Form 3160-3
(August 2007)

RECEIVED
OCD Artesia
JUN 27 2013
NMOCD ARTESIA

JES 6/28/2013

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM-090807

6. If Indian, Allotee or Tribe Name: N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.: N/A

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.: OSAGE 34 FEDERAL 1H <39357>

2. Name of Operator: SM ENERGY COMPANY <15 4903>

9. API Well No.: 30-015- 41508

3a. Address: 3300 N. A STREET, BLDG. 7-200, MIDLAND, TX 79705

3b. Phone No. *(include area code)*: 432 688-1700

10. Field and Pool, or Exploratory: PARKWAY; BONE SPRING <49622>

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: 450' FNL & 330' FEL

At proposed prod. zone: 330' FNL & 330' FWL

11. Sec., T. R. M. or Blk. and Survey or Area: NENE 34-19S-29E NMPM

14. Distance in miles and direction from nearest town or post office*: 17 AIR MILES NE OF CARLSBAD, NM

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 330'

16. No. of acres in lease: 1,120

17. Spacing Unit dedicated to this well: N2N2

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 308'

19. Proposed Depth: TVD = 8020' MD = 12491' Pilot Hole = 10,445'

20. BLM/BIA Bond No. on file: NMB000805

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3,309' UNGRADED

22. Approximate date work will start*: 03/01/2013

23. Estimated duration: 3 MONTHS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

25. Signature: B. Wood — Name *(Printed/Typed)*: BRIAN WOOD (505 466-8120) — Date: 02/15/2013

Title: CONSULTANT (FAX 505 466-9682)

Approved by *(Signature)*: /s/ James Stovall — Name *(Printed/Typed)*: — Date: JUN 24 2013

Title: FIELD MANAGER — Office: CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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 and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 41508	49622	PARKWAY; BONE SPRING

Property Code	Property Name	Well Number
~~38981~~ 39397	OSAGE "34" FEDERAL	1H

OGRID No.	Operator Name	Elevation
154903	SM ENERGY	3309'

Surface Location

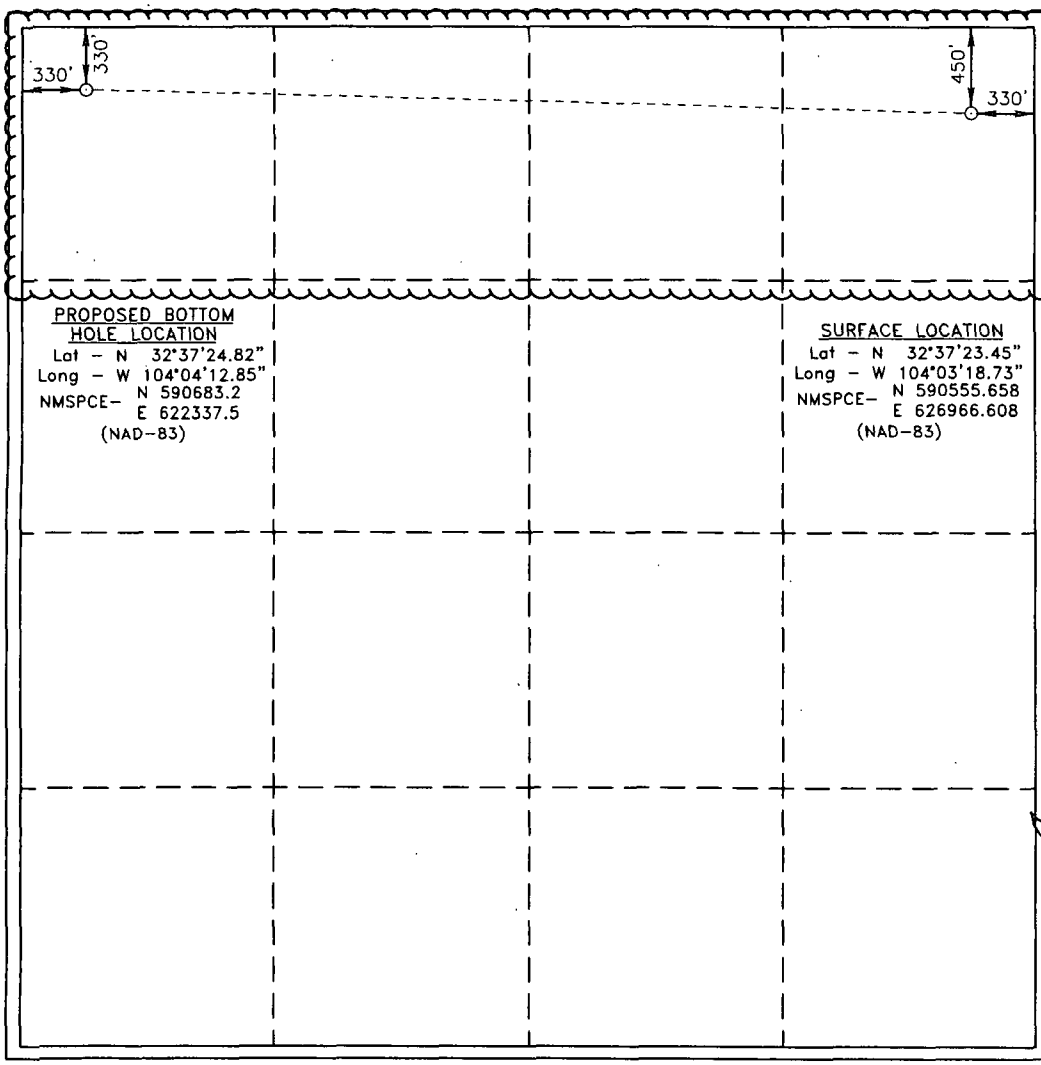
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	19 S	29 E		450	NORTH	330	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	34	19 S	29 E		330	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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 contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 2-6-13 Date

BRIAN WOOD

brian@permitswest.com

Email 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 supervison, and that the same is true and correct to the best of my belief.

JANUARY 2013

Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 27870

REPRESENTATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently 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 the company I represent, 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 15th day of February, 2013.

Brian Wood, Consultant
Permits West, Inc.
37 Verano Loop, Santa Fe, NM 87508
(505) 466-8120 FAX: (505) 466-9682 Cellular: (505) 699-2276

Field representative will be:

Malcolm Kintzing, Reservoir Engineer
SM Energy Company
3300 N. A Street, Building 7-200
Midland, TX 79705
Office: (432) 688-1700
FAX: (432) 688-1701

3300 N. A Street, Bldg. 7-200
Midland, Texas 79705
432.688.1700
432.688.1701 fax
SM-Energy.com

January 17, 2013

To: Carlsbad Bureau of Land Management
620 E. Greene St.
Carlsbad, NM 88220

From: Malcolm Kintzing
Reservoir Engineer

Subject: Permits West, Inc. Authorization

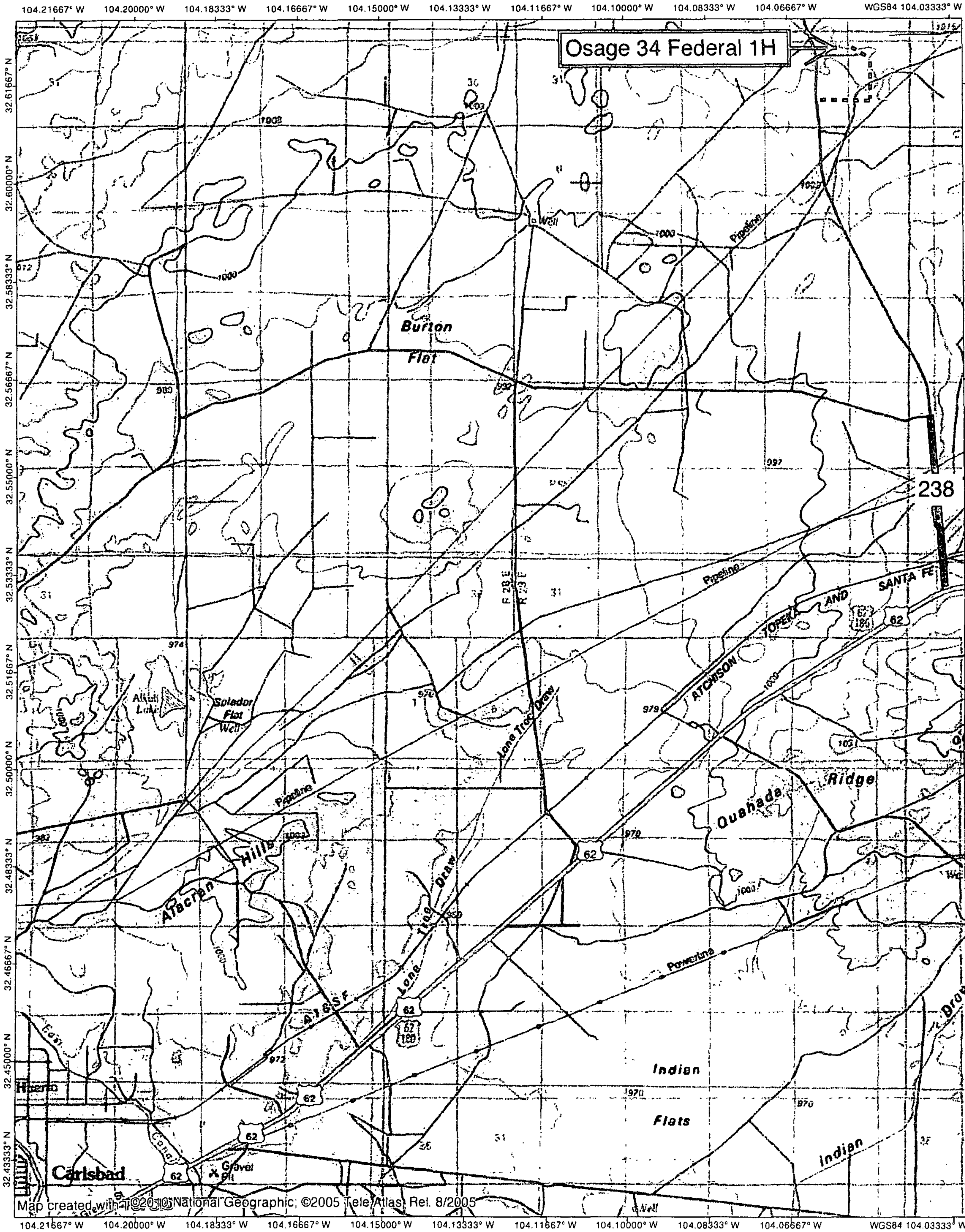
This letter authorizes employees of Permits West, Inc. to represent SM Energy Company in our company's dealings with all Bureau of Land Management offices, including, but not limited to, filing all government paperwork such as Notices of Staking, Applications for Permits to Drill, Sundry Notices, and Rights-of-Way Applications.

Please contact me at 432-688-3125 or at the email below if there are questions or if additional information is required.

Sincerely,

Malcolm Kintzing
Reservoir Engineer
mkintzing@sm-energy.com

TOPO! map printed on 02/10/13 from "Untitled.tpo"

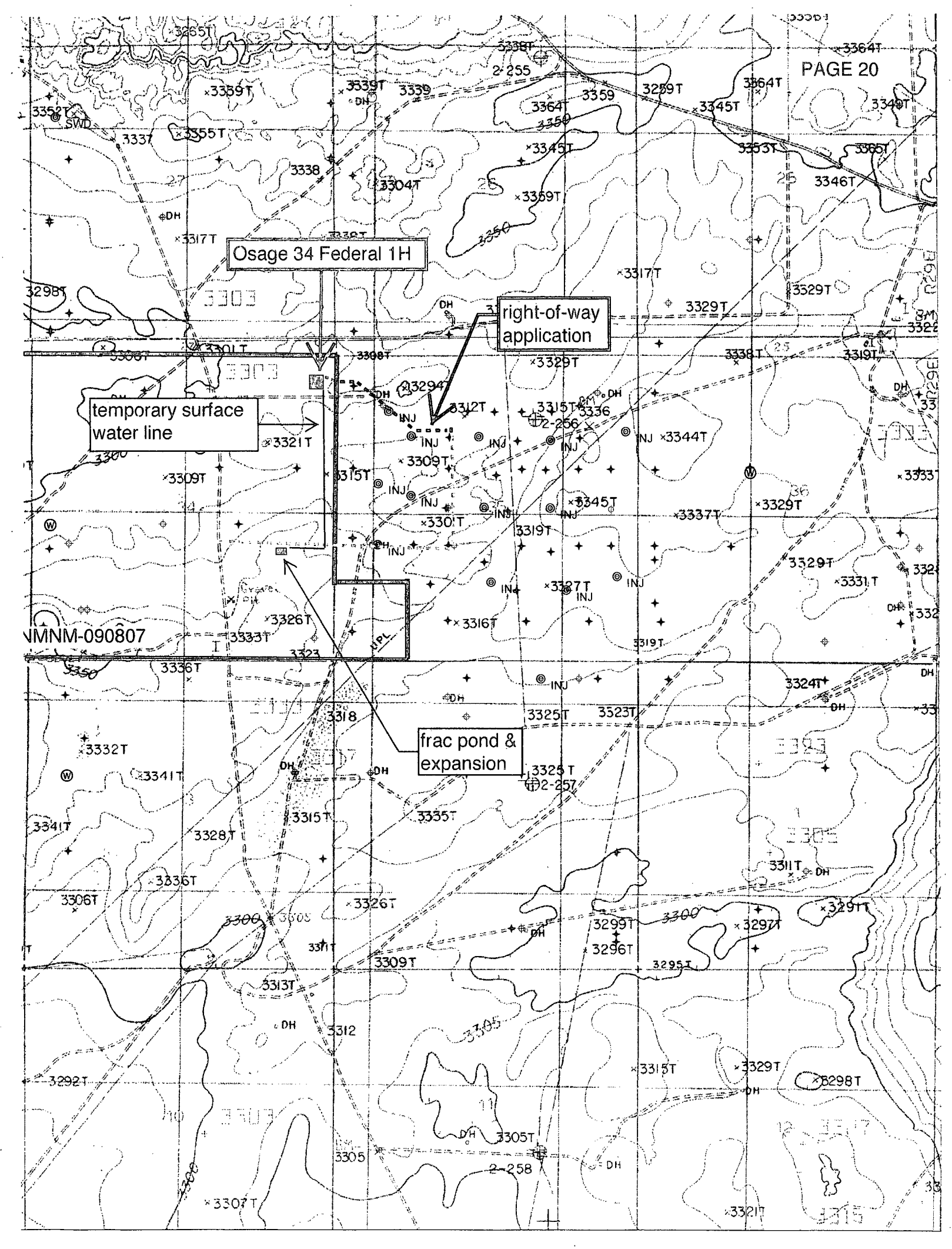


NATIONAL GEOGRAPHIC

0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles
0 1 2 3 4 5 km

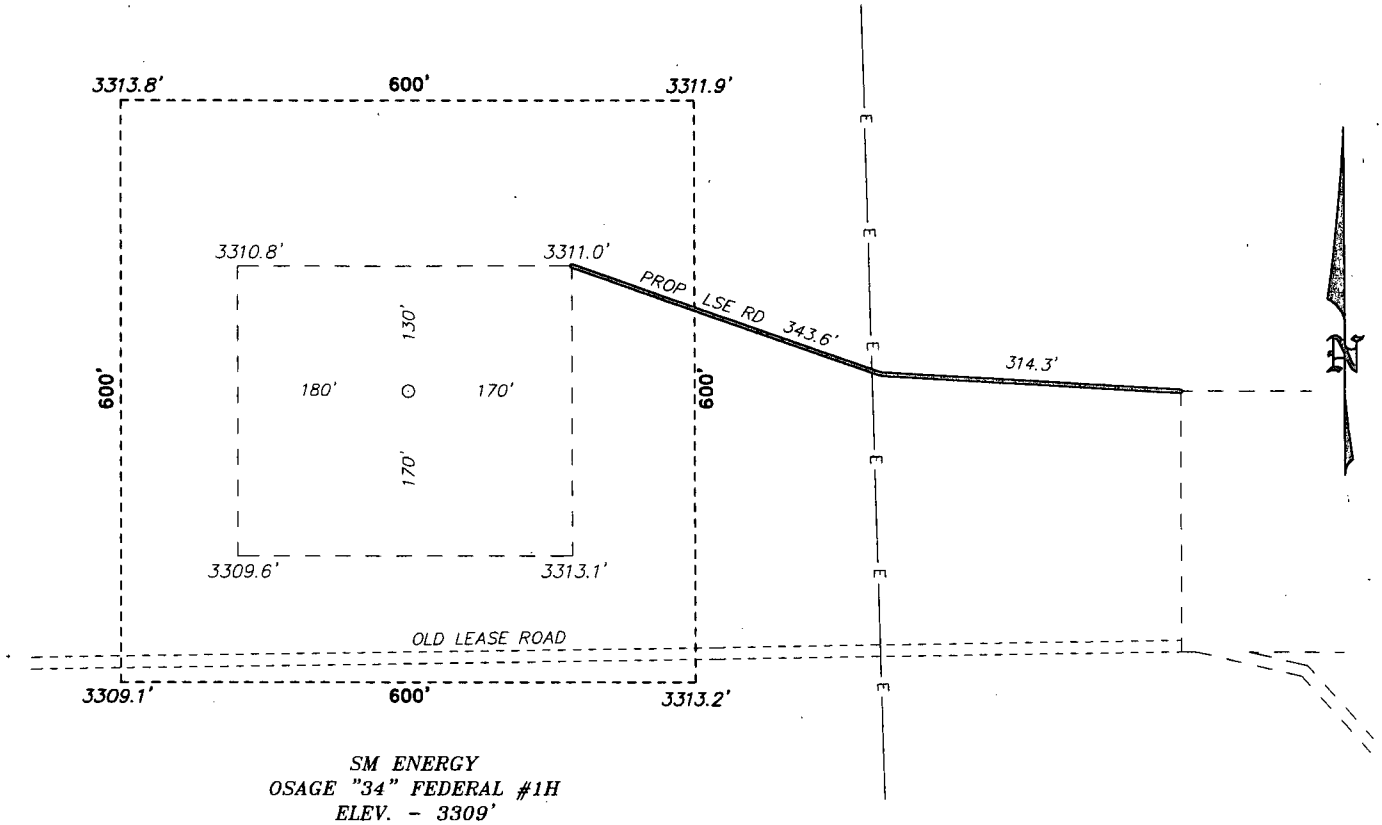
TN MN 7.5°

02/10/13


PAGE 20
Osage 34 Federal 1H
right-of-way application
temporary surface water line
frac pond & expansion
NMNM-090807

SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



SM ENERGY
OSAGE "34" FEDERAL #1H
ELEV. - 3309'

Lat - N 32°37'23.45"
Long - W 104°03'18.73"
NMSPCE- N 590555.658
E 626966.608
(NAD-83)

200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF HWY 62-180 AND CO. RD. 238, GO NORTHEAST ON CO. RD. 238 FOR 238 FOR 4.0 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST 1.5 MILES TO LEASE ROAD, GO NORTHERLY FOR 0.75 MILES TO WELL PAD AND PROPOSED LEASE ROAD.

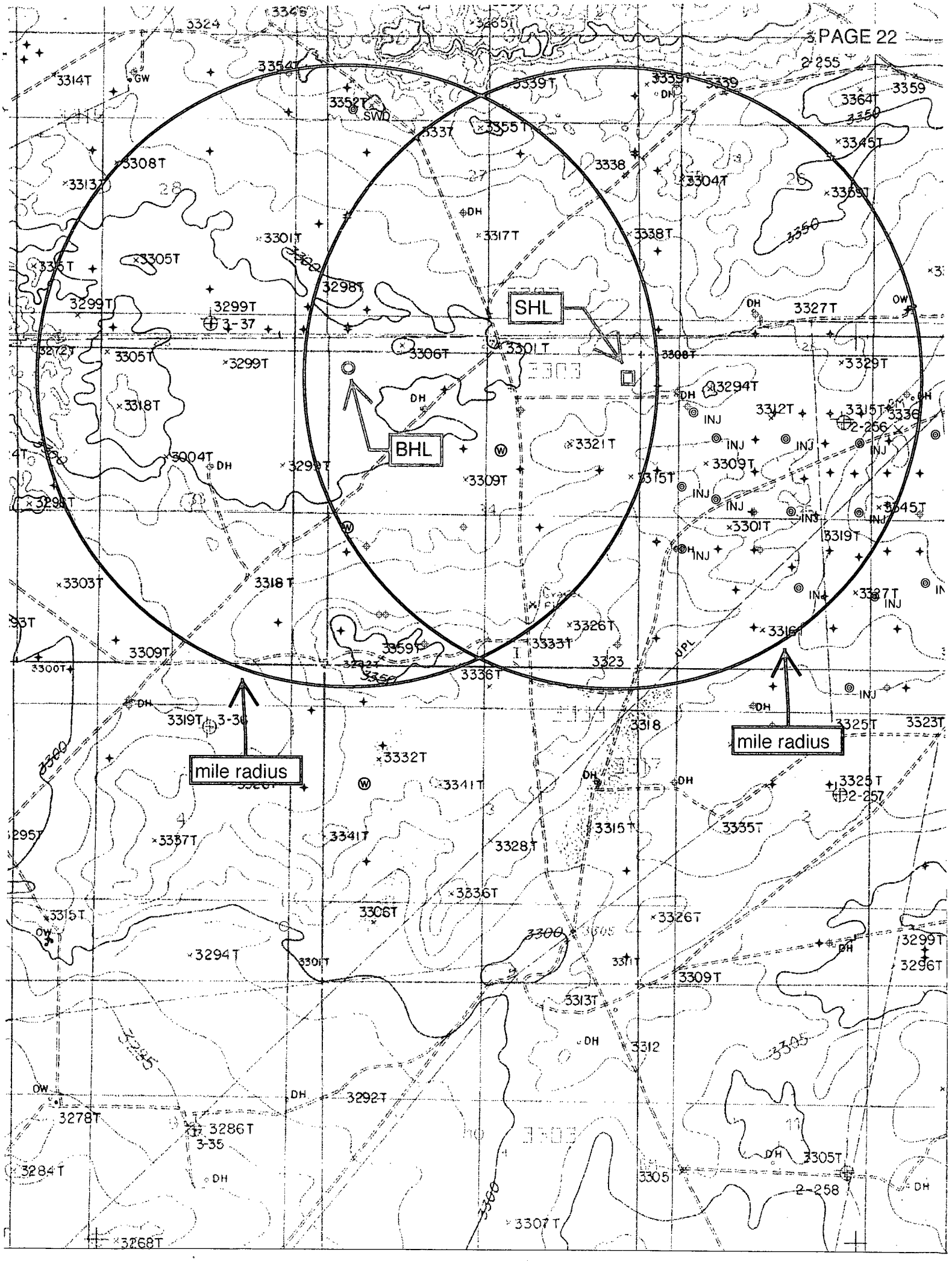
SM ENERGY

REF: OSAGE "34" FEDERAL #1H / WELL PAD TOPO

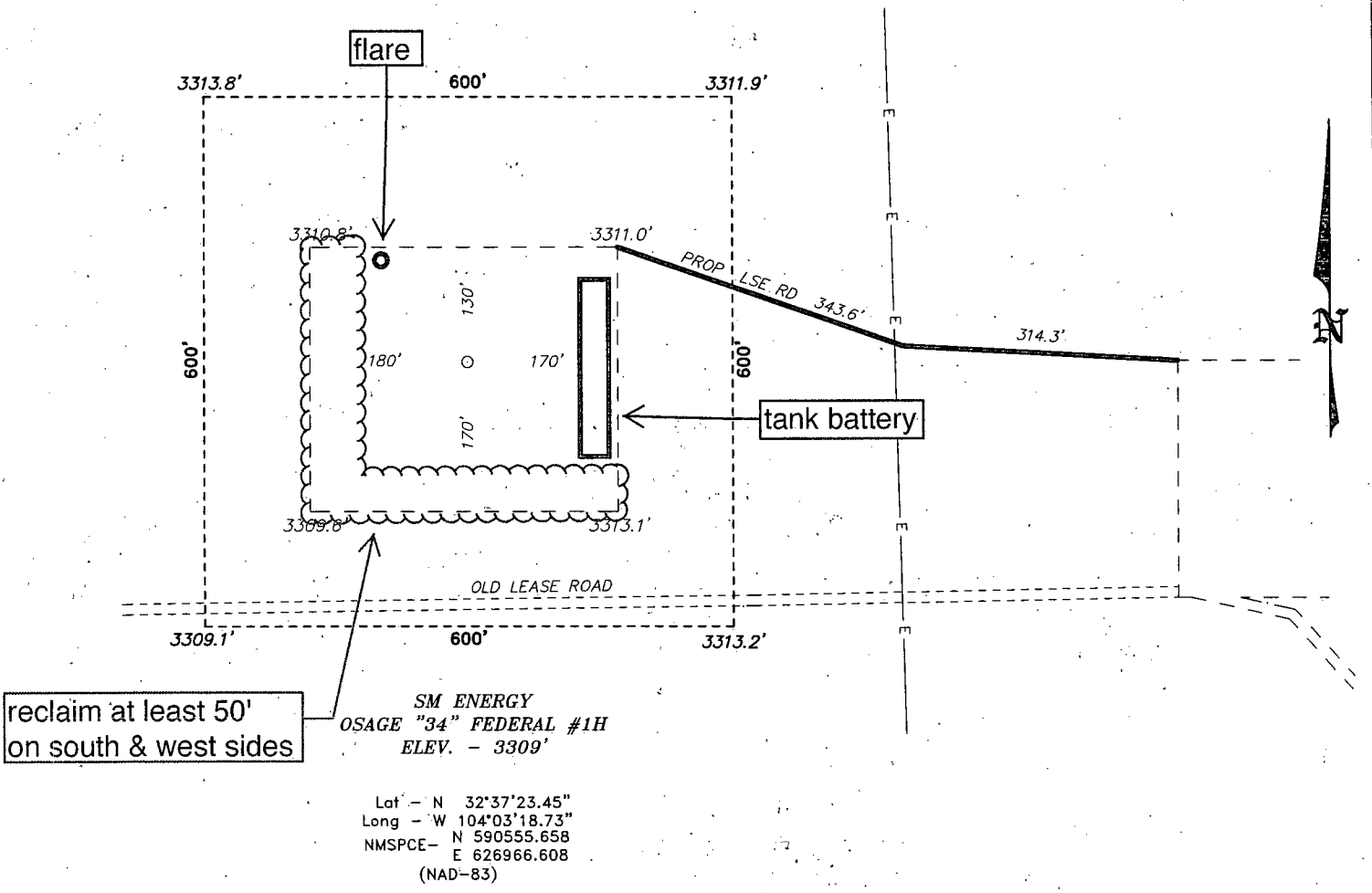
THE OSAGE "34" FEDERAL #1H LOCATED 450' FROM THE NORTH LINE AND 330' FROM THE EAST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 27870	Drawn By: J. SMALL		
Date: 02-27-2009	Disk: JMS 27870	Survey Date: 01-23-2013	Sheet 1 of 1 Sheets


SHL
BHL
mile radius
mile radius

SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF HWY 62-180 AND CO. RD. 238, GO NORTHEAST ON CO. RD. 238 FOR 238 FOR 4.0 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST 1.5 MILES TO LEASE ROAD, GO NORTHERLY FOR 0.75 MILES TO WELL PAD AND PROPOSED LEASE ROAD.

SM ENERGY

REF: OSAGE "34" FEDERAL #1H / WELL PAD TOPO

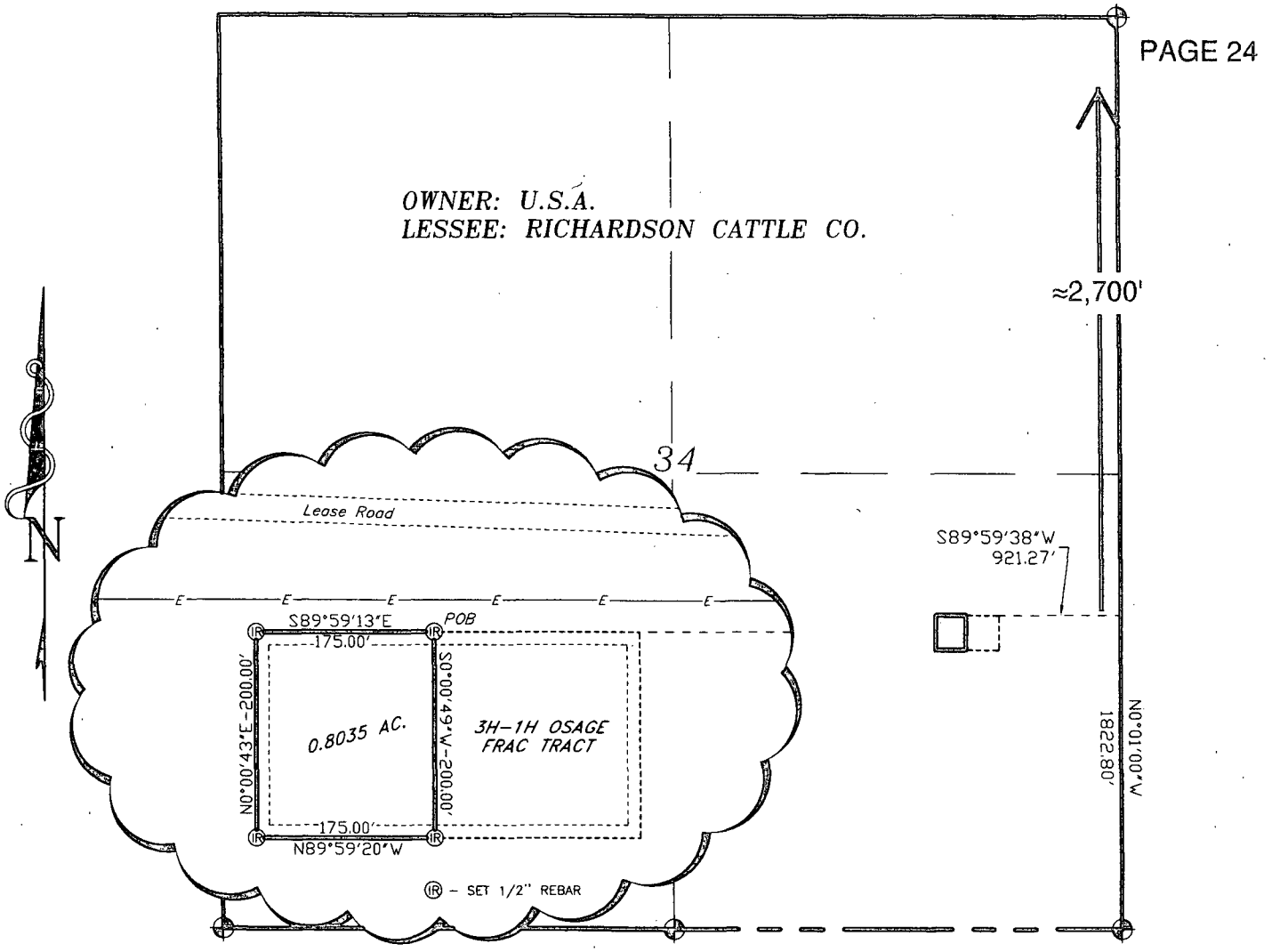
THE OSAGE "34" FEDERAL #1H LOCATED 450' FROM THE NORTH LINE AND 330' FROM THE EAST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 27870	Drawn By: J. SMALL		
Date: 02-27-2009	Disk: JMS 27870	Survey Date: 01-23-2013	Sheet 1 of 1 Sheets

SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

PAGE 24



LEGAL DESCRIPTION

A TRACT OF LAND LOCATED IN SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT WHICH LIES N0°01'00"W., 1822.80 FEET AND S89°59'38"W., 921.27 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 34; THENCE S.00°00'49"W., 200.00 FEET; THENCE N89°59'20"W., 175.00 FEET; THENCE N00°00'43"E., 200.00 FEET; THENCE S89°59'13"E., 200.00 FEET TO THE POINT OF BEGINNING. SAID TRACT OF LAND 0.8035 ACRES, MORE OR LESS.

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES, NEW MEXICO No. 7977, TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

SM ENERGY

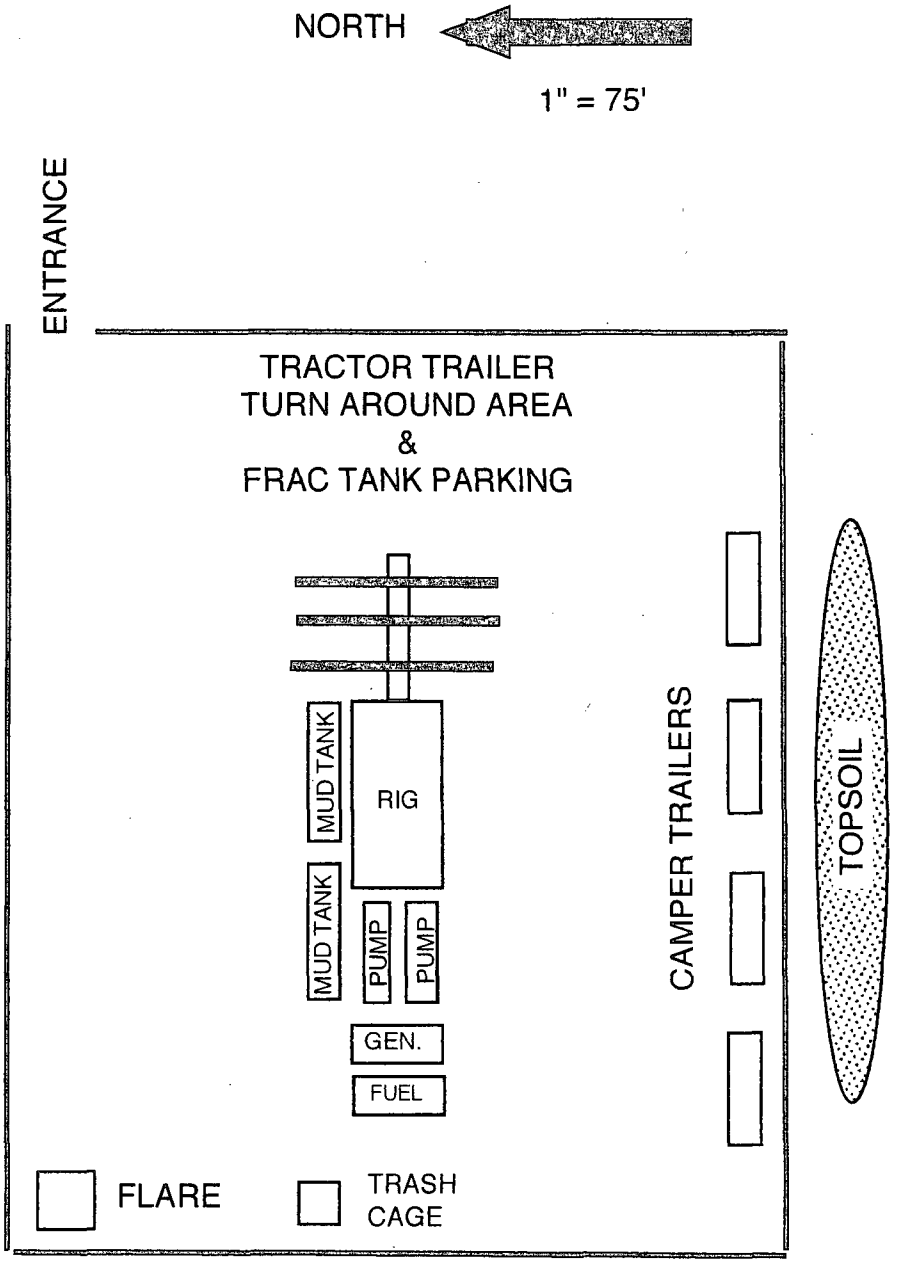
REF: PROPOSED EXTENSION OF THE 3H-1H OSAGE FRAC TRACT

A TRACT OF LAND IN
SECTION 34, TOWNSHIP 19 SOUTH, RANGE 29 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 27883	Drawn By: K. GOAD		
Date: 01-03-2013	Disk: KJG - 27883TRACT	Survey Date: 12-28-2013	Sheet 1 of 1 Sheets

SM Energy Company
Osage 34 Federal 1H
SHL 450' FNL & 330' FEL
BHL 330' FNL & 330' FWL
Sec. 34, T. 19 S., R. 29 E., Eddy County, NM



SM Energy Company
Osage 34 Federal 1H
SHL 450' FNL & 330' FEL
BHL 330' FNL & 330' FWL
Sec. 34, T. 19 S., R. 29 E., Eddy County, NM

Drilling Program

1. ESTIMATED TOPS

Name	Measured Depth	Elevation
Quaternary	0'	+3,309'
Rustler	199'	+3,110'
Salt top	284'	+3,025'
Salt base	1,201'	+2,108'
Yates	1,337'	+1,972'
Capitan	1,626'	+1,683'
Delaware	3,304'	+5'
Cherry Canyon	3,461'	-152'
Brushy Canyon	3,949'	-640'
Bone Spring	5,652'	-2,343'
1st Bone Spring sand	7,050'	-3,741'
Kick off point	7,532'	-4,223'
2nd Bone Spring sand	7,831'	-4,522'
Marker 1	8,007'	-4,698'
Wolfcamp	9,287'	-5,978'
Strawn	10,321'	-7,012'
Pilot Hole Total Depth	10,445'	-7,136'
BHL (TVD = 8,020')	12,491'	-4,711'

2. NOTABLE ZONES

Gas or Oil Zones	Water Zone	Solid Mineral Zone
Yates	Quaternary	Rustler
Cherry Canyon	(at ≈75')	Salt
Brushy Canyon		
Bone Spring		

Water zones will be protected with casing, cement, and weighted mud. Fresh water found while drilling will be recorded.

3. PRESSURE CONTROL (see PAGES 3 - 9)

See COA SM Energy Company requests a variance from Onshore Order 2 to use a diverter system on the 20" surface casing.

A 13-5/8" 5,000 psi BOPE will be installed on the 13-3/8" casing. Before drilling out the 13-3/8" shoe, the BOPE will be tested by a third party to 2,000 psi as per the requirements of a 2M system stated in Onshore Order 2.

Before drilling out the 9-5/8" casing, the BOPE will be tested by a third party to 3,000 psi as per the requirements of a 3M system stated in Onshore Order 2.

See COA - test before drilling out of the 7" casing.

A Kelly cock valve and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor and in the open position when the Kelly is not in use. A third party testing company will test the 11" BOPE to 3,000 psi and the annular to 1,500 psi before drilling below the surface casing shoe. The BOP/BOPE test will include a low-pressure test from 250 psi to 300 psi. The test will be held for a minimum of 10 minutes if the test is done with a test-plug. All BOPs and related equipment will comply with well control requirements in Onshore Order 2 and API RP 53 Section 17.

See COA SM Energy Company requests a variance to Onshore Order 2 in order to use a 47' x 3" I. D. co-flex hose with 5,000-psi flanges between the BOPE and the choke manifold. The hose will be kept as straight as possible with minimal turns. Safety clamps will not be used since the ends will be flanged. Manufacturer is Midwest Hose & Specialty, Inc. Model details, serial numbers, and the test results are on Pages 6-9. Operator will test the line when the BOP is tested.

4. CASING & CEMENT

Hole O. D. Inches	Casing O. D. Inches	Pounds per foot	Grade	Setting Interval	Collar	Age
26	20	94	J-55	0-~~250~~ OK	BT&C	New
17.5	13.375	48	H-40	0-1200	ST&C	New
17.5	13.375	54.5	J-55	1200-~~1500~~ 1650'	ST&C	New
12.25	9.625	36	J-55	0-~~3550~~ 3400'	LT&C	New
8.75	7	26	P-110	0-8444	LT&C	New
6.125	4.5	11.6	P-110	8250-12491	LT&C	New

See COA

All casing designed with a minimum of:

Burst	Collapse	Tensile Strength
1.0	1.125	1.8

Surface casing (20") will be cemented to the surface with >100% excess (650 sacks = 871 cubic feet) Class C + 2% $CaCl_2$ mixed to yield 1.34 cubic feet per sack and 14.8 pounds per gallon. Centralizers will be installed as required by Onshore Order 2.

Intermediate casing (13.375") will be cemented to the surface with 65% excess (1,869 cubic feet). Lead with 785 sacks (1,601 cubic feet) 35:65 Class C with salt and LCM additives mixed to yield 2.04 cubic feet per sack and 12.5 pounds per gallon. Tail with 200 sacks (268 cubic feet) Class C with 2% $CaCl_2$ mixed to yield 1.34 cubic feet per sack and 14.8 pounds per gallon.

The deep intermediate casing (9.625") will be cemented to surface with 127% excess (1,956 cubic feet). Cement will be pumped in 2 stages using an ECP stage collar. It will be placed in the deepest competent formation, but not within 100' of the previous casing shoe. Position will be determined by a caliper survey or a rate of penetration log. Current collar estimate setting depth is ≈1,700'.

See COA

Stage 1 lead slurry will consist of 400 sacks (844 cubic feet) 35:65 poz fly ash Class C +5% bwow NaCl +1/4 pound per sack cello flake + 10% bwoc bentonite II + 151.7% fresh water mixed to yield 2.11 cubic feet per sack and 12.5

pounds per gallon. Tail with 200 sacks (268 cubic feet) Class C + 0.005 pounds per sack static free + 1% bwoc $CaCl_2$ mixed to yield 1.34 cubic feet per sack and 14.8 pounds per gallon.

Second stage slurry will consist of 400 sacks (844 cubic feet) 35:65 poz fly ash Class C +5% bwow NaCl +1/4 pound per sack cello flake + 10% bwoc bentonite II + 151.7% fresh water mixed to yield 2.11 cubic feet per sack and 12.5 pounds per gallon.

If packer placement changes, then the cement volumes will be adjusted proportionately as determined by the annulus volume above the packer. Cement will meet the 500-psi requirement before casing test and drill out.

Curve casing (7") will be cemented to 1,620' (enough to cover the Capitan reef top at 1,626') with 110% excess (2,195 cubic feet). Lead with 750 sacks (1,957 cubic feet) Class C mixed to yield 2.61 cubic feet sack and 12.5 pounds per gallon. Tail with 200 sacks (238 cubic feet) Class H with 1% NaCl mixed to yield 1.19 cubic feet per sack and 15.6 pounds per gallon.

Production casing (4.5") will include a sliding sleeve, frac port, and packer system with the 4-1/2" liner. No cement is planned.

A cement kick off plug will be set to cover the interval from 10,445' to 7,530' with 25% excess over gauge hole. The plug will consist of 1,275 sacks (1,517 cubic feet) Class H + 1.2% bwoc CD-32 + 0.005 pound per sack static free + 0.5% bwoc R-3 + 45.5% fresh mixed to yield 1.19 cubic feet per sack and 15.6 pounds per gallon.

5. MUD PROGRAM

An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used. Circulation could be lost in every hole section. Lost circulation material (e.g., cedar bark) will be on location.

Interval	Type	Weight	Viscosity	Fluid loss
0 - 250	fresh water spud mud	8.6 - 9.4	32-34	no control
250 - 1500	brine	10	28-30	no control
1500 - 3300	fresh water	8.4	28-30	no control
3300 - 8444	cut brine	8.4 - 8.6	28-30	no control
8444 - TD	cut brine with polymer	8.4 - 8.6	32-40	no control

SM Energy will use an air unit in the Capitan Reef to assist in circulation if large losses occur. Estimated mud weight is 6 pounds per gallon. If a well control situation is encountered, then the emergency shut offs on the air units will used and the rig pumps will be used to regain the 8.4 pounds per gallon mud weight.

A mud monitoring system will be in place to record slow pump rate, pit gain or loss, mud weight, viscosity, gel strength, filtration, and pH.

6. CORES, TESTS, & LOGS

No drill stem test is planned. Platform express logs will be run and sidewall cores will be cut in the pilot hole. Compensated neutron – GR CCL logs will be run in the vertical cased hole from TD to surface. Mud log samples will be collected after drilling out from the 9-5/8" shoe. Samples will be collected every 20' until the Bone Spring and every 10' through the Bone Spring.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is 4,512 psi.

No H_2S is expected during the drilling phase. Nevertheless, H_2S monitoring equipment will be on the rig floor and air packs will be available before drilling out of the surface casing. The mud logger will be warned to use a gas trap to detect H_2S. If any H_2S is detected, then the mud weight will be increased and

H_2S inhibitors will be added to control the gas. An H_2S drilling operations contingency plan is attached.

Lost circulation is expected in the Capitan reef and is possible in all sections of the hole.

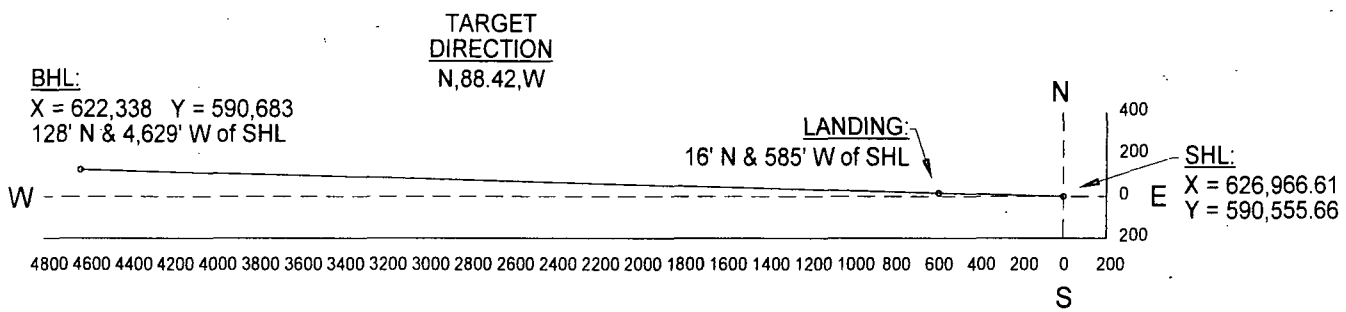
8. OTHER INFORMATION

The anticipated spud date is upon approval. It is expected it will take 3 months to drill and complete the well.

SM ENERGY COMPANY

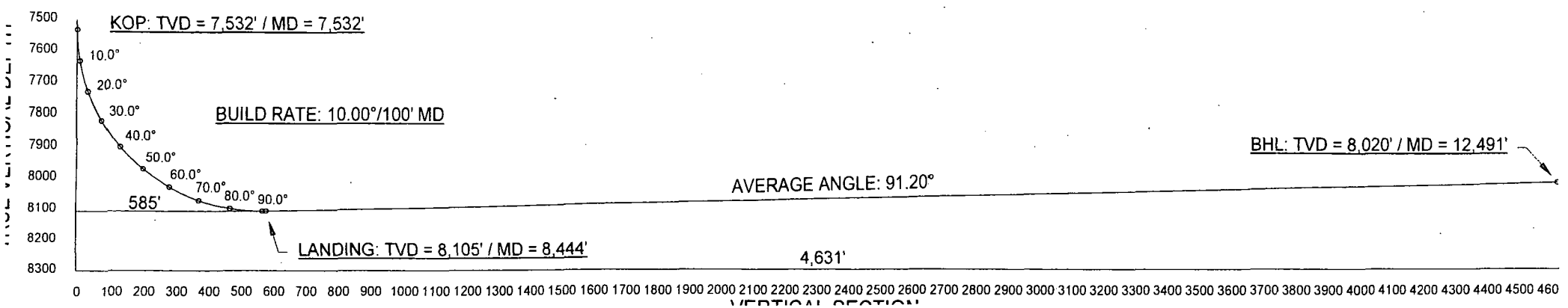
OSAGE 34 FEDERAL WELL #1H
SECTION 34, T-19-S, R-29-E
EDDY COUNTY, NEW MEXICO
(01/30/13)

HORIZONTAL PROJECTION



H-OSG34-1

VERTICAL PROJECTION



SM ENERGY COMPANY

1/30/13

OSAGE 34 FEDERAL WELL #1H
SECTION 34, T-19-S, R-29-E
EDDY COUNTY, NEW MEXICO

RKB = 3333' AMSL Est. (GL = 3315') **SHL: X: 626,966.61' Y: 590,555.66'**
NAD 83

Obj.= N 88.42 W

Type	#	SURVEY MD	SURVEY ANG	SURVEY Azimuth	DIR	CL	TVD	(+)North (-)South	(+)East (-)West	Vertical Section	Dogleg /100'
9-5/8" CASING	TI-IN	**3550.00**	0.00	271.58	N 88.42 W	----	**3550.00**	**0.00**	**0.00**	**0.00**	TI-IN
KOP	1	**7532.17**	0.00	271.58	N 88.42 W	3982	**7532.17**	**0.00**	**0.00**	**0.00**	0.00
	2	7564.17	3.20	271.58	N 88.42 W	32	7564.15	0.02	-0.89	0.89	10.00
	3	7596.17	6.40	271.58	N 88.42 W	32	7596.04	0.10	-3.57	3.57	10.00
	4	7628.17	9.60	271.58	N 88.42 W	32	7627.72	0.22	-8.02	8.02	10.00
	5	7660.17	12.80	271.58	N 88.42 W	32	7659.11	0.39	-14.23	14.24	10.00
	6	7692.17	16.00	271.58	N 88.42 W	32	7690.10	0.61	-22.19	22.20	10.00
	7	7724.17	19.20	271.58	N 88.42 W	32	7720.60	0.88	-31.86	31.87	10.00
	8	7756.17	22.40	271.58	N 88.42 W	32	7750.51	1.19	-43.22	43.23	10.00
	9	7788.17	25.60	271.58	N 88.42 W	32	7779.74	1.55	-56.22	56.25	10.00
	10	7820.17	28.80	271.58	N 88.42 W	32	7808.19	1.95	-70.84	70.87	10.00
	11	7852.17	32.00	271.58	N 88.42 W	32	7835.79	2.40	-87.03	87.06	10.00
	12	7884.17	35.20	271.58	N 88.42 W	32	7862.44	2.89	-104.73	104.77	10.00
	13	7916.17	38.40	271.58	N 88.42 W	32	7888.06	3.41	-123.89	123.93	10.00
	14	7948.17	41.60	271.58	N 88.42 W	32	7912.57	3.98	-144.45	144.50	10.00
	15	7980.17	44.80	271.58	N 88.42 W	32	7935.89	4.58	-166.34	166.40	10.00
	16	8012.17	48.00	271.58	N 88.42 W	32	7957.96	5.22	-189.50	189.57	10.00
	17	8044.17	51.20	271.58	N 88.42 W	32	7978.70	5.89	-213.86	213.94	10.00
	18	8076.17	54.40	271.58	N 88.42 W	32	7998.04	6.59	-239.34	239.43	10.00
	19	8108.17	57.60	271.58	N 88.42 W	32	8015.93	7.32	-265.85	265.95	10.00
	20	8140.17	60.80	271.58	N 88.42 W	32	8032.32	8.08	-293.32	293.43	10.00
	21	8172.17	64.00	271.58	N 88.42 W	32	8047.14	8.86	-321.67	321.79	10.00
	22	8204.17	67.20	271.58	N 88.42 W	32	8060.36	9.67	-350.79	350.93	10.00
	23	8236.17	70.40	271.58	N 88.42 W	32	8071.93	10.49	-380.61	380.76	10.00
	24	8268.17	73.60	271.58	N 88.42 W	32	8081.82	11.32	-411.03	411.19	10.00
	25	8300.17	76.80	271.58	N 88.42 W	32	8089.99	12.18	-441.95	442.12	10.00
	26	8332.17	80.00	271.58	N 88.42 W	32	8096.42	13.04	-473.29	473.46	10.00
	27	8364.17	83.20	271.58	N 88.42 W	32	8101.10	13.91	-504.93	505.12	10.00
	28	8396.17	86.40	271.58	N 88.42 W	32	8104.00	14.79	-536.78	536.98	10.00
	29	8428.17	89.60	271.58	N 88.42 W	32	8105.11	15.67	-568.74	568.96	10.00
LANDING	30	**8444.21**	91.20	271.58	N 88.42 W	16	**8105.0000**	**16.11**	**-584.78**	**585.00**	10.00
	31	8476.21	91.20	271.58	N 88.42 W	32	8104.33	16.99	-616.76	616.99	0.00
	32	8976.21	91.20	271.58	N 88.42 W	500	8093.83	30.76	-1116.46	1116.88	0.00
	33	9476.21	91.20	271.58	N 88.42 W	500	8083.32	44.53	-1616.16	1616.77	0.00
	34	9976.21	91.20	271.58	N 88.42 W	500	8072.82	58.30	-2115.86	2116.66	0.00
	35	10476.21	91.20	271.58	N 88.42 W	500	8062.32	72.06	-2615.56	2616.55	0.00
	36	10976.21	91.20	271.58	N 88.42 W	500	8051.82	85.83	-3115.26	3116.44	0.00
	37	11476.21	91.20	271.58	N 88.42 W	500	8041.31	99.60	-3614.96	3616.33	0.00
	38	11976.21	91.20	271.58	N 88.42 W	500	8030.81	113.37	-4114.66	4116.22	0.00
	39	12476.21	91.20	271.58	N 88.42 W	500	8020.31	127.13	-4614.36	4616.11	0.00
BHL	40	**12490.97**	91.20	271.58	N 88.42 W	15	**8020.00**	**127.54**	**-4629.11**	**4630.86**	0.00
LATERAL		**4046.76**						**127.54**	**-4629.11**	**4630.86**	

SM ENERGY COMPANY

OSAGE 34 FEDERAL WELL #1H
SECTION 34, T-19-S, R-29-E
EDDY COUNTY, NEW MEXICO

RKB = 3333' AMSL Est. (GL = 3315') **SHL: X: 626,966.61' Y: 590,555.66'**

Obj.= N 88.42 W **NAD 83**

Type	#	SURVEY MD	SURVEY ANG	SURVEY Azimuth		DIR		CL	TVD	(+)North (-)South	(+)East (-)West	Dogleg /100'
9-5/8" CASING	TI-IN	**3550.00**	0.00	271.58	N	88.42	W	----	**3550.00**	**590,555.66**	**626,966.61**	TI-IN
KOP	1	**7532.17**	0.00	271.58	N	88.42	W	3982	**7532.17**	**590,555.66**	**626,966.61**	0.00
	2	7564.17	3.20	271.58	N	88.42	W	32	7564.15	590,555.68	626,965.72	10.00
	3	7596.17	6.40	271.58	N	88.42	W	32	7596.04	590,555.76	626,963.04	10.00
	4	7628.17	9.60	271.58	N	88.42	W	32	7627.72	590,555.88	626,958.59	10.00
	5	7660.17	12.80	271.58	N	88.42	W	32	7659.11	590,556.05	626,952.38	10.00
	6	7692.17	16.00	271.58	N	88.42	W	32	7690.10	590,556.27	626,944.42	10.00
	7	7724.17	19.20	271.58	N	88.42	W	32	7720.60	590,556.54	626,934.75	10.00
	8	7756.17	22.40	271.58	N	88.42	W	32	7750.51	590,556.85	626,923.39	10.00
	9	7788.17	25.60	271.58	N	88.42	W	32	7779.74	590,557.21	626,910.39	10.00
	10	7820.17	28.80	271.58	N	88.42	W	32	7808.19	590,557.61	626,895.77	10.00
	11	7852.17	32.00	271.58	N	88.42	W	32	7835.79	590,558.06	626,879.58	10.00
	12	7884.17	35.20	271.58	N	88.42	W	32	7862.44	590,558.55	626,861.88	10.00
	13	7916.17	38.40	271.58	N	88.42	W	32	7888.06	590,559.07	626,842.72	10.00
	14	7948.17	41.60	271.58	N	88.42	W	32	7912.57	590,559.64	626,822.16	10.00
	15	7980.17	44.80	271.58	N	88.42	W	32	7935.89	590,560.24	626,800.27	10.00
	16	8012.17	48.00	271.58	N	88.42	W	32	7957.96	590,560.88	626,777.11	10.00
	17	8044.17	51.20	271.58	N	88.42	W	32	7978.70	590,561.55	626,752.75	10.00
	18	8076.17	54.40	271.58	N	88.42	W	32	7998.04	590,562.25	626,727.27	10.00
	19	8108.17	57.60	271.58	N	88.42	W	32	8015.93	590,562.98	626,700.76	10.00
	20	8140.17	60.80	271.58	N	88.42	W	32	8032.32	590,563.74	626,673.29	10.00
	21	8172.17	64.00	271.58	N	88.42	W	32	8047.14	590,564.52	626,644.94	10.00
	22	8204.17	67.20	271.58	N	88.42	W	32	8060.36	590,565.33	626,615.82	10.00
	23	8236.17	70.40	271.58	N	88.42	W	32	8071.93	590,566.15	626,586.00	10.00
	24	8268.17	73.60	271.58	N	88.42	W	32	8081.82	590,566.98	626,555.58	10.00
	25	8300.17	76.80	271.58	N	88.42	W	32	8089.99	590,567.84	626,524.66	10.00
	26	8332.17	80.00	271.58	N	88.42	W	32	8096.42	590,568.70	626,493.32	10.00
	27	8364.17	83.20	271.58	N	88.42	W	32	8101.10	590,569.57	626,461.68	10.00
	28	8396.17	86.40	271.58	N	88.42	W	32	8104.00	590,570.45	626,429.83	10.00
	29	8428.17	89.60	271.58	N	88.42	W	32	8105.11	590,571.33	626,397.87	10.00
LANDING	30	**8444.21**	91.20	271.58	N	88.42	W	16	**8105.0000**	**590,571.77**	**626,381.83**	10.00
	31	8476.21	91.20	271.58	N	88.42	W	32	8104.33	590,572.65	626,349.85	0.00
	32	8976.21	91.20	271.58	N	88.42	W	500	8093.83	590,586.42	625,850.15	0.00
	33	9476.21	91.20	271.58	N	88.42	W	500	8083.32	590,600.19	625,350.45	0.00
	34	9976.21	91.20	271.58	N	88.42	W	500	8072.82	590,613.96	624,850.75	0.00
	35	10476.21	91.20	271.58	N	88.42	W	500	8062.32	590,627.72	624,351.05	0.00
	36	10976.21	91.20	271.58	N	88.42	W	500	8051.82	590,641.49	623,851.35	0.00
	37	11476.21	91.20	271.58	N	88.42	W	500	8041.31	590,655.26	623,351.65	0.00
	38	11976.21	91.20	271.58	N	88.42	W	500	8030.81	590,669.03	622,851.95	0.00
	39	12476.21	91.20	271.58	N	88.42	W	500	8020.31	590,682.79	622,352.25	0.00
BHL	40	**12490.97**	91.20	271.58	N	88.42	W	15	**8020.00**	**590,683.20**	**622,337.50**	0.00
LATERAL		**4046.76**								**590,683.20**	**622,337.50**	

RAMCO DIRECTIONAL DRILLING INC

SM ENERGY OSAGE 34 WELL #1-H **TARGETS** 2/6/13

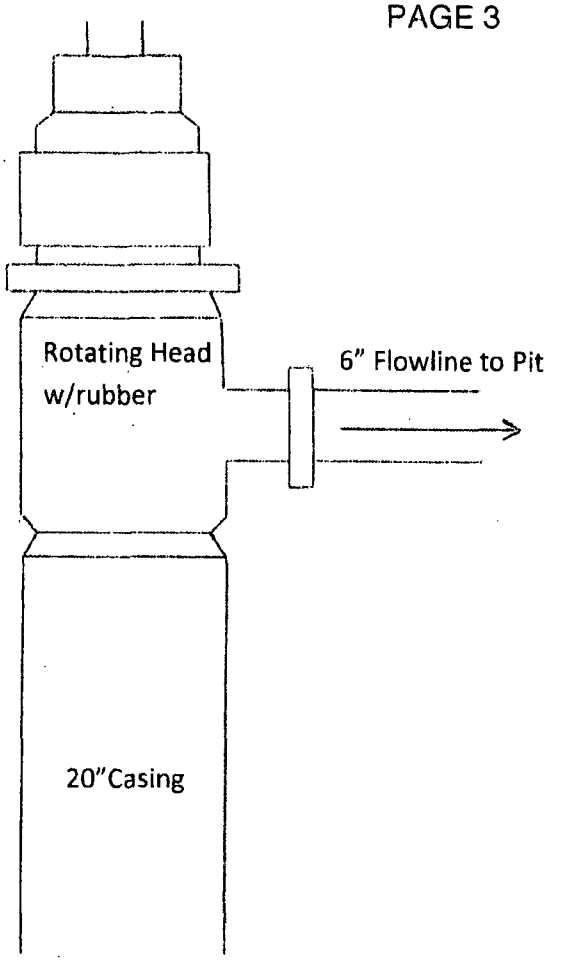
Lease Line Calls

FNL	FSL	FEL	FWL	SHL TVD	NRS	ERW	DISP SHL	ANGLE	F/SURF AZI	T Diff AZI
								?		

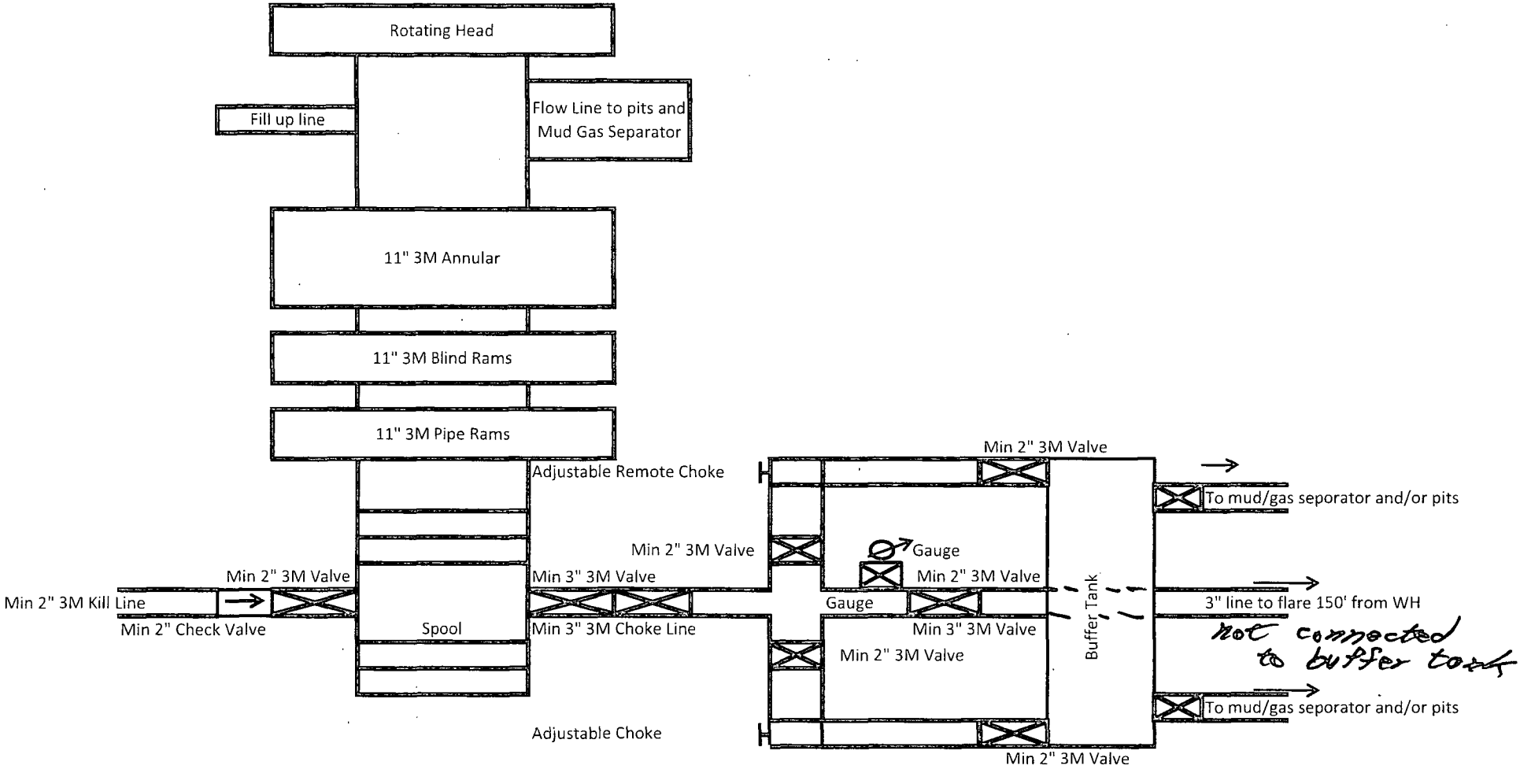
Coordinates

X-coordinates	Y-coordinates	TVD	NrS	ErW	Disp	Angle	Dir.	T Diff AZI	
626,966.61	590,555.66								SHL
622,337.50	590,683.20	1.00	127.54 N	4,629.11 W	4,630.86		N 88.422° W		BHL

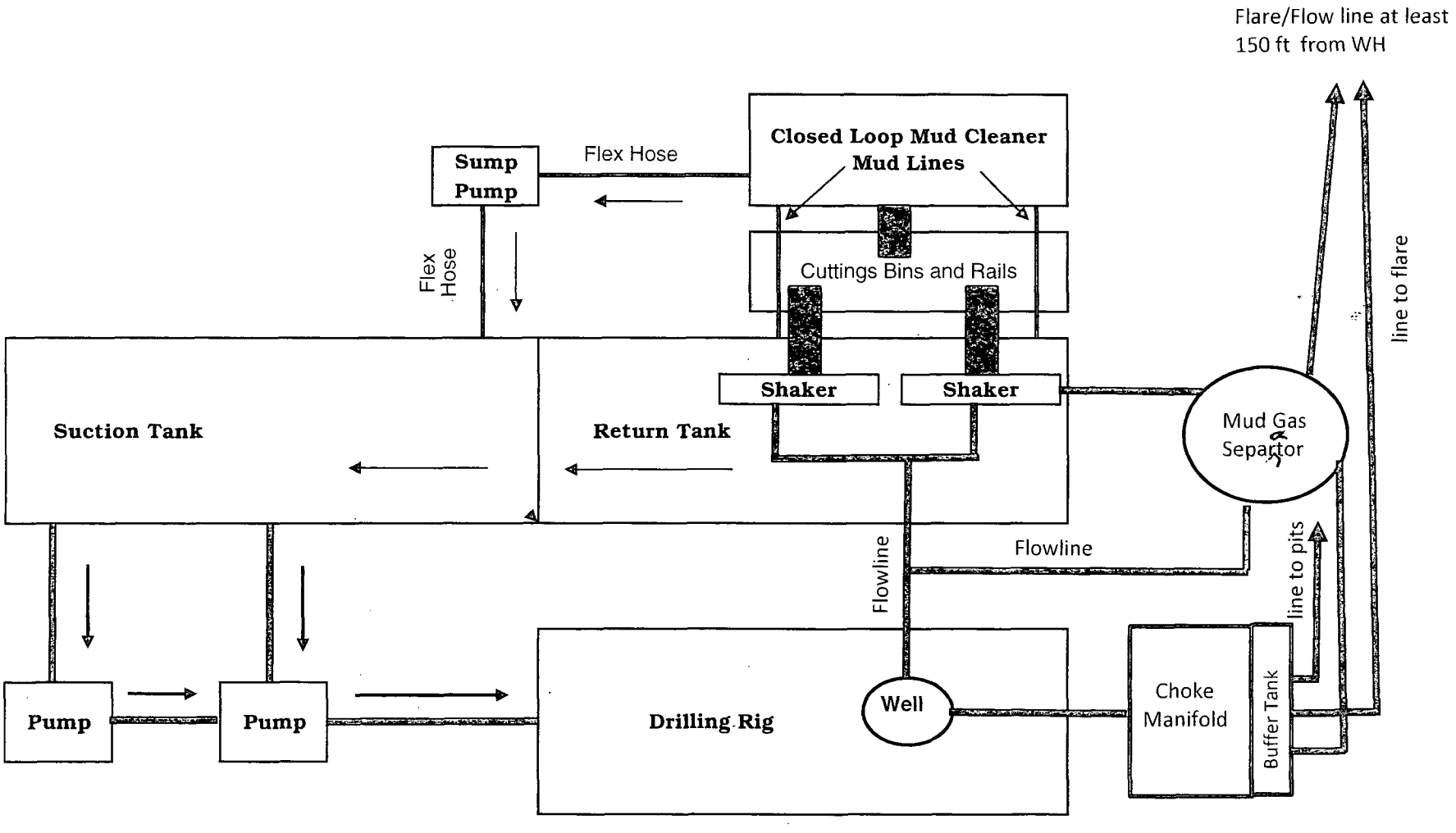
Diverter System



BOP SCHEMATIC



Choke Manifold Schematic for Closed Loop System



PACKING LIST

Midwest Hose & Specialty, Inc.

Ship From
Midwest Hose & Specialty, Inc.
3312 S I-35 Service Road
Oklahoma City OK 73129
USA

Ship To
Midwest Hose & Specialty, Inc - Alice
3754 E Highway 44
Alice TX 78332
USA

Bill To
Midwest Hose & Specialty, Inc - Alice
3754 E Highway 44
Alice TX 78332
USA

Payment Terms	NET 30 DAYS (NET30)
Ship Method	CNTRAN
Freight Terms	Prepaid
Customer Ship	ALICE
Cartons	1
Weight	1,718.00
Tracking Nbrs	

Shipping Notes:

Cust phone: (361) 661-1815
Written by: SGELISTA

Customer PO: 00132599 **Mark Number:** **Packing List #:**00143913

Received By:_____
Date Received: _____

Print Name: _____
Work Phone #: _____

LINE	ITEM / DESCRIPTION	UOM	QUANTITY ORDERED	QUANTITY PREV SHIPPED	QUANTITY BACK ORDERED	QUANTITY THIS SHIPMENT
0010	CR48-SS-5K-645R-645R-47.00' FT-W/LIFTERS Choke & Kill 5K with 5K/10K Flanges	EA	1.00	0.00	0.00	1.00
	PL#: 00143913 Picked by: DMCLEMORE SO#: 00122006 Shipped by: SMILLER					

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

March 23, 2012

Customer: Alice

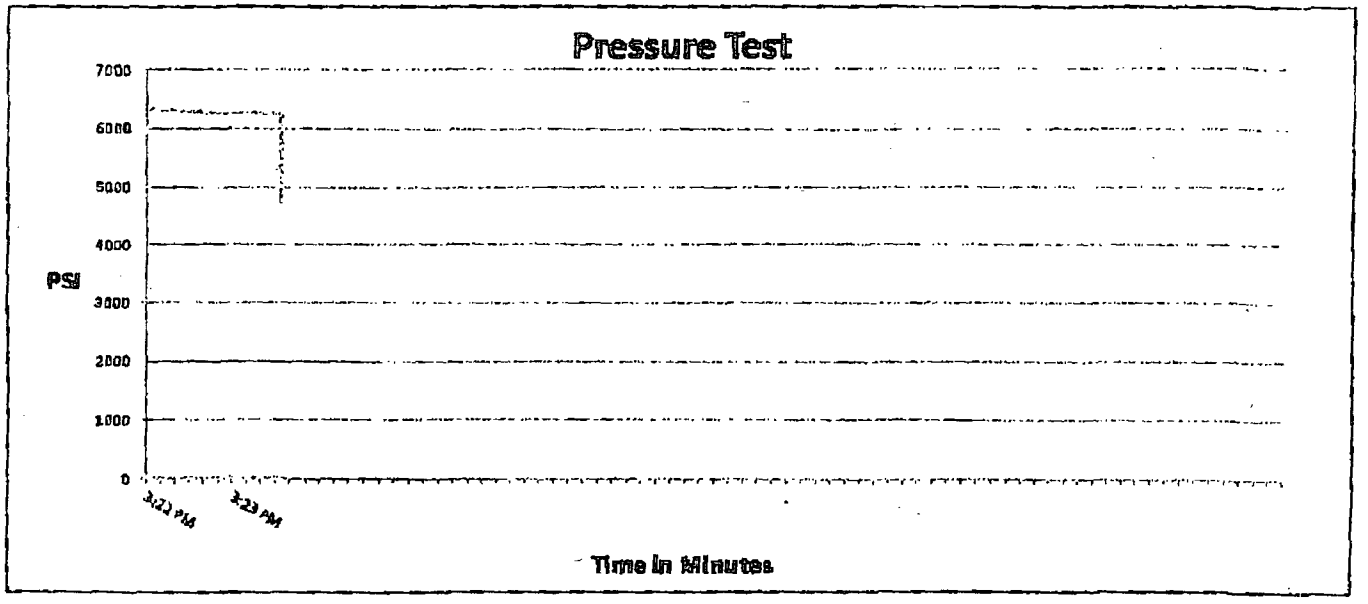
Pick Ticket #: 143913

Hose Specifications

Hose Type	Length
D	47'
I.D.	**O.D.**
3"	4.49"
Working Pressure	**Burst Pressure**
5000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 5K	Swage
Die Size	**Final O.D.**
5.12"	5.10"
Hose Serial #	**Hose Assembly Serial #**
7818	143913



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
5000 PSI	1 2/4 Minutes		6679 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Donnie Mclemore*

Approved By: *Kim Thomas*

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	Customer P.O. Number:
ALICE	132599

HOSE SPECIFICATIONS

Type: Rotary / Vibrator Hose GRADE D / API 7K	Hose Length: 47 FEET
I.D. 3 INCHES	O.D. 4.49 INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
5,000 PSI	5,000 PSI	N/A PSI

COUPLINGS

Part Number	Stem Lot Number	Ferrule Lot Number
D3.5X64WB	1Q11LOT1	1Q11LOT1
D3.5X64WB	1Q11LOT1	1Q11LOT1

Type of Coupling:	Die Size:
Swage-It	5.12 INCHES

PROCEDURE

Hose assembly pressure tested with water at emblent temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
1 1/2 MIN.	N/A PSI

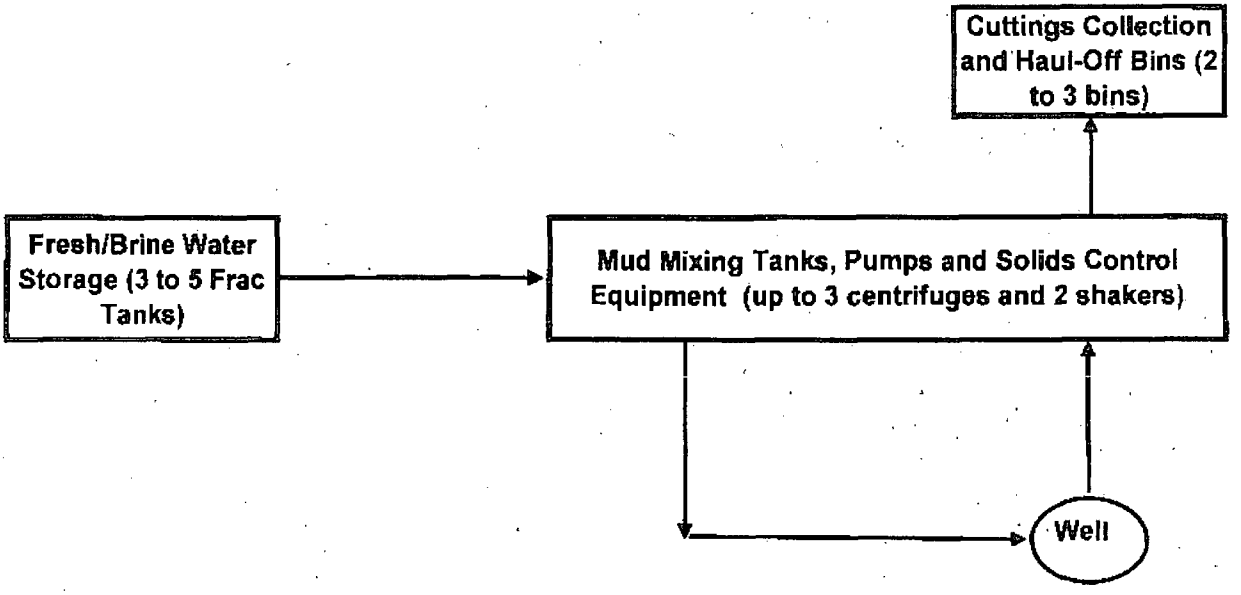
Hose Assembly Serial Number:	Hose Serial Number:
143913	7818

Comments:

Date:	Tested:	Approved:
2/23/2012		

CLOSED-LOOP SYSTEM

Design Plan:



Operating and Maintenance Plan:

During drilling operations, third party service companies will utilize solids control equipment to remove cuttings from the drilling fluid and collect it in haul-off bins. Equipment will be closely monitored at all times while drilling by the derrick man and the service company employees.

Closure Plan:

During drilling operations, third party service companies will haul-off drill solids and fluids to an approved disposal facility as noted on the C-144 form. At the end of the well, all closed loop equipment will be removed from the location.

Hydrogen Sulfide Drilling Operations Plan

1. Company and Contract personnel admitted on location should be trained by a qualified H_2S safety instructor to the following:
   A. Characteristics of H_2S.
   B. Physical Effects and Hazards.
   C. Proper Use of Safety Equipment and Life Support Systems.
   D. Principle and Operation of H_2S Detectors, Warning System and Briefing.
   E. Evacuation Procedure, Routes and First Aid.
   F. Proper Use of 30 minute Pressure Demand Air Pack.

2. H_2S Detection and Alarm Systems
   A. H_2S Detectors and Audio Alarm System to be Located at Bell Nipple, End of Blooie Line (mud pit) and on Derrick floor or doghouse.

3. Windsock and/or Wind Streamers
   A. Windsock at Mud Pit Area Should be High Enough to be Visible.
   B. Windsock at Briefing Area Should be High Enough to be Visible.
   C. There Should be a Windsock at Entrance to Location.

4. Condition Flags and Signs
   A. Warning Sign on Access Road to Location.
   B. Flags to be Displayed on Sign at Entrance to Location.
      1. Green Flag, Normal Safe Condition.
      2. Yellow Flag, Indicates Potential Pressure and Danger.
      3. Red Flag, Danger H_2S Present in Dangerous Concentration Only Emergency Personnel Admitted to Location.

5. Well Control Equipment
   A. See Attached Diagram.

6. Communication
   A. While Working Under Masks Chalkboards Will be Used for Communication.
   B. Hand Signals will be Used Where Chalk Board is Inappropriate.
   C. Two Way Radio or Cell Phone will be Used to Communicate off Location in Case of Available at Most Drilling Foreman's Trailer or Living Quarters.

7. Drillstem Testing
   A. Exhausts will be Watered.
   B. Flare Line will be Equipped with an Electric Igniter or a propane pilot light in case gas reaches the surface.
   C. If Location is near any Dwelling a Closed DST will be Performed.

8. Drilling Contractor Supervisor will be Required to be Familiar with the Effects H_2S has on tubular goods and other mechanical equipment.

9. If H_2S Encountered, Mud system will be Altered if Necessary to Maintain Control of Formation. A Mud Gas Separator will be Brought into Service Along with H_2S Scavengers if Necessary.

SM ENERGY

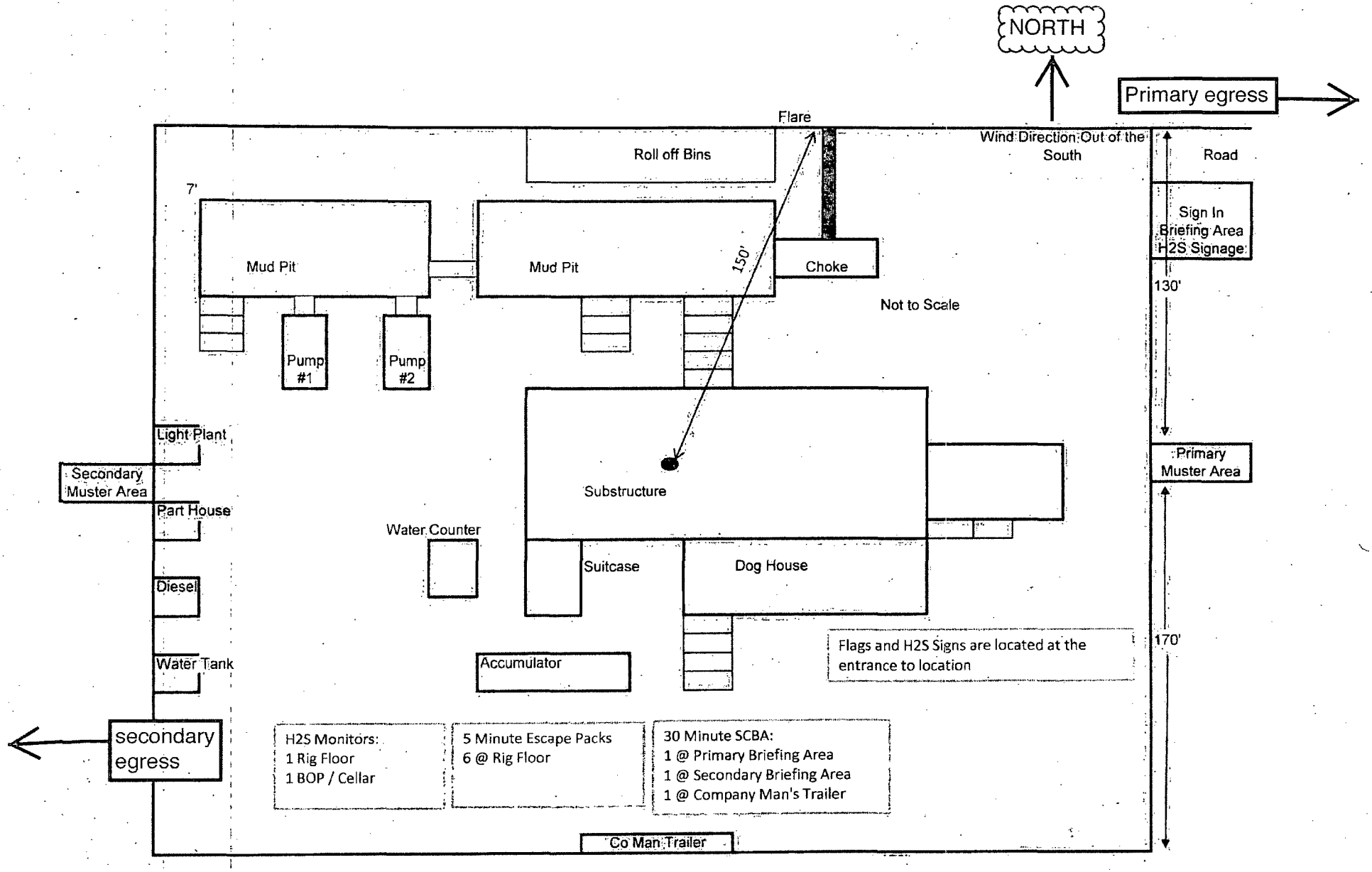
Company Contact List:

New Mexico Operations:	Name:	Cellular:	Office:
Drilling Superintendent	Howard Smith	903-262-0001	432-400-2395
Asst. Drilling Superintendent	Keith Pagett	806-317-5159	432-400-2395
Drilling Manager	Jonathan Nix	432-296-8956	432-688-3127
HSE Manager	David Carrillo	432-664-2095	432-688-3391
Project Manager	Malcolm Kintzing	432-212-2628	432-688-3125
Drilling Engineer	Michael Mataalii	432-271-2230	432-688-3392

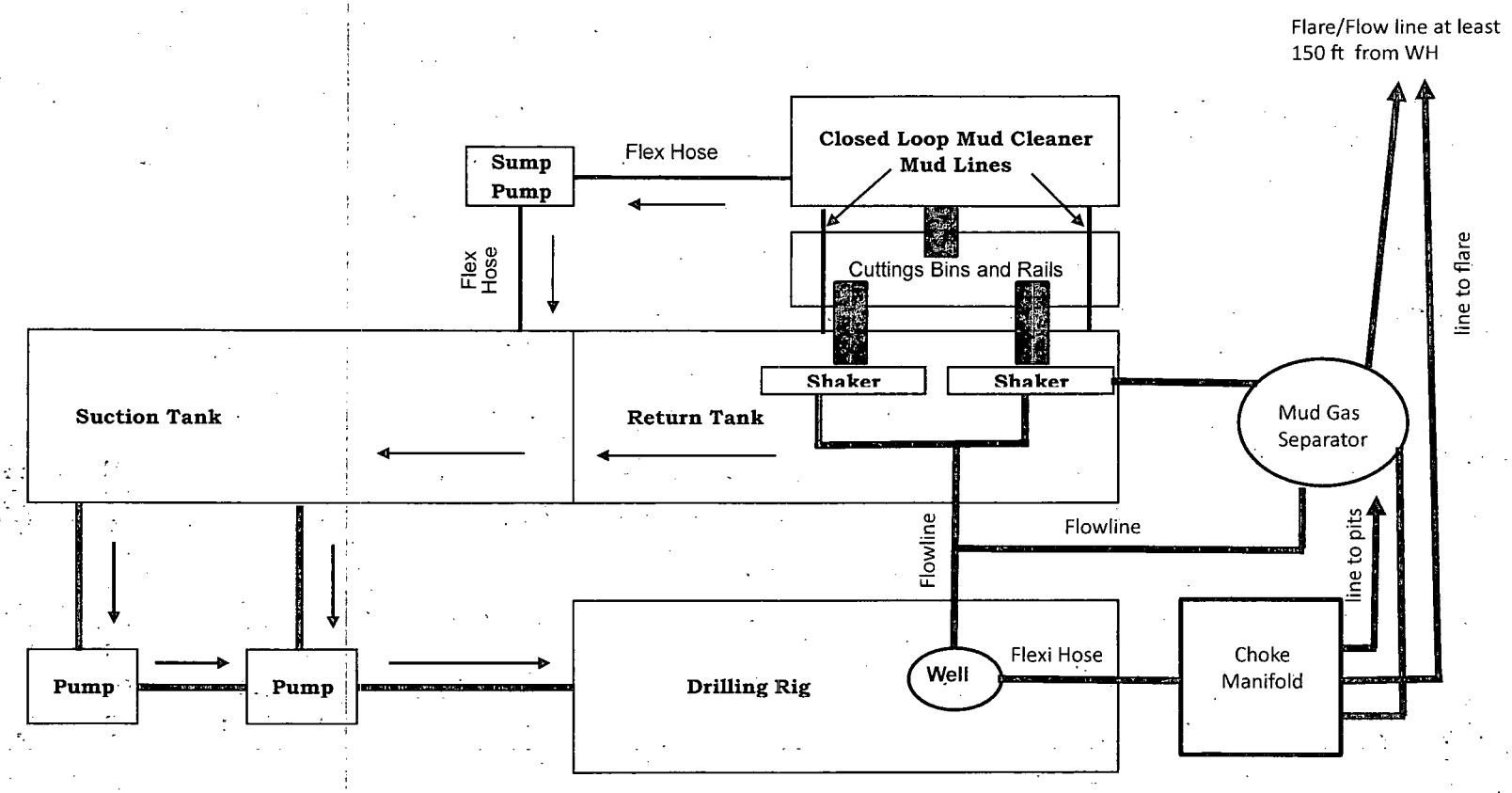
Lea County (Hobbs):	Contact Number:
State Police	575-392-5588
City Police	575-397-9265
Sheriff's Office	575-393-2515
Ambulance	911
Fire Department	575-397-9308
Local Emergency Planning Committee	575-393-2870
NMOCD	575-393-6161
US Bureau of Land Management	575-393-3612

Eddy County (Carlsbad)	Contact Number:
State Police	575-885-3137
City Police	575-855-2111
Sheriff's Office	575-887-7551
Ambulance	911
Fire Department	575-885-2111
Local Emergency Planning Committee	575-887-3798
US Bureau of Land Management	575-887-6544

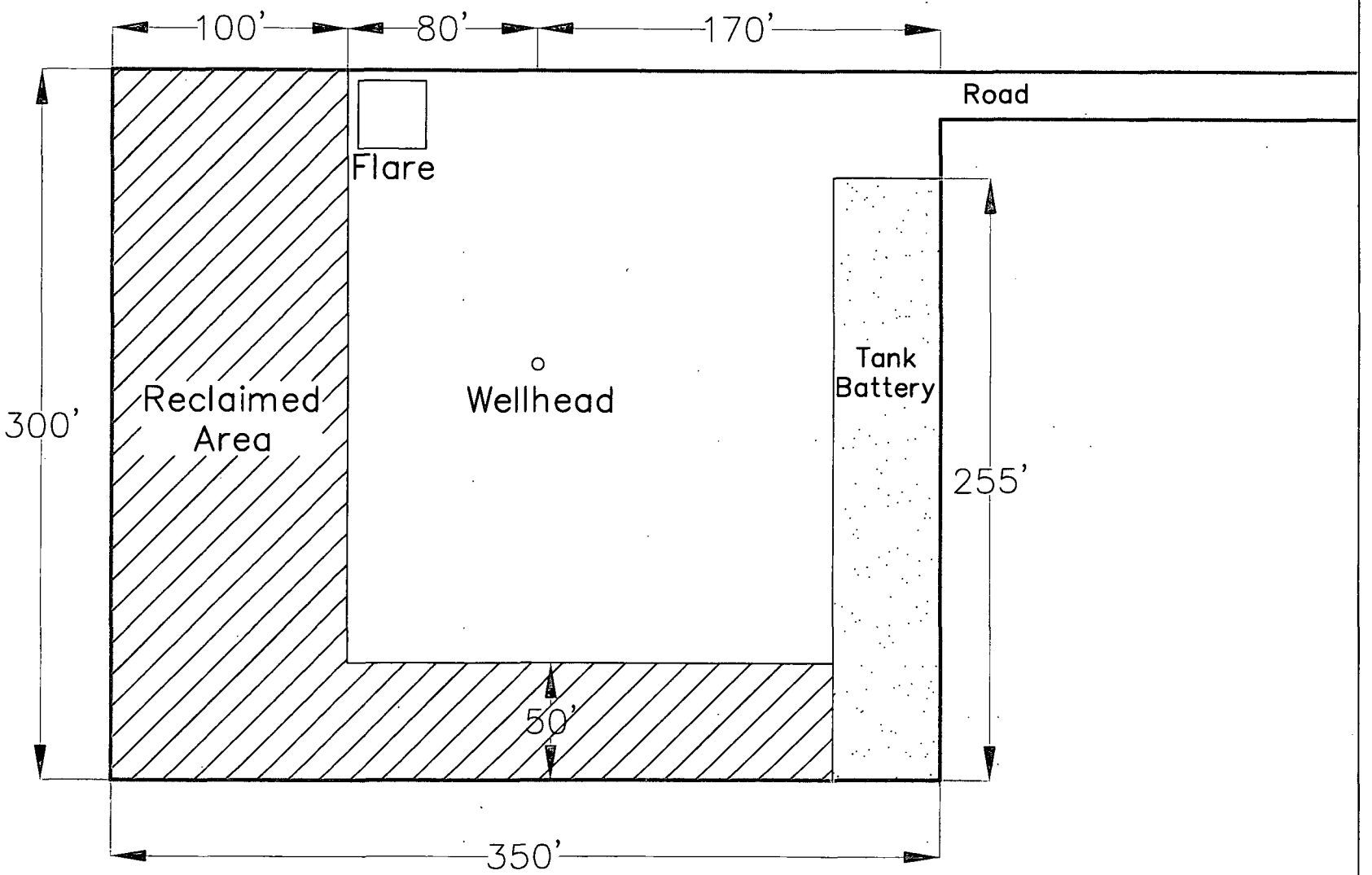
Emergency Services	Contact Numbers:
Boots & Coots IWC	1-800-256-9688 or 281-931-8884
Cudd Pressure Control	915-699-0139 or 915-563-3356
Halliburton	575-746-2757
B.J. Services	575-746-3569
Flight for Life Lubbock TX	806-743-9911
Aerocare Lubbock TX	806-747-8923
Med Flight Air Ambulance Albuquerque NM	575-842-4433
Lifeguard Air Med Albuquerque NM	575-272-3115


NORTH
Primary egress
Flare
Wind Direction Out of the South
Road
Roll off Bins
7'
Mud Pit
Mud Pit
150'
Choke
Sign In
Briefing Area
H2S Signage
130'
Not to Scale
Pump #1
Pump #2
Light Plant
Secondary Muster Area
Part House
Substructure
Primary Muster Area
Water Counter
Suitcase
Dog House
Diesel
Water Tank
Accumulator
Flags and H2S Signs are located at the entrance to location
170'
secondary egress
H2S Monitors:
1 Rig Floor
1 BOP / Cellar
5 Minute Escape Packs
6 @ Rig Floor
30 Minute SCBA:
1 @ Primary Briefing Area
1 @ Secondary Briefing Area
1 @ Company Man's Trailer
Co Man Trailer

Choke Manifold Schematic for Closed Loop System



OSAGE 34-1H


100'
80'
170'
Road
Flare
Reclaimed Area
Wellhead
Tank Battery
300'
255'
50'
350'

Surface Use Plan

1. ROAD DIRECTIONS & DESCRIPTIONS (See PAGES 19 - 21)

From the center of Carlsbad...
Go Northeast 14.3 miles on US 62 to the equivalent of Mile Post 49.4
Then turn left and go North 2.1 mile on paved County Road 238
Bear right and continue North & Northwest 4.1 miles on a dirt road
Turn right and go East 0.8 mile on a caliche road
Turn left and go North 0.45 mile on a caliche road
Turn left and go West 0.15 mile on a caliche road
Bear right and go NW 0.15 miles on a caliche road to a Mewbourne pad
Then continue NW 657.9' cross country to the proposed pad

Roads will be maintained to a standard at least equal to or better than their present condition.

This APD is also doubling as a plan of development for an accompanying BLM road right-of-way application. Application covers 20' x 2,640' (=1.21 acre) in N2NW 35-19s-29e, of which ≈2,300' is existing road and ≈340' is new road. Application connects with existing road right-of-way NMNM-073084.

2. ROAD TO BE BUILT OR UPGRADED (See PAGES 19 - 21)

Approximately 657.9' of new road will be built. The new road will be crowned, have a 14' wide driving surface, and be surfaced with caliche. Maximum disturbed width = 20'. Maximum grade = 1%. Maximum cut of fill = 1'. No culvert, cattle guard, or turn out is needed. Upgrading of existing roads, especially the road running north from 238, will consist of filling potholes with caliche.

3. EXISTING WELLS

Existing oil, gas, injection, disposal, water, and P & A wells within a mile radius are shown on Page 22.

4. PROPOSED PRODUCTION FACILITIES (See PAGE 23)

A tank battery will be installed on the east side of the pad. DCP will lay a gas line and will be responsible for its right-of-way application.

5. WATER SUPPLY (PAGES 19-21 & 24)

SM has an existing frac pond that will be expanded (175' x 200') to the west. A temporary surface water pipeline will be laid east 900' along the south side of the existing road and then north 2,700' to the southeast corner of the pad. The line will be 4" poly during drilling and 10" aluminum during completion. Pipeline will be buried or protected with ramps where it crosses the road. Existing supply pipeline and trucks from Carlsbad will be used to fill the expanded pond.

6. CONSTRUCTION MATERIALS & METHODS

NM One Call (1-800-321-ALERT) will be notified before construction starts. The top 6" of soil and brush will be stockpiled south of the pad. A closed loop drilling system will be used. Caliche will be bought and hauled from an existing approved caliche pit. Dirt contractor will be responsible for caliche.

7. WASTE DISPOSAL

All trash will be placed in a portable trash cage. It will be hauled to a county landfill. There will be no trash burning. Contents of the mud tanks will be hauled

to state approved disposal sites. Human waste will be disposed of in chemical toilets and hauled to an approved dump station.

8. ANCILLARY FACILITIES

There will be no airstrip or camp. Camper trailers will be on location for the company man, tool pusher, or mud logger.

9. WELL SITE LAYOUT

See Page 25 for depictions of the well pad, trash cage, access onto the location, parking, living facilities, and rig orientation.

10. RECLAMATION (See PAGE 23)

Reclamation will consist of removing the caliche from at least a 50' wide strip on the south and west sides of the pad. Disturbed areas will be contoured to a natural shape and no steeper than 3:1. Soil and brush will be evenly spread over disturbed areas. Seeded areas will be ripped or harrowed. A BLM approved seed mix will be sown in a BLM approved manner. Enough stockpiled topsoil will be retained to cover the remainder of the pad when the well is plugged. Once the well is plugged, then the remainder of the pad will be similarly reclaimed. Noxious weeds will be controlled.

11. SURFACE OWNER

All construction will be on BLM.

12. OTHER INFORMATION

On site inspection was held January 14, 2013 with Legion Brumley (BLM).

Boone Archaeology has inspected the pad, road, and water pipeline. See their reports SNMAS-12NM-4008/4009/4010 (Feb. 6, 2013) and SNMAS-13NM-4018 (Feb. 15, 2013).

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**SM Energy Company**
LEASE NO.:	**NMNM-90807**
WELL NAME & NO.:	**Osage 34 Federal 1H**
SURFACE HOLE FOOTAGE:	**0450' FNL & 0330' FEL**
BOTTOM HOLE FOOTAGE	**0330' FNL & 0330' FWL**
LOCATION:	**Section 34, T. 19 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. SPECIAL REQUIREMENT(S)

Temporary Surface Freshwater Pipelines

- The route surveyed for Archeology must be staked to ensure that the surface pipelines follow the surveyed path.
- The four inch temporary line may be unspooled, making one pass along the staked route.
- Temporary pipelines must be removed within 10 days of the conclusion of completion operations, from this route, unless granted in writing by the authorized officer.
- Ten inch aluminum pipe will be hand-carried and hand-laid along any cross country portion of the approved route.
- Areas impacted (disturbed greater than vegetation compaction) by your project may require full reclamation.
- Pipelines will be empty before disassembly. Flow water back to the pond whenever possible.
- Do not restrict traffic on existing roads. Place ramps where needed.
- All pumps will be placed on existing disturbance (pads, roads, etc.).

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

VI. 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 stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used 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. 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.

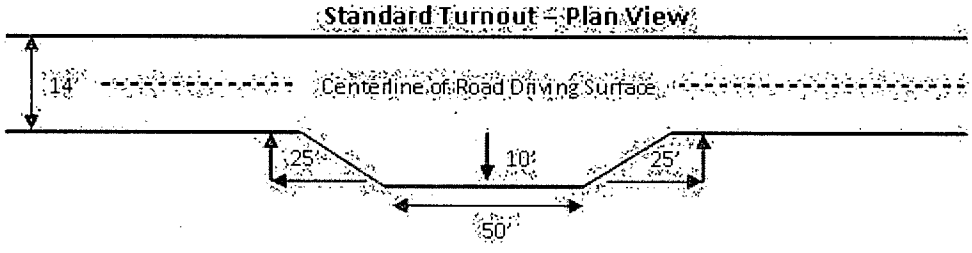
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

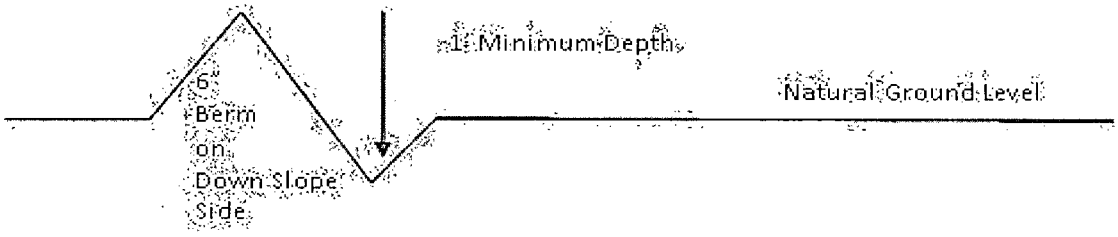
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

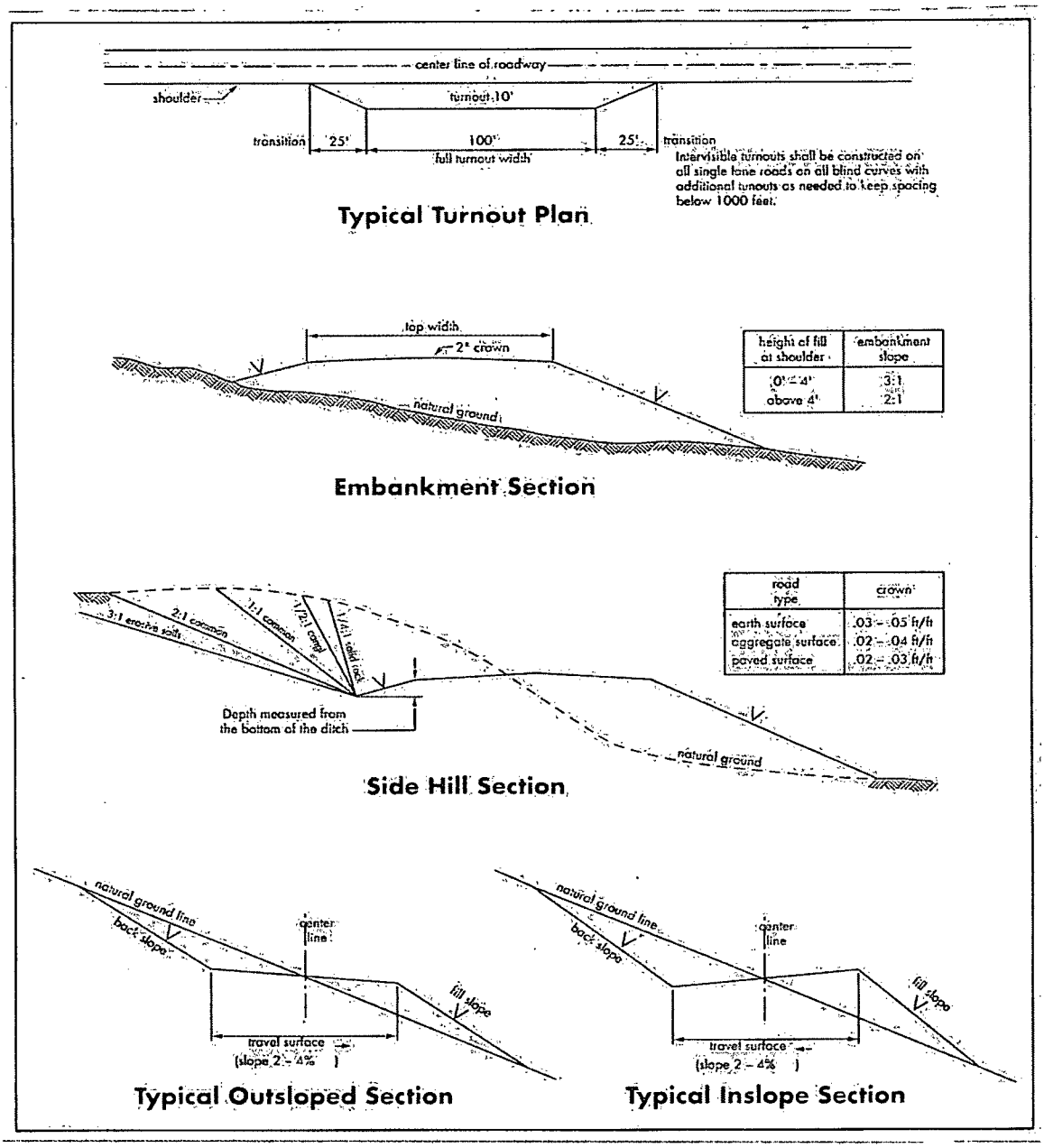
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



Frac Pond Expansion

FRAC POND CONDITIONS OF APPROVAL

A copy of the application (APD, Grant, or Sundry Notice) and attachments, including stipulations, survey plat and diagram, will be on location during construction. BLM personnel may request to see a copy of your permit during construction to ensure compliance with all conditions of approval.

Holder agrees to comply with the following conditions of approval to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this permit.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated.

3. Required Standard Conditions of Approval:

a. **Notification**
Contact the Supervisory Environmental Protection Specialist, Jim Amos, at 575-234-5909 at least 24 hours prior to starting construction.

b. **Freshwater Only**
The frac pond will only be authorized to contain freshwater and testing of water quality is required. Additives are not allowed without consent of the authorized officer in writing.

c. **Contamination**
If at any time the water in the frac pond becomes polluted with salts or other contaminants, use of the frac pond will cease and desist, and all liquids will be removed from the frac pond and disposed of properly. The operator will preclude releases of oil into open pits. The operator must remove any accumulation of oil, condensate, or contaminant in a pit within 48 hours of discovery.

d. **Authorized Disturbance**
Confine all construction and maintenance activity to the approved authorized area applied for in the application.

e. **Facilities**
Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations. Grey-water, sewage, and trash shall be removed from the site and disposed of properly at a state approved facility.

f. Escape Ramps

The operator will construct and maintain frac ponds to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in frac ponds. Escape ramps must be installed at every corner of the frac pond and in the center of each side if that side exceeds 100 feet in length. Escape ramps must be in contact with the side of the frac pond, bottom of the frac pond, and the top of the frac pond berm. Escape ramps cannot be made of metal and cannot be steeper than a 3:1 slope (Horizontal Distance: Vertical Distance) or 30% slope. (*Examples of escape ramps: 12" wide wooden planks wrapped in matting, felt lining, etc.*)

g. Frac Pond Pipelines

Temporary pipelines flowing from the frac pond to the target well will be laid along existing roadways unless an exception has been granted by the authorized officer in writing.

h. Mineral Material from Excavation

Mineral materials extracted during construction of the frac pond will be stored on-location and/or used for constructing the frac pond.

i. Frac Pond Liner

The frac pond will be lined with at least a 30 mil. plastic liner. The plastic lining will be removed prior to final abandonment.

j. Topsoil Stockpile

The operator shall strip at least the top 6 inches of soil (root zone) from the entire frac pond area and stockpile the topsoil approximately 25 feet outside the bermed perimeter of the pond in a low profile manner, reasonably protected from wind and water erosion. Topsoil shall not be used for constructing the frac pond. The topsoil will be used for final reclamation purposes only.

k. Frac Pond Fence

The operator will install and maintain exclosure fencing on all sides of the frac pond to prevent access to public, livestock, and large forms of wildlife. The fence shall be installed at the base of the berm and never on top of the berm. Construction of the fence shall consist of steel and/or wooden posts set firmly into natural ground. Hog panel or chain-link fencing must be used as the fence and tied securely to the fence posts. Barbed-wire fencing or electric fences shall not be used. The fence height shall not be shorter than six (6) feet. The erected fence shall be maintained in adequate condition until the frac pond is reclaimed.

l. Erosion Prevention

Install earthen erosion-control structures as are suitable for the specific terrain and soil conditions.

m. Reclamation Start

I. Reclamation efforts will commence immediately after the frac pond is no longer needed for the purpose of completing wells.

II. Within 3 months of completion of frac operations on associated wells, all earthwork and final reclamation must be completed. This includes reclaiming and/or removal of:
    i. Any roads approved for use with the pond
    ii. Surface water lines
    iii. Tanks, pumps, fencing etc.

Requirements for Operations and Final Reclamation:

4. If, during any phase of the construction, operation, maintenance, or termination of the frac pond, any pollutant should be released from the contaminated frac pond, the control and total removal, disposal, and cleaning up of such pollutant, wherever found, shall be the responsibility of holder, regardless of fault.

Upon failure of holder to control, dispose of, or clean up such discharge, or to repair all damages resulting there-from, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf shall be immediately reported to the Authorized Officer. Holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

6. 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.

7. After all disturbed areas have been satisfactorily contoured and prepared for seeding the location needs to be revegetated with the seed mixture provided. Seeding may need to be repeated until revegetation is successful. Operators shall contact Jim Amos,

Supervisor, Environmental Protection – (575)234-5909, **prior** to beginning surface reclamation operations.

8. Seeding is required: Use the following seed mix.

(X) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	( ) seed mixture 4
( ) LPC mixture	( ) Aplomado Falcon mix

VII. 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. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated **500** feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values 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 top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. 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.).

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. 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. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

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

High Cave/Karst
Capitan Reef
Possibility of water and brine flows Yates, Tansil, Seven Rivers, Salado, and Capitan Reef.
Possibility of lost circulation in the Yates, Tansil, Seven Rivers, Delaware, and Bone Springs.

1. The **20** inch surface casing shall be set at approximately **250** feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    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 **13-3/8** inch 1st intermediate casing, which shall be set at approximately **1650** feet, is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

3. The minimum required fill of cement behind the **12-1/4** inch 2nd intermediate casing, which shall be set at approximately **3400** feet, is:

Operator has proposed a DV tool at depth of 1700', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and Capitan Reef.**

If 75% or greater lost circulation occurs while drilling the second intermediate casing hole, the cement on the production casing must come to surface.

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

4. The minimum required fill of cement behind the **7** inch production casing is:

☒ Operator shall cement to a minimum of 50' above the Capitan Reef top. Operator shall provide method of verification.

5. The minimum required fill of cement behind the **4-1/2** inch production Liner is:

   ☒ Cement not required – Packer/Port system to be used.

The pilot hole plugging procedure is approved as written. Note plug top on drilling report.

6. 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.

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 RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **A variance is granted for the use of a diverter on the 20" surface casing.**

4. 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. **Operator is installing a 5M system, but will test to 2000 psi.**

5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **3000 (3M)** psi. **Operator installing a 5M, but will test to 3000 psi.**

6. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7"** production casing shoe shall be **3000 (3M)** psi. **Operator installing a 5M, but will test to 3000 psi.**

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

    a. In a water basin, 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. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    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.

    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. DRILLING MUD

Approved for aerated mud, but not air drilling while drilling through the Capitan Reef.

F. 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.

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VIII. 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.

Containment Structures
The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

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).

B. PIPELINES (Permanent pipelines will be applied for through Right-of-Way)

C. ELECTRIC LINES (not applied for in APD)

IX. 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 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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