

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒ DIRECTIONALDEEPEN ☐

b. TYPE OF WELL

OIL WELL ☐GAS WELL ☒

OTHER

SINGLE ZONE

MULTIPLE ZONE

2. NAME OF OPERATOR

LOUIS DREYFUS NATURAL GAS CORPORATION (GENE SIMER)

3. ADDRESS AND TELEPHONE NO.

Oklahoma City, Ph.

14000 Quail Springs Parkway, Suite 6000 Oklahoma 73134 405-749-

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements*) 1300

At surface AREA OF MAJOR CONCERN TO THE CITY OF CARLSBAD

1930' FWL & 280' FSL SEC. 13 T22S-R25E EDDY CO. NM

At proposed prod. zone

* 990' FSL & 1980' SEC. 13 T22S-R25E EDDY CO. NM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

Approximately 5 miles West of Carlsbad New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any)

990'

16. NO. OF ACRES IN LEASE

320

17. NO. OF ACRES ASSIGNED TO THIS WELL

320

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

NA

19. PROPOSED DEPTH

11875' 11,888'

20. ROTARY OR CABLE TOOLS

ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3399' GR.

22. APPROX. DATE WORK WILL START*

As soon as approved

23.

PROPOSED CASING AND CEMENTING PROGRAM

Carlsbad Controlled Water Basin

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
25"	Conductor 20"	NA	40'	Circulate to surface with Redi-mix
17 1/2"	J-55 13 3/8"	54.5	600'	400 Sx. circulate cement to surface
12 1/4"	K-55 9 5/8"	36	2250'	900 Sx. " " " "
8 3/4"	S-95 5 1/2"	17	11,888'	980 Sx. Top of cement 2000'

1. Drill 25" hole to 40'. Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
2. Drill 17 1/2" hole to 600'. Run and set 600' of 13 3/8" 54.5# J-55 8-R ST&C casing. Cement with 400 Sx. of Class "C" cement + 2% CaCl, circulate cement to surface.
3. Drill 12 1/4" hole to 2250'. Run and set 2250' of 9 5/8" 36# K-55 8-R ST&C casing. Cement with 650 Sx. of Class "C" + 4% Gel + 2% CaCl, tail in with 250 Sx. of Class "C" + 2% CaCl, circulate cement to surface.
4. Drill 8 3/4" hole to 11,888'. Run and set 11,888' of 5 1/2" 17# S-95 8-R LT&C casing. Cement in two stages, DV Tool at 4000'±. Cement 1st stage with 500 Sx. of Self-Stress (10/10) + 2% CaCl + 1/4# Flocele/Sx. + 2% Defoamer. Cement 2nd stage with 180 Sx. of 65/35 POZ Class "H" + 6% Gel + 1/4# of flocele/Sx., tail in with 300 Sx. of Self-Stress (10/10) + 2% CaCl + 1/4# of Flocele/Sx. + 2% CaCl, estimate top of cement 2000'.

* See attached deviation schedule.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

TITLE

Agent

DATE 08/26/97

(This space for Federal or State office use)

Approval Subject to
General Requirements and
Special Stipulations
Attached

PERMIT NO.

APPROVAL DATE

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:

(ORIG. SGD.) TONY L. FERGUSON

ADM, MINERALS

APPROVED BY

TITLE

DATE

*See Instructions On Reverse Side

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 10, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-29871		Pool Code 78060	Pool Name HAPPY VALLEY MORROW GAS
Property Code	Property Name McGRUDER 13 FEDERAL COM		Well Number 1
OGRID No. 25773	Operator Name LOUIS DREYFUS NATURAL GAS CORPORATION		Elevation 3399.

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
N	13	22-S	25-E		280	SOUTH	1930	WEST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
0	13	22-S	25-E		990	SOUTH	1980	EAST	EDDY

¹² Dedicated Acres 320	¹³ Joint or In/Full	¹⁴ Consolidation Code	¹⁵ Order No. 660	1650
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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

<p>16</p>	<p>¹⁷ OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Joe T. Janica</i></p> <p>Signature Joe T. Janica</p> <p>Printed Name Agent</p> <p>Title 08/26/97</p> <p>Date</p>
	<p>¹⁸ SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was placed from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>August 15, 1997</p> <p>Date of Survey</p> <p>Signature and Seal of Professional Surveyor:</p> <p>NEW MEXICO 5412 REGISTERED LAND SURVEYOR PROFESSIONAL ENGINEER</p> <p>Certificate Number NM PE&PS NO. 5412</p>

Halliburton Energy Services

Page 1

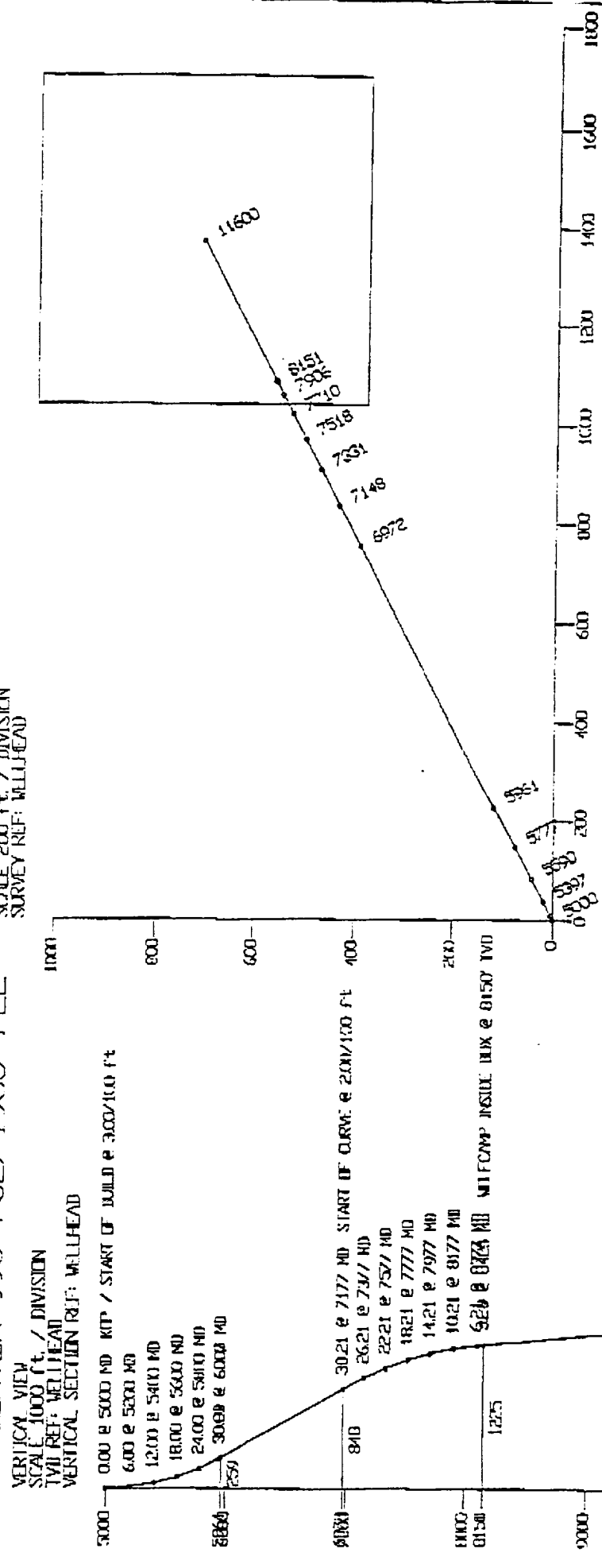
Proposal Report

Date: 8/20/97
Time: 2:59 pm
Wellpath ID: PROPOSAL
Last Revision: 8/20/97Calculated using the Minimum Curvature Method
Computed using WIN-CADDS REV2.2.2
Vertical Section Plane: N 62.60 ESurvey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEADLOUIS DREYFUS NATURAL GAS
McGRUDER "13" FED COM #1
EDDY COUNTY, NEW MEXICO
SEC. 13 - T22S - R25ESHL: 280' FSL, 1930' FWL
TARGET CENTER 990' FSL, 1980' FEL

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft) (ft)		DLS (dg/100ft)
TIE IN								
0.00	0.00	N 0.00 E	0.00	0.00	0.00	0.00 N	0.00 E	0.00
KOP / START OF BUILD @ 3.00 deg/100 ft								
5000.00	0.00	N 0.00 E	5000.00	5000.00	0.00	0.00 N	0.00 E	0.00
5200.00	6.00	N 62.60 E	200.00	5199.63	10.46	4.81 N	9.29 E	3.00
5400.00	12.00	N 62.60 E	200.00	5397.08	41.74	19.20 N	37.05 E	3.00
5600.00	18.00	N 62.60 E	200.00	5590.18	93.48	43.01 N	82.99 E	3.00
5800.00	24.00	N 62.60 E	200.00	5776.81	165.12	75.97 N	146.60 E	3.00
6000.00	30.00	N 62.60 E	200.00	5954.93	255.87	117.73 N	227.18 E	3.00
6006.93	30.21	N 62.60 E	6.93	5960.82	259.35	119.33 N	230.26 E	3.00
START OF CURVE @ 2.00 deg/100 ft								
7177.16	30.21	N 62.60 E	1170.23	6972.24	848.13	390.25 N	753.02 E	0.00
7377.16	26.21	N 62.80 E	200.00	7148.45	942.65	433.74 N	836.93 E	2.00
7577.16	22.21	N 62.60 E	200.00	7330.83	1024.64	471.47 N	909.73 E	2.00
7777.16	18.21	N 62.60 E	200.00	7518.48	1093.71	503.25 N	971.06 E	2.00
7977.16	14.21	N 62.60 E	200.00	7710.49	1149.53	528.93 N	1020.61 E	2.00
8177.16	10.21	N 62.60 E	200.00	7905.93	1191.81	548.39 N	1058.15 E	2.00
8377.16	6.21	N 62.60 E	200.00	8103.84	1220.36	561.52 N	1083.50 E	2.00
WOLFCAMP INSIDE BOX @ 8150' TVD								
8423.55	5.28	N 62.60 E	46.39	8150.00	1225.00	563.66 N	1087.62 E	2.00
8424.84	5.29	N 62.60 E	1.29	8151.28	1226.12	563.71 N	1087.72 E	1.00
TARGET CENTER								
11888.18	5.27	N 62.60 E	3463.34	11599.93	1543.83	710.36 N	1370.69 E	0.00

LUIS DREYFUS NATURAL GAS
MCGRUDER "13" FED COM #1
EDDY COUNTY, NEW MEXICO
SEC. 13 - T22S - R25E

SILL: 280' FSL, 1930' FWL
TARGET CENTER 990' FSL, 1980' FEL



REVISED IN	1150999	N
	1180818	E
	154383	
	710.36	
	137069	

VERTICAL_SECTION_PLANE: N 62.60 E

APPLICATION TO DRILL
LOUIS DREYFUS NATURAL GAS CORP.
McGRUDER "13" FEDERAL COM. #1
BHL UNIT "O" SECTION 13
T22S-R25E EDDY CO. NM

In response to questions asked under Section II B of Bulletin NTL-6 the following information is provided for your consideration:

1. Location: 280' FSL & 1930' FWL SEC. 13 T22S-R25E EDDY CO. NEW MEXICO
2. Elevation above sea level: 3399' GR.
3. Geologic name of surface formation: Quaternary Deposits.
4. Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
5. Proposed drilling depth: 11,888'

6. Estimated tops of geological markers:

Delaware	2303'	Strawn	9672'
Bone Spring	4650'	Atoka	9996'
Wolfcamp	8225'	Morrow	10506'
Penn	8882'	Base Morrow Sh.	11064'

7. Possible mineral bearing formation:

Bone Spring	Oil	Strawn	Gas
Wolfcamp	Gas	Atoka	Gas
Penn	Gas	Morrow	Gas

8. Casing program:

<u>Hole size</u>	<u>Interval</u>	<u>OD casing</u>	<u>Weight</u>	<u>Thread</u>	<u>Collar</u>	<u>Grade</u>
25"	0-40'	20"	NA	NA	NA	Conductor
17½"	0-600'	13 3/8"	54.5	8-R	ST&C	J-55
12½"	0-2250'	9 5/8"	36	8-R	ST&C	K-55
8 3/4"	0-11,888'	5½"	17	8-R	LT&C	S-95

APPLICATION TO DRILL
LOUIS DREYFUS NATURAL GAS CORP.
McGRUDER "13" FEDERAL COM. #1
BHL UNIT "0" SECTION 13
T22S-R25E EDDY CO. NM

9. CASING CEMENTING & SETTING DEPTHS:

20"	Conductor	Set 40' of 20" conductor and cement to surface with Redi-mix.
13 3/8"	Surface	Set 600' of 13 3/8" 54.5# J-55 ST&C casing. Cement with 400 Sx. Class "C" + 2% CaCl, circulate cement to surface.
9 5/8"	1st Intermediate	Set 2250' of 9 5/8" 36# K-55 ST&C casing. Cement with 650 Sx. of Class "C" + 4% Gel + 2% CaCl, tail in with 250 Sx. of Class "C", circulate cement to surface.
5 1/2"	Production	Set 11,888' of 5 1/2" 17# S-95 LT&C casing. Cement in two stages, DV tool at 4000'±. 1st stage cement with 500 Sx. Self-Stress (10/10) + 2% CaCl + 1/2# Flocele/Sx. 2nd stage cement with 180 Sx. 65/35/ POZ Class "H" + 6% Gel + 1/2# Flocele/Sx. tail in with 300 Sx. Self-Stress (10/10) + 25 CaCl + 1/2# Flocele/Sx. + 2% defoamer. Estimate top of cement 2000'.

10. PRESSURE CONTROL EQUIPMENT: Blow out Preventors consisting of double ram type preventor with bag type annular preventor will be used. Units will be hydraulically operated. Blind rams on top and pipe rams to correspond to the size Drill pipe being used. A 3000 PSI working pressure will be nipped up on 13 3/8" casing from and will be on from 500' to 9000'. A 5000 PSI working pressure will be on hole from 9000' to TD. See attached exhibits. BOP's will be worked at least once each day and blind rams will be worked when drill pipe is out of hole on trips. Flow sensor PVT, full opening stabbing valve and upper kelly cock will be utilized.

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	MUD VISC.	FLUID LOSS	TYPE MUD
40-600'	8.7-9.0	30-40	NC	Fresh water spud mud
600-2250'	8.4-10.2	26-28	NC	Fresh water Cut brine use paper for seepage control.
2250-9000'	8.4-9.1	26-28	NC	Fresh water/ controlled brine paper for seepage.
9000-10400'	10.2	26-28	NC	Fresh water/ controlled brine paper for seepage
10400-11,888'	10.2	32-34	10 cc or less	Cut brine add Gel/Poly Pac starch to control water loss.

Sufficient mud materials to maintain mud properties, meet lost circulation and weight increase requirements will be kept at the well site at all times. In order to log well and run casing the viscosity may have to be raised and the water loss lowered

APPLICATION TO DRILL
LOUIS DREYFUS NATURAL GAS CORP.
McGRUDER "13" FEDERAL COM. #1
BHL UNIT "0" SECTION 13
T22S-R25E EDDY CO. NM

12. Testing, Logging and Coring Program:

- A. Mud logger rigged up on hole at 1550' and remain on hole to TD.
- B. Side wall cores where shows occur from 1650' to 4900'.
- C. Open hole logs: Dual Laterolog, Micro SFL/ Gamma Ray, Caliper 9100' to 600', Dual Laterolog Micro SFL, Copensated Neutron Litho-Density Gamma Ray, Caliper from TD to 9100'.
- D. No DST's are planned at this time.

13. Potential Hazards:

No abnormal pressures or temperatures are expected. Hydrogen Sulfide gas may be encountered, H₂S detectors will be in place to detect any presence. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used. Estimated BHP 5500 PSI, estimated BHT 190° .

14. Anticipated Starting Date and Dtration of Operation:

Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved. Drilling expected to take 60-75 days. If production casing is run an additional 30 days to complete and construct surface facility and place well on production.

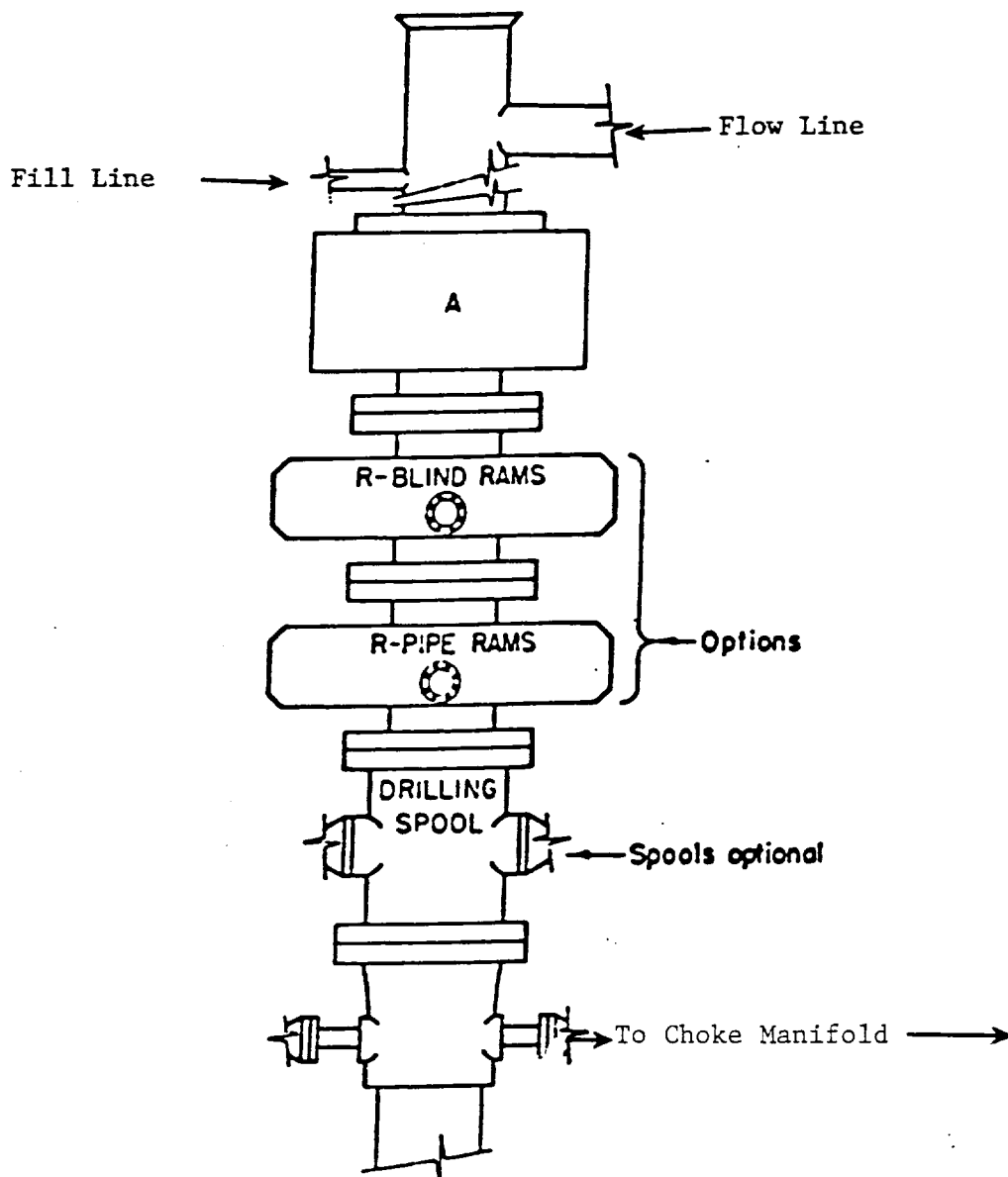
15. Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals. The Morrow pay will be perforated and stimulated. The well will be swab tested and potentialied as a Gas well.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H₂S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
2. H₂S Detection and Alarm Systems
 - A. H₂S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock at briefing area should be high enough to be visible.
 - C. There should be a windsock at entrance to location.
4. Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H₂S present in dangerous concentration. Only emergency personnel admitted to location.
5. Well control equipment
 - A. See exhibit "E"
6. Communication
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephoned will be available at most drilling foreman's trailer or living quarters.
7. Drillstem Testing
 - A. Exhausts will be watered.
 - B. Flare line will be equipped with an electric ignitor or a propane pilot light in case gas reaches the surface.
 - C. If location is near any dwelling a closed D.S.T. will be performed.

8. Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
9. If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.



ARRANGEMENT SRRA

1500 Series
5000# Working Pressure

EXHIBIT "E"
B.O.P. SKETCH TO BE USED ON

LOUIS DREYFUS NATURAL GAS CORP.
McGRUDER "13" FEDERAL COM. #1
BHL UNIT "O" SECTION 13
T22S-R25E EDDY CO. NM

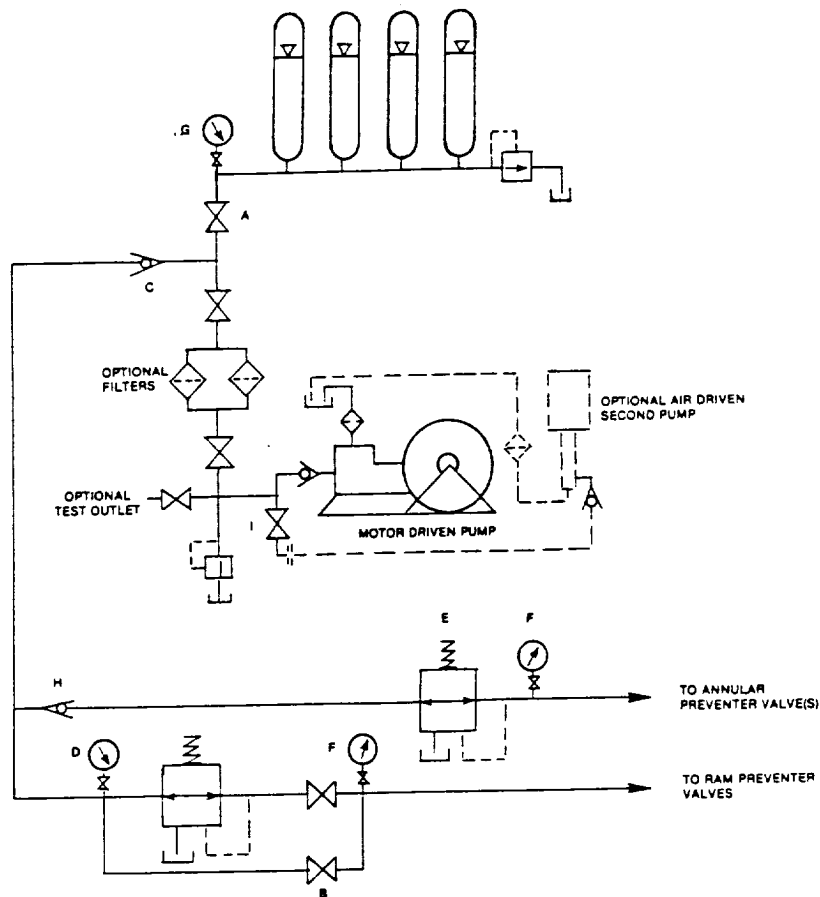


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

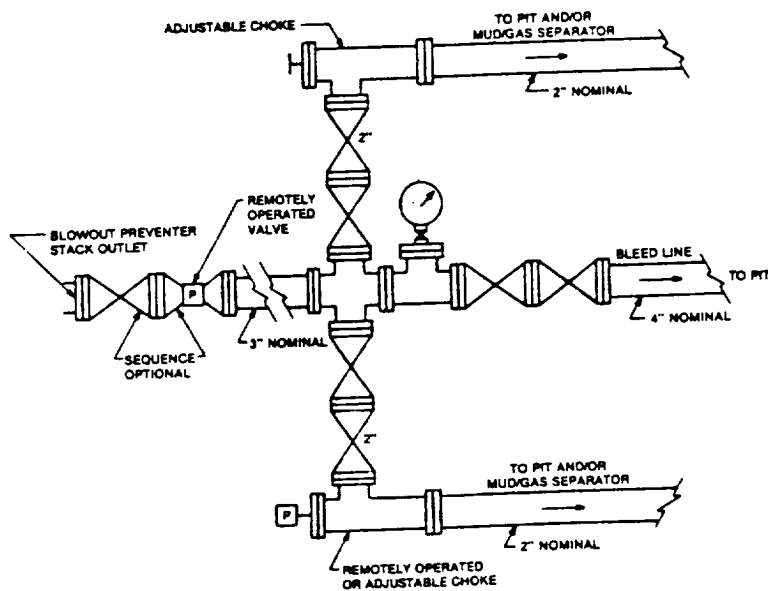


FIGURE K4-2. Typical choke manifold assembly for 5M rated working pressure service — surface installation.

EXHIBIT "E-1"
CHOKE MANIFOLD & CLOSING UNIT

LOUIS DREYFUL NATURAL GAS CORP.
McGRUDER "13" FEDERAL COM. #1
BHL UNIT "O" SECTION 13
T22S-R25E EDDY CO. NM