Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No
NMNM13074

6. If Indian, Allottee or Tribe Name

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

1 Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

JUN 12 2008
OCD-ARTESIA

8. Well Name and No
MOSAIC 34 FEDERAL 3H

2 Name of Operator
CHESAPEAKE OPERATING, INC.
Contact: LINDA GOOD
E-Mail: linda.good@chk.com

9 API Well No
30-015-36001

3a. Address
P.O. BOX 18496
OKLAHOMA CITY, OK 73154-0496

3b. Phone No. (include area code)
Ph: 405-767-4275

10. Field and Pool, or Exploratory
WILLOW LAKE

4 Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 34 T24S R28E NESE 1670FSL 25FEL

UNORTHODOX LOCATION

11. County or Parish, and State
EDDY CO. COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original PD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

CHESAPEAKE, RESPECTFULLY, REQUEST PERMISSION TO CHANGE THE PROPOSED LOCATION FROM 2122' FSL & 2568' FWL, NESW TO 1670' FSL & 25' FEL, NESE. CHANGE THE PROPOSED BHLOCATION FROM 2310' FSL & 330' FWL TO 1670' FSL & 350' FWL. THE UNIT SIZE WILL CHANGE FROM 80 ACRES TO 160 ACRES.

PLEASE FIND THE ATTACHED REVISED DOCUMENTS:

DRILLING PLAN
SURFACE USE PLAN
SURVEY PLATS
1 MILE RADIUS PLAT
PRODUCTION FACILITY
RIG PLAT

New COA's 5/7/08

SEE ATTACHED FOR CONDITIONS OF APPROVAL

14 I hereby certify that the foregoing is true and correct

Electronic Submission #59805 verified by the BLM Well Information System
For CHESAPEAKE OPERATING, INC., sent to the Carlsbad

Name *(Printed/Typed)* LINDA GOOD — Title REGULATORY COMPLIANCE SPECIALI

Signature (Electronic Submission) — Date 04/22/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By — Title AFM — Date 6/10/08

Co
ce
wh
Ti

is notice does not warrant or
e rights in the subject lease
eon

Office CARLSBAD FIELD OFFICE

12, make it a crime for any person knowingly and willfully to make to any department or agency of the United
sentations as to any matter within its jurisdiction

NOTE: NEW PIT RULE
19-15-17 NMAC PART 17
A form C-144 must be approved
before starting drilling operations.

TED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

Accepted for record - NMOCD

Additional data for EC transaction #59805 that would not fit on the form

32. Additional remarks, continued

BOP & CHOKE MANIFOLD
DIRECTIONAL DRILL PLAN
GEOPROG
PIPELINE PLATS
WELLBORE SCHEMATIC

ARCH SURVEY BEING DONE AND WILL BE DELIVERED TO THE BLM BY DANNY BOONE.

(CHK PN 616369)

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.

This well will be drilled down to around 9850' for a pilot hole so the well can be logged below the horizontal target interval. Once logged, this hole will be plugged back to around 4000' so it can be sidetracked by the planned kick off point (KOP) of 4368'.

1. FORMATION TOPS
The estimated tops of important geologic markers are as follows:

Formation	Subsea	Depth
BASE OF SALT	400'	2603'
*BELL CANYON	351'	2652'
MANZANITA MARKER	-625'	3628'
KOP		
****WILLOW LAKE HORIZ. TOP**	-1919'	4922'
****WILLOW LAKE HORIZONTAL TARGET LINE**	-1926	4929'
**** WILLOW LAKE HORIZ. BASE**	-1933'	4936'
****Potentially productive zones**		
TOTAL DEPTH	**TD (MD)**	~~9850'~~ 9700'

per operator 5/7/08 mm

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:

Substance	Formation	Depth
Oil/Gas	Bell Canyon	2652'
Oil/Gas	Cherry Canyon	3628'

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

System Pressure	Remaining Pressure At Conclusion of Test
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 PROGRAM

a. The proposed casing program will be as follows:

Purpose	Interval	Hole Size	Casing Size	Weight	Grade	Thread	Condition
Surface	Surface – 400'	17-1/2"	13-3/8"	48.0#	H-40	STC	New
Intermediate	Surface – 2,603'	12-1/4"	9-5/8"	36.0#	J-55	LTC	New
Production	Surface – 9,700'	8-3/4"(to 5,212') 8-1/2" (to TD)	5-1/2"	17.0#	N-80	LTC	New

b. Casing design subject to revision based on geologic conditions encountered.

c. Casing Safety Factors:
13-3/8" Surface Casing: SFb = 1.44, SFc = 3.98 and SFt = 6.15
9-5/8" Intermediate Casing: SFb = 2.20, SFc = 2.45 and SFt = 4.30
5-1/2" Production Casing: SFb = 1.6, SFc = 2.3 and SFt = 1.7

d. The cementing program will be as follows:

5. Cementing Program

Interval	Type	Amount	Yield	Top of CMT	Excess
Surface	Class C 2% CaCl2 (Accelerator)	400 sks	1.34	Surface	100%
Intermediate	Lead: 50/50 Poz/Class C 1% CaCl2 (Accelerator)	800 sks	2.03	Surface	100%

	Tail: Class C Neat	400 sks	1.26		100%
Production	Class H 0.5% LAP-1 (Fluid Loss Control) 0.4% CFR-3 (Dispersant) 1 lbm/sk Salt 0.3% HR-7 (Retarder) 0.25 lbm D-AIR 3000 (Defoamer)	1800 sks	1.57	1,500'	50%

6. MUD PROGRAM

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

Interval	Mud Type	Mud Weight	Viscosity	Fluid Loss
0' – 400'	FW/Gel	8.5 – 8.9	30-36	NC
400' – 2,600'	Native/Brine	8.8 – 9.9	28-30	NC
2,600' - TD	FW/LSND	9.0 – 9.5	34-45	20-10

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toliet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation 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.

7. 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 Natural GR, Density-Neutron, PE & Dual Laterolog from TD to surface casing; Neutron-GR surface casing to surface.
c. Cores samples are not planned.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE
a. The estimated bottom hole pressure is 4265 psi. No abnormal pressures or temperatures are anticipated.
b. Hydrogen sulfide gas is not anticipated.

3. BOP EQUIPMENT:

Will have a minimum of 2000 psi simplified rental stack (see proposed schematic) for drill out below surface casing; this system will be tested to 2000 psi working pressure.

Will have a 5000 psi rig stack (see proposed schematic) for drill out below intermediate casing; this system will be tested to 3000 psi working pressure.

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

I. BOP, Annular, Choke Manifold, Pressure Test - See Exhibit F-1 to F-3.

A. Equipment
1. The equipment to be tested includes all of the following that is installed on the well:
(a) Ram-type and annular preventers,
(b) Choke manifolds and valves,
(c) Kill lines and valves, and
(d) 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.
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 as 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:

3.

System Operating Pressures	Precharge Pressure
1500 PSI	750 PSI
2000 PSI	1,000 PSI
3000 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.

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
	96855	Willow Lake; Delaware, SW

Property Code	Property Name	Well Number
36004	MOSAIC 34 FEDERAL	3H

OGRID No.	Operator Name	Elevation
147179	CHESAPEAKE OPERATING, INC.	2987'

Surface Location

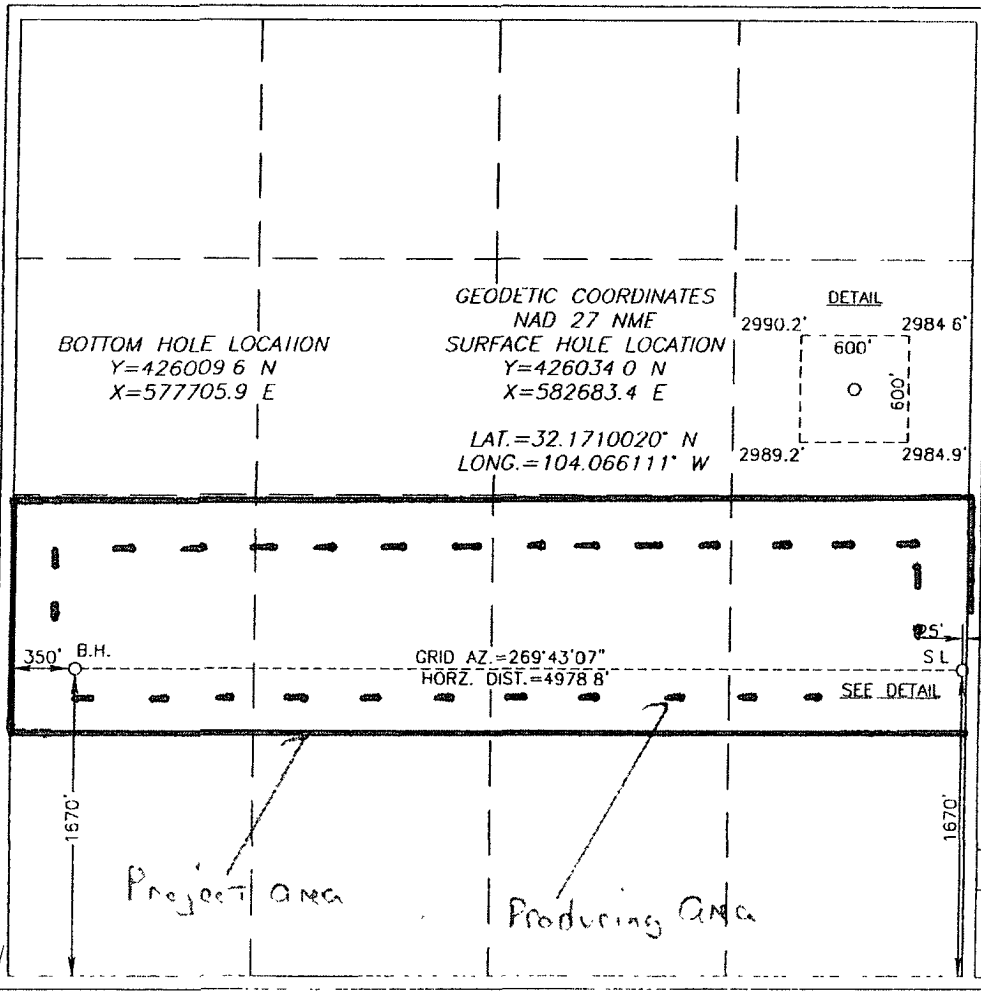
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	34	24-S	28-E		1670	SOUTH	25	EAST	EDDY

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
L	34	24-S	28-E		1670	SOUTH	350	WEST	EDDY

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 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 or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date 3/20/08

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 supervision, and that the same is true and correct to the best of my belief.

MARCH 12, 2008
Date Surveyed — LA

Signature & Seal of Professional Surveyor

3/20/08

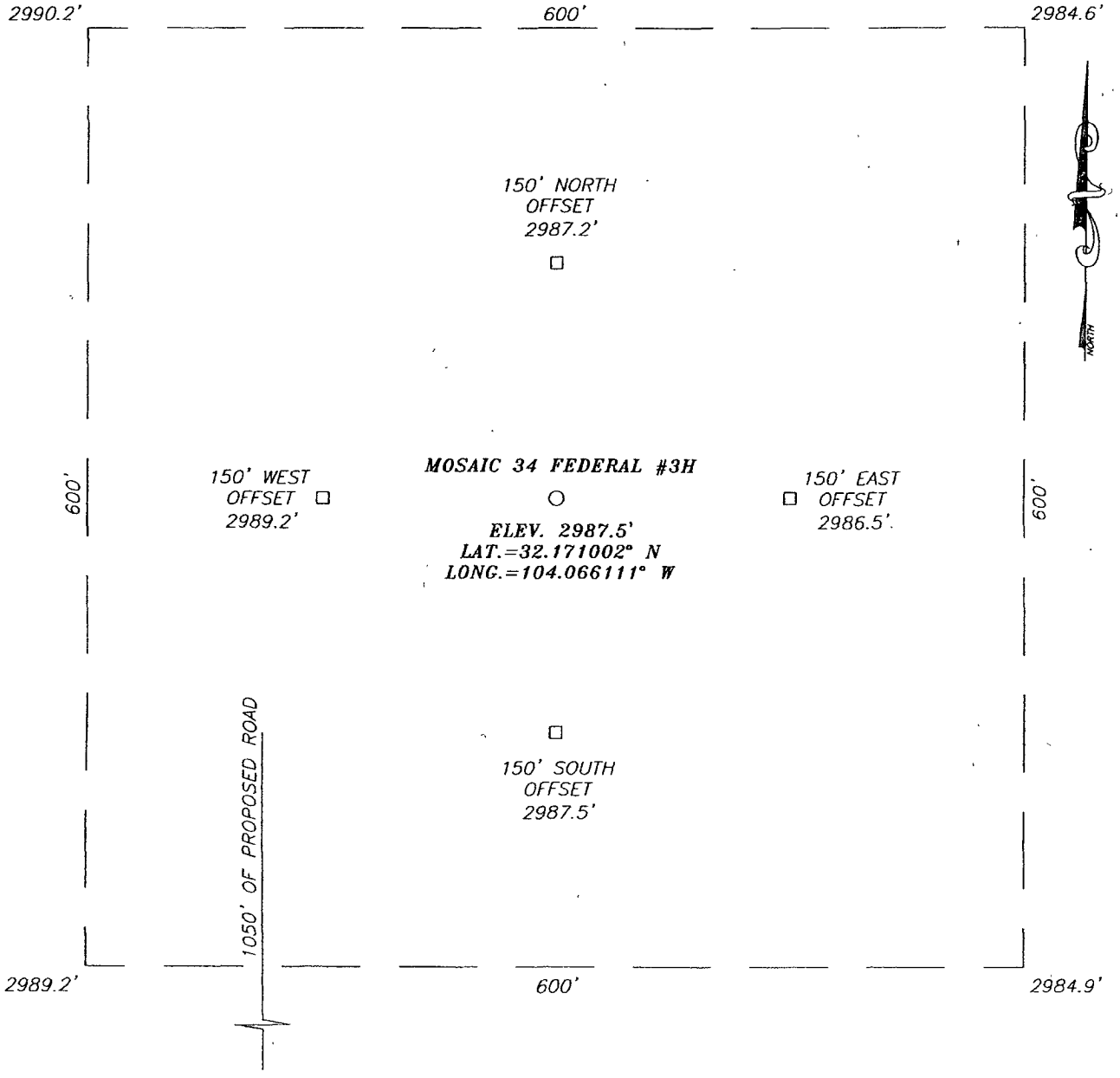
08.11.0239

Certificate No GARY EIDSON 12641
RONALD EIDSON 3239

Revised
EXHIBIT A-1

SECTION 34, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #285 (PECOS HWY) AND CO. RD. #721 (PULLEY RD) GO SOUTH ON U.S. HWY. #285 APPROX. 2.0 MILES. TURN LEFT AND GO EAST APPROX. 0.3 MILES TO THE CHESAPEAKE MOSAIC #24 WELL PAD AND A PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY APPROX. 1200 FEET NORTH TO THIS LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

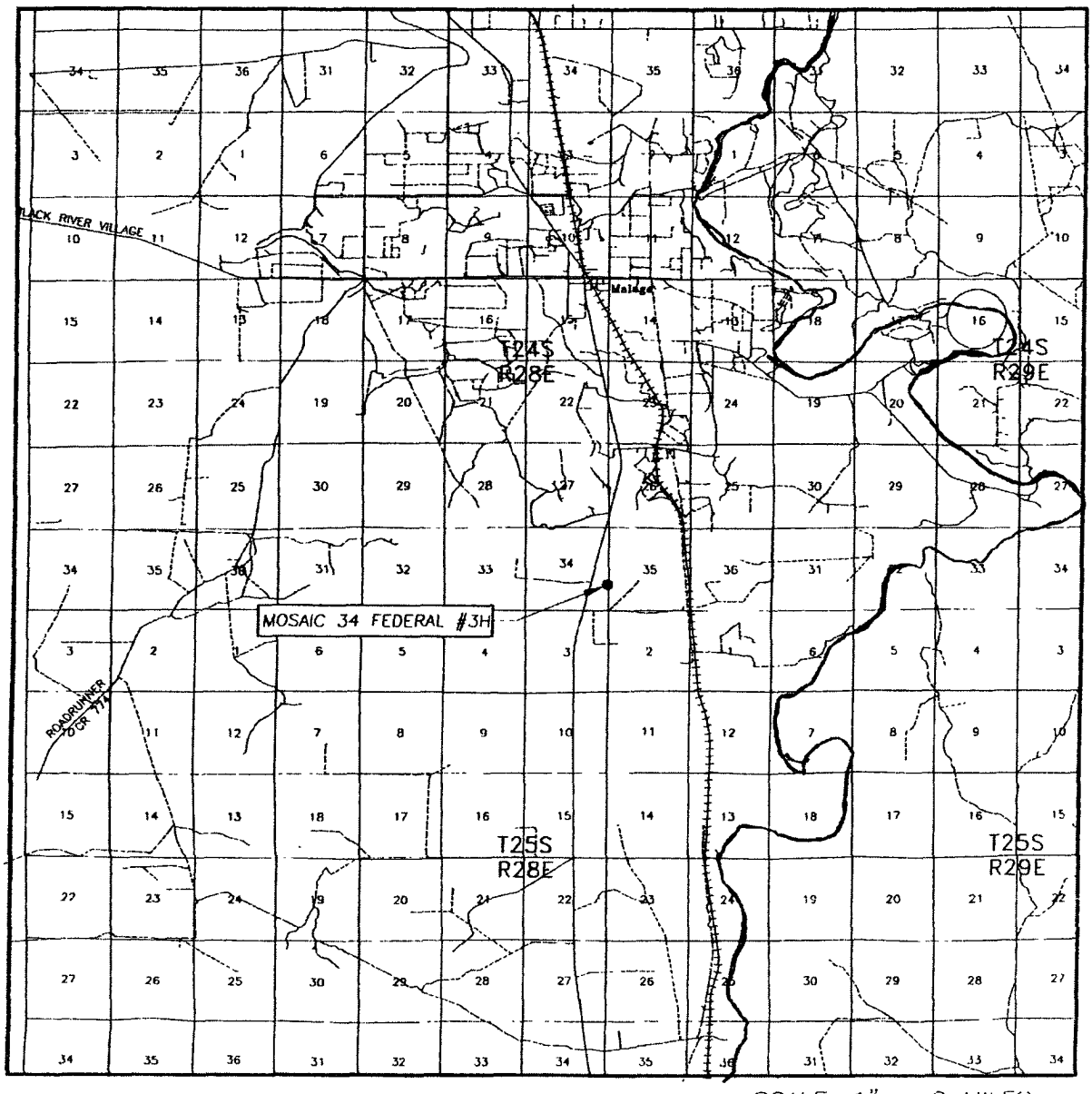
CHESAPEAKE OPERATING, INC.

MOASAIC 34 FEDERAL #3H
LOCATED 1670 FEET FROM THE SOUTH LINE
AND 25 FEET FROM THE EAST LINE OF SECTION 34,
TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

Survey Date: 3/12/08	Sheet 1 of 1 Sheets		
W.O. Number: 08.11.0239	Dr By: LA		Rev 1: N/A
Date: 3/19/08		081102.39	Scale: 1"=100'

Revised EXHIBIT A-2

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 34 TWP. 24-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1670' FSL & 25' FEL

ELEVATION 2987'

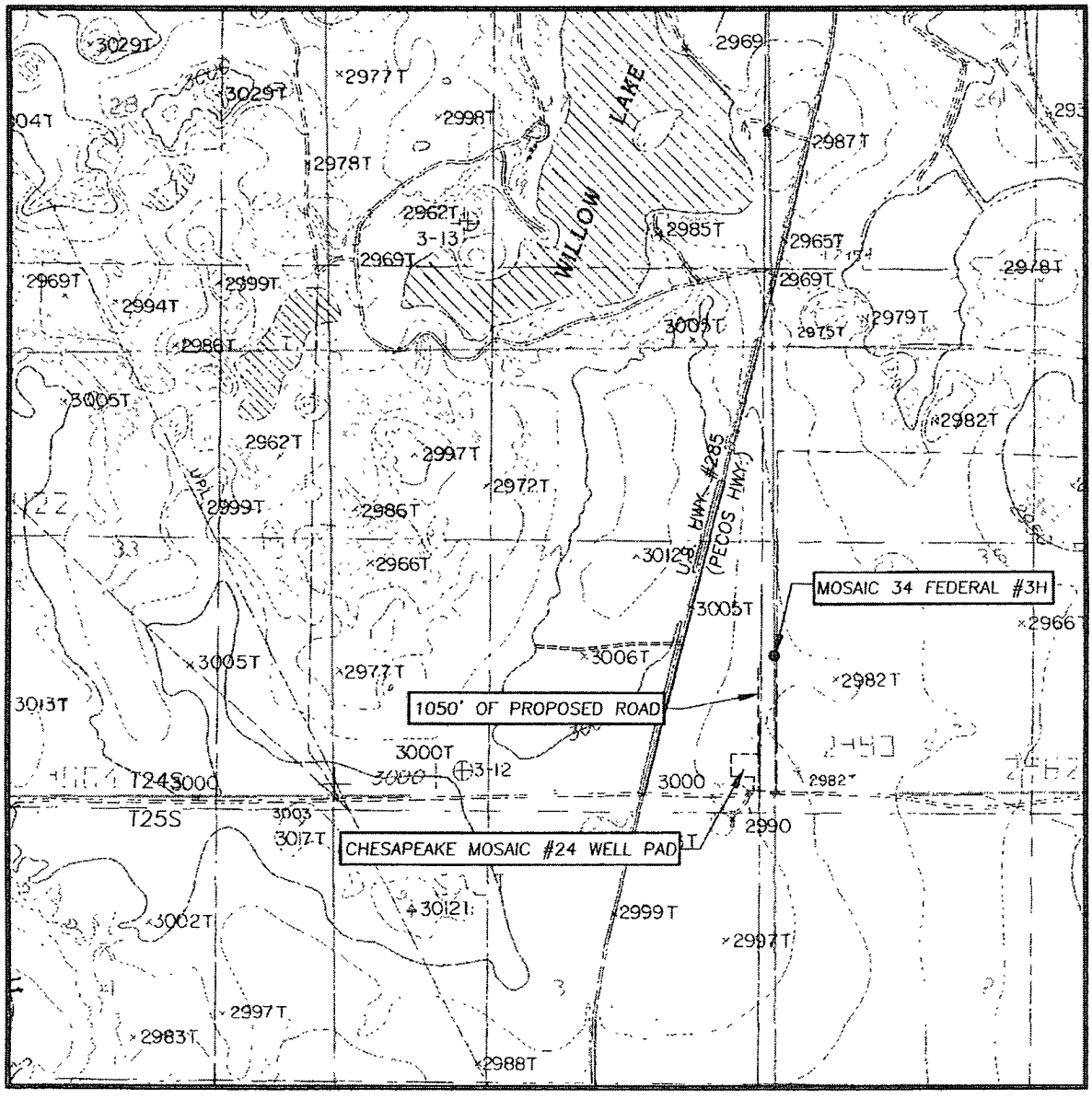
OPERATOR CHESAPEAKE OPERATING, INC.

LEASE MOSAIC 34 FEDERAL

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

Revised
EXHIBIT A-3

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
MALAGA, N.M. – 10'

SEC. 34 TWP. 24-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1670' FSL & 25' FEL

ELEVATION 2987'

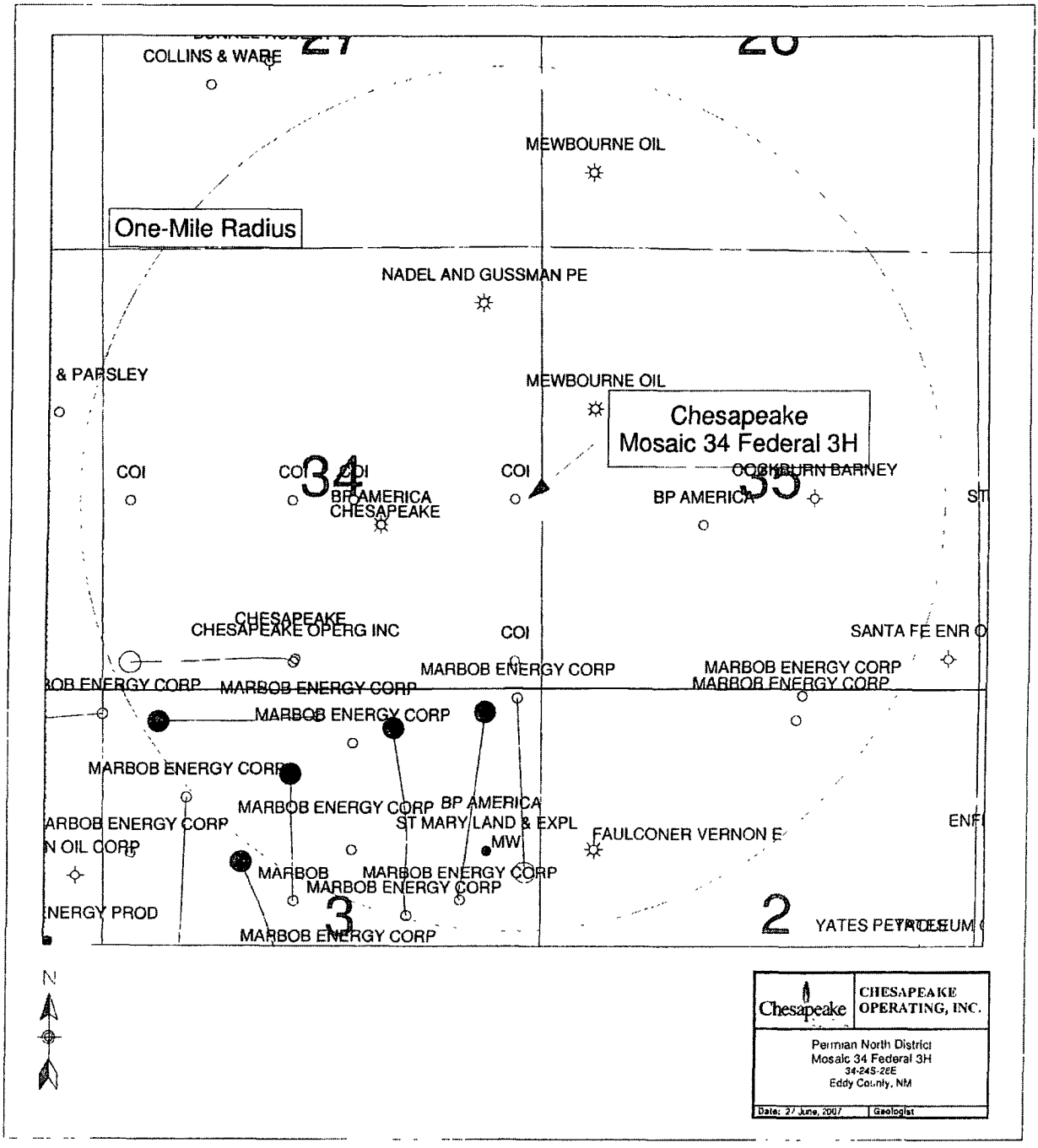
OPERATOR CHESAPEAKE OPERATING, INC.

LEASE MOSAIC 34 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
MALAGA, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

Revised
EXHIBIT A-4



Revised
EXHIBIT B

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

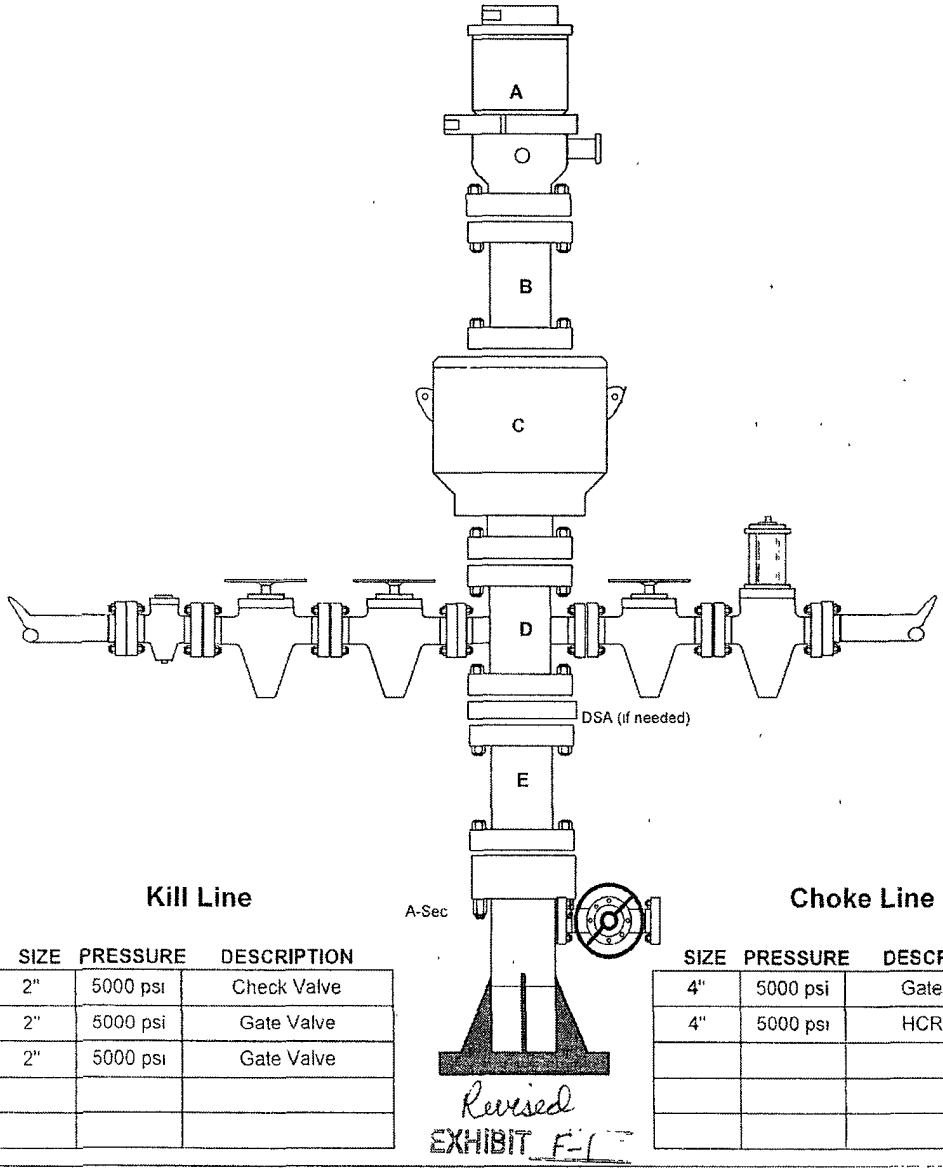
WELL : **Mosaic 34 Federal #3H**

RIG : **Patterson 142**

COUNTY : **Eddy** **STATE: New Mexico**

OPERATION: Drill out below 13-3/8" Casing (12-¼" hole size)

	SIZE	PRESSURE	DESCRIPTION
A	13-5/8"	500 psi	Rot Head
B	13-5/8"	3000 psi	Spacer Spool
C	13-5/8"	3000 psi	Annular
D	13-5/8"	3000 psi	Mud Cross
E	13-5/8"	3000 psi	Spacer Spool
DSA	13-5/8" 3M x 13-5/8" 3M (if needed)		
A-Sec	13-3/8" SOW x 13-5/8" 3M		



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

Revised
EXHIBIT F-1

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

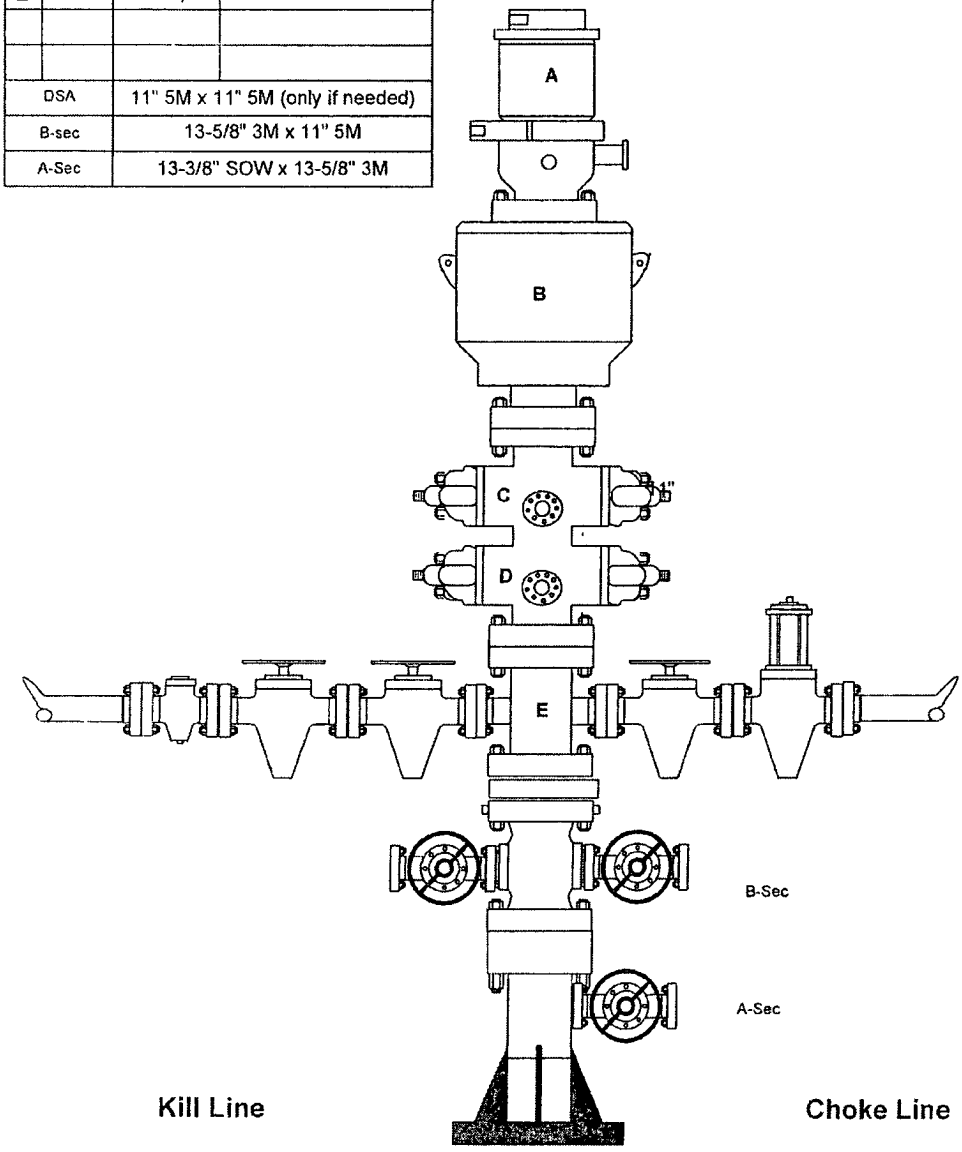
WELL : Mosaic 34 Federal #3H

RIG : Patterson 142

COUNTY : Eddy STATE: New Mexico

OPERATION: **Drill out below 9-5/8" Casing** (8-3/4"/8-½" hole size)

	SIZE	PRESSURE	DESCRIPTION
A	11"	500 psi	Rot Head
B	11"	5000 psi	Annular
C	11"	5000 psi	Pipe Rams
D	11"	5000 psi	Blind Rams
E	11"	5000 psi	Mud Cross
DSA		11" 5M x 11" 5M (only if needed)	
B-sec		13-5/8" 3M x 11" 5M	
A-Sec		13-3/8" SOW x 13-5/8" 3M	



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve

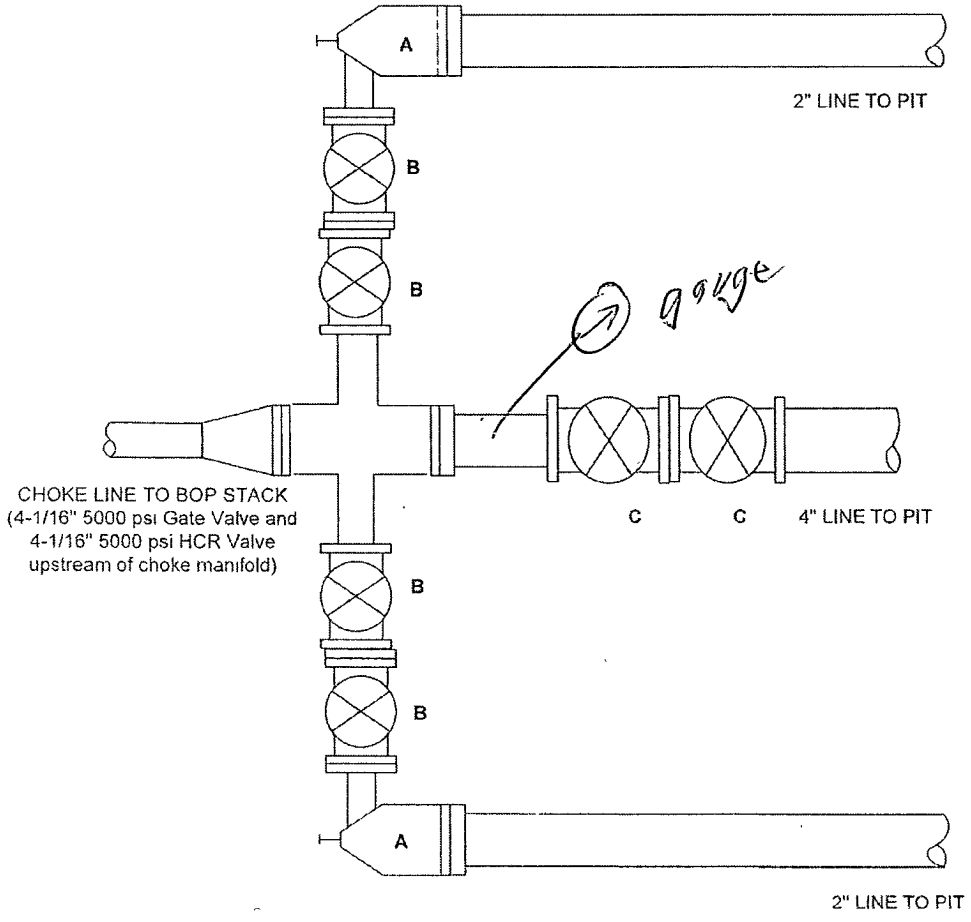
Revised

EXHIBIT E-2

CHOKE MANIFOLD SCHEMATIC

CHESAPEAKE OPERATING, INC.

WELL : Mosaic 34 Federal #3H
RIG : Patterson #142
COUNTY : Eddy STATE : New Mexico
OPERATION: Drilling below/beyond 13-3/8" surface casing



3M manifold

	SIZE	PRESSURE	DESCRIPTION
A	2-1/16"	5000 psi	Manual Choke
B	2-1/16"	5000 psi	Gate Valve
C	4-1/16"	5000 psi	Gate Valve

Revised
EXHIBIT E-3

Permian District

NM - Eddy - Morrow Project
Mosaic 34 Federak 3H
Well #1
Wellbore #1

Plan: Plan #1

Standard Planning Report

26 March, 2008

Revised
EXHIBIT G

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Well #1
Company:	Permian District	**TVD Reference:**	RKB @ 3005.0ft
Project:	NM - Eddy - Morrow Project	**MD Reference:**	RKB @ 3005.0ft
Site:	Mosaic 34 Federak 3H	**North Reference:**	True
Well:	Well #1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project NM - Eddy - Morrow Project

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Mosaic 34 Federak 3H

Site Position:		**Northing:**	ft	**Latitude:**	
From:	None	**Easting:**	ft	**Longitude:**	
Position Uncertainty:	ft	**Slot Radius:**	in	**Grid Convergence:**	0.00 °

Well Well #1

Well Position	**+N/-S**	0.0 ft	**Northing:**	0.00 ft	**Latitude:**	30° 59' 24.51165130 N
	+E/-W	0.0 ft	**Easting:**	0.00 ft	**Longitude:**	105° 55' 44.13731823 W
Position Uncertainty		ft	**Wellhead Elevation:**	ft	**Ground Level:**	2,987.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	3/26/2008	0.00	0 00	0

Design Plan #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0 0	0.0	270 00

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0 0	0 00	0.00	0 0	0.0	0 0	0.00	0 00	0.00	0.00	
4,450 0	0 00	0 00	4,450.0	0 0	0.0	0.00	0.00	0.00	0.00	
5,212 0	91.13	270.00	4,929.0	0 0	-488 5	11 96	11.96	0 00	270 00	
9,700 0	91 13	270.00	4,840.5	0 0	-4,975.7	0.00	0 00	0 00	0 00	

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Well #1
Company:	Permian District	**TVD Reference:**	RKB @ 3005.0ft
Project:	NM - Eddy - Morrow Project	**MD Reference:**	RKB @ 3005.0ft
Site:	Mosaic 34 Federak 3H	**North Reference:**	True
Well:	Well #1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0 0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200 0	0.0	0.0	0.0	0 00	0 00	0.00
300 0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0 00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
500.0	0 00	0.00	500 0	0 0	0.0	0.0	0.00	0 00	0.00
600.0	0 00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0 00
700.0	0.00	0 00	700.0	0.0	0.0	0.0	0.00	0.00	0 00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0 00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100 0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0 00	0.00	1,200 0	0 0	0 0	0.0	0 00	0.00	0.00
1,300.0	0 00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0 00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0 00
1,500.0	0.00	0.00	1,500 0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0 00	0.00	1,600.0	0.0	0.0	0.0	0 00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0 00
1,800 0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0 00
1,900.0	0.00	0.00	1,900.0	0.0	0 0	0.0	0.00	0 00	0.00
2,000.0	0.00	0.00	2,000 0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0 00	0.00	2,100 0	0.0	0.0	0.0	0.00	0 00	0 00
2,200.0	0 00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0 00
2,300 0	0 00	0.00	2,300 0	0.0	0.0	0 0	0.00	0 00	0.00
2,400 0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0 00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,603 0	0 00	0 00	2,603.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
2,700.0	0 00	0.00	2,700.0	0.0	0.0	0.0	0.00	0 00	0.00
2,800 0	0 00	0.00	2,800.0	0.0	0.0	0.0	0.00	0 00	0.00
2,900.0	0 00	0 00	2,900 0	0.0	0.0	0.0	0.00	0.00	0 00
3,000.0	0 00	0.00	3,000 0	0.0	0 0	0.0	0.00	0 00	0.00
3,100.0	0 00	0 00	3,100 0	0.0	0 0	0.0	0.00	0 00	0 00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0 0	0.00	0.00	0 00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0 00	0 00
3,400.0	0.00	0.00	3,400.0	0.0	0 0	0 0	0.00	0.00	0 00
3,500 0	0.00	0.00	3,500 0	0.0	0 0	0.0	0.00	0 00	0.00
3,600 0	0 00	0 00	3,600 0	0 0	0 0	0.0	0.00	0.00	0.00
3,700 0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0 00	0 00
3,800.0	0.00	0 00	3,800 0	0.0	0 0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0 0	0.0	0 00	0 00	0 00
4,000.0	0.00	0.00	4,000.0	0.0	0 0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100 0	0 0	0 0	0.0	0.00	0.00	0 00
4,200.0	0.00	0 00	4,200.0	0 0	0.0	0.0	0.00	0 00	0 00
4,300 0	0 00	0 00	4,300.0	0.0	0.0	0.0	0.00	0 00	0 00
4,400.0	0 00	0.00	4,400 0	0.0	0 0	0 0	0.00	0 00	0 00
4,450 0	0 00	0 00	4,450 0	0 0	0.0	0.0	0.00	0 00	0 00
4,500.0	5.98	270.00	4,499.9	0.0	-2.6	2.6	11.96	11.96	0.00
4,600.0	17.94	270.00	4,597.6	0 0	-23 3	23.3	11 96	11.96	0.00
4,700.0	29.90	270 00	4,688 8	0.0	-63 8	63.8	11 96	11.96	0.00
4,800 0	41.86	270.00	4,769 7	0.0	-122.3	122 3	11 96	11 96	0 00

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Well #1
Company:	Permian District	**TVD Reference:**	RKB @ 3005 0ft
Project:	NM - Eddy - Morrow Project	**MD Reference:**	RKB @ 3005 0ft
Site:	Mosaic 34 Federak 3H	**North Reference:**	True
Well:	Well #1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,900.0	53.82	270 00	4,836.7	0.0	-196.2	196 2	11.96	11.96	0 00
5,000.0	65.78	270.00	4,886.9	0.0	-282.5	282.5	11.96	11.96	0 00
5,100.0	77 73	270.00	4,918.2	0 0	-377.3	377.3	11.96	11.96	0 00
5,120 0	80.13	270 00	4,922.0	0.0	-397.0	397.0	11.96	11.96	0.00
Willow Lake									
5,200 0	89.69	270 00	4,929.1	0 0	-476.5	476 5	11.96	11.96	0.00
5,212.0	91.13	270 00	4,929.0	0.0	-488.5	488 5	11.96	11.96	0 00
5,300 0	91.13	270.00	4,927.3	0.0	-576.5	576.5	0.00	0.00	0 00
5,400 0	91 13	270 00	4,925.3	0 0	-676.5	676.5	0.00	0.00	0.00
5,500.0	91.13	270.00	4,923.3	0.0	-776.5	776.5	0.00	0.00	0.00
5,600 0	91 13	270.00	4,921.3	0.0	-876 5	876.5	0.00	0.00	0.00
5,700.0	91.13	270.00	4,919.4	0.0	-976.4	976.4	0.00	0.00	0.00
5,800.0	91.13	270.00	4,917.4	0.0	-1,076.4	1,076.4	0.00	0 00	0 00
5,900.0	91.13	270 00	4,915.4	0 0	-1,176.4	1,176.4	0.00	0 00	0 00
6,000.0	91.13	270.00	4,913.5	0.0	-1,276.4	1,276.4	0.00	0.00	0.00
6,100 0	91.13	270 00	4,911 5	0 0	-1,376.4	1,376.4	0.00	0 00	0.00
6,200 0	91.13	270.00	4,909.5	0.0	-1,476.3	1,476.3	0.00	0.00	0.00
6,300.0	91.13	270.00	4,907.5	0 0	-1,576 3	1,576.3	0.00	0.00	0 00
6,400.0	91.13	270.00	4,905.6	0.0	-1,676.3	1,676.3	0.00	0 00	0.00
6,500 0	91.13	270 00	4,903.6	0.0	-1,776.3	1,776 3	0 00	0 00	0 00
6,600.0	91.13	270.00	4,901.6	0 0	-1,876.3	1,876 3	0.00	0.00	0 00
6,700 0	91.13	270.00	4,899.7	0 0	-1,976.2	1,976 2	0 00	0.00	0.00
6,800 0	91.13	270 00	4,897 7	0.0	-2,076.2	2,076.2	0 00	0.00	0 00
6,900 0	91.13	270.00	4,895.7	0 0	-2,176.2	2,176.2	0.00	0.00	0.00
7,000 0	91.13	270 00	4,893.7	0 0	-2,276 2	2,276 2	0.00	0.00	0 00
7,100 0	91.13	270 00	4,891.8	0.0	-2,376.2	2,376 2	0 00	0 00	0.00
7,200 0	91 13	270 00	4,889.8	0 0	-2,476 1	2,476 1	0 00	0.00	0.00
7,300.0	91 13	270.00	4,887.8	0 0	-2,576.1	2,576.1	0.00	0.00	0 00
7,400 0	91 13	270 00	4,885.9	0.0	-2,676.1	2,676 1	0.00	0.00	0.00
7,500.0	91.13	270.00	4,883.9	0 0	-2,776.1	2,776 1	0 00	0.00	0 00
7,600.0	91.13	270.00	4,881.9	0 0	-2,876.1	2,876 1	0.00	0 00	0 00
7,700.0	91.13	270.00	4,879 9	0.0	-2,976.1	2,976 1	0.00	0.00	0 00
7,800 0	91.13	270 00	4,878 0	0 0	-3,076.0	3,076 0	0.00	0.00	0.00
7,900.0	91.13	270 00	4,876.0	0 0	-3,176.0	3,176.0	0.00	0 00	0.00
8,000 0	91.13	270.00	4,874.0	0 0	-3,276 0	3,276.0	0.00	0.00	0.00
8,100 0	91.13	270 00	4,872 0	0 0	-3,376.0	3,376 0	0 00	0.00	0.00
8,200 0	91.13	270 00	4,870 1	0 0	-3,476 0	3,476.0	0.00	0 00	0.00
8,300 0	91 13	270 00	4,868.1	0 0	-3,575.9	3,575 9	0 00	0.00	0 00
8,400.0	91.13	270.00	4,866.1	0 0	-3,675.9	3,675 9	0 00	0.00	0 00
8,500 0	91 13	270 00	4,864 2	0 0	-3,775.9	3,775 9	0.00	0.00	0.00
8,600.0	91.13	270 00	4,862.2	0 0	-3,875.9	3,875 9	0 00	0 00	0.00
8,700 0	91.13	270 00	4,860 2	0 0	-3,975.9	3,975 9	0.00	0 00	0.00
8,800.0	91.13	270.00	4,858.2	0 0	-4,075.8	4,075.8	0.00	0.00	0.00
8,900 0	91.13	270.00	4,856.3	0.0	-4,175 8	4,175.8	0 00	0.00	0.00
9,000.0	91.13	270 00	4,854.3	0 0	-4,275.8	4,275 8	0 00	0.00	0 00
9,100.0	91 13	270 00	4,852.3	0 0	-4,375 8	4,375.8	0.00	0 00	0 00
9,200.0	91.13	270 00	4,850.4	0 0	-4,475.8	4,475.8	0 00	0.00	0.00
9,300.0	91.13	270.00	4,848.4	0 0	-4,575.7	4,575 7	0.00	0.00	0 00
9,400.0	91.13	270 00	4,846.4	0.0	-4,675.7	4,675 7	0 00	0.00	0 00
9,500 0	91.13	270.00	4,844 4	0 0	-4,775.7	4,775 7	0.00	0.00	0 00
9,600 0	91.13	270 00	4,842 5	0 0	-4,875.7	4,875 7	0.00	0.00	0.00
9,700.0	91.13	270.00	4,840 5	0 0	-4,975 7	4,975 7	0 00	0.00	0 00
5 1/2"									

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Well #1
Company:	Permian Distnct	**TVD Reference:**	RKB @ 3005 0ft
Project:	NM - Eddy - Morrow Project	**MD Reference:**	RKB @ 3005 0ft
Site:	Mosaic 34 Federak 3H	**North Reference:**	True
Well:	Well #1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Casing Points

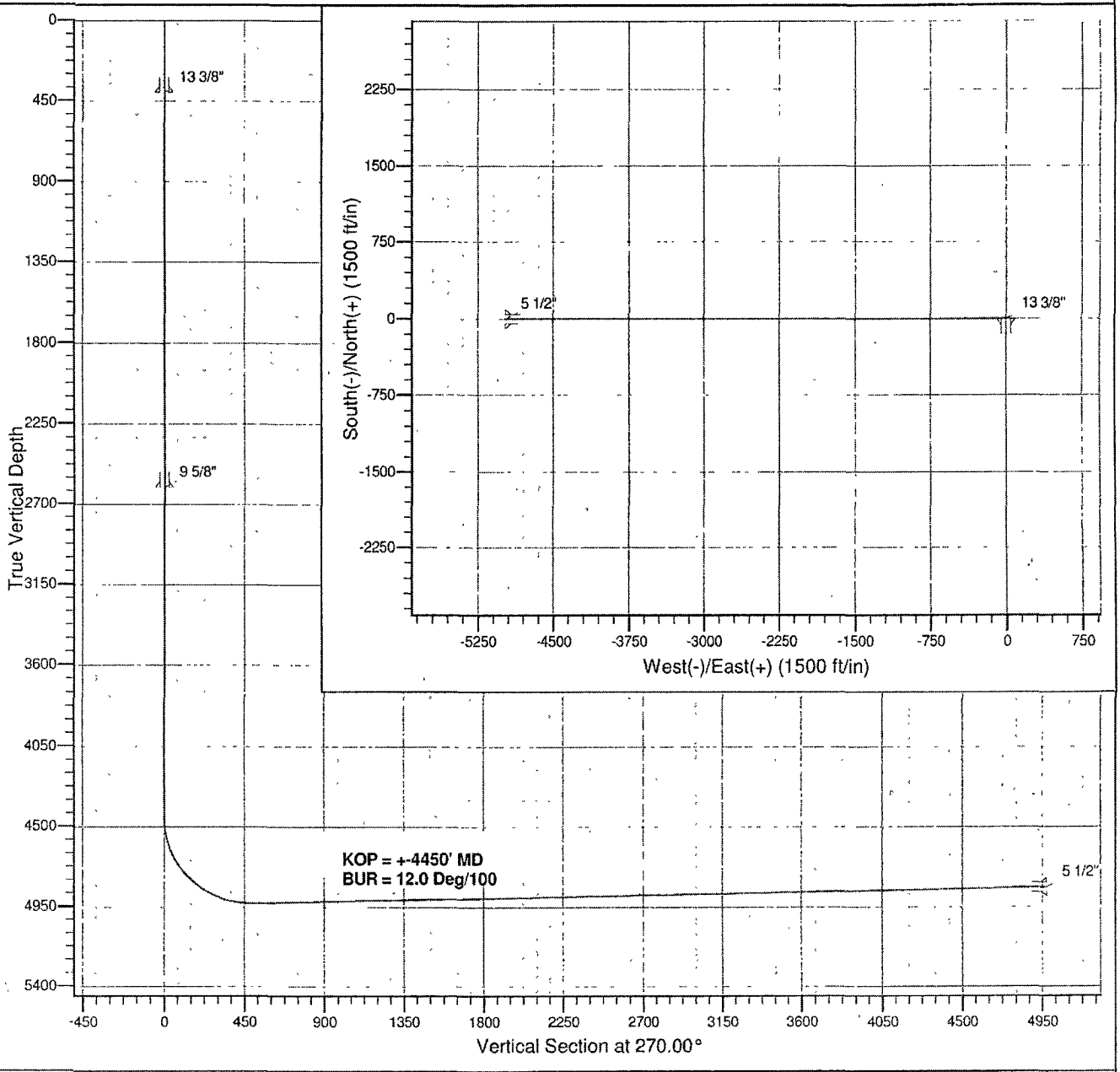
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
400.0	400.0	13 3/8"	13.375	17.500
2,603 0	2,603.0	9 5/8"	9.625	12.250
9,700.0	4,840.5	5 1/2"	5.500	8.750

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,120.0	4,922.0	Willow Lake		0.00	

Chesapeake Operating Inc. Mosaic 34 Federal 3H County: Eddy, NM

Section 34-24S-28E



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4450.0	0.00	0.00	4450.0	0.0	0.0	0.00	0.00	0.0	
3	5212.0	91.13	270.00	4929.0	0.0	-488.5	11.96	270.00	488.5	
4	9700.0	91.13	270.00	4840.5	0.0	-4975.7	0.00	0.00	4975.7	

GEOLOGICAL PROGNOSIS

Permian North District - Delaware Basin North Project
SE Eddy – Willow Lake Prospect
Lee G. Wescott – Geologist

WELL NAME: Mosaic 34 Federal #3H
SURFACE LOCATION: NE/SE 34-T24S-28E, Eddy Co., NM.
1670' FSL & 25' FEL
Lat. 32.170911 Long. -104.06622
STAKING GUIDELINES: Stake per Lat / Long
BOTTOM HOLE LOCATION: 1670' FSL & 350 FWL
Lat. 32.170854 Long. -104.082315
TARGET/HARDLINE:
ESTIMATED ELEVATIONS: **GL** 2,985' est. **KB** 3,003' est. (BASED ON 18' KB)
ANTICIPATED CASING: 13-3/8" @ 400', 8-5/8" @ 2,603', 5 1/2" @ 9,700'
EXPECTED FORMATION TOPS:

	SUBSEA KBTVD	KBTVD
BASE OF SALT	400'	2,603'
*BELL CANYON	351'	2,652'
MANZANITA MARKER	-625'	3,628'
KOP		
****WILLOW LAKE WINDOW TOP**	-1,919'	4,922'
****WILLOW LAKE TARGET LINE**	-1,926'	4,929'
**** WILLOW LAKE HORIZ. BASE**	-1,933'	4,936'
****Potentially productive zones**		
	TD (MD)	**9,850'**

REGULATORY REQUIREMENTS:

OPEN HOLE LOGS: None
Company: **Phone:**
Location:
Log Types & Depths: GR from MWD

MUDLOGGER:
Company: Suttle's
Mudlogger on location: 2,600' (after intermediate casing)

LGW 2008.02.19
Spud package DATE

LATERAL WELL DATA:

Kick Off Point:	
Build Rate:	
Anticipated Dip:	-1.13° (updip)
Lateral Direction:	270°
Lateral Length:	
Departure from Surface:	
Build Radius:	
Target Zone:	Cherry Canyon Willow Lake Zone 4,922-36' (TVD 0°VS)
Vertical Depth:	4929'
Total MD:	~9,850'
Vertical Section Dir:	270 deg
Vertical Section:	4979'
Target Line:	4,929' TVD @ 0 deg. VS w\ 1.13 deg updip
Target Window:	7' above and 7' below stated target

HARDLINES: Bottom Hole: 1650' FSL and 330' FWL
COMMENTS: No special requirements at this time

COMPANY CONTACTS:

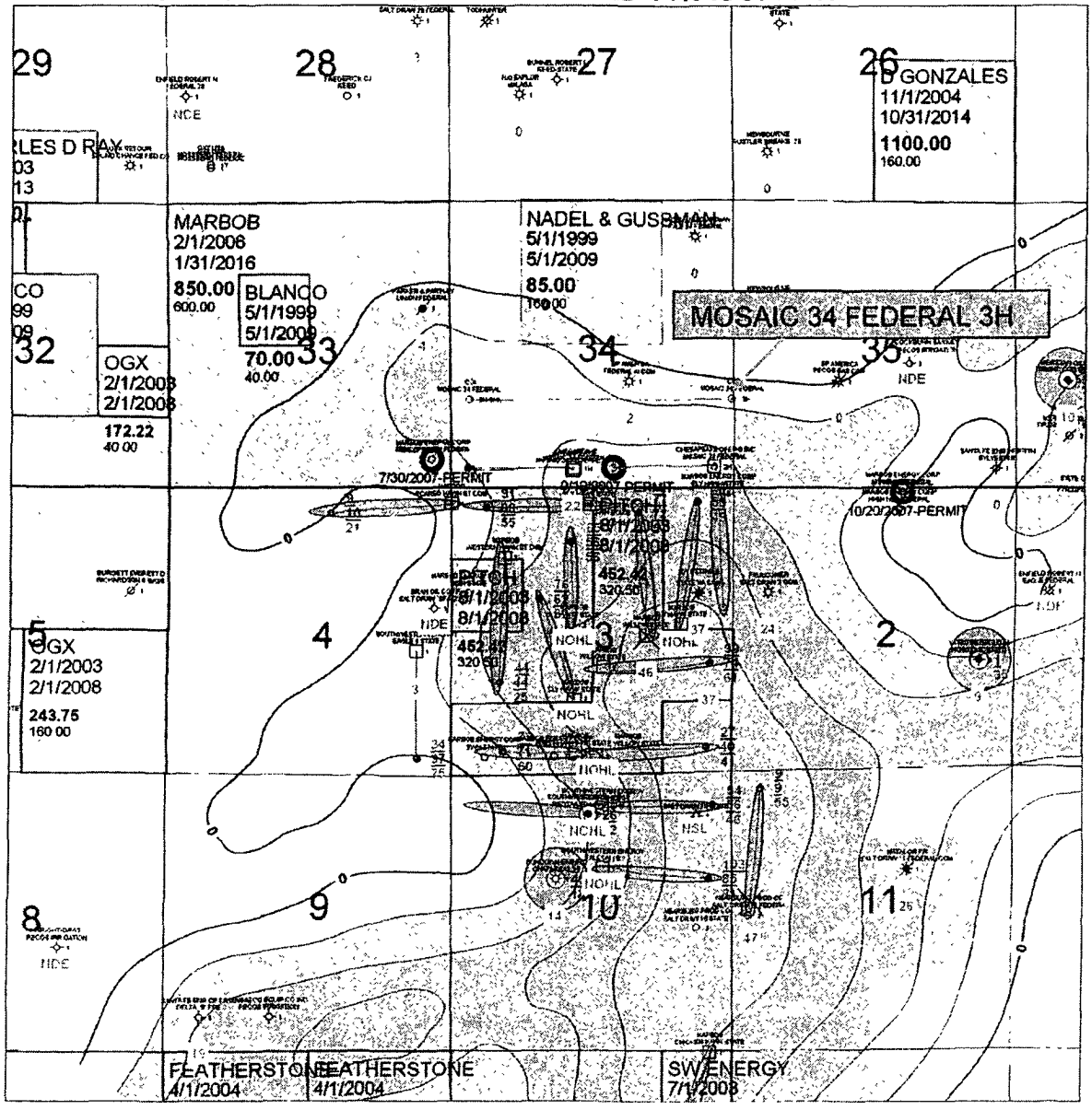
Primary:

Lee Wescott	Todd Nance	Craig Barnard
Geology	Operations -- Drilling	Land
Office: 405.767.4572	Office: 405.879.9301	Office: 405.879.8401
Office Fax: 405.879.9577	Office Fax: 405.767.4528	Office Fax: 405.879.1450
Mobile: 972.978.9050	Mobile: 405.919.9148	Mobile:
Home: 405.324.6067	BB: 405.919.9148	Home:
lee.wescott@chk.com	todd.nance@chk.com	craig.barnard@chk.com

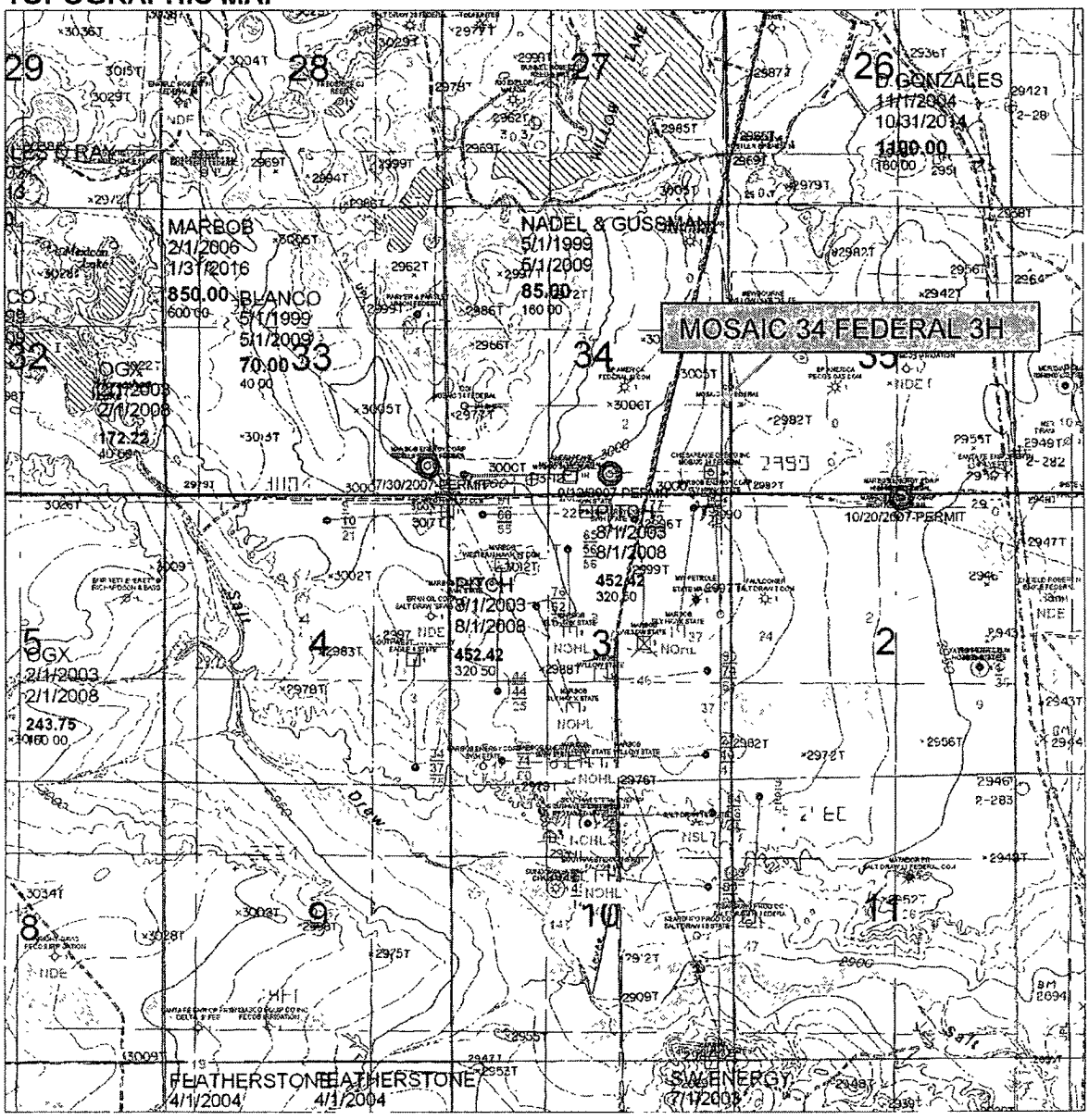
Secondary:

David Godsey		Greg Ramsey
Geoscience Coordinator	Dist. Manager, Permian N.	Land Manager-Permian North
Office: 405.879.7995	Office: 405.879.7863	Office: 405.879.8105
Office Fax: 405.810.2660	Office Fax: 405.879.9529	Office Fax: 405.879.9535
Mobile: 405.618.0474	Mobile: 405.922.6386	Mobile: 405.200.9010
BB: 405.618.0474	Home: 405.286.3019	BB: 405.200.9010
david.godsey@chk.com		greg.ramsey@chk.com

CHERRY CANYON "WILLOW LAKE" NET SAND 14% ISOPACH **CI = 10'**



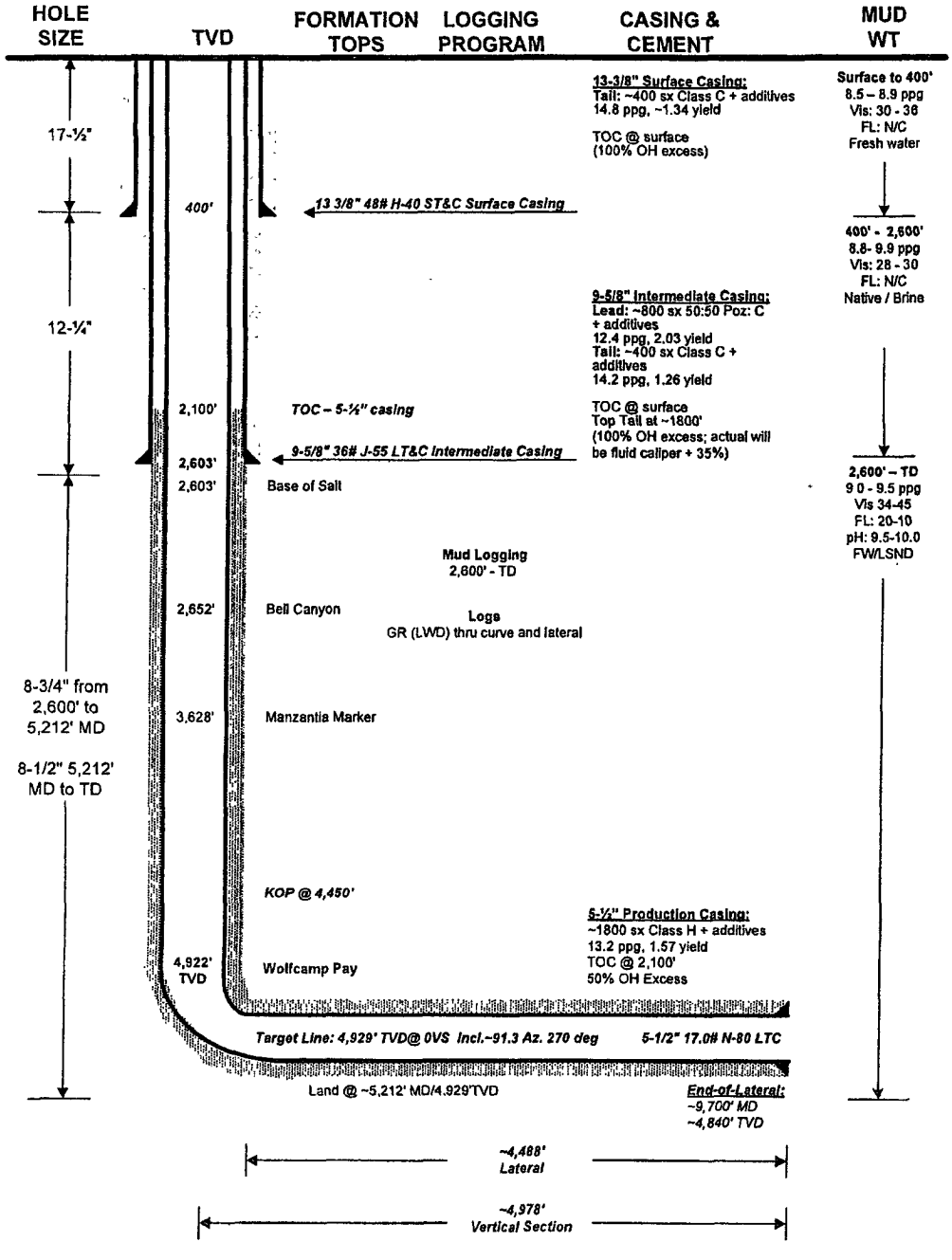
TOPOGRAPHIC MAP



CHESAPEAKE OPERATING INC

Proposed Well Schematic (drilling)

WELL	:	Mosaic 34 Federal #3H
SHL	:	Section 34 - 24S - 28E, 1670' FSL & 25' FEL
BHL	:	Section 34 - 24S - 28E, 1670' FSL & 350' FWL
COUNTY	:	Eddy
STATE	:	New Mexico
FIELD	:	SE Eddy Willow Lake
ELEVATION	:	GL – 2987' RKB – 3005'

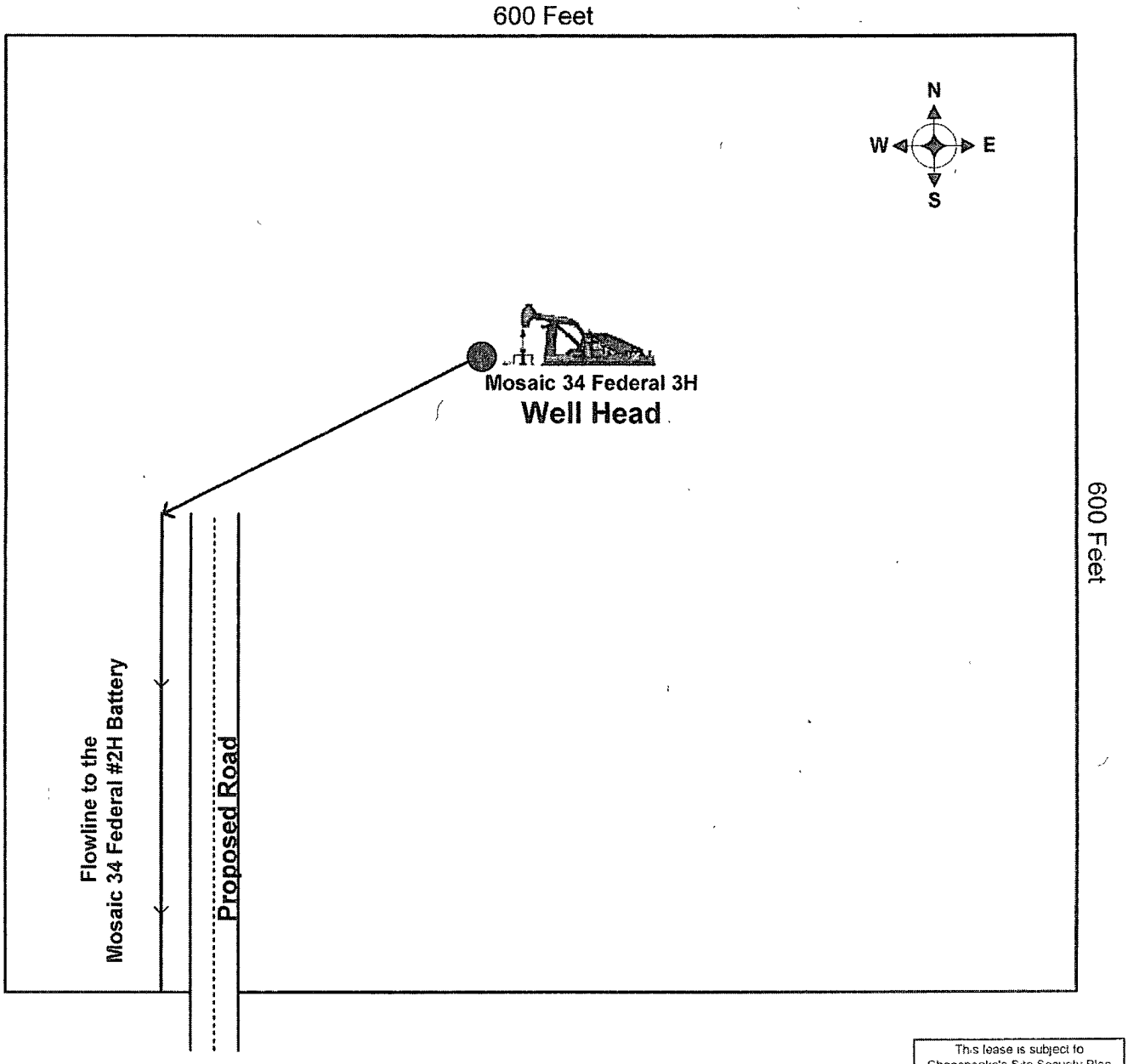


PREPARED BY: TAN DATE: 4/03/08

APPROVED BY: _____ DATE: _____

CHESAPEAKE OPERATING, INC.

Chesapeake Mosaic 34 Federal #3H
1670' FSL & 25' FEL
Sec 34 – T24 – R28E
Eddy County, New Mexico



This lease is subject to Chesapeake's Site Security Plan located at 6100 N Western Oklahoma City, OK 73116

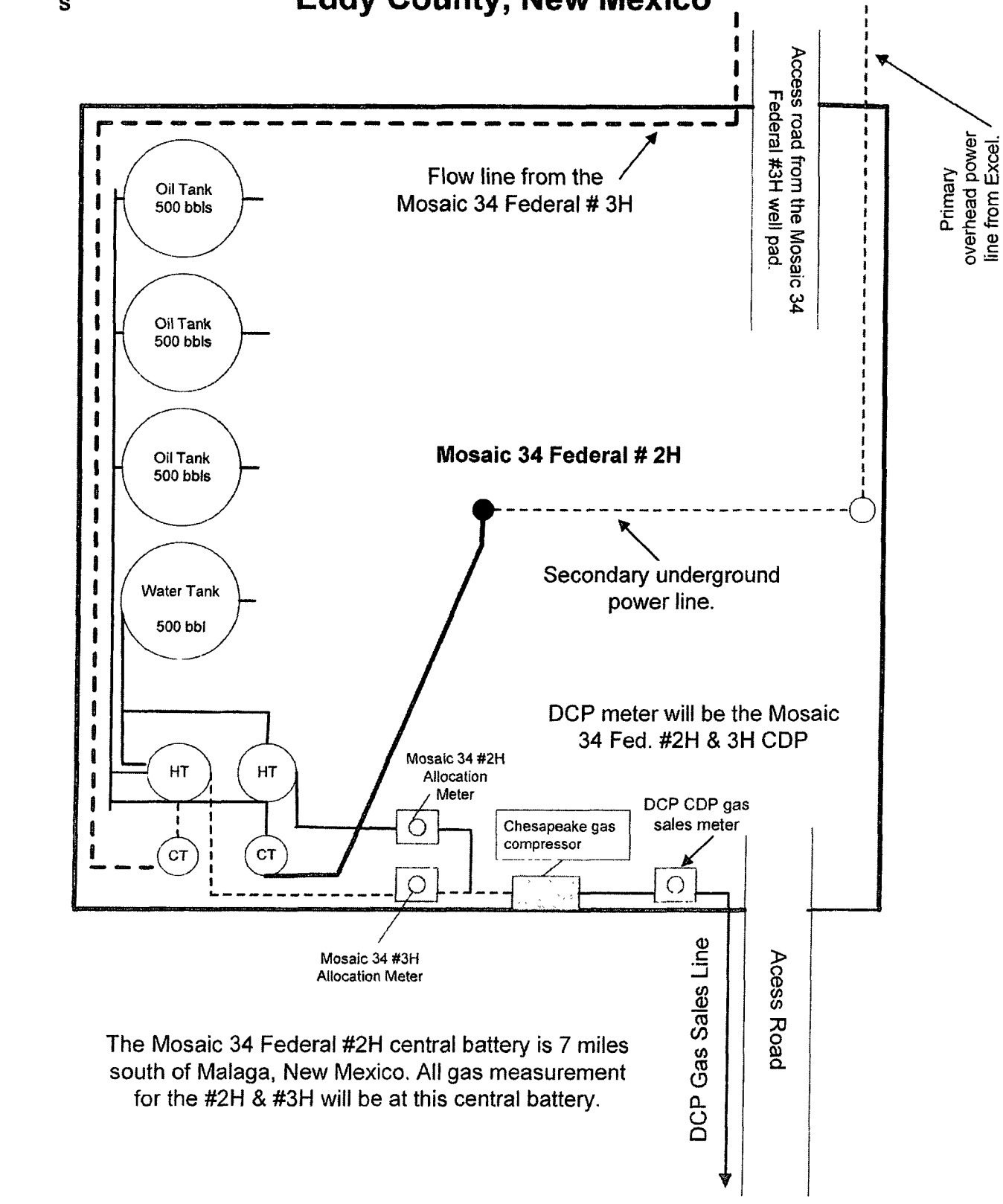
Direction of Flow off Site: Southwest

Prepared by: Jackie Reynolds
Date: 4-21-2008

Approved by:
Date:

Revised
EXHIBIT C-1

Chesapeake Mosaic 34 Federal #2H
Central Battery 371's & 365'e sec 34-24-28
Eddy County, New Mexico

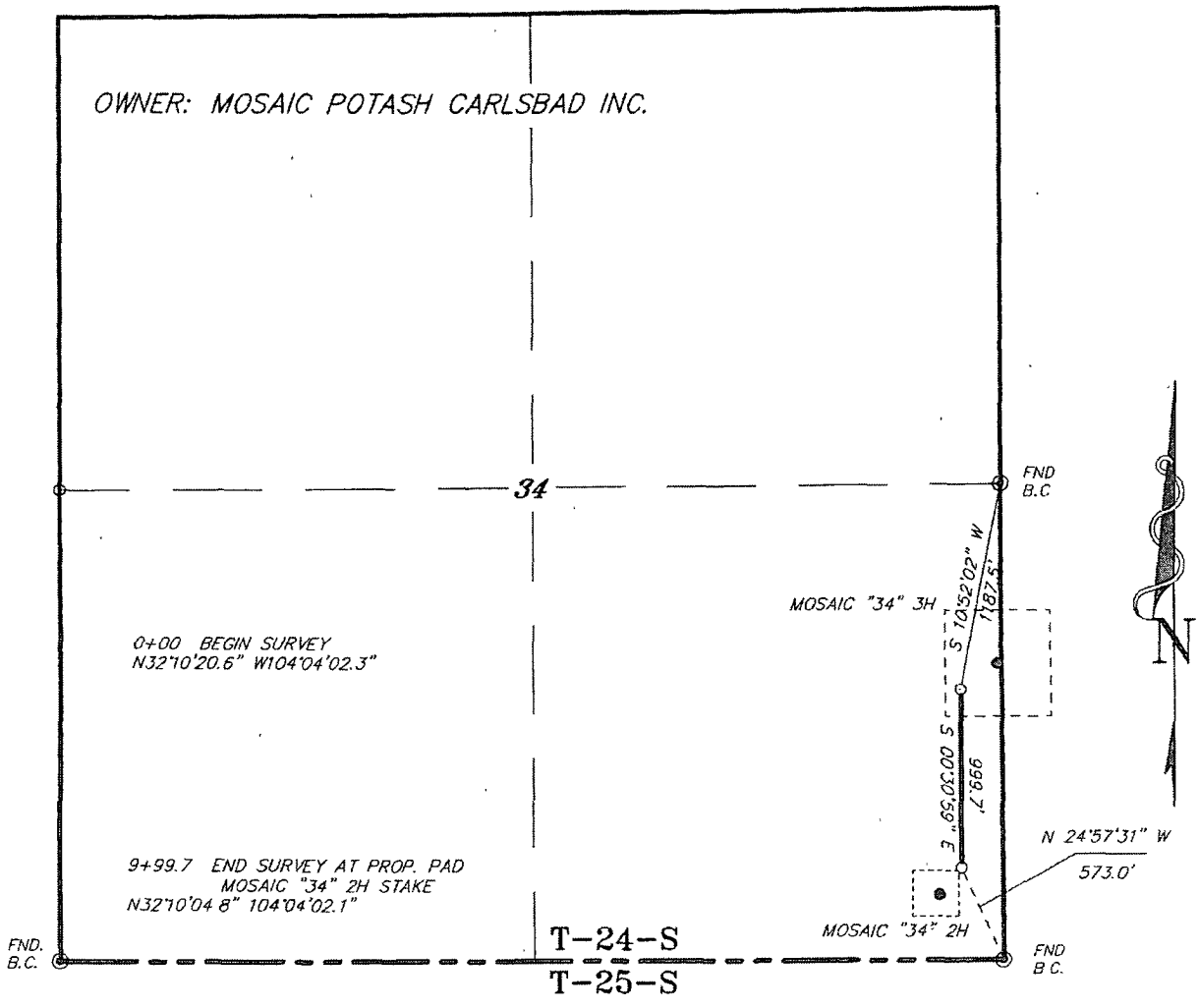


The Mosaic 34 Federal #2H central battery is 7 miles south of Malaga, New Mexico. All gas measurement for the #2H & #3H will be at this central battery.

Revised
EXHIBIT C-2

SECTION 34, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 34, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

BEGINNING AT A POINT WHICH LIES S.10°52'02"W., 1187.5 FEET FROM THE EAST QUARTER CORNER OF SAID SECTION 34; THENCE S.00°30'59"E., 999.7 FEET TO THE END OF THIS LINE WHICH LIES N.24°57'31"W., 573.0 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 34. SAID STRIP OF LAND BEING 999.7 FEET OR 60.58 RODS IN LENGTH.

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

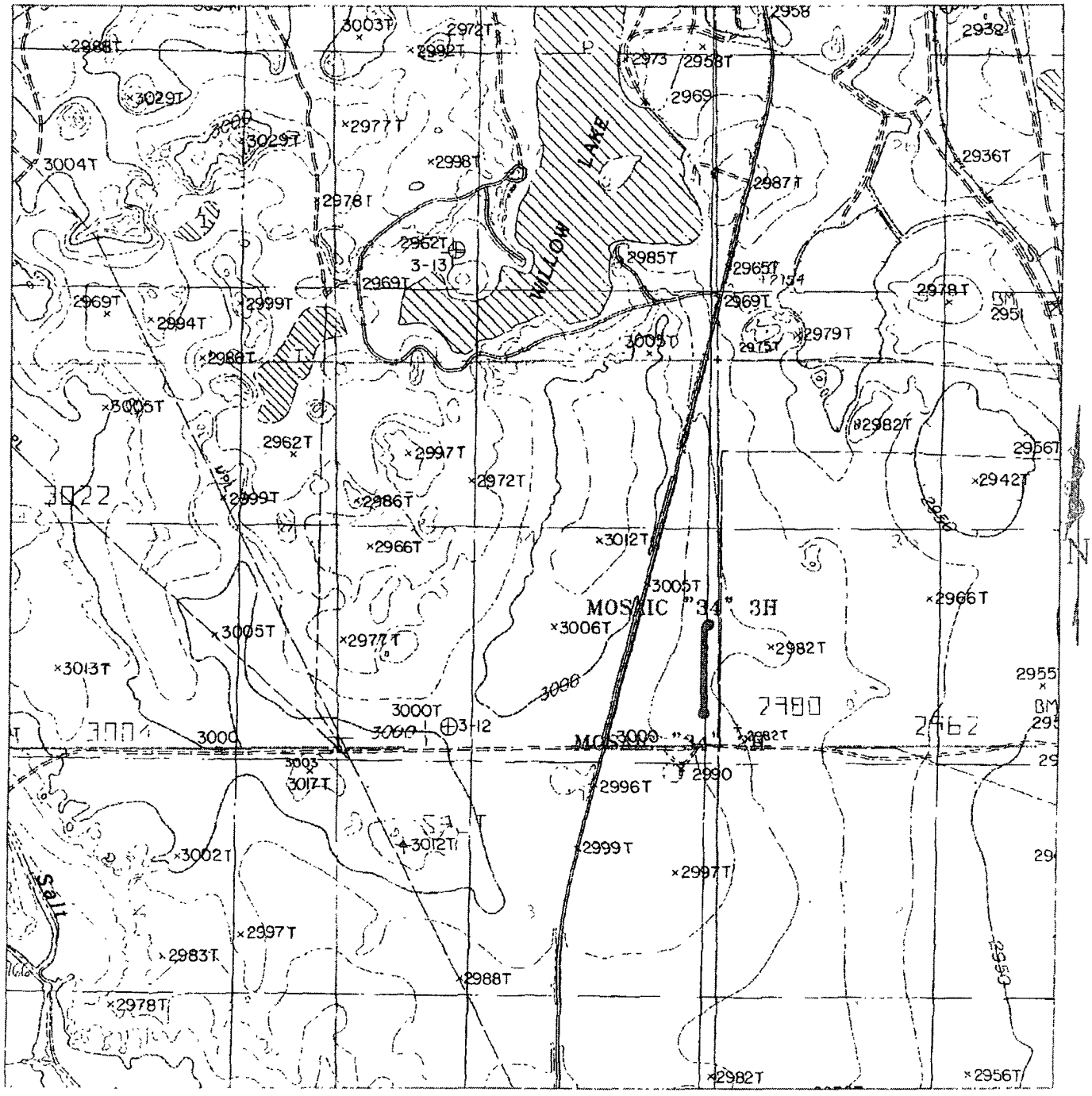
CHESAPEAKE OPERATING INC.

REF: PROPOSED PIPELINE TO THE MOSAIC 34 #3H

A PIPELINE CROSSING FEE LAND IN
SECTION 34, TOWNSHIP 24 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Revised

W.O. Number: 184453	Drawn By: James Presley		
Date: 08/21/07	Disk: JLP #1 – CHE18453	Survey Date: 8/14/07	Sheet EXHIBIT 1 of 3 Sheets



PROPOSED PIPELINE TO THE CHESAPEAKE--MOSAIC "34" 3H

Section 34, Township 24 South, Range 28 East, N.M.P.M., Eddy 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: 18455
Survey Date: 08/14/07
Scale: 1" = 2000'
Date: 08/21/07

CHESAPEAKE OPERATING INC.

Revised EXHIBIT

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

1. EXISTING ROADS
   a. Existing county and lease roads will be used to enter proposed access road.
   b. Location, access, and vicinity plats attached hereto. See Exhibits A-1 to A-4.

2. PLANNED ACCESS ROADS
   a. A proposed access road 1050' in length and 14' in travel way width with a maximum disturbance area of 30' will be used, and in accordance with guidelines set forth in the BLM Onshore Orders. No turnouts are expected.
   b. In order to level the location, cut and fill will be required. Please see attached Well Location and Acreage Dedication Plat – Exhibits A-1 to A-4.
   c. A locking gate will be installed at the site entrance.
   d. Any fences cut will be repaired. Cattle guards will be installed, if needed.
   e. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.
   f. Driving directions are from the intersection of US Hwy 285 (Pecos Hwy) and Co. Rd 721 (Pulley Rd). Go South on US Hwy 285 approx. 2.0 miles, turn left and go East approx. 0.3 miles to the Chesapeake Mosaic #24 well pad and a proposed road survey. Follow road survey approx. 1200 feet North to this location.

3. LOCATION OF EXISTING WELLS WITHIN A 1-MILE RADIUS OF THE PROPOSED LOCATION – see Exhibit B.

4. LOCATION OF PRODUCTION FACILITIES
   The production facilities will be located on the Mosaic 34 Federal 2H Battery. All gas measurement for the #3H will be at the #2H Central Battery. DCP meter will be the Mosaic 34 Fed 2H & 3H CDP. Propose to lay 999.7 feet of 2 7/8" steel flow line from the #3H along the access road to the #2H Battery, and will bury flow line from the #3H well pad to the edge of location. – see Exhibit C-1 to C-2.

5. LOCATION AND TYPE OF WATER SUPPLY
Water will be obtained from a private water source. Chesapeake Operating, Inc. will ensure all proper notifications and filings are made with the state.

6. CONSTRUCTION MATERIALS
No construction materials will be used from Section 34-24S-28E. All material (i.e. shale) will be acquired from private or commercial sources.

7. METHODS FOR HANDLING WASTE DISPOSAL
A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill.

8. ANCILLARY FACILITIES
None

9. WELLSITE LAYOUT
The proposed site layout plat is attached showing Patterson Rig 142 orientation and equipment location. See Revised Exhibit D. Also see Revised Exhibit A-2 for the size of the pad.

10. PLANS FOR RECLAMATION OF THE SURFACE
The location will be restored to as near as original condition as possible. Reclamation of the surface shall be done in strict compliance with the existing New Mexico Oil Conservation Division regulations.

Backfilling leveling, and contouring are planned as soon as the drilling rig and steel tanks are removed. Wastes and spoils materials will be buried immediately after drilling is completed. If production is obtained, the unused area will be restored as soon as possible. The rehabilitation will begin after the drilling rig is removed.

11. MINERAL OWNERSHIP
United States of America
Department of Interior
Bureau of Land Management

SURFACE OWNERSHIP
I.M.C. Kalium 505-887-2871
P.O. Box 71 Scott Vail (Contact)
Carlsbad, NM

(Chesapeake Operating, Inc. has an agreement with the surface owner.)

12. ADDITIONAL INFORMATION

A Class III cultural resource inventory report was prepared by Boone Archaeological Services, Carlsbad, New Mexico for the proposed location. A copy of the report has been sent to the BLM office under separate cover and is also attached for reference. See Exhibit E.

Chesapeake Operating, Inc. agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.

13. OPERATOR'S REPRESENTATIVES

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District Manager
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Regulatory Compliance Specialist
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linda.good@chk.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chesapeake Operating, Inc.
LEASE NO.:	NMNM-13074
WELL NAME & NO.:	Mosaic 34 Fed. # 3H
SURFACE HOLE FOOTAGE:	1670' FSL & 25' FEL
BOTTOM HOLE FOOTAGE	1670' FSL & 350' FWL
LOCATION:	Section 34, T. 24 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. 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.

II. 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.)

III. 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.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. 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.

V. SPECIAL REQUIREMENT(S)

The Chesapeake Operating, Inc. proposes to construct a oil well location with a 315 x 200 foot caliche pad with a closed loop system, using steel tanks only. There will be a need to construct 1050' x 14 feet of new access road required to the new proposed surface well location.

If the well is productive there will be a need for gas and oil pipelines, tank batteries, electric lines and salt water disposal pipelines, and there will be an increase in applications to drill in the adjacent 320 acre tracts.

Mitigation Measures: The mitigation measures include the Pecos District Conditions of Approval, and the standard stipulations for permanent resource roads.

Mosaic 34 Federal # 3H: Closed Loop V-Door East

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 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 APD and Conditions of Approval (COA) 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 shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

Mosaic 34 Federal # 3H: Closed Loop V-Door East

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

C. 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
Carlsbad Field Office at (575) 234-5972.

D. 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 needs.

E. 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.

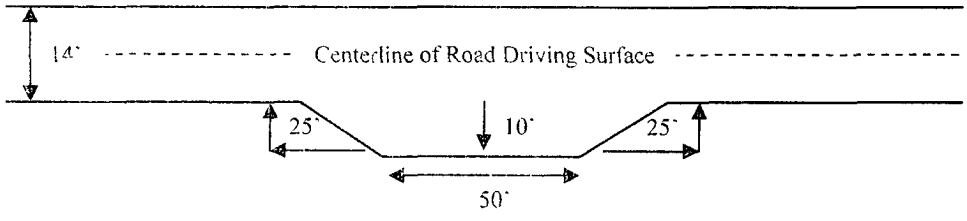
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

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:

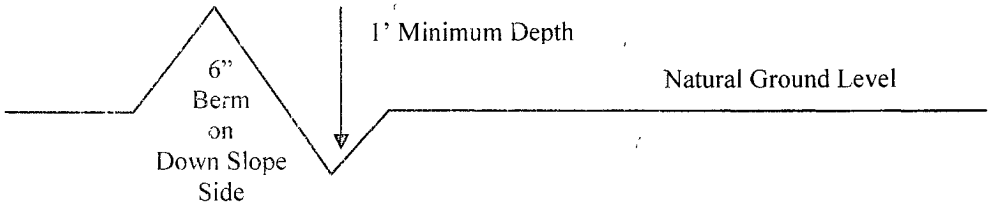
Standard Turnout – Plan View



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 a 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:

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

Culvert Installations
Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards
An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for

the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

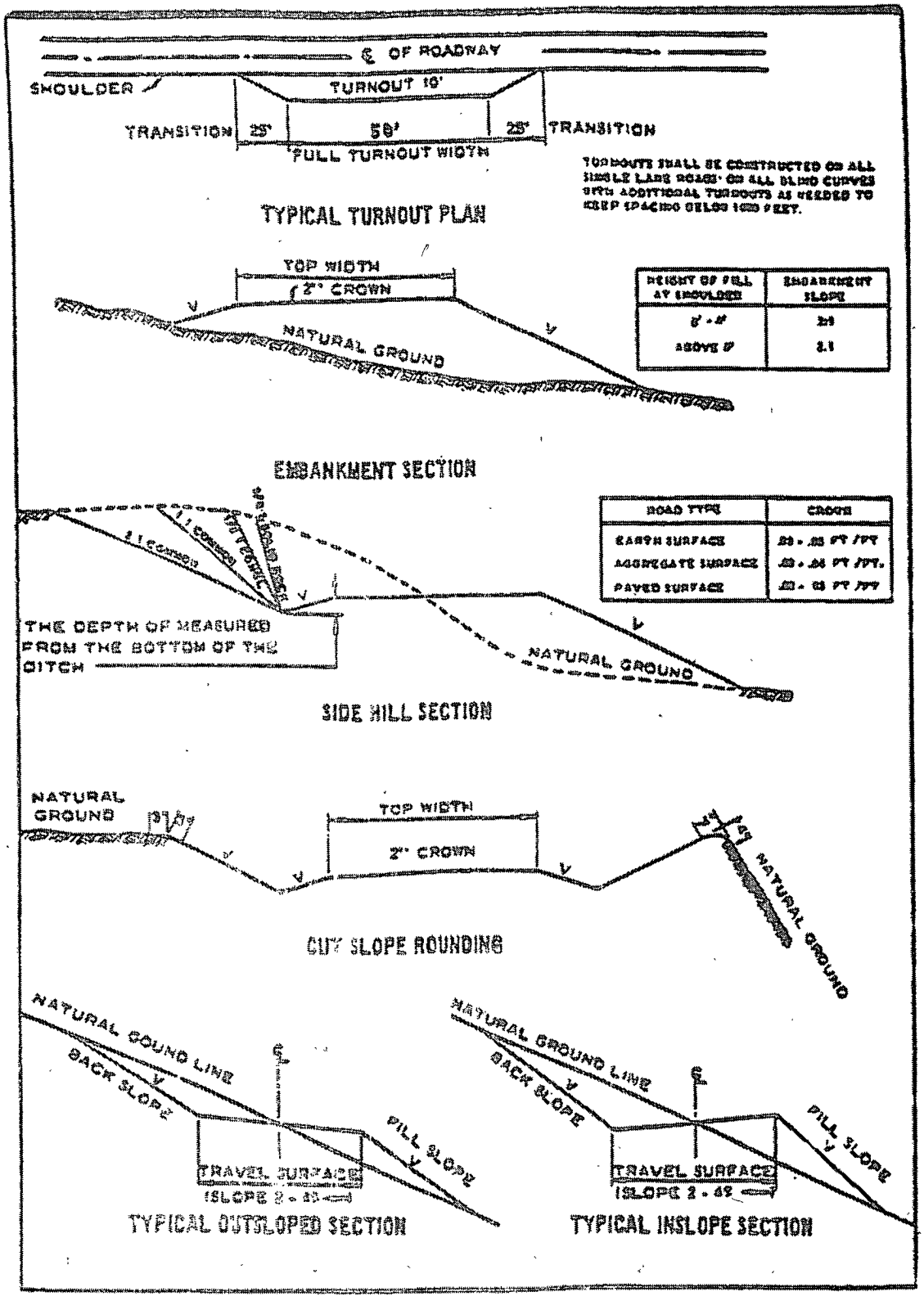
A gate shall be constructed and fastened securely to H-braces.

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



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

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. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

High cave/karst.
Possible lost circulation in the Triassic redbeds and the Castile group.

1. The **13-3/8** inch surface casing shall be set **at approximately 400 feet (a minimum of 25 feet into the Rustler Anhydrite and 25 feet above the salt)** and cemented to the surface.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing.

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 compressive 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 compressive strength, whichever is greater.

d. If cement falls back, remedial cementing 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:

☒ Cement to surface. If cement does not circulate see B.1.a-d above.
Casing to be set below the salt and in the Lamar limestone.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.

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 **2000 (2M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **3000 (3M)** psi. **Operator installing a 5M, testing to 3M.**

4. 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. DRILL STEM TEST

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

WWI 050708

VIII. PRODUCTION (POST DRILLING)

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
Shale Green, Munsell Soil Color Chart # 5Y 4/2

IX. 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.

At the time the well pad is 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.

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

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection bye the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent gemination = pounds pure live seed
(Insert Seed Mixture Here)

X. 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 agreement.