

UNITED STATES N.M. Oil Cons. Dist. 2
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
301 W. Grand Avenue
Artesia, NM 88210

Form approved.

CONFIDENTIAL - TIGHT HOLE
5. LEASE DESIGNATION AND SERIAL NO.

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐
b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ Other ☐ SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR
CHESAPEAKE OPERATING, INC. Attn. Sharon Dries

3. ADDRESS AND TELEPHONE NO.
P.O. BOX 18496 OKLAHOMA CITY, OK 73154 405-879-7985

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 1980 FSL 1980 FEL SWSE
At top proposed prod. zone 1980 FSL 1980 FEL SWSE
Under Hestlie Springs, Penn

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE
Approximately 25 miles Northeast of Roswell, NM

15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. 1980
(Also to nearest drlg. unit line if any)
16. NO. OF ACRES IN LEASE 160

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
19. PROPOSED DEPTH 5150

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
3579

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME, WELL NO.

CHAVES A FEDERAL 5

9. API WELL NO.

30-005-63606

10. FIELD AND POOL, OR WILDCAT

PECOS SLOPE

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

17-17S-26E NM

12. COUNTY OR PARISH

CHAVES

13. STATE

NM

17. NO. OF ACRES ASSIGNED TO THIS WELL

160

20. ROTARY OR CABLE TOOLS*

ROTARY

22. APPROX. DATE WORK WILL START*

SEPTEMBER 15, 2003

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
"	"	#	'	+/-
"	"	#	'	+/-
"	"	#	'	+/-

Chesapeake Operating, Inc. proposes to drill a well to 5150' to test the Granite Wash formation. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and NM OCD requirements.

Attached please find the Surface Use Plan and Drilling Plan as required by Onshore Order No. 1.

Please be advised that Chesapeake Operating, Inc. is considered to be the Operator of the above mentioned well. Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.

Bond coverage for this well is provided by Chesapeake Operating, Inc. under their Nationwide Bond No. NM2634.

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.

SIGNED *J. Mark Lester*

J. Mark Lester

TITLE Sr. Vice President Exploration DATE July 18, 2003

*(This space for Federal or State office use)

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:

APPROVED BY /S/LARRY D. BRAY

Assistant Field Manager,
Lands And Minerals

DATE SEP 04 2003

See Instructions On Reverse Side

APPROVED FOR 1 YEAR

Title 18 U.S.C. Section 1001, makes 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

ONSHORE OIL & GAS ORDER NO. 1
Approval of Operations on Onshore
Federal and Indian Oil and Gas Leases

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Approval of this application 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.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

Formation	Depth	Subsea
San Andres	450	3145
Glorietta	1560	2035
Tubb	2970	625
Abo	3675	-80
Abo B	3790	-195
Abo C	3910	-315
Abo C Lower	3990	-395
Abo D	4095	-500
Wolfcamp	4330	-735
U. Wolfcamp Pay	4365	-770
Cisco Shale	4700	-1105
Cisco Lime	4830	-1235
Cisco Pay	4860	-1265
Basal Penn Clastic	4930	-1335
Granite Wash	4995	-1400
Pre Cambrian Granite	5035	-1440
Total Depth	5150	-1555

2. ESTIMATED DEPTH OF WATER, OIL GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

DRILLING PROGRAM

Page 2

<u>Substance</u>	<u>Formation</u>	<u>Depth</u>
Gas	Abo	3675
Gas	Abo B	3790
Gas	Abo C	3910
Gas	Abo C Lower	3990
Gas	Abo D	4095
Gas	U. Wolfcamp Pay	4365
Gas	Cisco Pay	4860
Gas	Granite Wash	4995

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT: 3,000# System - See Exhibit F.

Chesapeake Operating, Inc.'s minimum specifications for pressure control equipment are as follows:

1. I. BOP, Annular, Choke Manifold, Pressure Test.

A. Equipment

2. The equipment to be tested includes all of the following that is installed on the well. Ram-type and annular preventers,
 - (a) Choke manifolds and valves,
 - (b) Kill lines and valves, and
 - (c) Upper and lower kelly cock valves, inside BOP's and safety valves.

B. Test Frequency

1. All tests should be performed with clear water,
 - (a) when installed,
 - (b) before drilling out each casing string,
 - (c) at any time that there is a repair requiring a pressure seal to be broken in the assembly, and
 - (d) at least once every 30 days while drilling.

C. Test Pressure

1. In some drilling operations, the pressures to be used for low and high-pressure testing of preventers and casing may be different from those given below due to governmental regulations, or approved local practices.
2. If an individual component does not test at the low pressure, **do not**, test to the high pressure and then drop back down to the low pressure.
3. All valves located downstream of a valve being tested must be placed in the open position.
4. All equipment will be tested with an initial "low pressure" test at 250 psi.
5. The subsequent "high pressure" test will be conducted at the rated working pressure of the equipment for all equipment except the annular preventer.

DRILLING PROGRAM

Page 3

6. The "high pressure" test for the annular preventer will be conducted at 70% of the rated working pressure.
7. A record of all pressures will be made on a pressure-recording chart.

D. Test Duration

1. In each case, the individual components should be monitored for leaks for 5 minutes, with no observable pressure decline, once the test pressure has been applied.

II. Accumulator Performance Test

A. Scope

1. The purpose of this test is to check the capabilities of the BOP control systems, and to detect deficiencies in the hydraulic oil volume and recharge time.

B. Test Frequency

1. The accumulator is to be tested each time the BOP's are tested, or any time a major repair is performed.

C. Minimum Requirements

1. The accumulator should be of sufficient volume to supply 1.5 times the volume to close and hold all BOP equipment in sequence, without recharging and the pump turned off, and have remaining pressures of 200 PSI above the precharge pressure.
2. Minimum precharge pressures for the various accumulator systems per manufacturers recommended specifications are as follows:

<u>System Operating Pressures</u>	<u>Precharge Pressure</u>
1,500 PSI	750 PSI
2,000 PSI	1,000 PSI
3,000 PSI	1,000 PSI

3. Closing times for the Hydril should be less than 20 seconds, and for the ram-type preventers less than 10 seconds.
4. System Recharge time should not exceed 10 minutes.

D. Test Procedure

1. Shut accumulator pumps off and record accumulator pressure.
2. In sequence, close the annular and one set of properly sized pipe rams, and open the HCR valve.
3. Record time to close or open each element and the remaining accumulator pressure after each operation.

DRILLING PROGRAM

Page 4

4. Record the remaining accumulator pressure at the end of the test sequence. Per the previous requirement, this pressure **should not be less** than the following pressures:

<u>System Pressure</u>	<u>Remaining Pressure At Conclusion of Test</u>
1,500 PSI	950 PSI
2,000 PSI	1,200 PSI
3,000 PSI	1,200 PSI

5. Turn the accumulator pumps on and record the recharge time. This time should not exceed **10 minutes**.
6. Open annular and ram-type preventers. Close HCR valve.
7. Place all 4-way control valves in **full open** or **full closed** position. **Do not leave in neutral position**.

4. CASING AND CEMENTING PROGRAM

- a. The proposed casing program will be as follows:

<u>Purpose</u>	<u>Interval</u>	<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>	<u>Condition</u>
Surface	0-1,000'	11"	8-5/8"	24#	J-55	ST & C	New
Production	0-5,150'	7-7/8"	5-1/2"	17#	J-55	LT & C	New

- b. Casing design subject to revision based on geologic conditions encountered.
- c. The cementing program will be as follows:

<u>Interval</u>	<u>Type</u>	<u>Amount</u>	<u>Yield</u>	<u>Washout</u>	<u>Excess</u>
Surface	Lead 65:35:6 + 6# Salt + 1/4# Flo-cel Tail: c + 2% CaCl	300sx 300sx	2.1 1.3	50%	100%
Production	50 :50 Poz H + additives	350sx	1.3	20%	30%

5. MUD PROGRAM

- a. The proposed circulating mediums to be used in drilling are as follows:

<u>Interval</u>	<u>Mud Type</u>	<u>Mud Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0-1,000'	Water	8.4 – 9.0	28-40	NC
1,000' – 5,150'	Cut Brine	9.4 – 10.0	35-46	5 - 10

A steel pit will be utilized during the drilling of this well. All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conversation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

6. TESTING, LOGGING AND CORING

The anticipated type and amount of testing, logging and coring are as follows:

- a. Drill stem tests are not planned.
- b. The logging program will consist of Spectral GR, Density, Neutron and Pe from TD to Surface casing, then GR and Neutron to surface; Dual Laterolog from TD to surface casing.
- c. Cores samples are not planned.

7. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- a. The estimated bottom hole pressure is 550 psi. No abnormal pressures or temperatures are anticipated.
- b. Hydrogen sulfide gas is not expected to be encountered.

State of New Mexico

DISTRICT I
P.O. Box 1960, Hobbs, NM 88241-1960

Energy, Minerals and Natural Resources Department

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

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

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

DISTRICT IV
P.O. Box 2088, SANTA FE, N.M. 87504-2088

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number		Pool Code	Pool Name
Property Code	Property Name CHAVES A FEDERAL		Well Number 5
GRID No.	Operator Name CHESAPEAKE OPERATING, INC.		Elevation 3579'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	17	7-S	26-E		1980'	SOUTH	1980'	EAST	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

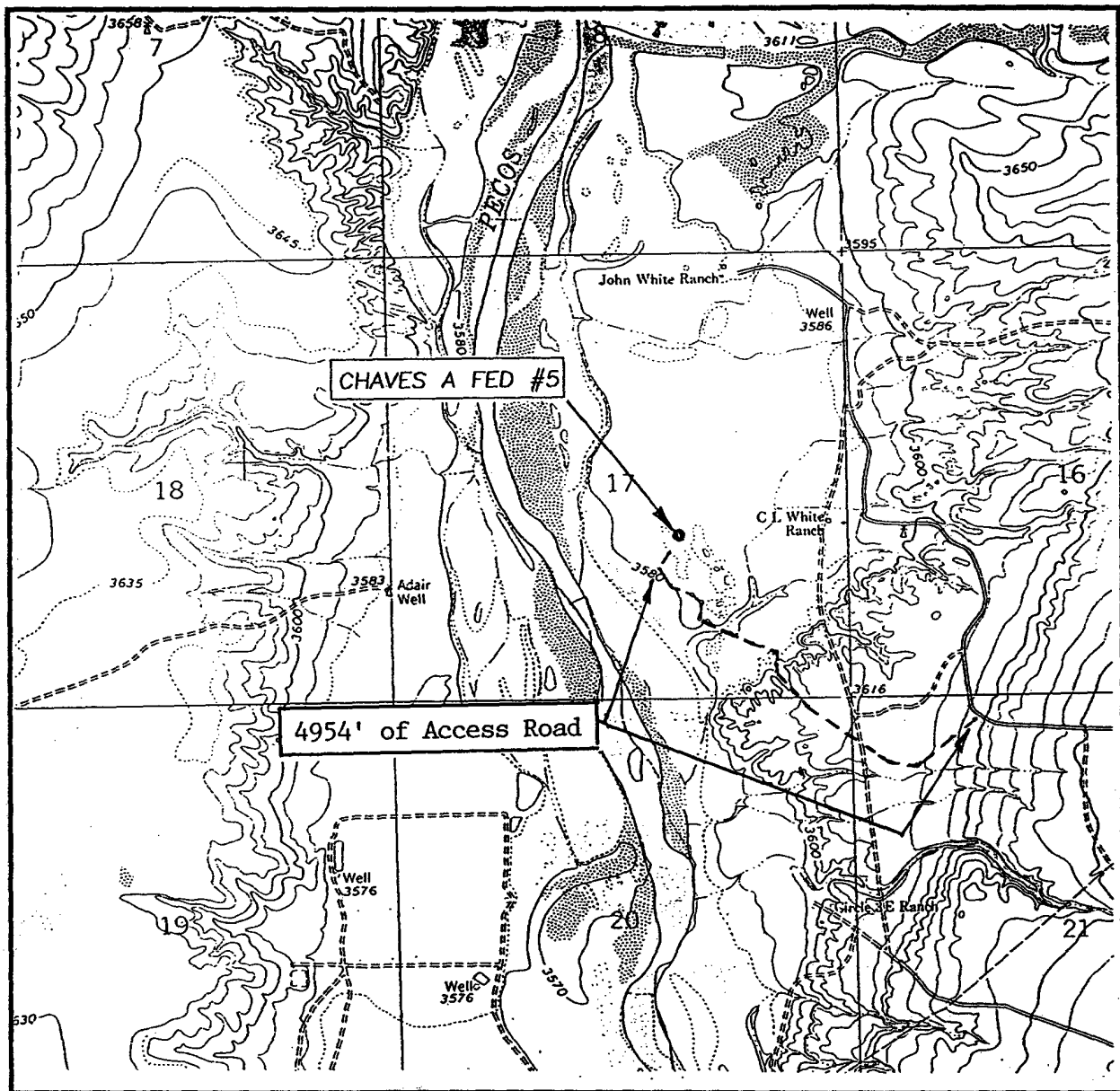
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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 405-879-9198

	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. <u>William F. Chatham</u> Signature <u>William F. Chatham</u> Printed Name <u>LANDMAN</u> Title <u>5/1/03</u> Date
	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 supervision, and that the same is true and correct to the best of my belief. May 06, 2003 Date Surveyed Signature & Seal of Professional Surveyor Certificate No. RONALD S. EDSON 3239 GARY EDSON 12641

Exhibit A-1

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'
EIGHTMILES DRAW, N.M.

SEC. 17 TWP. 7-S RGE. 26-E

SURVEY N.M.P.M.

COUNTY Chaves

DESCRIPTION 1980' FSL & 1980' FEL

ELEVATION 3579'

OPERATOR CHESAPEAKE OPERATING, INC.

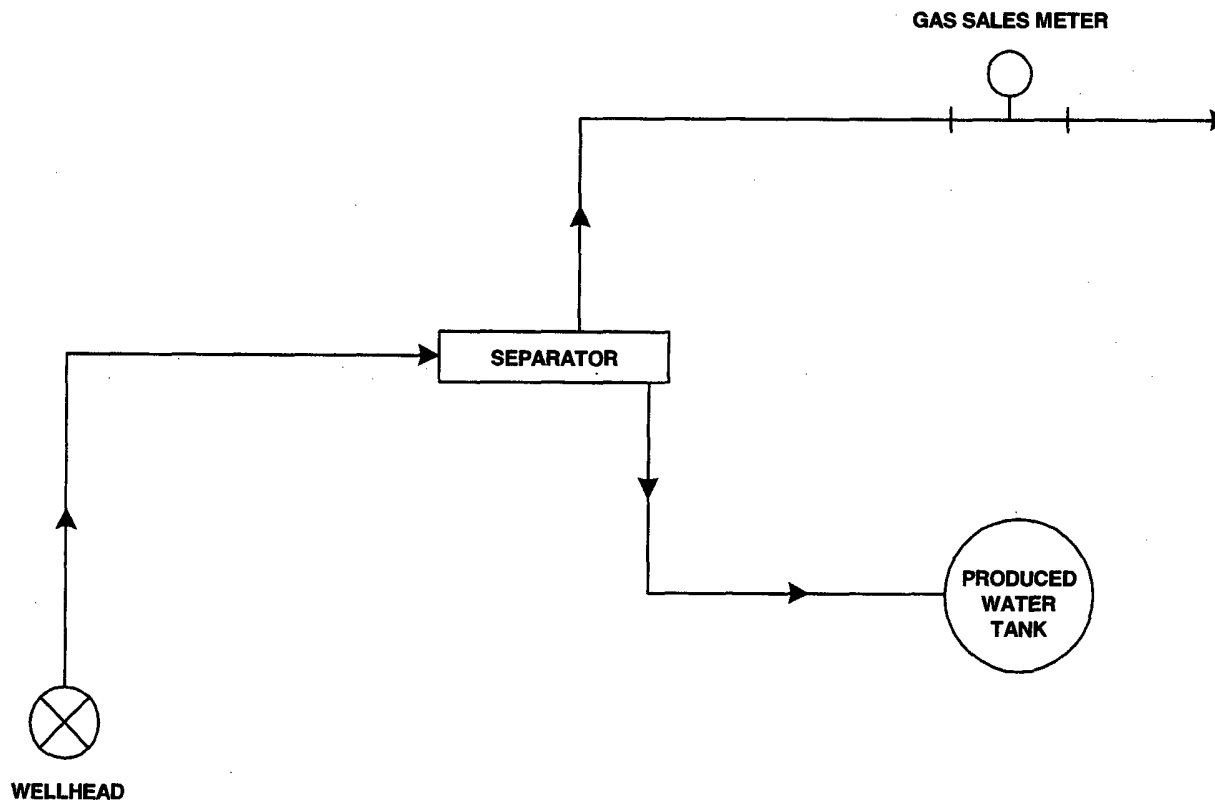
LEASE CHAVES A FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
EIGHTMILE DRAW, N.M.

JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

Exhibit A-2

EXHIBIT C
FLOW SCHEMATIC



CHESAPEAKE OPERATING, INC.
OKLAHOMA CITY, OK

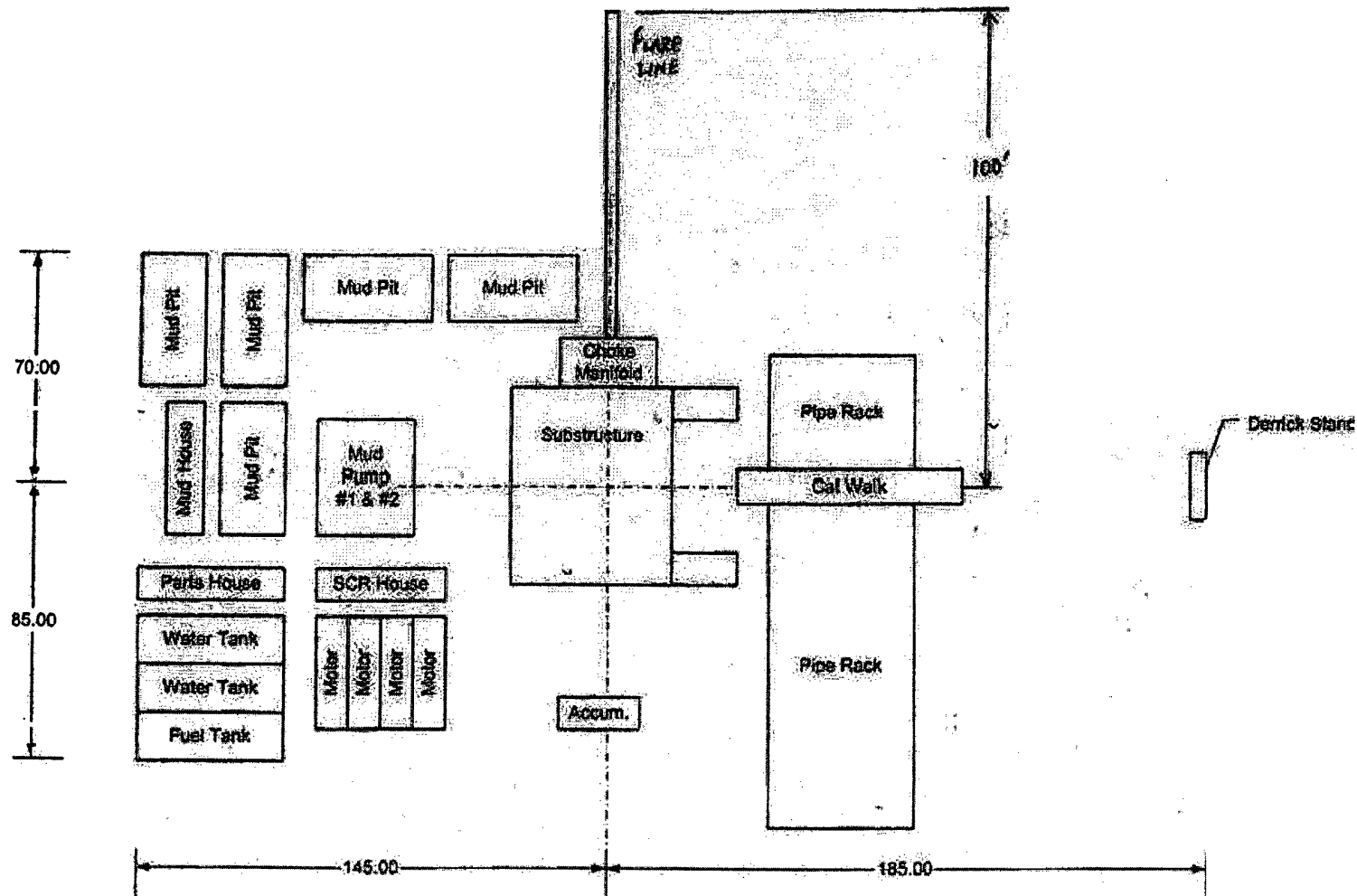


CHAVES A FEDERAL 5

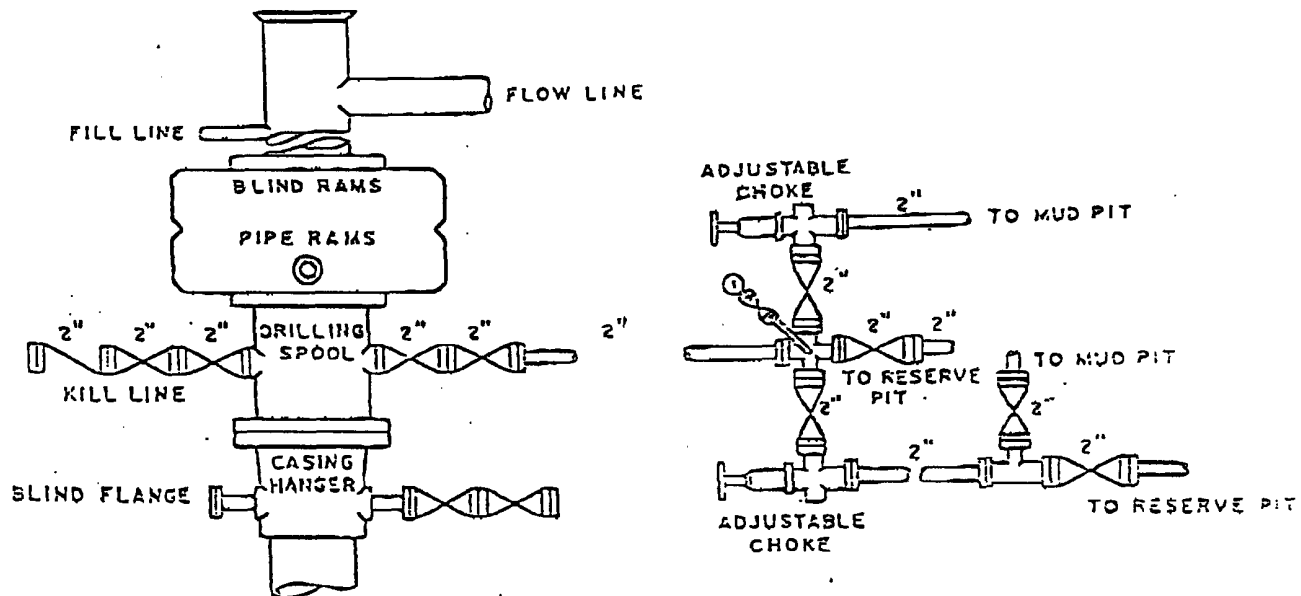
1,980' FSL & 1,980' FEL; SECTION 17-7S-26E
CHAVES COUNTY, NEW MEXICO

DATE: 3/14/03
DRAWN BY: GAK
Not To Scale

Exhibit C



Chesapeake Operating, Inc			
General Rig Layout			
SIZE	FSCM NO	DWG NO	REV
		Generic	

CHAVES A FEDERAL 5**11" Cammron Double Ram BOP****BOP DIAGRAM**

3000# Working Pressure
Rams Operated Daily

UNITED DRILLING**RIG #23****Exhibit** F