

OCD-ARTESIA

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

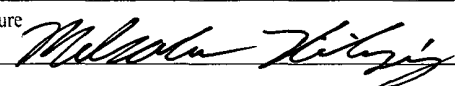
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM 090807	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator SM Energy Company		7. If Unit or CA Agreement, Name and No.	
3a. Address 3300 N. A St. bldg. 7-200 Midland, TX 79705		8. Lease Name and Well No. C385813 Osage 34 Federal Com 3H	
3b. Phone No. (include area code) 154903 (432)688-3125		9. API Well No. 30-015-39785	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1880 FSL & 330 FWL (SL) Unit L At proposed prod. zone 1980 FSL & 330 FEL (BHL) Unit I		10. Field and Pool, or Exploratory Parkway Bone Spring [49622]	
14. Distance in miles and direction from nearest town or post office* 8 miles south of Loco Hills, NM		11. Sec., T. R. M. or Blk. and Survey or Area Sec 34 - T 19S - 29E	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330'		12. County or Parish Eddy	
16. No. of acres in lease 640		13. State NM	
17. Spacing Unit dedicated to this well 160		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 330'	
19. Proposed Depth PH 19,000' TVD 12375' MD 8002' TVD		20. BLM/BIA Bond No. on file NMB000805	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3317' GL		22. Approximate date work will start* 4 /15/2012	
23. Estimated duration 40 Days		24. Attachments	

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

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

25. Signature 	Name (Printed/Typed) Malcolm Kintzing	Date 10/06/2011
Title Engineer		
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date DEC 12 2011
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.

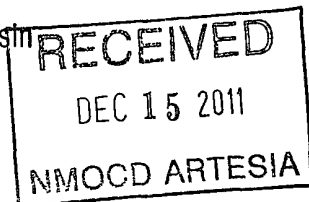
APPROVAL FOR TWO YEARS

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

COH

SM Energy Company
3300 N. A Street, Suite 200
Midland, TX 79705
(432) 688-1700 (Office)
(432) 682-1701 (Fax)

I hereby certify that I or persons under my supervision have inspected the proposed drill site and the access road routes, that I am familiar with the conditions that currently exist, and that the statements made in this plan are to the best of my knowledge are true and correct, and that the work associated with the operations proposed herein will be performed by SM Energy Company, its contractors or its sub-contractors in conformance with this plan and the terms and the conditions under which it is approved. This statement is subject to the provisions of U.S.C 1001 for filing of a false statement.

Signature: Malcolm Kintzing

Date: 8/26/11

Malcolm Kintzing
SM Energy Company
3300 N. A St. 7-200
Midland, TX 79705
Office: 432.688.3125
Cell: 432.212.2628

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised July 16, 2010

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 39785	Pool Code 49622	Pool Name Parkway Bone Spring
Property Code 38981	Property Name OSAGE 34 FEDERAL COM	Well Number 3H
OGRID No. 154903	Operator Name SM ENERGY	Elevation 3317'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	34	19 S	29 E		1880	SOUTH	330	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
I	34	19 S	29 E		1980	SOUTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SURFACE LOCATION Lat - N 32°36'54.49" Long - W 104°04'12.85" NMSPC - N 587617.908 E 622345.506 (NAD-83)	PROPOSED BOTTOM HOLE LOCATION Lat - N 32°36'55.29" Long - W 104°03'18.80" NMSPC - N 587710.411 E 626968.016 (NAD-83)	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. <i>Malcolm Kintzing</i> 8/26/11 Signature Date <i>Malcolm Kintzing</i> Printed Name <i>MKintzing@SM-Energy.com</i> Email Address
3309.4' 3311.6' 1330' 3323.3' 3323.0' 1880' 4622.0' 330'		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. <i>GARY L. JONES</i> Date Surveyed 8-20-11 Signature & Seal of Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS 24918

Exhibit A

OCD-ARTESIA

Form 3160-5
(August 2007)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No.

NMNM 090807

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE – Other instructions on page 2.

7. If Unit of CA/Agreement, Name and/or No.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.

OSAGE 34 FEDERAL 3H

2. Name of Operator

SM ENERGY COMPANY

9. API Well No.

3a. Address

3300 N "A" ST BLDG 7-200 MIDLAND TX 79705 (432)688-1709

3b. Phone No. (include area code)

10. Field and Pool or Exploratory Area

PARKWAY BONE SPRING

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

AT SURFACE (L) 1880' FSL & 330' FWL (SL); AT
PROPOSED PROD ZONE (I) 1980' FSL & 330' FEL
(BHL); SEC 34-T19S-R29E

11. Country or Parish, State

EDDY COUNTY NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other CHANGE WELL
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	NAME TO INCLUDE
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	COM

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

THIS IS TO CHANGE WELL NAME TO OSAGE 34 FEDERAL COM 3H

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

VICKIE MARTINEZ

Title ENGINEER TECH II

Signature



Date 10/07/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

/s/ JD Whitlock Jr

FIELD MANAGER

DEC 12 2011

Title

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

CARLSBAD FIELD OFFICE

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.

(Instructions on page 2)

Drilling program

SM Energy Company

Osage 34 Federal ~~Com~~ 3H

1880 FSL & 330 FWL (SHL)

1980 FSL & 330 FEL (BHL)

Sec 34-T19S-R29E

Eddy County, New Mexico

The estimated tops of geologic markers are as follows

Rustler	162'
Top of Salt	335'
Base of Salt	960'
*Yates	1253'
Capitan	2280'
*Cherry Canyon	3380'
*Brushy Canyon	4030'
*Bone Spring	5540'
*Wolfcamp	9300'

Estimated depths of anticipated fresh water, oil, or gas

Fresh water is expected at 75' and will be protected by setting surface casing at 200' and cementing to surface.

Oil and gas are anticipated in the above (*) formations. These zones will be protected by casing as required.

Pressure and control equipment

A 2M diverter system will be installed after running 20" casing.

The BOP system used to drill the intermediate hole will consist of a 13-5/8" 3M Double Ram and Annular preventer. The BOP system will be tested by a third party as per BLM onshore oil and gas order No. 2 as a 3M system prior to drilling out the surface casing shoe. In addition to the rams and annular preventer, additional BOP accessories including a Kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi work pressure will be used.

Proposed casing and cementing program

A. Casing program:

<u>Hole Size</u>	<u>Casing Size</u>	<u>Casing #/foot</u>	<u>Grade</u>	<u>Setting Depth</u>	<u>Collar</u>
26"	20"	94	J55	0-200'	BTC
17.5"	13 3/8" (new)	54.5	J55	0-1500'	STC
12 1/4"	9 5/8" (new)	36	J55	0-3200' 3300'	LTC
8 3/4"	7" (new)	26	P110	0-8324'	LTC
6 1/8"	4.5" (new)	11.6	P110	8150'-12375'	LTC

See COA

Minimum casing design factors: Collapse 1.125, Burst 1.0, Tensile strength 1.8.

*Subject to casing availability

SM Energy Company proposes drilling an 8-3/4" vertical pilot hole to 10,000 MD and plug back to KOP. The cement plug details are included below in the Cementing program.

B. Cementing Program:

- I. **Surface conductor pipe:** 150 sx class C light cement 35:65 with salt and LCM additives. Yield of 2.0 cuft/sx. 225 sx Class C cement with 2% CaCl₂. Yield of 1.34 cuft/sx. Cmt circulated to surface w/100% excess.
- II. **Surface casing:** 521 sx 35:65 Class C light cement with salt and LCM additives. Yield at 2.0 cuft/sx. 778 sx class C cement containing 2% CaCl. Yield 1.34 cuft/sx. Cmt circulated to surface w/100% excess.
- III. **Intermediate Casing:** 550 sx 35:65 Class C light cement with salt and LCM additives. Yield at 2.0 cuft/sx. 410 sx class C cement containing 2% CaCl. Yield 1.34 cuft/sx. Cmt circulated to surface w/50% excess.
- IV. **Deep intermediate Casing:** 450 sx Class H light cement 35:65 with fluid loss, LCM, & salt additives. Yield at 2.12 cuft/sx. 200 sx class H cement containing fluid loss additives. Yield at 1.18 cuft/sx. Cmt circulated to 2000' w/25% excess.
- V. **Production Casing:** plans are to use a sliding sleeve, frac port and packer system with 4 1/2" liner. No cement required.
- VI. **Pilot Hole Plugs:**
 - i. **Plug 1:** 300 sx Class H Cement, 15.6, 1.18 cuft/sx
 1. **Top of plug** 9,000 ft
 2. **Bottom of plug** 10,000 ft
 - ii. **Plug 2:** 350 sx Class H Cement, 18 ppg, 0.90 cuft/sx
 1. **Top of plug** 7,400 ft
 2. **Bottom of plug** 7,900 ft

See COA

See COA

*SM Energy Company reserves the right to change cement designs as hole conditions may warrant.

Mud Program

<u>Interval</u>	<u>mud type</u>	<u>weight</u>	<u>Viscosity</u>	<u>Fluid loss</u>
0-200'	Fresh water spud mud	8.6-9.4	32-34	No Control
200'-1500'	Brine	10	28-30	No Control
1500'-3200' ^{3300'}	Fresh water	8.4	28-30	No Control
3200'-7425'	Cut bine	8.4-8.6	28-30	No Control
7425'-TD MD	Cut brine w/polymer	8.4-8.6	32-40	No Control

Evaluation Program

- Geol
COA*
- I. Mud log samples will be taken in 10' intervals after drilling out the surface casing.
 - II. Open hole logs will be run from pilot hole TD to intermediate casing. Open hole logs include a Dual laterolog, compensated neutron-density, Gamma Ray and Caliper.
 - III. Gamma Ray will be used to drill lateral hole.
 - IV. No Drill stem tests or coring is planned at this time
 - V. Additional testing may be initiated based on log evaluation and geological sample shows.

Downhole Conditions

Zones of abnormal pressure:	None anticipated
Zones of lost circulation:	Anticipated in surface and intermediate holes
Maximum bottom hole temperature:	130 degrees F
Maximum bottom hole pressure:	.433 psi/ft gradient

Anticipated Starting Date

SM Energy Company intends to drill this well early 2012 with approximately 40 days involved in drilling operations and an additional 10 days involved in completion operations on the project.



SM Energy

Eddy County (NAD83)

Osage "34" #3H

Osage "34" #3H

Lateral #1

Plan: Plan #1

Standard Planning Report

22 August, 2011



Planning Report

Database: EDM 5000 1 Black Viper
Company: SM Energy
Project: Eddy County (NAD83)
Site: Osage "34" #3H
Well: Osage "34" #3H
Wellbore: Lateral #1
Design: Plan #1

Local Co-ordinate Reference: Site Osage "34" #3H
TVD Reference: KB @ 3335.00usft (Nabors 474)
MD Reference: KB @ 3335.00usft (Nabors 474)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Osage "34" #3H

Site Position:		Northing:	587,617 91 usft	Latitude:	32° 36' 54.494 N
From:	Map	Easting:	622,345 51 usft	Longitude:	104° 4' 12.849 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.14 "

Well Osage "34" #3H

Well Position	+N/-S	0 00 usft	Northing:	587,617 91 usft	Latitude:	32° 36' 54.494 N
	+E/-W	0.00 usft	Easting:	622,345 51 usft	Longitude:	104° 4' 12.849 W
Position Uncertainty		0 00 usft	Wellhead Elevation:	3,332 00 usft	Ground Level:	3,317 00 usft

Wellbore Lateral #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/22/2011	7 82	60 46	48,779

Design Plan #1

Audit Notes:

Version:	Phase:	PROTOTYPE	Tie On Depth:	7,400.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0 00	0 00	88.85

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
7,400.00	0 00	0 00	7,400.00	0 00	0 00	0 00	0.00	0.00	0.00	
7,424.66	0 00	0 00	7,424.66	0.00	0 00	0.00	0.00	0 00	0.00	
8,324.04	89.94	88.85	7,997.62	11 45	572 22	10 00	10.00	0 00	88 85	
12,375 14	89.94	88 85	8,002.00	92 50	4,622 51	0 00	0.00	0 00	0.00	PBHL#1[O"34"#3H]



Planning Report

Database: EDM 5000 1 Black Viper
Company: SM Energy
Project: Eddy County (NAD83)
Site: Osage "34" #3H
Well: Osage "34" #3H
Wellbore: Lateral #1
Design: Plan #1

Local Co-ordinate Reference: Site Osage "34" #3H
TVD Reference: KB @ 3335 00usft (Nabors 474)
MD Reference: KB @ 3335 00usft (Nabors 474)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,409.99	0.00	0.00	7,409.99	0.00	0.00	0.00	0.00	0.00	0.00
7,424.66	0.00	0.00	7,424.66	0.00	0.00	0.00	0.00	0.00	0.00
Build 10.00°/100' :: TFO 88.85									
7,439.99	1.53	88.85	7,439.98	0.00	0.20	0.20	10.00	10.00	0.00
7,469.99	4.53	88.85	7,469.94	0.04	1.79	1.79	10.00	10.00	0.00
7,499.99	7.53	88.85	7,499.77	0.10	4.94	4.94	10.00	10.00	0.00
7,529.99	10.53	88.85	7,529.39	0.19	9.65	9.65	10.00	10.00	0.00
7,559.99	13.53	88.85	7,558.73	0.32	15.90	15.91	10.00	10.00	0.00
7,589.98	16.53	88.85	7,587.70	0.47	23.68	23.69	10.00	10.00	0.00
7,619.98	19.53	88.85	7,616.22	0.66	32.97	32.97	10.00	10.00	0.00
7,649.98	22.53	88.85	7,644.22	0.88	43.73	43.74	10.00	10.00	0.00
7,679.98	25.53	88.85	7,671.62	1.12	55.94	55.95	10.00	10.00	0.00
7,709.98	28.53	88.85	7,698.34	1.39	69.57	69.59	10.00	10.00	0.00
7,739.98	31.53	88.85	7,724.31	1.69	84.58	84.60	10.00	10.00	0.00
7,769.98	34.53	88.85	7,749.45	2.02	100.93	100.95	10.00	10.00	0.00
7,799.98	37.53	88.85	7,773.71	2.37	118.57	118.60	10.00	10.00	0.00
7,829.98	40.53	88.85	7,797.01	2.75	137.46	137.49	10.00	10.00	0.00
7,830.16	40.55	88.85	7,797.14	2.75	137.57	137.60	10.00	10.00	0.00
2nd Bone Spring Sand									
7,859.98	43.53	88.85	7,819.29	3.15	157.54	157.57	10.00	10.00	0.00
7,889.98	46.53	88.85	7,840.49	3.58	178.76	178.79	10.00	10.00	0.00
7,919.98	49.53	88.85	7,860.55	4.02	201.06	201.10	10.00	10.00	0.00
7,949.98	52.53	88.85	7,879.42	4.49	224.37	224.42	10.00	10.00	0.00
7,979.98	55.53	88.85	7,897.03	4.98	248.65	248.70	10.00	10.00	0.00
8,009.98	58.53	88.85	7,913.36	5.48	273.81	273.86	10.00	10.00	0.00
8,039.98	61.53	88.85	7,928.34	6.00	299.79	299.85	10.00	10.00	0.00
8,069.98	64.53	88.85	7,941.94	6.53	326.52	326.58	10.00	10.00	0.00
8,099.98	67.53	88.85	7,954.13	7.08	353.92	353.99	10.00	10.00	0.00
8,129.98	70.53	88.85	7,964.86	7.64	381.93	382.00	10.00	10.00	0.00
8,159.98	73.53	88.85	7,974.12	8.21	410.46	410.54	10.00	10.00	0.00
8,189.98	76.53	88.85	7,981.86	8.79	439.43	439.52	10.00	10.00	0.00
8,219.98	79.53	88.85	7,988.08	9.38	468.77	468.86	10.00	10.00	0.00
8,249.98	82.53	88.85	7,992.76	9.97	498.39	498.49	10.00	10.00	0.00
8,279.98	85.53	88.85	7,995.88	10.57	528.22	528.32	10.00	10.00	0.00
8,309.98	88.53	88.85	7,997.43	11.17	558.17	558.28	10.00	10.00	0.00
8,324.04	89.94	88.85	7,997.62	11.45	572.22	572.34	10.00	10.00	0.00
EOC Hold 89.94° INC :: 88.85° AZI									
8,339.98	89.94	88.85	7,997.64	11.77	588.16	588.28	0.00	0.00	0.00
8,369.98	89.94	88.85	7,997.67	12.37	618.16	618.28	0.00	0.00	0.00
8,399.98	89.94	88.85	7,997.70	12.97	648.15	648.28	0.00	0.00	0.00
8,429.98	89.94	88.85	7,997.73	13.57	678.14	678.28	0.00	0.00	0.00
8,459.98	89.94	88.85	7,997.77	14.17	708.14	708.28	0.00	0.00	0.00
8,489.98	89.94	88.85	7,997.80	14.77	738.13	738.28	0.00	0.00	0.00
8,519.98	89.94	88.85	7,997.83	15.37	768.13	768.28	0.00	0.00	0.00
8,549.98	89.94	88.85	7,997.86	15.97	798.12	798.28	0.00	0.00	0.00
8,579.98	89.94	88.85	7,997.90	16.57	828.11	828.28	0.00	0.00	0.00
8,609.98	89.94	88.85	7,997.93	17.17	858.11	858.28	0.00	0.00	0.00
8,639.98	89.94	88.85	7,997.96	17.77	888.10	888.28	0.00	0.00	0.00
8,669.98	89.94	88.85	7,997.99	18.37	918.09	918.28	0.00	0.00	0.00
8,699.98	89.94	88.85	7,998.03	18.97	948.09	948.28	0.00	0.00	0.00
8,729.98	89.94	88.85	7,998.06	19.57	978.08	978.28	0.00	0.00	0.00
8,759.98	89.94	88.85	7,998.09	20.17	1,008.08	1,008.28	0.00	0.00	0.00



Planning Report

Database: EDM 5000 1 Black Viper
Company: SM Energy
Project: Eddy County (NAD83)
Site: Osage "34" #3H
Well: Osage "34" #3H
Wellbore: Lateral #1
Design: Plan #1

Local Co-ordinate Reference: Site Osage "34" #3H
TVD Reference: KB @ 3335.00usft (Nabors 474)
MD Reference: KB @ 3335 00usft (Nabors 474)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
8,789.98	89.94	88.85	7,998.12	20.77	1,038.07	1,038.28	0.00	0.00	0.00
8,819.98	89.94	88.85	7,998.16	21.37	1,068.06	1,068.28	0.00	0.00	0.00
8,849.98	89.94	88.85	7,998.19	21.97	1,098.06	1,098.28	0.00	0.00	0.00
8,879.98	89.94	88.85	7,998.22	22.57	1,128.05	1,128.28	0.00	0.00	0.00
8,909.98	89.94	88.85	7,998.25	23.17	1,158.05	1,158.28	0.00	0.00	0.00
8,939.98	89.94	88.85	7,998.29	23.77	1,188.04	1,188.28	0.00	0.00	0.00
8,969.98	89.94	88.85	7,998.32	24.37	1,218.03	1,218.28	0.00	0.00	0.00
8,999.98	89.94	88.85	7,998.35	24.97	1,248.03	1,248.28	0.00	0.00	0.00
9,029.98	89.94	88.85	7,998.38	25.58	1,278.02	1,278.28	0.00	0.00	0.00
9,059.98	89.94	88.85	7,998.42	26.18	1,308.02	1,308.28	0.00	0.00	0.00
9,089.98	89.94	88.85	7,998.45	26.78	1,338.01	1,338.28	0.00	0.00	0.00
9,119.98	89.94	88.85	7,998.48	27.38	1,368.00	1,368.28	0.00	0.00	0.00
9,149.98	89.94	88.85	7,998.51	27.98	1,398.00	1,398.28	0.00	0.00	0.00
9,179.98	89.94	88.85	7,998.54	28.58	1,427.99	1,428.28	0.00	0.00	0.00
9,209.98	89.94	88.85	7,998.58	29.18	1,457.99	1,458.28	0.00	0.00	0.00
9,239.98	89.94	88.85	7,998.61	29.78	1,487.98	1,488.28	0.00	0.00	0.00
9,269.98	89.94	88.85	7,998.64	30.38	1,517.97	1,518.28	0.00	0.00	0.00
9,299.98	89.94	88.85	7,998.67	30.98	1,547.97	1,548.28	0.00	0.00	0.00
9,329.98	89.94	88.85	7,998.71	31.58	1,577.96	1,578.28	0.00	0.00	0.00
9,359.98	89.94	88.85	7,998.74	32.18	1,607.95	1,608.28	0.00	0.00	0.00
9,389.98	89.94	88.85	7,998.77	32.78	1,637.95	1,638.28	0.00	0.00	0.00
9,419.98	89.94	88.85	7,998.80	33.38	1,667.94	1,668.28	0.00	0.00	0.00
9,449.98	89.94	88.85	7,998.84	33.98	1,697.94	1,698.28	0.00	0.00	0.00
9,479.98	89.94	88.85	7,998.87	34.58	1,727.93	1,728.28	0.00	0.00	0.00
9,509.98	89.94	88.85	7,998.90	35.18	1,757.92	1,758.28	0.00	0.00	0.00
9,539.98	89.94	88.85	7,998.93	35.78	1,787.92	1,788.28	0.00	0.00	0.00
9,569.98	89.94	88.85	7,998.97	36.38	1,817.91	1,818.28	0.00	0.00	0.00
9,599.98	89.94	88.85	7,999.00	36.98	1,847.91	1,848.28	0.00	0.00	0.00
9,629.98	89.94	88.85	7,999.03	37.58	1,877.90	1,878.28	0.00	0.00	0.00
9,659.98	89.94	88.85	7,999.06	38.18	1,907.89	1,908.28	0.00	0.00	0.00
9,689.98	89.94	88.85	7,999.10	38.78	1,937.89	1,938.28	0.00	0.00	0.00
9,719.98	89.94	88.85	7,999.13	39.38	1,967.88	1,968.28	0.00	0.00	0.00
9,749.98	89.94	88.85	7,999.16	39.98	1,997.88	1,998.28	0.00	0.00	0.00
9,779.98	89.94	88.85	7,999.19	40.58	2,027.87	2,028.28	0.00	0.00	0.00
9,809.98	89.94	88.85	7,999.23	41.18	2,057.86	2,058.28	0.00	0.00	0.00
9,839.98	89.94	88.85	7,999.26	41.78	2,087.86	2,088.28	0.00	0.00	0.00
9,869.98	89.94	88.85	7,999.29	42.38	2,117.85	2,118.28	0.00	0.00	0.00
9,899.98	89.94	88.85	7,999.32	42.98	2,147.85	2,148.28	0.00	0.00	0.00
9,929.98	89.94	88.85	7,999.36	43.58	2,177.84	2,178.28	0.00	0.00	0.00
9,959.98	89.94	88.85	7,999.39	44.18	2,207.83	2,208.28	0.00	0.00	0.00
9,989.98	89.94	88.85	7,999.42	44.78	2,237.83	2,238.28	0.00	0.00	0.00
10,019.98	89.94	88.85	7,999.45	45.38	2,267.82	2,268.28	0.00	0.00	0.00
10,049.98	89.94	88.85	7,999.49	45.98	2,297.82	2,298.28	0.00	0.00	0.00
10,079.98	89.94	88.85	7,999.52	46.58	2,327.81	2,328.28	0.00	0.00	0.00
10,109.98	89.94	88.85	7,999.55	47.18	2,357.80	2,358.27	0.00	0.00	0.00
10,139.98	89.94	88.85	7,999.58	47.78	2,387.80	2,388.27	0.00	0.00	0.00
10,169.98	89.94	88.85	7,999.62	48.38	2,417.79	2,418.27	0.00	0.00	0.00
10,199.98	89.94	88.85	7,999.65	48.98	2,447.78	2,448.27	0.00	0.00	0.00
10,229.98	89.94	88.85	7,999.68	49.58	2,477.78	2,478.27	0.00	0.00	0.00
10,259.98	89.94	88.85	7,999.71	50.18	2,507.77	2,508.27	0.00	0.00	0.00
10,289.98	89.94	88.85	7,999.75	50.78	2,537.77	2,538.27	0.00	0.00	0.00
10,319.98	89.94	88.85	7,999.78	51.38	2,567.76	2,568.27	0.00	0.00	0.00
10,349.98	89.94	88.85	7,999.81	51.98	2,597.75	2,598.27	0.00	0.00	0.00
10,379.98	89.94	88.85	7,999.84	52.58	2,627.75	2,628.27	0.00	0.00	0.00



Planning Report

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North Reference: Grid
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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)
10,409.98	89.94	88.85	7,999.88	53.19	2,657.74	2,658.27	0.00	0.00	0.00
10,439.98	89.94	88.85	7,999.91	53.79	2,687.74	2,688.27	0.00	0.00	0.00
10,469.98	89.94	88.85	7,999.94	54.39	2,717.73	2,718.27	0.00	0.00	0.00
10,499.98	89.94	88.85	7,999.97	54.99	2,747.72	2,748.27	0.00	0.00	0.00
10,529.98	89.94	88.85	8,000.00	55.59	2,777.72	2,778.27	0.00	0.00	0.00
10,559.98	89.94	88.85	8,000.04	56.19	2,807.71	2,808.27	0.00	0.00	0.00
10,589.98	89.94	88.85	8,000.07	56.79	2,837.71	2,838.27	0.00	0.00	0.00
10,619.98	89.94	88.85	8,000.10	57.39	2,867.70	2,868.27	0.00	0.00	0.00
10,649.98	89.94	88.85	8,000.13	57.99	2,897.69	2,898.27	0.00	0.00	0.00
10,679.98	89.94	88.85	8,000.17	58.59	2,927.69	2,928.27	0.00	0.00	0.00
10,709.98	89.94	88.85	8,000.20	59.19	2,957.68	2,958.27	0.00	0.00	0.00
10,739.98	89.94	88.85	8,000.23	59.79	2,987.68	2,988.27	0.00	0.00	0.00
10,769.98	89.94	88.85	8,000.26	60.39	3,017.67	3,018.27	0.00	0.00	0.00
10,799.98	89.94	88.85	8,000.30	60.99	3,047.66	3,048.27	0.00	0.00	0.00
10,829.98	89.94	88.85	8,000.33	61.59	3,077.66	3,078.27	0.00	0.00	0.00
10,859.98	89.94	88.85	8,000.36	62.19	3,107.65	3,108.27	0.00	0.00	0.00
10,889.98	89.94	88.85	8,000.39	62.79	3,137.64	3,138.27	0.00	0.00	0.00
10,919.98	89.94	88.85	8,000.43	63.39	3,167.64	3,168.27	0.00	0.00	0.00
10,949.98	89.94	88.85	8,000.46	63.99	3,197.63	3,198.27	0.00	0.00	0.00
10,979.98	89.94	88.85	8,000.49	64.59	3,227.63	3,228.27	0.00	0.00	0.00
11,009.98	89.94	88.85	8,000.52	65.19	3,257.62	3,258.27	0.00	0.00	0.00
11,039.98	89.94	88.85	8,000.56	65.79	3,287.61	3,288.27	0.00	0.00	0.00
11,069.98	89.94	88.85	8,000.59	66.39	3,317.61	3,318.27	0.00	0.00	0.00
11,099.98	89.94	88.85	8,000.62	66.99	3,347.60	3,348.27	0.00	0.00	0.00
11,129.98	89.94	88.85	8,000.65	67.59	3,377.60	3,378.27	0.00	0.00	0.00
11,159.98	89.94	88.85	8,000.69	68.19	3,407.59	3,408.27	0.00	0.00	0.00
11,189.98	89.94	88.85	8,000.72	68.79	3,437.58	3,438.27	0.00	0.00	0.00
11,219.98	89.94	88.85	8,000.75	69.39	3,467.58	3,468.27	0.00	0.00	0.00
11,249.98	89.94	88.85	8,000.78	69.99	3,497.57	3,498.27	0.00	0.00	0.00
11,279.98	89.94	88.85	8,000.82	70.59	3,527.57	3,528.27	0.00	0.00	0.00
11,309.98	89.94	88.85	8,000.85	71.19	3,557.56	3,558.27	0.00	0.00	0.00
11,339.98	89.94	88.85	8,000.88	71.79	3,587.55	3,588.27	0.00	0.00	0.00
11,369.98	89.94	88.85	8,000.91	72.39	3,617.55	3,618.27	0.00	0.00	0.00
11,399.98	89.94	88.85	8,000.95	72.99	3,647.54	3,648.27	0.00	0.00	0.00
11,429.98	89.94	88.85	8,000.98	73.59	3,677.54	3,678.27	0.00	0.00	0.00
11,459.98	89.94	88.85	8,001.01	74.19	3,707.53	3,708.27	0.00	0.00	0.00
11,489.98	89.94	88.85	8,001.04	74.79	3,737.52	3,738.27	0.00	0.00	0.00
11,519.98	89.94	88.85	8,001.08	75.39	3,767.52	3,768.27	0.00	0.00	0.00
11,549.98	89.94	88.85	8,001.11	75.99	3,797.51	3,798.27	0.00	0.00	0.00
11,579.98	89.94	88.85	8,001.14	76.59	3,827.50	3,828.27	0.00	0.00	0.00
11,609.98	89.94	88.85	8,001.17	77.19	3,857.50	3,858.27	0.00	0.00	0.00
11,639.98	89.94	88.85	8,001.21	77.79	3,887.49	3,888.27	0.00	0.00	0.00
11,669.98	89.94	88.85	8,001.24	78.39	3,917.49	3,918.27	0.00	0.00	0.00
11,699.98	89.94	88.85	8,001.27	78.99	3,947.48	3,948.27	0.00	0.00	0.00
11,729.98	89.94	88.85	8,001.30	79.59	3,977.47	3,978.27	0.00	0.00	0.00
11,759.98	89.94	88.85	8,001.33	80.20	4,007.47	4,008.27	0.00	0.00	0.00
11,789.98	89.94	88.85	8,001.37	80.80	4,037.46	4,038.27	0.00	0.00	0.00
11,819.98	89.94	88.85	8,001.40	81.40	4,067.46	4,068.27	0.00	0.00	0.00
11,849.98	89.94	88.85	8,001.43	82.00	4,097.45	4,098.27	0.00	0.00	0.00
11,879.98	89.94	88.85	8,001.46	82.60	4,127.44	4,128.27	0.00	0.00	0.00
11,909.98	89.94	88.85	8,001.50	83.20	4,157.44	4,158.27	0.00	0.00	0.00
11,939.98	89.94	88.85	8,001.53	83.80	4,187.43	4,188.27	0.00	0.00	0.00
11,969.98	89.94	88.85	8,001.56	84.40	4,217.43	4,218.27	0.00	0.00	0.00
11,999.98	89.94	88.85	8,001.59	85.00	4,247.42	4,248.27	0.00	0.00	0.00



Planning Report

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MD Reference: KB @ 3335.00usft (Nabors 474)
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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)
12,029.98	89.94	88.85	8,001.63	85.60	4,277.41	4,278.27	0.00	0.00	0.00
12,059.98	89.94	88.85	8,001.86	86.20	4,307.41	4,308.27	0.00	0.00	0.00
12,089.98	89.94	88.85	8,001.89	86.80	4,337.40	4,338.27	0.00	0.00	0.00
12,119.98	89.94	88.85	8,001.72	87.40	4,367.40	4,368.27	0.00	0.00	0.00
12,149.98	89.94	88.85	8,001.76	88.00	4,397.39	4,398.27	0.00	0.00	0.00
12,179.98	89.94	88.85	8,001.79	88.60	4,427.38	4,428.27	0.00	0.00	0.00
12,209.98	89.94	88.85	8,001.82	89.20	4,457.38	4,458.27	0.00	0.00	0.00
12,239.98	89.94	88.85	8,001.85	89.80	4,487.37	4,488.27	0.00	0.00	0.00
12,269.98	89.94	88.85	8,001.89	90.40	4,517.36	4,518.27	0.00	0.00	0.00
12,299.98	89.94	88.85	8,001.92	91.00	4,547.36	4,548.27	0.00	0.00	0.00
12,329.98	89.94	88.85	8,001.95	91.60	4,577.35	4,578.27	0.00	0.00	0.00
12,359.98	89.94	88.85	8,001.98	92.20	4,607.35	4,608.27	0.00	0.00	0.00
12,375.14	89.94	88.85	8,002.00	92.50	4,622.51	4,623.43	0.00	0.00	0.00

587710.41 N:: 626968.01 E - PBHL#1(O"34"#3H)

Wellbore Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL#1(O"34"#3H)	0.00	0.00	8,002.00	92.50	4,622.51	587,710.41	626,968.02	32° 36' 55.292 N	104° 3' 18.800 W
- plan hits target center									
- Point									

Formations

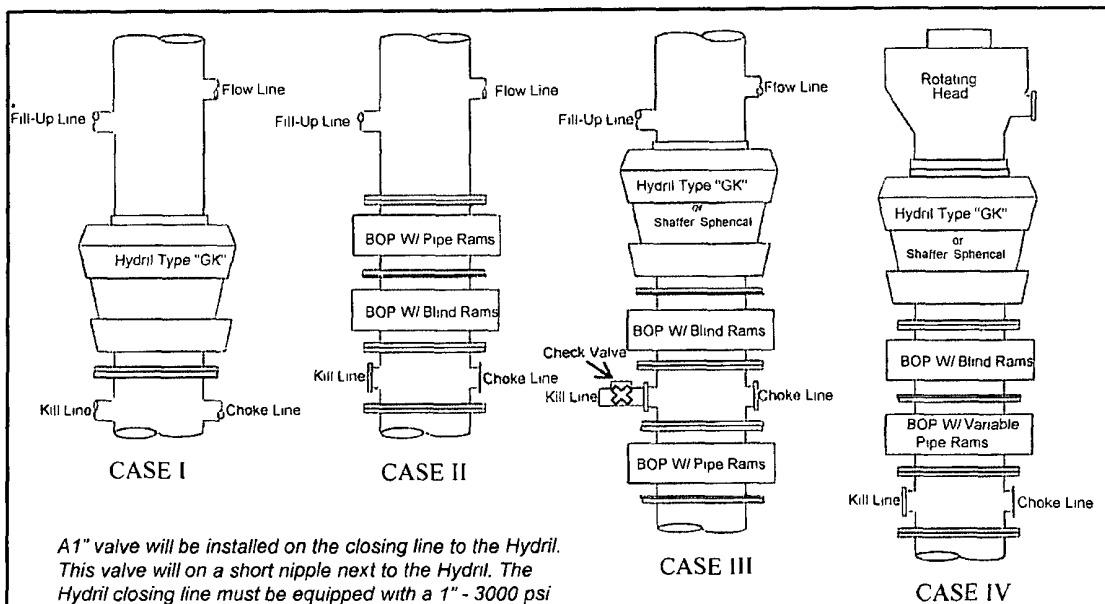
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
162.00	162.00	Rustler		-0.06	268.85
1,253.00	1,253.00	Yates		-0.06	268.85
2,282.00	2,282.00	Capitan		-0.06	268.85
2,411.00	2,411.00	Queen		-0.06	268.85
4,031.00	4,031.00	Brushy Canyon		-0.06	268.85
5,537.00	5,537.00	Bone Spring		-0.06	268.85
7,207.00	7,207.00	1st Bone Spring Sand		-0.06	268.85
7,830.16	7,797.14	2nd Bone Spring Sand		-0.06	268.85

Plan Annotations

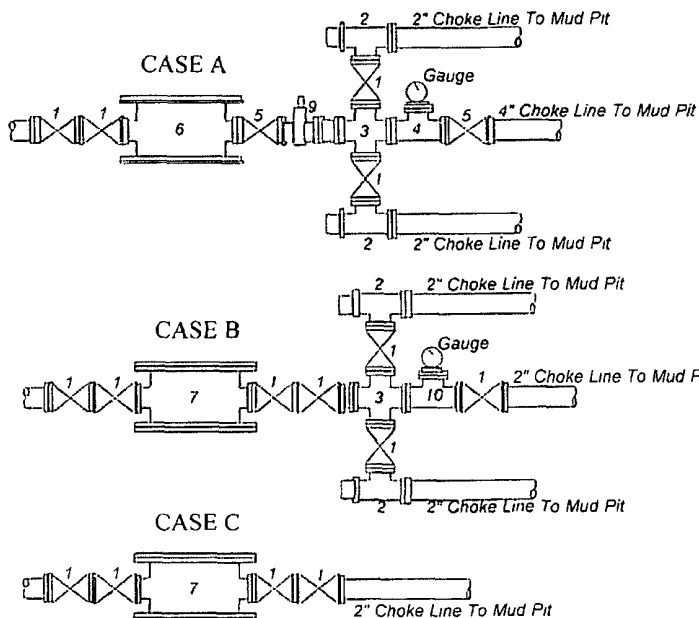
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,424.66	7,424.66	0.00	0 00	Build 10.00°/100' : TFO 88.85
8,324.04	7,997.62	11.45	572.22	EOC Hold 89.94° INC : 88.85° AZI
12,375.14	8,002.00	92.50	4,622.51	587710.41 N: 626968.01 E

SM Energy Company

MINIMUM BLOWOUT PREVENTER REQUIREMENTS



A1" valve will be installed on the closing line to the Hydri.
This valve will on a short nipple next to the Hydri. The
Hydri closing line must be equipped with a 1" - 3000 psi
WP plug valve on the nipple into the Hydri.



BOP SIZE	BOP CASE	WORKING PRESSURE	CHOKE CASE
13- 3/8"	II	2000 psi.	B
9-5/8"	III	3000 psi	B

***Rotating head required**

Legend

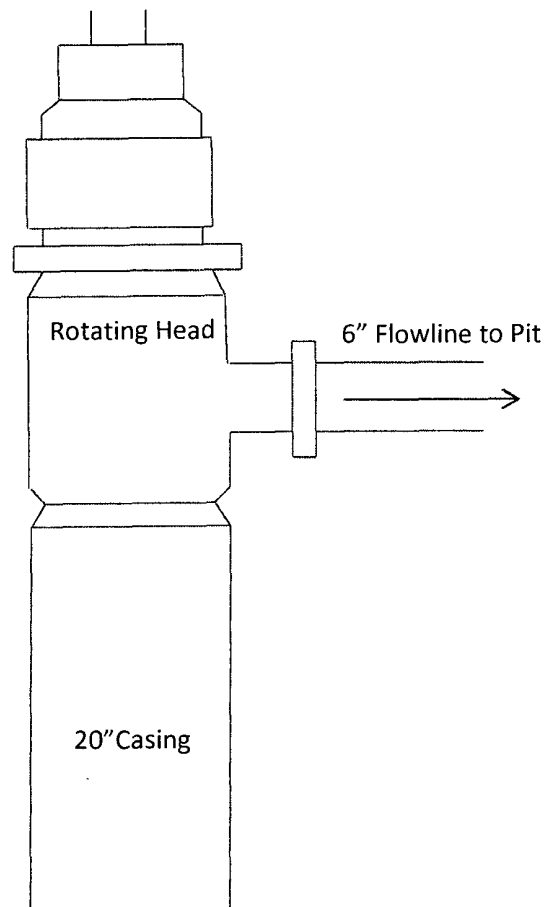
1. 2" flanged all steel valve must be either Cameron "F", Halliburton Low Torque or Shafter Flo-Seal
2. 2" flanged adjustable chokes, min. 1" full opening & equipped with hard trim
3. 4" x 2" flanged steel cross
4. 4" flanged steel tee
5. 4" flanged all steel valve (Type as in no. 1).
6. Drilling Spool with 2" x 4" flanged outlet
7. Drilling Spool with 2" x 2" flanged outlet
8. 2" x 2" flanged steel cross.
9. 4" pressure operated gate valve.
10. 2" flanged steel tee.

Notes

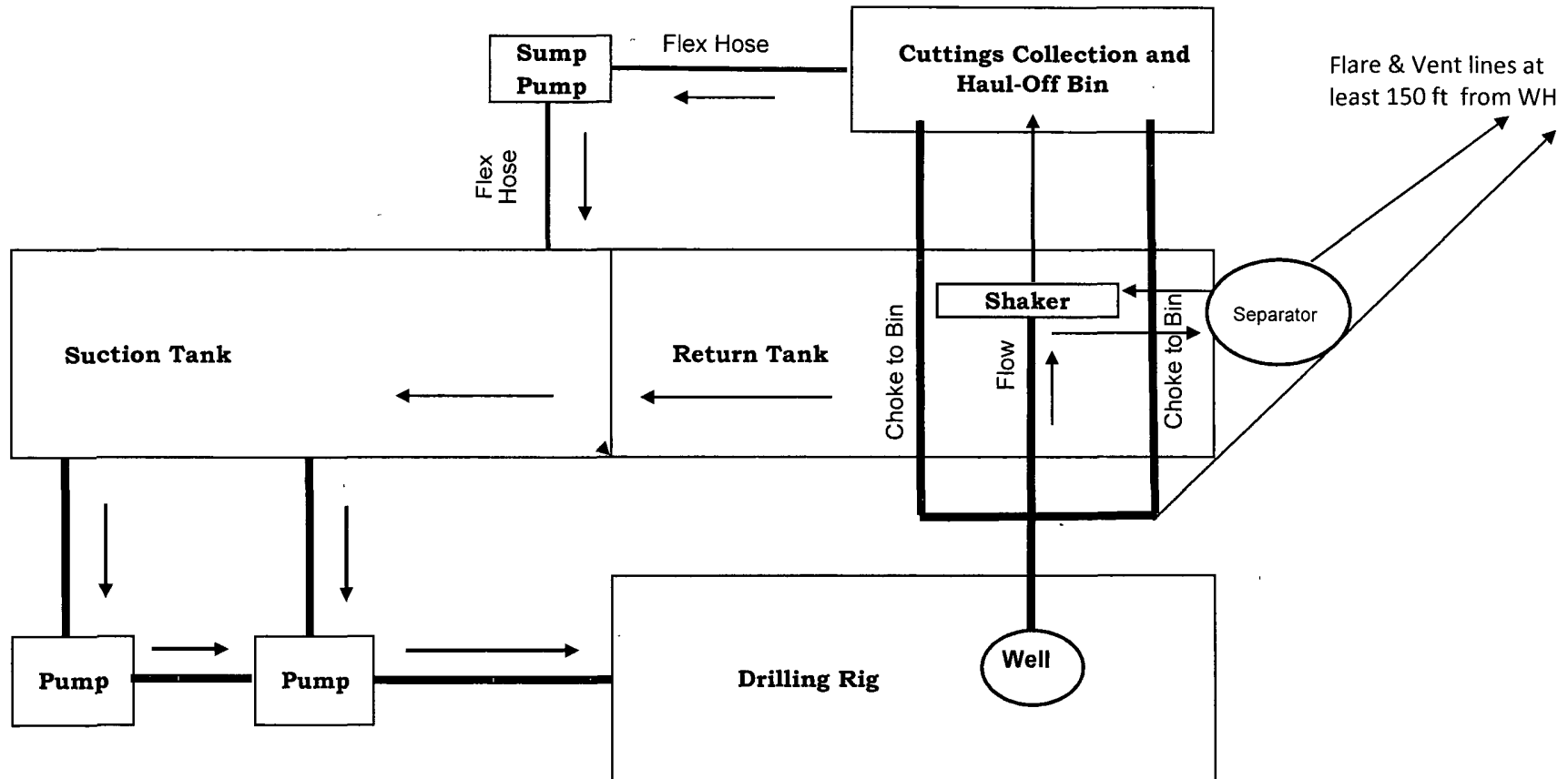
Choke manifold may be located in any convenient position. Use all steel fittings throughout. Make 90° turns with bull plugged tees only. No field welding will be permitted on any of the components of the choke manifold and related equipment upstream of the chokes. The choke spool and all lines and fittings must be at least equivalent to the test pressure of the preventers required. Independent closing control unit with clearly marked controls to be located on derrick floor near driller's position.

(10-31-96) WTXBOPS PPT

Diverter System



Choke Manifold Schematic for Closed Loop System for H2S Environment



SM Energy Company
3300 N. A Street, Suite 200
Midland, TX 79705
(432) 688-3125 (Office)
(432) 682-1701 (Fax)

Osage 34 Federal 3H
1880 FSL & 330 FWL (SHL)
1980 FSL & 330 FEL (BHL)
Sec. 34-T19S-R29E
Eddy, NM
Rule 118 H2S Exposure

SM Energy Company has evaluated this well and we do not expect to encounter hydrogen sulfide. However, we will employ a third party monitoring system. We will begin monitoring prior to the Yates Formation and will continue monitoring the remainder of the well.

Please contact me if you have any additional questions.

Sincerely,



Malcolm Kintzing
Engineer

Hydrogen Sulfide Drilling Operations Plan

1. Company and Contract personnel admitted on location should be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S.
 - B. Physical Effects and Hazards.
 - C. Proper Use of Safety Equipment and Life Support Systems.
 - D. Principle and Operation of H₂S Detectors, Warning System and Briefing.
 - E. Evacuation Procedure, Routes and First Aid.
 - F. Proper Use of 30 minute Pressure Demand Air Pack.
2. H₂S Detection and Alarm Systems
 - A. H₂S Detectors and Audio Alarm System to be Located at Bell Nipple, End of Bloopie 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 H₂S 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 H₂S has on tubular goods and other mechanical equipment.
9. If H₂S Encountered, Mud system will be Altered if Necessary to Maintain Control of Formation. A Mud Gas Separator will be Brought into Service Along with H₂S Scavengers if Necessary.

Emergency Contacts

Eddy County Sheriff's Office 911 or 575-887-7551

Carlsbad Fire Department 911 or 575-885-2111

Columbia Medical Center of Carlsbad 575 or 575-677-3266

SM Energy Company (Midland office)

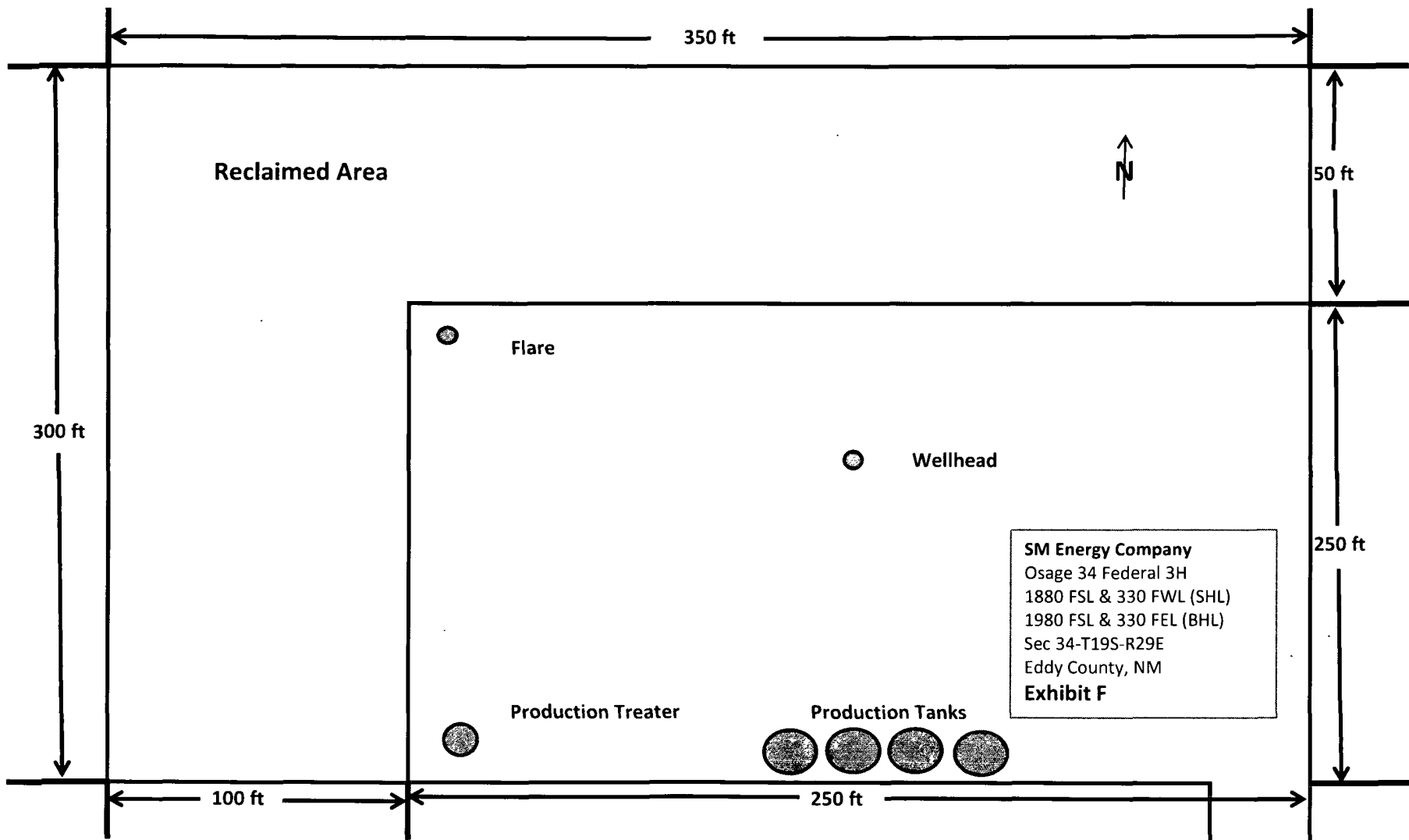
Phone 432-688-1700

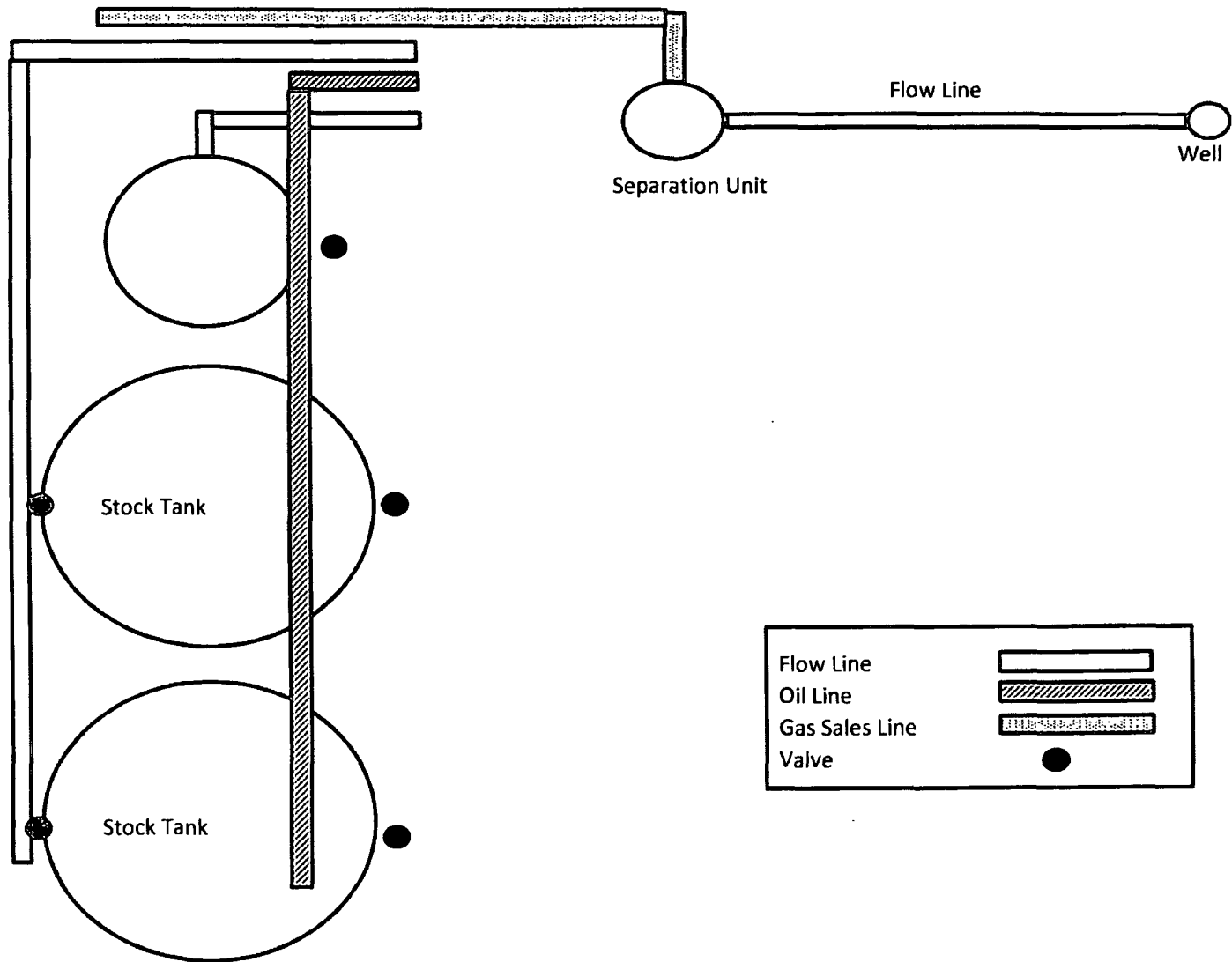
Fax 432-688-1701

Contract Pumper Jackie Herron 575-746-7601

Field Superintend Bill Hearne 432-230-6054

Operations Manager Mark Bondy 432-557-9049





PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	SM ENERGY COMPANY
LEASE NO.:	NM90807
WELL NAME & NO.:	3H OSAGE 34 FEDERAL
SURFACE HOLE FOOTAGE:	1880' FSL & 330' FWL
BOTTOM HOLE FOOTAGE:	1980' FSL & 330' FEL
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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Flowlines**
 - Cave/Karst
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - High Cave/Karst
 - H2S – Onshore Order 6 Requirements
 - Logging Requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**