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\*See Instructions On Reverse Side

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United States Department of the Interior

CEOFER N. SCREEN P. C. Drawer U Artesia, New Mexico - 88210

November 21, 1978

Perry R. Pass P. O. sox 2760 Midland, Texas 79702 PLRRY R. BASS Big Eddy Unit Well No. 68 1980 FSL 1780 FWL Sec. 10, T225, R28E Eddy County Lease Mo. LC-069142-A Above Data Required on Well Sign

Gentlemen:

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 13,000 feet to test the Morrow is hereby approved addject to compliance with the OIE AND CAS OPERATING RESULATIONS (30 GFR 221) and the following conditions:

- 1. Drilling operations authorized are subject to compliance with the attached General Requirements for Oil and Gas Operations on Federal Leases, dated July 1, 1978.
- 2. Prior to commencing construction of road, prd, or other associated developments, operator will provide the dirt contractor with a copy of the Surface Use Plan and these Conditions of Approval including the attached Ceneral Requirements.
- 3. Submit a Daily Report of Operations from spud date until the well is completed and the Well Completion Report (form 9-320) is filed. The report should be not less than S" x 5" in size and each page should identify the well.
- 4. All permanent above-ground socuctures and equipment shall be painted in accordance with the attached Painting Guidelines. The color used should simulate sandstone from (Federal Standard Color No. 595A, color 20318 or 30318).
- 5. Before drilling below the 8-5/8" casing, the blowout preventer assembly will consist of a minimum of one annular type and two ram type preventers.
- 6. A kelly cock will be installed and maintained in operable condition.
- 7. After setting the 5-5/8" casing string and before drilling into the Wolfcamp formation, the blowout preventers and related control equipment shall be pressure tested to rated working pressures by an independent service company. Any equipment failing to test satisfactorily shall be repaired or replaced. This office should be notified in sufficient time for a representative to witness the tests and shall be furnished a copy of the pressure test report.

- 8. Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be installed and operating before drilling into the Wolfcamp formation and used will production casing is run and centerted. Monitoring equipment shall consist of the following:
  - (1) A recording fit level indicator to determine pit volume gains and losses.
  - (2) A mud volume measuring device for accusately determining mud volume necessary to fill the bole on trips.
  - (3) A flow sensor on the flow-line to warm or any abnormal mod returns from too well.
- 9. Please note special stipulation No. 13 of the actuaned surface use stipulations.

Sincerely yours,

#### (Orig. Sgd.) ALBERT R. STALL

Albert R. Stall Auting District Engineer

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#### DRILLING PROCEDURE

#### Big Eddy Unit #68

LOCATION: 1980' FSL & 1780' FWL, Sec 10, T-22S, R-28E, Eddy Co., New Mexico

<u>CONDUCTOR PIPE</u>: 16" Conductor will be set at  $\pm$  40' with rathole machine and cemented to the bottom of the cellar with ready-mix.

SURFACE CASING: A 15" hole will be drilled to 400' with fresh water gel spud mud, 8.5 ppg, 40-50 viscosity. Loss circulation material will be used if needed. It may be necessary to dry drill. The casing will be 11 3/4", 42#/ft, H-40 ST&C run with guide shoe, insert float and three centralizers. A cement basket may be needed if circulation is not gained before running casing. The casing is to be cemented to surface with 290 sx Class "C" + 2% CaCl<sub>2</sub>, (1/4#/ sx Flocele if needed) 14.8 ppg, 1.32 ft<sup>3</sup>/sx, 100% excess.

<u>NIPPLE UP</u>: The casing head will be an 11 3/4" SW x 12", 3000 psi WP Flange. Minimum BOPE is 2 hydraulic operated rams 10", 3000 WP, BEPCO II. (attached) Pressure test stack, choke manifold and surface casing to 1000 psi before drilling plug.

INTERMEDIATE CASING: An 11" hole will be drilled to ± 2650' (T/Delaware) with 10 ppg brine water with a 9<sup>+</sup> ph. Viscosity should be maintained between 34-37 sec. with salt gel. Loss circulation may occur around 1000-2650'. If loss circulation occurs, ground paper may be added as needed. Gross losses generally result in dry drilling. A caliper survey should be run to determine the required cement volume.

8 5/8" Casing Design for 2650'

0-40'	40'	23#/ft	S-80	ST&C
40-2580'	25401	24≠/ ft	K-55	ST&C
2580-2650'	701	23≠/ft	S - 80	ST&C

The casing will be run with dual float equipment and centralizers on bottom 3 joints. The casing will be cemented in two stages as follows:

- 1. A DV tool set at 800' with 2 centralizers and 2 cement baskets below DV tool.
- Cement 1st stage with approx. 475 sx Hallco-Lite with 2% CaCl2 + 1/4#/sx Flocele, tailed in with 200 sx Class "C" with 2% CaCl2. WOC 4 hours.
- 3. Cement 2nd stage with approx. 150 sx Hallco-Lite with 2% CaCl<sub>2</sub> + 1/4#/sx Flocele, tailed in with 100 sx Class "C" with 2% CaCl<sub>2</sub>.

<u>NIPPLE UP</u>: The BOP's should be removed and the 11 3/4" head cut off and removed. An 8 5/8" 5000 psi WP, SW x 10", 5000 psi WP flanged RJT casing spool should be welded on the 8 5/3" cut off. The 8 5/8" above the 11 3/4" cut off should be as short as possible. Cement should stand to the top of the 11 3/4" cut off. A few sacks of cement should be left on the ground to

Drilling Procedure Big Eddy Unit #68 Page 2

grout between the 8 5/8" and 11 3/4" if the BOP stack is unstable. Nipple up the BOP's as per BEPCO IV. (attached) BOP's and choke manifold should be hydrostatically tested to 5000 psi. Before drilling cement plug, test 8 5/8" casing to 2000 psi and after drilling cement plug and 5' of new hole test casing seat to 600 psi. (equivalent 11.6 ppg)

<u>PRODUCTION CASING:</u> Drill a 7 7/8' hole from  $\pm$  2650' to  $\pm$  12,600'. The drilling fluid will be a fresh water lime system (pH 9) from  $\pm$  2650' to  $\pm$  9550'. (T/Wolfcamp) From  $\pm$  9550' to  $\pm$  11,300' (T/Atoka) the drilling fluid should be a 10 ppg brine plus 3% KCL with lime system (pH 9). From  $\pm$  11,300' to TD (12,600') an 11.4 ppg brine - Drispac 3% KCL system with pH 9, water loss 10 cc or less, and viscosity of 38-40 should be used.

A mud gas separator and rotating head should be installed before reaching 9550' (T/Wolfcamp).

EVALUATION: The following logs will be ran at TD: BHC Sonic-Gr and DIL-RXO from 400'-T/Bone Springs ± 6200'. From ± 6200' - TD a CNL-FDC w/Gr and DLL-RXO will be run. A mud logger will be on location from 2650' (T/Delaware) - TD. A consulting geologist will be on location from ± 10,950' (T/Strawn) - TD. It may be necessary to whole core a Ramsey show. Drill stem test will be run in zones of interest. Sidewall cores will be taken throughout the Delaware Sand after logging.

<u>PRODUCTION CASING:</u> 5 1/2" casing will be run with a float shoe and float collar. The casing will be centralized and ruff-coated through potential pay zones. The cement volume should be calculated from a caliper log to return cement 1000' above the top of the Wolfcamp or to about 8550'. The cement volume will be about 800 sx 50-50 Pozmix Class "H" w/2% gel + 0.5% CFR-2 + 0.8% Halad 22 + 6#/sx KCL. 14.6 ppg, 1.32 ft<sup>5</sup>/sx, 50% excess.

5 1/2" Production Casing

0-2650'	2650'	1 <i>7#/</i> 『t	N-80	LT&C
2650-5980'	33301	17#/ft	K-55	LT&C
5980-10,370'	4390	17#/ft	<b>N - 8</b> 0	LT&C
10,370-12,600'	2230'	17#/ft	S-95	LT&C

NIPPLING UP: The tubing head will be 10" 5000 WP x 6' 5000 WP. The rig will be moved off after the tubing head is installed.

TIME: This well is estimated to require 52 days from spud till move off.

#### MULTI-POINT SURFACE DOE AND OPERATIONS PLAN

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	Big Eddy Unit #68
••• • • • • • • • • • •	1980' FSL & 1780' FWL
	Sec 10-225-28E
-	Eddy Co., New Mexico

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction, activities, and operations plan, the magnitude of necessary surface dicturbance involved, and the procedures to rehabilitate the surface after completion of operations so that an appraisal. can be made on environmental effects.

1. Existing roads including location of exit from main highway\_Exhibit."A" is a

portion of a map showing existing road. Existing road is obtained by traveling approx. 2 1/2 miles NE of Carlsbad and turning right at the Sheriff's Posse Roping Arena. The existing road is approx. 5 1/2 miles down this road.

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2. Planned access read Exhibit 'A' and "B" are drawings of existing roads. These existing roads that are connected to the water line road will be improved. There will be no more than 10-20' of access road built. These roads will be improved with watered and compacted caliche. There are no gates, culverts or cattleguards anticipated.

3. Location of existing wells - Exhibit "A" shows surrounding existing wells.

4. Location of tank battery and flow ines. If a commercial well is obtained, production facilities will be located on the well bad. Refer to Exhibit "C".

	of Carlsbad. Brine water will be hauled brom Brine Water Station 3 1/2
	east and 2 1/2 miles south of Carlsbad.
6.	Source of construction materia' Exhibit "A" shows approx. location of
	caliche source.
7.	Methods of handling waste disposal:
	A. Drill cuttings will be disposed of in the drilling pits.
	B. Drilling fluids will be allowed to evaporate in the drilling pits un pits are dry.
	C. Water produced during tests will be disposed of in the drilling pits Oil produced during tests will be stored in test tanks until sold.
	D. Current laws and regulations pertaining to the disposal of human was will be complied with.
	E. Trash, paper, garbage, and junk will be buried in a separate trash pit and covered with a minibum of 24 inches of dirt. All waste mate will be contained to prevent scattering by the world. Location of tr pit is shown in Exhibit "C".
	F. Trash and debris will be turied or received from the well site within 30 days after finishing drilling and/or completion operations. (Not All trash left on well site to be removed on buried within 30 days must be contained to prevent ecuttering.)
8.	Ancillary facilities None required ,
9.	Well site layout Exhibit "C" shows the approx dimensions of the well pad
	and reserve pit as well as the relative location of major rig component
	trash pit, etc. Only minor leveling of the well site will be required.
	No significant cuts or fills will be necessary. The reserve pit will b
	lined_with plastic. The pit and pad area have been staked and flagged.

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•	10.	Plans	for	resto	ion	of	surface:

- A. Producing well all pits will be cut, filled, and leveled as soon as practical to original conditions with rebabilitation to commence following removal of drilling and completion equipment.
- B. Dry hole same as above with dry hole marker to be installed and surface reseeded if required. At the same time of final abandonment, USGS and BLM restoration stipulations will be complied with.
- 11. Other information:

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Α.	Terrain_ <u>Relatively</u> flat
B.	SoilSandy
C.	Vegetation Sparse, primarily mesquite with very little grass.
D.	Surface useGrazing
ξ.	Surface water None
Γ.	Water wells There is a windmill approx. 2 miles west of the location
	Residences and buildings There is a water line station approx. miles NW of location.
Η.	Surface ownership: The well site and road are on Federal Land
Ι.	Well signs posted at each dri ling site.
J.	Open pits - all pits containing liquid or and will be fenced.
К.	Archaeological resources None observed

12. Operator's representative (Field personnel responsible for compliance with development plan for surface use)

DRILLING Mike Cure Box 2760 Midland, Texas 79702 915-684-5723

PPOLOTION Al Gallas Box 1043 Kermit, Texas 79745 915-563-0656 (or) Mike Cure Box 2760 Midland, Texas 79702 915-684-5723

#### 13. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site 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 Bass Enterprises Production Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

Engineering Assistant (Title)

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EXHIBIT C

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### BIG EDDY #68

# Anticipated Formation Tops

T/Salt	400 '	(+2750 <b>')</b>
B/Salt	2 <b>3</b> 50'	(+ 800')
T/Delaware Mtn.	2650'	(+ 500')
T/Bone Springs	6200'	(-3050')
T/Wolfcamp	9550'	(-6400')
T/Strawn	10950'	(-7800')
T/Atoka	11300'	(-8150')
T/M. Morrow	12000'	(-8850')
T/L. Morrow	12300'	(-9150')
T/Barnett	12550'	(-9400')
TD	12600'	(-9450')



## THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A. ONE DOUBLE GATE BLOWOUT PREVENTER WITH LOWER RAWS BLIND AND UPPER RAWS FOR PIPE, ALL HYDRAULICALLY CONTROLLED. OPENING ON PREVENTERS BETWEEN RANS.
- B. OPENING TO BE FLANGED, STUDDED OR CLAMPED AND AT LEAST TWO INCHES DIANETER.
- C. ALL CONNECTIONS FROM OPERATING MANIFOLD TO PREVENTERS TO BE ALL STEEL HOSE OR TUBE A MINIMUM OF ONE INCH IN DIAMETER.
- D. THE AVAILABLE CLOSING PRESSURE SHALL BE AT LEAST 15% IN EXCESS OF THAT REQUIRED WITH SUFFICIENT VOLUME TO OPERATE THE PREVENTERS.
- E. ALL CONNECTIONS TO AND FROM PREVENTERS TO HAVE A PRESSURE RATING EQUIVALENT TO THAT OF THE B.O.P.L.
- F. NANUAL CONTROLS TO BE INSTALLED BEFORE DRILLING CENENT PLUG.
- G. VALVE TO CONTROL FLOW THROUGH DRILL PIPE TO BE LOCATED ON RIG FLOOP.
- H. CHOKE MAY BE EITHER POSITIVE OR ADJUSTABLE. Choke spool may be used between rams.

BEPCO II ONE HYDRAULIC DUAL BLOWOUT PREVENTER



# THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A. CONDITIONS MAY BE HET BY AN ANNULAR TYPE BLOWOUT PRESENTER ON TOP AND A CHORE SPODE BELOW AND EITHER
- (1) THO RAM TYPE BLOWOUT PREVENTERS BELOW THE SPULL, THE LOWER UNIT CONTAINING BLIND RAMS AND THE UPPER UNIT CONTAINIE
- (2) A DUAL BLOWOUT PHEVENTER BELOW THE SPORE WITH PLEND RANS ON POTTOM AND PIPE RAMS ON TOP.
- 6. OPENING ON CHURE SPOOL TO BE FLANGED, STUDDED CH (LANGED)
- C. ALL CONNECTIONS FROM OPERATING MANIFOLDS TO PHEACH TERS TO BE ALL STEEL HOSE OR TURE A MINIMUM OF ONE INCH IN DIANETER.
- U. THE AVAILABLE CLOSING PRESSURE SHALL BE AT LEAST 15% IN EXCESSION THAT REQUIRED WITH SUFFICIENT VOLUME TO OPERATE THE B
- E. ALL CONNECTIONS TO AND FROM DREVENTER TO HAVE A CREW REPARTING FOULWALENT TO THAT OF THE B O P 1.
- WANUAL CONTROLS TO BE INSTALLED BEFORE CHIEFTER STATES
- 6. KELLY COCK TO BE INSTALLED ON ATELY
- H. INSIDE BEGNOUT PREVENTER TO BE AVAILABLE ON MEDICED

BUAL OPERATING CONTPOLS ONE IGCATED OF DRIFTER POSTOR AND THE DINER LOCATED A SAFE DISTANCE FROM THE RIG FLOOR.

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# THREE CLOSURE HYDRAULIC PLOWOUT PREVENTERS