

Osage Boyd 15 SWD No. 2
1 Mile Offset Operators
Percussion Petroleum Operating LLC
Eddy County, NM

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

Drawn by: SJL Date: 2/14/2019 Approved by: TFM

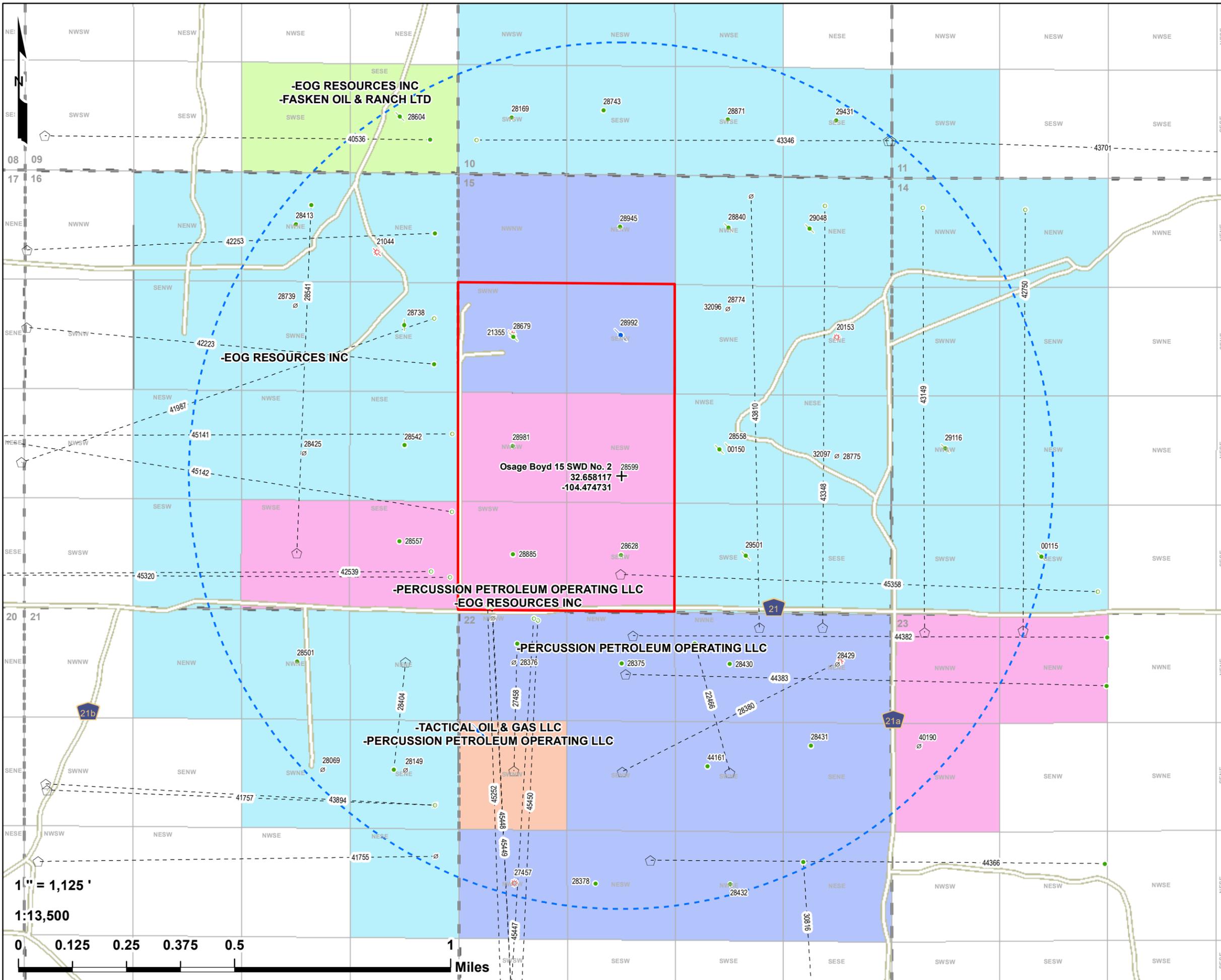
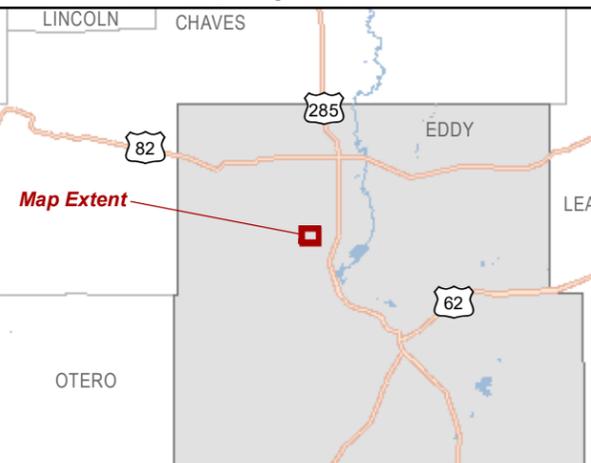
LONQUIST & CO. LLC

PETROLEUM ENGINEERS ENERGY ADVISORS

AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

- Osage Boyd 15 SWD No. 2
- 1 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (T19S R25E)
- Surface Owner (JONES, JEROME HUGH ET AL)
- Laterals
- API (30-015-...) SHL Status - Type (Count)**
- Horizontal Surface Location (32)
- Active - Oil (19)
- Active - Gas (2)
- Active - Salt Water Disposal (2)
- Approved TA - Oil (1)
- Plugged (Site Released) - Oil (9)
- Plugged (Site Released) - Gas (2)
- Canceled Location (11)
- API (30-015-...) BHL Status - Type (Count)**
- Active - Oil (11)
- Active - Gas (1)
- Permitted - Oil (16)
- Canceled Location (4)
- Operators**
- EOG RESOURCES INC
- EOG RESOURCES INC; -FASKEN OIL & RANCH LTD
- PERCUSSION PETROLEUM OPERATING LLC
- PERCUSSION PETROLEUM OPERATING LLC; -EOG RESOURCES INC
- TACTICAL OIL & GAS LLC; -PERCUSSION PETROLEUM OPERATING LLC

*Well Data Source: NM-OCD, DrillingInfo (2019)



Osage Boyd 15 SWD No. 2
1 Mile Offset Lessees
 Percussion Petroleum Operating LLC
 Eddy County, NM

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

Drawn by: SJL Date: 2/14/2019 Approved by: TFM

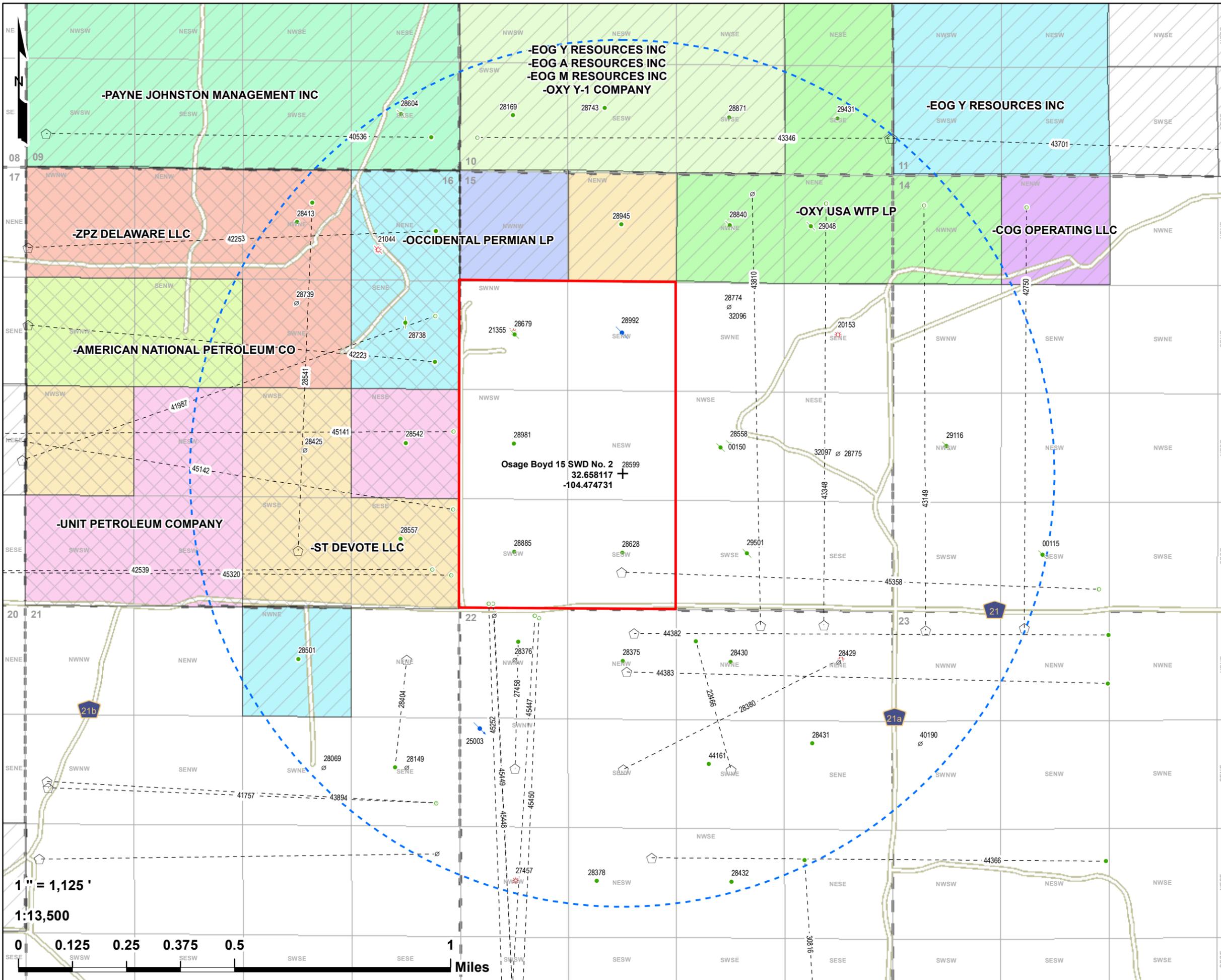
LONQUIST & CO. LLC

PETROLEUM ENGINEERS ENERGY ADVISORS

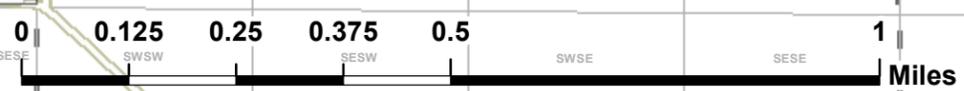
AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

- Osage Boyd 15 SWD No. 2
- 1 Mile Radius
- QQ-Section (NM-PLSS 2nd Div.)
- Section (NM-PLSS 1st Div.)
- Township/Range (T19S R25E)
- Surface Owner (JONES, JEROME HUGH ET AL)
- NM - BLM (Oil & Gas Leases)
- NM - SLO (Oil & Gas Leases)
- Laterals
- API (30-015-...) SHL Status - Type (Count)**
 - Horizontal Surface Location (32)
 - Active - Oil (19)
 - Active - Gas (2)
 - Active - Salt Water Disposal (2)
 - Approved TA - Oil (1)
 - Plugged (Site Released) - Oil (9)
 - Plugged (Site Released) - Gas (2)
 - Canceled Location (11)
- API (30-015-...) BHL Status - Type (Count)**
 - Active - Oil (11)
 - Active - Gas (1)
 - Permitted - Oil (16)
 - Canceled Location (4)
- Lessees**
 - AMERICAN NATIONAL PETROLEUM CO
 - COG OPERATING LLC
 - EOG Y RESOURCES INC
 - EOG Y RESOURCES INC; -EOG A RESOURCES INC; -EOG M RESOURCES INC; -OXY Y-1 COMPANY
 - OCCIDENTAL PERMIAN LP
 - OXY USA WTP LP
 - PAYNE JOHNSTON MANAGEMENT INC
 - ST DEVOTE LLC
 - UNIT PETROLEUM COMPANY
 - ZPZ DELAWARE LLC

*Well Data Source: NM-OCD, DrillingInfo (2019)



1" = 1,125'
 1:13,500



**Osage Boyd 15 SWD No. 2
1 Mile Offset Operators and Lessees List**

S/T/R	QQ UNIT LETTER(S)	OPERATOR	MINERAL LESSEE	MINERAL OWNER	SURFACE OWNER	ADDRESS 1	ADDRESS 2
9/19S/25E	O,P	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
		FASKEN OIL & RANCH LTD	-	-	-	6101 HOLIDAY HILL ROAD	MIDLAND, TX 79707
10/19S/25E	J,K,L,M,N,O,P	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
11/19S/25E	M	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
14/19S/25E	C,D,E,F,K,L,M,N	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
15/19S/25E	A,B,G,H,I,J,O,P	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
	C,D,E,F	PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
	K,L,M,N	PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
		EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
16/19S/25E	A,B,C,F,G,H,I,J,K,N	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
	O,P	PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
		EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
21/19S/25E	A,B,C,G,H,I	EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
22/19S/25E	A,B,C,D,F,G,H,I,J,K,L	PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
	E	TACTICAL OIL & GAS LLC	-	-	-	PO BOX 12874	ODESSA, TX 79768
		PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
23/19S/25E	C,D,E	PERCUSSION PETROLEUM OPERATING LLC	-	-	-	919 MILAM ST SUITE 2475	HOUSTON, TX 77002
		EOG RESOURCES INC	-	-	-	PO BOX 2267	MIDLAND, TX 79702
Surface Hole Location	-	-	-	PRIVATE	JONES JEROME HUGH ET AL	1040 SNELL ST	EUGENE, OR 97405

Osage Boyd 15 SWD No. 2 - Offsetting Produced Water Analysis

Well Name	API	Section	Township	Range	Unit	Formation	ph	tds_mg/L	sodium_mg/L	calcium_mg/L	iron_mg/L	magnesium_mg/L	potassium_mg/L	chloride_mg/L	bicarbonate_mg/L	sulfate_mg/L
H E WEST A #005	3001505064	4	17S	31E	J	ARTESIA	6.18	92765						58127	59	384
H E WEST B #028	3001510162	9	17S	31E	A	ARTESIA	5.75	258056						157710	132	1964
H E WEST B #028	3001510162	9	17S	31E	A	ARTESIA	5.75	225969						138100	116	1720
DAGGER DRAW #002	3001500116	30	19S	25E	I	CISCO		7622								
JENNY COM #001	3001526469	17	19S	25E	E	CISCO	6			2800	70	1677.7		46850	183	12.5
ANDERSON STATE #001	3001502866	2	17S	29E	L	GRAYBURG/SAN ANDRES	6.95	1406	505	268	0	310		780	10	550
NDDUP UNIT #138	3001521478	28	19S	25E	N	MORROW	8.51	7125.41	1475.25	568.955	0.2014	140.98	246.715	2066.36	737.124	1898.19
NDDUP UNIT #138	3001521478	28	19S	25E	N	MORROW	7.6	10987.6	2935.06	725.18	4.545	121.2	142.41	4295.53	669.63	2194.73
NDDUP UNIT #138	3001521478	28	19S	25E	N	MORROW	8.79	6258.3	1607.17	424.954	0.1007	77.539	31.217	1783.4	384.674	1931.43
RIO PENASCO KD COM #001	3001523227	2	19S	25E	N	MORROW	6.1			2800	50	2187.8		40896	171	50
APOLLO APU FEDERAL COM #001	3001528840	15	19S	25E	B	PENNSYLVANIAN	8.5	7110.22	1850.03	376.244	4.024	98.588	67.402	1978.8	876.226	1889.27
APOLLO APU FEDERAL COM #002	3001529048	15	19S	25E	A	PENNSYLVANIAN	7.7	7248.53	1907.38	367.19	4.527	90.54	78.468	1964.72	896.346	1971.76
APOLLO APU FEDERAL #003	3001529431	10	19S	25E	P	PENNSYLVANIAN	8.7	5856.65	1462.27	363.81	1.5075	91.455	56.28	1613.02	456.27	1829.1
PATRICK API #004	3001528982	10	19S	25E	E	PENNSYLVANIAN	7.2	6518.03	1157.91	544.246	298.782	109.654	51.306	1563.32	876.226	1943.59
NDDUP UNIT #124	3001527098	29	19S	25E	L	PENNSYLVANIAN	7.1	5837.49	911.535	520.59	331.65	98.49	37.185	1179.87	937.665	1838.14
AMOLE AMM STATE COM #002	3001528424	16	19S	25E	K	PENNSYLVANIAN	7.1	7057.31	1225.31	530.162	453.706	112.672	57.342	1828.91	1001.98	1879.21
TACKITT AOT #002	3001528003	28	19S	25E	J	PENNSYLVANIAN	8	5950.66	985.905	756.765	27.135	94.47	49.245	1304.49	749.73	2004.97
NDDUP UNIT #119	3001528053	28	19S	25E	K	PENNSYLVANIAN	7.5	8435.62	1609.19	1085.55	0.5035	106.742	58.406	2758.17	626.354	2239.57
TACKITT AOT #001	3001528150	28	19S	25E	I	PENNSYLVANIAN	8	6929.61	1293.72	873.208	0.9054	80.48	34.204	1835.95	771.602	2072.36
NDDUP UNIT #139	3001528372	28	19S	25E	O	PENNSYLVANIAN	7.5	7777.51	1635.37	854.943	8.056	91.637	45.315	2459.09	709.935	2018.03
THOMAS #001	3001505917	8	19S	25E	H	SAN ANDRES/YESO		13248						5226	1236	2412
THOMAS #001	3001505917	8	19S	25E	H	SAN ANDRES/YESO		49145						31050	354	1656
PENASCO IW SHALLOW #001	3001522174	31	18S	25E	J	SAN ANDRES/YESO	6.15	125250	55436	3611		7784		114000	920	725
PENASCO IW SHALLOW #003	3001523237	31	18S	25E	N	SAN ANDRES/YESO	6.45	130750	51704	4100	0	9800		116000	180	52
BH MATLOCK #001	3001500109	1	19S	25E	N	WOLFCAMP		20306						10360	1829	940

**Produced Water Data
Percussion Petroleum, LLC - Osage Boyd SWD Project**

SOURCE ZONE

GLO/YESO

API No	3001524754	Lab ID	
Well Name	PLATT PA	Sample ID	1146
	009	Sample No	
Location	ULSTR 26 18 S 26 E	Lat / Long	32.71216 -104.35742
	330 S 990 W	County	Eddy
Operator (when sampled)	Yates Petroleum Corp.		
	Field ATOKA	Unit	M
Sample Date	8/4/1984	Analysis Date	
	Sample Source Wellhead	Depth (if known)	
	Water Typ Produced Water		
ph	7.5	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	1800
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	120382	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	113000	conductivity_temp_F	
sodium_mgL	71415	carbonate_mgL	0
calcium_mgL	2560	bicarbonate_mgL	476
iron_mgL	0	sulfate_mgL	2001
barium_mgL		hydroxide_mgL	
magnesium_mgL	0	h2s_mgL	0
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

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

**Produced Water Data
Percussion Petroleum, LLC - Osage Boyd SWD Project**

SOURCE ZONE

GLO/YESO

API No	3001524619	Lab ID	
Well Name	PLATT PA	Sample ID	1207
	008	Sample No	
Location	ULSTR 26 18 S 26 E	Lat / Long	32.71245 -104.35329
	430 S 2260 W	County	Eddy
Operator (when sampled)	Yates Petroleum Corporation		
	Field	ATOKA	Unit N
Sample Date	1/19/1985	Analysis Date	
	Sample Source well head	Depth (if known)	
	Water Typ	Produced Water	
ph	6	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	11500
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	136324	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	121000	conductivity_temp_F	
sodium_mgL	61571	carbonate_mgL	
calcium_mgL	4160	bicarbonate_mgL	104
iron_mgL	0	sulfate_mgL	3720
barium_mgL		hydroxide_mgL	
magnesium_mgL	7340	h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

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

**Produced Water Data
Percussion Petroleum, LLC - Osage Boyd SWD Project**

SOURCE ZONE

BONE SPRING

API No	3001520225	Lab ID	
Well Name	BIG EDDY UNIT	Sample ID	5847
	012	Sample No	
Location	ULSTR 21 20 S 31 E	Lat / Long	32.56399 -103.87994
	660 N 660 W	County	Eddy
Operator (when sampled)	MALLON OIL COMPANY		
	Field	BIG EDDY	Unit D
Sample Date	8/27/1999	Analysis Date	8/31/1999
	Sample Source	Depth (if known)	
	Water Typ		
ph	5.2	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity	1.125	hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	181697	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	123750	conductivity_temp_F	
sodium_mgL	73895.6	carbonate_mgL	
calcium_mgL	5625	bicarbonate_mgL	13.725
iron_mgL	337.5	sulfate_mgL	787.5
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	0
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

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

**Produced Water Data
Percussion Petroleum, LLC - Osage Boyd SWD Project**

DISPOSAL ZONE

CIS

API No	3001526468	Lab ID	
Well Name	JOHN AGU 002	Sample ID	5945
		Sample No	
Location	ULSTR 14 20 S 24 E 660 N 660 E	Lat / Long	32.57883 -104.55197
		County	Eddy
Operator (when sampled)			
	Field	DAGGER DRAW	Unit A
Sample Date	5/13/2000	Analysis Date	
	Sample Source	Depth (if known)	
	Water Typ		
ph	6.1	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity	1.05	hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	216236	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	53321	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL	4576	bicarbonate_mgL	72619
iron_mgL	1000	sulfate_mgL	952
barium_mgL	0	hydroxide_mgL	
magnesium_mgL	463	h2s_mgL	0
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

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

Osage Boyd 15 SWD No. 2
Water Wells within 1 Mile
 Percussion Petroleum Operating LLC
 Eddy County, NM

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

Drawn by: SJL | Date: 2/14/2019 | Approved by: TFM

LONQUIST & CO. LLC

PETROLEUM
ENGINEERS

ENERGY
ADVISORS

AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

+ Osage Boyd 15 SWD No. 2

• Water Well (3)

⊞ 1 Mile Radius

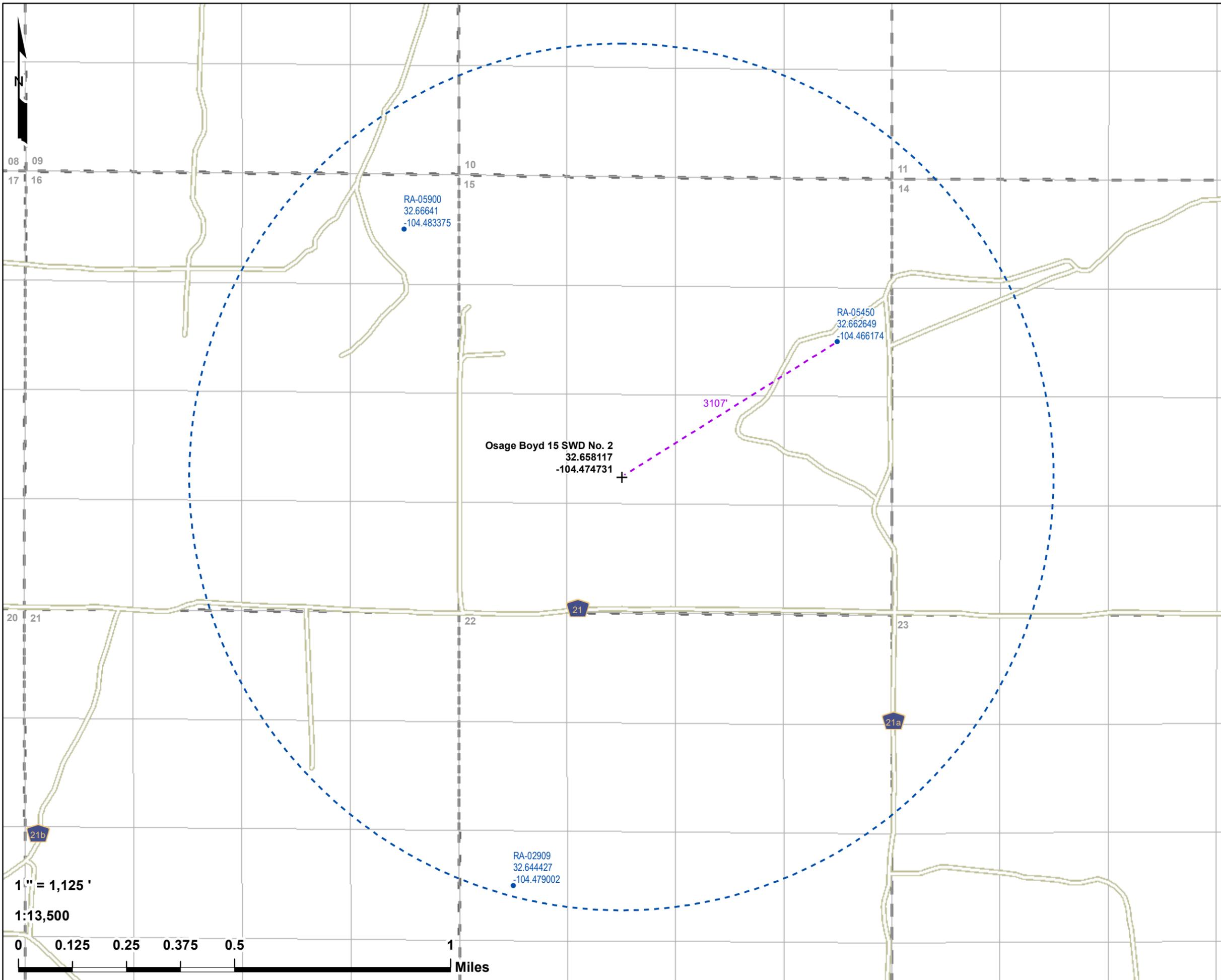
- - - Distance Call

□ QQ-Section (NM-PLSS 2nd Div.)

⊞ Section (NM-PLSS 1st Div.)

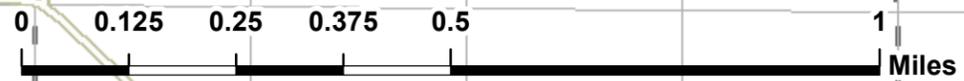
▬ Township/Range (NM-PLSS)

*Water Well Data Source: NM-OSE (2019)



1" = 1,125'

1:13,500





New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q Q Q			Sec	Tws	Rng	X	Y	Distance	Depth	Depth	Water
				64	16	4							Well	Water	Column
RA 05450	CH		4	2	15	19S	25E	550057	3614015*		1352	204	80	124	
RA 02909	ED		1	3	22	19S	25E	548864	3611989*		1660	188	130	58	
RA 05900	ED		2	2	16	19S	25E	548442	3614424*		2584	185	95	90	

Average Depth to Water: 101 feet

Minimum Depth: 58 feet

Maximum Depth: 130 feet

CARLSBAD
CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

**Ad No.
0001277037**

LONQUIST FIELD SERVICE
1001 MCKINNEY ST., SUITE 1650
HOUSTON TX 77002

Percussion Petroleum Operating, LLC, 919 Milam St. Suite 2475, Houston, TX 77002, is filling Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division for administrative approval for its salt water disposal well Osage Boyd 15 SWD No. 2. The proposed well will be located at 1,980' FSL & 1,980' FWL in Section 15, Township 19S, Range 25E in Eddy County, New Mexico. Disposal water will be sourced from area production, and will be injected into the Cisco-Canyon Formation (determined by log analysis) through a perforated interval completion between an applied for top of 7,620' feet to a maximum depth of 8,060' feet. The maximum surface injection pressure will not exceed 1,524 psi with a maximum rate of 10,000 BWPD. Interested parties opposing the action must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, within 15 days. Additional information can be obtained from the applicant's agent, Lonquist & Co., LLC, at (512) 600-1774.

Legal ad #1277037 Run: Feb. 13, 2019

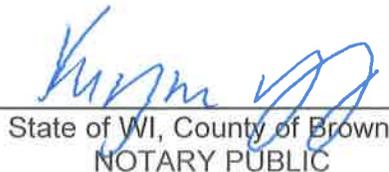
I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements 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:

02/13/19



Legal Clerk

Subscribed and sworn before me this
13th of February 2019.



State of WI, County of Brown
NOTARY PUBLIC

11/9/22

My Commission Expires



Osage Boyd SWD No. 2

Percussion Petroleum Operating, LLC

TRACT ID	COUNTY CLERK	MAILING ADDRESS	PHONE	TRACKING #	DATE SHIPPED	DATE RECEIVED
	OIL CONSERVATION DIVISION DISTRICT II	811 S. FIRST ST., ARTESIA, NM 88210		USPS - 7017 2400 0001 0599 2674	2/14/2019	
	OIL CONSERVATION DIVISION DISTRICT IV	1220 S ST FRANCIS DR, SANTA FE NM 87505		USPS - 7017 2400 0001 0599 2681	2/14/2019	
	SURFACE LANDOWNER	MAILING ADDRESS				
	JONES, JEROME HUGH ET AL	1010 SNELL ST, EUGENE, OR 97405		USPS - 7017 2400 0001 0599 2698	2/14/2019	
	OFFSET OPERATORS	MAILING ADDRESS				
	NEW MEXICO STATE LAND OFFICE	310 Old Santa Fe Trail, Santa Fe, NM 87501		USPS - 7017 2400 0001 0599 2728	2/14/2019	
	BUREAU OF LAND MANAGEMENT	620 E Greene St Carlsbad, NM 88220		USPS - 7017 2400 0001 0599 2735	2/14/2019	
	OFFSET OPERATORS	MAILING ADDRESS				
	EOG RESOURCES INC.	P.O. BOX 2267, MIDLAND, TX 79702		USPS - 7017 2400 0001 0599 2704	2/14/2019	
	FASKEN OIL & RANCH LTC	6101 HOLIDAY HILL ROAD, MIDLAND, TX 79707		USPS - 7017 2400 0001 0599 2711	2/14/2019	

Notices were sent for the Osage Boyd 15 SWD No. 2 application by mailing them a copy of Form C-108 on 2/14/2019



Tyler F. Moehlman
 Petroleum Engineer / Lonquist & Co., LLC
 Agent for Percussion Petroleum

November 07, 2018

JERRY MATHEWS

PERCUSSION PETROLEUM

919 MILAM , STE 2475

HOUSTON, TX 77002

RE: FRESH WATER WELLS

Enclosed are the results of analyses for samples received by the laboratory on 11/05/18 10:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 PERCUSSION PETROLEUM
 JERRY MATHEWS
 919 MILAM , STE 2475
 HOUSTON TX, 77002
 Fax To:

 Received: 11/05/2018
 Reported: 11/07/2018
 Project Name: FRESH WATER WELLS
 Project Number: ROSS RANCH 22 SWD
 Project Location: EDDY CO NM

 Sampling Date: 11/05/2018
 Sampling Type: Water
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: SAMPLE # 02909 (H803163-01)

TDS 160.1		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2410	5.00	11/06/2018	ND	472	89.6	527	7.48	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



Celey D. Keene, Lab Director/Quality Manager

SENDER: COMPLETE THIS SECTION

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1. Article Addressed to:

**OIL CONSERVATION DIVISION
DISTRICT II
811 S FIRST STREET
ARTESIA NM 88210
1901-OSAGE BOYD 15 SWD #2**



9590 9402 4693 8323 9945 18

2. Article Number (Transfer from service label)

7017 2400 0001 0599 2674

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

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A. Signature

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- Addressee

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C. Date of Delivery

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3. Service Type

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- Collect on Delivery Restricted Delivery
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- Insured Mail Restricted Delivery (over \$500)
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- Registered Mail Restricted Delivery
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- Signature Confirmation™
- Signature Confirmation Restricted Delivery

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**OIL CONSERVATION DIVISION
DISTRICT II
811 S FIRST STREET
ARTESIA NM 88210
1901-OSAGE BOYD 15 SWD #2**

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1. Article Addressed to:

**OIL CONSERVATION DIVISION
DISTRICT IV
1220 S ST FRANCIS DR
SANTA FE NM 87505
1901-OSAGE BOYD 15 SWD #2**



9590 9402 4693 8323 9938 01

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

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\$ Sent
Street
City, State

**OIL CONSERVATION DIVISION
DISTRICT IV
1220 S ST FRANCIS DR
SANTA FE NM 87505
1901-OSAGE BOYD 15 SWD #2**

PS Form 3800, April 2015 PSN 7530-02-000-9047

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1. Article Addressed to:

**JONES, JEROME HUGH ET AL
1010 SNELL ST
EUGENE OR 97405**

1901-OSAGE BOYD 15 SWD #2



9590 9402 4693 8323 9938 18

2. Article Number (Transfer from service label)

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A. Signature

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

3. Service Type

- Adult Signature
- Adult Signature Restricted Delivery
- Certified Mail®
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- Collect on Delivery
- Collect on Delivery Restricted Delivery
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- Return Receipt (electronic) \$ _____
- Certified Mail Restricted Delivery \$ _____
- Adult Signature Required \$ _____
- Adult Signature Restricted Delivery \$ _____

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Total P_c

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Sent To

Street a

City, Sta

**JONES, JEROME HUGH ET AL
1010 SNELL ST
EUGENE OR 97405**

1901-OSAGE BOYD 15 SWD #2

PS Form 3800, April 2015 PSN 7530-02-000-9047

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<ul style="list-style-type: none"> Complete items 1, 2, and 3. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature</p> <p>X <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (<i>Printed Name</i>)</p> <p>C. Date of Delivery</p>																
<p>1. Article Addressed to:</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>EOG RESOURCES INC PO BOX 2267 MIDLAND TX 79702</p> <p>1901-OSAGE BOYD 15 SWD #2</p> </div>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>																
<div style="text-align: center;">  9590 9402 4693 8323 9938 25 </div>	<p>3. Service Type</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Adult Signature</td> <td><input type="checkbox"/> Priority Mail Express®</td> </tr> <tr> <td><input type="checkbox"/> Adult Signature Restricted Delivery</td> <td><input type="checkbox"/> Registered Mail™</td> </tr> <tr> <td><input checked="" type="checkbox"/> Certified Mail®</td> <td><input type="checkbox"/> Registered Mail Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail Restricted Delivery</td> <td><input type="checkbox"/> Return Receipt for Merchandise</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery</td> <td><input type="checkbox"/> Signature Confirmation™</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery Restricted Delivery</td> <td><input type="checkbox"/> Signature Confirmation Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Insured Mail</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®	<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™	<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery	<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™	<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery	<input type="checkbox"/> Insured Mail		<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)	
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<p>2. Article Number (<i>Transfer from service label</i>)</p> <div style="border: 1px solid black; padding: 2px;"> 7017 2400 0001 0599 2704 </div>																	
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1. Article Addressed to:

**FASKEN OIL & RANCH LTC
6101 HOLIDAY HILL ROAD
MIDLAND TX 79707**

1901-OSAGE BOYD 15 SWD #2



9590 9402 4693 8323 9938 32

2. Article Number (Transfer from service label)

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Street or

City, State

**FASKEN OIL & RANCH LTC
6101 HOLIDAY HILL ROAD
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1901-OSAGE BOYD 15 SWD #2

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1. Article Addressed to:

**NEW MEXICO STATE LAND OFFICE
310 OLD SANTA FE TRAIL
PO BOX 1148
SANTA FE NM 87504-1148
1901-OSAGE BOYD 15 SWD#2**



9590 9402 4693 8323 9938 56

2. Article Number (Transfer from service label)

7017 2400 0001 0599 2728

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 Addressee

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D. Is delivery address different from item 1? Yes
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3. Service Type

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- Certified Mail Restricted Delivery Return Receipt for Merchandise
- Collect on Delivery Signature Confirmation™
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- Insured Mail
- Insured Mail Restricted Delivery (over \$500)

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Return Receipt (electronic) \$ _____

Certified Mail Restricted Delivery \$ _____

Adult Signature Required \$ _____

Adult Signature Restricted Delivery \$ _____

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Total \$ _____

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City, S _____

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**NEW MEXICO STATE LAND OFFICE
310 OLD SANTA FE TRAIL
PO BOX 1148
SANTA FE NM 87504-1148
1901-OSAGE BOYD 15 SWD#2**

PS Form 3800, April 2015 PSN 7530-02-000-9047

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1. Article Addressed to:

**BUREAU OF LAND MGMT
620 E GREEN STREET
CARLSBAD, NM 88220**

1901-OSAGE BOYD 15 SWD#2



9590 9402 4693 8323 9938 49

2. Article Number (Transfer from service label)

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

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- Addressee

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C. Date of Delivery

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**BUREAU OF LAND MGMT
620 E GREEN STREET
CARLSBAD, NM 88220**

1901-OSAGE BOYD 15 SWD#2

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

February 14, 2019

Jerome Hugh Jones Et. Al.
1010 Sanell St.
Eugene, OR 97405

Subject: Osage Boyd 15 SWD No. 2 Authorization to Inject

To Whom It May Concern:

Attached for your review is Form C-108, Application for Authorization to Inject, and its supplemental documents prepared for Percussion Petroleum Operating LLC's Osage Boyd 15 SWD No. 2 well. Section XIV of Form C-108 requires that the surface land owner on which the well is located and each leasehold operator within a one-half mile radius of the proposed well location be furnished with the application. The notice of application has been extended to a one-mile radius

According to the New Mexico Oil Conservation Division, surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date in which this application was mailed to them.

Any questions should be directed towards Percussion Petroleum LLC's agent, Lonquist & Co., LLC.

Regards,



Stephen L. Pattee, P.G.
Regulatory Manager
Lonquist & Co., LLC

(512) 600-1774
steve@lonquist.com

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance X Disposal _____ Storage
Application qualifies for administrative approval? X Yes _____ No
- II. OPERATOR: Percussion Petroleum, LLC
ADDRESS: 919 Milam St. Suite 2475
CONTACT PARTY: Ryan Barber PHONE: 713-518-1331
- 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: Ramona Hovey TITLE: Consulting Engineer – Agent for Percussion Petroleum
SIGNATURE: _____ DATE: 2/14/2019
E-MAIL ADDRESS: ramona@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: _____

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.

INJECTION WELL DATA SHEET

OPERATOR: Percussion Petroleum Operating, LLC

WELL NAME & NUMBER: Osage Boyd 15 SWD No. 2

WELL LOCATION: 1,650 FSL 1,980 FWL
FOOTAGE LOCATION

K
UNIT LETTER

15
SECTION

19S
TOWNSHIP

25E
RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 13.750"
Cemented with: 950 sx.
Top of Cement: surface

Casing Size: 9.625"
or _____ ft³
Method Determined: circulation

Production Casing

Hole Size: 8.750"
Cemented with: 1,320 sx.
Top of Cement: surface

Casing Size: 7.000"
or _____ ft³
Method Determined: circulation

Liner

Hole Size: 6.125"
Cemented with: 175 sx.
Top of Cement: 7.800'
Total Depth: 9.600'

Casing Size: 4.500"
or _____ ft³
Method Determined: calculation

Injection Interval

7.620 feet to 8.060 feet
(Perforated Interval)

INJECTION WELL DATA SHEET

Tubing Size: 3.5" IPC, 9.3 lb/ft, L-80, Upset, from 0' – 7,520'

Lining Material: Internal Plastic Coated (IPC)

Type of Packer: 7" X 2-7/8" Non-permanent Nickle Plated Packer with 2-7/8" x 3.5" crossover at packer

Packer Setting Depth: 7,520'

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

Additional Data

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

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

(1.) Upper Pennsylvanian, North, oil production from 8/22/1996 - 9/8/1999

(2.) Re-entry into Morrow, gas production from 9/8/1999 - Present

2. Name of the Injection Formation: Cisco-Canyon

3. Name of Field or Pool (if applicable): SWD; Cisco-Canyon 96186

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.

7627'-7630' (Cisco/Canyon): 6/5/1996 w/ 4" gun 2 jspf (LDT/CNL)

7660'-7665' (Cisco/Canyon): 6/3/1996 w/ 4" gun 2 jspf (LDT/CNL)

7667'-7669' (Cisco/Canyon): 6/3/1996 w/ 4" gun 2 jspf (LDT/CNL)

7671'-7710' (Cisco/Canyon): 6/3/1996 w/ 4" gun 2 jspf (LDT/CNL)

7722'-7726' (Cisco/Canyon): 6/3/1996 w/ 4" gun 2 jspf (LDT/CNL)

7746'-7753' (Cisco/Canyon): 6/1/1996 w/ 4" gun 4 jspf

7772'-7786' (Cisco/Canyon): 6/1/1996 w/ 4" gun 4 jspf

7791'-7818' (Cisco/Canyon): 6/1/1996 w/ 4" gun 4 jspf

Cement squeeze from 7,627' – 7,818' before re-entry down to Morrow (8/21/1999)

9088'-9092' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9126'-9138' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9146'-9156' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9170'-9186' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9204'-9216' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9220'-9228' (Morrow): 9/27/2005, 4spf, 0 deg phasing
9248'-9252' (Morrow): 9/27/2005, 4spf, 0 deg phasing

Proposed SWD wellbore will contain cast iron bridge plug @ 9,038' with 25 sacks of cement on top

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

Glorieta: 2,345'

3rd Bone Spring: 5,835'

Wolfcamp: 5,990'

Strawn: 8,206'

Atoka: 8,556'

Morrow: 8,950'

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 Percussion Petroleum Operating, LLC 919 Milam St., Suite 2475 Houston, TX 77002		² OGRID Number 371755
		³ API Number 30-015-28599
⁴ Property Code	⁵ Property Name Osage Boyd 15	⁶ Well No. 2

⁷ Surface Location

UL - Lot K	Section 15	Township 19S	Range 25E	Lot Idn	Feet from 1650	N/S Line S	Feet From 1980	E/W Line W	County Eddy
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⁸ Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
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⁹ Pool Information

Pool Name SWD; Cisco-Canyon	Pool Code 96186
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Additional Well Information

¹¹ Work Type	¹² Well Type	¹³ Cable/Rotary	¹⁴ Lease Type	¹⁵ Ground Level Elevation 3457
¹⁶ Multiple	¹⁷ Proposed Depth	¹⁸ Formation	¹⁹ Contractor	²⁰ Spud Date
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

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
Old Surf.	14-3/4"	9-5/8"	36	1101'	950 sx	Surface
Old Int.	8-3/4"	7"	26 & 23	8150'	1320 sx	Surface
Old. Liner	6-1/8"	4-1/2"	13.5	9580'	175 sx	7805'

Casing/Cement Program: Additional Comments

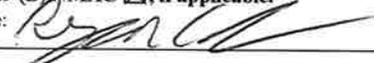
Propose to convert to SWD in the Cisco-Canyon interval. Set CIBP above Morrow perms, perf and acidize Cisco-Canyon, set packer and tubing, and perform SRT.

²² Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular & rams	5000 psi	3500 psi	TBD

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: 

Printed name: Ryan Barber

Title: Petroleum Engineer

E-mail Address: ryan@percussionpetroleum.com

Date: 2/13/19

Phone: 979-292-6279

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date:

Expiration Date:

Conditions of Approval Attached

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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 30-015-28599		² Pool Code 96186		³ Pool Name SWD; Cisco-Canyon	
⁴ Property Code TBD		⁵ Property Name Osage Boyd 15 SWD			⁶ Well Number 2
⁷ OGRID No. 371755		⁸ Operator Name Percussion Petroleum Operating LLC			⁹ Elevation 3457

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
K	15	19S	25E		1650	South	1980	West	Eddy

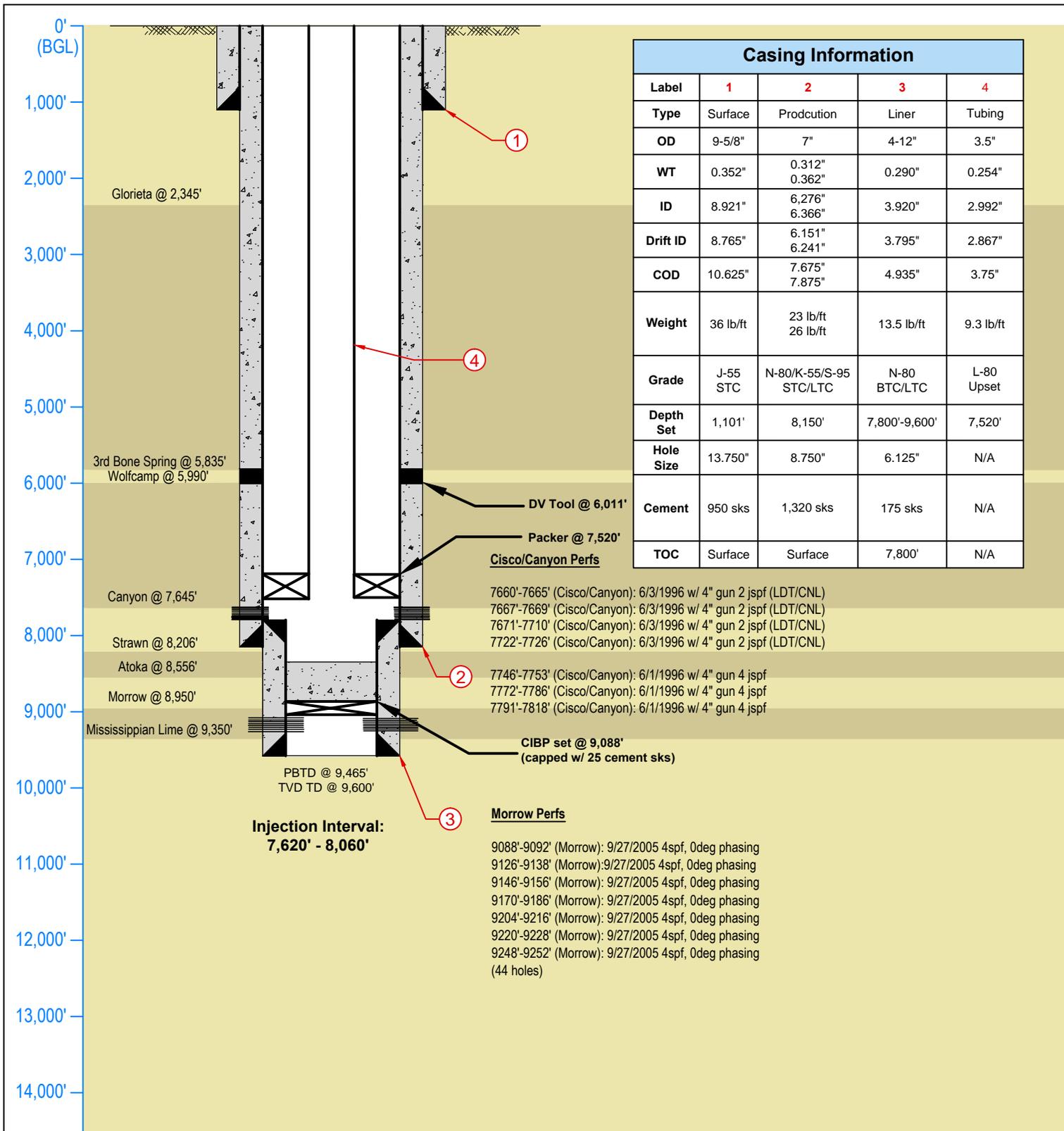
¹¹ Bottom Hole Location If Different From Surface

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 	¹⁷ OPERATOR CERTIFICATION <i>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.</i> Signature _____ Date 2/13/19 Ryan Barber Printed Name ryan@percussionpetroleum.com E-mail Address			
	¹⁸ SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i> July 28, 1995 Date of Survey Signature and Seal of Professional Surveyor: Dan Reddy			
	NM Cert. No. 5412 Certificate Number			



	Percussion Petroleum Operating, LLC		Osage Boyd 15 SWD No. 2	
	Country: USA	State/Province: New Mexico	County/Parish: Eddy	
Austin Houston Wichita Calgary	Location: 1,650' FSL, 1,980' FWL	Site:	Status: Morrow Gas Producer	
Texas License F-8952	Survey/STR: S-15 T-19S R-25E	Field: SWD; Cisco-Canyon (96186)	Serial No:	
3345 Bee Cave Road, Suite 201 Austin, Texas 78746 Tel: 512.732.9812 Fax: 512.732.9816	Well API No: 30-015-28599	Project No: 1901	Date: 2/13/2019	
Rev No: 1	Drawn: TFM	Reviewed:	Approved:	
		Notes: Configuration to change from Morrow gas producer to Cisco-Canyon SWD		



Percussion Petroleum Operating, LLC

Osage Boyd 15 SWD No. 2

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	Osage Boyd 15 SWD
Well No.	2
Location	S-15 T-19S R-25E
Footage Location	1,650' FSL & 1,980' FWL

2.

a. Wellbore Description

Casing Information			
Type	Surface	Production	Liner
OD	9.625"	7.000"	4.5"
WT	0.352"	0.317", 0.362"	0.290"
ID	8.921"	6.276", 6.366"	3.920"
Drift ID	8.765"	6,151", 6.241"	3.795"
COD	10.625"	7.675", 7.875"	4.935"
Weight	36 lb/ft	23 & 26 lb/ft	13.5 lb/ft
Grade	J-55 STC	N-80/K-55/S-95 STC/LTC	N-80 BTC/LTC
Hole Size	13.75"	8.75"	6.125"
Depth Set	1,101'	8,150'	7,800'-9,600'

b. Cementing Program

Cement Information			
Casing String	Conductor	Production	Liner
Cement Type	-	-	Class H
Lead Cement Volume	-	-	175 sks
Total Volume	950 sks	1,320 sks	175 sks
TOC	Surface	Surface	7,800'
Method	Circulate to Surface	Circulate to Surface	Logged

3. Tubing Description

Tubing Information	
OD	3.5"
WT	0.254"
ID	2.992"
Drift ID	2.867"
COD	3.75"
Weight	9.3 lb/ft
Grade	L-80 Upset
Depth Set	0-7,520'

Tubing will be Internal Plastic Coated (IPC)

4. Packer Description

7" X 2-7/8" Non-permanent Nickle Plated Packer with 2-7/8" x 3.5" crossover at packer

B. Completion Information

1. Injection Formation: Cisco/Canyon
2. Gross Injection Interval: 7,620' - 8,060'

Completion Type: Perforated interval

3. Originally drilled as an oil producer in Upper Pennsylvanian, North from 8/22/1996 - 9/8/1999. Re-entry into Morrow, gas production from 9/8/1999 - Present
4. See the attached wellbore schematic.
5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Glorieta	2,345'
3 rd Bone Spring	5,835'
Wolfcamp	5,990'
Strawn	8,206'
Atoka	8,556'
Morrow	8,950'

VI. Area of Review

Two (2) wells within a 1-mile radius penetrate the proposed Cisco-Canyon injection zone. They are both active saltwater disposal wells. There are no plugged wells in the proposed injection zone within a 1-mile radius. According to the New Mexico Oil Conservation Division, currently active wells include:

- Dagger Draw SWD #001 (API: 30-015-25003)
- Osage Boyd 15 SWD #001 (API: 30-015-28992)

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injection:

Average Volume: 8,500 BPD

Maximum Volume: 10,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

Average Injection Pressure: 1,143 PSI (surface pressure)

Maximum Injection Pressure: 1,524 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 Glorieta-Yeso, Bone Spring, Pennsylvanian, and Morrow formations. Attached are produced water sample analyses taken from offset wells that feature samples from the Artesia, Bone Spring, Cisco, Glorieta-Yeso, Grayburg/San Andreas, Morrow, Pennsylvanian, San Andreas/Yeso, and Wolfcamp formations.

5. The disposal interval is non-productive. No water samples are available from the surrounding area within a 1-mile AOR.

VIII. Geological Data

Cisco Formation Lithology

The Cisco Formation is an Upper Pennsylvanian (Virgilian) carbonate reservoir that occurs below the Wolfcamp and above the Strawn formation in the Northwest Shelf of the Permian Basin. Reservoirs formed in the Northwest Shelf were created in shallow-water ramp structures across North Eddy County. Sediments in the Cisco are dominated by carbonates and shales. The carbonate architecture on the Northwest shelf is represented by large-scale, asymmetric, sigmoidal clinoforms. The Northwest Shelf has been known to be much more dolomitized than the equivalent succession in the rest of the Permian Basin, several types of dolomite are potentially present in this specific region of the Northwest Shelf. Generalized distribution of this formation has included beach grainstones and lagoonal mudstones and packstones. With algal boundstone restricting migration, dolomitized fusulinid and crinoid wackestone-grainstone create reservoirs with optimal porosity and permeability. These characteristics allow for this formation to be a receptive saltwater disposal horizon.

Canyon Formation Lithology

The Canyon Formation is a Missourian carbonate deposited over preexisting shelves and platforms around basin margins. On the Northwest Shelf, the Canyon sequence is characterized by aggradation and progradation as this region of the Permian Basin was known to form in a platform to ramp structure in shallow water. The Canyon formation rests beneath the Cisco formation in the northern region of Eddy County. The Strawn is the lower confining layer for the proposed Osage Boyd 15 SWD No. 2. Facies such as phylloid-algal-dominated bioherms and ooid grainstones create sound carbonate reservoirs in the Canyon formation. This carbonate reservoir provides an ideal horizon that is potentially prolific and compatible for disposal.

A. Injection Zone: Cisco-Canyon Formation

Formation	Depth
Glorieta	2,345'
3 rd Bone Spring	5,835'
Wolfcamp	5,990'
Canyon	7,645'
Strawn	8,206'
Atoka	8,556'
Morrow	8,950'
Mississippian Lime	9,350'

B. Underground Sources of Drinking Water

Three (3) water wells exist within one mile of the proposed well. Across the area, fresh water wells are usually drilled between 100' and 500' in depth. Water depths range from 42' – 310'. Surface casing has previously been set to protect against USDW at 1,101'.

IX. Proposed Stimulation Program

Percussion plans to perforate optimal intervals determined by log analysis and acidize the new perforations with 110 barrels of 15% NEFE acid.

X. Logging and Test Data on the Well

Within the Oil Conservation Division's online files, the OCD possesses the following logs:

1. Compressed neutron, Litho-Density, Gamma Ray
2. Laterolog-Micro CFL, Gamma Ray
3. Gamma Ray, Spectroscopy
4. Sonic, Gamma Ray
5. Azimuthal Laterolog, Micro-CFL/NGT

XI. Chemical Analysis of Fresh Water Wells

Attached is a map of three (3) water wells that exist within one mile of the well location. Samples from the well will be obtained and analysis results will be provided as soon as possible. A Water Right Summary from the New Mexico Office of the State Engineer is attached for water well RA-02909, RA-05450 and RA-05900.