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HIGH CAVEKARST

OCD-ARTESIA

OCD-ARTESIA

Form 3160-3
(February 2005)



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. NM 94589
1b. Type of Well <input checked="" type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name
2 Name of Operator Marbob Energy Corporation		7 If Unit or CA Agreement, Name and No
3a Address P.O. Box 227, Artesia, NM 88211-0228	3b Phone No. (include area code) 505-748-3303	8 Lease Name and Well No. Full Blast Federal Com #1
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1650' FSL & 660' FEL At proposed prod zone		9 API Well No. 30-015-35830
14 Distance in miles and direction from nearest town or post office* About 25 miles from Loving, NM		10. Field and Pool, or Exploratory Chosa Draw; Morrow
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drng. unit line, if any) 660'	16 No of acres in lease 1,704.740	11 Sec, T R M or Blk and Survey or Area Sec. 18, T25S - R26E
17 Spacing Unit dedicated to this well 320	18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	12 County or Parish Eddy County
19 Proposed Depth 12100'	20 BLM/BIA Bond No. on file NMB000412	13 State NM
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3390' GL	22. Approximate date work will start* 09/21/2007	23 Estimated duration 40 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 | 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2 A Drilling Plan | 5 Operator certification |
| 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) | 6 Such other site specific information and/or plans as may be required by the BLM. |

25 Signature <i>Nancy T. Agnew</i>	Name (Printed/Typed) Nancy T. Agnew	Date 08/21/2007
Title Land Department		

Approved by (Signature) /s/ James Stovall	Name (Printed/Typed) /s/ James Stovall	Date SEP 22 2007
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:

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

APPROVAL FOR TWO YEARS

and willfully to make to any department or agency of the United States

Title 18 USC Section 1001 and States any false, fictitious or fraudulent

*(Instructions on page 1)

Carlsbad Controlled Water Basin

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED**

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 74900	Pool Name CHOSA DRAW; MORROW
Property Code 36756	Property Name FULL BLAST FEDERAL COM	Well Number 1
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3390'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	18	25-S	26-E		1650	SOUTH	660	EAST	EDDY

Bottom Hole Location If Different From Surface

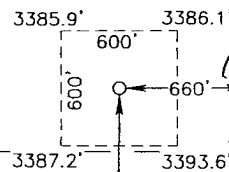
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

GEODETIC COORDINATES
NAD 27 NME

Y=409998.1 N
X=502543.5 E

LAT.=32.127201° N
LONG.=104.325117° W



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 8/20/07
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.

Signature of Surveyor
Seal of Professional Surveyor
DONALD J. EIDSON
JULY 2007
MEXICO
REGISTERED PROFESSIONAL SURVEYOR
8/27/07

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

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: August 22, 2007

Lease #: NM-94589
Full Blast Federal Com #1

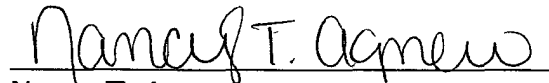
Legal Description: 1650' FSL & 660' FEL, Sec. 18-T25S-R26E
Eddy County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Marbob Energy Corporation

A handwritten signature in cursive script, reading "Nancy T. Agnew", is written over a horizontal line.

Nancy T. Agnew
Land Department

MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM

Full Blast Federal Com #1
1650' FSL & 660' FEL
Section 18, T25S, R26E
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:

Top of Salt	230'	Wolfcamp	8300'
Base of Salt	1450'	Strawn	10300'
Delaware	1650'	Atoka	10800'
Bone Spring	5200'	Morrow	11400'
		TD	12100'

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

Delaware	1650'	Oil
Wolfcamp	8300'	Gas
Morrow	11400'	Gas

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 13 3/8" casing at 200' and circulating cement back to surface. Potash / fresh water sands will be protected by setting 9 5/8" casing at 1600' and circulating cement back to surface. The Morrow intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing.

4. Proposed Casing Program:

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0'-200'	13 3/8"	New	48#	STC	H-40	1.125	1.125	1.6
12 1/4"	200'-1600'	9 5/8"	New	36#	STC	J-55	1.125	1.125	1.6
8 3/4"	1600'-12100'	5 1/2"	New	17#	LTC	S95/P110	1.125	1.125	1.6

5. Proposed Cement Program:

- a. 13 3/8" Surface Cement to surface with 250 sk, class "C", 2% calc, wt 14.8 ppg, yield 1.34
- b. 9 5/8" Int Cement to surface with 250 sk, class "C" lite w/ 6# salt wt 12.7# gal, yield 1.99, tail in with 200 sk, class "c" 2% Calc, wt 14.8, yield 1.34
- c. 5 1/2" Prod **1st Stage**, 550 sk "H" Lite @ 12.7 ppg, yield 1.92, tail in with 200 sk "H" @ 13.0 ppg, yield 1.68
See COA → **2nd stage**, 850 sk "H" Lite @ 12.7 ppg, yield 1.92, tail in with 200 sk "H" @ 13.0 ppg, 1.68 yield, DV tool @ 8000' TOC 1400'

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 9 5/8" casing shoe. **All casing is new and API approved.**

6. Minimum Specifications for Pressure Control:

See COA →

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of nipping up on the 13 3/8" with 2M system comprised of an Annular Preventor & tested to 1200 psi with rig pumps, then nipping up on the 9 5/8" casing with a 5M system and testing to 5000# with an independent tester.

Pipe rams will be operationally checked each 24 hour period. Blind rams 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 ram-type 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 5000 psi WP rating.

7. Estimated BHP: 5000 psi

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

Depth	Type Sytem	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' - 200'	Fresh Water	8.4	28-32	N.C.
200' - 1600'	Brine	10.0	28	N.C.
1600' - 12100'	Cut Brine	8.8-9.2	28-32	10 C.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 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

10. Testing, Logging and Coring Program:

- 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 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

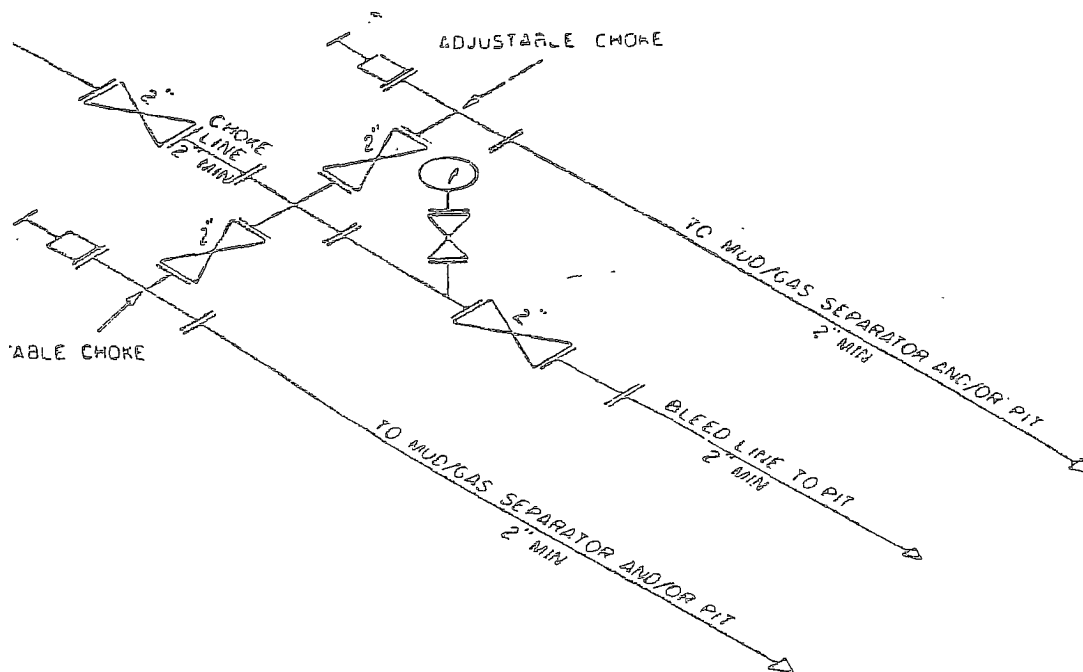
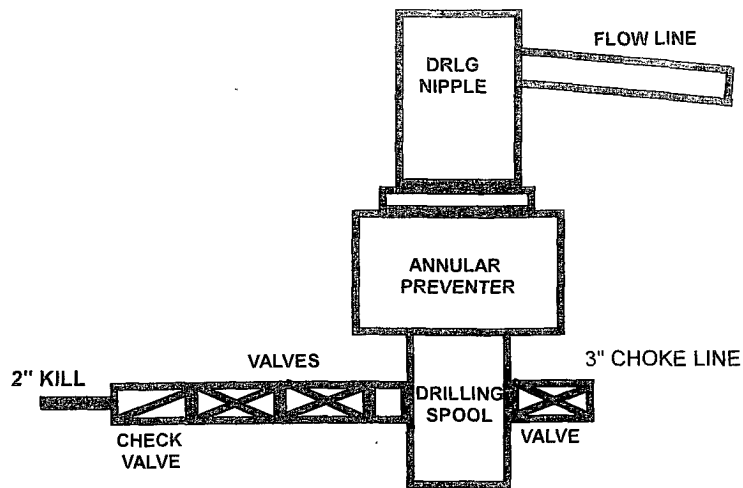
11. Potential Hazards:

- 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: 4700 psi. Estimated BHT: 180°. No H₂S is anticipated to be encountered.

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 40 days.

2M SYSTEM



2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOSES

MAY VARY

Exhibit One

KELLY

ROTATING HEAD

FILL UP LINE

FLOW LINE

ANNULAR PREVENTER

BLIND RAMS

PIPE RAMS

DRILLING SPOOL

SPACER SPOOL

2" KILL

CHECK VALVE

VALVES

3" CHOKE LINE

VALVES

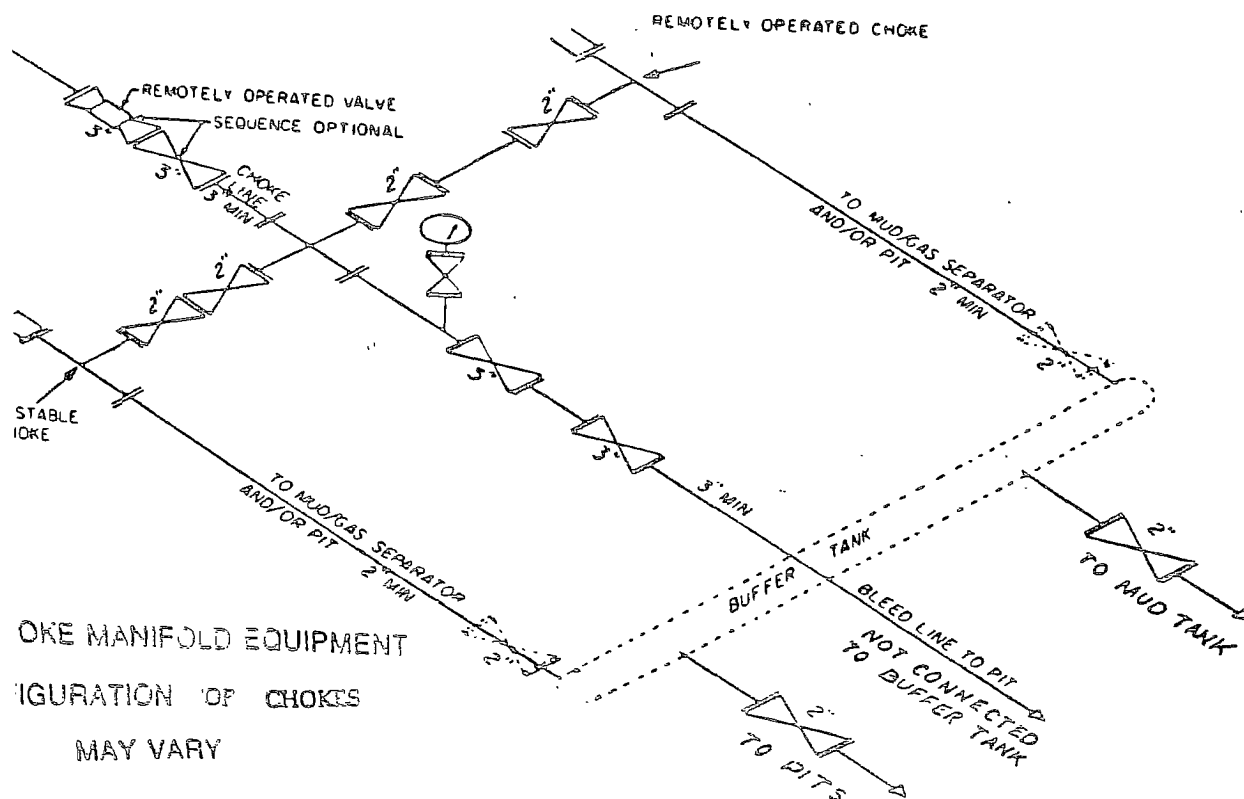


Exhibit
One

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 (H₂S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H₂S 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 H₂S 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 H₂S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S 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. H₂S SAFETY EQUIPMENT AND SYSTEMS

Note: All H₂S 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 H₂S.

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. H₂S detection and monitoring equipment:

2 - portable H₂S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S 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 H₂S 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 H₂S service.

G. Communication:

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

W A R N I N G

**YOU ARE ENTERING AN H₂S 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

1-505-748-3303

MARBOB ENERGY CORPORATION
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Full Blast Federal Com #1
1650' FSL & 660' FEL
Section 18, T25S, R26E
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.
- 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 Co. Rd. #724 (White City Rd.) and Co. Rd. #772 (Means Rd.), Go NorthEast on Co. Rd. #772 approx. 1.2 miles to a proposed road survey. Follow proposed road survey west approx. 428 feet to this location.

2. PLANNED ACCESS ROAD:

The proposed access road begins on paved County Road #772 and trends West 428' feet, ending on the southeast corner of the proposed well pad.

The new road will be constructed as follows:

- A. The maximum width of the road will be 15'. It will be crowned and made of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
- B. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. Any additional materials that are required will be purchased from the dirt contractor. The average grade will be approximately 1%.

- C. No turnouts are planned.
- D. No culverts, cattleguard, gates, low-water crossings, or fence cuts are necessary.
- E. The proposed access road as shown in Exhibit 2 has been centerline flagged by John West Engineering.

3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. In the event the well is found productive, the Full Blast Federal Com #1 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 the well is productive, 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 reserve pit will be back-filled after the contents of the pit are dry (within 120 days after completion, weather permitting).
 - ii. 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 from 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.

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. Drill cuttings will be disposed of in the lined pit.
- b. 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.
- c. The supplier, including broken sacks, will pick up slats remaining after completion of well.

- c. The supplier, including broken sacks, will pick up slats remaining after completion of well.
- d. 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.
- e. Remaining drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry enough to be broken out for further drying. If the drilling fluids do not evaporate in a reasonable time they will be hauled off by transports to a state approved disposal site. Water produced during completion will be put in reserve pits. Oil and condensate produced will be put in a storage tank and sold.
- f. 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 indicated proposed location of reserve and sump pits and living facilities.
- c. Mud pits in the active circulating system will be steel pits and the reserve pit will be lined.
- d. If needed, the reserve pit is to be lined with polyethylene. The pit liner will be at least 6 mils thick. Pit liner will extend a minimum 2' over the reserve pit's dikes where the liner will be anchored down.
- e. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down after the pit contents have dried. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

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 reserve pit area will be broken out and leveled after drying to a condition where these efforts are feasible. The original top soil will again be returned to the pad and contoured, as close as possible, to the original state. The pit will be closed per OCD compliance regulations.

- b. The pit lining will be buried or hauled away in order to return the location and road to the original state. All pits will be filled and the location leveled, weather permitting, within 120 days after abandonment.
- c. The location and road will be rehabilitated as recommended by the BLM.
- d. The reserve pit will be fenced on three sides throughout drilling operations. After the rotary rig is removed, the reserve pit will be fenced on the fourth side to preclude endangering wildlife. The fencing will be in place until the pit is reclaimed.
- e. 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 vegetation is moderately sparse with native prairie grass, some mesquite bushes. 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)748-5988
Cell (505)513-2544

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:

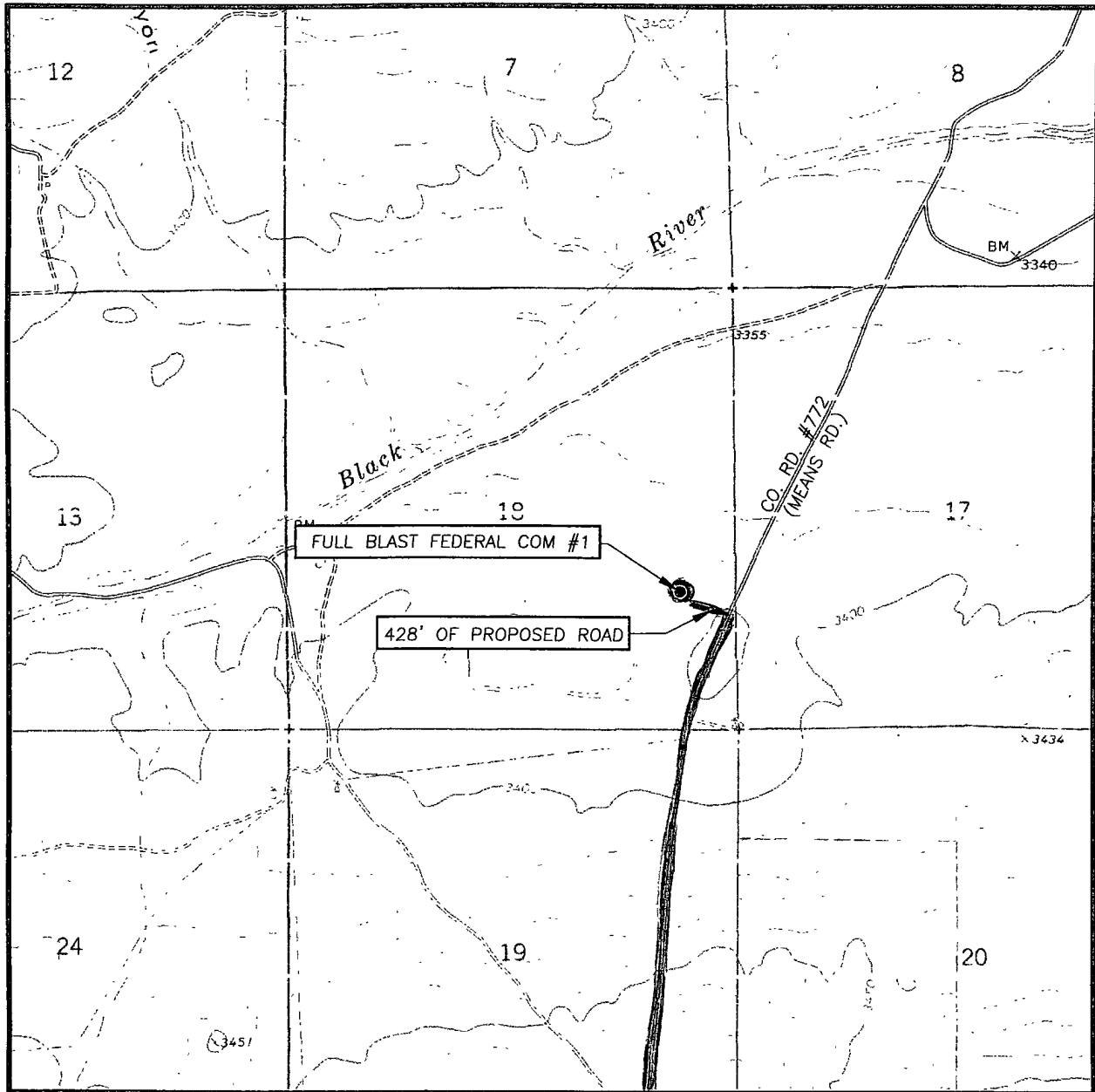
I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated 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.

8/22/07
Date

Marbob Energy Corporation


Ross Duncan
Land Department

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
JUMPING SPRINGS, N.M. - 10'
BLACK RIVER VILLAGE, N.M. - 20'

SEC. 18 TWP. 25-S RGE. 26-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1650' FSL & 660' FEL

ELEVATION 3390'

OPERATOR MARBOB ENERGY CORPORATION

LEASE FULL BLAST FEDERAL COM

U.S.G.S. TOPOGRAPHIC MAP
BLACK RIVER VILLAGE, N.M.

Existing Roads



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

EXHIBIT #2

V. SPECIAL REQUIREMENT(S)

Cave and Karst

Cave/Karst Surface Mitigation

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

Berming:

Any tank batteries will be constructed and bermed large enough to contain any spills that may occur.

Bermed areas will be lined with rip-stop padding to prevent tears or punctures in liners and lined with a permanent 20 mil plastic liner.

Closed Mud System with Buried Cuttings Pit:

All fluids will be in steel tanks and hauled off. A cuttings pit will be utilized for this location. The cuttings pit will be lined with 4 oz. felt and a layer of 20 mil. plastic. Upon completion of the well all excess fluids will be vacuumed off the cuttings pit and allowed to dry. The pit liner will then be folded over the cuttings, covered with a 20 mil plastic cover and then covered with at least three feet of top soil.

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:

Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst features are expected. See geologist report for depth.

Casing:

All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.

Cementing:

All casing strings will be cemented to the surface.

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 100 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will

assess the consequences of the situation and work with operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

Record Keeping:

The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence of absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 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,
(505) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it has been reported in Sections 11 and 14 measuring 1200-1500 ppm in STVs from the Delaware formation.**
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. When floor controls are required, (3M or Greater) 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

1. The 13-3/8 inch surface casing shall be set **in the Rustler Anhydrite at approximately 200 feet** and cemented to the surface.
 - 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 action will be done prior to drilling out that string.

Possible abnormal high pressure in the Wolfcamp and high pressure gas down through the Pennsylvanian section.

Possible lost circulation in the Delaware.

High cave/karst.

- 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.

Pressure integrity test required below intermediate casing shoe – O.O.2.III.B.1.i.

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 200 feet into previous casing string. Operator shall provide method of verification.

First stage to circulate.

- 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. The appropriate BLM office shall be notified a minimum of 2 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.
- e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation **if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days**. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.
- f. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1000** psi with the rig pumps is approved.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.111.D shall be followed.

Engineer on call phone (after hours): Carlsbad: (505) 706-2779

WWI 083107