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New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No 1004-0136
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

CONFIDENTIAL

1a Type of Work ☒ DRILL ☐ REENTER	5 Lease Serial No NMNM120357
	6 If Indian, Allottee or Tribe Name
	7 If Unit or CA Agreement, Name and No
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone	8 Lease Name and Well No (38272) NEREID 1 FEDERAL 1H
2 Name of Operator CHESAPEAKE OPERATING INC Contact LINDA GOOD E-Mail linda good@chk com (147179)	9 API Well No 30-005-29145
3a Address P O BOX 18496 OKLAHOMA CITY, OK 73154-0496	3b Phone No (include area code) Ph: 405-935-4275 Fx: 405-849-4275
	10 Field and Pool, or Exploratory WILDCAT-WOLFCAMP & Abo (97715)
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SESE 660FSL 100FEL Unit P At proposed prod zone SWSW 660 FSL 330 FWL Unit M	11 Sec, T, R, M, or Blk and Survey or Area Sec 1 T15S R31E Mer NMP SME. BLM
14 Distance in miles and direction from nearest town or post office* 15.5 MILES NORTH OF MALJAMAR, NEW MEXICO	12 County or Parish CHAVES / 13 State NM
15 Distance from proposed location to nearest property or lease line, ft (Also to nearest drig unit line, if any)	16 No of Acres in Lease 641.44 / 17 Spacing Unit dedicated to this well 160.00
18 Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth 13601 MD 8849 TVD / 20 BLM/BIA Bond No on file
21 Elevations (Show whether DF, KB, RT, GL, etc 4367 GL	22 Approximate date work will start / 23 Estimated duration

24. Attachments

ROSWELL CONTROLLED WATER BASIN

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

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

25 Signature	Name (Printed/Typed)	Date
(Electronic Submission)	LINDA GOOD Ph. 405-935-4275	05/11/2010

Title: SR. REGULATORY COMPLIANCE SPEC

Approved by (Signature)	Name (Printed/Typed)	Date
/S/ Angel Mayes	Angel Mayes	07/28/10
Title: Assistant Field Manager, Lands And Minerals	Office: ROSWELL FIELD OFFICE	

Application approval does not warrant or certify 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

APPROVED FOR 2 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

Additional Operator Remarks (see next page)

PETROLEUM ENGINEER

AUG 12 2010

Electronic Submission #86273 verified by the BLM Well Information System
For CHESAPEAKE OPERATING INC, sent to the Roswell
Committed to AFMSS for processing by RUBEN SANCHEZ on 05/11/2010 (10RJS0565AE)

ROSWELL CONTROLLED WATER BASIN

CEMENT BEHIND THE 13 3/8" CASING MUST BE CIRCULATED

** BLM REVISED ** BLM REVISED ** BLM RE

WITNESS

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

RECEIVED

AUG 02 2010

HOBBSOCD

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
1185 S ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

11885 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
30-005-29145	97115	Wildcat; Wolfcamp ~RDO

Property Code	Property Name	Well Number
38272	NEREID 1 FEDERAL	1H

OGRID No.	Operator Name	Elevation
14-7179	CHESAPEAKE OPERATING, INC.	4367'

Surface Location

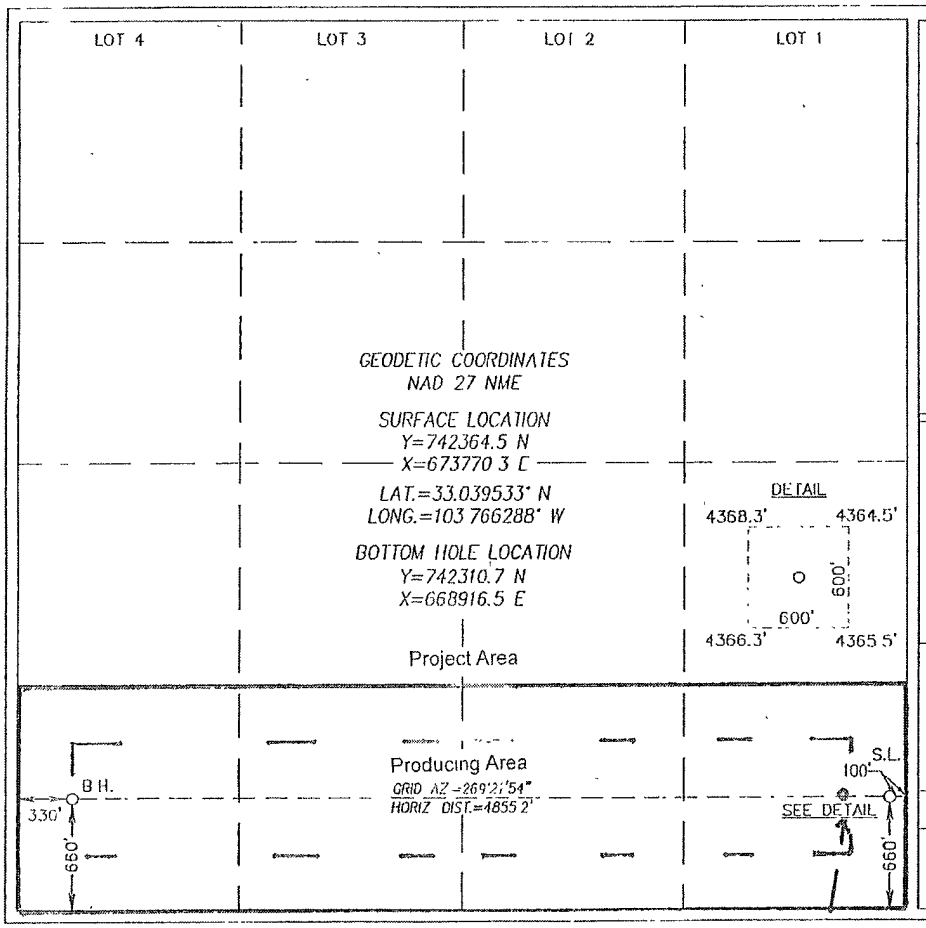
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	1	15-S	31-E		660	SOUTH	100	EAST	CHAVES

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
M	1	15-S	31-E		660	SOUTH	330	WEST	CHAVES

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: 4/27/2010

Bryan Arrant
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.

GARY G. EIDSON
NEW MEXICO
MARCH 30, 2010
12641
REGISTERED PROFESSIONAL SURVEYOR

Date Surveyed: MARCH 30, 2010

Signature & Seal of Professional Surveyor

4/14/10

10.11.0423

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

Penetration Point
660' FSL & 348' FEL

EXHIBIT A-1

Additional Operator Remarks:

Chesapeake Operating, Inc., respectfully, requests permission to drill a well to 13,601' to test the Wolfcamp Formation. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and New Mexico Oil Conservation Division Requirements.

Please find the Surface Use Plan and Drilling Program as required by Onshore Order No. 1.

Attached are the Exhibit A-1 TO A-4 Survey Plats, Exhibit B 1 Mile Radius Plat, Exhibit C Production Facility, Exhibit D Cactus Rig #120, Exhibit F-1 TO F-2 BOP & Choke Manifold, Exhibit G Directional Drill Plan and H2S Contingency Plan.

Exhibit E Archaeological Survey will be delivered to the BLM when completed.

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

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.

(CHK PN 632183)

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	SUB-SEA	KBTVD
Rustler	2964	1421
Yates	1901	2484
Queen	1095	3290
Abo Shale	-3,232'	7,617'
Abo Shale	-3,232'	7,617'
Wolfcamp	-4,504'	8,889'
TOTAL DEPTH 13,474'		

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	Queen	3290
Oil/Gas	Wolfcamp	8889

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

3. BOP EQUIPMENT:

Will have a 13-5/8" 5000 psi rig stack (see proposed schematic) for drill out below surface casing; this system will be tested to 5000 psi working pressure and 3500 psi working pressure for the annular preventer.

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

I. BOP, Annular, Choke Manifold, Pressure Test - See Exhibit F-1 and 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 **10 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 pressures:

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 – 4,000'	12-1/4"	9-5/8"	40.0#	J-55	LTC	New
Production	Surface – 13,601'	8-3/4"/	5-1/2"	17.0#	P-110	LTC	New

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

c. Casing Safety Factors:
13-3/8" Surface Casing: SFb = 1.70, SFc = 5.13 and SFt = 2.13
9-5/8" Intermediate Casing: SFb = 2.09, SFc = 1.21 and SFt = 1.62
5-1/2" Production Casing: SFb = 1.41, SFc = 1.71 and SFt = 1.69

d. The cementing program will be as follows:

5. Cementing Program

Interval	Type	Weight	Amount	Yield	Top Of Cement	Excess
Surface	Single Slurry	14.2 ppg	545 sks	1.35	Surface	150%
Intermediate	Lead:	13.1 ppg	790 sks	1.74	Surface	50%
	Tail:	14.8 ppg	350 sks	1.37	3000'	50%
Production	Lead	12.7 ppg	880 sks	1.87	3500'	50%
	Tail	14.4 ppg	1630 sks	1.24	8000'	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	8.4 – 8.7	28-32	NC
400' – 4,000'	Native/Brine	8.7 – 10.0	28-30	NC
4,000' - 8500'	FW/Cut Brine	9.0 – 9.5	28-30	NC
8500'-TD	FW/Cut Brine	9.0 -- 9.5	34-38	12-20

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 Triple Combo with Spectral Gamma Ray from 9,020' up to surface casing. Gamma Ray/Neutron from casing up to surface with Gamma/MWD in the lateral.
c. Cores samples are not planned.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE
   a. The estimated bottom hole pressure is 4150 psi. No abnormal pressures or temperatures are anticipated.
   b. Hydrogen sulfide gas is anticipated: Low levels of H2S have been monitored in producing wells in the area, so H2S may be present while drilling the well. (See Exhibit H)

Permian District

NM - Chaves - Wolfcamp
Nereid 1 Federal 1H
Nereid 1 Federal 1H
Nereid 1 Federal 1H

Plan: Plat

Standard Planning Report

06 May, 2010

EXHIBIT G

Chesapeake Energy Corporation

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Nereid 1 Federal 1H
Company:	Permian District	**TVD Reference:**	Well2 @ 4387 0ft
Project:	NM - Chaves - Wolfcamp	**MD Reference:**	Well2 @ 4387.0ft
Site:	Nereid 1 Federal 1H	**North Reference:**	Grid
Well:	Nereid 1 Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Nereid 1 Federal 1H		
Design:	Plat		

Project NM - Chaves - Wolfcamp

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 Nereid 1 Federal 1H

Site Position:		**Northing:**	742,364.36 ft	**Latitude:**	33 03953300
From:	Lat/Long	**Easting:**	673,770.20 ft	**Longitude:**	-103.76628800
Position Uncertainty:	0.0 ft	**Slot Radius:**	0 000 in	**Grid Convergence:**	0.3091940 °

Well Nereid 1 Federal 1H

Well Position	**+N/-S**	0.0 ft	**Northing:**	742,364 36 ft	**Latitude:**	33.03953300
	+E/-W	0 0 ft	**Easting:**	673,770.20 ft	**Longitude:**	-103.76628800
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	4,367.0 ft	**Ground Level:**	4,367.0 ft

Wellbore Nereid 1 Federal 1H

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	4/1/2010	7.8706184	60.9557208	49,231

Design Plat

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	269 37	

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	0.0000000	
8,512.6	0.00	0.00	8,512.6	0.0	0 0	0.00	0.00	0 00	0.0000000	
9,162.2	90 94	269.37	8,921.8	-4 6	-415 9	14 00	14 00	0.00	269.3650111	
13,600.9	90 94	269.37	8,849.0	-53.8	-4,853.8	0.00	0 00	0.00	0.0000000	Nereid 1F1H-BHL-Pla

Chesapeake Energy Corporation

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well Nereid 1 Federal 1H
Company:	Permian District	**TVD Reference:**	Well2 @ 4387.0ft
Project:	NM - Chaves - Wolfcamp	**MD Reference:**	Well2 @ 4387 0ft
Site:	Nereid 1 Federal 1H	**North Reference:**	Grid
Well:	Nereid 1 Federal 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Nereid 1 Federal 1H		
Design:	Plat		

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
1,000.0	0.00	0.00	1,000 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
3,000.0	0 00	0.00	3,000.0	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
5,000.0	0 00	0.00	5,000 0	0 0	0.0	0.0	0.00	0.00	0 00
6,000.0	0.00	0 00	6,000 0	0.0	0 0	0.0	0 00	0 00	0.00
7,000.0	0 00	0.00	7,000.0	0 0	0.0	0 0	0 00	0.00	0 00
8,000 0	0.00	0.00	8,000 0	0.0	0 0	0.0	0.00	0 00	0.00
8,512.6	0 00	0.00	8,512 6	0 0	0.0	0.0	0 00	0.00	0 00
9,000 0	68.23	269.37	8,892.7	-2 9	-257 5	257 5	14.00	14 00	0.00
9,162.2	90.94	269 37	8,921 8	-4 6	-415.9	416.0	14 00	14 00	0.00
10,000 0	90.94	269 37	8,908.1	-13.9	-1,253.6	1,253 7	0 00	0.00	0.00
11,000 0	90 94	269 37	8,891 7	-25 0	-2,253.4	2,253.5	0.00	0.00	0 00
12,000.0	90.94	269 37	8,875 3	-36.1	-3,253 2	3,253 4	0.00	0.00	0.00
13,000 0	90 94	269.37	8,858.9	-47.1	-4,253.0	4,253.3	0.00	0 00	0.00
13,600.9	90 94	269.37	8,849 0	-53 8	-4,853.8	4,854 1	0 00	0 00	0.00

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Nereid 1F1H-TL-0VS-AF - plan misses target center by 128 8ft at 8934.2ft MD (8863.5 TVD, -2 2 N, -198 6 E) - Point	0.00	0.00	8,931 0	-19 8	-90.3	742,344.58	673,679.91	33.03948000	-103.76658300
Nereid 1F1H-BHL-Plat - plan hits target center - Point	0.00	0 00	8,849 0	-53.8	-4,853.8	742,310.56	668,916.40	33.03945613	-103.78212717
Nereid 1F1H-BHL-AFE - plan misses target center by 93 0ft at 13600 9ft MD (8849 0 TVD, -53.8 N, -4853 8 E) - Point	0.00	0 00	8,851 0	-19 8	-4,940 3	742,344 58	668,829.92	33.03955089	-103.78240879
Nereid 1F1H-TL 0'VS-PI - plan misses target center by 181.3ft at 8878.6ft MD (8831.7 TVD, -1 7 N, -153 0 E) - Point	0.00	0 00	8,929.0	0.0	0.0	742,364 36	673,770.20	33.03953300	-103.76628800

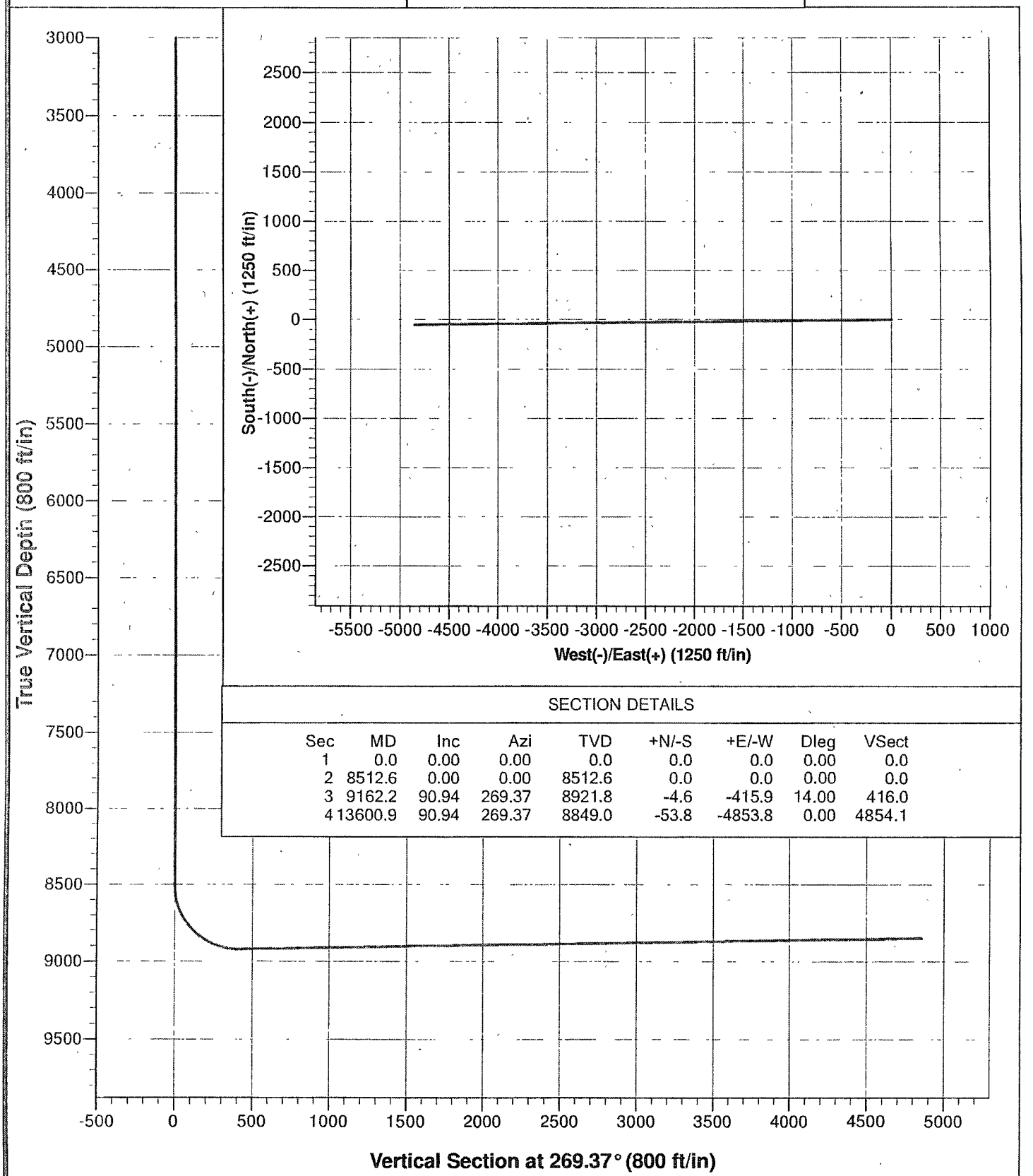
Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
400.0	400.0	13 3/8" Surface Casing	13.375	17.500
4,000.0	4,000 0	9 5/8" Intermediate Casing	9.625	12.250
13,600 9	8,849 0	5 1/2" Production Casing	5.500	8.750

Nereid 1 Federal 1H

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Ground Level

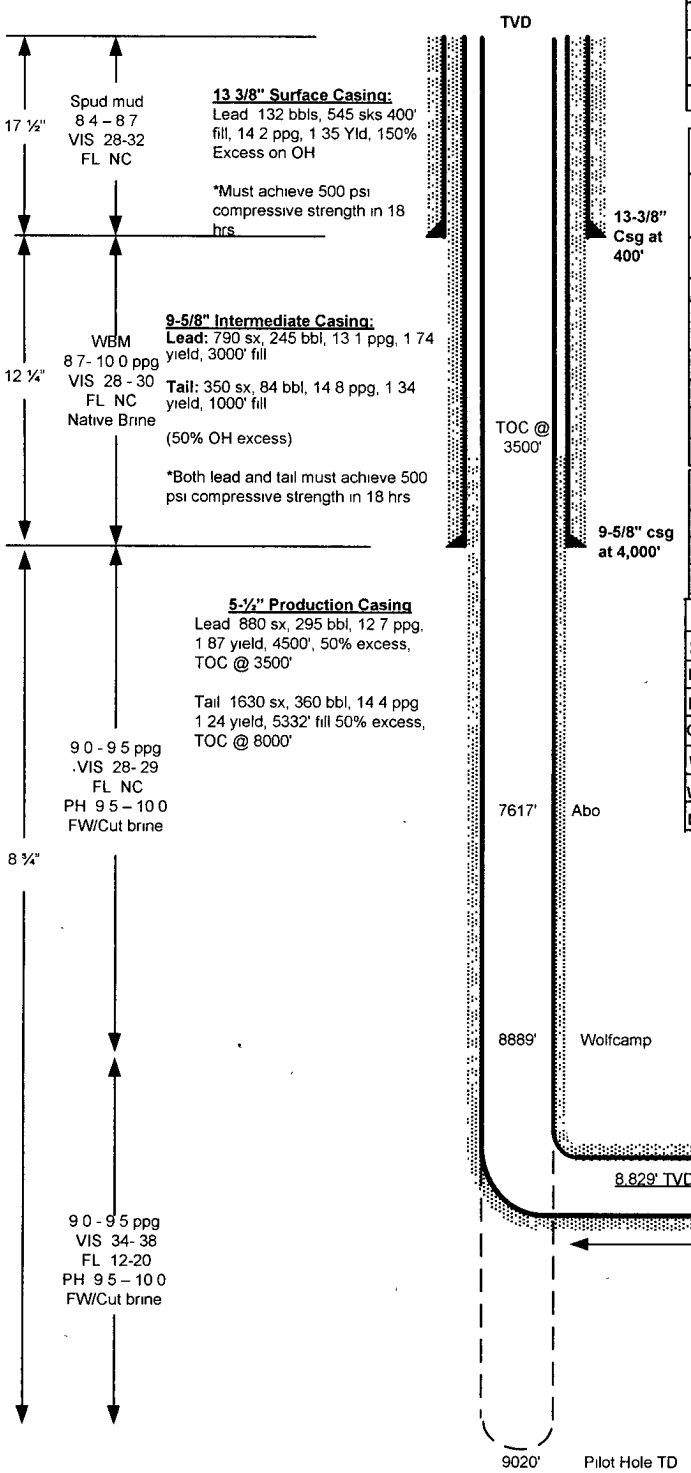


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
2	8512.6	0.00	0.00	8512.6	0.0	0.0	0.00	0.0
3	9162.2	90.94	269.37	8921.8	-4.6	-415.9	14.00	416.0
4	13600.9	90.94	269.37	8849.0	-53.8	-4853.8	0.00	4854.1

Chesapeake Operating Inc	Proposed Drilling Program

Well : **Nereid 1 Federal 1H**
Field : **Northwest Shelf**
County : **Eddy** **State : NM**
Surf Locat : **Section 1-15S-31E, 660' FSL & 100' FEL Lat: N33.039533° Long: W103.766288° (NAD27)**
BH Locat : **Section 1-15S-31E, 660' FSL & 330' FWL Lat: N33.039456° Long: W103.782127° (NAD27)**
KB Elev : **4,387'** **Grd Elev : 4,367'**



Wellhead Equipment

Tree Connection	
Backpressure Valve	
Tubing Spool	11" 5M x 7 1/16" 10K
Casing Spool	13-5/8" 5M x 11" 5M
Bradenhead	13-3/8" SOW x 13-5/8" 5M

Logging Program

Company	Log Type	Interval
XX	Pilot Hole Triple Combo with Spectral Gamma Ray from 9,020' up to surface casing Gamma Ray/Neutron from casing up to surface	
Intrepid	MWD-GR on BHA	Curve and lateral
Mud logging personnel at intermediate casing shoe to TD		

Tubular Detail

	Size	Wt	Grd	Conn.	From	To
Surface	13-3/8"	48#	H-40	STC	0'	400'
Inter	9 5/8"	40#	J-55	LTC	0'	4,000'
Prod	5 ½"	20 0#	P-110	LTC	0'	Lateral TD

Lateral Directional Plan

	MD	INC	AZM	TVD	BUR	DLS
KOP	8,512'	0	0	8,512'	0	0
EOB	9,162'	90 94	269 37	8,922'	14 0	14 0
TD	13,601'	90 94	269 37	8,849'	0	0

Vendors

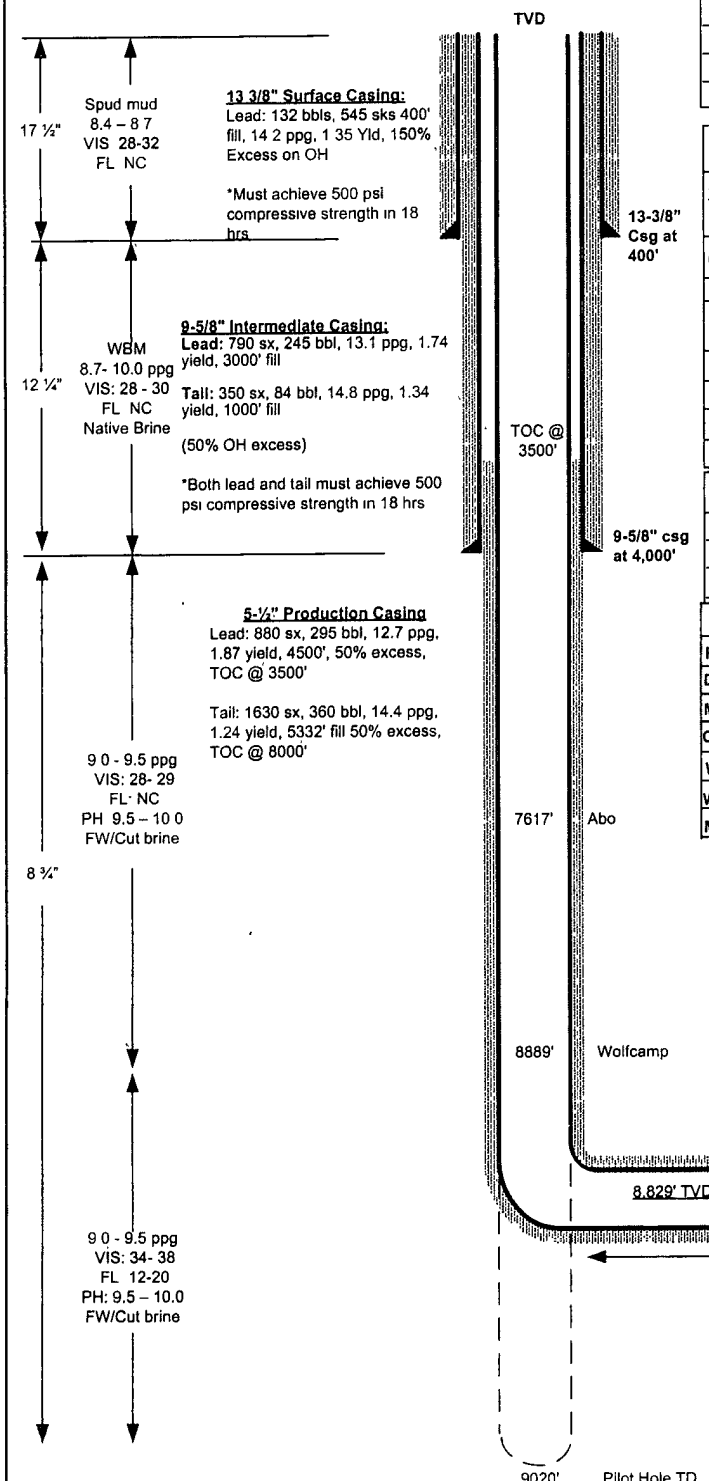
Rig	
Directional	
Mud	
Cement	
Wellhead	
Wireline Logging	
Mud Logging	

**Mud logging at intermediate casing shoe

Drawn by	Date	AFE No	Property No	Drilling Engineer	Drilling Superintendent	Geologist
CG	Rev #1 5/5/10	152927	632183	Chris Gray	Cecil Luttrull	Robert Martin

Chesapeake Operating Inc	Proposed Drilling Program

Well : **Nereid 1 Federal 1H**
Field : **Northwest Shelf**
County : **Eddy** **State : NM**
Surf Locat : **Section 1-15S-31E, 660' FSL & 100' FEL Lat: N33.039533° Long: W103.766288° (NAD27)**
BH Locat : **Section 1-15S-31E, 660' FSL & 330' FWL Lat: N33.039456° Long: W103.782127° (NAD27)**
KB Elev : **4,387'** **Grd Elev : 4,367'**



Wellhead Equipment

Flare Line	Flare Line will be at least 150' from wellhead because of potential H2S
Tubing Spool	11" 5M x 7 1/16" 10K
Casing Spool	13-5/8" 5M x 11" 5M
Bradenhead	13-3/8" SOW x 13-5/8" 5M

Logging Program

Company	Log Type	Interval
XX	Pilot Hole Triple Combo with Spectral Gamma Ray from 9,020' up to surface casing. Gamma Ray/Neutron from casing up to surface	
Intrepid	MWD-GR on BHA	Curve and lateral

Mud logging personnel at intermediate casing shoe to TD

Tubular Detail

	Size	Wt	Grd	Conn.	From	To.
Surface	13-3/8"	48#	H-40	STC	0'	400'
Inter	9 5/8"	40#	J-55	LTC	0'	4,000'
Prod	5 ½"	20.0#	P-110	LTC	0'	Lateral TD

Lateral Directional Plan

	MD	INC	AZM	TVD	BUR	DLS
KOP	8,512'	0	0	8,512'	0	0
EOB	9,162'	90 94	269 37	8,922'	14 0	14 0
TD	13,601'	90.94	269.37	8,849'	0	0

Vendors

Rig	
Directional	
Mud	
Cement	
Wellhead	
Wireline Logging	
Mud Logging	

**Mud logging at intermediate casing shoe

Drawn by	Date:	AFE No:	Property No:	Drilling Engineer:	Drilling Superintendent	Geologist:
CG	Rev #1 5/5/10	152927	632183	Chris Gray	Cecil Luttrull	Robert Martin