

AS-11-140
EA-11-229

OCD-ARTESIA

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Split Estate

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.
SHL:NMNM120349;BHL:NMNM114347

6. If Indian, Allottee or Tribe Name
N/A

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

8. Lease Name and Well No.
FROSTY FEDERAL COM 2H

9. API Well No.
30-019-38531

10. Field and Pool, or Exploratory
Dog Canyon; Wolfcamp
11. Sec., T. R. M. or Blk. and Survey or Area
SEC. 26 T16S R27E

12. County or Parish
EDDY

13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

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

2. Name of Operator MURCHISON OIL & GAS, INC.

3a. Address 1100 MIRA VISTA BLVD.
PLANO, TX 75093-4698

3b. Phone No. (include area code)
972-931-0700

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

At surface 950 FNL & 250 FEL, UNIT A

At proposed prod. zone 990 FNL & 330 FWL, UNIT D

UNORTHODOX
LOCATION

14. Distance in miles and direction from nearest town or post office*
12 MILES NORTH/NORTHWEST OF LOCO HILLS, NM

Became Unorthodox
approx. 6075' MD

15. Distance from proposed*
location to nearest 250' AT SURFACE
property or lease line, ft. 553' AT TOP OF WOLFCAMP
(Also to nearest drig. unit line, if any)

16. No. of acres in lease
80

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location*
to nearest well, drilling, completed, 1337' NNE OF
API 30-015-37003
applied for, on this lease, ft.

19. Proposed Depth
10747' MD 6272' TVD
PILOT 6550' TVD

20. BLM/BIA Bond No. on file
NM2163

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3518' GL

22. Approximate date work will start*
01/10/2011

23. Estimated duration
30 - 35 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:

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 *A. Arnold Nall*
Title
VICE PRESIDENT OPERATIONS

Name (Printed/Typed)
A. ARNOLD NALL

Date
11/30/2010

Approved by (Signature) */s/ Don Peterson*
Title
FIELD MANAGER

Name (Printed/Typed)

Date
FEB 16 2011

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.

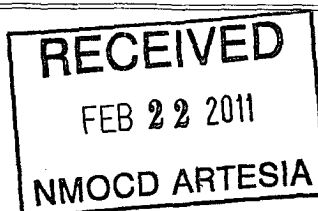
Conditions of approval, if any, are attached.

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)

Roswell Controlled Water Basin



*(Instructions on page 2)
Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM 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.
SHL: NMNM120349 BHL: NMNM114347
6. If Indian, Allottee or Tribe Name
N/A

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

MURCHISON OIL & GAS, INC.

3a. Address

1100 MIRA VISTA BLVD.
PLANO, TX 75093-4698

3b. Phone No. (include area code)

972-931-0700

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

8. Well Name and No.
FROSTY FEDERAL COM 2H

9. API Well No.

10. Field and Pool or Exploratory Area
EMPIRE; WOLFCAMP, NORTHWEST

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 950 FNL & 250 FEL, UNIT A, SEC. 26, T16S, R27E
BHL: 990 FNL & 330 FWL, UNIT D, SEC. 26, T16S, R27E

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 <u>BUILD LOCATION</u>
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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.)

Murchison Oil & Gas, Inc. respectfully requests permission to construct the pad and location prior to approval of the APD in order to facilitate rig activity.



SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Cindy Cottrell

Title Regulatory Coordinator

Signature

Date 12/22/2010

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

James A. Ames

FIELD MANAGER

DEC 27 2010

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.

ATTACHMENT TO FORM 3160-3
Murchison Oil & Gas, Inc.
Frosty Federal Com #2H
SHL: 950' FNL & 250' FEL, UNIT A
BHL: 990' FNL & 330' FWL, UNIT D
Sec 26, T16S, R27E
Eddy County, New Mexico

1. Proration Unit Spacing: 160 acres
2. Ground Elevation: 3,518' Est. RKB: 3,539.5'

3. ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS

	<u>DEPTH(RKB)</u>	<u>SUBSURFACE</u>
Queen	813'	+2726'
Premier	1567'	+1972'
San Andres	1599'	+1940'
Glorietta	3028'	+ 511'
Yeso	3147'	+ 392'
Tubb	4361'	- 822'
Abo	5053'	-1514'
Wolfcamp	6187'	-2648'

*Pilot Hole – True Vertical Depth 6550' -3010'

HORIZONTAL PROPOSED DEPTHS: TVD 6,272' and MD 10,747'

4. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL, OR GAS

Fresh Water	175' – 195'	Seven Rivers Carbonate
Fresh Water	350' – 375'	Bowers Sand (Seven Rivers)
Oil/Gas	1599'	San Andres
Oil/Gas	3028'	Glorietta
Oil/Gas	4361'	Tubb
Oil/Gas	5053'	Abo
Oil/Gas	6203'	Wolfcamp

5. CASING AND CEMENTING PROGRAM

Casing Size	Hole Size	From To	Weight	Grade	Joint	Conditions
9-5/8"	12-1/4"	0' - 1400'	36.0#	J-55	ST&C	New
7"	8-3/4"	0' - 5695'	26.0#	HCP-110	LT&C	New
4-1/2"	6-1/8"	5695' - 10747'	11.6#	HCP-110	BT&C	New

Casing Size	Burst Rating, psi	Safety Factor	Collapse Rating, psi	Safety Factor	Tension Rating, 1000 lbs.	Safety Factor
9-5/8"	3520	1.2	2020	3.4	394	7.8
7"	9950	3.1	7800	2.6	693	4.6
4-1/2"	10690	3.2	8650	2.6	367	30+

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability.

Attachment to Form 3160-3
Murchison Oil & Gas, Inc.
Frosty Federal Com #2H
Page 2 of 3

6. CASING DEPTH AND CEMENTING PROGRAM: *See COA*

9,625' Surface Casing - Cementing Program

Cement lead with 330 sacks of EconoCem HLC cement system + additives with yield = 1.87 cu.ft./sack, tail with 440 sacks Premium Plus + additives with yield = 1.35 cu.ft./sack; sufficient volume of cement will be pumped to ensure cement is circulated to surface.

7' Intermediate Casing and Fiberglass Tubing - Cementing Program

See COA
Cement lead with 920 sacks of EconoCem HLC cement system + additives with yield = 1.85 cu.ft./sack, tail with 770 sacks HalCem Class H cement + additives with yield = 1.00 cu.ft./sack; sufficient volume of cement will be pumped to ensure cement is circulated to surface. Will cement below 7' casing via 2-7/8" fiberglass tubing stinger to adequately plug back vertical pilot hole after logging and prior to drilling curve/horizontal section of well.

4.5' Production Casing - Cementing Program

Plan to utilize 4-1/2" 11.6# HCP-110 BTC Peak completion liner system from RSB packer @ 5,595' to TD of 10,747' MD. No cement required.

1,400-10,747' 11" 3000# ram type preventers with one set blind rams and one set pipe rams and a 3000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 5500'. See attached Sketch of BOP Equipment.

A Kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

After setting the 9 5/8" casing, the blowout preventers and related control equipment shall be pressure tested to 3000 psi and 1500 psi respectively. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log.

The BOP's will be maintained ready for use until drilling operations are completed. Pipe and blind rams shall be activated each trip. Annular preventer shall be functionally operated at least weekly.

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.

Accumulator shall maintain a pressure capacity reserve at all times to provide for the close-open-close sequence of the blind and pipe rams of the hydraulic preventers.

7. MUD PROGRAM

0-1,400' Fresh water / native mud. Wt. 8.4 to 8.6 ppg, vis 28-34 sec, Lime for pH control. Paper for seepage. Lost circulation may be encountered.

1,400-6,300' Cut brine. Wt. 8.4-8.8 ppg, vis 28-29 sec, No control water loss, lime for pH control.

6,300-10,747' Mud up with XCD Polymer mud system. Wt. 9.0-9.5 ppg, Vis 32-40 sec, WL 8-10 cc.

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or

Attachment to Form 3160-3
Murchison Oil & Gas, Inc.
Frosty Federal Com #2H
Page 3 of 3

unexpected kicks. In order to run open-hole logs and casing, the viscosity and water loss may have to be adjusted to meet these needs.

Mud system monitoring equipment with derrick floor indicators and visual / audio alarms shall be installed and operative prior to drilling into the Wolfcamp formation. This equipment will remain in use until the production casing is run and cemented. Monitoring equipment shall consist of the following:

- A recording pit level indicator.
- A pit volume totalizer.
- A flowline sensor.

9. TESTING, LOGGING AND CORING PROGRAM See COA

- A. Testing program: None planned.
 - B. Mud logging program. Two man unit from 1,400' to TD.
 - C. Electric logging program: CNL/LDT/CAL/GR, MSFL/HALS/GR.
 - D. Coring program: None planned.
10. No abnormal temperatures or pressures are anticipated. Low levels of H₂S have been monitored in producing wells in the area, so H₂S may be present while drilling the well. An H₂S Plan is attached to the Drilling Program. Anticipated Bottom Hole Pressure is 2700 PSI (maximum), and anticipated static Bottom Hole Temperature is 125 degrees Fahrenheit.
11. Anticipated starting date is January 15, 2011. It should take approximately 30 days to drill the well and another 10-15 days to complete.
12. A statement accepting responsibility for operations is attached.
13. The Multi-Point Surface Use & Operation Plan is attached.
14. If the Bureau of Land Management needs additional information to evaluate this application, please advise.

Murchison Oil & Gas

Eddy County (NAD27)

Frosty Federal Com

#2H

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

08 November, 2010

PATHFINDER®

A Schlumberger Company

Pathfinder

Pathfinder X & Y Planning Report



Company: Murchison Oil & Gas
 Project: Eddy County (NAD27)
 Site: Frosty Federal Com
 Well: #2H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well #2H
 WELL @ 3539.50ft (21.5' KB Correction)
 WELL @ 3539.50ft (21.5' KB Correction)
 Grid
 Minimum Curvature
 Midland Database

Project	Eddy County (NAD27)	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Frosty Federal Com		
Site Position:			
From:	Map	690,409.800 ft	Latitude: 32° 53' 52.735 N
Position Uncertainty:	0.00 ft	528,263.300 ft	Longitude: 104° 14' 28.504 W
			Grid Convergence: 0.05 °

Well	#2H		
Well Position	+N/-S	690,409.800 ft	Latitude: 32° 53' 52.735 N
	+E/-W	528,263.300 ft	Longitude: 104° 14' 28.504 W
Position Uncertainty	0.00 ft	ft	Ground Level: 3,518.00 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Dip Angle
	IGRF2010	11/08/10	60.71
			Field Strength (nT) 49,005

Design	Plan #1		
Audit Notes:			
Version:	Phase:	Tie On Depth:	
	PLAN	+E/-W (ft)	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	Direction (°)
	0.00	0.00	271.04

Survey Tool Program	Date	11/08/10	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
0.00	10,747.35	Plan #1 (OH)	MWD
			Description
			MWD - Standard

Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: Murchison Oil & Gas
Project: Eddy County (NAD27)
Site: Frosty Federal Com
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #2H
WELL @ 3539.50ft (21.5' KB Correction)
WELL @ 3539.50ft (21.5' KB Correction)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,539.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
100.00	0.00	0.00	100.00	-3,439.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
200.00	0.00	0.00	200.00	-3,339.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
300.00	0.00	0.00	300.00	-3,239.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
400.00	0.00	0.00	400.00	-3,139.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
500.00	0.00	0.00	500.00	-3,039.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
600.00	0.00	0.00	600.00	-2,939.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
700.00	0.00	0.00	700.00	-2,839.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
800.00	0.00	0.00	800.00	-2,739.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
900.00	0.00	0.00	900.00	-2,639.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,000.00	0.00	0.00	1,000.00	-2,539.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,100.00	0.00	0.00	1,100.00	-2,439.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,200.00	0.00	0.00	1,200.00	-2,339.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,300.00	0.00	0.00	1,300.00	-2,239.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,400.00	0.00	0.00	1,400.00	-2,139.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,500.00	0.00	0.00	1,500.00	-2,039.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,600.00	0.00	0.00	1,600.00	-1,939.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,700.00	0.00	0.00	1,700.00	-1,839.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,800.00	0.00	0.00	1,800.00	-1,739.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
1,900.00	0.00	0.00	1,900.00	-1,639.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,000.00	0.00	0.00	2,000.00	-1,539.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,100.00	0.00	0.00	2,100.00	-1,439.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,200.00	0.00	0.00	2,200.00	-1,339.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,300.00	0.00	0.00	2,300.00	-1,239.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,400.00	0.00	0.00	2,400.00	-1,139.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,500.00	0.00	0.00	2,500.00	-1,039.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,600.00	0.00	0.00	2,600.00	-939.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30

Pathfinder

Pathfinder X & Y Planning Report



Company: Murchison Oil & Gas
Project: Eddy County (NAD27)
Site: Frosty Federal Com
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference: WELL @ 3539.50ft (21.5' KB Correction)
MD Reference: WELL @ 3539.50ft (21.5' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Well #2H

WELL @ 3539.50ft (21.5' KB Correction)

WELL @ 3539.50ft (21.5' KB Correction)

Grid

Minimum Curvature

Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	2,700.00	-839.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,800.00	0.00	0.00	2,800.00	-739.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
2,900.00	0.00	0.00	2,900.00	-639.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,000.00	0.00	0.00	3,000.00	-539.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,100.00	0.00	0.00	3,100.00	-439.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,200.00	0.00	0.00	3,200.00	-339.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,300.00	0.00	0.00	3,300.00	-239.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,400.00	0.00	0.00	3,400.00	-139.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,500.00	0.00	0.00	3,500.00	-39.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,600.00	0.00	0.00	3,600.00	60.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,700.00	0.00	0.00	3,700.00	160.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,800.00	0.00	0.00	3,800.00	260.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
3,900.00	0.00	0.00	3,900.00	360.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,000.00	0.00	0.00	4,000.00	460.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,100.00	0.00	0.00	4,100.00	560.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,200.00	0.00	0.00	4,200.00	660.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,300.00	0.00	0.00	4,300.00	760.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,400.00	0.00	0.00	4,400.00	860.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,500.00	0.00	0.00	4,500.00	960.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,600.00	0.00	0.00	4,600.00	1,060.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,700.00	0.00	0.00	4,700.00	1,160.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,800.00	0.00	0.00	4,800.00	1,260.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
4,900.00	0.00	0.00	4,900.00	1,360.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,000.00	0.00	0.00	5,000.00	1,460.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,100.00	0.00	0.00	5,100.00	1,560.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,200.00	0.00	0.00	5,200.00	1,660.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,300.00	0.00	0.00	5,300.00	1,760.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30

Pathfinder

Pathfinder X & Y Planning Report



Company: Murchison Oil & Gas
 Project: Eddy County (NAD27)
 Site: Frosty Federal Com
 Well: #2H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well #2H
 WELL @ 3539.50ft (21.5' KB Correction)
 WELL @ 3539.50ft (21.5' KB Correction)
 Grid
 Minimum Curvature
 Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,860.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,500.00	0.00	0.00	5,500.00	1,960.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,600.00	0.00	0.00	5,600.00	2,060.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,700.00	0.00	0.00	5,700.00	2,160.50	0.00	0.00	0.00	0.00	690,409.80	528,263.30
5,794.50	0.00	0.00	5,794.50	2,255.00	0.00	0.00	0.00	0.00	690,409.80	528,263.30
KOP-5794.50°MD,0.00°INC,0.00°AZI,5794.50°TVD										
5,800.00	0.66	271.04	5,800.00	2,260.50	0.00	-0.03	0.03	12.00	690,409.80	528,263.27
5,825.00	3.66	271.04	5,824.98	2,285.48	0.02	-0.97	0.97	12.00	690,409.82	528,262.33
5,850.00	6.66	271.04	5,849.88	2,310.38	0.06	-3.22	3.22	12.00	690,409.86	528,260.08
5,875.00	9.66	271.04	5,874.62	2,335.12	0.12	-6.77	6.77	12.00	690,409.92	528,256.53
5,900.00	12.65	271.04	5,899.14	2,359.64	0.21	-11.60	11.60	12.00	690,410.01	528,251.70
5,925.00	15.65	271.04	5,923.38	2,383.88	0.32	-17.71	17.72	12.00	690,410.12	528,245.59
5,950.00	18.65	271.04	5,947.27	2,407.77	0.46	-25.08	25.09	12.00	690,410.26	528,238.22
5,975.00	21.65	271.04	5,970.73	2,431.23	0.61	-33.69	33.70	12.00	690,410.41	528,229.61
6,000.00	24.65	271.04	5,993.72	2,454.22	0.79	-43.52	43.53	12.00	690,410.59	528,219.78
6,025.00	27.65	271.04	6,016.16	2,476.66	0.99	-54.53	54.54	12.00	690,410.79	528,208.77
6,050.00	30.65	271.04	6,037.99	2,498.49	1.21	-66.71	66.72	12.00	690,411.01	528,196.59
6,075.00	33.65	271.04	6,059.15	2,519.65	1.45	-80.01	80.02	12.00	690,411.25	528,183.29
6,100.00	36.64	271.04	6,079.59	2,540.09	1.71	-94.39	94.41	12.00	690,411.51	528,168.91
6,125.00	39.64	271.04	6,099.25	2,559.75	1.99	-109.83	109.85	12.00	690,411.79	528,153.47
6,150.00	42.64	271.04	6,118.08	2,578.58	2.29	-126.27	126.30	12.00	690,412.09	528,137.03
6,175.00	45.64	271.04	6,136.02	2,596.52	2.61	-143.68	143.70	12.00	690,412.41	528,119.62
6,200.00	48.64	271.04	6,153.02	2,613.52	2.94	-162.00	162.03	12.00	690,412.74	528,101.30
6,225.00	51.64	271.04	6,169.04	2,629.54	3.29	-181.19	181.22	12.00	690,413.09	528,082.11
6,250.00	54.64	271.04	6,184.04	2,644.54	3.65	-201.18	201.22	12.00	690,413.45	528,062.12
6,275.00	57.64	271.04	6,197.97	2,658.47	4.03	-221.94	221.97	12.00	690,413.83	528,041.36
6,300.00	60.63	271.04	6,210.79	2,671.29	4.42	-243.39	243.43	12.00	690,414.22	528,019.91

Pathfinder

Pathfinder X & Y Planning Report



Company: Murchison Oil & Gas
 Project: Eddy County (NAD27)
 Site: Frosty Federal Com
 Well: #2H
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Local Co-ordinate Reference:
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Well #2H
 WELL @ 3539.50ft (21.5' KB Correction)
 WELL @ 3539.50ft (21.5' KB Correction)
 Grid
 Minimum Curvature
 Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,325.00	63.63	271.04	6,222.47	2,682.97	4.82	-265.48	265.53	12.00	690,414.62	527,997.82
6,350.00	66.63	271.04	6,232.98	2,693.48	5.23	-288.16	288.21	12.00	690,415.03	527,975.14
6,365.77	68.52	271.04	6,239.00	2,699.50	5.50	-302.73	302.78	12.00	690,415.30	527,960.57
Top of Wolfcamp -6365.77°MD, 68.52°INC, 271.04°AZI, 6239.00°TVD, 12.00°DLS, 302.78°VS, 5.50°N, -302.73°E										
6,375.00	69.63	271.04	6,242.30	2,702.80	5.65	-311.35	311.41	12.00	690,415.45	527,951.95
6,400.00	72.63	271.04	6,250.38	2,710.88	6.08	-335.00	335.06	12.00	690,415.88	527,928.30
6,425.00	75.63	271.04	6,257.22	2,717.72	6.52	-359.04	359.10	12.00	690,416.32	527,904.26
6,450.00	78.63	271.04	6,262.78	2,723.28	6.96	-383.41	383.47	12.00	690,416.76	527,879.89
6,475.00	81.63	271.04	6,267.07	2,727.57	7.41	-408.03	408.10	12.00	690,417.21	527,855.27
6,500.00	84.62	271.04	6,270.06	2,730.56	7.86	-432.85	432.92	12.00	690,417.66	527,830.45
6,525.00	87.62	271.04	6,271.75	2,732.25	8.31	-457.78	457.86	12.00	690,418.11	527,805.52
6,550.00	90.62	271.04	6,272.14	2,732.64	8.76	-482.77	482.85	12.00	690,418.56	527,780.53
6,557.32	91.50	271.04	6,272.00	2,732.50	8.90	-490.09	490.17	12.00	690,418.70	527,773.21
EOC-6557.32°MD, 91.50°INC, 271.04°AZI, 6272.00°TVD, 12.00°DLS, 490.17°VS, 8.90°N, -490.09°E										
6,600.00	91.50	271.04	6,270.88	2,731.38	9.67	-532.75	532.84	0.00	690,419.47	527,730.55
6,700.00	91.50	271.04	6,268.27	2,728.77	11.49	-632.70	632.80	0.00	690,421.29	527,630.60
6,800.00	91.50	271.04	6,265.65	2,726.15	13.30	-732.65	732.77	0.00	690,423.10	527,530.65
6,900.00	91.50	271.04	6,263.03	2,723.53	15.11	-832.60	832.73	0.00	690,424.91	527,430.70
7,000.00	91.50	271.04	6,260.41	2,720.91	16.93	-932.54	932.70	0.00	690,426.73	527,330.76
7,100.00	91.50	271.04	6,257.79	2,718.29	18.74	-1,032.49	1,032.66	0.00	690,428.54	527,230.81
7,200.00	91.50	271.04	6,255.18	2,715.68	20.56	-1,132.44	1,132.63	0.00	690,430.36	527,130.86
7,300.00	91.50	271.04	6,252.56	2,713.06	22.37	-1,232.39	1,232.60	0.00	690,432.17	527,030.91
7,400.00	91.50	271.04	6,249.94	2,710.44	24.19	-1,332.34	1,332.56	0.00	690,433.99	526,930.96
7,500.00	91.50	271.04	6,247.32	2,707.82	26.00	-1,432.29	1,432.53	0.00	690,435.80	526,831.01
7,600.00	91.50	271.04	6,244.71	2,705.21	27.82	-1,532.24	1,532.49	0.00	690,437.62	526,731.06
7,700.00	91.50	271.04	6,242.09	2,702.59	29.63	-1,632.19	1,632.46	0.00	690,439.43	526,631.11
7,800.00	91.50	271.04	6,239.47	2,699.97	31.44	-1,732.14	1,732.42	0.00	690,441.24	526,531.16



A Schlumberger Company

Pathfinder

Pathfinder X & Y Planning Report

Company: Murchison Oil & Gas
Project: Eddy County (NAD27)
Site: Frosty Federal Com
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #2H
WELL @ 3539.50ft (21.5' KB Correction)
WELL @ 3539.50ft (21.5' KB Correction)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,900.00	91.50	271.04	6,236.85	2,697.35	33.26	-1,832.09	1,832.39	0.00	690,443.06	526,431.21
8,000.00	91.50	271.04	6,234.23	2,694.73	35.07	-1,932.04	1,932.36	0.00	690,444.87	526,331.26
8,100.00	91.50	271.04	6,231.62	2,692.12	36.89	-2,031.99	2,032.32	0.00	690,446.69	526,231.31
8,200.00	91.50	271.04	6,229.00	2,689.50	38.70	-2,131.94	2,132.29	0.00	690,448.50	526,131.36
8,300.00	91.50	271.04	6,226.38	2,686.88	40.52	-2,231.88	2,232.25	0.00	690,450.32	526,031.42
8,400.00	91.50	271.04	6,223.76	2,684.26	42.33	-2,331.83	2,332.22	0.00	690,452.13	525,931.47
8,500.00	91.50	271.04	6,221.15	2,681.65	44.15	-2,431.78	2,432.18	0.00	690,453.95	525,831.52
8,600.00	91.50	271.04	6,218.53	2,679.03	45.96	-2,531.73	2,532.15	0.00	690,455.76	525,731.57
8,700.00	91.50	271.04	6,215.91	2,676.41	47.77	-2,631.68	2,632.12	0.00	690,457.57	525,631.62
8,800.00	91.50	271.04	6,213.29	2,673.79	49.59	-2,731.63	2,732.08	0.00	690,459.39	525,531.67
8,900.00	91.50	271.04	6,210.68	2,671.18	51.40	-2,831.58	2,832.05	0.00	690,461.20	525,431.72
9,000.00	91.50	271.04	6,208.06	2,668.56	53.22	-2,931.53	2,932.01	0.00	690,463.02	525,331.77
9,100.00	91.50	271.04	6,205.44	2,665.94	55.03	-3,031.48	3,031.98	0.00	690,464.83	525,231.82
9,200.00	91.50	271.04	6,202.82	2,663.32	56.85	-3,131.43	3,131.94	0.00	690,466.65	525,131.87
9,300.00	91.50	271.04	6,200.20	2,660.70	58.66	-3,231.38	3,231.91	0.00	690,468.46	525,031.92
9,400.00	91.50	271.04	6,197.59	2,658.09	60.47	-3,331.33	3,331.88	0.00	690,470.27	524,931.97
9,500.00	91.50	271.04	6,194.97	2,655.47	62.29	-3,431.28	3,431.84	0.00	690,472.09	524,832.02
9,600.00	91.50	271.04	6,192.35	2,652.85	64.10	-3,531.23	3,531.81	0.00	690,473.90	524,732.07
9,700.00	91.50	271.04	6,189.73	2,650.23	65.92	-3,631.17	3,631.77	0.00	690,475.72	524,632.13
9,800.00	91.50	271.04	6,187.12	2,647.62	67.73	-3,731.12	3,731.74	0.00	690,477.53	524,532.18
9,900.00	91.50	271.04	6,184.50	2,645.00	69.55	-3,831.07	3,831.70	0.00	690,479.35	524,432.23
10,000.00	91.50	271.04	6,181.88	2,642.38	71.36	-3,931.02	3,931.67	0.00	690,481.16	524,332.28
10,100.00	91.50	271.04	6,179.26	2,639.76	73.18	-4,030.97	4,031.64	0.00	690,482.98	524,232.33
10,200.00	91.50	271.04	6,176.65	2,637.15	74.99	-4,130.92	4,131.60	0.00	690,484.79	524,132.38
10,300.00	91.50	271.04	6,174.03	2,634.53	76.80	-4,230.87	4,231.57	0.00	690,486.60	524,032.43
10,400.00	91.50	271.04	6,171.41	2,631.91	78.62	-4,330.82	4,331.53	0.00	690,488.42	523,932.48
10,500.00	91.50	271.04	6,168.79	2,629.29	80.43	-4,430.77	4,431.50	0.00	690,490.23	523,832.53

Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: Murchison Oil & Gas
Project: Eddy County (NAD27)
Site: Frosty Federal Com
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: WELL @ 3539.50ft (21.5' KB Correction)
MD Reference: WELL @ 3539.50ft (21.5' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,600.00	91.50	271.04	6,166.17	2,626.67	82.25	-4,530.72	4,531.46	0.00	690,492.05	523,732.58
10,700.00	91.50	271.04	6,163.56	2,624.06	84.06	-4,630.67	4,631.43	0.00	690,493.86	523,632.63
10,747.35	91.50	271.04	6,162.32	2,622.82	84.92	-4,677.99	4,678.76	0.00	690,494.72	523,585.31

TD at 10747.35 - PBHL(FF#2H)

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL(FF#2H)	0.00	0.00	6,162.29	84.50	-4,678.00	690,494.300	523,585.300	32° 53' 53.609 N	104° 15' 23.371 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/S (ft)	+E/W (ft)	Comment
5,794.50	5,794.50	0.00	0.00	KOP-5794.50' MD, 0.00° INC, 0.00° AZI, 5794.50' TVD
6,365.77	6,239.00	5.50	-302.73	Top of Wolfcamp - 6365.77' MD, 68.52° INC, 271.04° AZI, 6239.00' TVD, 12.
6,557.32	6,272.00	8.90	-490.09	EOC-6557.32' MD, 91.50° INC, 271.04° AZI, 6272.00' TVD, 12.00° DLS, 490
10,747.35	6,162.32	84.92	-4,677.99	TD at 10747.35

Checked By: _____

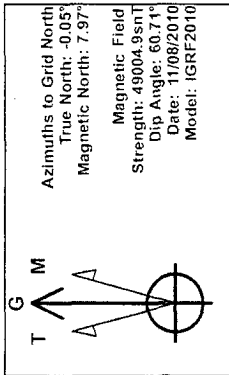
Approved By: _____

Date: _____

Murchison Oil & Gas



Project: Eddy County (NAD27)
Site: Frosty Federal Com
Well: #2H
Wellbore: OH
Plan: Plan #1 (#2H/OH)



WELL DETAILS: #2H

Ground Elevation:	3518.00
RKE Elevation: WELL @ 3533.50ft (21.5 MB Correction)	
Rig Name:	215 MS Correction
Easting	528263.300
Northing	37 55 52.725 N
Latitude	104° 14' 28.504 W
Longitude	Site

SECTION DETAILS

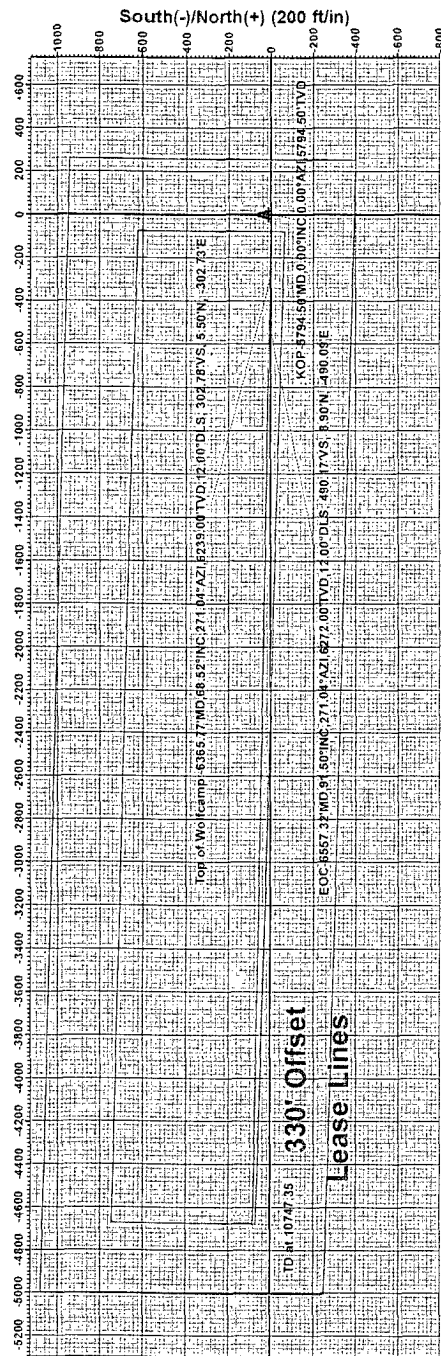
Seq	MD	Inc	Azi	TVD	WGS84	OLAS	TFAS	VSSC	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5794.50	0.00	0.00	5794.50	0.00	0.00	0.00	0.00	0.00
3	6557.33	91.50	271.04	6272.00	8.90	-490.08	12.00	271.04	490.17
4	10747.35	91.50	271.04	6162.32	9.32	-487.98	0.00	0.00	4878.16

PBHL(F#2H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL(F#2H)	6162.29	84.50	-4678.00	690494.300	523565.300	Point

West(-)/East(+) (200 ft/in)



PROJECT DETAILS: Eddy County (NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

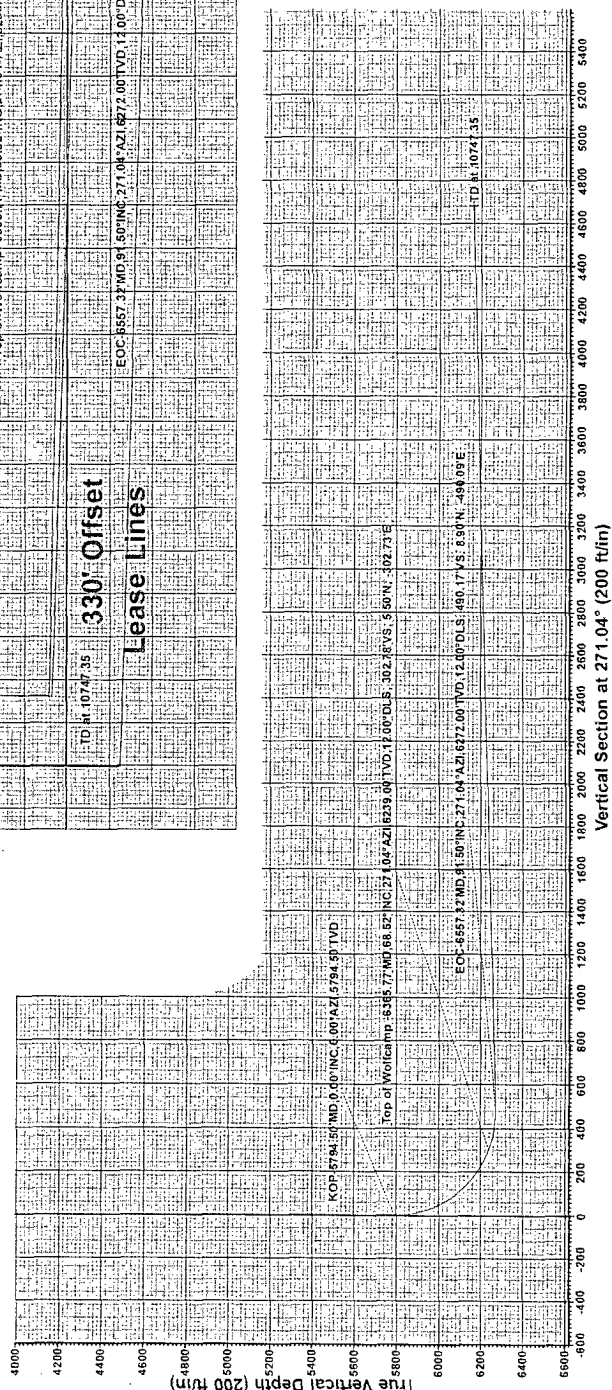


EXHIBIT F

BOP STACK

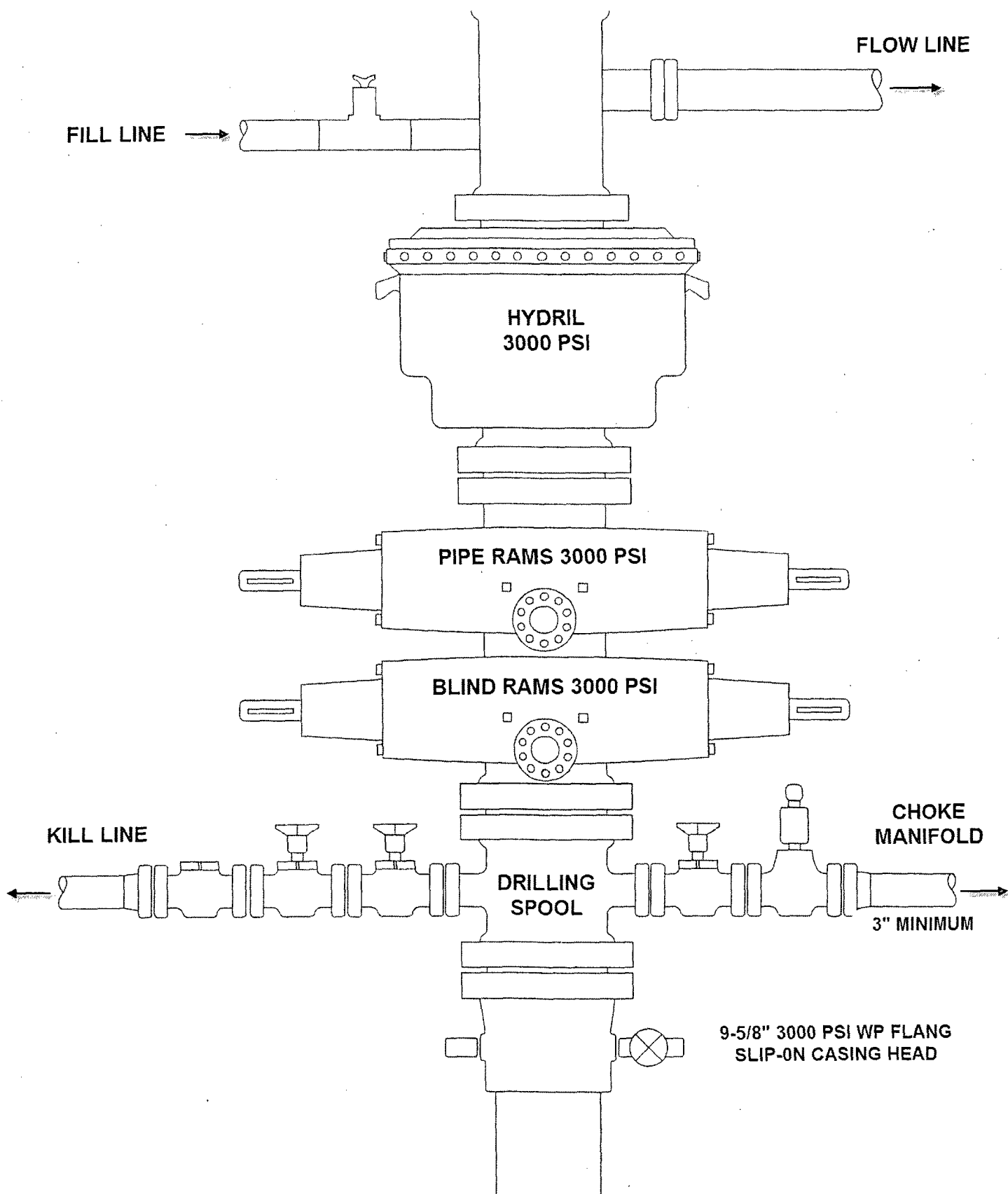
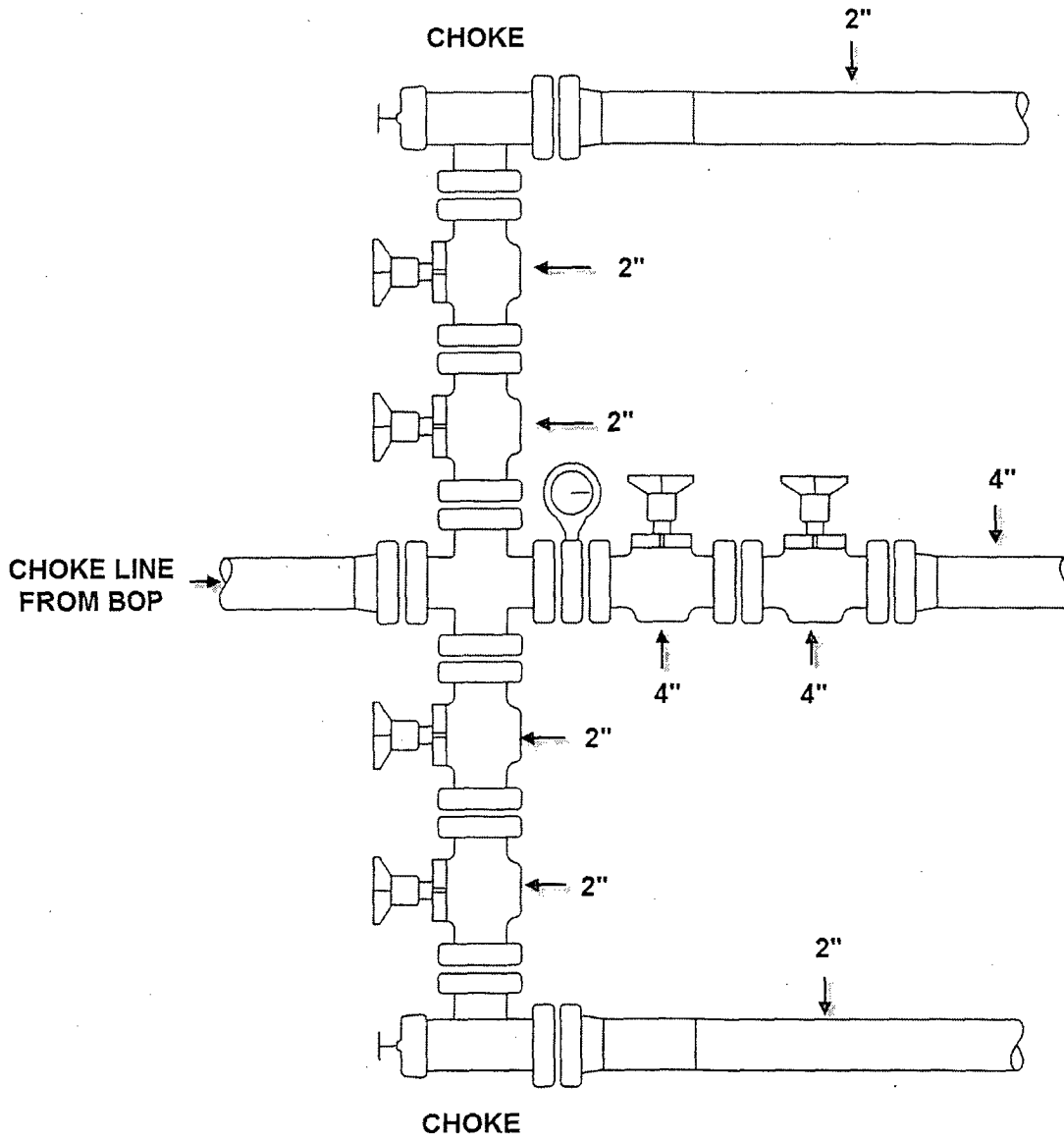


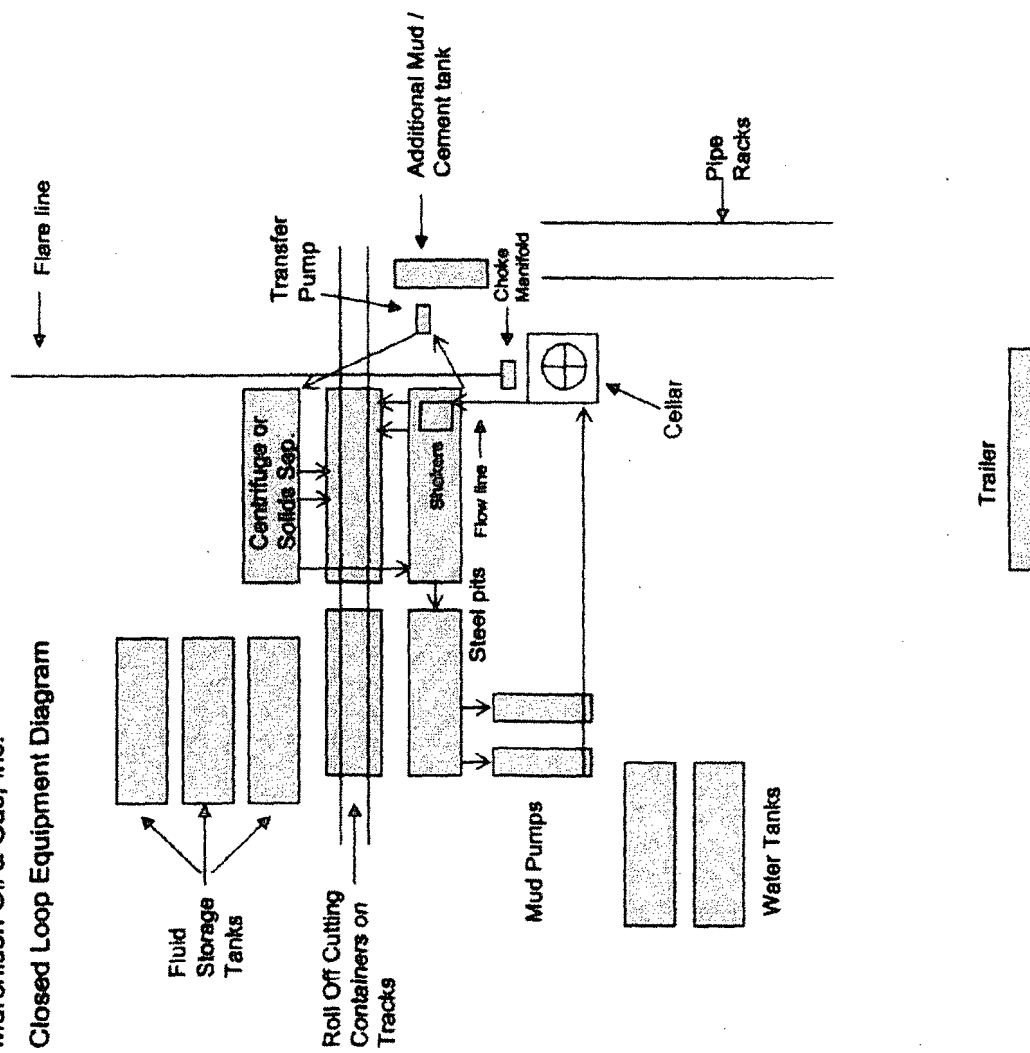
EXHIBIT G

CHOKE MANIFOLD

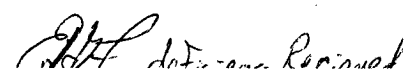


Murchison Oil & Gas, Inc.

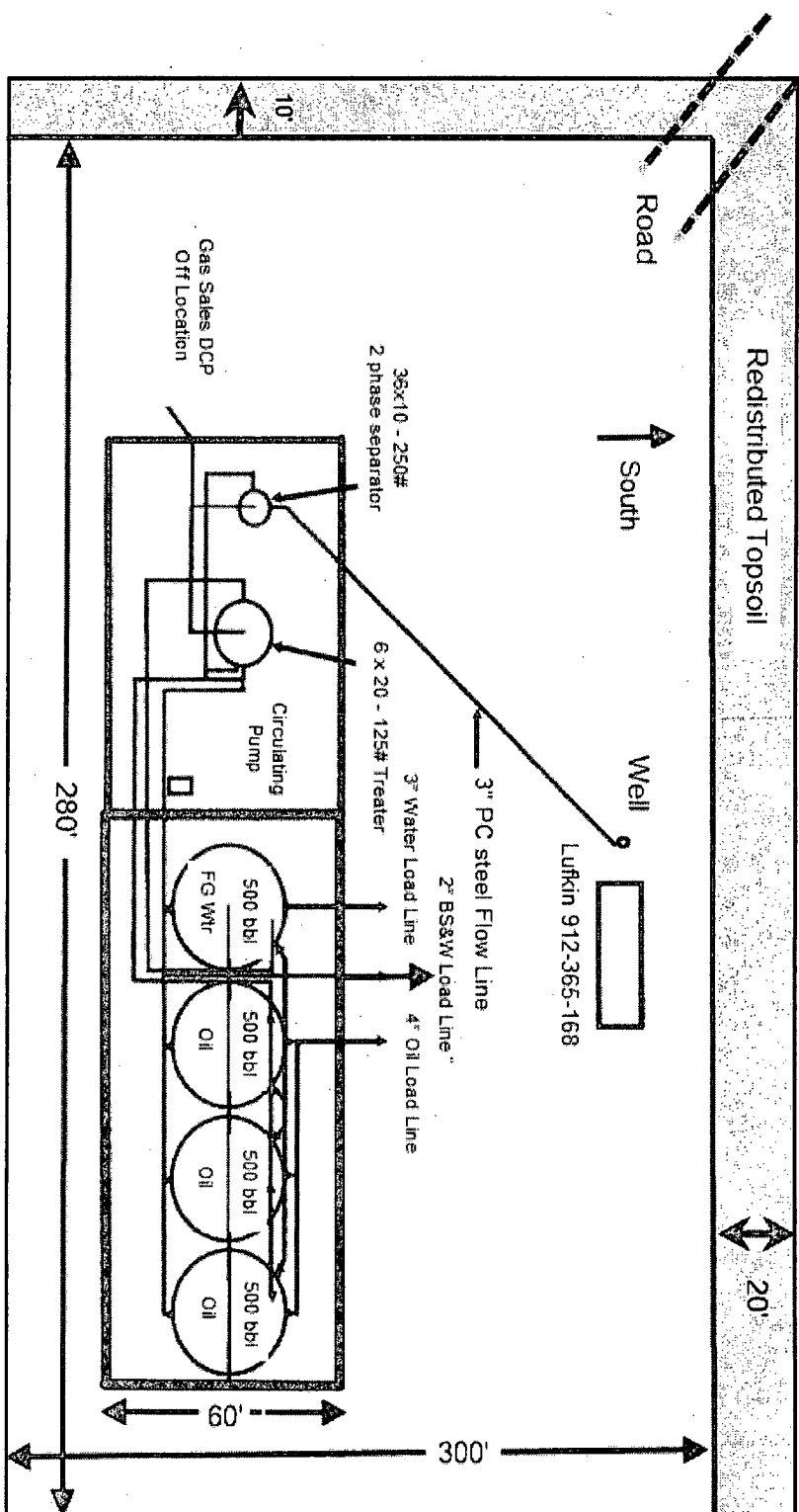
Closed Loop Equipment Diagram



↑ S



Murchison Oil & Gas, Inc.
 Frosty Fed Com #2H
 Sec. 26, T16S, R27E
 SHL: 950' FNL & 250' FEL, Unit A
 Eddy County, NM



Containment Area Volume around tanks 40' x 100' x 2.89 = 2,064 bbls

Tank Pad - caliche pad & padded w/top soil & lined w/20 mill liner, liner padded w/top soil & 3/8" crushed rock

Retaining Wall - caliche & padded w/top soil covered w/20 mill liner

Leak detection float w/alarm inside retaining wall, level control alarms on all tanks

Earth retaining wall around separator & treater