

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

30-043-20863 ✓
APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK DRILL	5. LEASE NUMBER NM-86448
1b. TYPE OF WELL GAS	6. IF INDIAN, ALL. OR TRIBE NAME
2. OPERATOR MERIDIAN OIL INC. ✓	7. UNIT AGREEMENT NAME
3. ADDRESS & PHONE NO. OF OPERATOR P O BOX 4289 FARMINGTON, NM 87499	8. FARM OR LEASE NAME PIEDRA LUMBRE ✓
4. LOCATION OF WELL 2005' FSL 1775' FEL @ surface 660' FNL, 660' FWL @ Total depth	9. WELL NO. 1 ✓
14. DISTANCE IN MILES FROM NEAREST TOWN 15 MILES SW OF CUBA	10. FIELD, POOL, OR WILDCAT UNDES WC MANCOS ✓
15. DISTANCE FROM PROPOSED LOCATION 1775' TO NEAREST PROPERTY OR LEASE LINE.	11. SEC. T. R. M OR BLK. J SEC. 22 T19N R02W NMPM
16. ACRES IN LEASE 17. ACRES ASSIGNED TO WELL 640.00 ✓	12. COUNTY SANDOVAL
18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL DR. 4500' COMPL., OR APPLIED FOR ON THIS LEASE.	13. STATE NM
19. PROPOSED DEPTH 20. ROTARY OR CABLE TOOLS 3100' TVD 6270' MD ROTARY	21. ELEVATIONS (DF, FT, GR, ETC.) 6829' GL ✓
22. APPROX. DATE WORK WILL START	23. PROPOSED CASING AND CEMENTING PROGRAM
*SEE OPERATIONS PLAN	
24. AUTHORIZED BY: <u>[Signature]</u> REG. DRILLING ENGR.	RECEIVED OCT 18 1991. OIL CON. DIV. DIST. 3 DATE 9/24/91

PERMIT NO. _____ APPROVAL DATE _____
APPROVED BY [Signature] TITLE RIO PUERCO RESOURCE AREA DATE OCT 16 1991

NOTE: THIS FORMAT IS ISSUED IN LIEU OF US BLM FORM 3160-3.

NMOCD

Hold C-104 for DD order

Form to Associates
District Office
State Leases - 4 copies
Fee Leases - 3 copies

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revision 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

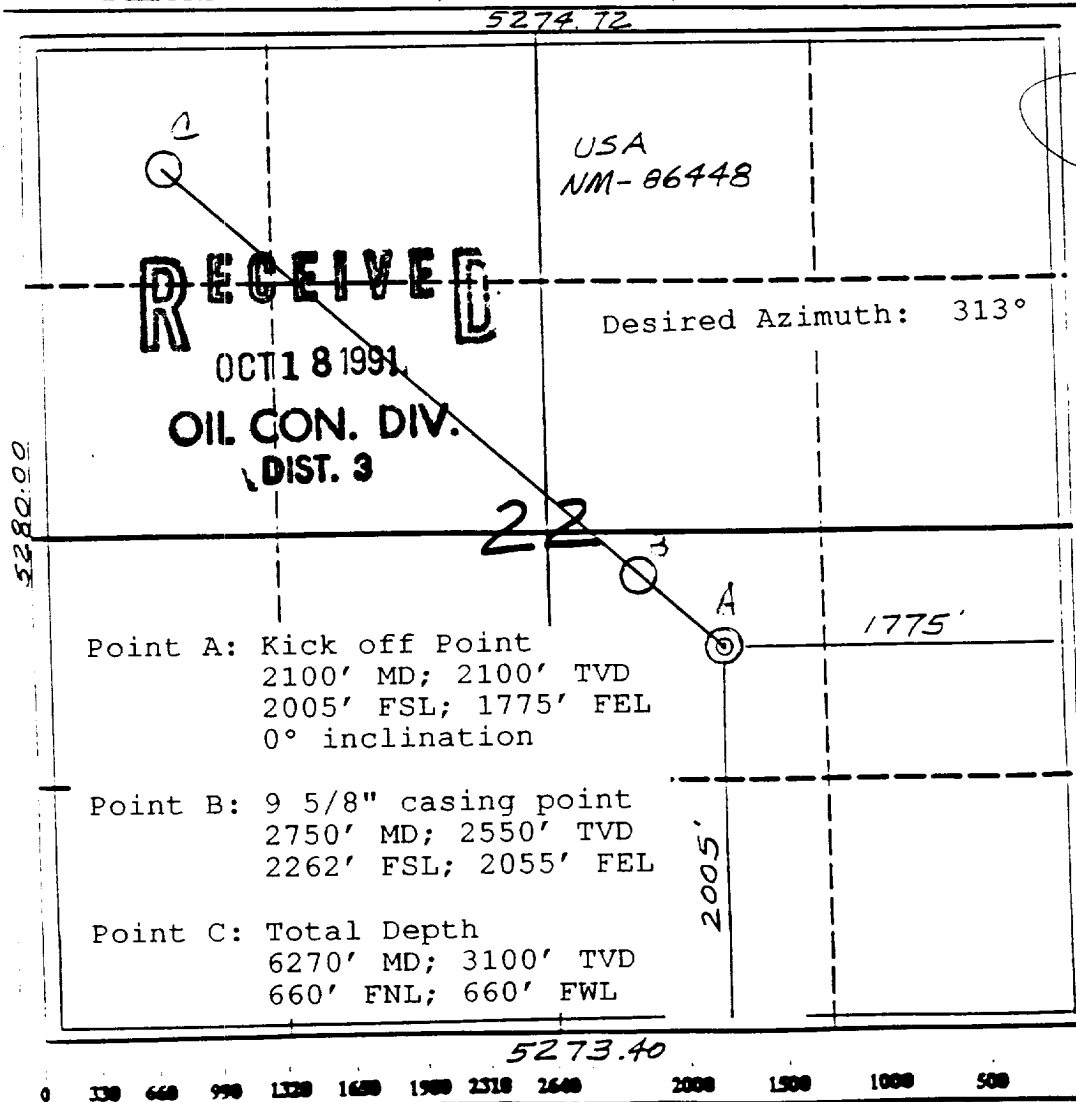
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator	Meridian Oil Inc.			Lease	Piedra Lumbre			Well No.	1
Unit Letter	Section	Township	Range	County					
J	22	19 North	2 West	Sandoval					
Actual Footage Location of Well:									
2005		feet from the	South	line and	1775	feet from the	East	line	
Ground level Elev.		Producing Formation		Pool	Dedicated Acreage:				
6829'		Mancos		Undesignated WC	640		Acres		

- Outline the acreage dedicated to the subject well by colored pencil or because shown on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?
☐ Yes ☐ No If answer is "yes" type of consolidation _____
If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary).
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, force-pooling, or otherwise) or until a non-standard unit, streamlining such interest, 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.

Peggy Bradfield
Signature:

Peggy Bradfield

Printed Name

Regulatory Affairs

Position

Meridian Oil Inc.

Company

9-17-91

Date

SURVEYOR CERTIFICATION

I hereby certify that the well location on this plat was plotted from field actual surveys made by me or under my supervision, and that the same is in correct to the best of my knowledge and belief.

8-20-89

Date Surveyed

Neale S. Edwards
Signature of Registered Professional Surveyor



Neale S. Edwards

**Operations Plan
Piedra Lumbre #1**

Location: 2005'S, 1775'E, Section 22, T-19-N, R-2-W, Sandoval County, NM

Formation: Mancos

Elevation: 6829'GL

I. Geology:

A. Formation Tops (all depths are true vertical):

Surface	Lewis	Niobrara "A"	2520'
Mesa Verde	760'	Niobrara "B"	2720'
Menefee	820'	Niobrara "C"	2900'
Point Lookout	1550'	Gallup	3030'
Mancos	1740'	Juana Lopez	3480'
		Total Depth	3480'

B. Logging Program:

Mud logs - surface to total depth

Open Hole Logs - DIL/LDT/CNL/ML/NGT	200' MD to 3480' MD
- FMS -	200' MD to 3480' MD
- Sidewall Coring	200' MD to 3480' MD

NOTE: all open hole logs will be run in the vertical pilot hole (200' MD to 3480' MD).

II. Drilling:

A. Mud Program:

1. 17 1/2" surface - 0'GL to 200'MD - freshwater spud mud
2. 12 1/4" vertical pilot- 200'MD to 3480'MD - freshwater LSND mud
3. 12 1/4" intermediate -2100'MD to 2750'MD - freshwater LSND mud
4. 8 1/2" production -2750'MD to 6270'MD - KCl mist or mud

NOTE: after log analysis of the vertical pilot hole, the well will be plugged back to a kickoff point of +/- 2100' MD.

B. Pressure Control Program:

1. 17 1/2" hole - diversion only
2. 12 1/4" hole - A 3000 psi WP casinghead will be installed on the surface casing. A 3000 psi drilling spool equipped with kill and choke lines will be installed on the casinghead. A 3000 psi double gate BOP will be installed above the drilling spool. A fill-up line, flow line and rotating head will be installed above the double gate BOP. Pipe and blind rams, choke line, and manifold will be tested at 500 psi and 2000 psi with rig pump. Surface casing will be tested to 70% of burst prior to drilling the shoe. Test plug will be utilized to test rams.

B. Pressure Control Program (cont'd):

3. 8 1/2" hole - A 3000 psi WP casinghead will be installed on the surface casing. A 3000 psi drilling spool equipped with kill and choke lines will be installed on the casinghead. A 3000 psi double gate BOP will be installed above the drilling spool. A fill-up line, flow line and rotating head will be installed above the double gate BOP. Pipe and blind rams, choke line, and manifold will be tested at 500 psi and 2000 psi with rig pump. Intermediate casing will be tested to 70% of burst prior to drilling the shoe.
4. BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blow out preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. All tests will be reported on the daily drilling report. Preventers will be tested before drilling casing cement plugs. Kelly cock and full opening safety valve for all connections will be available on rig floor at all times.
5. In the event that a kick is taken while drilling, the following procedure will be followed:
 - a. Pick up kelly and raise the tool joint above floor.
 - b. Shut down the mud pump.
 - c. Close the pipe rams.
 - d. Record standpipe pressure (SIDPP) after it stabilizes and pit gain.
 - e. Calculate Initial Circulating Pressure = Slow Circulating Pressure + SIDPP.
 - f. Calculate kill mud weight required.
 - g. Complete kill sheet.
 - h. Decide whether to raise mud weight or drill under-balanced.

7. BOP Configuration:

17 1/2" surface hole - 0' to 200' MD -not applicable

3000 psi system

12 1/4" intermediate hole - 200' to 3480' MD -Figure #1 & #2

3000 psi system

8 1/2" production hole - 2750' to 6270' MD -Figure #1 & #2

III. Casing Program: (All casing will be new)

<u>A. Hole Size</u>	<u>Csg. Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Interval</u>
17 1/2"	13 3/8"	54.5#	K-55 ST&C	0' to 200' MD
12 1/4"	9 5/8"	36.0#	K-55 LT&C	0' to 2100' MD
12 1/4"	9 5/8"	47.0#	N-80 LT&C	2100' to 2750' MD
8 1/2"	5 1/2"	15.5#	K-55 LT&C	2600' to 6270' MD

NOTE: Pre-perforated 5 1/2" casing will be run across potential hydrocarbon bearing intervals.

The potential exists to cement the 5 1/2" liner in place for more efficient completion operations if the well does not produce naturally.

B. Float Equipment:

13 3/8" casing - guide shoe, float collar, centralizers every 4th joint.

9 5/8" casing - guide shoe, float collar, bowspring centralizers every 4th joint through vertical, and every joint through curve.

5 1/2" casing - guide shoe, bowspring centralizers every other joint.

C. Wellhead Equipment:

13 5/8" 3000 psi x 13 3/8" 8rd casing head

13 5/8" 3000 psi x 11" 3000 psi tubinghead

11" 3000 psi x 2 1/16" 3000 psi adapter

Tree assembly for single completion service.

IV. Cementing:

17 1/2" surface - cement with 350 sacks Class "B" 65/35 Pozmix with 1/4# flocele/sack and 3% calcium chloride (12.6#/gal. weight; 531 cu.ft. of slurry). Tail with 200 sacks Class "B" neat with 1/4# flocele/sack and 3% calcium chloride (15.6#/gal weight; 235 cu.ft. of slurry). 100% excess circulated to surface.

12 1/4" intermediate -

Lead with 700 sacks of Class "B" 65/35 Pozmix with 1/4# flocele/sack and 2% calcium chloride (12.6#/gal. weight; 1250 cu.ft. of slurry). Tail with 200 sacks Class "B" neat with 1/4# flocele/sack and 2% calcium chloride, (15.6#/gal. weight; 236 cu.ft. of slurry). Caliper plus excess circulated to surface.

8 1/2" production - uncemented liner will be run. (Refer to note under III. Casing Program).

V. Drill Stem Test Program: none anticipated

VI. Directional Data: (See Figures 6 and 7)

	<u>MD</u>	<u>TVD</u>	<u>N/S</u>	<u>E/W</u>
Kickoff Point	2100'	2100'	0'	0'
9 5/8" casing	2750'	2550'	257'	-280'
Total Depth	6270'	3100'	2615'	-2838'

NOTE: desired azimuth will be 313 degrees from true north.

An estimated build rate of 12.5 degree/100' MD is planned from kickoff point to 80 degrees inclination. After intermediate casing is run, the 80 degree inclination will be maintained until total depth is reached.

NOTE:

No abnormal pressures are anticipated.

No abnormal temperatures are anticipated.

No hazardous zones are anticipated.

New casing will be utilized.

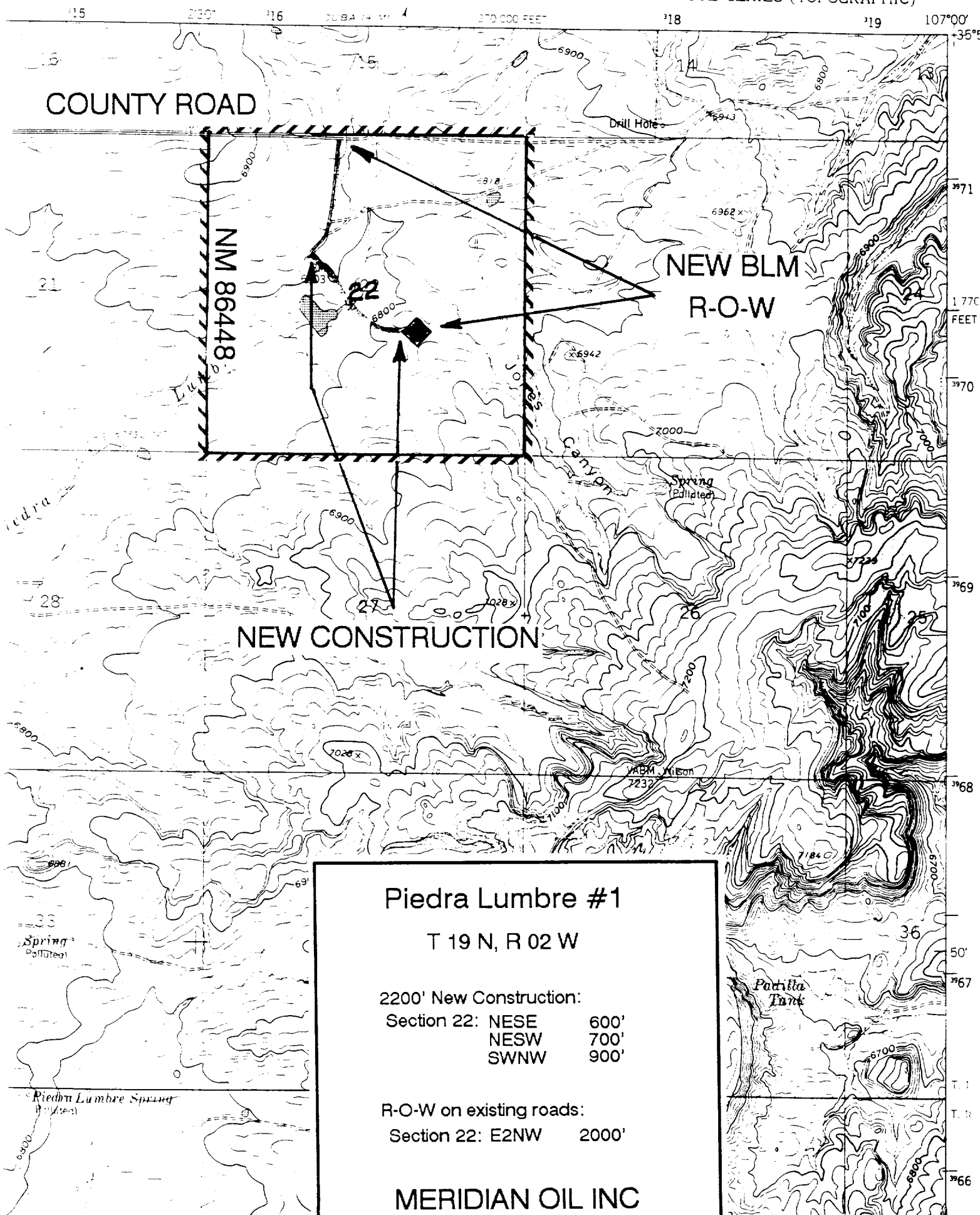
Cementing Contractor will provide the BLM with a chronological log including the pump rate and pressure, and the slurry density and volume for all cement jobs.

All of Section 22 is dedicated to this well.

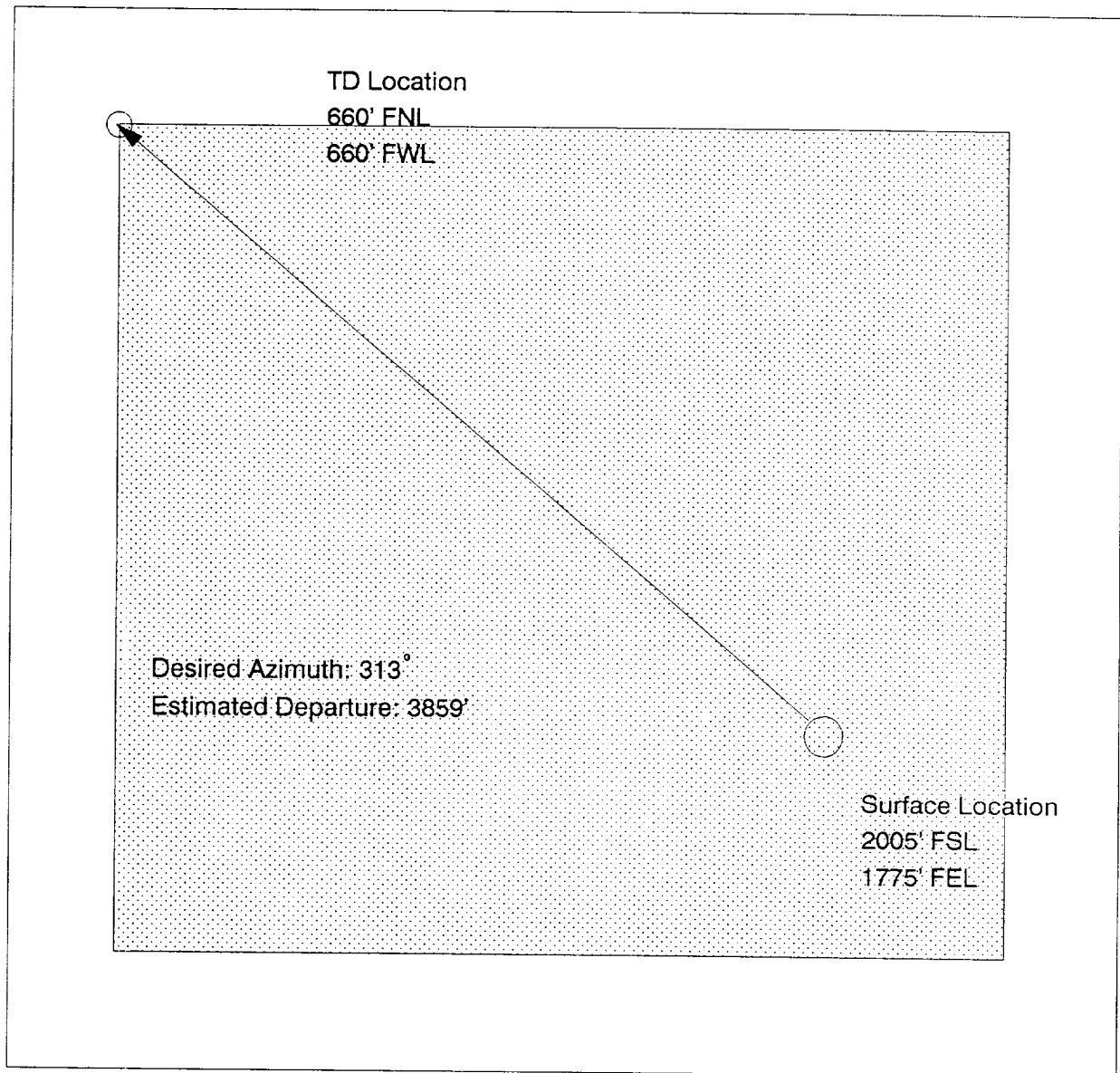
HEADCUT RESERVOIR QUADRANGLE

NEW MEXICO-SANDOVAL CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)



PIEDRA LUMBRE #1
SEC 22-T19N-R02W
SANDOVAL COUNTY, NM



Legal Limitations: 2615' North; 2838' West



Denotes Legal Window (660' Setbacks)

Figure #3

NW

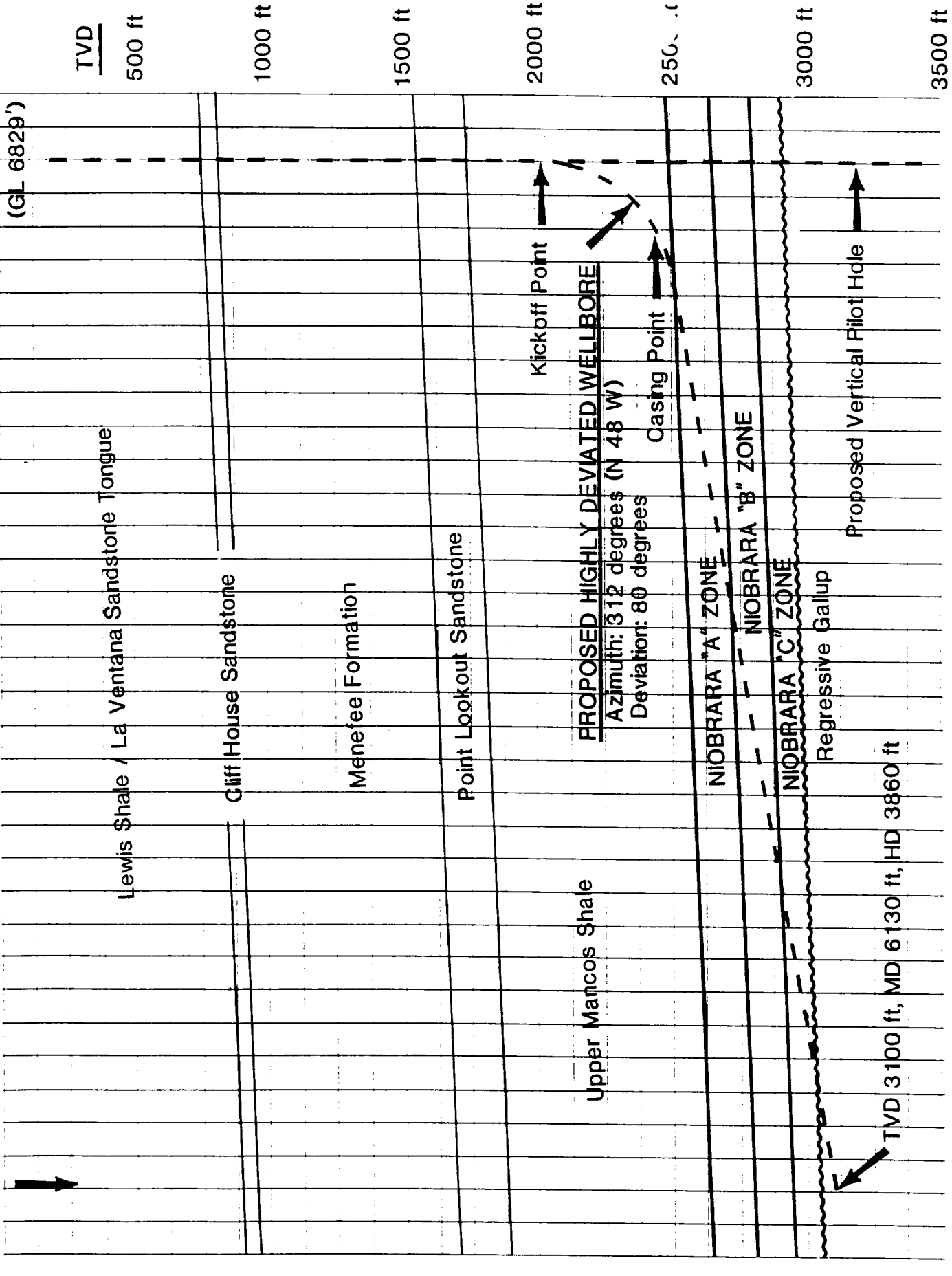
SE

MERIDIAN OIL - PIEDRA LUMBRE NO. 1

Bottomhole location
660' FNL & 660' FWL

Section 22-T19N-R2W Sandoval County, New Mexico

Surface location
2205' FSL & 1775' FEL



HORIZONTAL DISPLACEMENT