NM OIL CONSERVATION
ARTESIA DISTRICT
APR 26 2016
OCD Artesia

ATS-15-54

Form 3160-3
(March 2012)

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SECRETARY'S POTASH

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMNM102912
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name
2. Name of Operator COG Operating LLC.	7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210	3b. Phone No. *(include area code)* 575-748-6940
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface 10' FSL & 1880' FWL Unit Letter N (SESW) SHL Sec 1. T24S. R29E At proposed prod. Zone 330' FNL & 1980' FWL Unit Lot #3 (NENW) BHL Sec 1. T24S. R29E	8. Lease Name and Well No. Dirty Work Federal #3H 9. API Well No. 30015 43726 10. Field and Pool, or Exploratory Nash Draw; Delaware/BS (Avalon Sand) 11. Sec., T.R.M. or Blk and Survey or Area Section 1. T24S. R29E.
14. Distance in miles and direction from nearest town or post office* Approximately 7 miles from Malaga	12. County or Parish Eddy County 13. State NM

UNORTHODOX LOCATION

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 10'	16. No. of acres in lease 399.16	17. Spacing Unit dedicated to this well 159.72
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 1549' BHL: 1458'	19. Proposed Depth TVD: 6,990' MD: 11,737'	20. BLM/BIA Bond No. on file NMB000740 &NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3113.4' GL	22. Approximate date work will start* 1/1/2015	23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name *(Printed/Typed)*	Date
Mayte Reyes	Mayte Reyes	9-25-14

Title: Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/George MacDonell		APR 18 2016
Title: FIELD MANAGER	Office: CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify th conduct operations theron.
Conditions of approval, if any, are attached.

The NMOCD Gas Capture Plan notice has been posted on the web site under Announcements. A copy of the GCP form is included with the notice and is also in the forms section under Unnumbered forms. Please submit accordingly in a timely manner.

se which would entitle the applicant to APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Sec States any false, fictitious or fraudulent statement

y department or agency of the United

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 25th day of September, 2014.

Signed: Melanie Parker

Printed Name: Melanie J. Parker
Position: Regulatory Coordinator
Address: 2208 W. Main Street, Artesia, NM 88210
Telephone: (575) 748-6940
Field Representative (if not above signatory): Rand French
E-mail: mparker@concho.com

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 RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 26 2016

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

☐ AMENDED REPORT

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-43726	47545	Nash Draw; Delaware/BS (Avalon Sand)

Property Code	Property Name	Well Number
316136	DIRTY WORK FEDERAL	3H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3113.4

Surface Location

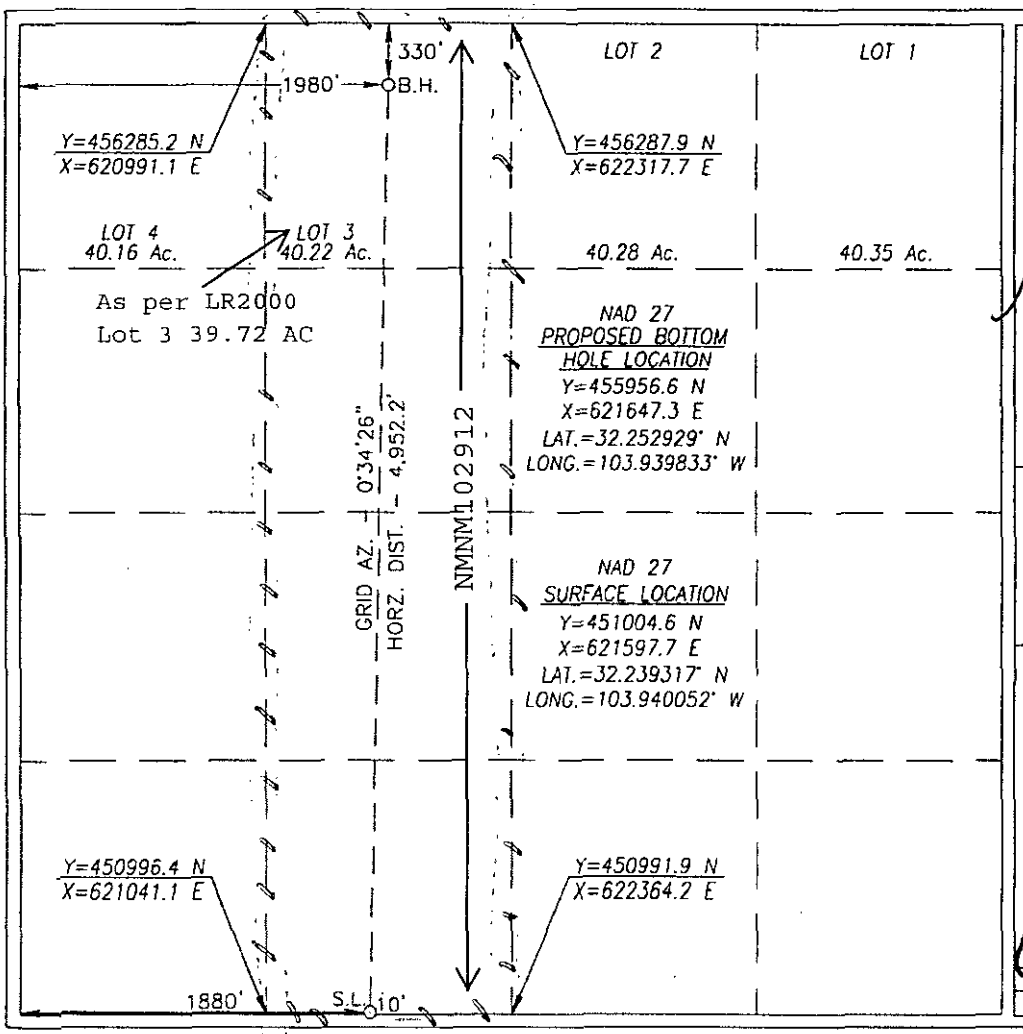
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	1	24-S	29-E		10	SOUTH	1880	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	1	24-S	29-E		330	NORTH	1980	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
159.72			

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.

Melanie J Parker 9/25/14
Signature Date

Melanie J Parker
Printed Name

mparker@concho.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.

FEBRUARY 2, 2014
Date of Survey

Signature & Seal of Professional Surveyor

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR

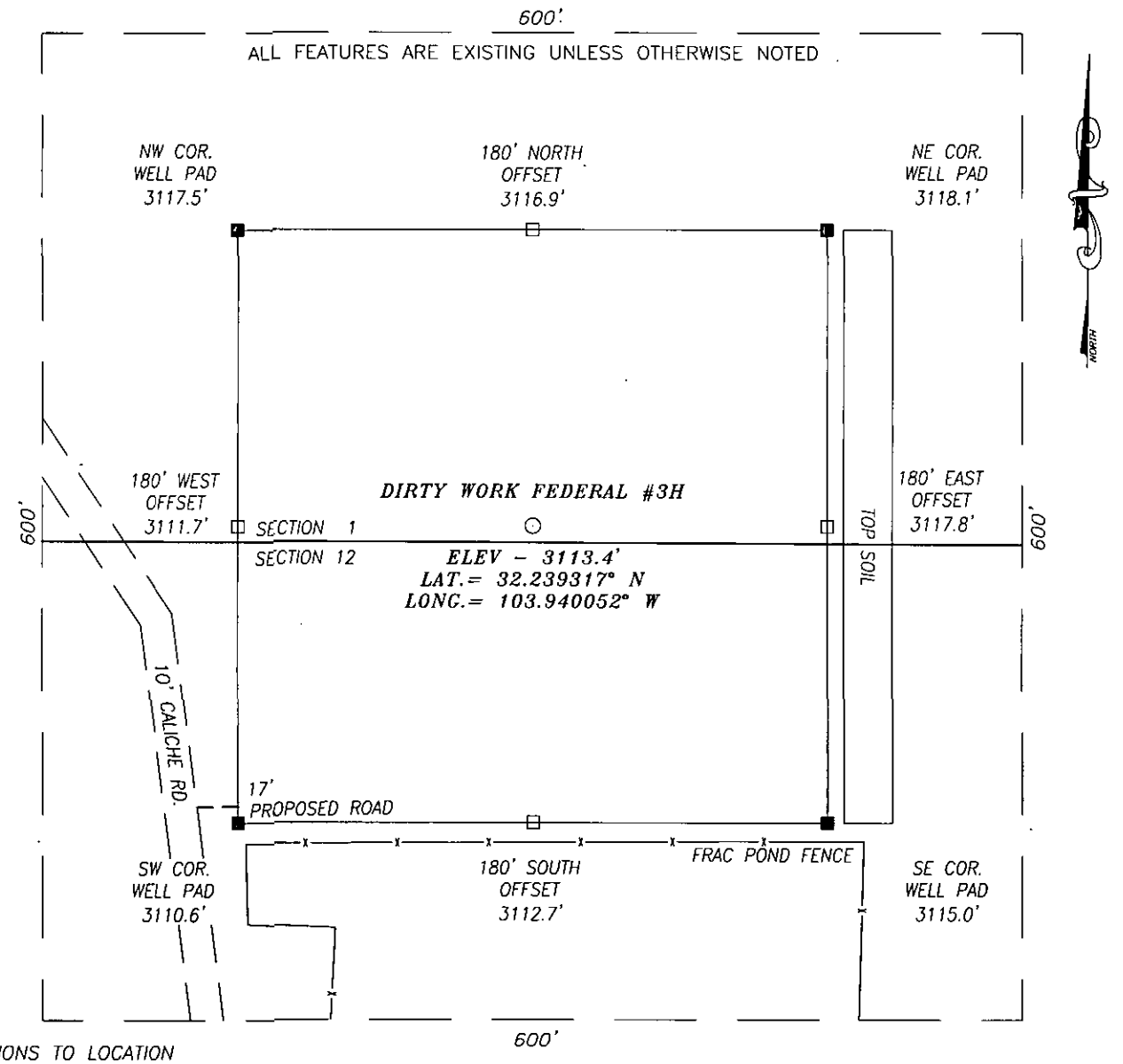
Chad Harcrow 2/13/14

Certificate No. CHAD HARCROW 17777

W.O. # 14-03 DRAWN BY: SP

SECTION 1, TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.,

EDDY COUNTY NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY 128 AND CR #793 (RAWHIDE RD.) GO SOUTH APPROX. 4.5 MILES; THEN TURN LEFT (EAST) AND GO APPROX. 0.2 MILE; THEN TURN RIGHT (SOUTH) AND GO APPROX. 1.0 MILE; THEN TURN LEFT (EAST) AND GO APPROX. 0.3 MILE; THEN TURN RIGHT (SOUTH) AND STAY ON MEANDERING ROAD FOR APPROX. 2.7 MILES; THEN TURN RIGHT (WEST) AND GO APPROX. 1.5 MILES; THEN TURN RIGHT (NORTH) AND GO APPROX. 0.35 MILE; THEN PROPOSED WELL IS APPROX. 260 FEET NORTHEAST.

HARCROW SURVEYING, LLC
2314 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
c.harcrow@harcrowsurveying.com

100 0 100 200 Feet

Scale: 1"=100'

CERTIFICATION

I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 2/11/16

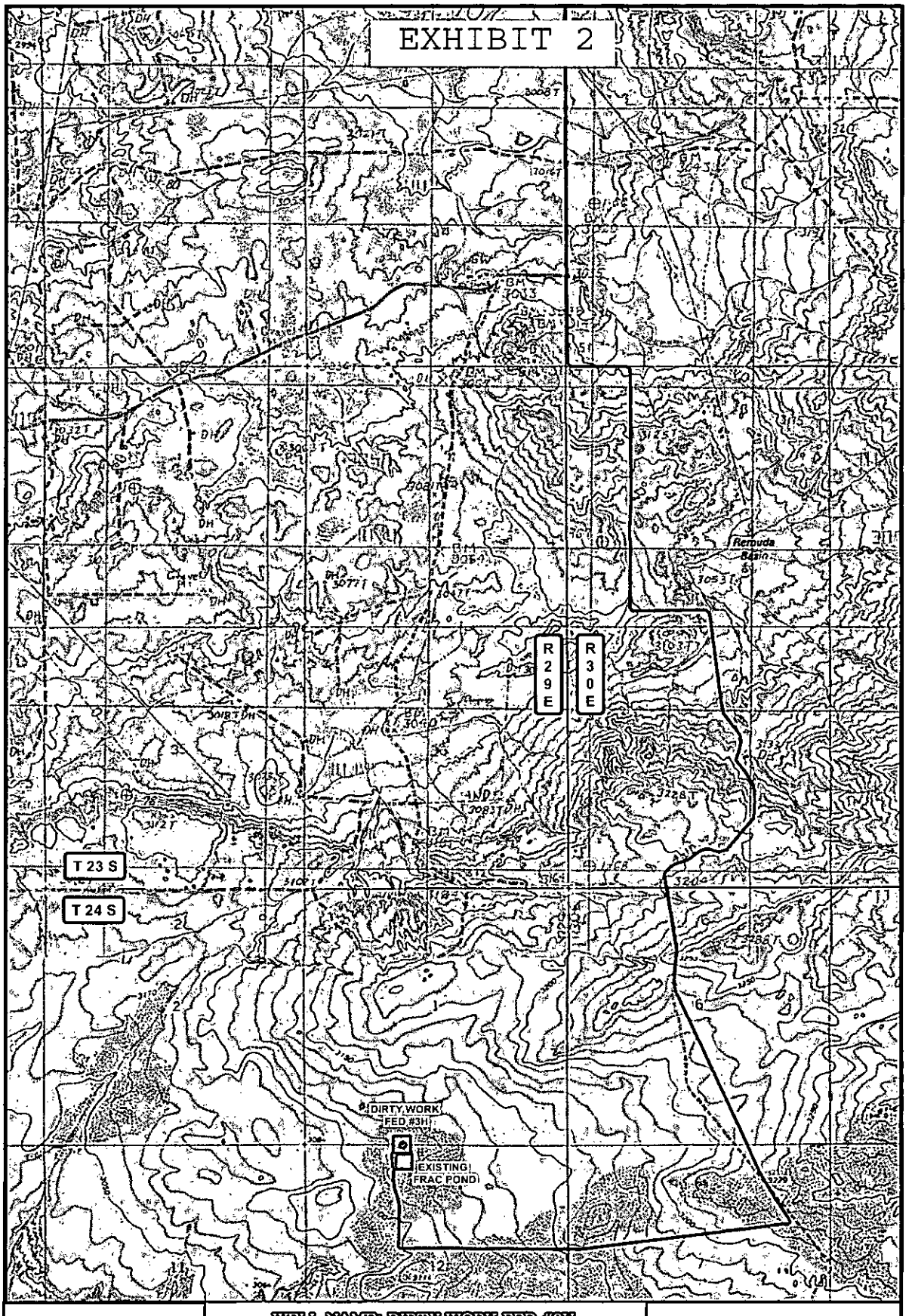
CHAD HARCROW N.M.P.S. NO. 17777 DATE

COG OPERATING, LLC

DIRTY WORK FED #3H WELL
LOCATED 10 FEET FROM THE SOUTH LINE
AND 1880 FEET FROM THE WEST LINE OF SECTION 1,
TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

SURVEY DATE: 02/03/2014		PAGE: 1 OF 1
DRAFTING DATE: 02/05/2014		
APPROVED BY: CH	DRAWN BY: SP	FILE: 14-03

EXHIBIT 2



LEGEND

- WELL
- FRAC POND
- WELLPAD
- ROAD

WELL NAME: DIRTY WORK FED #3H

SEC: 1	TWP: 24 S.	RGE: 29 E.	ELEVATION: 3113.4'
STATE: NEW MEXICO		COUNTY: EDDY	10' FSL & 1880' FWL
W.O. # 14-03	LEASE: DIRTY WORK FED		SURVEY: N.M.P.M

0 2,500 5,000 FEET

1 IN = 2,245 FT

LOCATION MAP TOPO 02/06/2014 S.P.

N

CONCHO

COG OPERATING, LLC

HARCROW SURVEYING, LLC
110' WATSON ARTESIA N.M. 88210
PH. (575) 513-2570 FAX: (575) 746-2158
chad_harcrow@yahoo.com

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- FRAC POND
- WELLPAD
- ROAD

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W.O. # 14-03	LEASE: DIRTY WORK FED		SURVEY: N.M.P.M

0 2,500 FEET

1 IN = 1,000 FT

N

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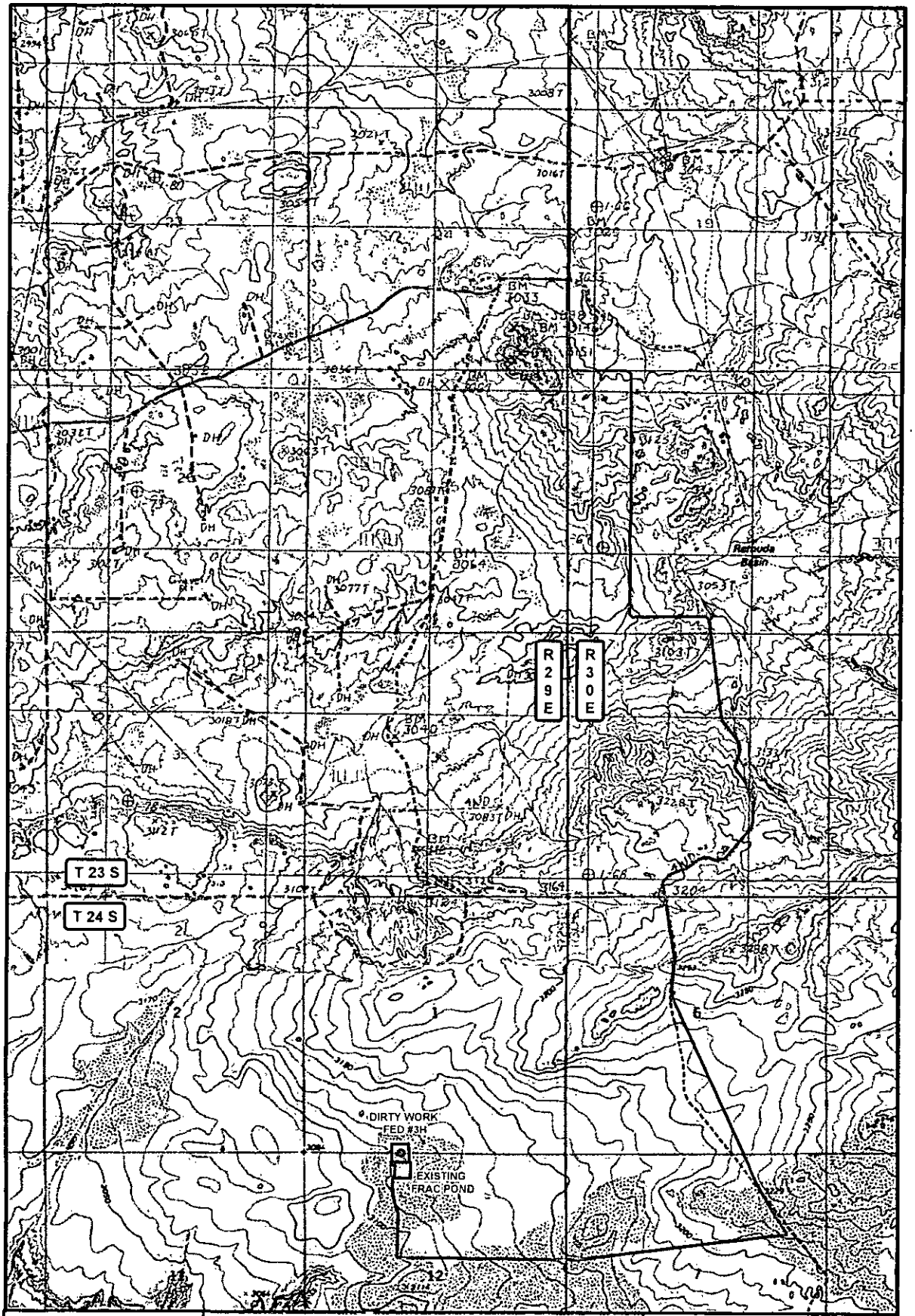
COG OPERATING, LLC

HARCROW SURVEYING, LLC
107 WATSON ARTESIA NM 88210
PH (575) 365-2870 FAX (575) 746-2155
chad_harcrow77@yahoo.com



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110 WATSON ARTESIA NM 88210
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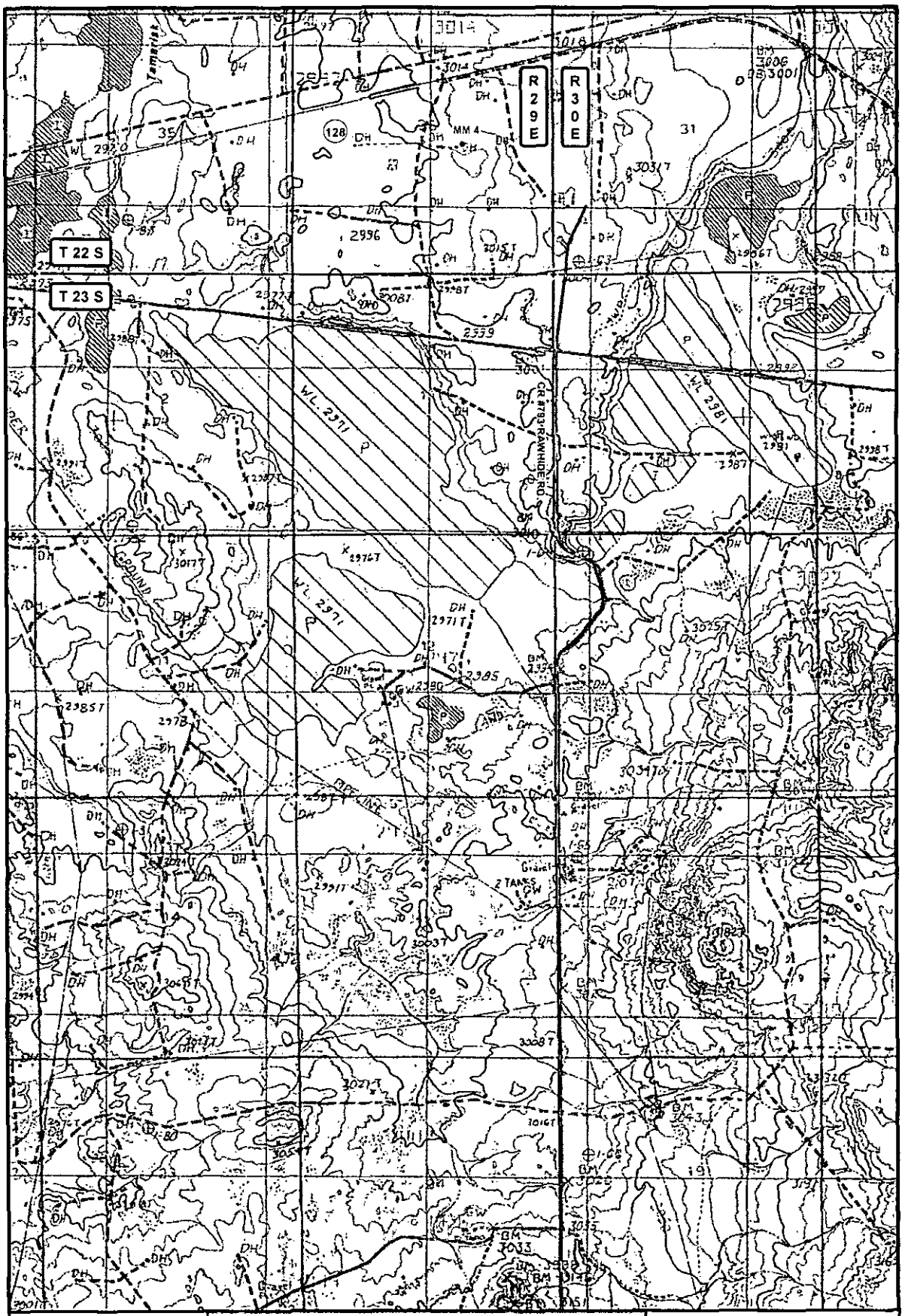
chad_harrow@valornet.com



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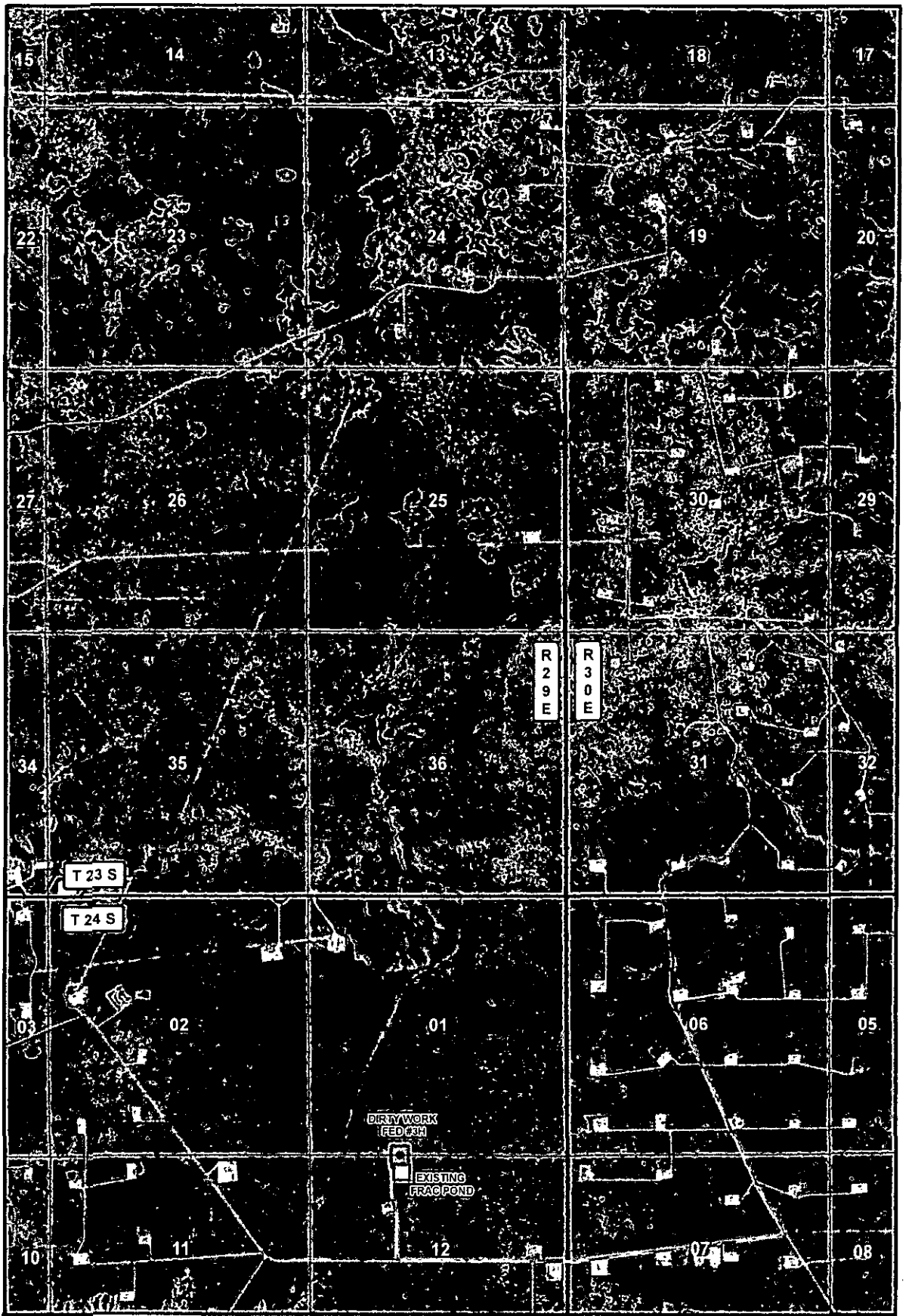

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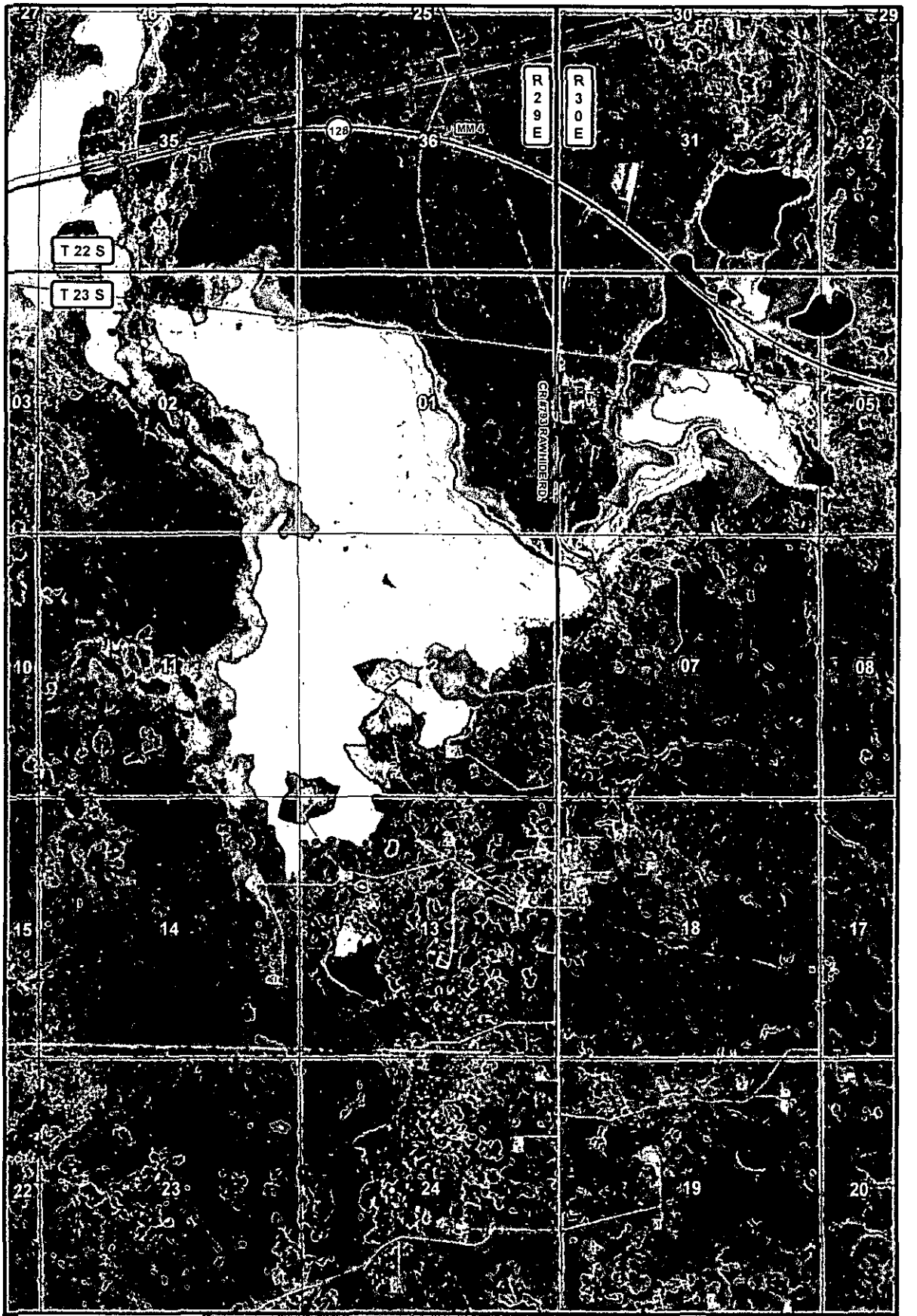

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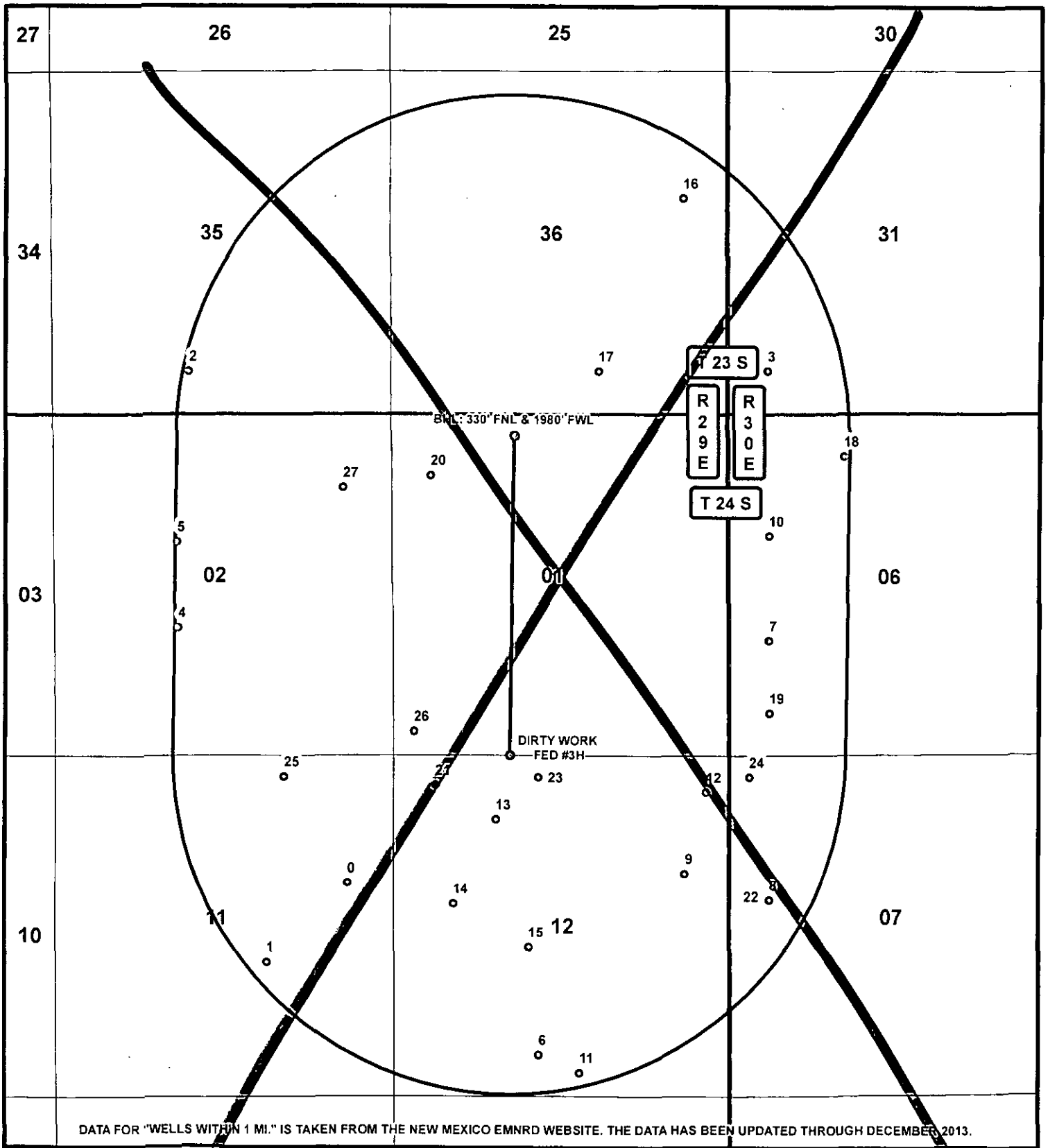

DATA FOR "WELLS WITHIN 1 MI." IS TAKEN FROM THE NEW MEXICO EMNRD WEBSITE. THE DATA HAS BEEN UPDATED THROUGH DECEMBER, 2013.

LEGEND

- WELLS WITHIN 1 MI.
- WELL
- BOTTOMHOLE
- 1 MI. BUFFER

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0 2,500 5,000 FEET

0 0.15 0.3 0.6 Miles 1 IN = 2,000 FT

1 MILE MAP 02/06/2014 S.P.

N

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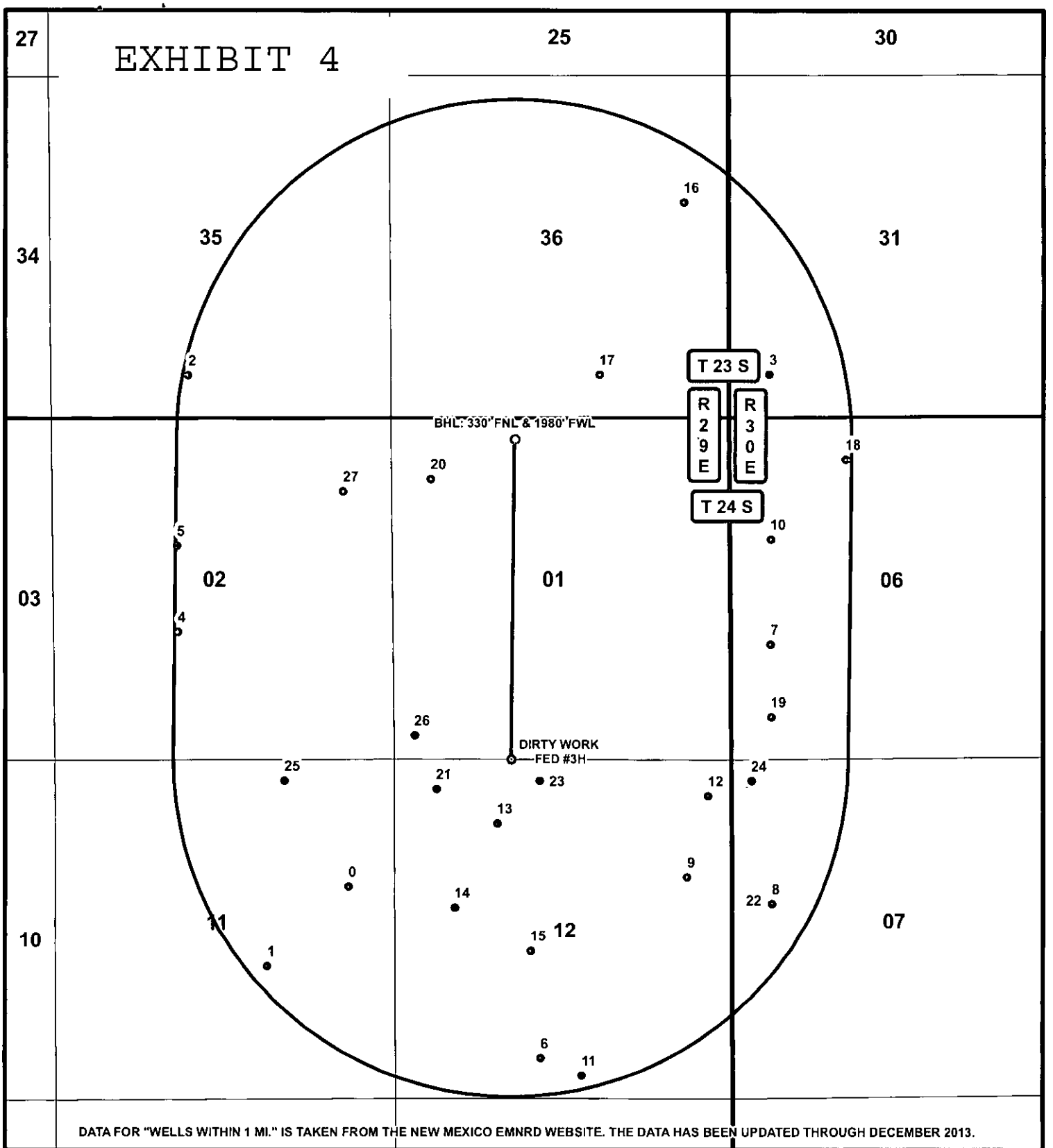
EXHIBIT 4



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1 MILE MAP 02/06/2014 S.P.

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1107 WATSON, ARTESIA N.M. 88210
PH: (575) 513-2570 FAX: (575) 746-2158
chad_harcrow77@yahoo.com

FID	OPERATOR	WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0	EXXON CORP	POCHE FEDERAL 001	32.234015	-103.948783	3001524427	11	24.0S	29E	1980	N	660	E	0	Plugged
1	DEVON ENERGY PRODUCTION COMPANY, LP	H B 11 FEDERAL 011	32.230596	-103.952911	3001529739	11	24.0S	29E	2080	S	1930	E	8460	Active
2	OXY USA INC	GOODNIGHT 35 FEDERAL 001C	32.255814	-103.956815	3001531096	35	23.0S	29E	660	S	2180	W	11593	Plugged
3	BOPCO, L.P.	REMUDA BASIN 31 STATE COM 001	32.255785	-103.927438	3001531774	31	23.0S	30E	660	S	660	W	14175	Active
4	DEVON ENERGY PRODUCTION COMPANY, LP	H B 2 STATE 005	32.244893	-103.957392	3001532943	2	24.0S	29E	1980	S	1980	W	8400	Active
5	DEVON ENERGY PRODUCTION COMPANY, LP	H B 2 STATE 006	32.248558	-103.957416	3001532944	2	24.0S	29E	1980	N	1980	W	8400	Active
6	YATES PETROLEUM CORPORATION	JESTER BFJ FEDERAL 001	32.226594	-103.939135	3001534275	12	24.0S	29E	630	S	2310	W	9260	Active
7	BOPCO, L.P.	POKER LAKE UNIT 264	32.244289	-103.927405	3001534946	6	24.0S	30E	1780	S	660	W	7472	Active
8	BOPCO, L.P.	POKER LAKE UNIT 270E	32.233211	-103.927387	3001534948	7	24.0S	30E	2250	N	660	W	0	New (Not drilled or compl)
9	BOPCO, L.P.	POKER LAKE UNIT 281	32.234364	-103.931677	3001535083	12	24.0S	29E	1830	N	660	E	7380	Active
10	BOPCO, L.P.	POKER LAKE UNIT 263H	32.248764	-103.927375	3001535115	6	24.0S	30E	1894	N	674	W	12292	Active
11	BOPCO, L.P.	POKER LAKE UNIT 274	32.225844	-103.937037	3001535138	12	24.0S	29E	360	S	2310	E	9288	Active
12	BOPCO, L.P.	POKER LAKE UNIT 280	32.237851	-103.930606	3001535204	12	24.0S	29E	560	N	330	E	0	New (Not drilled or compl)
13	YATES PETROLEUM CORPORATION	JESTER SWD 004	32.236715	-103.941275	3001535217	12	24.0S	29E	990	N	1650	W	4300	New (Not drilled or compl)
14	YATES PETROLEUM CORPORATION	JESTER BFJ FEDERAL 003	32.233096	-103.943421	3001535285	12	24.0S	29E	2310	N	990	W	0	New (Not drilled or compl)
15	YATES PETROLEUM CORPORATION	JESTER BFJ FEDERAL 002	32.231214	-103.93962	3001535286	12	24.0S	29E	2310	S	2160	W	0	Active
16	BOPCO, L.P.	REMUDA BASIN 36 STATE 001C	32.26314	-103.931735	3001535387	36	23.0S	29E	1980	N	660	E	0	New (Not drilled or compl)
17	BOPCO, L.P.	REMUDA BASIN 36 STATE 002C	32.255789	-103.93602	3001535388	36	23.0S	29E	660	S	1980	E	0	New (Not drilled or compl)
18	BOPCO, L.P.	POKER LAKE UNIT 162	32.252163	-103.923548	3001535522	6	24.0S	30E	660	N	1855	W	7410	Active
19	BOPCO, L.P.	POKER LAKE UNIT 265H	32.24121	-103.927395	3001535614	6	24.0S	30E	660	S	660	W	14769	New (Not drilled or compl)
20	COG OPERATING LLC	TOMMY'S BOY FEDERAL 001	32.251374	-103.944571	3001537184	1	24.0S	29E	950	N	660	W	14452	New (Not drilled or compl)
21	YATES PETROLEUM CORPORATION	JESTER BFJ FEDERAL 009H	32.238185	-103.944329	3001537188	12	24.0S	29E	460	N	710	W	0	New (Not drilled or compl)
22	BOPCO, L.P.	POKER LAKE UNIT 270H	32.233211	-103.927387	3001537174	7	24.0S	30E	2250	N	660	W	0	New (Not drilled or compl)
23	YATES PETROLEUM CORPORATION	JESTER BFJ FEDERAL 005E	32.23852	-103.939129	3001537173	12	24.0S	29E	330	N	2310	W	0	New (Not drilled or compl)
24	BOPCO, L.P.	PLU PIERCE CANYON 7 FEDERAL 001H	32.238484	-103.928396	3001537029	7	24.0S	30E	330	N	350	W	7955	Active
25	DEVON ENERGY PRODUCTION COMPANY, LP	H B 11 FEDERAL 008H	32.238548	-103.951998	3001537900	11	24.0S	29E	330	N	1650	E	8810	New (Not drilled or compl)
26	COG OPERATING LLC	ALMOST HEROES 1 FEDERAL 004H	32.240485	-103.945423	3001539292	1	24.0S	29E	375	S	375	W	8257	New (Not drilled or compl)
27	DEVON ENERGY PRODUCTION COMPANY, LP	H B 2 STATE 008	32.250857	-103.948988	3001538297	2	24.0S	29E	1140	N	700	E	14250	New (Not drilled or compl)

COG Operating LLC, Dirty Work Federal 3H

1. Geologic Formations

TVD of target	6990'	Pilot hole depth	NA
MD at TD:	11737'	Deepest expected fresh water:	168'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	261'	Water	
Top of Salt	544'	Salt	
Lamar	3348'	Barren	
Delaware Group	3390'	Oil/Gas	Possible lost circ
Brushy Canyon	5416'	Target Zone	
Bone Spring	7045'	Oil/Gas	

2. Casing Program See COA

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0'	~~400'~~ 350	13.375"	48	H40	STC	3.95	1.10	16.77
12.25"	0'	~~3370'~~ 3300	9.625"	36	J55	LTC	1.28	1.08	3.73
8.75"	0'	11737'	5-1/2"	17	P110	LTC	2.29	3.25	2.23D
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
- BLM standard formulas where used on all SF calculations.
- Used 9.0 PPG for pore pressure calculations

COG Operating LLC, Dirty Work Federal 3H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

2. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	-	-	-	-	-	Lead: No lead
	410	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Inter.	800	13.5	1.75	9.2	13	Lead: Class C + 4% Gel
	200	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Prod.	750	11.9	2.51	14.1	72	Lead:50:50:10 H blend (FR, Retarder, FL adds as necessary)
	1480	14.4	1.25	5.7	22	Tail:50:50:2 H blend (FR, Retarder, FL adds as necessary)

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

COG Operating LLC, Dirty Work Federal 3H

Casing String	TOC	% Excess
Surface	0'	90%
Intermediate	0'	50%
Production	~~2870'~~ 2800	45%

See COA

Pilot hole depth No pilot hole
KOP 6513'

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	x	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other *		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
N	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	Are anchors required by manufacturer? No.
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.6 – 9.0	28-34	N/C
Surf csg	Int shoe	Saturated Brine	10.0 - 10.2	28-34	N/C
Int shoe	TMD	Cut Brine	8.6 – 9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	Pason PVT

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	None	

See COA

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3271 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions.

- Lost circulation material/sweeps/mud scavengers.
- Maintain stock of LCM and weighting materials onsite.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No.
Will be pre-setting casing? No.

Attachments

- Directional Plan
- BOP & Choke Schematics
- Directional plan
- C102 and supporting maps
- Rig plat
- H2S schematic
- H2S contingency plan
- Interim reclamation plat

CONCHO

COG Operating, LLC

Eddy County, NM (NAD 27)
Sec 1, T24-S, R29-E
Dirty Work Federal #3H

Wellbore #1

Plan: Design #1

DDC Well Planning Report

18 September, 2014

DDC
The DIRECTIONAL DRILLING COMPANY

Database:	EDM Compass	**Local Co-ordinate Reference:**	Well Dirty Work Federal #3H
Company:	COG Operating, LLC	**TVD Reference:**	Well @ 3131.0usft (Patterson #79)
Project:	Eddy County, NM (NAD 27)	**MD Reference:**	Well @ 3131.0usft (Patterson #79)
Site:	Sec 1, T24-S, R29-E	**North Reference:**	Grid
Well:	Dirty Work Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project Eddy County, NM (NAD 27)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Sec 1, T24-S, R29-E

Site Position:		**Northing:**	451,004.60 usft	**Latitude:**	32° 14' 21.540 N
From:	Map	**Easting:**	621,597.70 usft	**Longitude:**	103° 56' 24.189 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.21 °

Well Dirty Work Federal #3H

Well Position	**+N/-S**	0.0 usft	**Northing:**	451,004.60 usft	**Latitude:**	32° 14' 21.540 N
	+E/-W	0.0 usft	**Easting:**	621,597.70 usft	**Longitude:**	103° 56' 24.189 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,113.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/18/2014	7.36	60.06	48,262

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.57

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,512.5	0.00	0.00	6,512.5	0.0	0.0	0.00	0.00	0.00	0.00	
7,262.5	90.00	0.57	6,990.0	477.4	4.8	12.00	12.00	0.08	0.57	
11,737.3	90.00	0.57	6,990.0	4,952.0	49.6	0.00	0.00	0.00	0.00	PBHL Dirty Work Fed

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Well:	Dirty Work Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
261.0	0.00	0.00	261.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
TOS									
544.0	0.00	0.00	544.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
BOS									
3,112.0	0.00	0.00	3,112.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
LMAR									
3,348.0	0.00	0.00	3,348.0	0.0	0.0	0.0	0.00	0.00	0.00
BLCN									
3,390.0	0.00	0.00	3,390.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
CYCN									
4,247.0	0.00	0.00	4,247.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
BYCN									
5,416.0	0.00	0.00	5,416.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP / Begin Build 12° / 100'									
6,512.5	0.00	0.00	6,512.5	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	10.50	0.57	6,599.5	8.0	0.1	8.0	12.00	12.00	0.00
6,700.0	22.50	0.57	6,695.2	36.3	0.4	36.3	12.00	12.00	0.00
6,800.0	34.50	0.57	6,782.9	84.0	0.8	84.0	12.00	12.00	0.00
6,900.0	46.50	0.57	6,858.8	148.8	1.5	148.8	12.00	12.00	0.00
7,000.0	58.50	0.57	6,919.6	228.0	2.3	228.0	12.00	12.00	0.00
7,100.0	70.50	0.57	6,962.6	318.1	3.2	318.1	12.00	12.00	0.00
7,200.0	82.50	0.57	6,985.9	415.1	4.2	415.1	12.00	12.00	0.00
End of Curve @ 7263' MD / 90° Inc / 6990' TVD									
7,262.5	90.00	0.57	6,990.0	477.4	4.8	477.5	12.00	12.00	0.00
7,300.0	90.00	0.57	6,990.0	514.9	5.2	515.0	0.00	0.00	0.00
7,400.0	90.00	0.57	6,990.0	614.9	6.2	615.0	0.00	0.00	0.00
7,500.0	90.00	0.57	6,990.0	714.9	7.2	715.0	0.00	0.00	0.00
7,600.0	90.00	0.57	6,990.0	814.9	8.2	815.0	0.00	0.00	0.00
7,700.0	90.00	0.57	6,990.0	914.9	9.2	915.0	0.00	0.00	0.00
7,800.0	90.00	0.57	6,990.0	1,014.9	10.2	1,015.0	0.00	0.00	0.00
7,900.0	90.00	0.57	6,990.0	1,114.9	11.2	1,115.0	0.00	0.00	0.00
8,000.0	90.00	0.57	6,990.0	1,214.9	12.2	1,215.0	0.00	0.00	0.00
8,100.0	90.00	0.57	6,990.0	1,314.9	13.2	1,315.0	0.00	0.00	0.00
8,200.0	90.00	0.57	6,990.0	1,414.9	14.2	1,415.0	0.00	0.00	0.00
8,300.0	90.00	0.57	6,990.0	1,514.9	15.2	1,515.0	0.00	0.00	0.00
8,400.0	90.00	0.57	6,990.0	1,614.9	16.2	1,615.0	0.00	0.00	0.00
8,500.0	90.00	0.57	6,990.0	1,714.9	17.2	1,715.0	0.00	0.00	0.00
8,600.0	90.00	0.57	6,990.0	1,814.9	18.2	1,815.0	0.00	0.00	0.00
8,700.0	90.00	0.57	6,990.0	1,914.9	19.2	1,915.0	0.00	0.00	0.00

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Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,800.0	90.00	0.57	6,990.0	2,014.9	20.2	2,015.0	0.00	0.00	0.00
8,900.0	90.00	0.57	6,990.0	2,114.9	21.2	2,115.0	0.00	0.00	0.00
9,000.0	90.00	0.57	6,990.0	2,214.9	22.2	2,215.0	0.00	0.00	0.00
9,100.0	90.00	0.57	6,990.0	2,314.8	23.2	2,315.0	0.00	0.00	0.00
9,200.0	90.00	0.57	6,990.0	2,414.8	24.2	2,415.0	0.00	0.00	0.00
9,300.0	90.00	0.57	6,990.0	2,514.8	25.2	2,515.0	0.00	0.00	0.00
9,400.0	90.00	0.57	6,990.0	2,614.8	26.2	2,615.0	0.00	0.00	0.00
9,500.0	90.00	0.57	6,990.0	2,714.8	27.2	2,715.0	0.00	0.00	0.00
9,600.0	90.00	0.57	6,990.0	2,814.8	28.2	2,815.0	0.00	0.00	0.00
9,700.0	90.00	0.57	6,990.0	2,914.8	29.2	2,915.0	0.00	0.00	0.00
9,800.0	90.00	0.57	6,990.0	3,014.8	30.2	3,015.0	0.00	0.00	0.00
9,900.0	90.00	0.57	6,990.0	3,114.8	31.2	3,115.0	0.00	0.00	0.00
10,000.0	90.00	0.57	6,990.0	3,214.8	32.2	3,215.0	0.00	0.00	0.00
10,100.0	90.00	0.57	6,990.0	3,314.8	33.2	3,315.0	0.00	0.00	0.00
10,200.0	90.00	0.57	6,990.0	3,414.8	34.2	3,415.0	0.00	0.00	0.00
10,300.0	90.00	0.57	6,990.0	3,514.8	35.2	3,515.0	0.00	0.00	0.00
10,400.0	90.00	0.57	6,990.0	3,614.8	36.2	3,615.0	0.00	0.00	0.00
10,500.0	90.00	0.57	6,990.0	3,714.8	37.2	3,715.0	0.00	0.00	0.00
10,600.0	90.00	0.57	6,990.0	3,814.8	38.2	3,815.0	0.00	0.00	0.00
10,700.0	90.00	0.57	6,990.0	3,914.8	39.2	3,915.0	0.00	0.00	0.00
10,800.0	90.00	0.57	6,990.0	4,014.8	40.2	4,015.0	0.00	0.00	0.00
10,900.0	90.00	0.57	6,990.0	4,114.8	41.2	4,115.0	0.00	0.00	0.00
11,000.0	90.00	0.57	6,990.0	4,214.8	42.2	4,215.0	0.00	0.00	0.00
11,100.0	90.00	0.57	6,990.0	4,314.7	43.2	4,315.0	0.00	0.00	0.00
11,200.0	90.00	0.57	6,990.0	4,414.7	44.2	4,415.0	0.00	0.00	0.00
11,300.0	90.00	0.57	6,990.0	4,514.7	45.2	4,515.0	0.00	0.00	0.00
11,400.0	90.00	0.57	6,990.0	4,614.7	46.2	4,615.0	0.00	0.00	0.00
11,500.0	90.00	0.57	6,990.0	4,714.7	47.2	4,715.0	0.00	0.00	0.00
11,600.0	90.00	0.57	6,990.0	4,814.7	48.2	4,815.0	0.00	0.00	0.00
11,700.0	90.00	0.57	6,990.0	4,914.7	49.2	4,915.0	0.00	0.00	0.00
PBHL @ 11737' MD / 6990' TVD									
11,737.3	90.00	0.57	6,990.0	4,952.0	49.6	4,952.2	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Dirty Work Federa - plan hits target center - Point	0.00	0.00	6,990.0	4,952.0	49.6	455,956.60	621,647.30	32° 15' 10.544 N	103° 56' 23.400 W

Database:	EDM Compass	**Local Co-ordinate Reference:**	Well Dirty Work Federal #3H
Company:	COG Operating, LLC	**TVD Reference:**	Well @ 3131.0usft (Patterson #79)
Project:	Eddy County, NM (NAD 27)	**MD Reference:**	Well @ 3131.0usft (Patterson #79)
Site:	Sec 1, T24-S, R29-E	**North Reference:**	Grid
Well:	Dirty Work Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
261.0	261.0	Rustler		0.00	0.57
544.0	544.0	TOS		0.00	0.57
3,112.0	3,112.0	BOS		0.00	0.57
3,348.0	3,348.0	LMAR		0.00	0.57
3,390.0	3,390.0	BLCN		0.00	0.57
4,247.0	4,247.0	CYCN		0.00	0.57
5,416.0	5,416.0	BYCN		0.00	0.57

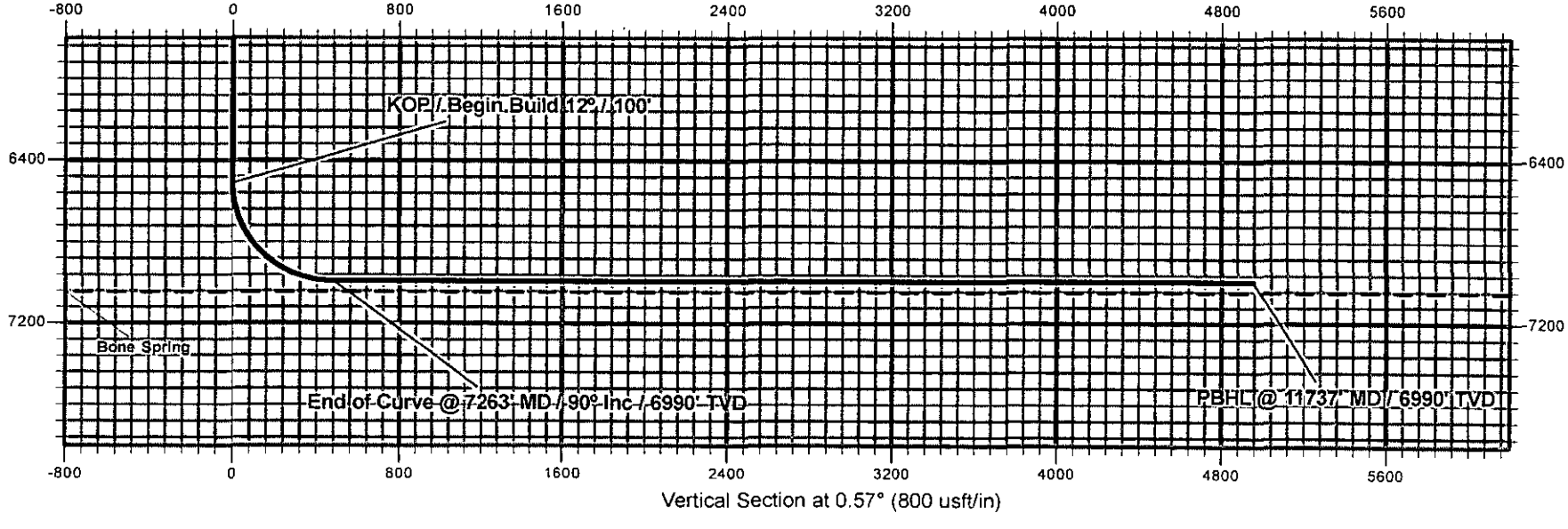
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,512.5	6,512.5	0.0	0.0	KOP / Begin Build 12° / 100'
7,262.5	6,990.0	477.4	4.8	End of Curve @ 7263' MD / 90° Inc / 6990' TVD
11,737.3	6,990.0	4,952.0	49.6	PBHL @ 11737' MD / 6990' TVD

CONCHO

DDC
The DIRECTIONAL DRILLING COMPANY

Eddy County, NM (NAD 27)
Sec 1, T24-S, R29-E
Dirty Work Federal #3H
Design #1

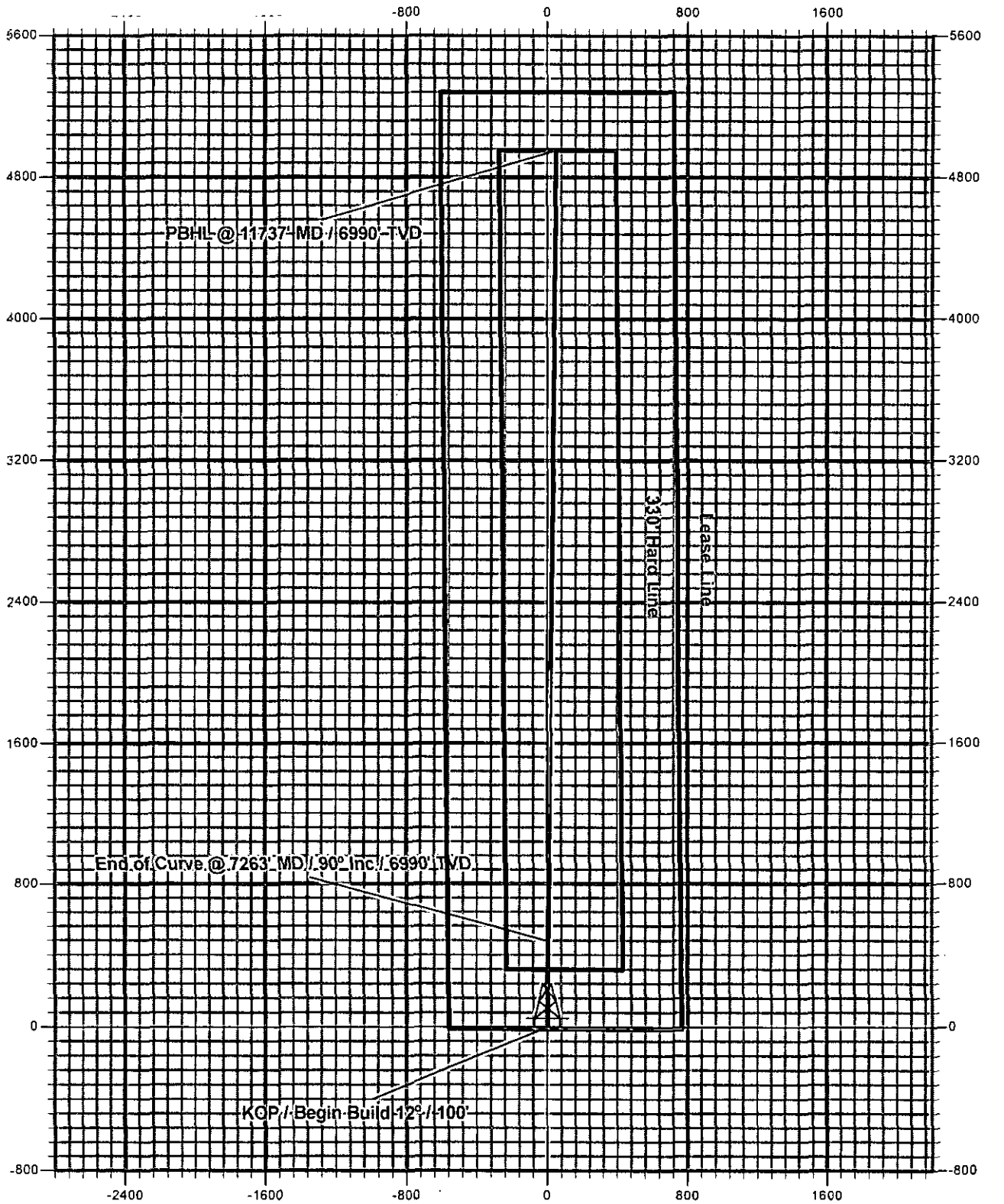


Vertical Section at 0.57° (800 usft/in)

CONCHO

Eddy County, NM (NAD 27)
Sec 1, T24-S, R29-E
Dirty Work Federal #3H
Design #1

RDC
The DIRECTIONAL DRILLING COMPANY



LLD ACREAGE REPORT

Admin State: NM

Geo State: NM

MTR: 23 0240S 0290E

Section: 001

Sur Type	Sur No	Lld Suff	NE NW SW SE NNSS NNSS NNSS NNSS EWWE EWWE EWWE EWWE	Sur Note	Dup Flg	Sub Surf	Acreage
A			--XX --XX XXXX XXXX				480.000
L	1		X--- ---- ---- ----				39.940
L	2		-X-- ---- ---- ----				39.830
L	3		---- X--- ---- ----				39.720
L	4		---- -X-- ---- ----				39.610

Section 001 Total: 639.100

MTR Total Exluding Survey Notes C/D/R and Sub Surf = Y 639.100

Grand Total Excluding Survey Notes C/D/R and Sub Surf = Y: 639.100

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

No records found.

PLSS Search:

Section(s): 1 **Township:** 24S **Range:** 29E

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 00349	C	CUB	ED		1	3	18	24S	29E	591401	3564773*	2734		
C 00381	C	C	ED	3	2	3	07	24S	29E	591682	3566297*	2797		
C 00463		C	ED	4	4	4	17	24S	29E	594332	3564282*	260	4	256
C 00856			ED	1	2	4	30	24S	29E	592538	3561644*	380		
C 00857			ED	3	1	4	30	24S	29E	592135	3561440*	306		
C 00862			ED	1	2	4	30	24S	29E	592538	3561644*	155		
C 00863			ED	3	3	1	16	24S	29E	594524	3565091*	220		
C 00863 CLW199506	O		ED	3	3	1	16	24S	29E	594524	3565091*	220		
C 02713		C	ED	4	4	1	16	24S	29E	591633	3565944	230	18	212
C 03615 POD1		CUB	ED	1	3	2	06	24S	29E	591964	3568500	60	36	24
C 03615 POD2		CUB	ED	4	2	4	06	24S	29E	592661	3568013	60	26	34

Average Depth to Water: **21 feet**

Minimum Depth: **4 feet**

Maximum Depth: **36 feet**

Record Count: 11

PLSS Search:

Township: 24S **Range:** 29E

***UTM location was derived from PLSS - see Help**

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-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02108		ED	1	3		08	24S	30E	602702	3566487*	3003	200	186	14
C 02109		ED	1	2	4	19	24S	30E	602130	3563412	4637	130	150	-20

Average Depth to Water: **168 feet**

Minimum Depth: **150 feet**

Maximum Depth: **186 feet**

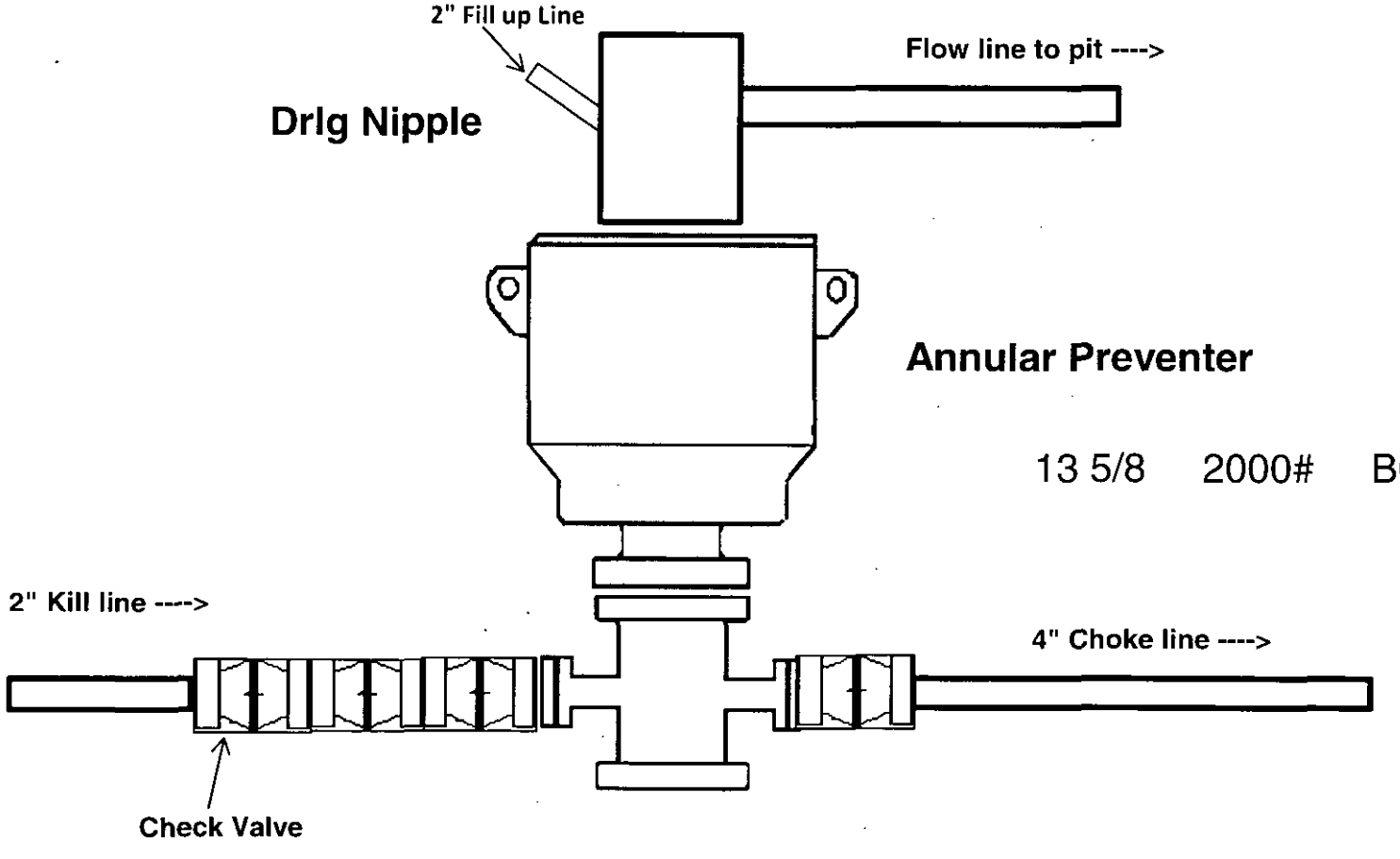
Record Count: 2

UTMNAD83 Radius Search (in meters):

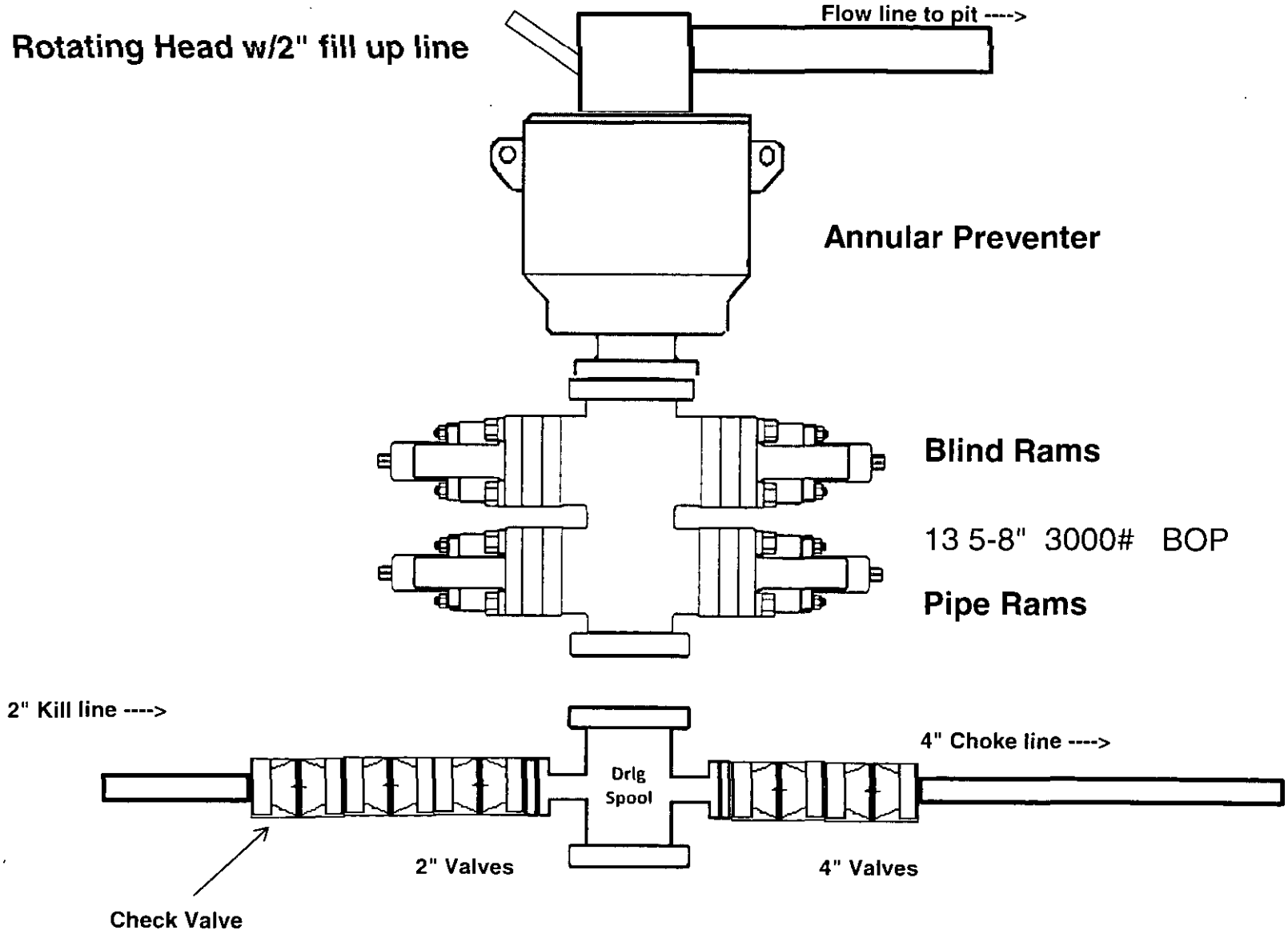
Easting (X): 599859.31 **Northing (Y):** 3567455.46 **Radius:** 4830

***UTM location was derived from PLSS - see Help**

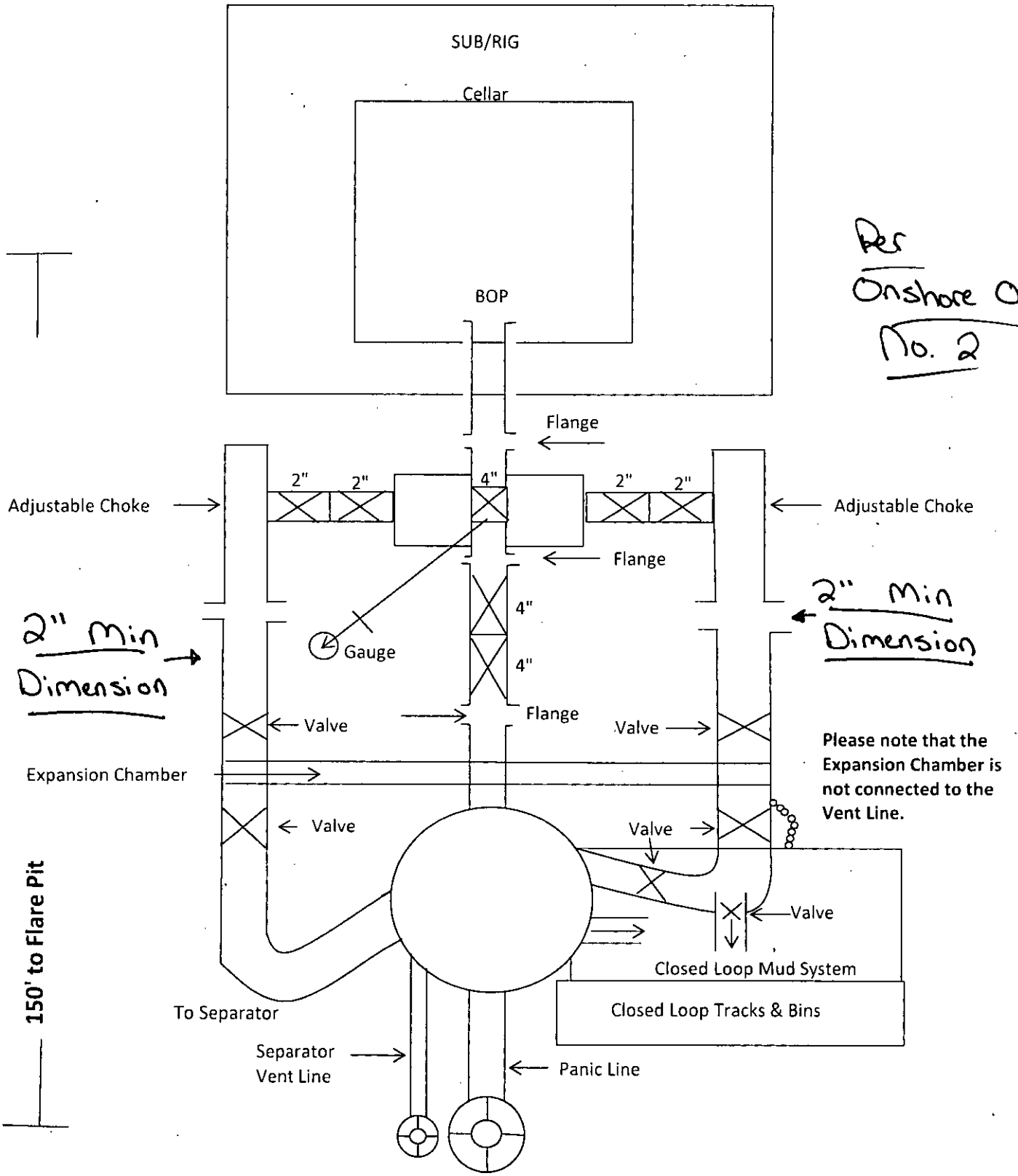
2,000 psi BOP Schematic



3,000 psi BOP Schematic

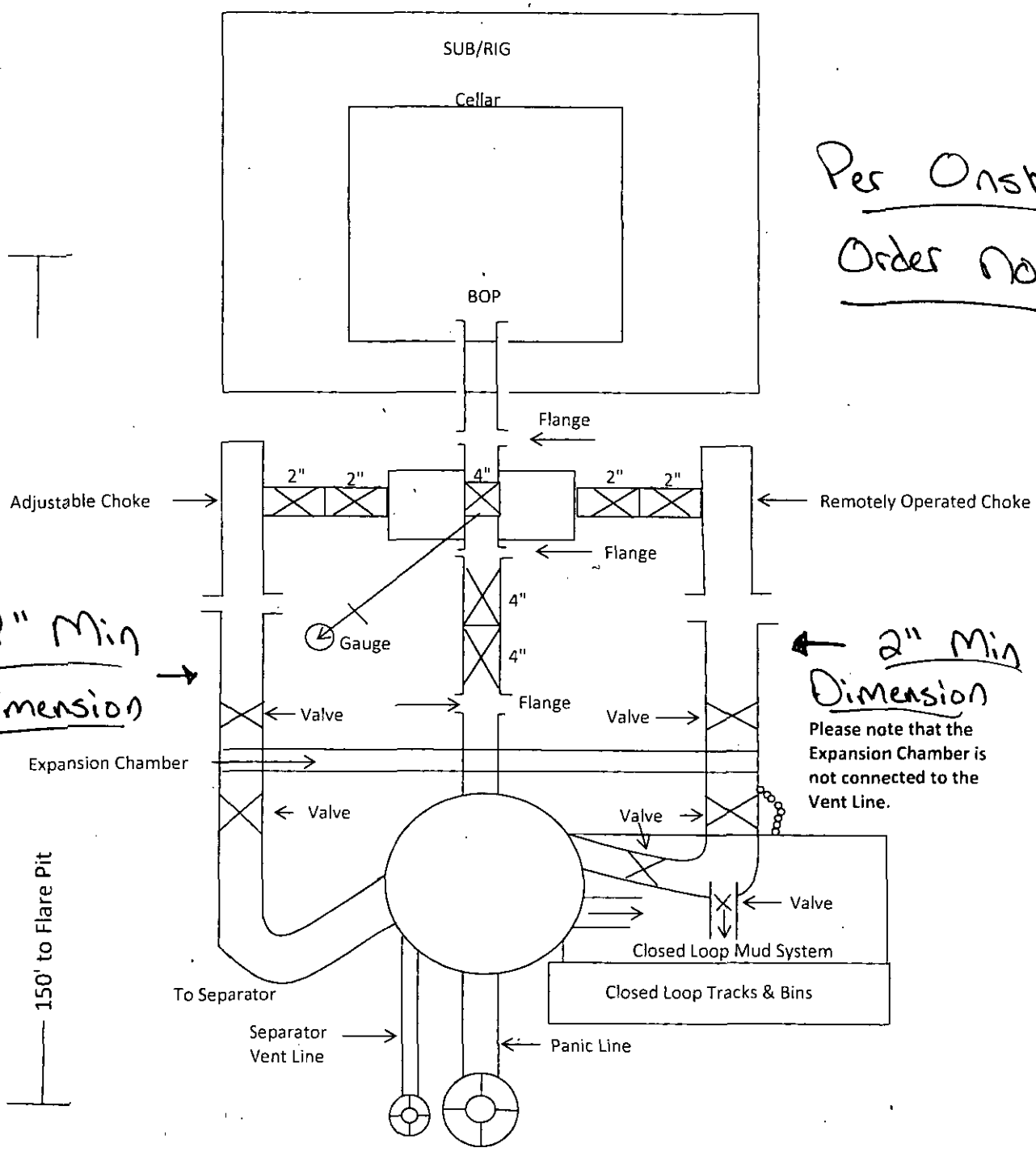


2M Choke Manifold Equipment



Per Onshore Order No. 2

3M Choke Manifold Equipment



Per Onshore Order No. 2

2" Min Dimension

2" Min Dimension

Please note that the Expansion Chamber is not connected to the Vent Line.

COG Operating LLC

Rig Plat & Closed Loop Equipment Diagram

Well pad will be 360' X 360' with cellar in center of pad

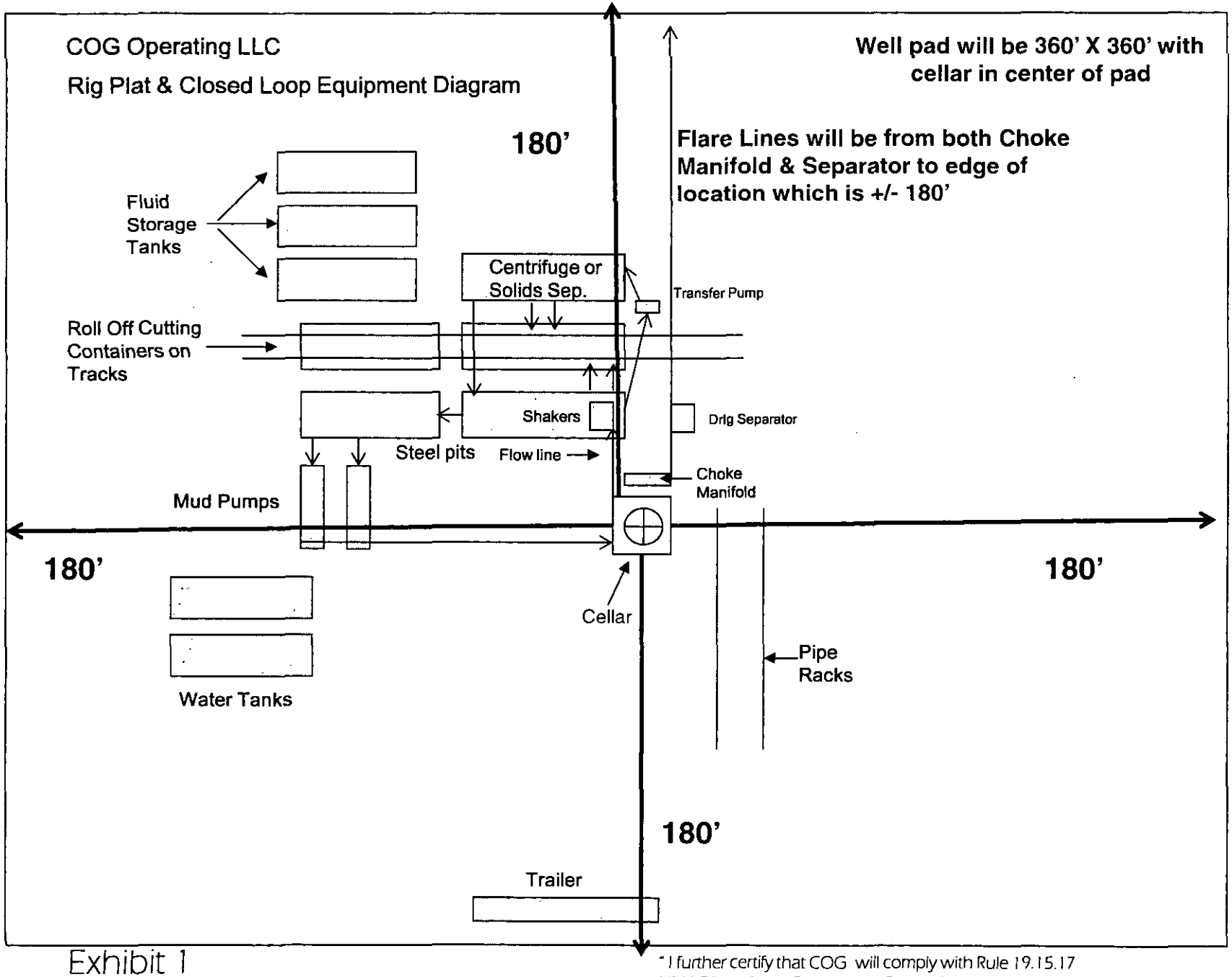
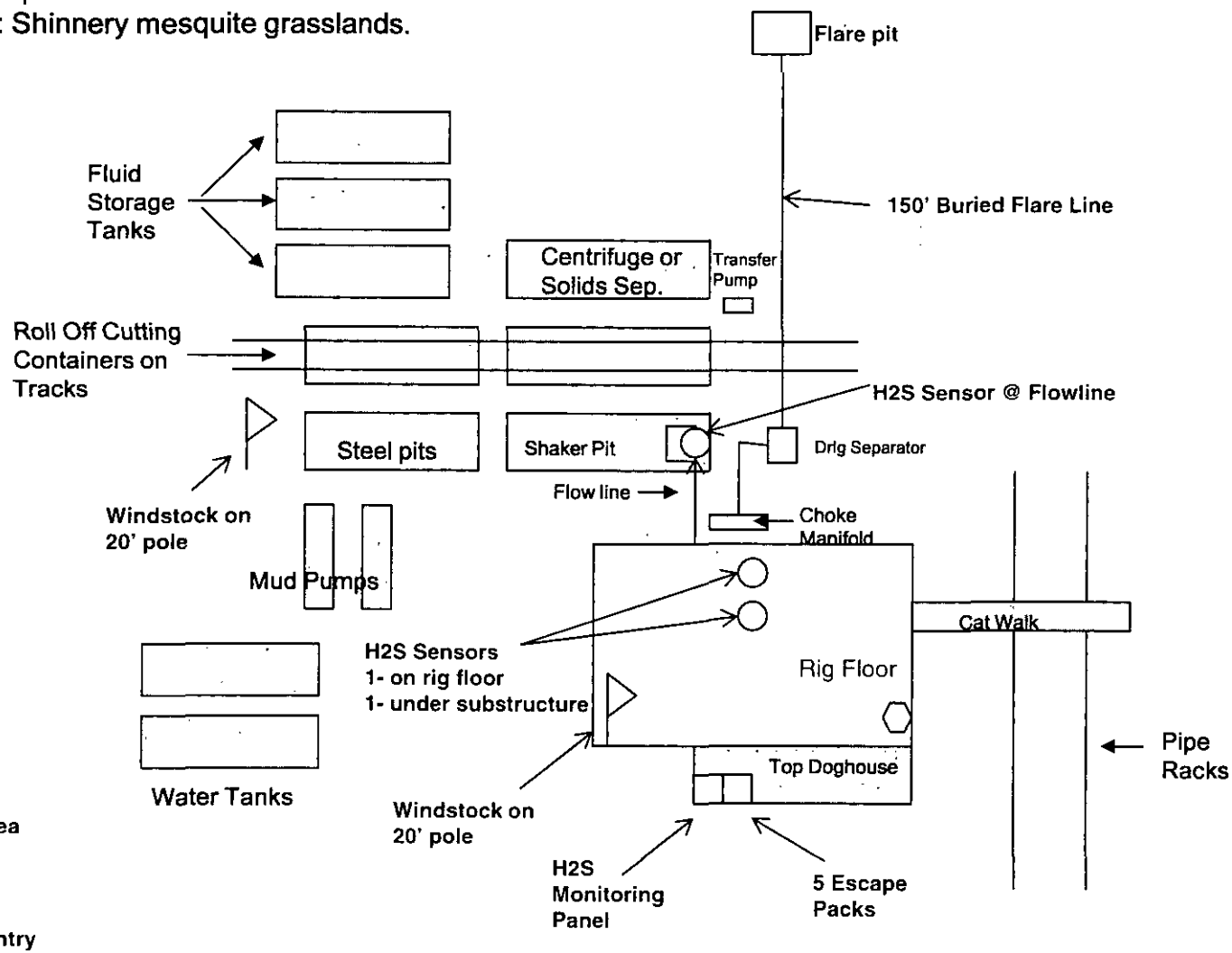


Exhibit 1

"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

COG Operating, LLC
H_2S Equipment Schematic
Terrain: Shinnery mesquite grasslands.

Well pad will be 360' X 360'
with cellar in center of pad



Prevailing Wind Direction in SENM

N

Briefing Area w/SCBA

Location Entry Condition Sign

Secondary Egress

Company Representative's Trailer

Primary Briefing Area w/SCBA

COG OPERATING LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
   Flare line.
   Choke manifold with remotely operated choke.
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

W A R N I N G

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING LLC OFFICE	575-748-6940	
SHERYL BAKER	575-748-6940	432-934-1873
KENT GREENWAY	575-746-2010	432-557-1694
SETH WILD	432-683-7443	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

Surface Use & Operating Plan

Dirty WorkFederal #3H

- Surface Tenants: Henry McDonald or Draper Brantley, P O Box 597, Loving, NM 88256
- New Road: 17'
- Flow Line: On well pad.
- Facilities: Will be constructed on well pad – see Exhibit 3

- **Well Site Information**
  V Door: East
  Topsoil: East
  Interim Reclamation: North and East

Notes

Onsite: On-site was done by Tanner Nygren (BLM); and Rand French (COG) on January 28, 2014.

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

A. The well site survey and elevation plat for the proposed well is attached with this application. It was staked by Harcrow Surveying, Artesia, NM.

B. All roads to the location are shown on the Location Verification Map Exhibit 2. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling the well will be done where necessary. The road route to the well site is depicted in Exhibit #2. The road shown in Exhibit #2 will be used to access the well.

C. Directions to location: See 600 x 600 plat

D. Based on current road maintenance performed on other roads serving existing wells, we anticipate maintaining the lease roads leading to the proposed well pad at least once a year on dry conditions and twice a year in wetter conditions.

2. Proposed Access Road:

The Location Verification Map shows that 17' of new access road will be required for this location. If any road is required it will be constructed as follows:

The maximum width of the running surface will be 14'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

A. The average grade will be less than 1%.

B. No turnouts are planned.

C. No cattleguard, culvert, gates, low water crossings or fence cuts are necessary.

D. Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be hauled from the nearest BLM approved caliche pit. Candidate source will be caliche pit from Henry McDonald 575-499-5011.

3. Location of Existing Well:

The One-Mile Radius Map Exhibit 4 shows existing wells within a one-mile radius of the proposed wellbore.

4. Location of Existing and/or Proposed Facilities:

A. COG Operating LLC does not operate an oil production facility on this lease.

B. If the well is productive, contemplated facilities will be as follows:

1) A tank battery and facilities will be constructed as shown on Exhibit 3.

2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

3) Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from a BLM approved caliche pit. Candidate source will be caliche pit from Henry McDonald 575-499-5011. Any additional construction materials will be purchased from contractors.

4) It will be necessary to run electric power if this well is productive. Power will be provided by Xcel Energy and they will submit a separate plan and ROW for service to the well location.

5) If the well is productive, rehabilitation plans will include the following:

- The original topsoil from the well site will be returned to the location, and the site will be re-contoured as close as possible to the original site.

5. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from a private source Gregory Rock House Ranch, Inc. 1108 W. Pierce Street, Carlsbad, NM 88220. 575-885-6920. No water well will be drilled on the location.

6. Source of Construction Materials and Location "Turn-Over" Procedure:

Obtaining caliche: One primary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well site. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

A. Equipment that is needed to construct the proposed location will be as follows: Two dozers, one blade, one morograder, one backhoe, one water truck and two dump trucks.

B. The time line to complete construction will be approximately 10 days.

C. The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.

D. An approximate 160' X 160' area is used within the proposed well site to remove caliche.

E. Subsoil is removed and stockpiled within the surveyed well pad.

F. When caliche is found, material will be stock piled within the pad site to build the location and road.

G. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.

H. Once well is drilled, the stock piled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced.

I. Neither caliche, nor subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the Well Site Layout or survey plat.

In the event that no caliche is found onsite, caliche will be hauled in from a BLM approved caliche pit or other established mineral pit. Candidate source will be caliche pit from Henry McDonald 575-499-5011.

7. Methods of Handling Water Disposal:

A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud box commerciales and taken to R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240. .

B. Drilling fluids will be contained in steel mud pits and taken to R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.

C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.

D. It is anticipated that the disposal of produced water will be trucked to unspecified commercial SWD wells in the area around the leases.

E. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill-Lea Landfill LLC located at Mile Marker 64, Highway 62-180 East, P O Box 3247, Carlsbad, NM 88221. No toxic waste or hazardous chemicals will be produced by this operation.

F. Human waste and grey water will need to be properly contained and disposed of. Proper disposal and elimination of waste and grey water may include but are not limited to portable septic systems and/or portable waste gathering systems (i.e. portable toilets).

G. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

Ancillary Facilities:

No airstrip, campsite or other facilities will be built as a result of the operation on this well.

8. Well Site Layout:

A. The drill pad layout, with elevations staked by Harcrow Surveying, is shown in the Elevation Plat. Dimensions of the pad and pits are shown on the Rig Layout. V door direction is East. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. The Rig Layout Closed-Loop exhibit shows the proposed orientation of closed loop system and access road. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

9. Plans for Restoration of the Surface:

A. Interim Reclamation will take place after the well has been completed. The pad will be downsized by reclaiming the areas not needed for production operations. The portions of the pad that are not needed for production operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused to either build

another pad site or for road repairs within the lease. The stockpiled topsoil will then be spread out reclaimed area and reseeded with a BLM approved seed mixture. In the event that the well must be worked over or maintained, it may be necessary to drive, park, and/or operate machinery on reclaimed land. This area will be repaired or reclaimed after work is complete.

B. Final Reclamation: Upon plugging and abandoning the well all caliche for well pad and lease road will be removed and surface will be recountoured to reflect its surroundings as much as possible. Caliche will be recycled for road repair or reused for another well pad within the lease. If any topsoil remains, it will be spread out and the area will be re-seeded with a BLM approved mixture and re-vegetated as per BLM orders. When required by BLM, the well pad site will be restored to match pre-construction grades.

10. Sedimentation and Erosion Control

Immediately following pad construction approximately 300' of straw waddles will be placed on the top edge of the West side and 360' across the North side of the location to reduce sediment impacts to fragile/sensitive soils. Since the tank battery will be on the South side, there is no need for straw waddles since there are berms around the tank battery, which detours water from running off location.

11. Surface Ownership:

A. The surface is owned U.S. Government and is administered by the Bureau of Land Management. The surface is multiple uses with the primary uses of the region for grazing of livestock and the production of oil and gas.

B. The surface tenants are Henry McDonald or Draper Brantley, P O Box 597, Loving, NM 88256.

C. The proposed road routes and surface location will be restored as directed by the BLM.

12. Other Information:

A. The area around the well site is grassland and the topsoil is sandy. The vegetation is moderately sparse with native prairie grasses, some mesquite and shinnery oak. No wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.

B. There is no permanent or live water in the immediate area.

C. There are no dwellings within 2 miles of this location.

D. If needed, a Cultural Resources Examination is being prepared by Boone Arch Services of NM, LLC., 2030 North Canal, Carlsbad, New Mexico, 88220, phone # 575-885-1352 and the results will be forwarded to your office in the near future. Otherwise, **COG will be participating in the Permian Basin MOA Program.**

13. Bond Coverage:

Bond Coverage is Statewide Bonds # NMB000740 and NMB000215

14. Lessee's and Operator's Representative:

The COG Operating LLC representative responsible for assuring compliance with the surface use plan is as follows:

Sheryl Baker
Drilling Superintendent
COG Operating LLC
2208 West Main Street
Artesia, NM 88210
Phone (575) 748-6940 (office)
(432) 934-1873 (cell)

Ray Peterson
Drilling Manager
COG Operating LLC
One Concho Center
600 W Illinois Ave
Midland, TX 79701
Phone (432) 685-4304 (office)
(432) 818-2254 (business)

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: September 25, 2014

Lease #: NMNM102912
Dirty Work Federal #3H

Legal Description: Section 1. T24S. R29E
Eddy County, New Mexico

Formation(s): Delaware

Bond Coverage: Statewide

BLM Bond File #: NMB000740 & NMB000215

COG OPERATING LLC

Mayte Reyes
Regulatory Analyst

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating
LEASE NO.:	NM102912
WELL NAME & NO.:	3H-Dirty Work Federal
SURFACE HOLE FOOTAGE:	10'/S & 1880'/W
BOTTOM HOLE FOOTAGE	330'/N & 1980'/W
LOCATION:	Section 1, T.24 S., R.29 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

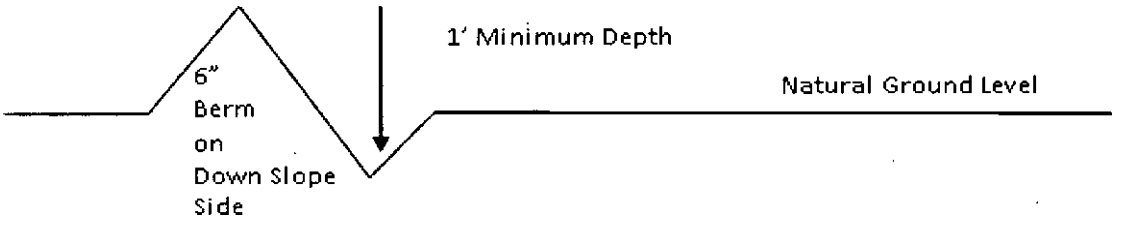
Ditching
Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattleguards
An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

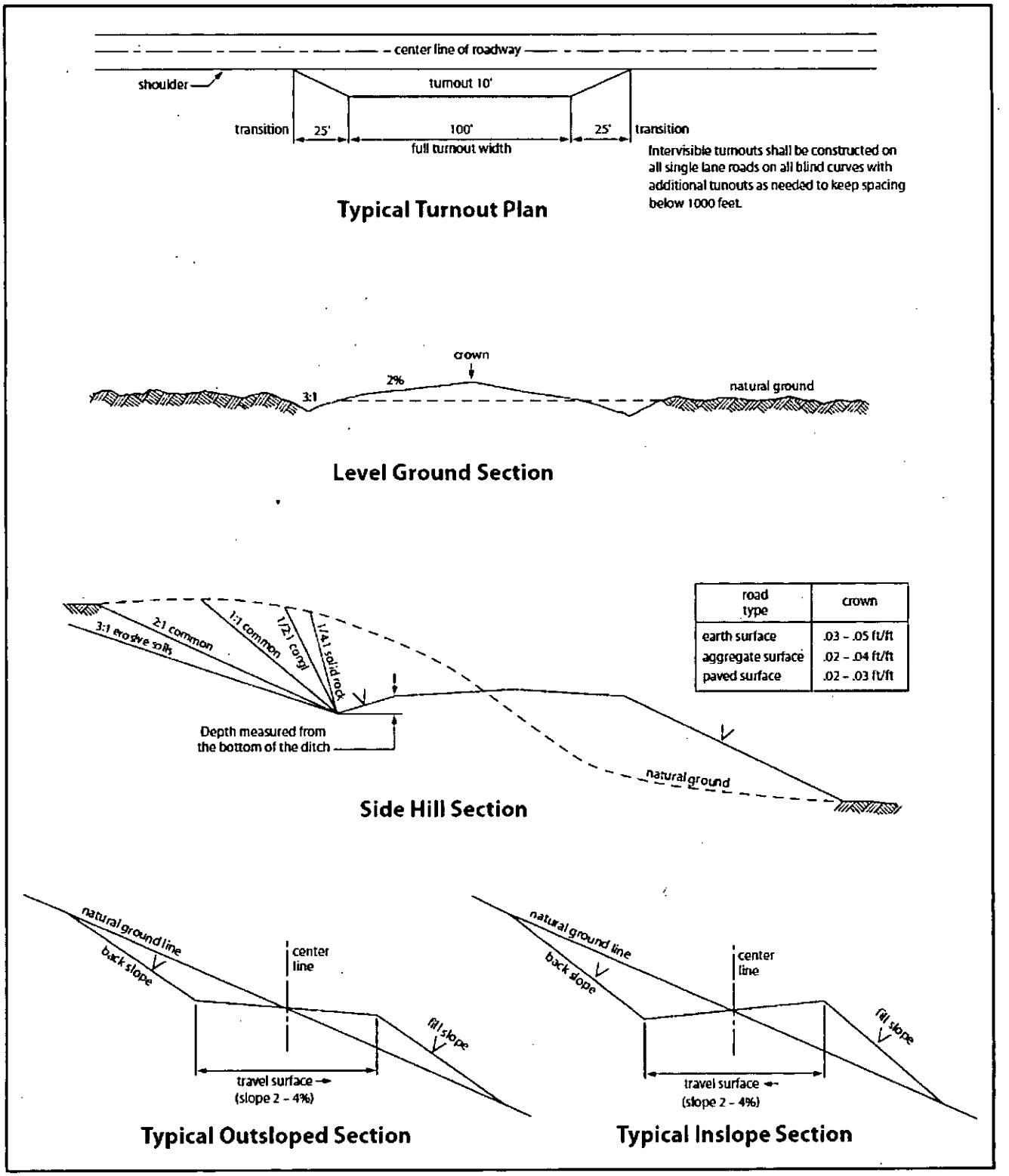


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VI. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report. Ensure that well log be run below the Delaware Sands since data density is low for this area. This will assist in future development.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Risks:
Possibility of Water Flows in the Castile, in the Bone Spring Lime, in the Salado and in the Delaware
Possibility of Lost Circulation in the Rustler, in the Bone Spring Lime and in the Delaware

1. The **13 3/8** inch surface casing shall be set at **approximately 350 feet (to avoid the Culebra Dolomite, and if salt is encountered, set casing at least 25 feet above the salt)** and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing which shall be set at **approximately 3300 feet (to avoid penetrating the sands of the Bell Canyon Formation, and to set at the base of the Castile Anhydrite or top of the Lamar Limestone)** is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. \

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5 1/2** inch production casing is:

    ☒ Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8** inch intermediate casing shoe shall be **3000 (3M)** psi.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

KGR 04152016

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:
Pounds of seed x percent purity x percent germination = pounds pure live seed