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MEXICO OIL CONSERVATION COMMIS WELL LOCATION AND ACREAGE DEDICATION PLAT

Form 7-162 Supersedes C-128 Effective 1-1-65

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United States Department of the Interior REDEIVED

GEOLOGICAL SURVEY P. O. Drawer U Artesia, New Mexico 88210 JUL 26 1979

D. C. C. ARTESIA, OFFICE

July 24, 1979

J. C. Williamson 1385 Midland National Bank Tower Midland Texas 79701

J. C. WILLIAMSON TOG Federal No. 1 1980 FNL 2310 FWL Sec. 16 T.20S R.29E Eddy County Lease No. NM-0554771

Gentlemen:

Above Data Required on Well Sign

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 6000 feet to test the Bone Springs formation 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 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 this approval including the GENERAL REQUIREMENTS.
- 3. Submit a Daily Report of Operations from spud date until the Well Completion Report (form 9-330) is filed. The progress report should be not less than 8" x 5" in size and each page should identify the well.
- 4. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Requirements. The color used should simulate Sandstone Brown (Federal Standard Color No. 595A, color 20318 or 30318).
- 5. Please have anyone contacting the Survey in regard to this well to identify the well with all of the information required above for the well sign.

Sincerely yours,

Albert R. Stall Acting District Engineer



APPLICATION FOR DRILLING

J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico

In connection with Form 9-331-C, Application for Permit to Drill subject well, J. C. Williamson submits the following ten items of pertinent information in accordance with U.S.G.S. requirements:

- (1) The geologic surface formation is <u>Dewey Lake of the Permian</u>.
- (2) The estimated tops of the geologic markers are as follows:

Yates	1100'	Cherry Canyon	3900'
Seven Rivers Reef	1360'	Brushy Canyon Sand	4600'
Bell Canyon Sand	3100'	Bone Springs Sand	5900'

(3) The estimated depths at which anticipated water, oil and gas formations are expected to be encountered:

Water: There is fresh subsurface water in this area in the Dewey Lake at 200' and in the Seven Rivers Reef at 1400 feet.

Oil or Gas:	Bell Canyon Sand	3100'
	Cherry Canyon	3900'
· *	Brushy Canyon Sand	4600
	Bone Springs Sand	5900'

- (4) Proposed Casing Program: See Form 9-331-C and Exhibit "F"
- (5) Pressure control equipment: See Form 9-331-C and Exhibit "E"
- (6) Mud Program: See Exhibit "G"
- (7) Auxillary Equipment: See Exhibit "H"
- (8) Testing, Logging and Coring Pressure:

Drill Stem Tests (all tests to be justified by a valid show of oil or gas) Geological logging Unit: 3100' to T.D.

Electric Log Program: Gamma Ray - TD to surface Sonic - TD to 3100' Laterolog - TD to 3100'

- (9) No abnormal pressures or temperatures are anticipated in this well.
- (10) Anticipated Starting Date: July 20, 1979.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

J. C. Williamson TOG Federal #1 1980' FNL and 2310' FW1 Section 16, T-20-S, R-29-E Eddy County, New Mexico (Wildcat)

This plan is submitted with Form 9-331-C, 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 operation.

- 1. EXISTING ROADS:
 - A. Exhibit "A" is an up to date land plat showing existing access roads. Exhibit "B" is a portion of a USGS topographic map of the area on a scale of approximately 1.34 inches (the largest scale available) to the mile, showing the location of the proposed wellsite, and roads in the vicinity. The proposed location is situated approximately 13 miles Northeast of Carlsbad, New Mexico via the access route shown in red.

DIRECTIONS:

- Proceed northeast of Carlsbad, New Mexico on Hobbs highway 8 miles to paved county road.
- 2. Turn north and proceed $4\frac{1}{2}$ miles, the county road turns west into old Russell field.
- 3. At end of pavement follow large caliche road ½ mile north and then 3 miles east along meandering caliche road. Proposed access road begins at the south edge of Texas Oil & Gas #1-A Williamson Federal.
- 2. PLANNED ACCESS ROAD:

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- A. The proposed new access road will be approximately 1650 feet in length from point of origin to the south edge of the drilling pad. The road will lie in a east to west direction.
- B. The new road will be 12 feet in width (driving surface), except at the point of origin, adjacent to the existing road, at which point enough additional width will be provided to allow heavy trucks and equipment to turn.
- C. The new road will be covered with the necessary depth of caliche. The surface will be crowned, with drainage on both sides. No turnouts will be necessary.
- D. The center line of the new road has been staked and flagged and the route of the road is clearly visible.

J. C. Williamson TOG Federal #1 Page 2

- 3. LOCATION OF EXISTING WELLS:
 - A. The well locations in the vicinity of the proposed well are shown in Exhibit "C".
- 4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:
 - A. There are no producing wells on this lease at the present time.
 - B. In the event that the well is productive, the necessary production facilities will be installed on the drilling pad. If the well is productive of oil, electricity will be used. No unassociated gas is anticipated in this well.
- 5. LOCATION AND TYPE OF WATER SUPPLY:
 - A. The primary source of drilling water will come from the approved Underwood water station, shown as a green square on Exhibit "A". The water will be pumped to the location by laying a line along the existing access road, shown in green on Exhibit "A".
 - B. Supplemental water will be hauled to the location by access road described above.
- 6. SOURCES OF CONSTRUCTION MATERIALS:
 - A. Any caliche required for construction of the drilling pad will be obtained from an existing approved caliche pit and will be supplemented by the dirt contractor. No new access road will be needed to any existing pit on federally owned surface.
- 7. METHODS OF HANDLING WASTE DISPOSAL:
 - A. Drill cuttings will be disposed of in the reserve pits.
 - B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.
 - C. Water produced during operations will be collected in tanks until disposed of in an approved existing disposal system.
 - D. Oil produced during operations will be stored in tanks until sold.
 - E. Current laws and regulations pertaining to the disposal of human waste will be complied with.
 - F. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind.
 - G. All trash and debris will be buried or removed from the wellsite within 30 days after finishing drilling and/or completion operations.

J. C. Williamson TOG Federal #1 Page 3

- 8. ANCILLARY FACILITIES:
 - A. None required.
- 9. WELLSITE LAYOUT:
 - A. Exhibit "D" shows the dimensions of the well pad and reserve pits, and the location of major rig components.
 - B. The ground surface at the drilling location is generally flat no cutting will be required to level the pad area, which will be covered with at least six (6) inches of compacted caliche.
 - C. The reserve pits will be plastic lined.
 - D. The pad and pit area has been staked and flagged.
- 10. PLANS FOR RESTORATION OF THE SURFACE:
 - A. After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleared of all trash and junk, to leave the wellsite in as aesthetically pleasing a condition as possible.
 - B. Unguarded pits, if any, containing fluids will be fenced until they have been filled in.
 - C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the United States Geological Survey will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.
- 11. TOPOGRAPHY:

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- A. The wellsite and access route are located in a flat area.
- B. The top soil at the wellsite is clay and sand.
- C. The vegetation cover at the wellsite is sparse, with sparse prairie grasses, miscellaneous weeds and catclaw.
- D. No wildlife was observed by it is likely that rabbits, lizards, insects, and rodents traverse the area. The area is used for cattle grazing.
- E. There are no ponds, lakes, streams, or rivers within several miles of the wellsite.
- F. The wellsite is located on federal surface.
- G. There is no evidence of any archaeological, historical, or cultural sites in the vicinity of the location.

J. C. Williamson TOG Federal #1 Page 4

- 12. OPERATOR'S REPRESENTATIVES:
 - A. The filed representatives responsible for assuring compliance with the approved surface use plan are:

Operator and Geologist:

Engineer:

J. C. Williamson 1385 Midland National Bank Tower Midland, Texas 79701 Phone: 915-683-1797 (Office) 915-682-8357 (Home) George W. Kingrea 1385 Midland National Bank Tower Midland, Texas 79701 Phone: 915-682-2898 (Office) 915-694-2795

13. CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and accessroute; 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 preformed by J. C. Williamson and his contractors and subcontractors in conformity with this plan and the terms and conditions which it is approved.

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EXHIBIT "A"

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J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico

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WELL LOCATION MAP

EDDY COUNTY, NEW MEXICO

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EDDY COUNTY, NEW MEXICO

EXHIBIT "C"

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J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico Legend

Location O P&A 🕀 Producer: Oil • Gas 🍪





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EXHIBIT "F"

J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico

SUMMARY OF DRILLING, DRILL STEM TESTING, LOGGING, CASING AND CEMENTING PROGRAM

- (1) Drill 17-1/2" hole to 600 feet. This is the usual depth for casing in this area. This portion of the hole will be drilled with water.
- (2) Run 600' of 12-3/4" casing and cement w/145 sacks Class "C" cement, 200 sacks of Halliburton lite cement, followed by 300 sacks w/2% CaCl. This is sufficient to circulate cement on this pipe. Run Texas Pattern guide shoe with float collar at top of shoe joint. Use on wooden plug to displace cement. Cement will be circulated.
- (3) Release pressure immediately, nipple up and install BOP's, test 500 psi after 12 hours and drill out cement.
- (4) Drill 11" hole to 3100 feet. Hole will be drilled with fresh water.
- (5) Run 3100' of 8-5/8" casing and set with 895 sacks of Halliburton lite with 5# gelsomite per sack followed by 250 sacks with 2% CaCl. Run guide shoe and float collar on bottom joint with 4 centralizers on every other joint. Use one (1) rubber plug to displace cement. Cement will be circulated.
- (6) Release pressure immediately, nipple up and install BOP's, test casing to 500 psi after 12 hours and drill out cement.
- (7) Put geological logging trailer at the well.
- (8) Mud up with good sample (low solids) mud.
- (9) Any significant shows of oil or gas will be either drill stem tested, cored, as determined by well site geological analysis. Shows of oil and gas are anticipated in the Bell Canyon at 3100', the Cherry Canyon at 3900', the Brushy Canyon at 4600', and in the first Bone Springs Sand at 5900'.
- (10) Once total depth is reached, the hole will be logged with a dual induction laterolog-SP from TD (at approximately 6000 feet) to 3100'(base of 8-5/8" casing), Sonic Gamma Ray from TD to 3100'. The Gamma Ray log will be run up to the surface of the ground.
- (11) If significant shows of oil and gas have been found, 4½" casing will be run to proper depth and cemented with 350 sacks of Class "H" pozmix cement with 2% gel with 5# salt per sack. Run guide shoe and float collar on bottom joint with 4 centralizers. Use rubber plug to displace cement.
- (12) Perforations, acid job, frac job or additional stimulation will be determined after oil string pipe is run.

EXHIBIT "F"

PAGE 1 PROJECT NO. WILL2 J. C. Williamson 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico

FOR: J. C. WILLIAMSON, TOG FED NO. 1 TYPE OF JOB: SURFACE PIPE CEMENTING 12 3/4 INCH WELL DEPTH= 600 FT NOMINAL BIT SIZE 17.500 INCHES—AVERAGE HOLE SIZE 17.500 INCHES MIXING UNITS - 1. STANDBY TRUCKS - 0. TEMP SOURCE - FLD DATA TEMP IN DEG F = 65. WOC = 12.00 HOURS

CEMENT TO SURFACE CEMENT DESCRIPTION: 145.SACKS OF CLASS C WITH ADDITIVES PER SACK OF:

1

1.06 % THIX-SET 1.88 LB CALCIUM CHLORIDE

TTT HRS 2.00	MIXING WATER GAL/SK 6.3	BULK WEIGHT LBS/SK 96.88	SLURRY WEIGHT LBS/G/ 14.98	Г \L	SLURF VOLUA FT3/S 1.33	AE PEI SK EX	LUME RCENT CESS 00.	VOLUME REQUIRE CU FT 188.	
* SLURR' 450.	Y WEIGHT PSI	+ 0R - 0.2	LBS/GAL W	TTH	NORMAL	COMPRES	SIVE	STRENGTH	OF
		TRANSPO	RTATION:		\$	67.43			
		PRICE:			\$	1362.57			
CENENT I	DESCUTOTI	(INI+ 200 C	LOVE OF						

CEMENT DESCRIPTION: 200.SACKS OF HALLIBURTON LIGHT CEMENT WITH ADDITIVES PER SACK OF: 5.00 LB GILSONITE

0.25 LB FLOCELE

TTT	MIXING WATER	BULK WEIGHT	SLURRY WEIGHT	SLURRY VOLUME	VOLUME PERCENT	VOLUME REQUIRED
HRS	GAL/SK	LBS/SK	LBS/GAL	FT3/SK	EXCESS	CU FT
4.00	9.9	97.45	12.58*	1.912	100.	376.

* SLURRY WEIGHT + OR - 0.2 LBS/GAL WITH NORMAL COMPRESSIVE STRENGTH OF 235. PSI

TRANSPORTATION:	\$	93.55
PRICE:	\$.	1231.14

STAGE NO.

PAGE 2

CEMENT DESCRIPTION: 300.SACKS OF CLASS C WITH ADDITIVES PER SACK OF: 1.88 LB CLACIUM CHLORIDE

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0.25 LB FLOCELE

	MIXING	BULK	SLURRY	SLURRY	VOLUME	VOLUME
TTT	WATER	NEIGHT	WEIGHT	VOLUME	PERCENT	REQUIRED
HRS	GAL/SK	LBS/SK	LBS/GAL	FT3/SK	EXCESS	CU FT
2.00	6.3	96.13	14.91*	1.333	100.	392.

* SLURRY WEIGHT + OR - 0.2 LBS/GAL WITH NORMAL COMPRESSIVE STRENGTH OF 795. PSI TRANSPORTATION: \$ 138.43

	•	100.40
PRICE:	\$	1801.76

CEMENTING SERVICE CHARGE:	\$	464.00
FLOATING EQUIPMENT CHARGE:	\$	708.00
CEMENTING MATERIALS CHARGE:	\$	4694.88
MISCELLANEOUS CHARGES:	Ş	0.
ESTIMATED PRICE OF JOB:	\$ \$	5866.88

GUIDE SHOE, FLOAT COLLAR, 2 LBS. WELD-A, TOP PLUG.

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PAGE I

PROJECT NO.-WILL3

FOR: J. C. WILLIAMSON NO. 1 TOG FED. · . TYPE OF JOB: CASING CEMENTING 8 5/8 INCH WELL DEPTH= 3200 FT NOMINAL BIT SIZE 11.000 INCHES-AVERAGE HOLE SIZE 11.000 INCHES MIXING UNITS - 1. STANDBY TRUCKS - O. TEMP SOURCE - FLD DATA TEMP IN DEG F = 85. WOC = 12.00 HOURSSTAGE NO. I CEMENT TOPS AT O FT CEMENT DESCRIPTION: 895.SACKS OF HALLIBURTON LIGHT CEMENT WITH ADDITIVES PER SACK OF: 5.00 LB GILSONITE 0.25 LB FLOCELE MIXING BULK :---SLURRY SLURRY VOLUME VOLUME TTT WATER WEIGHT WEIGHT VOLUME PERCENT **REQUIRED** HRS GAL/SK LBS/SK LBS/GAL FT3/SK EXCESS CU FT 4.00 9.9 97.45 12.58* 1.912 150. 1708. * SLURRY WEIGHT + OR - 0.2 LBS/GAL WITH NORMAL COMPRESSIVE STRENGTH OF 250. PSI TRANSPORTATION: \$ 418.65 PRICE: \$ 5490.83 _ · _ -2 -2 CEMENT DESCRIPTION: 250.SACKS OF CLASS C WITH ADDITIVES PER SACK OF: ·· - ...·· MIXING BULK SLURRY SLURRY VOLUME VOLUME TTT WATER WEIGHT WEIGHT VOLUME PERCENT **REQUIRED** HRS GAL/SK LBS/SK LBS/GAL FT3/SK EXCESS CU FT 2.50 6.3 94.00 14.80* 1.324 150. 331. * SLURRY WEIGHT + OR - 0.2 LBS/GAL WITH NORMAL COMPRESSIVE STRENGTH OF 820. PSI **TRANSPORTATION:** \$ 112.80 PRICE: \$ 1376.25

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CEMENTING SERVICE CHARGE:	\$	78920
FLOATING EQUIPMENT CHARGE:	\$	671.50
CEMENTING MATERIALS CHARGE:	\$	7398.52
MISCELLANEOUS CHARGES:	Ş	0.
ESTIMATED PRICE OF JOB:	\$ \$	8859.22

PAGE

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GUIDE SHOE, FLOAT COLLAR, I CLAMP 3 CENTRALIZERS, 2 LBS. WELD-A, TOP AND BOTTOM PLUG.

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PAGE

PROJECT NO.-WILL1

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FOR: J. C. WILLIAMSON, NO. I TOG FE. TYPE OF JOB: CASING CEMENTING 4 1/2 INCH WELL DEPTH= 6000 FT NOMINAL BIT SIZE 7.875 INCHES—AVERAGE HOLE SIZE 7.875 INCHES MIXING UNITS — I. STANDBY TRUCKS — O. TEMP SOURCE — FLD DATA TEMP IN DEG F = 105. WOC = 22.00 HOURS

STAGE NO. 1 CEMENT TOPS AT 3000 FT CEMENT DESCRIPTION: 350 SACKS OF CLASS H - POZMIX 2% GEL MITH ADDITIVES PER SACK OF: 5.00 LB SALT 0.25 LB FLOCELE

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TTT HRS 4.00	MÍXING WATER GAL/SK 5.7	BULK WEIGHT LBS/SK 92.93	SLURRY WEIGHT LBS/GAL 14.65*	SLURRY VOLUME FT3/SK 1.285	VOLUME PERCENT EXCESS 35.	VOLUME REQUIRED CU FT 932.
				1.200	JJ.	Y 32.

SLURRY WEIGHT + OR - 0.2 LBS/GAL WITH NORMAL COMPRESSIVE STRENGTH OF 1550. PSI TRANSPORTATION: \$ 323.40

I RANSPORTATION :	\$323 . 40
PRICE:	\$ 2953.86

CEMENTING SERVICE CHARGE:	\$	969.00
FLOATING EQUIPMENT CHARGE:	Ş	404.35
CEMENTING MATERIALS CHARGE:	\$	3277.25
ISCELLANEOUS CHARGES:	\$	0.
ESTIMATED PRICE OF JOB:	\$ \$	4,650.60

FLOAT COLLAR, GUIDE SHOE, 1 CLAMP, 6 CENTRALIZERS FOP AND BOTTOM PLUG.

EXHIBIT



J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico

Drilling Fluids Recommendations

OPERATOR J.C. Williamson

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LEGAL Section 16, T-20-S, R-29-E

WELL NAME Texas Oil & Gas Federal No. 1

COUNTY Eddy, New Mexico

Yates	@	1400	ft.
Capitan	<u>@</u>	1660	
Bell Canyon Sand	@	3100	ft.
Bone Springs		5900	ft.
			ft.
	<u>@</u>		ft.
	@		ft.

ANTIC	IPATED	FORMATION	TOPS	
400	ft.		@	,
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#### ANTICIPATED DRILLING PROGRAM

CASING	DEPTH	BIT	NUMBER	NUMBER
SIZE		SIZE	BITS	DAYS
12-3/4"	600'	17"	1	1
8-5/8"	3100'	11"	2	10
4-1/2"	6000'	7-7/8"	3	<u>8</u>
			Total Days	19

### **RECOMMENDED DRILLING FLUID PROPERTIES**

DEPTH	DEPTH MUD PROPERTIES REMARKS		REMARKS
0-600'	Weight Viscosity Fluid Loss pH	8.8-9.4 35-40 NC NC	Drill surface interval with a conventional Fresh Water Gel/Lime spud mud. Have viscosity high enough to clean hole properly.
			Use Paper for seepage control. Treat lost circulation with viscous Fresh Water Gel pills containing Multi-Seal and Cottonseed Hulls.
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# **Drilling Fluids Recommendations**

OPERATOR J.C. Williamson

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WELL NAME____Texas Oil & Gas Federal No. 1

#### **Recommended Drilling Fluid Properties (cont'd)**

DEPTH	MUD PROP	ERTIES	REMARKS
600-3100'	Weight Viscosity Filtrate pH	9.6-10.0 30-32 NC 10-11	Drill this interval with brine water to minimize washout of the salt section. Use Lime to maintain pH. Use Paper and/or Multi-Seal to control seepage losses.
			There is a good possibility of encountering complete loss of returns in the Capitan formation. If these losses are encountered we recommend using viscous LCM pills to regain returns. If a slug pit is available, we recommend using fresh water and Fresh Water Gel and having a pill mixed prior to entering the Capitan. Without a slug pit, then brine water and Salt Water Gel will have to be used.
			LCM pills should contain high concentrations of Multi-Seal, Cottonseed Hulls, Shur Plug and Cedar Seal. Immediately upon encountering complete losses, pull out to above the loss zone and pump the viscous LCM pill. Follow the pill with water to see if at least partial returns are regained. Follow this procudure until returns are regained.
			If after 3 or 4 pills have been pumped and returns have not been regained, then a cement plug should be considered. Before setting the plug, dry drill until reasonably competent formation is indicated on the Geolograph.
			The losses may be severe enough to require drilling with mud after returns have been regained.
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# **Drilling Fluids Recommendations**

OPERATOR J.C. Williamson WELL NAME Texas Oil & Gas Federal No. 1

DEPTH	MUD PRO	PERTIES	REMARKS
600-3100' (Cont'd)			A Salt Water Gel and Starch mud system is recommended with a viscosity of 34-36 sec/1000cc and a fluid loss of 20-30 cc/30 min. It would also be helpful to use 8-10% oil to reduce hydrostatic.
3100-5200'	Weight Viscosity Filtrate pH	10 28 NC 10-11	Drill out from intermediate casing with brine water. Circulate reserve pit for improved solids control. Use Caustic Soda for pH. Use Paper and/or Multi-Seal as necessary, to control seepage.
5200-6000'*	Weight Viscosity Filtrate pH	10-10.2 36-40 10-15 9.5-10	Return to working pits and mud up. Pre- treat water with D-76 Defoamer and adjust pH with Caustic Soda prior to mudding up. Mud up with Salt Water Gel and Starch for indicated properties. These properties should be sufficient for any testing or logging operations. *Mud up depth may be altered, if necessary, for geological information.
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**Recommended Drilling Fluid Properties (cont'd)** 



#### LANDIS DRILLING COMPANY POST OFFICE BOX 3579 MIDLAND, TEXAS 79702

	RIG #4
DRAWWORKS :	N-45 Brewster w/2 engine compound w/triple 15" Hydramatic brake
ENGINES:	Two D343TA Caterpillar diesels, 350 HP each, w/torque convertors
#1 PUMP:	Emsco DA-500 (7 1/2" x 16") w/forged steel mud end powered by D353TA Caterpillar diesel, 450 HP
#2 PUMP:	Emsco D-300 (7 1/4" x 14") powered by D343TA Caterpillar diesel, 350 HP
DERRICK:	Derrick Service International, Inc., 131' jackknife, 450,000# GNC
SUBSTRUCTURE:	11' x 26' x 38', 450,000# capacity
DRILL PIPE:	9,500' of 4 12/", 16.60 E Gd. E w/HTC FW XH tool jts.
DRILL COLLARS:	Twenty-seven 6 1/4" x 2 1/4" w/4 1/2" XH jts. & 24 8" x 2 1/4" w/6 5/8" regular joints.
BLOW-OUT PREVENTORS:	Cameron, dbl. Hydr. type SS, 10" 3,000# & N.L. Shaffer 10" 3,000# spheric w/Koomey, 80 gallon accumlator, 3,000#, 4 station w/Hydril control valve
SHALE SHAKER:	Thompson vibrator, single w/3HP AC electric exp. proof motor
WATER STORAGE:	One 500 bbl. horizontal tank & one 210 bbl. vertical tank
MUD PITS:	l - 8' x 7' x 46', & l - 8' x 6' x 36' w/mud mixers, accessories & walkways. Total capacity 650 bbls.
PIPE RACKS:	Five sets triangle, 32" x 29' each
LIGHTS:	Vapor proof, florescent w/2-30 KW AC light plants, powered by $4-236$ Perkins diesels
AUTO-DRILLER:	Texas Flange with recorder
RADIO COMMUNICATIONS:	Mobil telephone & two-way radio
RECORDER:	Totco, 2 pen. w/pent. rate & weight recorder
MOBIL HOME:	8' x 40' Sunflower, 1 1/2 bedroom, refrigerated air, color TV, completely equipped

#### EXHIBIT "H"

J. C. Williamson TOG Federal #1 1980' FNL and 2310' FWL Section 16, T-20-S, R-29-E Eddy County, New Mexico