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		DEPARTMEN	f of the interio	7	V	5. LEASE DESIGNATION AND SERIAL NO.
		GEOLO	GICAL SURVEY		A.	NM 7066
_	APPLICATION		TO DRILL, DEEPEN,	OR PLUG B	ACK	6. IF INDIAN, ALLOTTEE OR TRIBE NAME
1a.	TYPE OF WORK	L 🖾		PLUG BAG		7. UNIT AGREEMENT NAME
	OIL GAS	S T OTHER	SINGLE	MULTIP ZONE		8. FARM OR LEASE NAME
	NAME OF OPERATOR NAME OF OPERATOR	/		RECEI	VED	Wells Federal
3.	ADDRESS OF OPERATOR					2
			and, Temes 79701 I in accordance with any State	0CT 24	1978	10. FIELD AND POOL, OR WILDCAT Undesignated Aleka Me
4.	At surface 1980 [†] FSL on		I in accordance with any blace		•	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
	At proposed prod. zone			D. C. C	FICE	Sec. 11-T15S-R27E
14	Salle	ND DIRECTION FROM NEA	REST TOWN OR POST OFFICE*			12. COUNTY OR PARISH 13. STATE
			nd south of Lake Ar			Eddy New Mex
15	 DISTANCE FROM PROPOS LOCATION TO NEAREST PROPERTY OR LEASE LI (Also to nearest drlg.) 	INE, FT.	19801	ACRES IN LEASE		of acres ansigned this well. 320
18	. DISTANCE FROM PROPO TO NEAREST WELL, DR	SED LOCATION*	1 mi. from 19. propos		20. ROTA	ARY OR CABLE TOOLS
	OR APPLIED FOR, ON THIS	S LEASE, FT. WILLIS	unson Fed.Com. #1.	69101	1	RODELTY 22. APPROX. DATE WORK WILL START
21			2 mi. from property	G Verits 16.	r ∦ 1	
23	3623.61					As soon as possible
23			PROPOSED CASING AND CE	MENTING PROGR.	A.M.	· · · · · · · · · · · · · · · · · · ·
	SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	_	QUANTITY OF CEMENT
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	11"	8-5/8"	<u>244 K-55 ST&C</u>	1600	<u> 650 e</u>	Class C. Circulate.
	10	17	11 (11 10	89101	750 -	Class C. Circulate. Ex. Class H or sufficier
	7-7/8"]] ³ ≊"	11.6# and 10.5# K-55 LT&C	0710.	1.200 8	to cover nay
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	Mud program		H "AP-LICATION FOR			
	BOr program	: See attache	d "APFLICATION FOR	DRILLING" at	nd Expl	OCT 1 0 1978 U.S. GEOLOGICAL SURVEY ARTESIA, NEW MEXICO
						00- VED
	Gas sales as	re deficated t	o Northorn Natural	Cas Commany	•	110 1978
						ADDA BEOLOGICA
						WESTA, NEW SURVEY
11	ABOVE SPACE DESCRIBE	PROPOSED PROGRAM : If drill or deepen direction	: proposal is to deepen or plug nally, give pertinent data on su	back, give data on p bsurface locations a	present pro and measur	ductive zone and proposed by product ed and true vertical depths. Give blow
	reventer program, if any		<u>^ '</u>		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
рг	" Ales	ord VIJ		nt for <u>Petroleum</u>	<u>Cc.</u>	DATE 10/9/78
	SIGNED Edwa	THE THE THORE THE				
рг		ral or State office use)				_
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рг		ral or State office use)	AP1	PROVAL DATE	0-2	3-78

*See Instructions On Reverse Side



NYOCC COPY

United States Department of the Interior

GEOLOGICAL SURVEY P. O. Drawer U Artesia, New Mexico 88210

October 23, 1978

Mesa Petroleum Company 1000 Vaughn Building Midland, Texas 79701 MESA PETROLEUM COMPANY Wells Federal No. 2 1980 FSL 1980 FWL Sec. 11, T16S, R27E Eddy County Lease No. NM-7066

Above Data Required on Well Sign

Gentlemen:

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 8,910 feet to test the Morrow is hereby approved subject to compliance with the OIL AND GAS OPERATING REGULATIONS (30 CFR 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, pad, 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 General Requirements.
- 3. Submit a Daily Report of Operations from spud date until the well is completed and the Well Completion Report (form 9-330) is filed. The report should be not less than 8" x 5" in size and each page should identify the well.
- 4. All above-ground structures and equipment shall be painted in accordance with the attached Painting Guidelines. The color used should simulate sandstone brown (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 8-5/8" 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 until production casing is run and cemented. Monitoring equipment shall consist of the following:
 - (1) A recording pit level indicator to determine pit volume gains and losses.
 - (2) A mud volume measuring device for accurately determining mud volume necessary to fill the hole on trips.
 - (3) A flow sensor on the flow-line to warn of any abnormal mud returns from the well.

Sincerely yours,

(Orig. Sgd.) ALBERT R. STALL

Albert R. Stall Acting District Engineer

F MEXICO OIL CONSERVATION COMMISSION WELL LOCATION AND ACREAGE DEDICATION PLAT

		All distances must be f	romathe auter bound	laries of the Se	ction.	
	roleum Co.		L	Federal		Well No. 2
That Letter Sec K	11	Township 16 South	Range 27 Ec	Coun Ist	Eddy	
Actual Footage Location	5	uth line and	1980		West	
Ground Level Elev.	Producing For	tine and	Pocl	feet from	ine	line Dedicated Acreage:
3623.6	Atoka	- Morrow	Undesi	gnated		S/2 320 Acres
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	1 .	dedicated to the well ifferent ownership is a nitization, force-pooli swer is "yes," type o				Cell.
[]Yes	No If an	swer is "yes," type o	f consolidation		N/A	MENICO
If answer is " this form if neo No allowable w	no," list the c cessary.) (ill be assigne	owners and tract desc d to the well until all	riptions which l	ave actually been consol	been consolidat	ed. (Use reverse side of unitization, unitization, pproved by the Commis-
[1			/	-]	CERTIFICATION
HOMEER HOMEER TAIL TAIL TAIL TAIL TAIL TAIL TAIL TAIL	C C C C C C C C C C C C C C C C C C C				reined here best of my l Name Fosition Staff Company	rtify that the information con- in is true and complete to the knowledge and belief. We Dauglas E Douglas E Engineer Petroleum Co.
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APPLICATION FOR DRILLING

Nesa Petroleum Co. Wells Federal Well No. 2 Section 11-T16S-R27E Eddy County, New Lexico

In conjunction with Form 9-3310, Application for Permit to Drill subject well, Kesa Petroleum Co. submits the following items of pertinent information in accordance with USGS requirements:

1. The geologic surface formation is Permian-Guadalupian Artesia Group.

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

Formation	Depth	Sub-Sea
Queen	8901	+27491
San Andres	15901	+20491
Glorieta	299 0 !	+ 6491
Tubb	13501	- 711 *
Abo	50901	-1451 •
Wclfcamp	6300 1	-2 661 '
Bursum	71601	-3521 '
Strawn	80401	-1:401 *
Atoka	851:01	-4901 '
Morrow	866 0 '	-50211
Miss. Chester Sh.	87401	-5101 *
Miss. Chester Ls.	8880*	-52141
TD	8910 '	-5271 1

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

Water: at approximately 2885', 3385', and 4395' Gas and water: at approximately 7340' to 8040' Gas: at approximately 8360' to 8460' and approximately 8600'

4. Casing and Blowout Preventer Program:

Surface:

Drill a 172" hole to approximately 350'. Run deviation survey at 100', 200', and 350'. Limit deviation to 1°. Run 13-3/8" casing with guide shoe and insert float (one joint up) to total depth. Thread lock and tack weld bottom two joints. Fun centralizer in the middle of joints 1, 3, and 5. Cement with 400 sacks Class "C" plus 2% CaCl and set pipe on bottom. Cement must circulate. Pump down backside through 1" pipe if necessary. NOC 4 hours and commence cut off and nipple up. Install 13-3/8" slip-on π 12" API 3000 psi bradenhead. Mipple up 12" API 3000 psi NP double BOP with pipe rams (bottom) and blind rams. Also nipple up 10" API 3000 psi WP Hydril. Install diverter line off of double EOP. NoC until it has reached a compressive strength of 500 psi. Test chains to 600 pai for 30 minutes.

Intermediate: Drill an 11" hole to approximately 1000" (into top of San Andres). Run deviation curveys every 300". Limit deviation to 1°. Run 8-5/8" cacing with guide shoe and intert flost (2 joints up) to total depth. Turead lock and tack wels all connections through the top of insert float. Cun centrolider in the widdle of joints 1, APPLICATION FOR DRILL ...G Mesa Petroleum Co. Wells Fed. #2- Pege 2

> 3, and 5. Cement with 650 sacks light weight + 5# gilsonite + 🕼 flocele + 2% CaCl. Tail in with 200 sacks Class "C" + 2% CaCl. Cement must circulate. Pump down backside through 1" pipe with Class "C" + 2% Goll if necessary. WOC 6-8 hours, nipple down, and set slips with full weight of 8-5/8° casing. Cut off casing and install 12" API 3000 psi x 10" API 3000 psi casing speel. Nipple up 12" API 3000 psi MP double BOP & 10" (PI 3000 psi MP Hydril, same as previous. Hook up 3000 pci choke manifold. Test BCP stack and choke manifold to 1500 psi, Hydril to 1000 psi. How time should be determined by comenting company as the time required for the bottom 320' of cenent to reach a compressive strength of 500 psi. Test casing to 1000 psi for 30 minutes with a maximum of 9.0#/gal fluid in the hole. Install bit level indicator, bit volume totalizer. and flow show prior to drilling into the Wolfcamp at approximately 6000'. Also, test BOP stack and choke manifold to working pressure by an independent teating company prior to drilling into the Volfcamp.

Production:

Drill 7-7/8" hole to total depth of approximately 8800'. Run deviation surveys every 500' or on dull bit less than 500'. Limit deviation to 5°. After evaluating logs, run 1/2" production casing with downjet float shoe and float collar (2 joints up) to total depth. Thread lock all connections through float collar. Run centralizer in the middle of joints 1, 3, 5, 7, and 9. Also one centralizer per joint across any prospective pay zones. Tump 20 barrels KCL water and cement with 750 sacks Class "II" + 5/10% Halad 22 + 2/10% CFR-2 + 5% KCL. Displace top plug with 3% ECL water. Top of cement calculated at 6000' based on gauge hole plus 35% excess. Actual cenent volume should be based upon evaluating log as to uppermost some to be completed and actual calipered hole size. Reciprocate casing during cement job if hole conditions and mechanical condition of crilling rig allow this to be done safely. Pick up BOP stack and set slips with full weight of 113" easing. Nipple up 10" API 3000 psi x 6" API 3000 psi tubing spool.

Elowout Prevention:

- 1. Run operational opening and closing check on 232 DOPs each trip. On alternate trips, tighten bolts on the BOT stack. Record checks on IABC reports.
- 2. Use value on cacing head only for emergency. Do not use the kill line to fill up the hole.
- 3. Maintain inside BOF and safety valve readily available on rig floor. (Threaded for drill pipe being used)
- 4. BOP drills should be conducted on a regular basis and reported on the IADC (International Assoc. of Drilling Contractors) report.

5. Circulating medium.

0-3501

Spud with fresh water gel mud floculated with lime. Pretrest with 3% per bbl hulls, 3% per bbl fiber, 1% per bbl paper for possible loss zone from 100' to 200'. If necessary to blind drill to 350' TD, mix 150 bbls viscous mud with 12 to 15% per bbl LCM and spot on bottom before running casing. APPLICATION FOR DRILLING Mesa Petroleum Co. Wells Fed. # 2- Page 3

> 350-1600' Drill out with fresh water, through controlled section of reserve pit. Add paper and fiber for seepage as needed. Usen hole is completed, flush hole with 150 bbls viscous fluid with 4 to 6# LCM per bbl before running casing.

1600-7000' Drill with fresh water. Use paper and see mud as needed for seepage and hole sweep. Maintain 10+ pH. Good possibility of encountering lost returns beginning at 2700'.

7000-2400' Return to steel pits and mud up with 35 to 40 sec/1000 cc viscosity. Lower WL to 10 cc or less and add 3% KCL.

8400-TD Maintain viscosity 35 to 40 sec/1000 cc, WL 6 cc or less, 3% KCL and 10 pH with coustic.

6. Testing, coring and logging programs:

a. One set of washed samples with logged depth will be caught each 10' from bottom of 8-5/8" casing, tied in 100' bundles and stored in a clean, dry location at the rig.

b. Possible drill stem test - Strawn 6000'-8400'.

c. Hud logging from 6000' to TD.

d. Logging: (1) GR Neutron, surface to TD

(2) Density - approximately 1500' to TD

(3) Dual LL/RNO - approximately 1500' to ID

- 7. Maximum anticipated bottom hole pressure is 3300 psi at approximately 8500' based on offset well data. Mud weight required to offset this pressure is 7.5 ppg. Bottom hole temperature approximately 130° F. No sour gas expected.
- 8. Anticipated starting date: As soon as possible after approval, with completion of drilling operations approximately 30 days thereafter. Completion operations (perforating and stimulating) will immediately follow the drilling operations.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

OCT 1 0 1978

U.S. EEDLOGICAL SURVEY ARTESIA, NEW MEXICO Hesa Petroleum Co. Wells Federal Well No. 2 1980' FSL and 1980' FVL, Section 11-T16S-R27E Eddy County, New Mexico (Development Well)

This plan is submitted with Form 9-3316, 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 necessary 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 effects associated with the operations.

EXISTING ROADS. 1.

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- Existing roads in the vicinity of the proposed location are shown in Α. green on Exhibit I, attached. As indicated, the drillsite is located at a driving distance of approximately 11.9 miles east and south of Lake Arthur, New Mexico, including 10.7 miles of existing roads to Bogle State Com. Well No. 2; approximately 0.55 miles of proposed new read leading to the location of Wells Federal Well No. 1 (Application for Permit to Drill Well No. 1 is being submitted concurrently with this Application for Well No. 2); and approximately 0.65 miles of proposed new road from Well No. 1 to Well No. 2.
- Travel east from Lake Arthur on highway 507, located at the northern Β. edge of Lake Arthur. This road originates from alternate route 285 at a point recognizable by a former gasoline station, now a residence, painted white with green trim, on the west side of alternate route 285. The black top surface of the road changes to gravel after about 1.7 miles and, approximately 0.55 miles beyond this point, passes over a bridge across the Pecos River, Turn left after crossing the bridge and continue in a generally eastbound direction for about 2.05 miles. take a right (southeast) turn at this point and continue for approximately 3.2 miles. Turn right (south) on a road adjacent to a doublewire high line and continue for approximately 2.9 miles, then turn right (west) for about 0.3 miles to the drilling pad of Bogle State Com. Well No. 2, located at 1980' FSL and 1980' FEL, Section 2-T16S-R27E. Continue southwest from this pad over the proposed new access road leading to Wells Federal Well No. 1, a distance of approximately 0.55 miles. The proposed new access road to Mells Federal Well No. 2 will originate from the drilling pad at Well No. 1, and the route of the proposed new road is clearly marked and visible.

2. PLANNED NEW ACCESS ROAD.

The new access road is indicated in red on Exhibits I and II. This Λ. road will run in a north-to-south direction, originating at the southeastern edge of the drilling pad at Wells Federal Well No. 1, and will make a right angle turn into the southeastern corner of the pad at Wells Federal Well No. 2. The total length of this road will be about 0.65 miles.

Mesa Petroleum Co. Wells Fed. #2 Page 2

- B. The new access road will be constructed by grading and topping with 6 inches of compacted caliche. The driving surface of the road will be 12 feet in width (20' right-of-way width, as shown in Exhibit IV), with drainage on both sides of the road. One turnout will be constructed at the midpoint in the length of the road. No fences are involved, and no cattleguards or culverts will be necessary.
- C. The center line of the proposed new road has been staked and flagged, and is clearly visible.
- 3. LOCATION OF EXISTING WELLS.
 - A. All wells within a one-mile radius of the proposed well are indicated in Exhibit III.
- 4. LOCATION OF EXISTING AND/OF PROPOSED FACILITIES.
 - A. The nearest drilling activity on this lease is Williamson Federal Com. Well No. 1, located at 660' FNL and 1980' FWL of Section 12-T16S-R27E. Application for Permit to Drill (Form 9-331C) this well was approved by the USGS, Artesia, New Mexico or June 22, 1978, and the well is currently classified as being in a "drilling" status.
 - B. No other drilling activities have taken place on this lease. If the proposed well proves to be commercial, a pipeline connection will be constructed to the battery at Wells Federal Well No. 1, if the latter well has proven to be commercial. Otherwise, the necessary production facilities and battery will be installed on the pad as bolls Federal Well No. 2.
 - C. Concurrently with this Application for Permit to Drill Wells Federal Well No. 2, a similar Application is being submitted for Wells Federal Well No. 1, to be located at 660' FNL and 1980' FWL within the same section as Well No. 2 (Section 11-T16S-R27E).
- 5. LOCATION AND TYPE OF WATER SUPPLY.

<u>С</u>, э

A. It is planned to drill the proposed well with a fresh water system. The water will be obtained from privately owned or commercial sources and will be hauled to the location by truck over the existing and proposed new access roads shown in Exhibits I and II.

SOURCE OF CONSTRUCTION MATERIALS.

6.

A. Topsoil from the location will be stockpiled near the location for future rehabilitation use. No surface materials will be disturbed except for those necessary for the actual grading and leveling of the drillsite and access road. With the exception of the 6" compacted caliche top coat, all construction materials will be of local origin. Caliche required for construction will be obtained from an existing pit located on federally owned surface at Diamond Mound in Section 12-T16S-R27E.

Mesa Petroleum Co. Wells Fed. #2 Page 3

- 7. METHODS OF HANDLING WASTE DISPOSAL.
 - A. Drill cuttings will be disposed of in the reserve pits, which will be plastic-lined.
 - B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.
 - C. All pits will be fenced with normal fencing material to prevent livestock from entering the area.
 - D. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted to the USGS for approval.
 - E. Oil produced during operations will be stored in tanks until sold.
 - F. Current laws and regulations pertaining to the disposal of human waste will be complied with.
 - G. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 2h inches of dirt. All waste material will be contained to prevent scattering by the wind.
 - H. All trash and debris will be buried or removed from the wellsite within 30 days after drilling and/or completion operations have been finished.
- 8. ANCILLARY FACILITIES.
 - A. None required.
- 9. WELLSITE LAYOUT.

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- A. Exhibit V shows the relative location and dimensions of the well pad, reserve pits, and major rig components.
- B. Only minor leveling will be required to construct the location. The ground surface at the wellsite is relatively level, with only minor undulations and sand dunes up to 2' in height, and a gradual downward slope from south to north. It is estimated that a cut of approximately 2' will be necessary in the south portion of the drilling pad area. The access road route is also comparatively level, with only minor undulations and sand dunes on the surface. The road and pad surface will be covered with 6 inches of compared caliche.
- C. The reserve pits will be plastic-lined.
- D. The pad and pit area has been staked and flagged.

Mesa Petroleum Co. Wells Fed. #2 Page L

10. PLANS FOR RESTORATION OF THE SURFACE.

- A. After drilling and/or completion operations have been finished, all equipment and other materials not needed for further operations will be removed. Pits will be filled and the location cleaned of all trash and junk, so as to leave the wellsite in as aesthetically pleasing a condition as possible.
- B. Any unguarded pits containing fluids will be fenced until they have been filled.
- C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the BLM and the USGS will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandemment.

11. OTHER INFORMATION.

- A. Topography: The proposed wellsite is located in a relatively level area, with only minor surface undulations.
- B. The topsoil at the wellsite is mederately soft sandy lcam.
- C. Flora and fauna: The vegetation cover at the wellsite is moderately heavy for semi-arid depert land, and consists of mecquite, broomweed, and miscellaneous prairie flovers and weeds. No wildlife was observed, but the area is inhelited by antelope, deer, rabbits, badgers, lizards, and other wildlife typical of semi-arid desert areas. The area is used for cattle grazing.
- D. There are no ponds, lakes, or flowing streaks or rivers in the immediate violative of the wellaite.
- E. The usarest dwelling and windwill are located approximately two and a half miles north of the proposed vellate.
- F. The vellsite is located on federally owned with federally owned minerals.
- C. There is no evidence of any artheological, historical or cultural sites in the area of the vellsite. An archeological survey has been conducted by New Mexico Archaeological Services, Inc., D. O. Box 4311, Carlsbad, New Mexico, and their Archaeological Clearence Report dated September 22, 1978 has been submitted to all interested government agencies.

12. CPERATOR'S REPRESENTATIVES.

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1. 1. 19. julija – 1. A. The Mesa Petroleum Co. representatives responsible for assuring compliance with the approved surface use and operations plan are:

> J. W. Hart P. O. Box 1755 Hobbs, New Merico 882h0 505-393-hb25 (cffice) 505-393-4317 (residence)

N. P. Houston or Steve Douglas 1000 Vaughn Building Nidlana, Texas 79701 915-683-5391 (office)

Mesa Petroleum Co Wells Fed. #2 Page 5

13. CERTIFICATION,

I hereby certify that I, or people under my direct supervision, have inspected the proposed wellsite 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 Mesa Petroleum Co. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

10/9/78

Edward N. Lucking Agent for Mesa Petroleum Co.











