

SECRETARY'S POTASH

OCD Hobbs

ATS-14-737

Form 3160-3
(March 2014)

HOBBS OCD

MAR 09 2015

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 20145. Lease Serial No.
NMNM-732406. If Indian, Allottee or Tribe Name
N/A

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

8. Lease Name and Well No.
FEDERAL 30 #4H

9. API Well No.

10. Field and Pool, or Exploratory
GEM; BONE SPRING11. Sec., T. R. M. or Blk. and Survey or Area
UL- B, SEC. 30, T-19-S, R-33-E1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator HARVEY E. YATES COMPANY

3a. Address 500 N. MAIN, SUITE ONE, P.O Box 1933
ROSWELL, NM 882023b. Phone No. (include area code)
575-623-6601

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

At surface 330 FNL, 2030 FEL

At proposed prod. zone 330 FSL, 1980 FEL

14. Distance in miles and direction from nearest town or post office*
15 miles south of Majamar N.M12. County or Parish
LEA13. State
NM15. Distance from proposed* 330'
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)16. No. of acres in lease
640 643.00017. Spacing Unit dedicated to this well
16018. Distance from proposed location* 660'
to nearest well, drilling, completed,
applied for, on this lease, ft.19. Proposed Depth
MD 14,320',
TVD 9,973'20. BLM/BIA Bond No. on file
NM # B00031721. Elevations (Show whether DF, KDB, RT, GL, etc.)
3601' GL22. Approximate date work will start*
01/01/201523. Estimated duration
45 DAYS

24. Attachments

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

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

25. Signature

Name (Printed/Typed)
Keith CannonDate
04/22/2014

Title

DRILLING Superintendent

Approved by (Signature)

/s/George MacDonell

Name (Printed/Typed)

Date MAR 5 2015

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

MAR 10 2015

DRILLING AND OPERATIONS PLAN**Harvey E. Yates Company****Well: Federal 30 - #4H**

SHL: 330' FNL & 2030' FEL

UL- B, Sec.30 T19S R33E

BHL: 330' FSL, 1980' FEL

UL- O, Sec. 30 T19S R33E,

Lea County, New Mexico

Federal Lease Number: NMNM-073240

ELEVATION: GL 3,601'

GEOLOGICAL NAME OF SURFACE FORMATION: QAL AND VEGETATED SAND DUNES AT SURFACE

Type of Well: Horizontal Oil Well, drill with rotary tools

DEPTH FRESH WATER: POSSIBLE GROUND WATER IN SANTA ROSA 800-950FT, WATER WELL SEC 18, T19S-R33E.

TOPS OF IMPORTANT GEOLOGICAL MARKERS:

	MD DVD	TVD MD
Rustler	1205'	
Top Salt	1,335'	
Tansill (base salt)	2745'	
Yates	2,940'	
Top Capitan Reef	3,255'	
Base Capitan Reef	3,685'	
Delaware	5,300'	
Bone Spring Ls	7,820'	
1 st Bone Spring Sand	8,985'	
Bone Spring "B" Carb.	9,255'	
Kick Off Point	9,370'	
2 nd Bone Spring Sand	9,525'	9,515'
2 nd Sd "B" Bench	9,960'	9,800'
2 nd Sd "C" Bench	10,120'	9,920'
End of Curve Target	10,270'	9,940'
Horizontal Target Pay	14,320'	9,970'

Estimated Depth of Anticipated Water, Oil or Gas:

Santa Rosa	800' - 950'	Water
Yates - Seven Rivers	2,978' - 3,255'	Oil, Gas and Water
Delaware	5,300' - 7,500'	Oil, Gas and Water
Bone Springs	8,900' - 9,800'	Oil, Gas and Water

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water will be protected by setting 20" casing at 1250' and circulating cement back to surface, all other intervals will be isolated by the 13-3/8", 9 5/8" intermediate and 5 1/2" production casing. ^{1270'}

CASING PROGRAM

HOLE SIZE	CASING SIZE	WT./GRADE	THREAD/COLLAR	SETTING DEPTH	TOP CEMENT
26"	20" (new)	133# K-55	8rd BTC	1250' ^{1270'}	Surface
17.5"	13 3/8" (new)	61# J-55	8rd STC	2800' ^{3200'}	Surface
12.25"	9 5/8" (new)	40# HCL-80	8rd LTC	5,000'	Surface
8.75" (EOC)	5 1/2" (new)	17# HCP-110	8rd LTC	9200'	4,500ft
7.875"	5 1/2" (new)	17# HCP-110	8rd/ BPN	14,320'	

Size	Weight (lbs/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tension (M lbs)
SURFACE				REQ'D 1.125	1.1	1.8
20	133	K-55	BTC	1500 / 2.45	3060 / 3.06	2123 / 12.77
INTERMEDIATE				REQ'D 1.125	1.1	1.8
13 3/8	61	J-55	STC	1540 / 2.09	3090 / 3.66	962 / 5.63
INTER 2A				REQ'D 1.125	1	1.8
9 5/8	40	HCL-80	LTC	4230 / 1.73	5750 / 3.81	837 / 4.90
PRODUCTION				REQ'D 1.125	1	1.8
5 1/2	17	HCP-110	LTC	8580 / 1.87	10640 / 3.27	485 / 2.32
					10640 / 2.13	
5 1/2	17	HCP-110	BPN	8580 / 1.76	10640 / 3.08	485 / 6.71

ALL CASING WILL BE NEW API APPROVED**CEMENT PROGRAM-ALL CEMENT BLENDS WILL BE TESTED TO BLM MINIMUM REQUIREMENTS.**

A. 20" SURFACE CEMENT TO SURFACE **100% EXCESS OVER CALCULATED**

LEAD: 2,000 SACKS CLASS "C" +4% BENTONITE +2% CaCL
+.25# CELLO-FLAKE+.25% DEFOAMER, 13.5 PPG, 1.75 YIELD,
8.829 GAL/SKS

TAIL: 250 SACKS CLASS C + .25% DEFOAMER 14.8 PPG, 1.34
YIELD, 6.32 GAL/SKS

B. 13 3/8" INTERMEDIATE CEMENT TO SURFACE **50% EXCESS OVER CALCULATED**

LEAD 1,400 SACKS CLASS "C" + 4% BENTONITE +2% CaCL +.25#
CELLO-FLAKE+.25% DEFOAMER, 13.5 PPG, 1.75 YIELD, 8.83
GAL/SKS

See COA

TAIL: 250 SACKS CLASS "C" +2% CACL +.25# CELLO-FLAKE +.25% DEFOAMER, 14.8 PPG, 1.35 YIELD, 6.32 GAL/SKS

C. 9 5/8"

2ND INTERMEDIATE

CEMENT TO SURFACE 50% EXCESS OVER CALCULATED

LEAD 1050 SACKS CLASS "C" 35/65 +6% BENTONITE +5% SALT +.25% DEFOAMER 12.8 PPG, 1.9 YIELD, 9.6 GAL/SKS

TAIL 250 SACKS CLASS "C" + .25% DEFOAMER, 14.8 PPG, 1.33 YIELD, 6.32 GAL/SKS

D. 5 1/2"

PRODUCTION

CEMENT TO ~~4,500'~~ ^{50' above Capitan Reef estimated @ 3665'} (WILL RUN FLUID CALIPER) 25% EXCESS OVER FLUID CALIPER, OR 50% OVER CALCULATED.

LEAD 850 SACKS CLASS H 50/50 +10% BENTONITE +.15% C-20 RETARDER +3# STAR SEAL +.3% C-12 FLUID LOSS +3% SALT +.25% DEFOAMER, 11.8 PPG, 2.37 YIELD, 13.8 GAL/SKS

TAIL 250 SACKS CLASS "H" STAR BOND +.5% FL-10 +.2% C-20, +3# GILSONITE +.25% DEFOAMER +3% SALT 13.2 PPG, 1.6 YIELD, 8.8 GAL/SAK

SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT: (EXHIBIT #5)

See COA
A 2000# WP rotating head will be installed before drilling out the 20" casing shoe. A 2000# annular will be installed after running 13-3/8" casing. A 3000# WP Double Ram BOP and 3,000 annular will be installed after running the 9-5/8" casing. Pressure test will be conducted prior to drilling out under all casing strings. BOP controls will be installed prior to drilling under surface casing and will remain in use until completion of drilling operations. BOP's will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the Kelly is not in use. BOPE will be tested to 250psi low & 3000psi high and the annular to 250psi low & 1500psi high with a third party testing company before drilling below 9 5/8" casing shoe. If operations last more than 30 days from 1st test, will test again as per BLM Onshore Oil and Gas order #2, *test to 2000 psi*

MUD PROGRAM:

See COA
Drill 26" surface hole with **fresh water (8.4 to 8.7 ppg)** to a depth of approx ^{1270'} ~~4250'~~. Control lost circulation with paper and LCM pills. Viscosity 28-55, no fluid loss control. Fresh water gel sweeps.

Drill 17-1/2" hole from ^{1270'} ~~1250'~~ to ^{3200'} ~~2,800'~~ with **Brine (9.5 to 10.0 ppg)**. Control lost circulation with paper and LCM pills. Viscosity 28-30, no fluid loss control. Salt water gel sweeps.

Drill 12-1/4" hole from ^{3200'} ~~2,800'~~ to 5,000 with **fresh water (8.4 to 8.7 ppg)**. Control lost circulation with paper and LCM pills. Viscosity 28-55, no fluid loss control. Fresh water gel sweeps.

Drill 8 3/4" production hole from 5,000' to End of Curve (EOC) 10,232' MD 9,970' TVD. At EOC, hole size reduced to 7 7/8" drilling lateral hole to 14,320' MD 9,970' TVD using **fresh water (8.4 to 8.7 ppg) or cut brine (8.4 to 9.0 ppg)**. Control lost circulation with paper and LCM pills. From 6300' to EOC (8.7 to 9.0 ppg) control filtrate with starch and water loss additives. Clean hole with pre-hydrated freshwater gel sweeps, as necessary. System properties: viscosity 34-40, fluid loss <20 ml/30min.

All necessary mud products for weight addition and fluid loss control will be on location at all times. Mud program subject to change due to hole conditions.

TESTING, LOGGING & CORING PROGRAM:

- a. Testing: No DST's are expected.
- b. Open hole logs are planned at TD of vertical hole @ 9370',
 - 1. Halliburton Triple Combo
- c. Mud logging – catch 10' cutting samples from 3,250ft to TD
- d. Gyro survey will be run at KOP of 9,370'
- e. MWD (directional) and MWD (gamma) surveys will be taken from KOP (9,370') to TD.

POTENTIAL HAZARDS:

See COA
No significant hazards are expected to lateral TD 14,320' MD of 9,370ft. No abnormal pressure or temperatures are expected. **Expected pressure gradient is 0.35 psi/ft. as estimated from static pressure tests conducted on nearby wells. (Estimated at TVD: BHP= 3,479 psi & BHT= 143 degrees F).** Lost circulation may occur. No H₂S is anticipated, but operator will maintain a 3rd party H₂S monitoring package from 2800' to TD. If H₂S is encountered, operator will comply with the provisions of Onshore Oil & Gas Order #6. All personnel will be trained & familiar in all aspects for safely operating the equipment used to drill this well..

ANTICIPATED STARTING DATE & DURATION:

Harvey E. Yates (Heyco) anticipates drilling operations to begin after receiving approved APD. Expected time to drill is approximately 45 days with an additional 15 days needed for completion. Road and location construction will start shortly after BLM has approved the APD.

Keith Cannon
Harvey E. Yates

HORIZONTAL WORKSHEET

11/19/12

FOR STARTING

WELL NAME: Federal 30 #4H
SURFACE LOCATION: 330 FNL & 1980 FEL
SEC TOWNSHIP RANGE: 30 19S 33E

TARGET DEPTH: 9970 FT TO 9 TD
TARGET ANGLE: 150.0 DEGREES
PLANNED HOLE LENGTH: 4820 FT
PLANNED NOD: 9970 FT TO 9 TD

COUNTY: Lea
STATE: NM
FORMATION: Bone Spring 2nd Sd
MAJOR ROSS: 10 DEGREE
FORMATION DPT: 1.1 DEGREES
DIRECTION: 140 AZIMUTH
DECLINATION: NNE
STARTING PT: 0.001 DEGREES
AT 30 FEET

BEGINNING SURVEY

COMPANY: 0

SURVEY TYPE: 0

0

TIE IN POINT

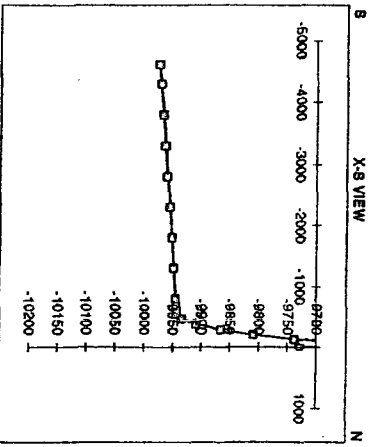
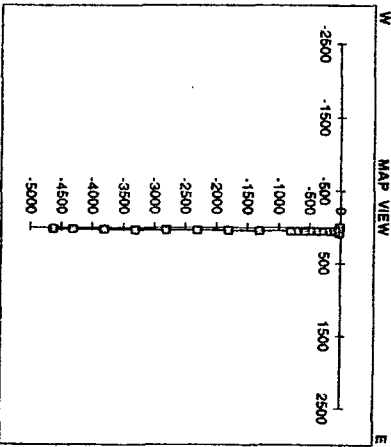
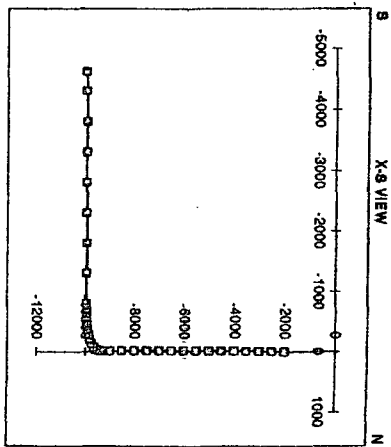
MD INCL AZIMUTH TVD COORDINATES (E-W) VERT SEC (N-S) (E-W) (N-S) 0.01 0.01

1300.00 0.25 145.00 1300.00 -0.01 0.01

MEASURED DEPTH (ft)	INCL ANGLE (degrees)	HOLE AZIMUTH (degrees)	COURSE LENGTH (ft)	T.V.D. (ft)	TOTAL VERT SEC (ft)	COORDINATES (E-W) (ft)	CLOSURE DISTANCE (ft)	DOUBLE SEVERITY (deg/100)	BUILD RATE (deg/100)
2000.0	0.3	140.0	700.0	2000.0	2.7	-2.7	3.4	0.0	0.0
2500.0	0.4	135.0	500.0	2500.0	4.8	-4.8	6.2	0.0	0.0
3000.0	0.4	130.0	500.0	3000.0	7.0	-7.0	8.4	0.0	0.0
3500.0	0.5	125.0	500.0	3500.0	9.2	-9.2	13.1	0.0	0.0
4000.0	0.5	120.0	500.0	3999.9	11.5	-11.5	12.8	0.0	0.0
4500.0	0.6	115.0	500.0	4499.9	13.8	-13.8	16.8	0.0	0.0
5000.0	0.6	110.0	500.0	4999.9	16.5	-16.5	21.5	0.0	0.0
5500.0	0.7	105.0	500.0	5499.8	17.1	-17.1	26.7	0.0	0.0
6000.0	0.7	100.0	500.0	5999.8	18.4	-18.4	32.5	0.0	0.0
6500.0	0.8	95.0	500.0	6499.8	19.2	-19.2	38.7	0.0	0.0
7000.0	0.8	90.0	500.0	6999.7	19.5	-19.5	45.5	0.0	0.0
7500.0	0.9	85.0	500.0	7499.7	19.2	-19.2	52.7	0.0	0.0
8000.0	0.9	80.0	500.0	7999.6	18.2	-18.2	60.2	0.0	0.0
8500.0	1.0	75.0	500.0	8499.6	16.5	-16.5	68.1	0.0	0.0
9000.0	1.0	70.0	500.0	8999.5	13.9	-13.9	76.2	0.0	0.0
9500.0	1.0	65.0	500.0	9499.4	11.4	-11.4	82.3	0.0	0.0
9970.0	10.0	240.0	100.0	9499.9	17.0	-17.0	85.2	11.0	9.0

Federal 30 #4H 11/19/12

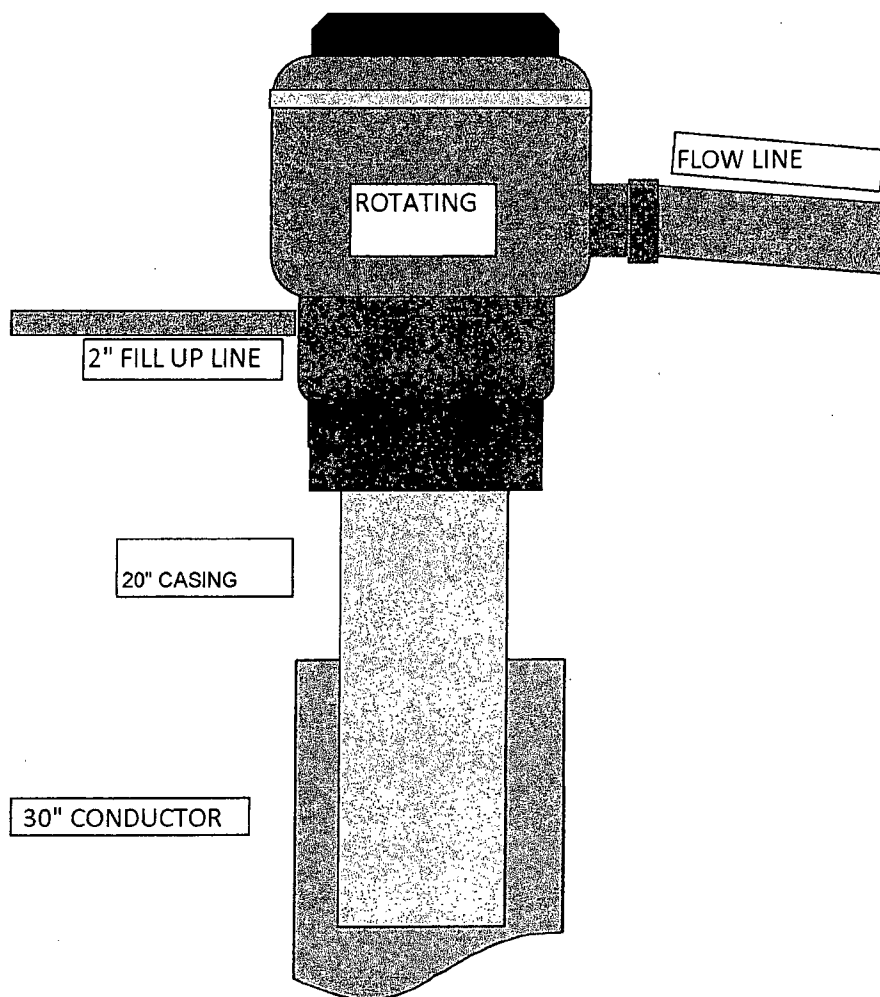
MEASURED DEPTH (ft)	INCL ANGLE (degrees)	HOLE AZIMUTH (degrees)	COURSE LENGTH (ft)	T.V.D. (ft)	TOTAL VERT SEC (ft)	COORDINATES (E-W) (ft)	CLOSURE DISTANCE (ft)	DOUBLE SEVERITY (deg/100)	BUILD RATE (deg/100)
9570.0	20.0	210.0	100.0	9565.3	35.0	-35.0	67.2	12.4	10.0
9670.0	30.0	180.0	100.0	9655.8	75.3	-75.3	94.0	15.7	10.0
9770.0	40.0	150.0	100.0	9737.7	132.6	-132.6	143.9	10.0	10.0
9870.0	50.0	120.0	100.0	9808.3	203.2	-203.2	210.6	10.0	10.0
9970.0	60.0	90.0	100.0	9866.6	285.0	-285.0	290.3	10.0	10.0
10070.0	70.0	60.0	100.0	9907.8	375.5	-375.5	379.5	10.0	10.0
10170.0	80.0	30.0	100.0	9933.6	472.0	-472.0	475.1	10.0	10.0
10270.0	90.0	0.0	100.0	9942.3	571.5	-571.5	574.0	10.0	10.0
10400.0	98.6	180.0	100.0	9942.8	701.5	-701.5	703.5	0.4	-0.3
10500.0	98.6	180.0	100.0	9943.6	801.5	-801.5	803.2	0.1	0.0
11000.0	98.6	180.0	500.0	9947.5	1301.5	-1301.5	1302.4	0.0	0.0
11500.0	98.6	180.0	500.0	9951.4	1801.4	-1801.4	1802.0	0.0	0.0
12000.0	98.6	180.0	500.0	9955.3	2301.4	-2301.4	2301.8	0.0	0.0
12500.0	98.6	180.0	500.0	9959.2	2801.4	-2801.4	2801.7	0.0	0.0
13000.0	98.6	180.0	500.0	9963.0	3301.4	-3301.4	3301.6	0.0	0.0
13500.0	98.6	180.0	500.0	9966.8	3801.4	-3801.4	3801.5	0.0	0.0
14000.0	98.6	180.0	500.0	9970.6	4301.3	-4301.3	4301.4	0.0	0.0
14320.0	98.6	180.0	320.0	9973.3	4621.3	-4621.3	4621.4	0.0	0.0



HARVEY E. YATES

2M BOP SYSTEM
20" CASING DIVERTER

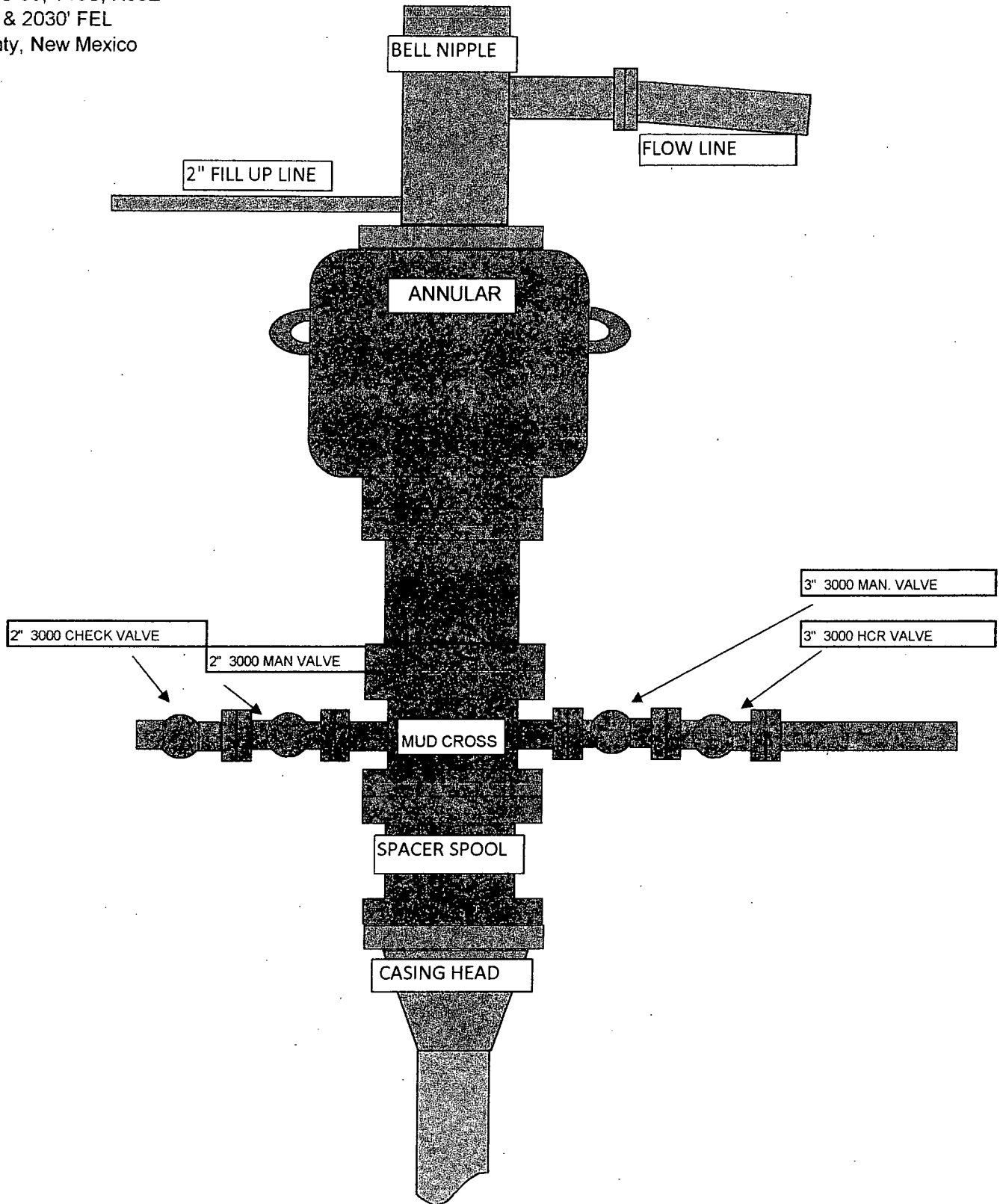
Federal 30 - #4H
UL-B, SEC 30, T19S, R33E
330' FNL & 2030' FEL
Lea County, New Mexico



13 5/8" 2M BOP SYSTEM

HARVEY E. YATES

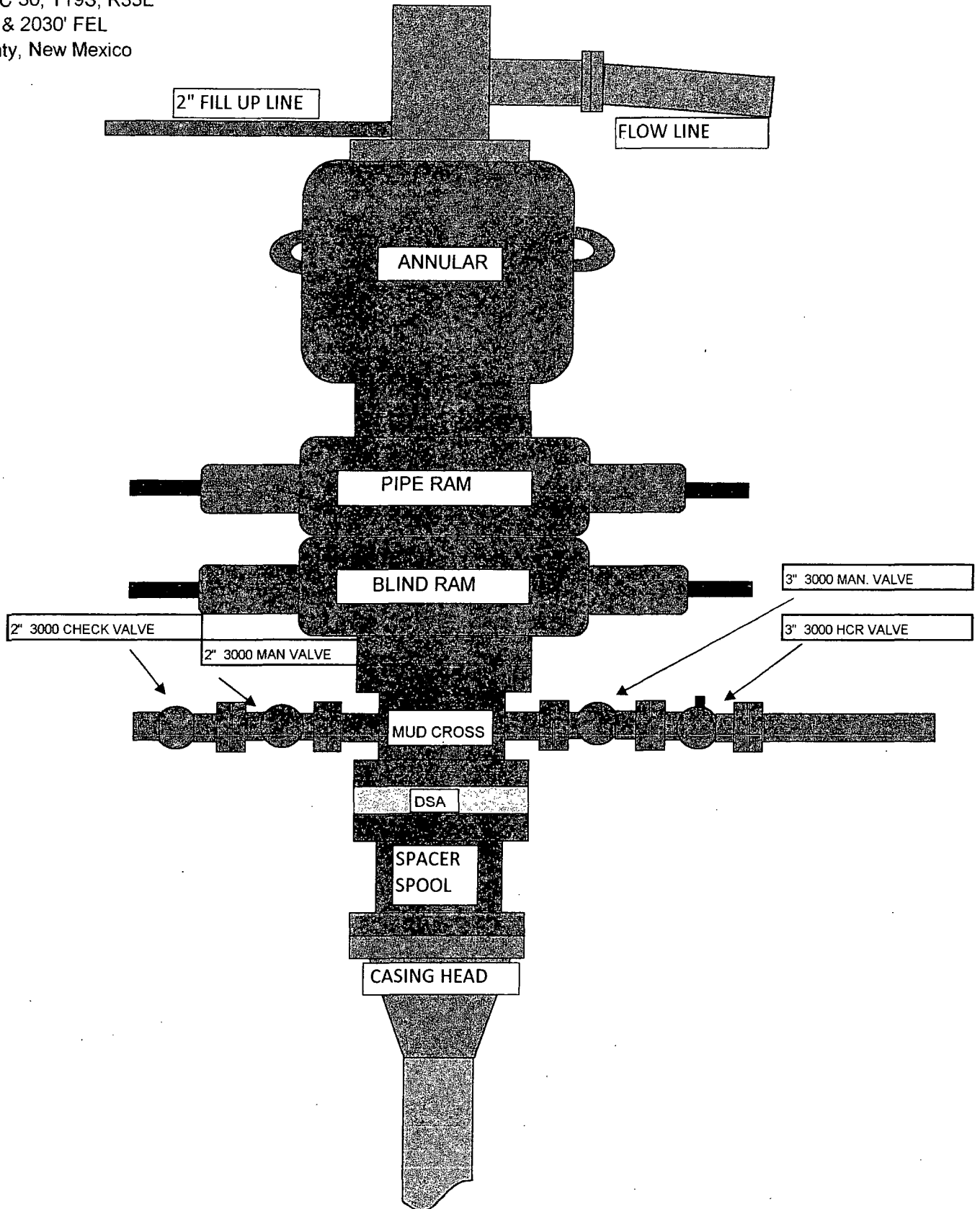
Federal 30 - #4H
UL-B, SEC 30, T19S, R33E
330' FNL & 2030' FEL
Lea County, New Mexico



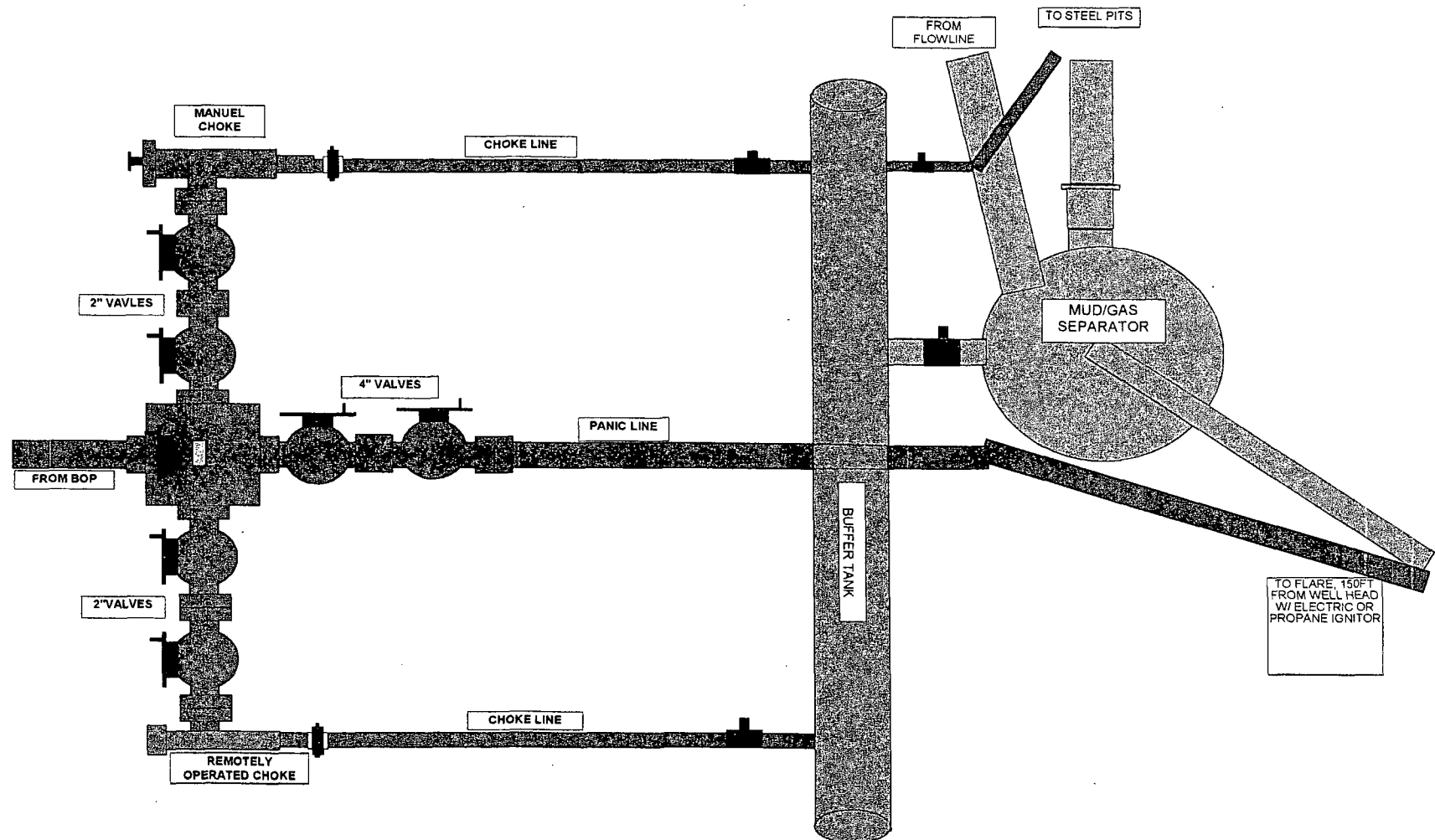
11" 3M BOP SYSTEM

HARVEY E. YATES

Federal 30 - #4H
UL-B, SEC 30, T19S, R33E
330' FNL & 2030' FEL
Lea County, New Mexico

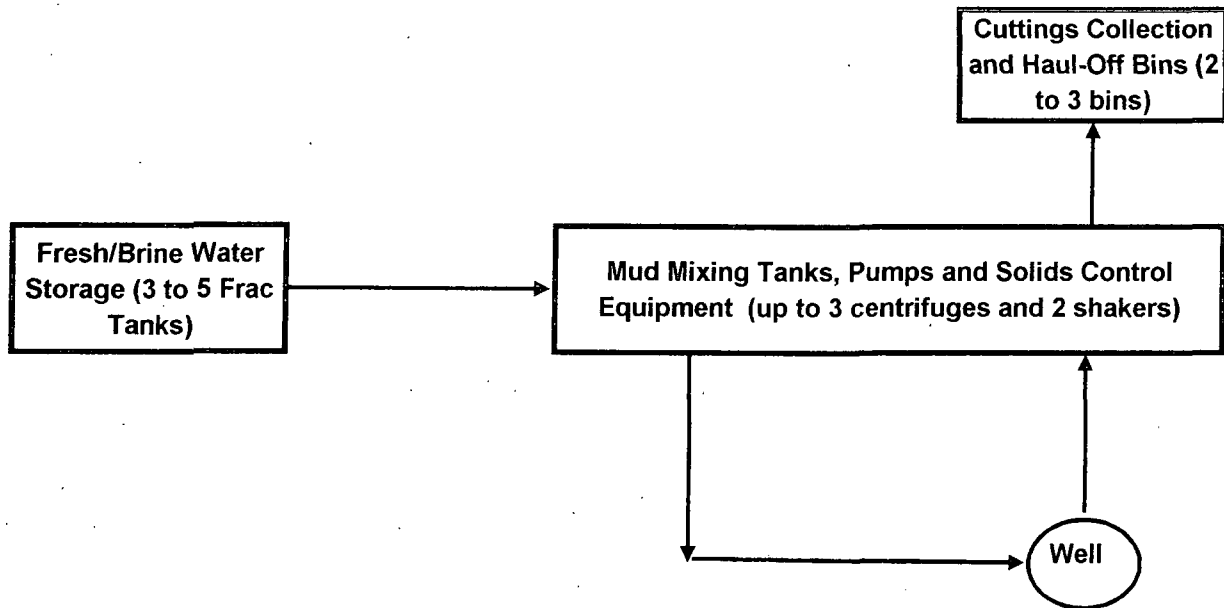


HARVEY E. YATES COMPANY
Federal 30 - 4H
3000 psi BOP Manifold System



CLOSED-LOOP SYSTEM

Design Plan:



Operating and Maintenance Plan:

During drilling operations, third party service companies will utilize solids control equipment to remove cuttings from the drilling fluid and collect it in haul-off bins. Equipment will be closely monitored at all times while drilling by the derrick man and the service company employees.

Closure Plan:

During drilling operations, third party service companies will haul-off drill solids and fluids to an approved disposal facility R360, Permit # NM-01-0019 Or GMI, Permit # NM-01-0006. At the end of the well all closed loop equipment will be removed from the location and location will be clean up.

EXHIBIT "D" LOCATION DIAGRAM

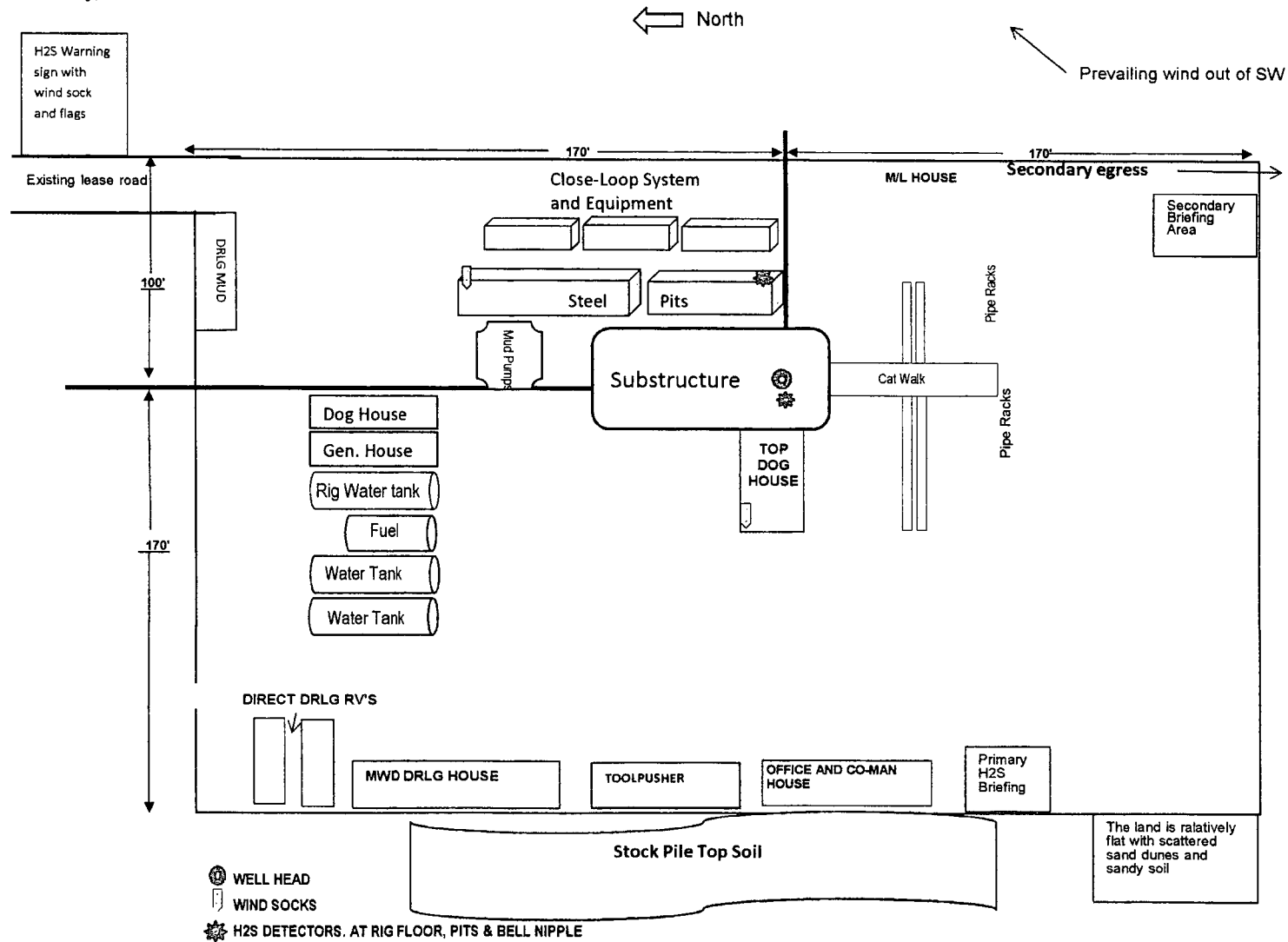
Harvey E. Yates

Federal 30 #4H

330' FNL & 2030' FEL

UNIT B, SEC 30, T19S, R33E

Lea County, NM



HARVEY E. YATES

**500 N. MAIN, STE. ONE
ROSWELL, NM 88201
(575) 623-6601 (Office)
(575) -624-5321 (Fax)**

04/24/14

Mr. Wesley Ingram
Carlsbad BLM Field Office
620 E. Greene St.
Carlsbad, NM 88220

**Re: Federal 30 #4H
SHL: 330' FNL & 2030 FEL UL A
Sec. 30, T19S, R33E
Lea, NM
Rule 118 H2S Exposure**

Dear Mr. Ingram,

Nadel and Gussman Permian, LLC have evaluated this well and we do not expect to encounter hydrogen sulfide. However, we will employ a third party monitoring system. We will begin monitoring prior to drilling out the surface casing and will continue monitoring the remainder of the well.

Please contact me if you have any additional questions.

Sincerely,

Keith Cannon
Drilling Superintendent