New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

Form 3160-3
(August 2007)

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.
SL NMLC 105885 BHL State of NM

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.
Polaris Federal #1 (36893)

2. Name of Operator COG Operating, LLC (229137)

9. API Well No.
30-005-27999

3a. Address 550 West Texas, Suite 1300
Midland, TX 79701

3b Phone No. *(include area code)*
(432)- 685-9158

10. Field and Pool, or Exploratory
Wildcat
~~Undesignated~~ Wolfcamp

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface 1980' FNL & 330' FWL, Unit E
At proposed prod. zone 1980' FNL & 330' FEL, Unit H

11. Sec., T. R. M. or Blk. and Survey or Area
Section 15, T15S, R31E

14 Distance in miles and direction from nearest town or post office*
Approx 15 miles North of Maljamar, New Mexico

12 County or Parish
Chaves Co.

13. State
NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17 Spacing Unit dedicated to this well
330	800	160

18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth	20 BLM/BIA Bond No. on file
N/A	13300' MD 8680' TVD	NMB 000215

21 Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
4405' GL	04/15/2008	45 Days

DEC 2007
Received
Hobbs
OCD

24. Attachments ROSWELL CONTROLLED WATER BASIN

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	Name *(Printed/Typed)*	Date
Title: Agent for COG Operating LLC	Dwaine Moore	09/12/2007

Approved by *(Signature)* /S/ Angel Mayes	Name *(Printed/Typed)* /S/ Angel Mayes	Date DEC 12 2007
Title ~~Assistant Field Manager,~~ Lands And Minerals	Office ROSWELL FIELD OFFICE	APPROVED FOR 2 YEARS

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.

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)

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

EXHIBIT "A"

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

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

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-005-27999	—	~~Wildcat~~ ~~Undesignated~~ Wolfcamp

Property Code	Property Name	Well Number
36893	POLARIS FEDERAL	1

OGRID No.	Operator Name	Elevation
229137	C.O.G. OPERATING L.L.C.	4405'

Surface Location

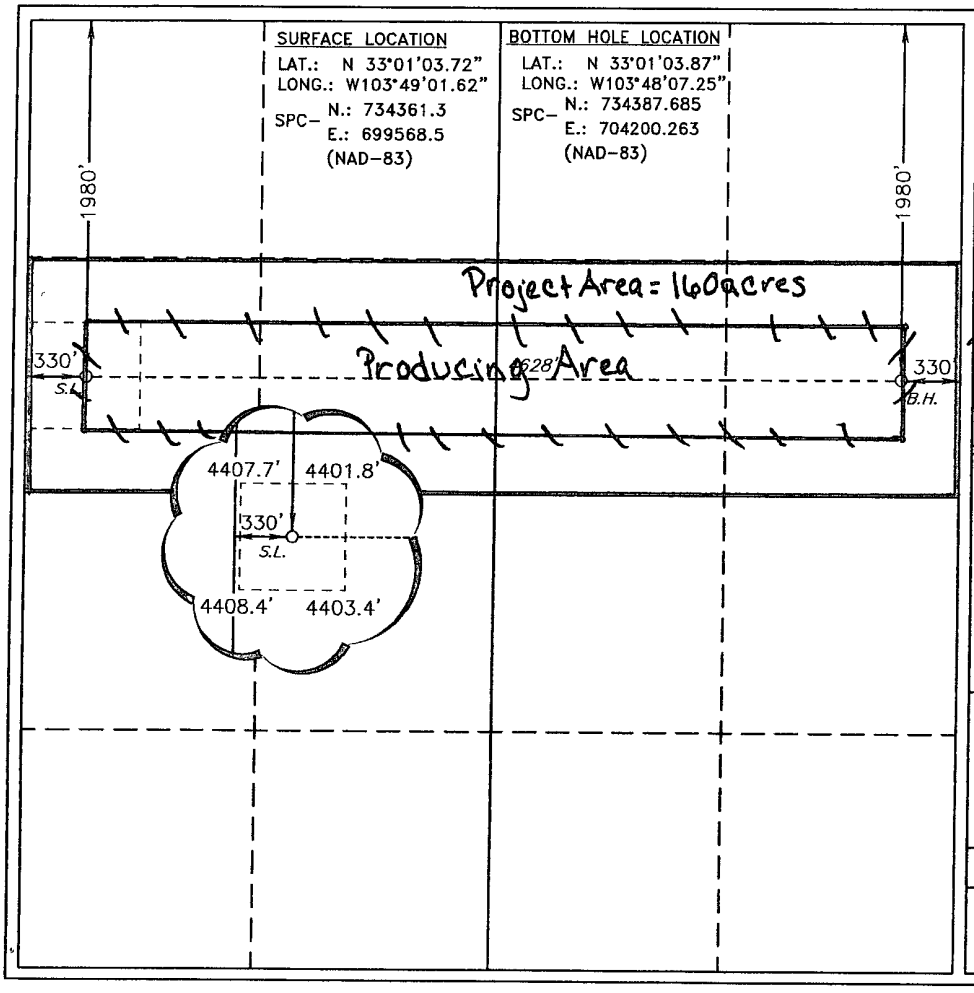
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	15	15 S	31 E		1980	NORTH	330	WEST	CHAVES

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
H	15	15 S	31 E		1980	NORTH	330	EAST	CHAVES

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 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 — Date 8/30/07

Dwaine Moore Agent For COG
Printed Name

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.

JULY 27, 2007
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES — NEW MEXICO — 7977 — REGISTERED PROFESSIONAL SURVEYOR

W.O. Number 23571

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Polaris Federal # 1H
SL: 1980' FNL & 330' FWL, Unit E
BHL: 1980' FNL & 330' FEL, Unit H
Sec 15, T15S, R31E
Chaves County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 4405'

3. Proposed Depths: Pilot hole TD = 8960', Horizontal TVD = 8680', MD = 13300'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates	2410'
Queen	3220'
San Andres	3950'
Tubb	6770'
Abo	7460'
Wolfcamp	8660'

5. Possible mineral bearing formations:

Water sand	150'	Fresh Water
Yates	2410'	Oil / Gas
Queen	3220'	Oil / Gas
San Andres	3950'	Oil / Gas
Tubb	6770'	Oil / Gas
Abo	7460'	Oil / Gas
Wolfcamp	8660'	Oil / Gas

6. Casing Program - **Proposed**

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-400'	13-3/8"	48#	New	STC	H40
Collapse sf – 3.78, Burst sf – 7.20, Tension sf – 15.72						
12 1/4"	0' - 4000'	9-5/8"	40#	New	STC	J-55
Collapse sf – 1.285, Burst sf – 1.17, Tension sf – 3.25						
8-3/4"	0' – 8500'	5-1/2"	17#	New	LTC	P-110
Collapse sf – 1.75, Burst sf – 2.42, Tension sf – 2.94						
7-7/8"	8500' – 13300'	5-1/2"	17#	New	BTC	P-110
Collapse sf – 1.68, Burst sf – 2.39, Tension sf – 79.28						

WITNESS

7. Cement Program

13 3/8" Surf. Csg. Set at +/- 400', Circ to Surf with +/- 400 sx Class "C" w/ 2% CaCl2, 1.35 yd.

9 5/8" Intrmd. Csg. Set at +/- 4000'. Circ to Surf with +/- 800 sx 35/65 Poz "C", 2.05 yd. & 200 sx Class "C" w/ 2% CaCl2, 1.35 yd.

5 ½" Prod. Csg. Set at +/- 13300' MD. Cement casing with +/- 200 sx. 50/50/2 "C", 1.37 yd & +/- 900 sx Class "H", 1.18 yd. Est. TOC @ 8500'.

8. Pressure Control Equipment:

After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold with clear fluid to 800 psi w/ rig pump. After setting 9 5/8" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi using an independent tester and used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

9. Proposed Mud Circulating System

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 400'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
400'- 4000'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
4000'- 7500'	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
7500' - 13300'	9.5	36	10	Drill pilot hole, curve and horizontal section with XCD polymer / cut brine / starch.

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

10. Auxiliary Well Control and Monitoring Equipment

A. Kelly cock will be kept in the drill string at all times.

B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

11. Production Hole Drilling Summary:

Drill 8-3/4" Pilot hole thru Wolfcamp, run open hole logs. Spot 150 sx. "H" Kick off plug from +/- 8800' to +/-8300'. Time drill and kick off 7-7/8" hole at +/- 8300', building curve over +/- 475' to horizontal at 8680' TVD. Drill horizontal section in a easterly direction for +/-4500' lateral. Run production casing and cement.

12. Logging, Testing and Coring Program:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. in vertical pilot hole to 9 5/8" casing shoe.

B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point to TD in Horizontal hole.

C. Drill Stem test is not anticipated.

D. No conventional coring is anticipated.

E. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 3750 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well. An H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on April 15, 2008 with drilling and completion operations lasting approximately 45 days.

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 16:09:06	**Page:** 1
Field:	Polaris Federal	**Co-ordinate(NE) Reference:**	Site: Polaris Federal #1H, Grid North
Site:	Polaris Federal #1H	**Vertical (TVD) Reference:**	SITE 4426.0
Well:	Polaris Federal #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,89.67Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-11-07

Field: Polaris Federal

Map System:	US State Plane Coordinate System 1983	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Site Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	igrf2005

Site: Polaris Federal #1H

Site Position:		**Northing:**	734361.30 ft	**Latitude:**	33 1 3.673 N
From:	Map	**Easting:**	699568.50 ft	**Longitude:**	103 49 1.615 W
Position Uncertainty:	0.00 ft			**North Reference:**	Grid
Ground Level:	4405.00 ft			**Grid Convergence:**	0.28 deg

Well: Polaris Federal #1H **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	734361.30 ft	**Latitude:**	33 1 3.673 N
	+E/-W	0.00 ft	**Easting:**	699568 50 ft	**Longitude:**	103 49 1.615 W
Position Uncertainty:		0.00 ft				

Wellpath: OH

Drilled From:	Surface		
Tie-on Depth:	0.00 ft		
Current Datum:	SITE	**Height**	4426.00 ft
Above System Datum:	Mean Sea Level		
Magnetic Data:	09/11/2007	**Declination:**	8.20 deg
Field Strength:	49493 nT	**Mag Dip Angle:**	60 98 deg

Vertical Section:	**Depth From (TVD)** ft	**+N/-S** ft	**+E/-W** ft	**Direction** deg
	8750 00	0.00	0 00	89.67

Plan: Plan #1 9-11-07 **Date Composed:** 09/11/2007

Version: 1

Principal: No **Tied-to:** From Surface

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0 00	0 00	0.00	
8202.50	0.00	0.00	8202.50	0.00	0.00	0.00	0.00	0.00	0.00	
8944.46	89.04	89.67	8679.90	2.67	469.42	12.00	12.00	12.09	89.67	
13107.46	89.04	89.67	8750.00	26 39	4631.76	0.00	0.00	0.00	0.00	PBHL

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	0 00	
1600.00	0.00	0.00	1600 00	0.00	0.00	0.00	0.00	0.00	0.00	

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 16:09:06 **Page:** 2	
Field:	Polaris Federal	**Co-ordinate(NE) Reference:**	Site: Polaris Federal #1H, Grid North
Site:	Polaris Federal #1H	**Vertical (TVD) Reference:**	SITE 4426.0
Well:	Polaris Federal #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,89.67Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-11-07

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1700.00	0.00	0.00	1700.00	0 00	0.00	0.00	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1900.00	0 00	0.00	1900.00	0.00	0 00	0.00	0.00	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	0 00	0.00	0.00	0.00	
2500 00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	0 00	
2600.00	0.00	0.00	2600.00	0.00	0.00	0.00	0.00	0.00	0.00	
2700.00	0.00	0.00	2700.00	0.00	0.00	0 00	0.00	0.00	0.00	
2800.00	0 00	0.00	2800.00	0 00	0.00	0.00	0.00	0.00	0.00	
2900.00	0.00	0 00	2900.00	0.00	0.00	0.00	0 00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0 00	0 00	0 00	0.00	0.00	0.00	
3100 00	0.00	0 00	3100 00	0.00	0.00	0.00	0 00	0.00	0.00	
3200 00	0 00	0.00	3200.00	0.00	0.00	0.00	0.00	0.00	0 00	
3300 00	0.00	0.00	3300 00	0.00	0.00	0 00	0.00	0.00	0.00	
3400.00	0.00	0 00	3400.00	0 00	0.00	0.00	0 00	0.00	0.00	
3500 00	0.00	0 00	3500.00	0.00	0.00	0.00	0 00	0.00	0.00	
3600.00	0.00	0.00	3600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3700 00	0 00	0.00	3700 00	0 00	0.00	0 00	0.00	0.00	0 00	
3800.00	0.00	0 00	3800.00	0.00	0.00	0.00	0.00	0.00	0 00	
3900.00	0.00	0.00	3900.00	0.00	0.00	0.00	0.00	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4100 00	0.00	0.00	4100.00	0 00	0.00	0.00	0.00	0.00	0.00	
4200.00	0.00	0.00	4200.00	0 00	0.00	0.00	0.00	0.00	0.00	
4300.00	0.00	0.00	4300.00	0.00	0.00	0.00	0.00	0 00	0.00	
4400.00	0 00	0 00	4400.00	0 00	0.00	0.00	0.00	0.00	0 00	
4500 00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00	0 00	
4600.00	0.00	0.00	4600.00	0 00	0.00	0.00	0.00	0.00	0.00	
4700.00	0.00	0.00	4700.00	0.00	0.00	0.00	0.00	0 00	0.00	
4800.00	0.00	0.00	4800.00	0.00	0 00	0 00	0.00	0.00	0.00	
4900.00	0 00	0.00	4900.00	0.00	0.00	0.00	0.00	0.00	0.00	
5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5100.00	0.00	0.00	5100.00	0.00	0.00	0 00	0.00	0.00	0.00	
5200.00	0.00	0.00	5200.00	0.00	0.00	0 00	0.00	0.00	0.00	
5300.00	0.00	0.00	5300.00	0.00	0.00	0 00	0.00	0.00	0.00	
5400.00	0.00	0.00	5400.00	0.00	0.00	0.00	0.00	0 00	0.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5600.00	0.00	0.00	5600.00	0 00	0.00	0.00	0.00	0.00	0.00	
5700.00	0.00	0.00	5700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5800.00	0.00	0.00	5800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5900.00	0.00	0.00	5900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6000.00	0.00	0.00	6000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6100.00	0.00	0.00	6100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6200.00	0.00	0.00	6200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6300.00	0.00	0.00	6300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6400.00	0.00	0.00	6400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6500.00	0.00	0.00	6500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6600.00	0.00	0.00	6600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6700.00	0.00	0.00	6700.00	0.00	0.00	0.00	0.00	0.00	0.00	
6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	0.00	0.00	0.00	
6900 00	0.00	0.00	6900.00	0.00	0.00	0.00	0.00	0.00	0.00	

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Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 16:09:06 **Page:** 3	
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Wellpath:	OH	**Plan:**	Plan #1 9-11-07

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7000.00	0.00	0.00	7000.00	0.00	0.00	0.00	0.00	0.00	0 00	
7100.00	0.00	0.00	7100.00	0.00	0.00	0.00	0.00	0.00	0.00	
7200.00	0.00	0.00	7200.00	0.00	0.00	0.00	0.00	0.00	0.00	
7300.00	0.00	0.00	7300.00	0.00	0.00	0.00	0.00	0.00	0.00	
7400.00	0.00	0.00	7400.00	0.00	0.00	0.00	0.00	0.00	0.00	
7500.00	0 00	0.00	7500.00	0.00	0.00	0.00	0.00	0.00	0.00	
7600 00	0.00	0.00	7600.00	0.00	0.00	0.00	0.00	0.00	0.00	
7700.00	0.00	0.00	7700.00	0.00	0.00	0.00	0.00	0.00	0.00	
7800.00	0.00	0.00	7800.00	0.00	0.00	0.00	0.00	0.00	0.00	
7900.00	0 00	0 00	7900 00	0.00	0.00	0.00	0 00	0.00	0.00	
8000.00	0.00	0.00	8000.00	0.00	0.00	0.00	0.00	0 00	0.00	
8100.00	0.00	0.00	8100.00	0.00	0.00	0.00	0.00	0 00	0.00	
8200.00	0.00	0.00	8200.00	0 00	0.00	0 00	0.00	0.00	0.00	
8202.50	0.00	0.00	8202.50	0.00	0.00	0.00	0.00	0.00	0 00	KOP @ 8202' MD, Begin Bui
8300.00	11 70	89 67	8299.32	0 06	9.92	9.92	12.00	12.00	0.00	
8400 00	23 70	89.67	8394.42	0.23	40.27	40.27	12 00	12.00	0.00	
8500.00	35.70	89.67	8481.12	0.51	89.72	89 72	12.00	12.00	0.00	
8600 00	47.70	89.67	8555 65	0.89	156 12	156.13	12.00	12.00	0.00	
8700 00	59 70	89.67	8614.74	1.35	236.57	236.57	12.00	12.00	0 00	
8800.00	71.70	89.67	8655.82	1 87	327.54	327.54	12.00	12.00	0.00	
8900.00	83.70	89.67	8677.08	2.42	425.06	425.07	12.00	12.00	0 00	
8944 46	89 04	89.67	8679 90	2.67	469.42	469 42	12.00	12.00	0 00	EOC @ 8944' MD, 8680' TVD
9000.00	89.04	89.67	8680 83	2.99	524.95	524.96	0 00	0.00	0 00	
9100 00	89 04	89 67	8682.52	3.56	624.93	624.94	0.00	0.00	0.00	
9200.00	89.04	89.67	8684.20	4.13	724.92	724 93	0.00	0.00	0.00	
9300 00	89.04	89.67	8685.88	4.70	824.90	824.91	0.00	0 00	0.00	
9400 00	89.04	89.67	8687.57	5.27	924.89	924.90	0 00	0.00	0.00	
9500 00	89.04	89.67	8689.25	5 84	1024.87	1024.89	0 00	0 00	0.00	
9600.00	89.04	89.67	8690.94	6.41	1124.85	1124.87	0.00	0 00	0.00	
9700.00	89.04	89.67	8692.62	6 98	1224.84	1224.86	0 00	0.00	0.00	
9800.00	89.04	89.67	8694.30	7.55	1324.82	1324.84	0.00	0.00	0.00	
9900.00	89.04	89.67	8695 99	8.12	1424.81	1424.83	0.00	0.00	0.00	
10000.00	89.04	89.67	8697.67	8.69	1524.79	1524.82	0.00	0.00	0.00	
10100.00	89.04	89.67	8699.36	9.26	1624.77	1624.80	0.00	0.00	0.00	
10200.00	89.04	89.67	8701 04	9.83	1724.76	1724.79	0.00	0.00	0.00	
10300.00	89.04	89.67	8702.72	10.39	1824.74	1824.77	0 00	0.00	0.00	
10400.00	89.04	89.67	8704.41	10.96	1924.73	1924.76	0.00	0.00	0.00	
10500.00	89.04	89.67	8706.09	11.53	2024.71	2024.74	0.00	0.00	0.00	
10600.00	89.04	89.67	8707.78	12.10	2124.70	2124.73	0.00	0.00	0.00	
10700.00	89.04	89.67	8709.46	12.67	2224.68	2224.72	0.00	0.00	0.00	
10800.00	89.04	89.67	8711.14	13.24	2324.66	2324.70	0.00	0.00	0.00	
10900.00	89.04	89.67	8712.83	13.81	2424.65	2424.69	0.00	0.00	0.00	
11000.00	89.04	89.67	8714.51	14.38	2524.63	2524.67	0.00	0.00	0.00	
11100.00	89.04	89.67	8716.20	14.95	2624.62	2624.66	0.00	0.00	0.00	
11200.00	89.04	89.67	8717.88	15.52	2724.60	2724.65	0.00	0.00	0.00	
11300.00	89.04	89.67	8719.56	16.09	2824.59	2824.63	0.00	0.00	0.00	
11400.00	89.04	89.67	8721.25	16.66	2924.57	2924.62	0.00	0.00	0.00	
11500.00	89.04	89.67	8722.93	17.23	3024.55	3024.60	0.00	0.00	0.00	
11600 00	89.04	89.67	8724.62	17.80	3124.54	3124.59	0.00	0.00	0.00	
11700.00	89.04	89.67	8726.30	18.37	3224.52	3224.57	0.00	0.00	0.00	
11800.00	89.04	89.67	8727.98	18.94	3324.51	3324.56	0.00	0.00	0.00	
11900.00	89 04	89.67	8729.67	19.51	3424.49	3424.55	0.00	0.00	0.00	
12000.00	89.04	89.67	8731.35	20.08	3524.47	3524.53	0.00	0.00	0.00	
12100.00	89.04	89.67	8733.03	20.65	3624.46	3624.52	0.00	0.00	0.00	

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC	**Date:** 09/12/2007 **Time:** 16:09:06	**Page:** 4
Field:	Polaris Federal	**Co-ordinate(NE) Reference:** Site: Polaris Federal #1H, Grid North	
Site:	Polaris Federal #1H	**Vertical (TVD) Reference:** SITE 4426.0	
Well:	Polaris Federal #1H	**Section (VS) Reference:** Well (0.00N,0.00E,89.67Azi)	
Wellpath:	OH	**Plan:** Plan #1 9-11-07	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
12200.00	89.04	89.67	8734.72	21.22	3724.44	3724.50	0.00	0.00	0.00	
12300.00	89.04	89.67	8736.40	21.79	3824.43	3824.49	0.00	0.00	0.00	
12400.00	89.04	89.67	8738.09	22.36	3924.41	3924.48	0.00	0.00	0.00	
12500.00	89.04	89.67	8739.77	22.93	4024.40	4024.46	0.00	0.00	0.00	
12600.00	89.04	89.67	8741.45	23.49	4124.38	4124.45	0.00	0.00	0.00	
12700.00	89.04	89.67	8743.14	24.06	4224.36	4224.43	0.00	0.00	0.00	
12800.00	89.04	89.67	8744.82	24.63	4324.35	4324.42	0.00	0.00	0.00	
12900.00	89.04	89.67	8746.51	25.20	4424.33	4424.40	0.00	0.00	0.00	
13000.00	89.04	89.67	8748.19	25.77	4524.32	4524.39	0.00	0.00	0.00	
13100.00	89.04	89.67	8749.87	26.34	4624.30	4624.38	0.00	0.00	0.00	
13107.46	89.04	89.67	8750.00	26.39	4631.76	4631.84	0.00	0.00	0.00	PBHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg	Min	Sec	<--- Longitude ---> Deg	Min	Sec
PBHL			8750.00	26.39	4631.76	734387.69	704200.26	33	1	3.706 N	103	48	7.217 W

Annotation

MD ft	TVD ft	
8202.50	8202.50	KOP @ 8202' MD, Begin Build @ 12°/100'
8944.46	8679.90	EOC @ 8944' MD, 8680' TVD, 89.04° INC, Hold to TD

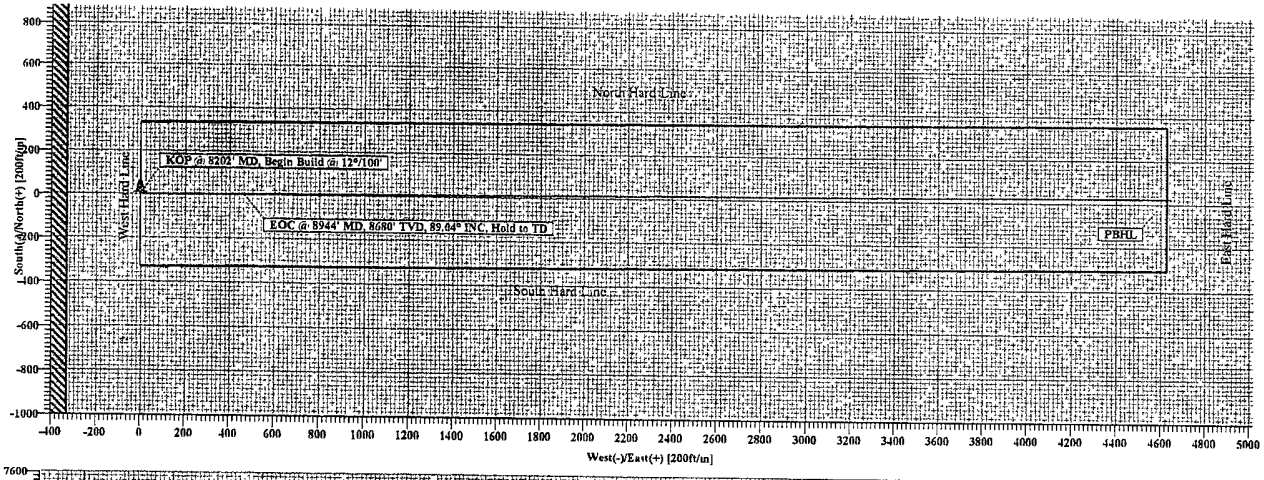
COG Operating Company LLC.

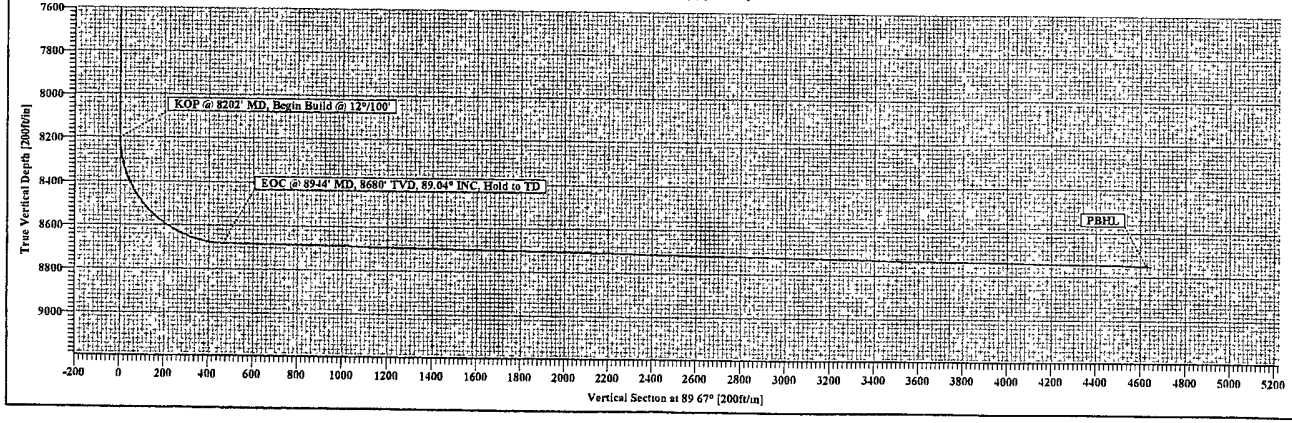
PATHFINDER

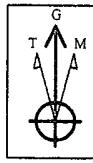
Field: Polaris Federal
Site: Polaris Federal #1H
Well: Polaris Federal #1H
Wellpath: OH
Plan: Plan #1 9-11-07

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
2	8202 50	0 00	0 00	8202 50	0 00	0 00	0 00	0 00	0 00	
3	8944 46	89 04	89 67	8679 90	2 67	469 42	12 00	89 67	469 42	
4	13107 46	89 04	89 67	8750 00	26 39	4631 76	0 00	0 00	4631 84	PBHL







Azimuths to Grid North
True North -0 28°
Magnetic North 7 92°

Magnetic Field
Strength 49493nT
Dip Angle 60 98°
Date 09/11/2007
Model igrf2005

SITE DETAILS

Polaris Federal #1H

Site Centre Northing 734361 30
Easting 699568 50

Ground Level 4405 00
Positional Uncertainty 0 00
Convergence 0 28

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
PBHL	8750 00	26 39	4631 76	Point

WELLPATH DETAILS

OH

Rig Ref Datum: SITE 4426 00ft

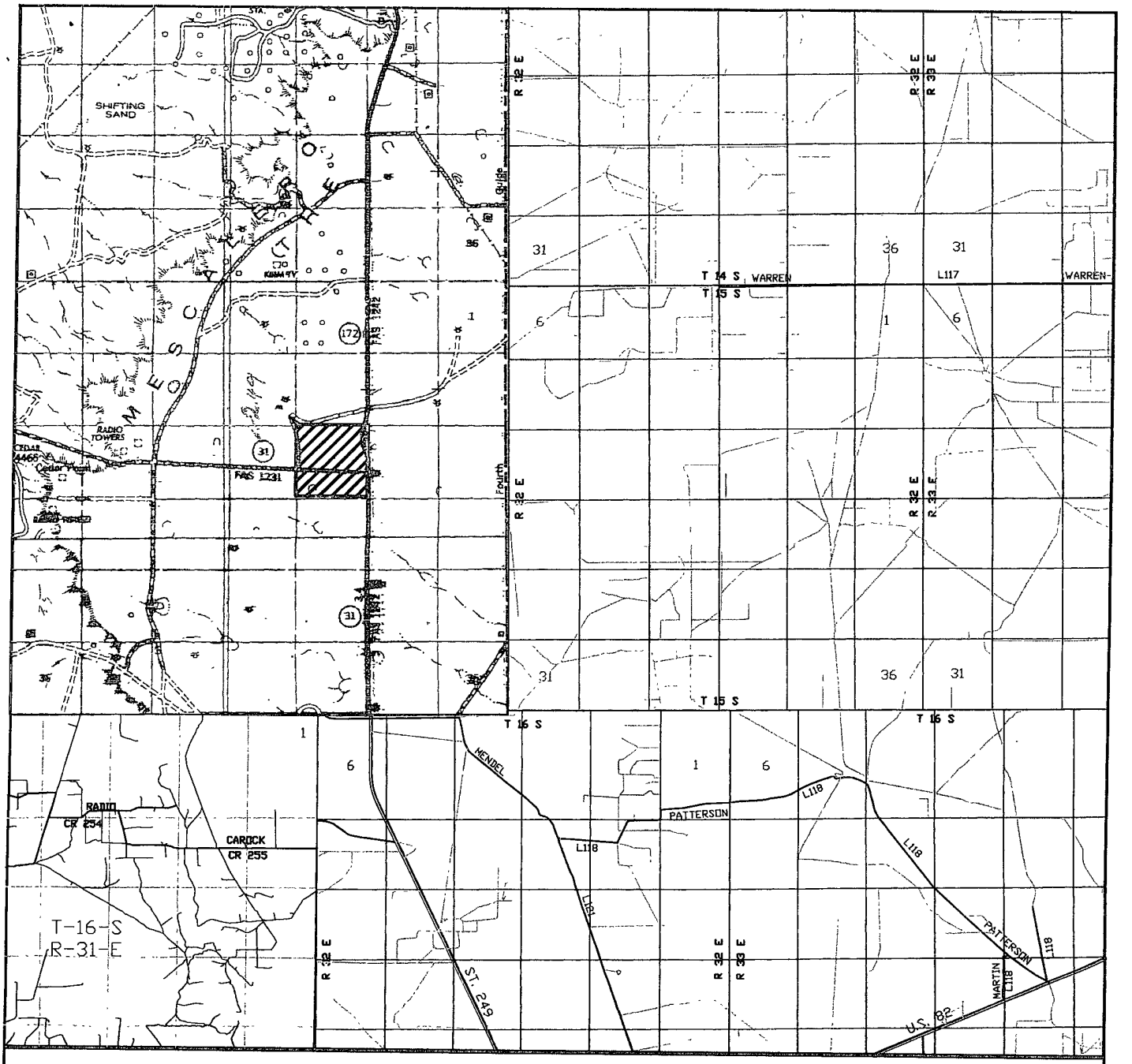
V.Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
89 67°	0 00	0 00	8750 00

ANNOTATIONS

No	TVD	MD	Annotation
1	8202 50	8202 50	KOP @ 8202' MD, Begin Build @ 12°/100'
2	8679 90	8944 46	EOC @ 8944' MD, 8680' TVD, 89 04° INC, Hold to TD

Plan: Plan #1 9-11-07 (Polaris Federal #1H,OH)
Created By: Derek Crocker Date: 09/12/2007

EXHIBIT "B"



POLARIS FEDERAL #3H
Located at 1980' FNL and 330 FWL
Section 15, Township 15 South, Range 31 East,
N.M.P.M., Chaves County, New Mexico.

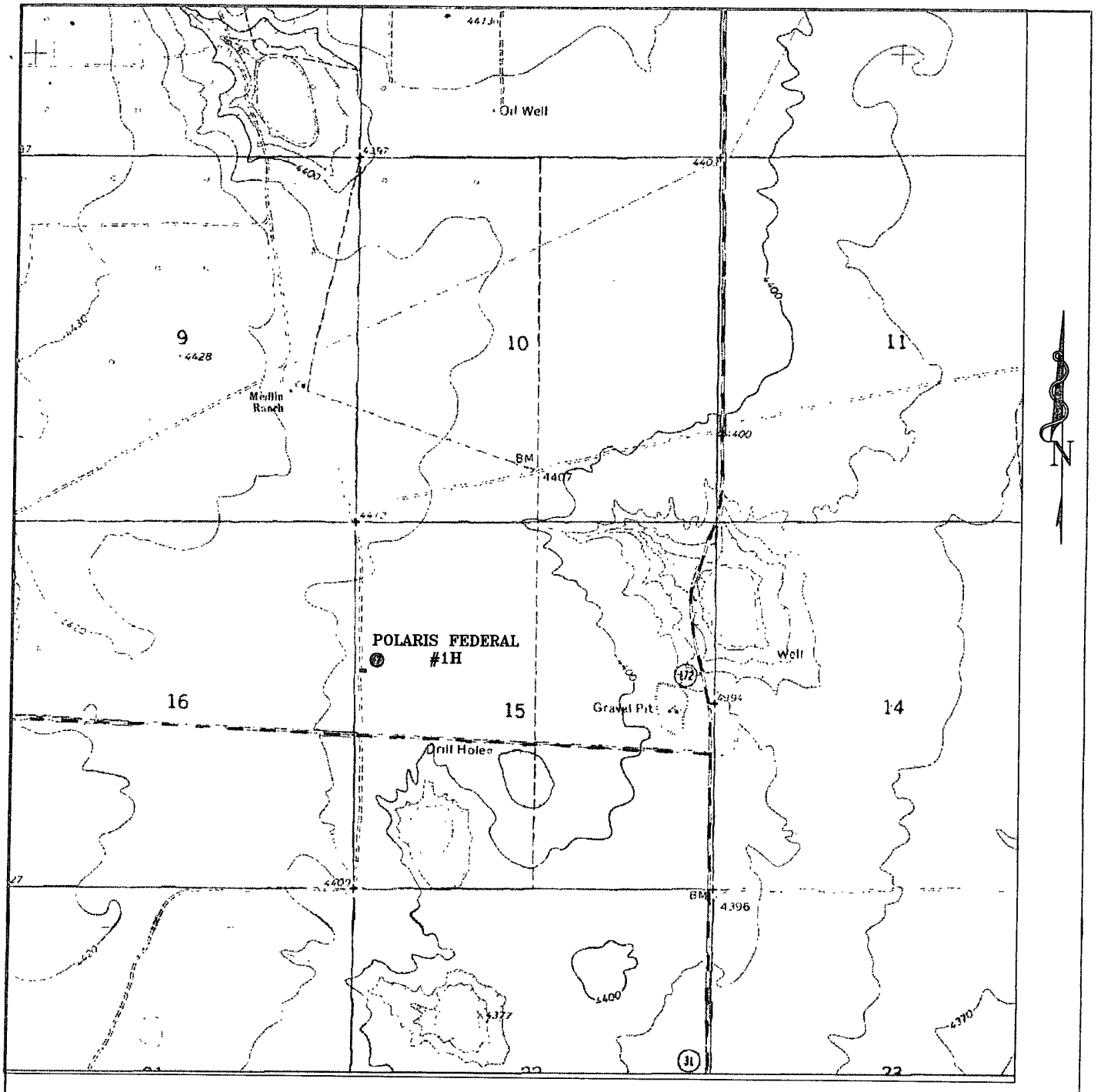
Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 - Office
(505) 392-3074 - Fax
basinsurveys.com

W.O. Number:	JMS 18371TR
Survey Date:	07-27-2007
Scale:	1" = 2 MILES
Date:	07-30-2007

C.O.G. OPERATING L.L.C.

EXHIBIT "D"



POLARIS FEDERAL #3H
Located at 1980' FNL and 330 FWL
Section 15, Township 15 South, Range 31 East,
N.M.P.M., Chaves County, New Mexico.

basin surveys
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Hobbs, New Mexico 88241
(505) 393-7316 - Office
(505) 392-3074 - Fax
basinsurveys.com

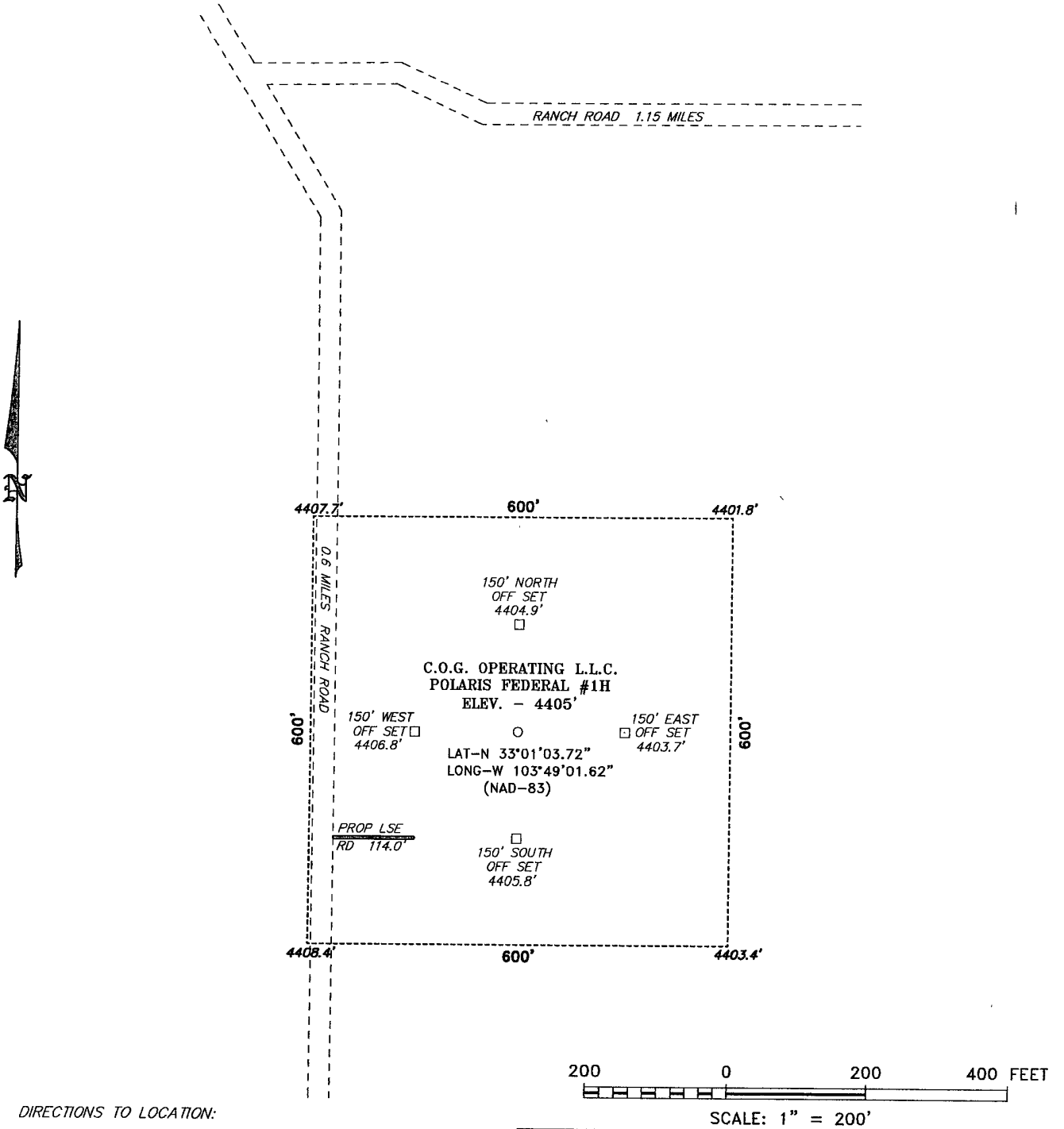
W.O. Number:	JMS 18371T
Survey Date:	07-27-2007
Scale:	1" = 2000'
Date:	07-30-2007

C.O.G. OPERATING L.L.C.

Exhibit "E-1"

SECTION 15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M.,

CHAVES COUNTY, **NEW MEXICO.**



DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF US. HWY 82 AND STATE HWY 249, GO NORTH 11.0 MILES TO CO. RD. 172, ON CO. RD. 172 CONTINUE NORTH 0.9 IMLES TO REANGH ROAD, TURN LEFT ON RANCH ROAD AND GO 1.15 MILES WEST TO RANCH ROAD, ON RANCH ROAD GO SOUTH 0.6 MILES TO PROPOSED LEASE ROAD.

C.O.G. OPERATING L.L.C.

REF: POLARIS FEDERAL #1H / Well Pad Topo

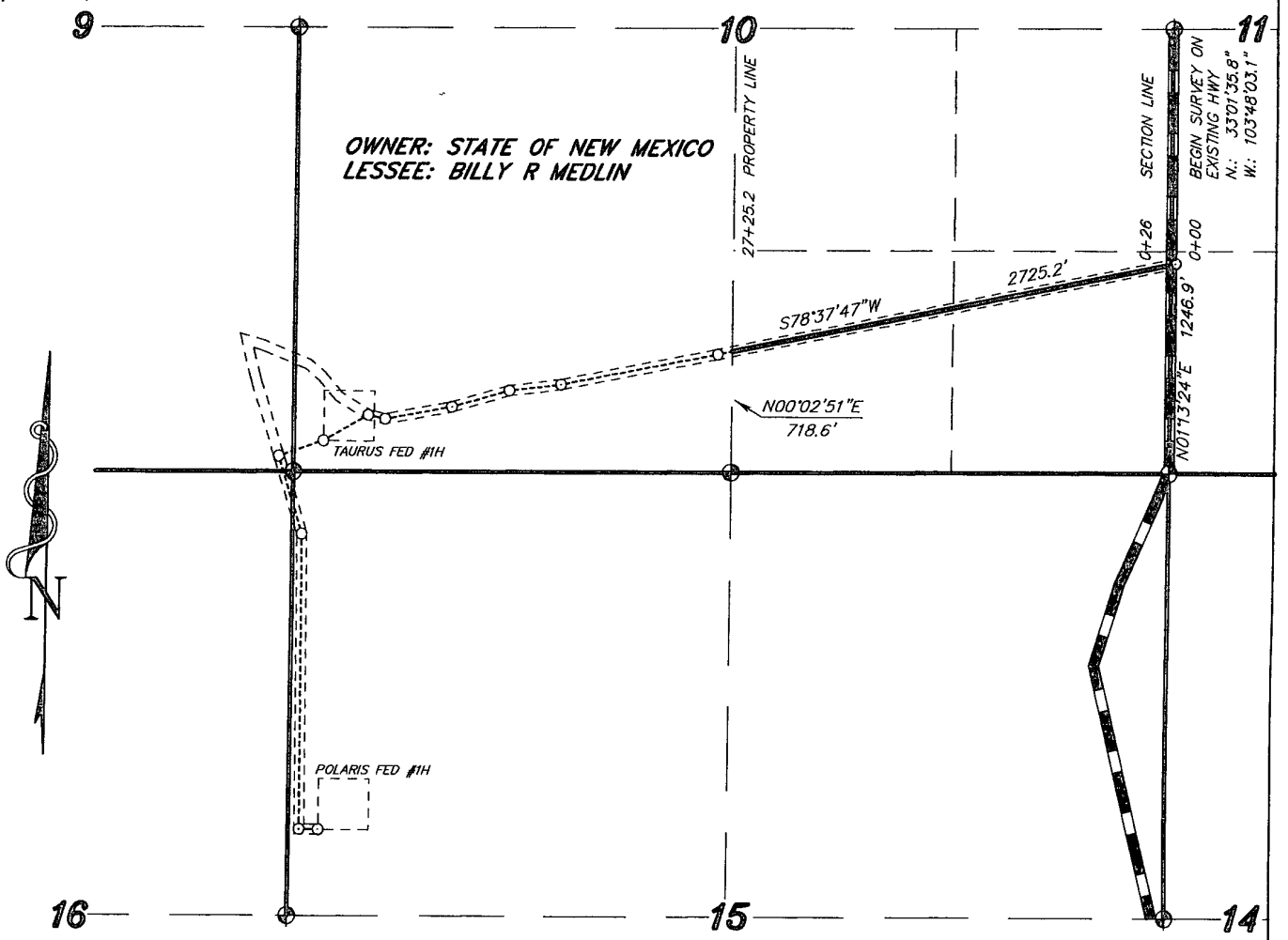
THE POLARIS FEDERAL #1H LOCATED 1980' FROM THE NORTH LINE AND 330' FROM THE WEST LINE OF SECTION 15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.

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

W.O. Number: 18371	Drawn By: J. M. SMALL		
Date: 07-30-2007	Disk: JMS 18371W	Survey Date: 07-27-2007	Sheet 1 of 1 Sheets

Exhibit "E-2"

SECTIONS 10&11, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTIONS 10&11, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

BEGINNING AT A POINT WHICH LIES N.01°13'24"E., 1246.9 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 11; THENCE S.78°37'47"W., 2725.2 FEET TO A POINT ON THE WEST PROPERTY LINE WHICH LIES N.00°02'51"E., 718.6 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION 10. SAID STRIP OF LAND BEING 2725.2 FEET OR 165.16 RODS IN LENGTH AND CONTAINING 1.25 ACRES, MORE OR LESS, AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 (SEC 11) = 1.58 RODS = 0.01 ACRES SE/4 SE/4 (SEC 10) = 81.79 RODS = 0.62 ACRES
SW/4 SE/4 (SEC 10) = 81.79 RODS = 0.62 ACRES

1000 0 1000 2000 FEET

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, N.M. P.S. No. 7977
TEXAS P.L.S. No. 5074

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

C.O.G. OPERATING L.L.C.

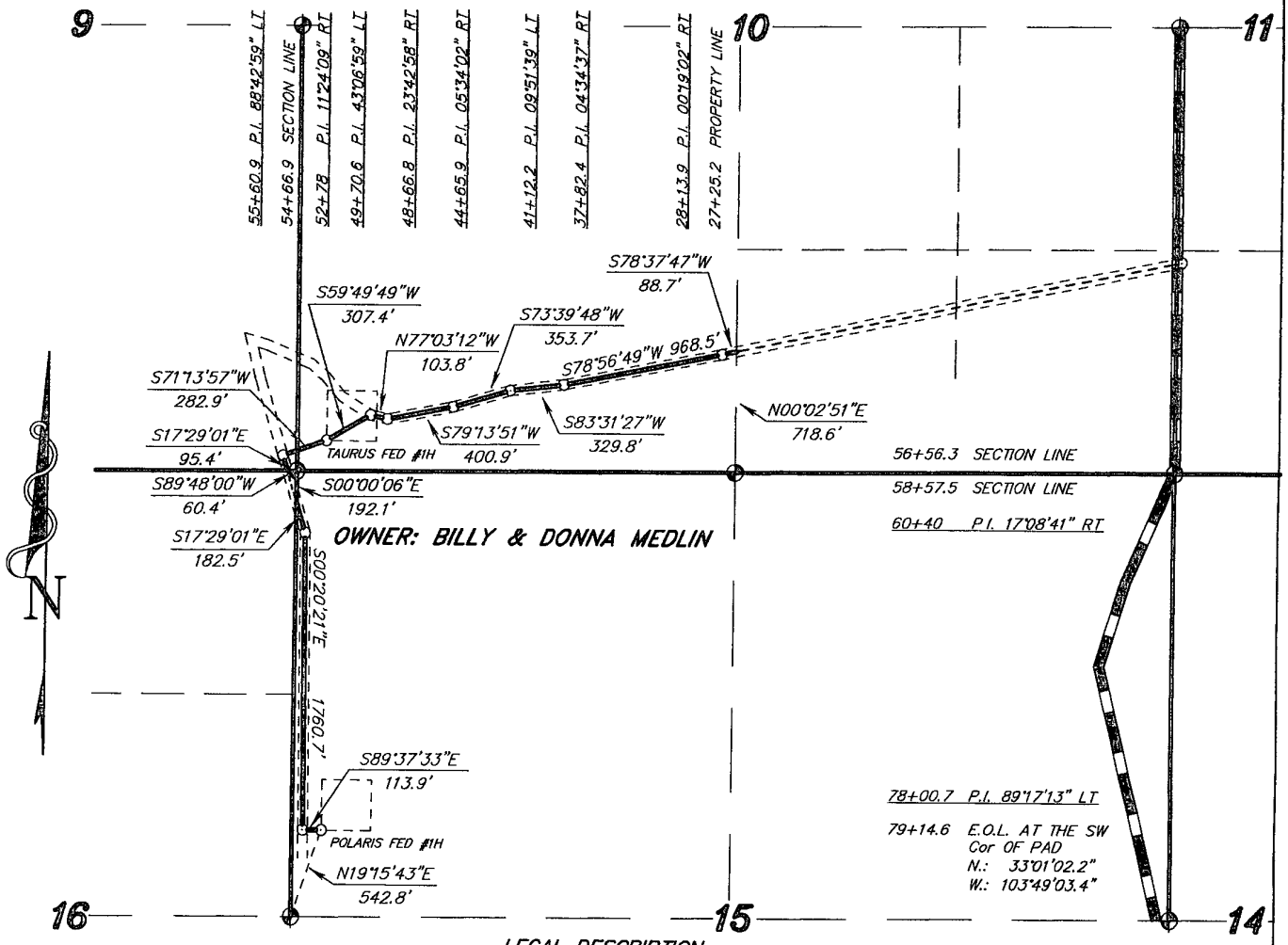
REF: PROP. LEASE ROAD TO THE POLARIS FEDERAL #1H

A LEASE ROAD CROSSING STATE LAND IN SECTIONS 10&11, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.

W.O. Number: 18423	Drawn By: J. M. SMALL		
Date: 08-07-2007	Disk: JMS 18423R	Survey Date: VARIES	Sheet 1 of 3 Sheets

Exhibit "E-3"

SECTIONS 9,10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTIONS 9,10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY. BEGINNING AT A POINT ON THE EAST PROPERTY LINE WHICH LIES N.00°02'51"E., 718.6 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION 10; THENCE S.78°37'47"W., 88.7 FEET; THENCE S.78°56'49"W., 968.5 FEET; THENCE S.83°31'27"W., 329.8 FEET; THENCE S.73°39'48"W., 353.7 FEET; THENCE S.79°31'51"W., 400.9 FEET; THENCE N.77°03'12"W., 103.8 FEET; THENCE S.59°49'49"W., 307.4 FEET; THENCE S.71°13'57"W., 282.9 FEET; THENCE S.17°29'01"E., 95.4 FEET TO A POINT ON THE SOUTH SECTION LINE WHICH LIES S.89°48'00"W., 60.4 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 9; THENCE BEGINNING AGAIN AT A POINT WHICH LIES S.00°00'06"E., 192.1 FEET FROM THE NORTHWEST CORNER OF SAID SECTION 15; THENCE S.17°29'01"E., 182.5 FEET; THENCE S.00°20'21"E., 1760.7 FEET; THENCE S.89°37'33"E., 113.9 FEET TO THE END OF THIS LINE WHICH LIES N.19°15'43"E., 542.8 FEET FROM THE WEST QUARTER CORNER OF SAID SECTION 15. SAID STRIP OF LAND BEING 4988.2 FEET OR 302.32 RODS IN LENGTH.

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 N.M. No. 7977
TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

C.O.G. OPERATING L.L.C.

REF: PROP. LEASE ROAD TO THE POLARIS FEDERAL #1H

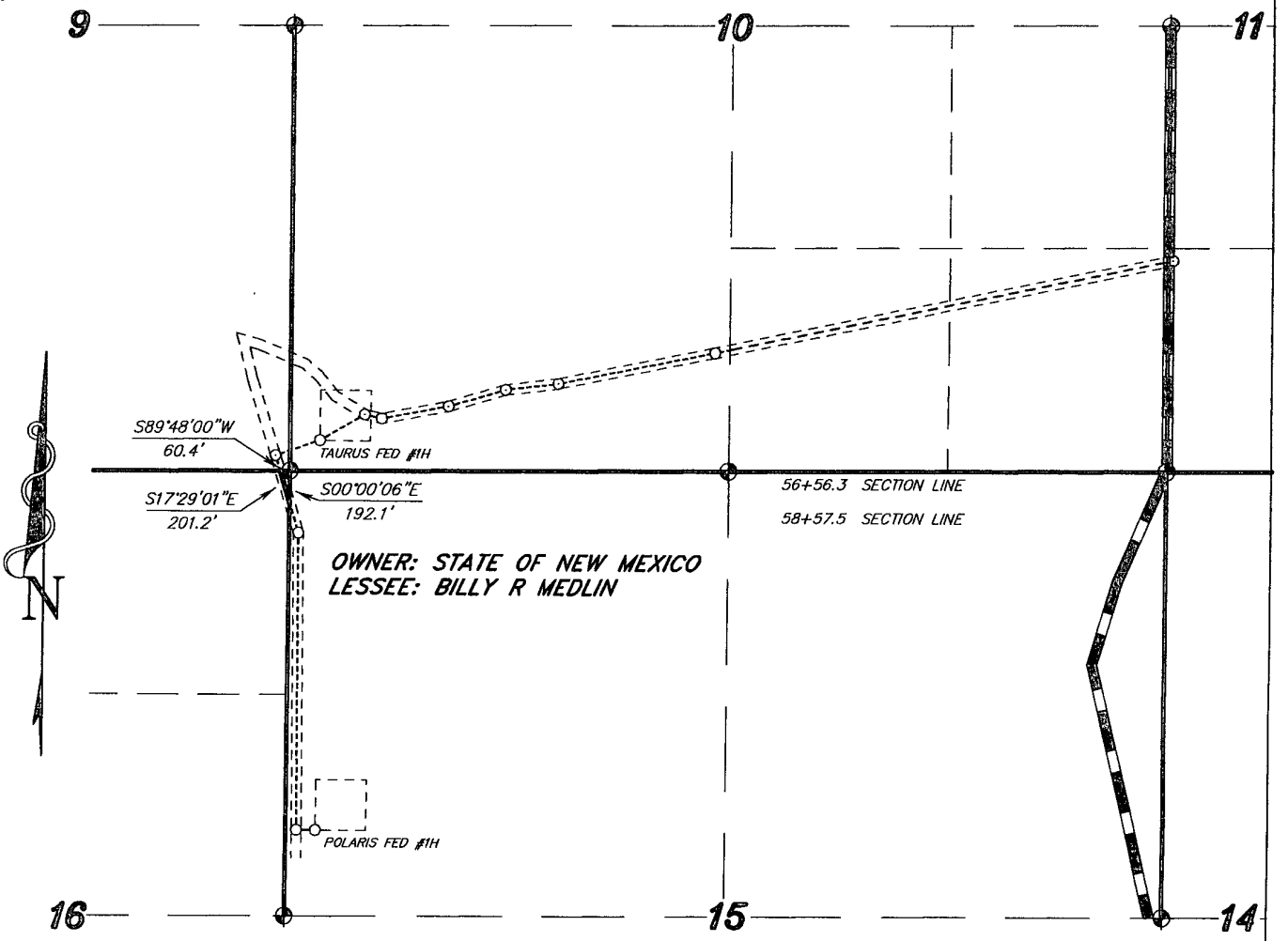
A LEASE ROAD CROSSING FEE LAND IN SECTIONS 9,10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.

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

W.O. Number: 18416	Drawn By: J. M. SMALL		
Date: 08-06-2007	Disk: JMS 18416R	Survey Date: VARIES	Sheet 2 of 3 Sheets

Exhibit "E-4"

SECTION 16, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M.,
CHAVES COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 16, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

BEGINNING AT A POINT ON THE NORTH SECTION LINE WHICH LIES S.89°48'00"W., 64.0 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16; THENCE S.17°29'01"E., 201.2 FEET TO A POINT ON THE EAST SECTION LINE WHICH LIES S.00°00'06"E., 192.1 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16. SAID STRIP OF LAND BEING 201.2 FEET OR 12.19 RODS IN LENGTH AND CONTAINING 0.09 ACRES, MORE OR LESS, AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 = 12.19 RODS = 0.09 ACRES

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

GARY L. JONES No. 7977
TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

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

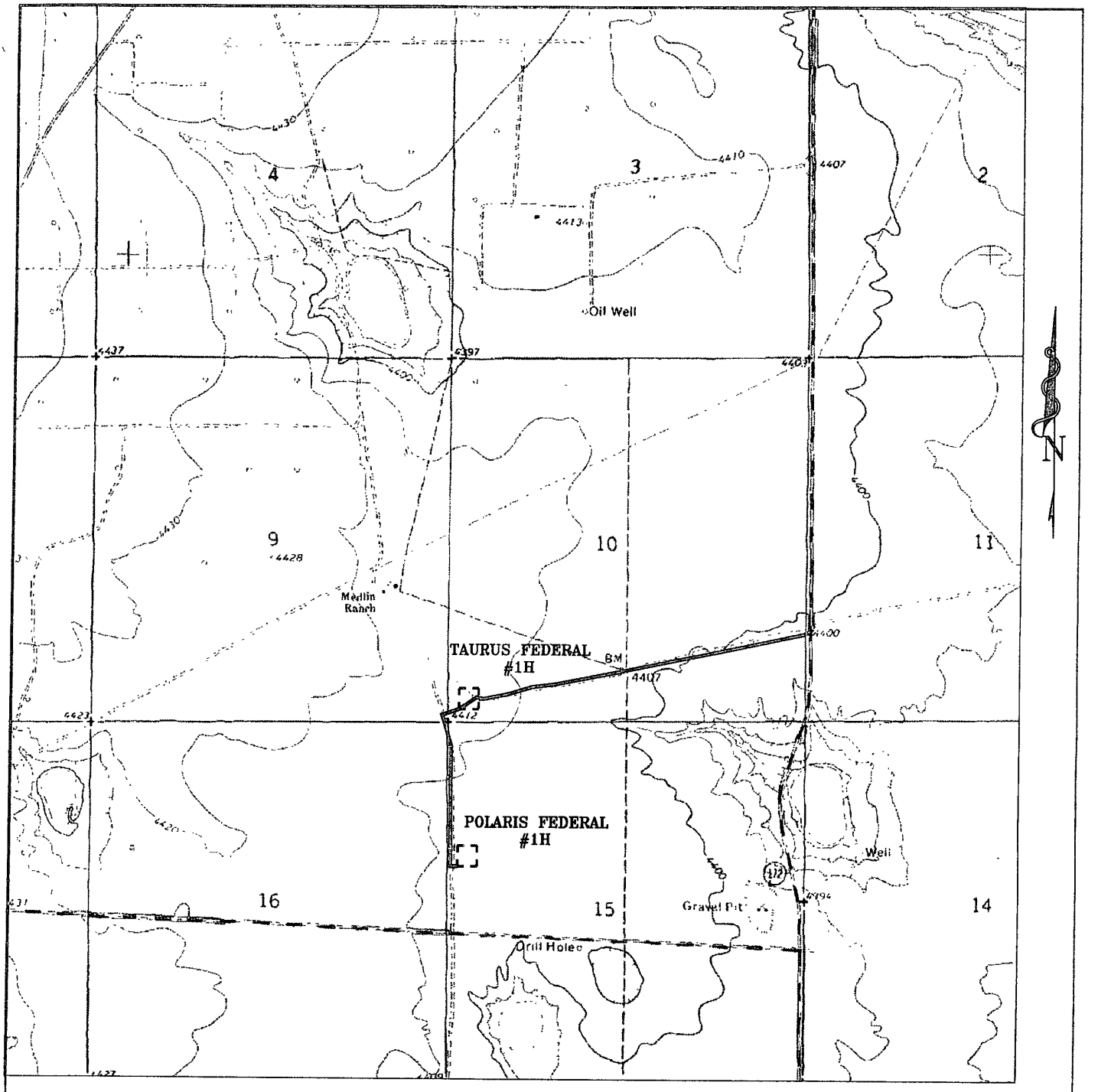
C.O.G. OPERATING L.L.C.

REF: PROP. LEASE ROAD TO THE POLARIS FEDERAL #1H

A LEASE ROAD CROSSING STATE LAND IN SECTION 16, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.

W.O. Number: 18416	Drawn By: J. M. SMALL		
Date: 08-06-2007	Disk: JMS 18416R	Survey Date: VARIES	Sheet 3 of 3 Sheets

Exhibit "E-5"



PROPOSED LEASE ROAD TO THE POLARIS FEDERAL #1H

Section 15, Township 15 South, Range 31 East, N.M.P.M., Chaves County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 - Office
(505) 392-3074 - Fax
basinsurveys.com

W.O. Number: JMS 18423T

Survey Date: VARIES

Scale: 1" = 2000'

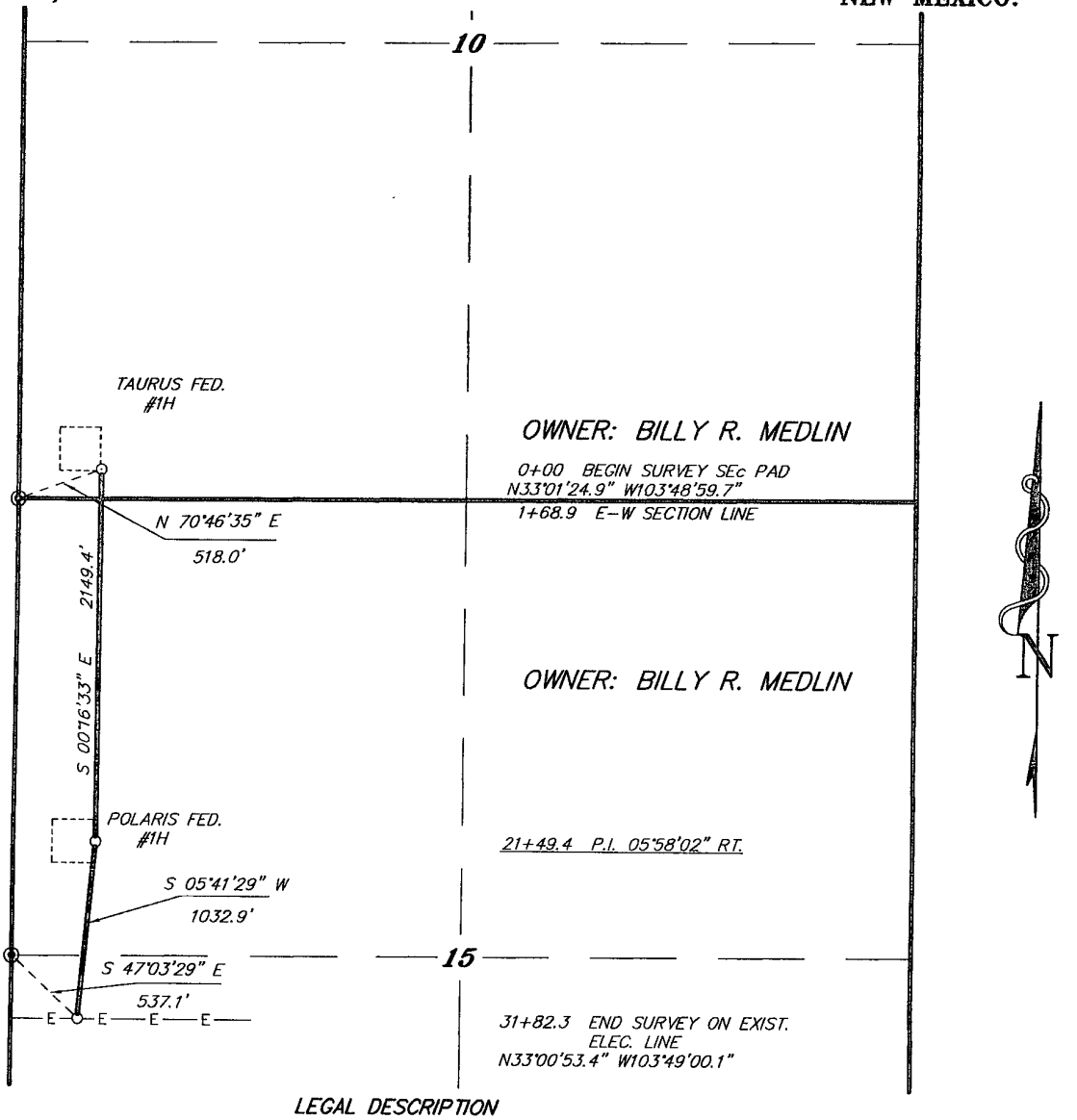
Date: 08-07-2007

C.O.G. OPERATING L.L.C.

Exhibit "F-1"

SECTIONS 10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M.,

CHAVES COUNTY, **NEW MEXICO.**



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTIONS 10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

BEGINNING AT A POINT WHICH LIES N.70°46'35"E., 518.0 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 10; THENCE S.00°16'33"E., 2149.4 FEET; THENCE S.05°41'29"W., 1032.9 FEET TO THE END OF THIS LINE WHICH LIES S.47°03'29"E., 537.1 FEET FROM THE WEST QUARTER CORNER OF SAID SECTION 15. SAID STRIP OF LAND BEING 3182.3 FEET OR 192.87 RODS IN LENGTH.

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, N.M. P.S. No. 7977
TEXAS R.P.L.S. No. 5074

1000 0 1000 2000 FEET

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

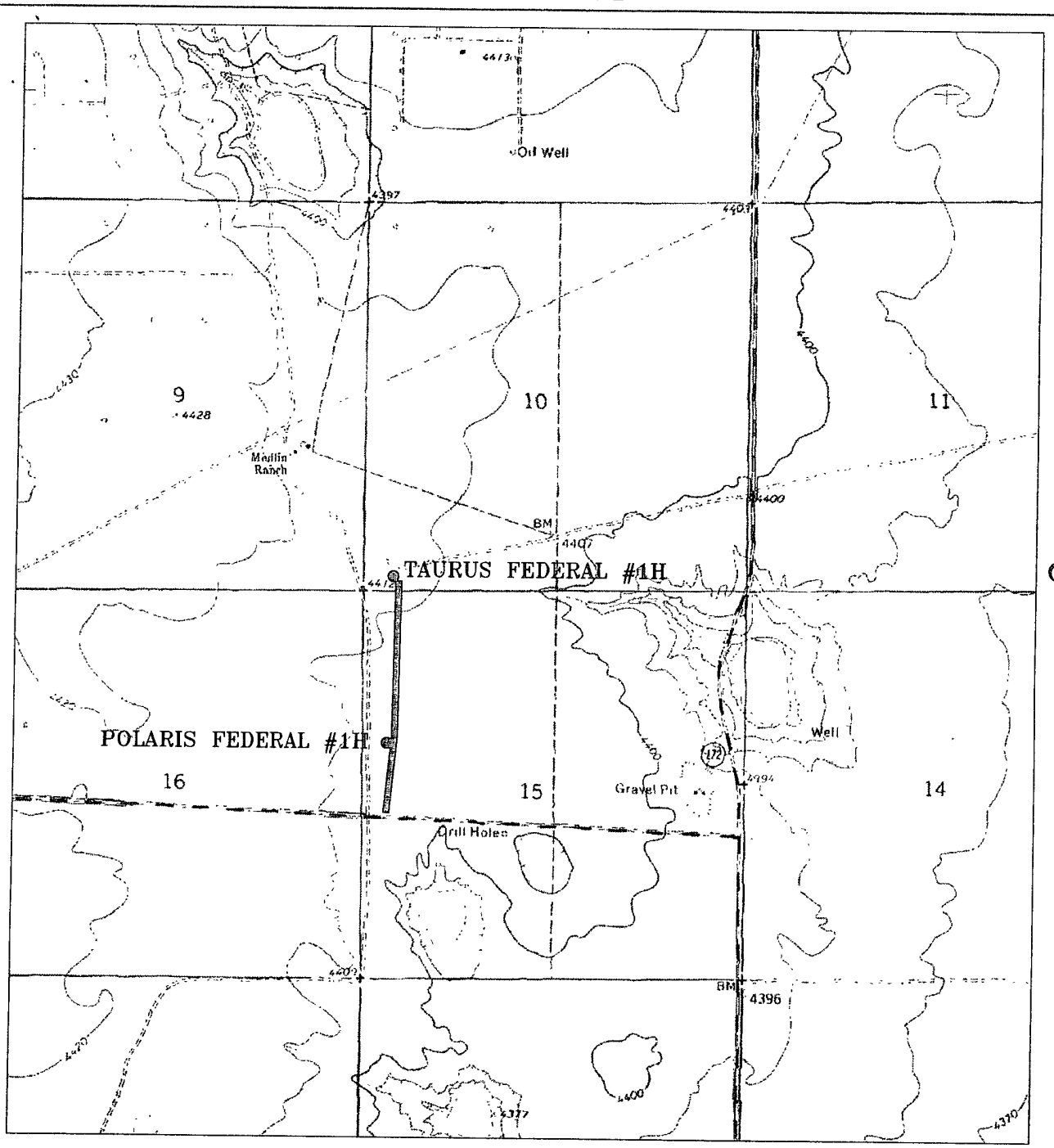
COG OPERATING, LLC.

REF: ELEC. LINE FOR THE TAURUS FED, #1H & POLARIS FED. #1H

A ELECTRIC LINE CROSSING FEE LAND IN SECTIONS 10&15, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M., CHAVES COUNTY, NEW MEXICO.

W.O. Number: 18475	Drawn By: James Presley		
Date: 08/27/07	Disk: JLP #1 – COG18475	Survey Date: 08/23/07	Sheet 1 of 1 Sheets

Exhibit "F-2"



PROPOSED ELECLINE FOR THE COG – TAURUS FEDERAL #1H &
PROPOSED ELECLINE FOR THE COG – POLARIS FEDERAL #1H

Sections 10&15, Township 15 South, Range 31 East,
N.M.P.M. Chaves County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

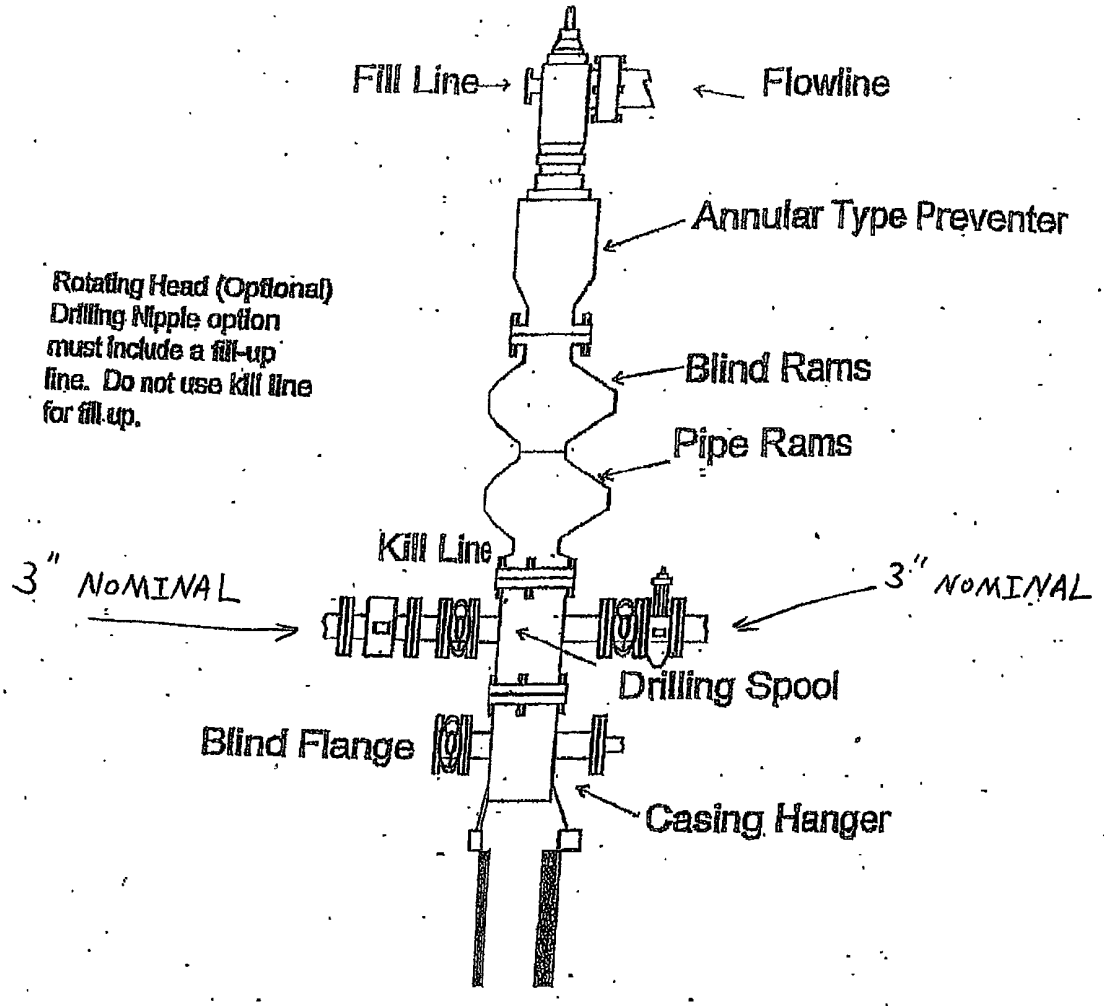
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 – Office
(505) 392-3074 – Fax
basinsurveys.com

W.O. Number:	18475
Survey Date:	08/23/07
Scale:	1" = 2000'
Date:	08/27/07

COG OPERATING, LLC.

EXHIBIT "I"

BOPE SCHEMATIC

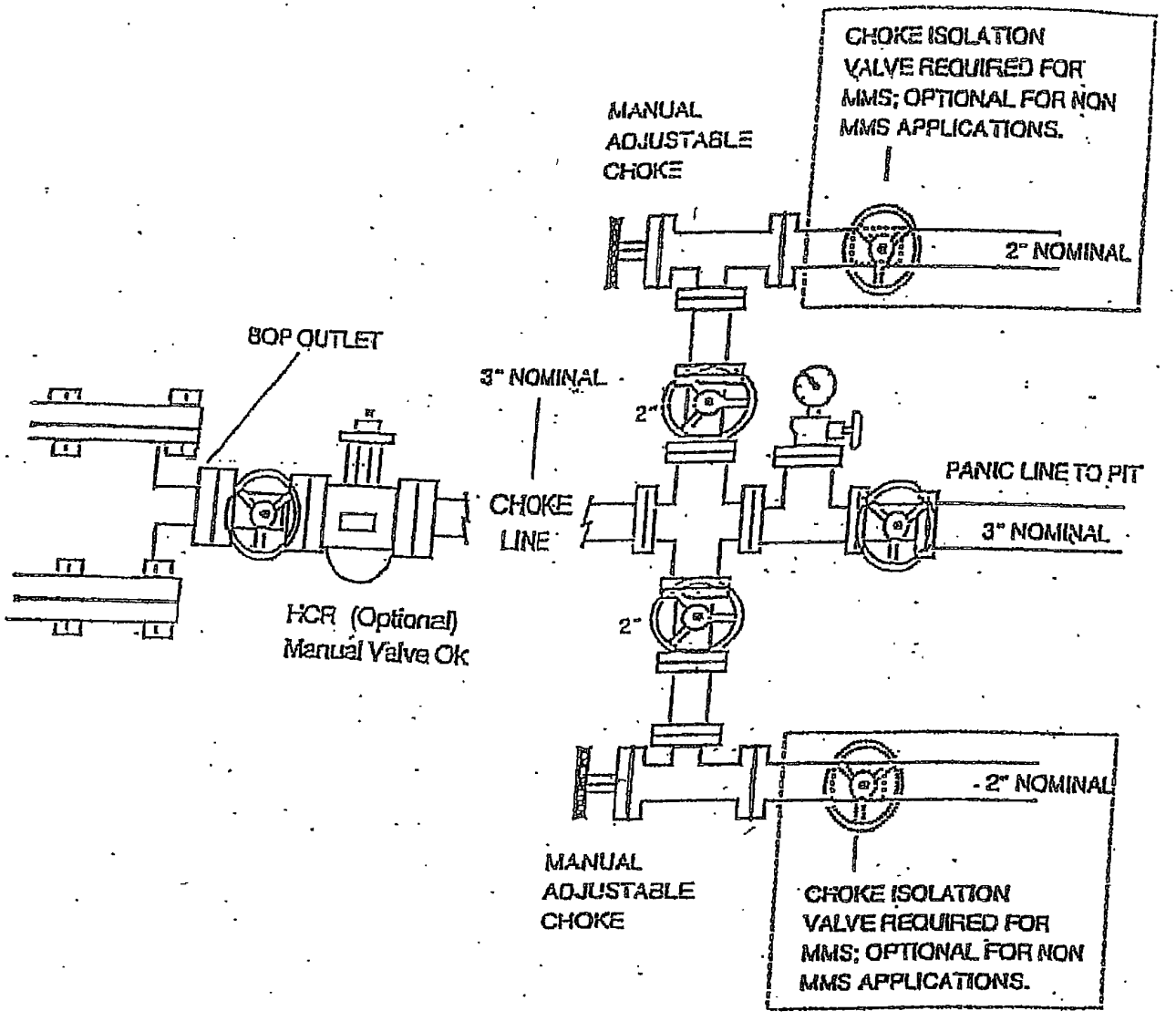


900 SERIES

EXHIBIT "J"

CHOKE MANIFOLD

3M SERVICE



PECOS DISTRICT - RFO
CONDITIONS OF APPROVAL

OPERATORS NAME: **COG Operating, LLC**
LEASE NO.: **NM-105885**
WELL NAME & NO: **Polaris Federal #1H**
SURFACE HOLE FOOTAGE: **1980' FNL & 330' FWL**
BOTTOM HOLE FOOTAGE: **1980' FNL & 330' FEL**
LOCATION: **Section 15, T. 15 S., R. 31 E., NMPM**
COUNTY: **Chaves County, New Mexico**

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.

V. 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).

VI. 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.

VII. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). 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.

VIII. CONSTRUCTION

A. NOTIFICATION:

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Roswell Field Office at (505) 627-0247 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 Application for Permit to Drill and Conditions of Approval on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL:

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation. The soil shall be stockpiled on the southeast corner of the well pad.

C. RESERVE PITS:

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 160' X 160' on the NORTH side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT:

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Roswell Field Office at (505) 627-0236.

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 need.

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 thirty (30) 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.

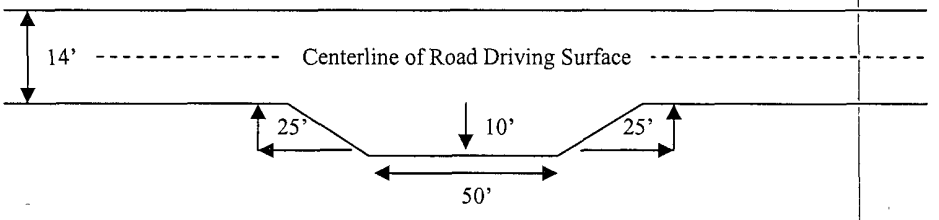
Crowning

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.

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:

Standard Turnout – Plan View

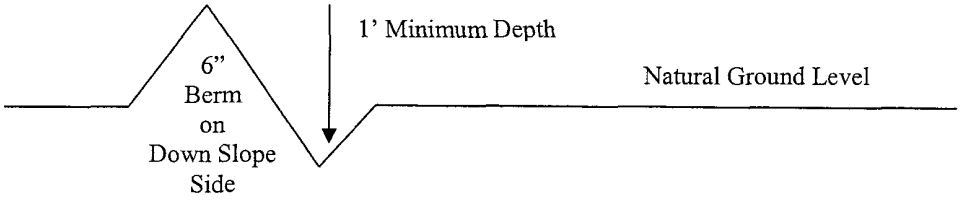


Drainage

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 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:

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

Cattleguards

An appropriately sized cattleguard(s) good enough to handle vehicular traffic for the project shall be installed and maintained at the fence crossing(s) in the NE¼SE¼SE¼ of Sec. 10 - T. 15 S. -R. 31 E.. A swinging arm gate shall be constructed across the cattleguard to close the fenceline.

Fence Requirement

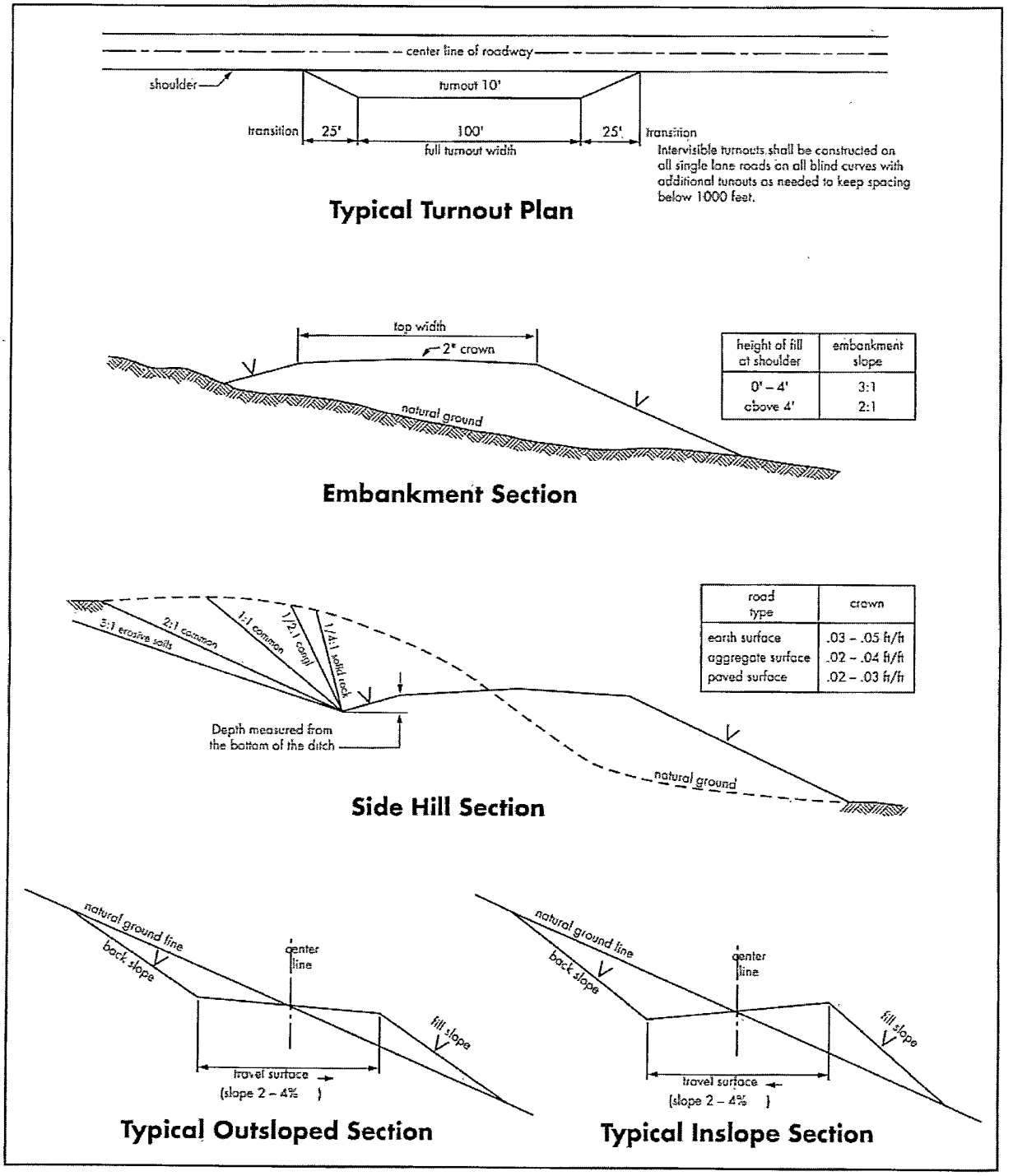
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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



V. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201. 24 hour 505 – 627 – 0205.

1. The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

   a. Spudding well
   b. Setting and/or Cementing of all casing strings
   c. BOPE tests

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.

3. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

B. CASING

1. The 13-3/8 inch surface casing shall be set at 400 feet and cemented to the surface.

   a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

   b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, whichever is greater. (This is to include the lead cement).

   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 compression strength, whichever is greater.

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

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is to be cemented to the surface. If cement does not circulate see B.1.a-d above.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is to reach at least 500 feet above the top of the uppermost hydrocarbon productive interval.

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

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.

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

    a. The tests shall be done by an independent service company.

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

    c. 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.

    d. 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.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

1. Recording pit level indicator to indicate volume gains and losses.

2. Mud measuring device for accurately determining the mud volumes necessary to fill the hole during trips.

3. Flow-sensor on the flow line to warn of abnormal mud returns from the well.

E. DRILL STEM TEST (optional)

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

Engineer on call phone (after hours only): Roswell: (505) 626-5749

VI. PRODUCTION

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, Olive Drab, Munsell Soil Color Chart 18-0622 TPX.

VRM Facility Requirement

Low profile facilities are required on this location.

VII. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and locations. In addition, 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.

B. RESERVE PIT CLOSURE

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

Ecological Site: Sandy HP-3 for Shallow HP-3

Common Name and Preferred Variety	Scientific Name	Pounds of Pure Live Seed Per Acre
Blue grama, var. Lovington	*(Bouteloua gracilis)*	2.00 lbs.
Sideoats grama var. Vaughn or El Reno	*(Bouteloua curtipendula)*	3.00 lbs.
Little bluestem	*(Schizachyrium scoparium)*	0.50 lb.
Sand dropseed	*(Sporobolus cryptandrus)*	1.00 lb.
Plains bristlegrass	*(Setaria macrostachya)*	1.00 lb.
Indian blanketflower	*(Gaillardia aristata)*	0.50 lb.
Desert or Scarlet Globemallow *or S. coccinea)*	*(Sphaeralcea ambigua)*	1.00 lb.
TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE		9.00 lbs.

Certified Weed Free Seed. IF ONE SPECIES IS NOT AVAILABLE, INCREASE ALL OTHERS PROPORTIONATELY. No less than four (4) species, including one (1) forb. No less than 9.0 pounds pls per acre shall be applied

VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements.