ATS-10-230 PM

OCD-ARTESIA

RECEIVED
MAR 01 2010
NMOCD ARTESIA

EA-10-0336

Form 3160-3
(February 2005)

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No.
SL: V0-6203, BHL: NMNM0553777

6 If Indian, Allotee or Tribe Name

1a. Type of work. ☑ DRILL ☐ REENTER

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.
Grave Digger Federal #1H

2. Name of Operator
Marbob Energy Corporation

9 API Well No.
30-015-37665

3a Address **P.O. Box 227, Artesia, NM 88211-0227**

3b. Phone No. *(include area code)*
575-748-3303

10 Field and Pool, or Exploratory
Cemetary; Yeso

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **330' FNL & 380' FWL**
At proposed prod zone **330' FSL & 380' FWL**

11 Sec., T. R. M or Blk. and Survey or Area
Sec 2, T20S-R25E

14 Distance in miles and direction from nearest town or post office*
About 5 miles from Lakewood, NM

12 County or Parish
Eddy County

13 State
NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) **330'**	16 No of acres in lease **SL:321.04, BHL: 280.620**	17 Spacing Unit dedicated to this well **160**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19 Proposed Depth **TVD: 2630' MD: 7000'**	20 BLM/BIA Bond No. on file **NMB000412**
21 Elevations (Show whether DF, KDB, RT, GL, etc) **3482' GL**	22 Approximate date work will start* **02/20/2010**	23 Estimated duration **20 Days**

24. Attachments

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

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 must 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 BLM.

25 Signature Nancy T. Agnew	Name *(Printed/Typed)* **Nancy T. Agnew**	Date **01/20/2010**
Title **Land Department**		

Approved by *(Signature)* **/s/ Don Peterson**	Name *(Printed/Typed)*	Date **FEB 25 2010**
Title **FIELD MANAGER**	Office **CARLSBAD FIELD OFFICE**	

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

APPROVAL FOR TWO YEARS

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

*(Instructions on page 2)

Approval Subject to General Requirements & Special Stipulations Attached

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: January 20, 2010

Lease #: SL: V0-6203
BHL: NMNM0553777
Grave Digger Federal #1H

Legal Description: Sec. 2-T20S-R25E
Eddy County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Marbob Energy Corporation

Nancy Agnew

Nancy Agnew
Land Department

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
30-015-37665	11795	CEMETARY; YESO ✓

Property Code	Property Name	Well Number
38079	GRAVE DIGGER FEDERAL	1H

OGRID No.	Operator Name	Elevation
14049	MARBOB ENERGY CORPORATION	3482'

Surface Location

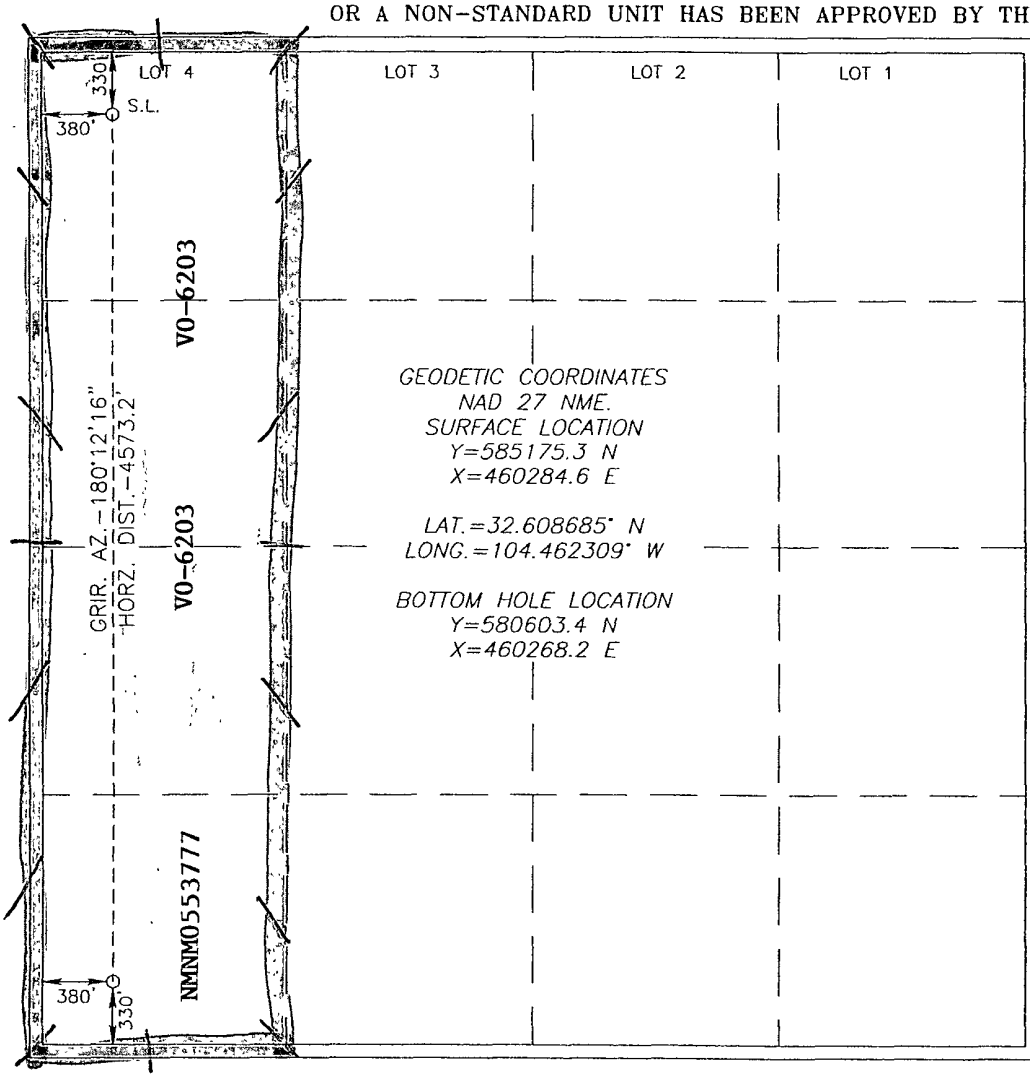
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	2	20-S	25-E		330	NORTH	380	WEST	EDDY

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
M	2	20-S	25-E		330	SOUTH	380	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.

Nancy T. Agnew 1/20/10
Signature Date

Nancy T. Agnew
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.

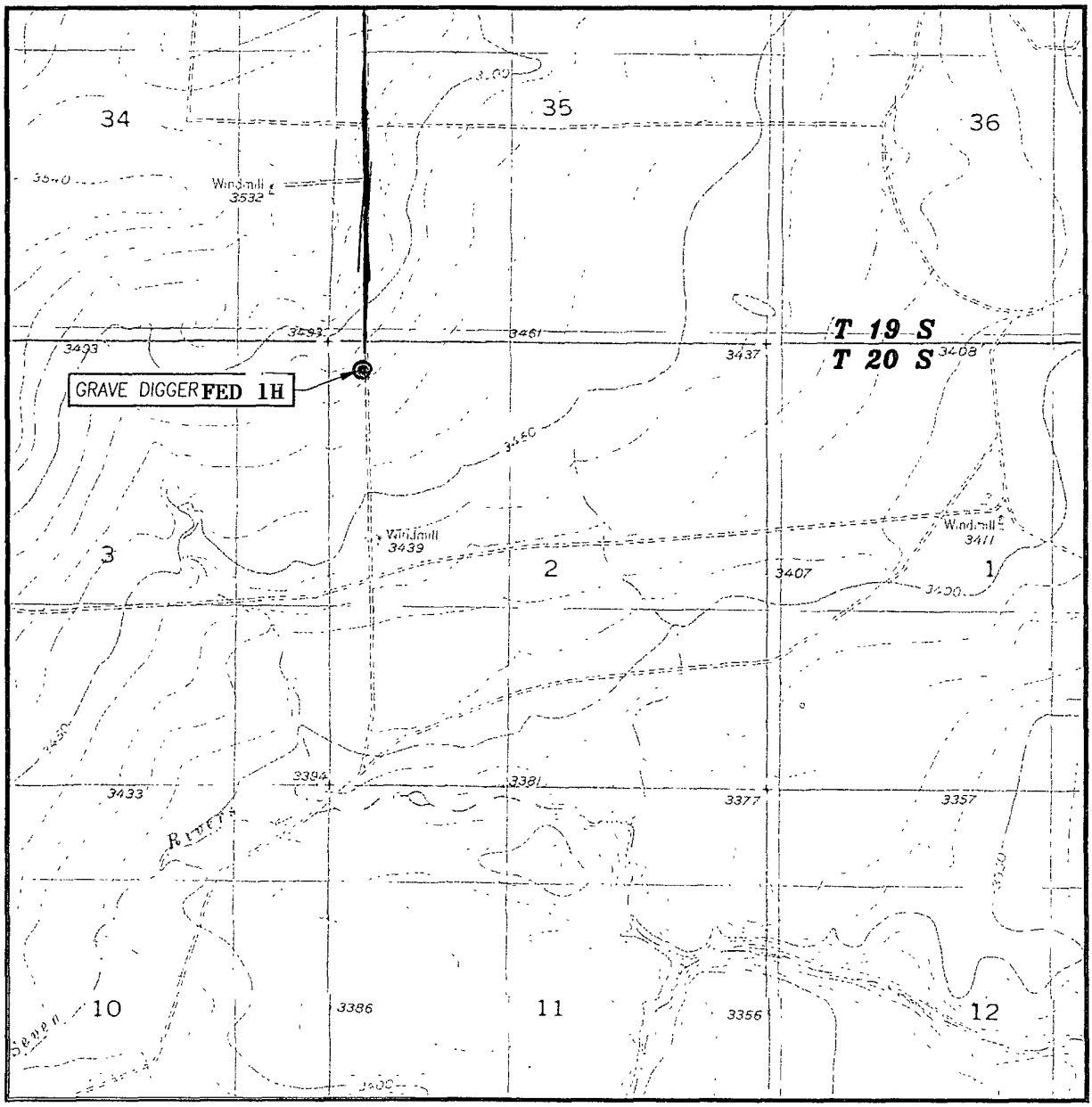
RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

OCTOBER 30, 2009
Date Surveyed LA

Signature & Seal of Professional Surveyor
11-09-09
09.11.0944

Certificate No. GARY G. EIDSON 12641
RONALD J. EIDSON 3239

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'
SEVEN RIVERS, NM

SEC. 2 TWP. 20-S RGE. 25-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 330' FNL & 380' FWL

ELEVATION 3482'

OPERATOR MARBOB ENERGY CORPORATION

LEASE GRAVE DIGGER STATE

U.S.G.S. TOPOGRAPHIC MAP
SEVEN RIVERS, NM

Existing Roads

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

EXHIBIT #2

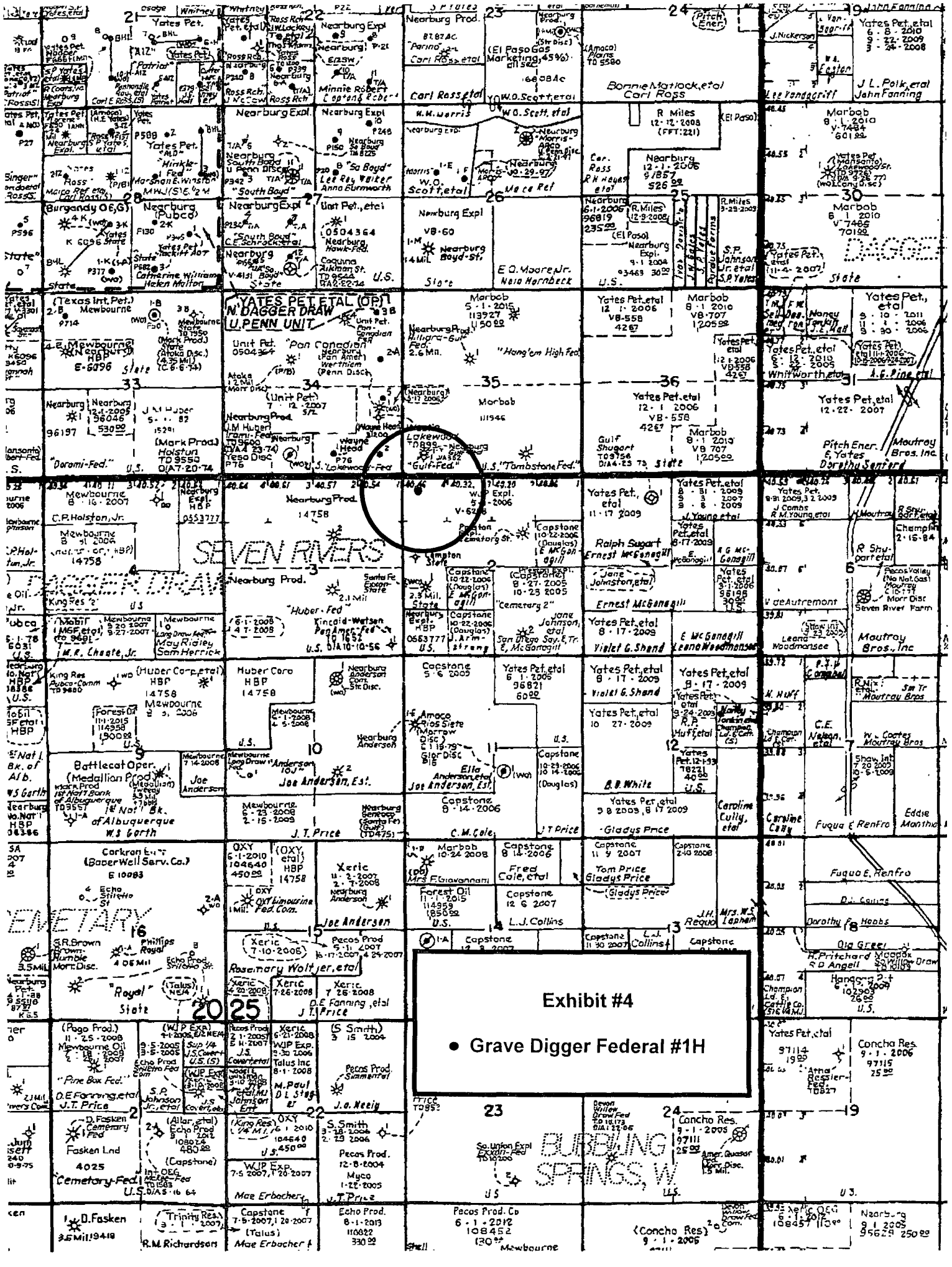


Exhibit #4
• Grave Digger Federal #1H
SEVEN RIVERS
BURDINE SPRINGS W.
Yates Pet.
Nearburg Prod.
Nearburg Expl
Marbob
Yates Pet.,etal
Mewbourne
Nearburg
Pecos Prod.
Concho Res.
Echo Prod.
Capstone
Xeric
Trinity Res.
Fasken Land
Cemetery-Fed
Battlecat Oper.
(Medallion Prod)
Corkran Exp.
(BaperWell Serv. Co.)
Bonnie Matlock,etal
Carl Ross
Carl Ross etal
Minnie Robert
Ross Rch
Lee Ray Walker
Anna Burmworth
Lee Vangagriff
J L. Polk,etal
John Fanning
Pitch Ener.
Moutray Bros. Inc.
Dorothy Sentord
Ralph Sugart
Ernest McGonagill
Violet G. Shand
Joe Anderson, Est.
J. T. Price
Gladys Price
Tom Price
Fred Cole, etal
L.J. Collins
Mrs. W.S. Lapham
Caroline Cully, etal
Fuqua E. Renfro
Dorothy F. Hobbs
Big Green
Hanagan Pet
Concho Res.
Amer. Quasar
Mary Disc.
Texas Int. Pet.
Mewbourne
Mewbourne Oil
Forest Oil
Phillips
Royal
Echo Prod.
Shiloh Echo
Fasken Cemetery Fed
Trinity Res.
R.M. Richardson
Pecos Prod. Co
Nearburg
Jane Johnston,etal
Ernest McGonagill
Leona Woodmansee
Champlin
Pecos Valley
Seven River Farm
Mountray Bros, Inc
Eddie Manthe
Caroline Cully
Fuqua E. Renfro
Dorothy F. Hobbs
Big Green
Hanagan Pet
Concho Res.
Amer. Quasar
Mary Disc.
Texas Int. Pet.
Mewbourne
Mewbourne Oil
Forest Oil
Phillips
Royal
Echo Prod.
Shiloh Echo
Fasken Cemetery Fed
Trinity Res.
R.M. Richardson
Pecos Prod. Co
Nearburg

MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM

Grave Digger Federal #1H
SL: 330' FNL & 380' FWL
BHL: 330' FSL & 380' FWL
Section 2, T20S, R25E
Eddy County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Marbob Energy Corporation submits the following ten items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian

2. The estimated tops of geologic markers are as follows:

San Andres	835'
Glorieta	2425'
Yeso	2575'
TVD	2630'
MD	7000'

3. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

San Andres	835'	Oil
Yeso	2575'	Oil

No other formations are expected to give up oil, gas, or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 8 5/8" casing at 825' and circulating cement back to surface. All intervals will be isolated by setting 5 ½" casing to total depth and circulating cement ~~above the base of the 8 5/8" casing.~~ See COA

4. **Proposed Casing Program:**

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
12 1/4"	0'– 825'	8 5/8"	New	24#	STC	J-55	1.125	1.125	1.6
7 7/8"	825' – 7000'	5 1/2"	New	17#	LTC	J-55	1.125	1.125	1.6

* Plan to drill vertical hole to 2150' then build curve and drill to new bhl measured depth 7000' true vertical depth 2630'.*

5. Proposed Cement Program:

a. 8 5/8" Surf — Cement to surface with 350 sk "c" wt 14.8 yield 1.34

b. 5 1/2" Prod — Cement 1st stage with 450 sk Acid Soluble "C" wt 15.0 yield 2.6 Second stage with 200 sk "C" light wt 12.7 yield 1.91 Tail in with 100 sk "c" wt 14.8 yield 1.34 DV @ 2000 TOC 0

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately ~~200'~~ above the 8 5/8" casing shoe. For the surface casing: If cement does not circulate to the surface, the appropriate BLM office shall be notified and a tag with 1" will be performed at four positions 90 degrees apart to verify cement depth. If depth is greater than 100' or water is standing in the annulus, remedial cementing will be done. If no water and TOC tag is less than 100', when 100% excess cement of the annulus volume was run on the primary job, ready-mix can be used to bring cement to surface. **All casing is new and API approved.**

See COA

6. Minimum Specifications for Pressure Control:

Nipple up on 8 5/8 with 2M system and test to 2000 with independent tester

BOP will be operationally checked each 24 hour period. BOP will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A 2"kill line and a 3" choke line will be included in the drilling spool located below the BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 2000 psi WP rating.

Marbob requests a variance if Teaco is used to drill this well to use a co-flex line between the BOP and choke manifold. Manufacturer: Midwest Hose & Specialty, Length: 7', Size: 3 ½ ID, Ends flanges/clamps, WP rating: 5000, Anchors required by manufacturer-NO.

7. Estimated BHP: 1094.08 psi

8. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 825'	Fresh Water	8.4	29	N.C.
825' – 7000'	Cut Brine	8.9	29	N.C.

The necessary mud products for weight addition and fluid loss control will be on location at all times.

9. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 8 5/8" casing shoe until the 5 ½" casing is cemented. Breathing equipment will be on location upon drilling the 8 5/8" shoe until total depth is reached.

10. Testing, Logging and Coring Program: See COA

a. Drill stem tests will be based on geological sample shows.
b. The open hole electrical logging program will be:
   i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
   ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
   iii. No coring program is planned
   iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

11. Potential Hazards:

a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2558.4 psi. Estimated No H2S is anticipated to be encountered.

If H2S is encountered in quantities under 10 ppm fans will be placed in the substructure, rig floor and possum belly area of drilling rig to prevent accumulation of gas. If higher levels of H2S are detected the well will be shut in and a gas separator installed with a flare line.

12. Anticipated starting date and Duration of Operations:

a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 20 days.

marbob
energy corporation
Artesia, N.M.

Marbob

Eddy County
Grave Digger Federal
#1H
OH

Plan: Plan #1

Pathfinder X & Y Planning Report

02 December, 2009

PATHFINDER

Company:	Marbob	**Local Co-ordinate Reference:**	Well #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Site:	Grave Digger State	**MD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Project Eddy County

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

Site Grave Digger State

Site Position:		**Northing:**	585,175.300 ft	**Latitude:**	32° 36' 31.267 N
From:	Map	**Easting:**	460,284.600 ft	**Longitude:**	104° 27' 44.312 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	-0.07 °

Well #1H

Well Position	**+N/-S**	0.00 ft	**Northing:**	585,175.300 ft	**Latitude:**	32° 36' 31.267 N
	+E/-W	0.00 ft	**Easting:**	460,284.600 ft	**Longitude:**	104° 27' 44.312 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3,482.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/02/2009	8.19	60.44	48,929

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.21

Survey Tool Program Date 12/02/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	6,996.98	Plan #1 (OH)	MWD	MWD - Standard

Company:	Marbob	**Local Co-ordinate Reference:**	Well #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Site:	Grave Digger State	**MD Reference:**	WELL @ 3504 00ft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0 00	0.00	0.00	-3,504.00	0.00	0.00	0.00	0.00	585,175 30	460,284 60
100.00	0 00	0 00	100.00	-3,404 00	0 00	0 00	0.00	0.00	585,175.30	460,284.60
200 00	0.00	0.00	200 00	-3,304.00	0.00	0 00	0.00	0.00	585,175.30	460,284 60
300 00	0 00	0 00	300.00	-3,204.00	0.00	0.00	0.00	0 00	585,175 30	460,284.60
400 00	0.00	0 00	400.00	-3,104.00	0.00	0 00	0 00	0.00	585,175.30	460,284 60
500 00	0.00	0 00	500.00	-3,004.00	0.00	0.00	0.00	0.00	585,175 30	460,284.60
600 00	0.00	0 00	600.00	-2,904.00	0 00	0 00	0 00	0.00	585,175 30	460,284 60
700.00	0.00	0.00	700 00	-2,804.00	0.00	0.00	0.00	0 00	585,175 30	460,284 60
800 00	0.00	0.00	800.00	-2,704.00	0.00	0.00	0 00	0.00	585,175.30	460,284 60
900.00	0.00	0 00	900.00	-2,604.00	0.00	0.00	0.00	0.00	585,175.30	460,284 60
1,000.00	0.00	0 00	1,000.00	-2,504.00	0.00	0.00	0 00	0.00	585,175 30	460,284.60
1,100 00	0.00	0.00	1,100.00	-2,404 00	0 00	0.00	0.00	0.00	585,175 30	460,284 60
1,200 00	0.00	0 00	1,200 00	-2,304.00	0.00	0.00	0.00	0 00	585,175 30	460,284 60
1,300 00	0.00	0.00	1,300.00	-2,204 00	0 00	0 00	0.00	0.00	585,175.30	460,284 60
1,400 00	0.00	0 00	1,400 00	-2,104 00	0 00	0 00	0.00	0.00	585,175 30	460,284.60
1,500 00	0.00	0 00	1,500 00	-2,004.00	0.00	0 00	0.00	0.00	585,175 30	460,284 60
1,600.00	0 00	0.00	1,600.00	-1,904 00	0 00	0 00	0.00	0.00	585,175.30	460,284.60
1,700 00	0.00	0 00	1,700.00	-1,804.00	0.00	0.00	0 00	0.00	585,175 30	460,284 60
1,800 00	0 00	0 00	1,800.00	-1,704 00	0 00	0 00	0.00	0 00	585,175 30	460,284.60
1,900.00	0 00	0.00	1,900.00	-1,604.00	0.00	0.00	0 00	0.00	585,175.30	460,284 60
2,000 00	0.00	0 00	2,000.00	-1,504.00	0 00	0 00	0.00	0.00	585,175.30	460,284.60
2,100 00	0.00	0 00	2,100.00	-1,404 00	0.00	0.00	0.00	0.00	585,175.30	460,284 60
2,152.50	0 00	0.00	2,152 50	-1,351.50	0 00	0.00	0.00	0 00	585,175.30	460,284.60
2,175.00	2 70	180 21	2,174.99	-1,329 01	-0 53	0.00	0.53	12 00	585,174 77	460,284 60
2,200 00	5.70	180 21	2,199.92	-1,304 08	-2.36	-0.01	2 36	12.00	585,172.94	460,284 59
2,225.00	8.70	180 21	2,224.72	-1,279.28	-5.49	-0.02	5.49	12.00	585,169 81	460,284.58
2,250.00	11 70	180.21	2,249 32	-1,254.68	-9 92	-0 04	9.92	12 00	585,165 38	460,284.56

Company:	Marbob	**Local Co-ordinate Reference:**	Well #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Site:	Grave Digger State	**MD Reference:**	WELL @ 3504 00ft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,275.00	14 70	180 21	2,273.66	-1,230 34	-15.63	-0 06	15 63	12 00	585,159.67	460,284.54
2,300.00	17.70	180 21	2,297.67	-1,206.33	-22 60	-0.08	22.60	12 00	585,152 70	460,284 52
2,325.00	20.70	180 21	2,321.27	-1,182.73	-30.82	-0.11	30.82	12.00	585,144 48	460,284 49
2,350 00	23 70	180.21	2,344.42	-1,159 58	-40.26	-0 15	40 27	12.00	585,135.04	460,284.45
2,375 00	26 70	180 21	2,367 04	-1,136 96	-50.91	-0.19	50 91	12 00	585,124.39	460,284.41
2,400.00	29 70	180 21	2,389 07	-1,114.93	-62 72	-0.23	62.72	12.00	585,112 58	460,284 37
2,425.00	32 70	180 21	2,410.45	-1,093 55	-75 67	-0.28	75.67	12.00	585,099.63	460,284 32
2,450.00	35 70	180.21	2,431.12	-1,072 88	-89 72	-0 33	89 72	12.00	585,085.58	460,284.27
2,475.00	38.70	180.21	2,451.03	-1,052 97	-104.83	-0.38	104.83	12 00	585,070 47	460,284 22
2,500 00	41 70	180 21	2,470 13	-1,033.87	-120.96	-0 44	120.96	12.00	585,054 34	460,284.16
2,525.00	44.70	180 21	2,488.35	-1,015 65	-138.07	-0.51	138.07	12 00	585,037.23	460,284.09
2,550 00	47 70	180 21	2,505.65	-998 35	-156.11	-0.57	156.11	12.00	585,019.19	460,284.03
2,575 00	50.70	180.21	2,521 99	-982.01	-175.04	-0.64	175.04	12 00	585,000 26	460,283 96
2,600.00	53 70	180.21	2,537.31	-966 69	-194.79	-0 71	194 79	12.00	584,980.51	460,283.89
2,625.00	56.70	180 21	2,551 58	-952 42	-215.31	-0 79	215.31	12.00	584,959.99	460,283.81
2,650.00	59 70	180 21	2,564 75	-939 25	-236 55	-0.87	236.56	12 00	584,938.75	460,283.73
2,675 00	62.70	180.21	2,576.80	-927.20	-258.46	-0 95	258.46	12 00	584,916.84	460,283 65
2,700 00	65.70	180.21	2,587.68	-916 32	-280.96	-1 03	280.97	12.00	584,894.34	460,283.57
2,725 00	68.69	180.21	2,597 37	-906.63	-304.01	-1 11	304 01	12.00	584,871.29	460,283.49
2,750.00	71.69	180 21	2,605.84	-898.16	-327.52	-1.20	327.53	12 00	584,847.78	460,283 40
2,775 00	74.69	180.21	2,613.06	-890.94	-351 45	-1 29	351.46	12 00	584,823.85	460,283 31
2,800 00	77.69	180 21	2,619 03	-884.97	-375.73	-1.38	375 73	12.00	584,799.57	460,283.22
2,825 00	80.69	180.21	2,623 72	-880 28	-400 28	-1.47	400 29	12 00	584,775 02	460,283 13
2,850.00	83.69	180 21	2,627.11	-876 89	-425.05	-1.56	425.05	12.00	584,750 25	460,283 04
2,875 00	86 69	180.21	2,629 21	-874.79	-449 96	-1.65	449 96	12 00	584,725.34	460,282.95
2,900 00	89 69	180.21	2,629.99	-874.01	-474.94	-1.74	474.94	12 00	584,700 36	460,282.86
2,902 56	90.00	180.21	2,630 00	-874 00	-477.50	-1 75	477 50	12.00	584,697.80	460,282.85

Company:	Marbob	**Local Co-ordinate Reference:**	Well #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Site:	Grave Digger State	**MD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
3,000 00	90 00	180 21	2,630.00	-874.00	-574.94	-2 11	574 94	0.00	584,600.36	460,282 49
3,100 00	90.00	180 21	2,630 00	-874.00	-674 94	-2 47	674.94	0 00	584,500 36	460,282 13
3,200.00	90.00	180.21	2,630.00	-874.00	-774.94	-2 84	774.94	0.00	584,400.36	460,281.76
3,300 00	90.00	180.21	2,630 00	-874 00	-874 94	-3.21	874 94	0.00	584,300 36	460,281 39
3,400 00	90.00	180 21	2,630 00	-874.00	-974 94	-3.57	974 94	0 00	584,200 36	460,281.03
3,500 00	90 00	180 21	2,630 00	-874.00	-1,074 94	-3.94	1,074 94	0 00	584,100 36	460,280.66
3,600 00	90.00	180 21	2,630 00	-874.00	-1,174.94	-4 31	1,174.94	0 00	584,000.36	460,280.29
3,700 00	90.00	180.21	2,630.00	-874 00	-1,274.94	-4 67	1,274.94	0.00	583,900.36	460,279 93
3,800 00	90 00	180.21	2,630.00	-874.00	-1,374 94	-5.04	1,374 94	0.00	583,800 36	460,279.56
3,900 00	90.00	180.21	2,630.00	-874.00	-1,474 93	-5.41	1,474 94	0.00	583,700 37	460,279 19
4,000 00	90 00	180 21	2,630.00	-874.00	-1,574.93	-5 77	1,574.94	0 00	583,600 37	460,278 83
4,100 00	90.00	180 21	2,630 00	-874.00	-1,674.93	-6.14	1,674.94	0.00	583,500 37	460,278.46
4,200 00	90 00	180.21	2,630 00	-874.00	-1,774 93	-6.51	1,774.94	0.00	583,400 37	460,278.09
4,300 00	90 00	180.21	2,630 00	-874 00	-1,874.93	-6 87	1,874 94	0 00	583,300 37	460,277 73
4,400 00	90.00	180 21	2,630.00	-874 00	-1,974.93	-7 24	1,974.94	0.00	583,200 37	460,277 36
4,500 00	90.00	180.21	2,630 00	-874.00	-2,074 93	-7 61	2,074 94	0 00	583,100.37	460,276.99
4,600.00	90 00	180.21	2,630 00	-874 00	-2,174 93	-7.97	2,174 94	0.00	583,000.37	460,276.63
4,700.00	90 00	180.21	2,630 00	-874 00	-2,274.93	-8 34	2,274 94	0.00	582,900 37	460,276.26
4,800 00	90.00	180.21	2,630.00	-874 00	-2,374.93	-8 70	2,374.94	0 00	582,800 37	460,275 90
4,900 00	90 00	180 21	2,630.00	-874.00	-2,474.93	-9 07	2,474 94	0 00	582,700 37	460,275.53
5,000.00	90 00	180.21	2,630 00	-874 00	-2,574.93	-9.44	2,574.94	0 00	582,600.37	460,275 16
5,100 00	90.00	180 21	2,630.00	-874 00	-2,674.93	-9.80	2,674.94	0.00	582,500.37	460,274.80
5,200.00	90 00	180 21	2,630.00	-874 00	-2,774.93	-10 17	2,774 94	0.00	582,400 37	460,274 43
5,300 00	90 00	180 21	2,630.00	-874.00	-2,874 93	-10 54	2,874.94	0 00	582,300.37	460,274.06
5,400.00	90.00	180 21	2,630 00	-874 00	-2,974 92	-10.90	2,974 94	0 00	582,200.38	460,273 70
5,500.00	90 00	180.21	2,630 00	-874 00	-3,074 92	-11 27	3,074 94	0.00	582,100.38	460,273 33
5,600.00	90.00	180 21	2,630.00	-874 00	-3,174 92	-11 64	3,174.94	0 00	582,000.38	460,272 96

Company:	Marbob	**Local Co-ordinate Reference:**	Well #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Site:	Grave Digger State	**MD Reference:**	WELL @ 3504.00ft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,700 00	90.00	180.21	2,630 00	-874.00	-3,274.92	-12.00	3,274.94	0.00	581,900 38	460,272 60
5,800.00	90 00	180 21	2,630.00	-874 00	-3,374 92	-12.37	3,374 94	0 00	581,800.38	460,272.23
5,900.00	90 00	180 21	2,630.00	-874 00	-3,474 92	-12.74	3,474.94	0 00	581,700.38	460,271 86
6,000 00	90 00	180 21	2,630.00	-874.00	-3,574.92	-13.10	3,574.94	0.00	581,600.38	460,271 50
6,100.00	90 00	180 21	2,630.00	-874 00	-3,674 92	-13.47	3,674 94	0 00	581,500.38	460,271 13
6,200 00	90.00	180 21	2,630.00	-874.00	-3,774.92	-13.84	3,774.94	0 00	581,400.38	460,270.76
6,300.00	90 00	180.21	2,630 00	-874.00	-3,874.92	-14.20	3,874.94	0.00	581,300 38	460,270.40
6,400.00	90.00	180 21	2,630.00	-874 00	-3,974 92	-14.57	3,974.94	0 00	581,200 38	460,270 03
6,500 00	90.00	180 21	2,630.00	-874.00	-4,074.92	-14 94	4,074.94	0.00	581,100.38	460,269.66
6,600 00	90 00	180 21	2,630 00	-874 00	-4,174.92	-15.30	4,174.94	0.00	581,000 38	460,269 30
6,700.00	90.00	180 21	2,630.00	-874 00	-4,274.92	-15.67	4,274 94	0.00	580,900.38	460,268 93
6,800.00	90 00	180.21	2,630.00	-874.00	-4,374.92	-16 03	4,374.94	0 00	580,800 38	460,268.57
6,900 00	90 00	180 21	2,630.00	-874.00	-4,474 91	-16 40	4,474.94	0.00	580,700.39	460,268.20
6,996 99	90.00	180 21	2,630 00	-874 00	-4,571.90	-16.76	4,571.93	0 00	580,603.40	460,267.84

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
Grave Digger BHL - plan hits target - Point	0 00	0 00	2,630.00	-4,571.90	-16.40	580,603 400	460,268.200	32° 35' 46.024 N	104° 27' 44.439 W

Checked By: _____ Approved By: _____ Date: _____

marbob energy corporation
Artesia, N.M.

Project: Eddy County
Site: Grave Digger State
Well: #1H
Wellbore: OH
Plan: Plan #1 (#1H/OH)

Azimuths to Grid North
True North: 0.07°
Magnetic North: 8.26°

Magnetic Field
Strength: 48929.1snT
Dip Angle: 60.44°
Date: 12/02/2009
Model: IGRF200510

PATHFINDER

PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2152.50	0.00	0.00	2152.50	0.00	0.00	0.00	0.00	0.00	
3	2902.56	90.00	180.21	2630.00	-477.50	-1.75	12.00	180.21	477.50	
4	6996.99	90.00	180.21	2630.00	-4571.90	-16.76	0.00	0.00	4571.93	Grave Digger BHL

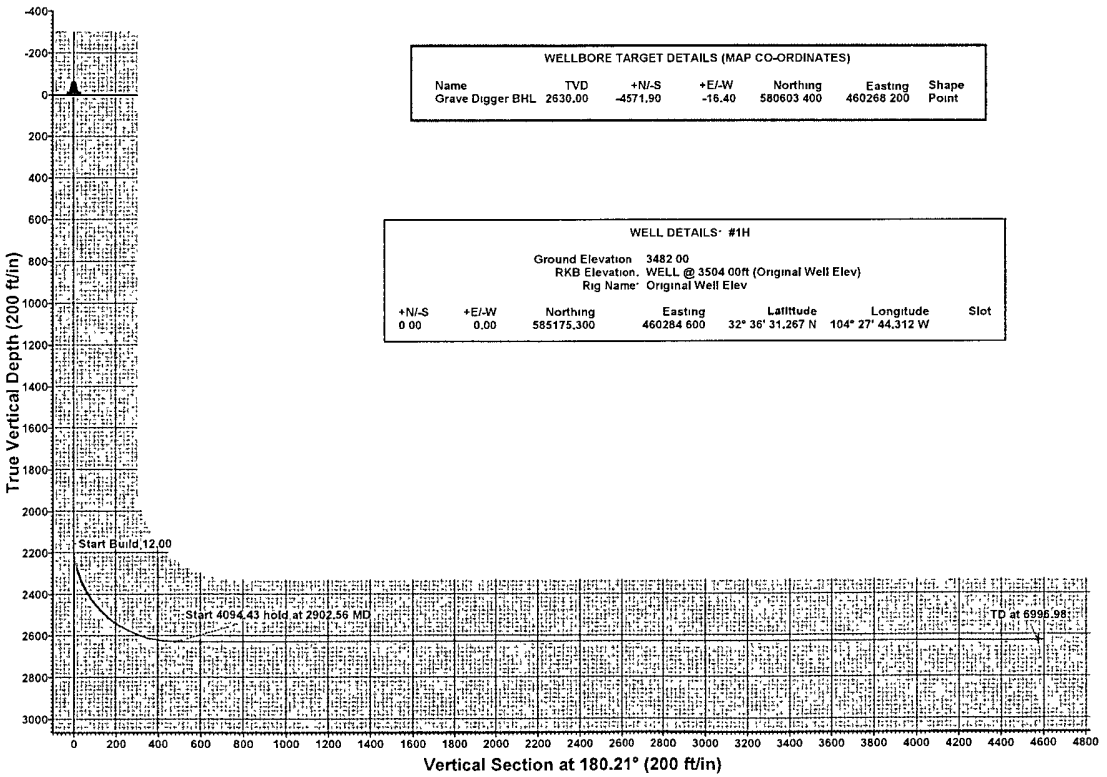
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

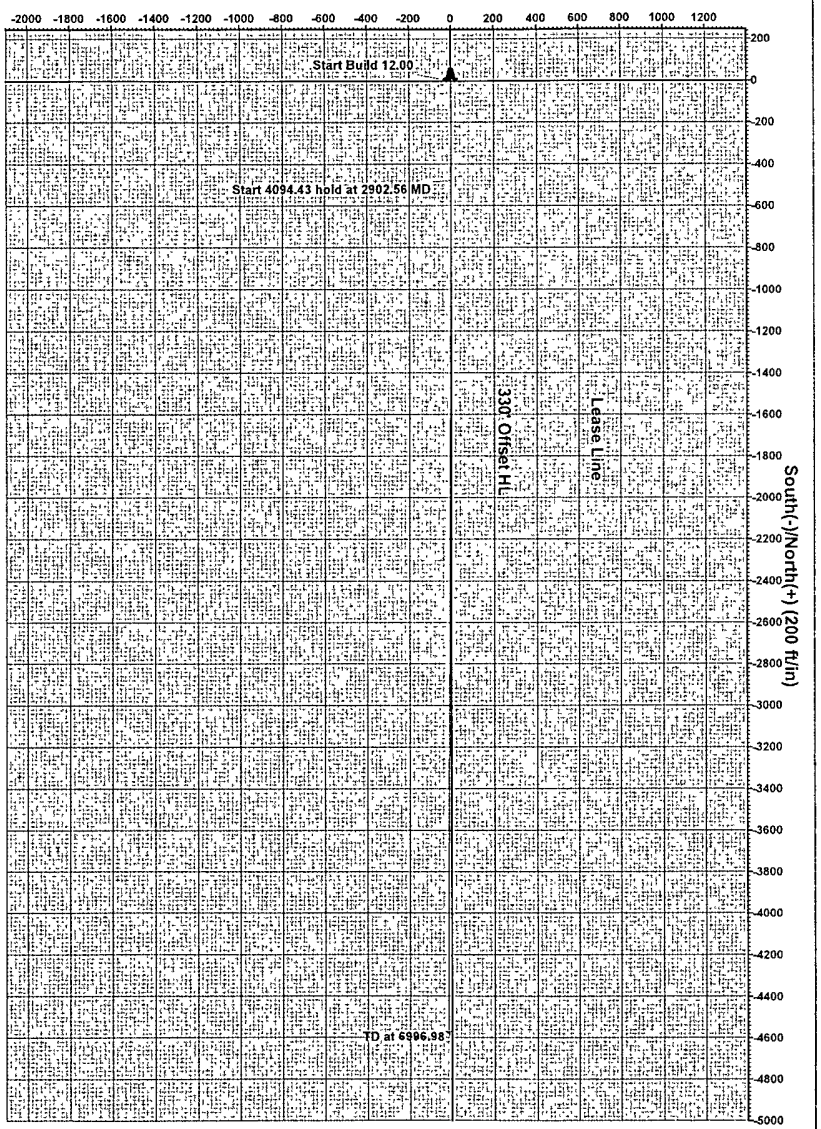
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Grave Digger BHL	2630.00	-4571.90	-16.40	580603.400	460268.200	Point

WELL DETAILS: #1H

Ground Elevation: 3482.00
RKB Elevation: WELL @ 3504.00ft (Original Well Elev)
Rig Name: Original Well Elev

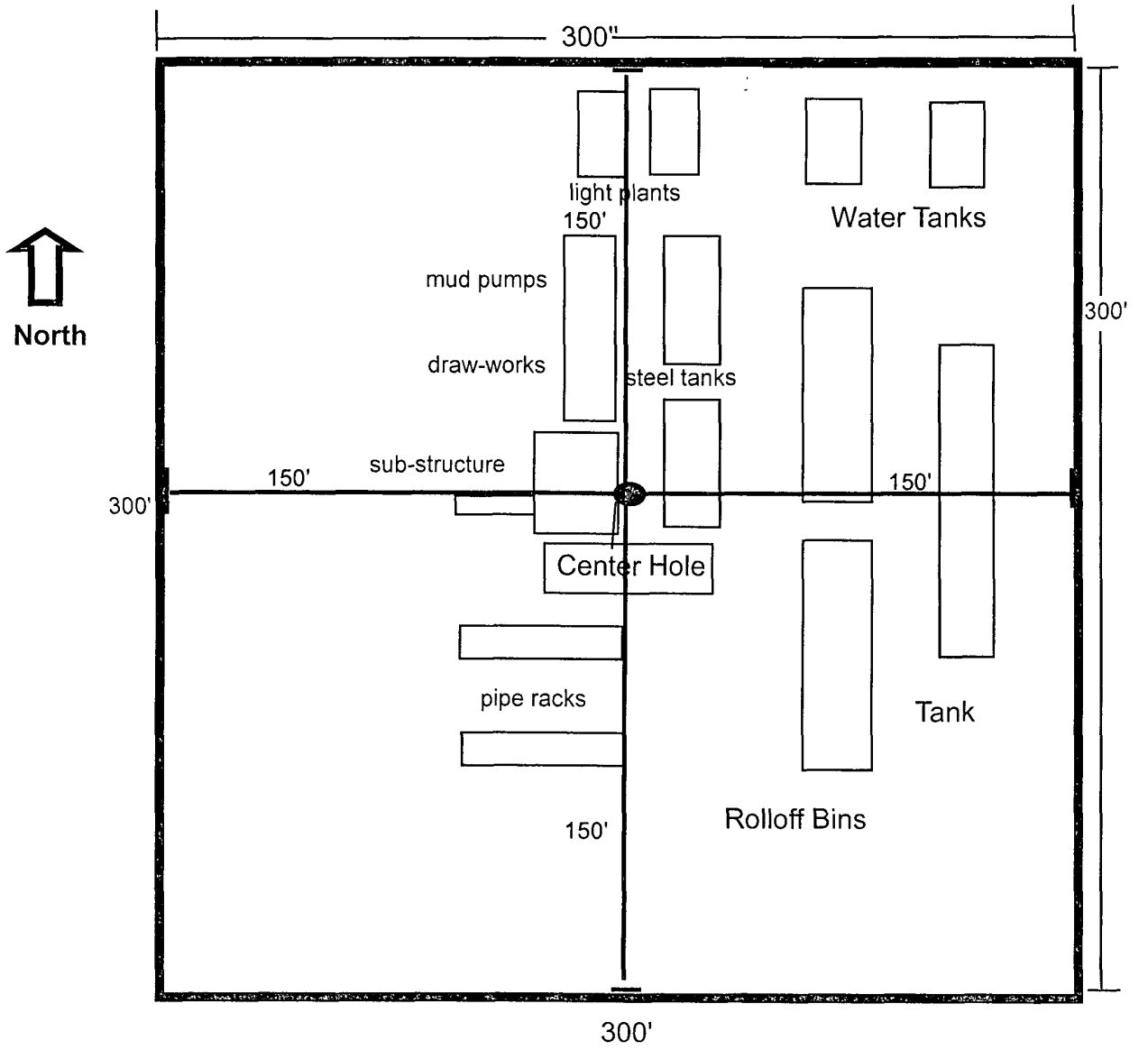
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	585175.300	460284.600	32° 36' 31.267 N	104° 27' 44.312 W	





Plan: Plan #1 (#1H/OH)	
Created By: Nate Bingham	Date: 14 11, December 02 2009
Checked: _____	Date: _____

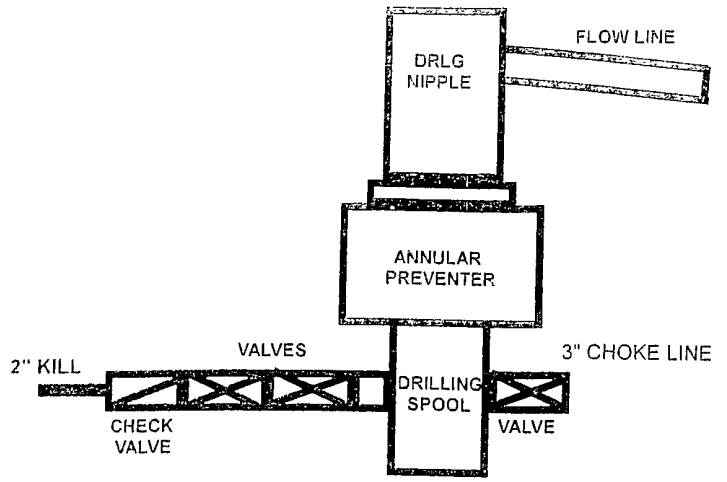
Well Site Lay-Out Plat

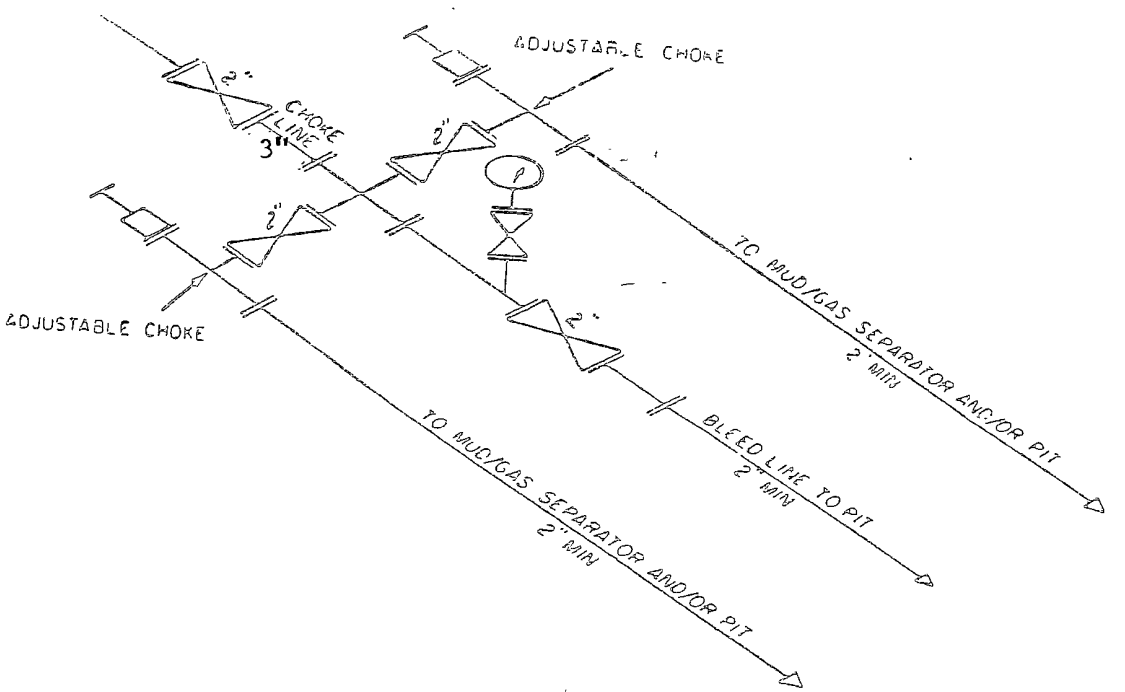


Grave Digger Federal #1H
SL: 330' FNL & 380' FWL
BHL: 330' FSL & 380' FWL
Section 2, T20S, R25E
Eddy County, New Mexico

EXHIBIT THREE

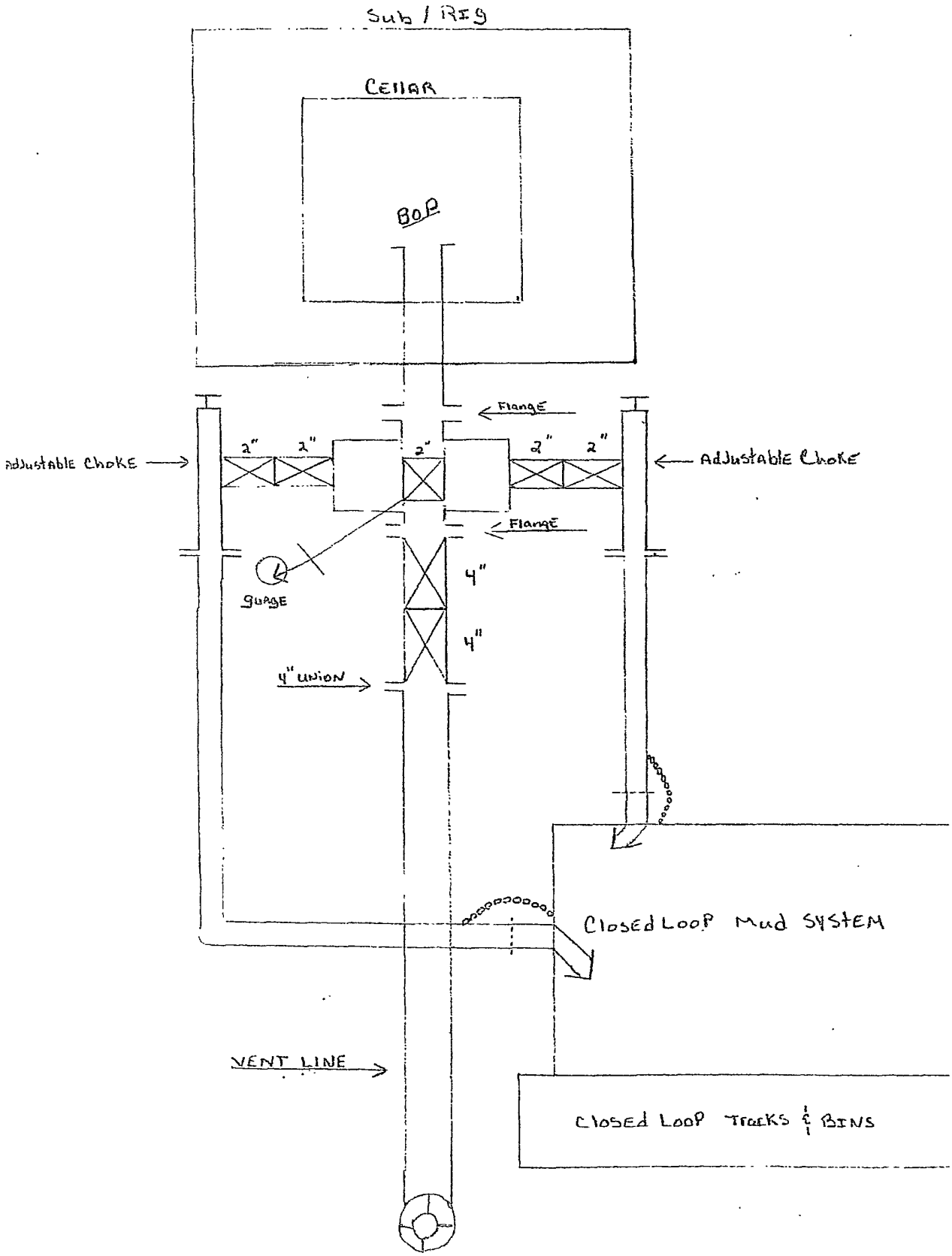
2M SYSTEM





2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES MAY VARY

2M Choke Manifold Equipment



MARBOB ENERGY CORPORATION

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

A. The hazards and characteristics of hydrogen sulfide (H_2S).

B. The proper use and maintenance of personal protective equipment and life support systems.

C. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

D. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

A. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.

B. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

C. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S.

A. Well Control Equipment:

Flare line.

Choke manifold.

Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

B. Protective equipment for essential personnel:

Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

C. H_2S detection and monitoring equipment:

2 - portable H_2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H_2S levels of 20 ppm are reached.

D. Visual warning systems:

Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

E. Mud Program:

The mud program has been designed to minimize the volume of H_2S circulated to the surface.

F. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.

G. Communication:

Company vehicles equipped with cellular telephone and 2-way radio.

If H2S is encountered in quantities under 10 ppm fans will be placed in the substructure, rig floor and possum belly area of drilling rig to prevent accumulation of gas. If higher levels of H2S are detected the well will be shut in and a gas separator installed with a flare line.

Marbob Energy has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H2S Contingency Plan would be necessary.

WARNING

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH MARBOB FOREMAN AT MAIN OFFICE***

MARBOB ENERGY CORPORATION

1-575-748-3303

EMERGENCY CALL LIST

	Office	Mobile	Home
Marbob Energy Corp.	575-748-3303		
Sheryl Baker	575-748-3303	575-748-5489	575-748-2396
Johnny C. Gray	575-748-3303	575-748-5983	575-885-3879
Raye Miller	575-748-3303	575-513-0176	575-746-9577
Dean Chumbley	575-748-3303	575-748-5988	575-748-2426

EMERGENCY RESPONSE NUMBERS
Eddy County, New Mexico

State Police	575-748-9718
Eddy County Sheriff	575-746-2701
Emergency Medical Services (Ambulance)	911 or 575-746-2701
Eddy County Emergency Management (Harry Burgess)	575-887-9511
State Emergency Response Center (SERC)	575-476-9620
Carlsbad Police Department	575-885-2111
Carlsbad Fire Department	575-885-3125
New Mexico Oil Conservation Division	575-748-1283
Indian Fire & Safety	800-530-8693
Halliburton Services	800-844-8451

MARBOB ENERGY CORPORATION
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Grave Digger Federal #1H
SL: 330' FNL & 380' FWL
BHL: 330' FSL & 380' FWL
Section 2, T20S, R25E
Eddy County, New Mexico

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

1. EXISTING ROADS:

a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by John West Surveying Company.
b. Exhibit 2 is a portion of a topo map showing the well and roads in the vicinity of the proposed location. The proposed wellsite and the access route to the location are indicated in red on Exhibit 2. Right of way using this proposed route is being requested if necessary.
c. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

DIRECTIONS:

From the intersection of U.S. Hwy. #285 (Seven Rivers Hwy) & Co. Rd. #23 (Rock Daisy) go west on Rock Daisy approx. 3.0 miles. Turn left and go south approx. 1.0 miles. This location is approx. 75 feet east of lease road.

2. PLANNED ACCESS ROAD:

There is an existing road and no new construction will be needed. See directions above.

3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

A. In the event the well is found productive, the Grave Digger Federal #1H tank battery would be utilized and the necessary production equipment will be installed at the well site. A Site Facilities Diagram will be submitted upon completion of facility.
B. All flowlines will adhere to API standards
C. If electricity is needed, power will be obtained from Central Valley Electric. Central Valley Electric will apply for ROW for their power lines.

D. If the well is productive, rehabilitation plans are as follows:
    i. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.

4. LOCATION AND TYPES OF WATER SUPPLY:

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in Exhibit #2. On occasion, water will be obtained form a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, the existing and proposed road shown in Exhibit "2" will be utilized.

5. CONSTRUCTION MATERIALS:

All Caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of 6" rolled and compacted caliche. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

6. METHODS OF HANDLING WASTE MATERIAL:

a. All trash, junk and other waste material will be removed from the wellsite within 30 days after finishing drilling and/or completion operations. All waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.

b. The supplier, including broken sacks, will pick up slats remaining after completion of well.

c. A porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.

d. Disposal of fluids to be transported by an approved disposal company.

7. ANCILLARY FACILITIES:

No campsite or other facilities will be constructed as a result of this well.

8. WELLSITE LAYOUT:

a. Exhibit 3 shows the proposed well site layout with dimensions of the pad layout.

b. This exhibit indicates proposed location of reserve and sump pits if utilized and living facilities.

c. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.

9. PLANS FOR SURFACE RECLAMATION:

a. After finishing drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original state.

b. The location and road will be rehabilitated as recommended by the BLM.

c. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days subsequent to the completion date. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.

10. SURFACE OWNERSHIP:

The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The proposed road routes and the surface location will be restored as directed by the BLM.

11.OTHER INFORMATION:

a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, some mesquite bushes and shinnery oak. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.

b. There is no permanent or live water in the general proximity of the location.

c. There are no dwellings within 2 miles of location.

d. A Cultural Resources Examination will be completed by Boone Archeological and forwarded to the BLM office in Carlsbad, New Mexico.

12.OPERATOR'S REPRESENTATIVE:

A. Through A.P.D. Approval:

Dean Chumbley, Landman
Marbob Energy Corporation
P. O. Box 227
Artesia, NM 88211-0227
Phone (505)748-3303
Cell (505) 748-5988

B. Through Drilling Operations

Sheryl Baker, Drilling Supervisor
Marbob Energy Corporation
P. O. Box 227
Artesia, NM 88211-0227
Phone (505)748-3303
Cell (505)748-5489

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Marbob Energy Corporation and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Marbob Energy Corporation

1/20/10
Date

William Miller
Land Department

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MARBOB ENERGY CORPORATION
LEASE NO.:	NM0553777
WELL NAME & NO.:	GRAVE DIGGER FEDERAL 1H
SURFACE HOLE FOOTAGE:	330' FNL & 380' FWL
BOTTOM HOLE FOOTAGE	330' FS L & 380' FW L
LOCATION:	Section 2, T. 20 S., R 25 E., NMPM
COUNTY:	Eddy County, New Mexico

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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)

Project occurs on federal surface. Project is *not* atop federal minerals, and *not* atop a federal lease. Federal minerals are only present after achieving penetration into Lease#: NMNM0553777, in the SWSW corner of section 2. If planned drilling fails to reach the intended zone of production into federal minerals a ROW application must be submitted and approved for continued surface use after drilling.

Communitization Agreement
A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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. V-DOOR DIRECTION: Not stipulated

C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 8 inches in depth. The topsoil will be used for interim and final reclamation.

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call theCarlsbad Field Office at (575) 234-5972.

F. 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.

G. 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.

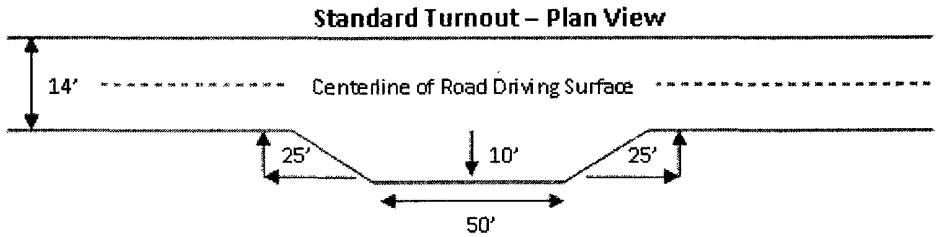
Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

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.

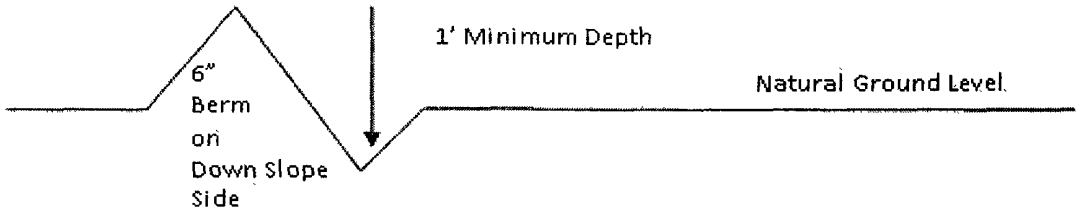
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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:

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

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.

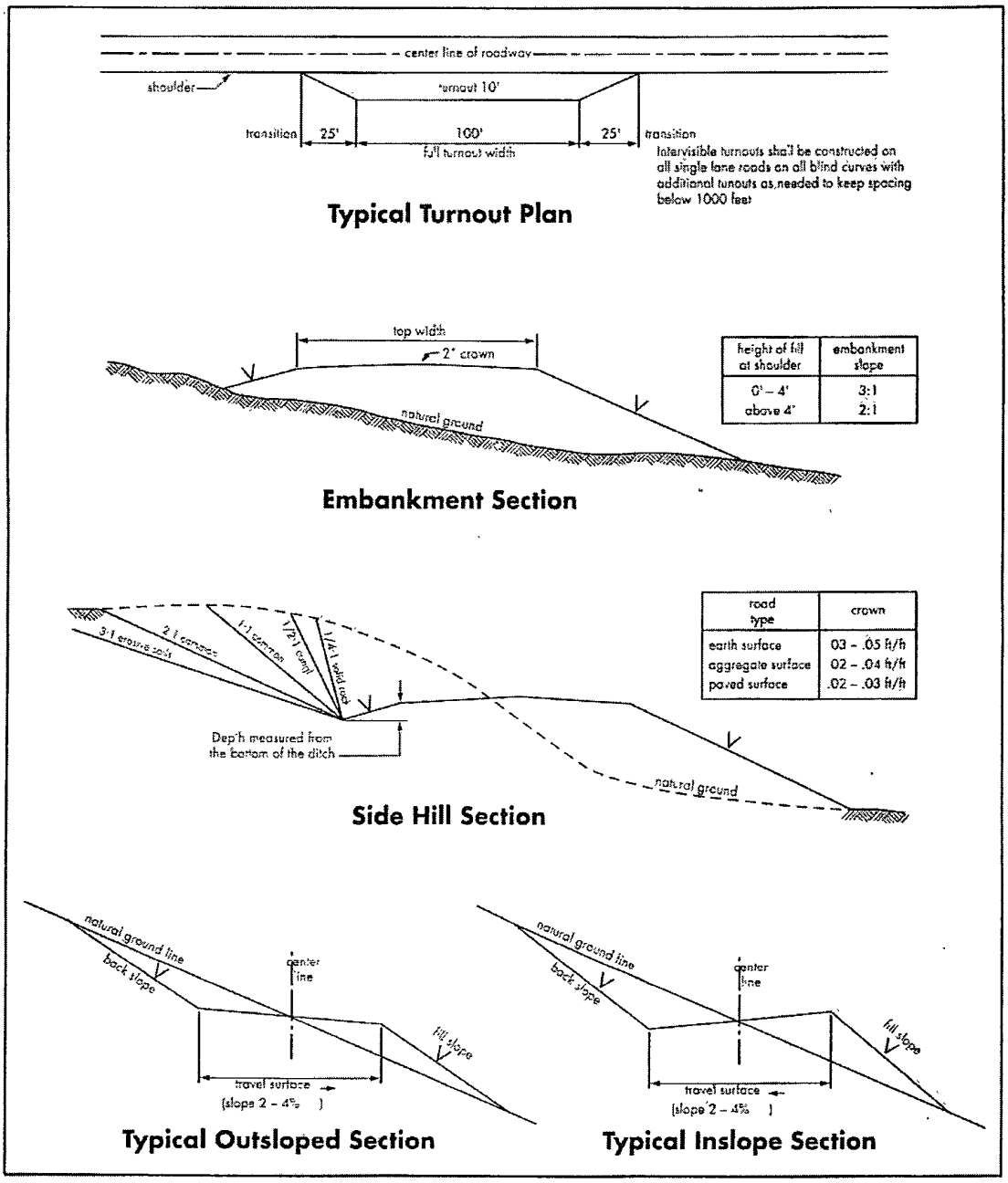
Fence Requirement
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Seven Rivers** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values 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. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

HIGH CAVE/KARST – CONTINGENCY CASING WILL BE REQUIRED IF LOST CIRCULATION OCCURS WHILE DRILLING THE SURFACE HOLE. THE SURFACE HOLE WILL HAVE TO BE REAMED AND A LARGER CASING INSTALLED. IF LOST CIRCULATION OCCURS WHILE DRILLING THE 7-7/8" HOLE, THE CEMENT PROGRAM FOR THE 5-1/2" CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE REQUIRED.

Possible lost circulation in the San Andres formation

1. The **8-5/8** inch surface casing shall be set at approximately **825 feet** within the San Andres formation and cemented to the surface. **Additional cement may be required as the excess cement calculated to be 10%.**

    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. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    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.

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

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

   a. First stage to DV tool, cement shall:

   ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job.

   b. Second stage above DV tool, cement shall:

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. 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. **Variance approved to use flex line from BOP to choke manifold. Check condition of 3-1/2" flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends.**

3. 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.

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. Casing cut-off and BOP installation will not be initiated until the cement has had 4-6 hours of setup time in a water basin and 12 hours in the potash areas. This time will start after the cement plug is bumped. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.

   b. The tests shall be done by an independent service company utilizing a test plug.

   c. The results of the test shall be reported to the appropriate BLM office.

d. 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.**

e. 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.

CRW 021110

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

B. PIPELINES – Not applied for in APD

C. ELECTRIC LINES – Not applied for in APD

IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared; these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 4, for Gypsum 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 by the authorized officer.

Seed will be planted using a drill equipped with a 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 (smaller/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
Alkali Sacaton (Sporobolus airoides)	1.0
DWS Four-wing saltbush (Atriplex canescens)	5.0

DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed