-103.47270200	5/9/1984
28668	PRE-ONGARD WELL #001C	O	C	PRE-ONGARD WELL OPERATOR	0	32.15768643	-103.47695520	12/31/9999
28682	DIAMOND 5 FEDERAL #002	O	P	EOG RESOURCES INC	5583	32.16496280	-103.49082180	1/1/1900
29293	PAGE 3 COM #001	G	P	EOG RESOURCES INC	15600	32.16185380	-103.45956420	6/19/1985
29558	VACA RIDGE 4 FEDERAL COM #002	G	P	ROBERT E. LANDRETH	13975	32.16494370	-103.47268680	1/2/1986
29836	MADERA 33 FEDERAL COM #003	G	P	EOG RESOURCES INC	13960	32.17221070	-103.48122410	7/19/1987
29884	PAGE 3 COM #002	G	A	EOG RESOURCES INC	14110	32.16493230	-103.45956420	12/31/9999
29926	MADERA 33 FEDERAL COM #004	G	P	EOG RESOURCES INC	14000	32.17310330	-103.47270200	7/18/1987
30086	PITCHFORK 4 FEDERAL #001	G	P	EOG RESOURCES INC	15230	32.15769580	-103.47698210	12/31/9999
30331	PITCHFORK 4 FEDERAL #002	G	P	EOG RESOURCES INC	13845	32.15728380	-103.47747040	4/24/1988
41817	OSPREY 10 #002C	O	C	EOG RESOURCES INC	0	32.13833620	-103.46558380	12/31/9999
43055	HOLYFIELD 9 FEDERAL #001H	O	N	EOG RESOURCES INC	0	32.14360989	-103.48151420	12/31/9999
43056	HOLYFIELD 9 FEDERAL #002H	O	N	EOG RESOURCES INC	0	32.14360999	-103.48141730	12/31/9999
43650	OSPREY 10 #602H	O	A	EOG RESOURCES INC	12027	32.13910780	-103.46226830	4/7/2017
43651	OSPREY 10 #701H	O	A	EOG RESOURCES INC	12405	32.13915390	-103.46236750	4/6/2017
43795	OSPREY 10 #603H	O	N	EOG RESOURCES INC	0	32.13867580	-103.46110560	12/31/9999
43797	OSPREY 10 #702H	O	N	EOG RESOURCES INC	0	32.13876800	-103.46130410	12/31/9999
43798	OSPREY 10 #703H	O	N	EOG RESOURCES INC	0	32.13872190	-103.46120480	12/31/9999
44268	COBALT 32 STATE #701H	O	A	EOG RESOURCES INC	12285	32.16786990	-103.48527900	1/24/2018
44269	COBALT 32 STATE #702H	O	A	EOG RESOURCES INC	12291	32.16802350	-103.48563420	1/26/2018
44839	OSPREY 10 #301H	O	N	EOG RESOURCES INC	0	32.13835130	-103.46628760	6/25/2018
44866	STONEWALL 28 FEDERAL COM #301H	O	N	EOG RESOURCES INC	0	32.19525230	-103.48139220	7/5/2018
44867	STONEWALL 28 FEDERAL COM #302H	O	N	EOG RESOURCES INC	0	32.19525220	-103.48128550	7/7/2018
44868	STONEWALL 28 FEDERAL COM #703H	O	N	EOG RESOURCES INC	0	32.19525210	-103.48117880	12/31/9999
44869	STONEWALL 28 FEDERAL COM #704H	O	N	EOG RESOURCES INC	0	32.19524920	-103.47770980	12/31/9999
44870	STONEWALL 28 FEDERAL COM #705H	O	N	EOG RESOURCES INC	0	32.19524910	-103.47760310	12/31/9999
44871	STONEWALL 28 FEDERAL COM #706H	O	N	EOG RESOURCES INC	0	32.19524900	-103.47749650	12/31/9999
44872	STONEWALL 28 FEDERAL COM #707H	O	N	EOG RESOURCES INC	0	32.19524680	-103.47499170	12/31/9999
44873	STONEWALL 28 FEDERAL COM #708H	O	N	EOG RESOURCES INC	0	32.19524590	-103.47488510	12/31/9999
44874	STONEWALL 28 FEDERAL COM #713H	O	N	EOG RESOURCES INC	0	32.19524110	-103.46861270	12/31/9999
44875	STONEWALL 28 FEDERAL COM #714H	O	N	EOG RESOURCES INC	0	32.19524100	-103.46850600	12/31/9999
44905	COBALT 32 STATE #201H	O	N	EOG RESOURCES INC	0	32.16741620	-103.48683750	12/31/9999
44906	COBALT 32 STATE #202H	O	N	EOG RESOURCES INC	0	32.16741620	-103.48705070	12/31/9999
44907	COBALT 32 STATE #301H	O	N	EOG RESOURCES INC	0	32.16741620	-103.48694410	12/31/9999
44926	STONEWALL 28 FEDERAL COM #709H	O	N	EOG RESOURCES INC	0	32.19524670	-103.47477840	12/31/9999
44927	STONEWALL 28 FEDERAL COM #710H	O	N	EOG RESOURCES INC	0	32.19524400	-103.47181290	12/31/9999
44928	STONEWALL 28 FEDERAL COM #711H	O	N	EOG RESOURCES INC	0	32.19524390	-103.47170620	12/31/9999
44929	STONEWALL 28 FEDERAL COM #712H	O	N	EOG RESOURCES INC	0	32.19524390	-103.47159960	12/31/9999
44930	STONEWALL 28 FEDERAL COM #715H	O	N	EOG RESOURCES INC	0	32.19524090	-103.46839930	12/31/9999
45132	COBALT 32 STATE #703H	O	N	EOG RESOURCES INC	0	32.16733400	-103.48937420	12/31/9999
45133	COBALT 32 STATE #704H	O	N	EOG RESOURCES INC	0	32.16733400	-103.48948080	12/31/9999


-EOG RESOURCES INC
-NO ACTIVE WELLS
T24S R34E
T25S R34E
TOMAHAWK SWD NO.1
28051
29926
28620
28002
29836
28398
28682
28491
29558
29884
29293
30086
30331
28668
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000 Feet
Tomahawk SWD No. 1
1-Mile Offset Operator - OCD
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 11/6/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN HOUSTON WICHITA DENVER CALGARY
Tomahawk SWD No. 1 SHL
1-Mile
QQ-Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Lateral
API (30-025-...) SHL Status-Type (Count)
Horizontal Surface Location (31)
Active - Gas (3)
Cancelled/Abandoned Location (1)
Plugged/Site Released - Gas (9)
Plugged/Site Released - Oil (1)
API (30-025-...) BHL Status-Type (Count)
Active - Oil (5)
Permitted - Oil (26)
Offset Operators
-EOG RESOURCES INC
-NO ACTIVE WELLS
Source:NM-OCD/NM-BLM/NM-SLO (2018)
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
LOVING
WINKLER
ANDREWS
REEVES


Tomahawk SWD No. 1
1-Mile Lessee(s) - BLM & SLO
NGL Water Solutions Permian, LLC
Lea Co., NM
PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: ASG
Date: 11/6/2018
Approved by: ELR
LONQUIST & CO. LLC
PETROLEUM ENGINEERS
ENERGY ADVISORS
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY
-FEDERAL ABSTRACT COMPANY
-VB-2560-0000
-EOG RESOURCES INC
-NMNM 120363
-AGS OG HOLDINGS #2 INC-
AGS OG 2005 LLLP
-AGS OG HOLDINGS INC
-AGS OG VENTURES INC
-MIDWEST RES 98-1 O&G INCOME LP
-MIDWEST RES 99-1 O&G INCOME LP
-MIDWEST RES 2006-1 O&G INCOME
-TE-RAY RESOURCES INC
-NMNM 016138
-CHEVRON U S A INC
-LG-0359-0005
TOMAHAWK
SWD NO.1
T24S R34E
T25S R34E
-EOG RESOURCES INC
-NMNM 014497
-EOG RESOURCES INC
-NMNM 108505
-EOG RESOURCES INC
-NMNM 016139
-NON BLM OR SLO LAND
-WILDCAT ENERGY LLC
-NMNM 119980
1 " = 1,083 '
1:13,000
0 500 1,000 1,500 2,000 4,000
Feet
Tomahawk SWD No. 1 SHL
1-Mile
NM-BLM
NM-SLO
QQ-Section (NM-PLSS 2nd Div.)
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Township/Range (NM-PLSS)
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API (30-025-...) SHL Status-Type (Count)
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Plugged/Site Released - Gas (9)
Plugged/Site Released - Oil (1)
API (30-025-...) BHL Status-Type (Count)
Active - Oil (5)
Permitted - Oil (26)
Lessee(s)
-AGS OG HOLDINGS #2 INC- ;AGS OG 2005 LLLP; -AGS OG HOLDINGS INC; -AGS OG VENTURES INC; -MIDWEST RES 98-1 O&G INCOME LP; -MIDWEST RES 99-1 O&G INCOME LP; -MIDWEST RES 2006-1 O&G INCOME; -TE-RAY RESOURCES INC
-CHEVRON U S A INC
-EOG RESOURCES INC
-FEDERAL ABSTRACT COMPANY
-WILDCAT ENERGY LLC
-NON BLM OR SLO LAND
Source:NM-OCD/NM-BLM/NM-SLO (2018)
EDDY
LEA
Map Extent
NEW MEXICO
TEXAS
ANDREWS
WINKLER
LOVING
REEVES

Tomahawk SWD #1: Offsetting Produced Water Analysis																		
wellname	api	section	township	range	unit	county	formation	ph	tds_mgL	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL
BELL LAKE UNIT #002	3002508489	30	23S	34E	N	LEA	DELAWARE		52115						32200	451	529	
BELL LAKE UNIT A #007	3002508367	1	24S	33E	A	LEA	DELAWARE		87686						53920	391	749	
BELL LAKE UNIT #009	3002520261	18	23S	34E	K	LEA	BONE SPRING		204652						130000	512	260	
CORIANDER AOC STATE #002	3002533574	1	23S	32E	H	LEA	BONE SPRING	5.2			24176	0	3815		167962	61.1	165	
THISTLE UNIT #071H	3002542425	27	23S	33E	A	Lea	BONE SPRING 1ST SAND	5.6	171476.3	55363.2	9140	40.4	1023	1.1	104576.4	244	560	770
BELL LAKE 19 STATE #002H	3002541515	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.2		47148	6419	15	854	0	86572	232	670	240
BELL LAKE 19 STATE #004H	3002541517	19	24S	33E	O	Lea	BONE SPRING 2ND SAND	6.3		47537	6950	11	886	0	88389	171	650	210
SALADO DRAW 6 FEDERAL #001H	3002541293	6	26S	34E	M	Lea	BONE SPRING 3RD SAND	6.5	99612.7	34586.5	3244	10.3	417.7	0.39	59986.5	158.6	820	50
GAUCHO UNIT #011H	3002541184	17	22S	34E	O	Lea	BONE SPRING 3RD SAND	6.5		48879	6182	11	802	0.12	88836	122	1240	70
SNAPPING 2 STATE #014H	3001542688	2	26S	31E	P	EDDY	WOLFCAMP	7.3	81366.4	26319.4	2687.4	26.1	326.7		50281.2		399.7	100
BELLOQ 2 STATE #002H	3001542895	2	23S	31E	C	EDDY	WOLFCAMP	6.8	119471.8	37359.2	5659.1	22.4	746.1		73172.5		1035.5	250
PRONGHORN AHO FEDERAL #001	3002526496	6	23S	33E	G	LEA	STRAWN	5.5			20.1	0	12.2		35.5	61.1	48.8	
ANTELOPE RIDGE UNIT #002	3002520444	4	24S	34E	B	LEA	ATOKA	6.7	51475						31000	317	340	
CUSTER MOUNTAIN UNIT #001	3002520756	9	24S	35E	K	LEA	MORROW		282741						176800	161	650	