BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF

RESERVE OIL AND GAS COMPANY FOR A

WATERFLOOD PROJECT, JALMAT OIL POOL

LEA COUNTY, NEW MEXICO

COOPER-JAL UNIT

JALMAT ZONE

LEA COUNTY, NEW MEXICO

GENERAL

Operator: Reserve Oil and Gas Company

Project: Cooper-Jal Unit - Jalmat Zone

Pool: Jalmat Oil

Location of Project:

Township 24 South, Range 36 East, N.M.P.M.

Section 13:	S/2
Section 14:	SE/4 SE/4
Section 23:	S/2 SE/4
Section 24:	All
Section 25:	N/2
Section 26:	NE/4 NE/4

Township 24 South, Range 37 East, N.M.P.M.

Section 18:	All
Section 19:	W/2
Section 30:	NW/4

No. of Wells in Project: 50

Unit and Project Area: Approximately 2,541 acres

Other Waterflood Properties in Pool: The Cone Jalmat Yates Sand Unit and the Gulf Jalmat Yates Sand Unit are located approximately 12 miles northwest of the proposed unit

GEOLOGICAL AND RESERVOIR DATA

Reservoir: The Jalmat reservoir in the project area includes the Tansill, Yates and all but 250 feet of the lower Seven Rivers formation productive zones. The Yates is the principal producing formation at a depth of approximately 3000 feet.

Description of Reservoir Rock: The formations are members of the Whitehorse Group, Guadalupian series of the Permian, and can be described as fine to medium crystalline dolomites and dolomitic limestones interbedded with fine to medium grained sands with the zones of porosity occurring irregularly as intercrystalline and fine vugular in the carbonates and as intergranular in the sand bodies.

Structure: Regionally, the unit area is located on the western edge of the Central Basin Platform of the Permian Basin, but locally, it is on a structurally low area or syncline. The regional dip in the area is west-southwest toward the Delaware Basin, but it is abruptly interrupted by a structurally high trend produced by the "Cooper-Jal" Reef located to the west of the unit area. The northwest-southeast trending syncline produced by this reversal of dip extends beyond the unit area in both directions and is abnormally low locally to actually form a closed low in which most of the unit is located.

Reservoir Limits: The Yates formation is progressively higher structurally in all directions such that the oil accumulation in the Yates formation is virtually surrounded by wells producing dry gas.

Average Porosity of Net Pay: 9.8%

Average Permeability of Net Pay: 11.8 mud

PRIMARY OPERATIONS

Date of First Production: 1947

PRIMARY OPERATIONS, Continued

No. of Wells in Project:	50; 13 of which are either producing or are shut-in gas wells
Cumulative Oil Production 1-1-70:	3,927,327 barrels
Remaining Primary Reserves 1-1-70:	133,652 barrels
Daily Average Oil Production Per Well 12-69:	3.6 barrels
Original Reservoir Pressure:	Unknown
Oil Gravity:	34° API
Drive Mechanism:	Solution Gas Drive
Stage of Depletion:	Late; the Jalmat Zone in the unit area is estimated to be 96.8% depleted of primary reserves.
Estimated Ultimate Primary Recovery:	4,060,979 barrels

WATERFLOOD OPERATIONS

Proposed Pattern:	Irregular 80-acre five spot
No. of Injection Wells:	23
No. of Producers:	22
Initial Injection Rate:	350 barrels per day per injection well
Estimated Injection Pressure:	1200 psi at the injection wellhead. Injection plant and water distribution system is designed for 1845 psi maximum operating pressure.

WATERFLOOD OPERATIONS, Continued

Plan of Injecting Water:	Injection into the pay zone through internally coated tubing below a packer.
Source of Injection Water:	Water will be purchased from Skelly's water supply system.
Type of Water:	Non-potable
Treatment of Water:	No treatment of the injection water is anticipated; however, should treatment be deemed desirable, treatment will be commenced.
Additional Oil Recovery Anticipated:	The additional oil recovery attributable to the water injection program is estimated to be 3,045,700 barrels which is 75% of the estimated ultimate primary oil recovery.

CONCLUSIONS AND RECOMMENDATIONS

The Jalmat Pool produces by solution gas drive and this portion of the pool is 96.8% depleted of primary oil and the daily oil production averages less than three barrels per day per well.

Engineering and geological studies indicate that the Jalmat (Oil) Pool underlying the proposed unit area can be successfully waterflooded; thereby, increasing the life and the ultimate oil production of wells in this unit. The increased recovery due to waterflooding should be approximately 3,045,700 barrels of oil. Reserve Oil and Gas Company, together with the other working interest owners, have concluded that unitization of the unit area comprising 2,541 acres for the purpose of waterflooding the Yates oil formation is in the best interest of conservation and the prevention of waste.

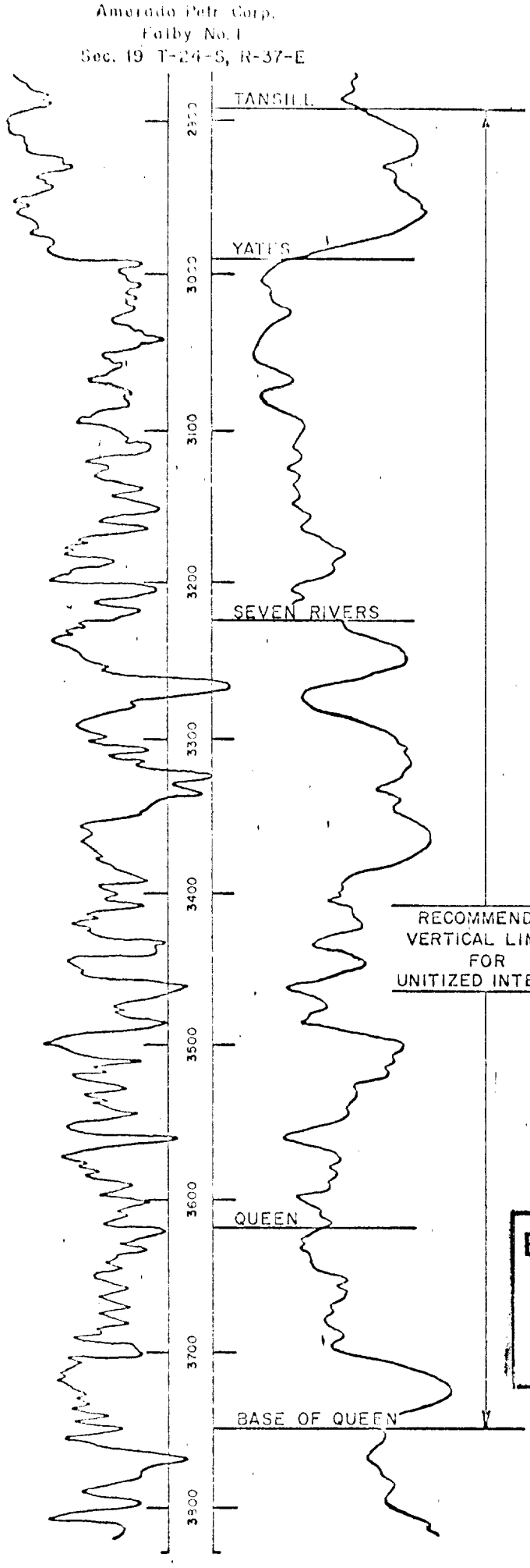

EXHIBIT 2
Proposed Unitized Vertical Limit
Cooper Jal Unit
Lea County, New Mexico

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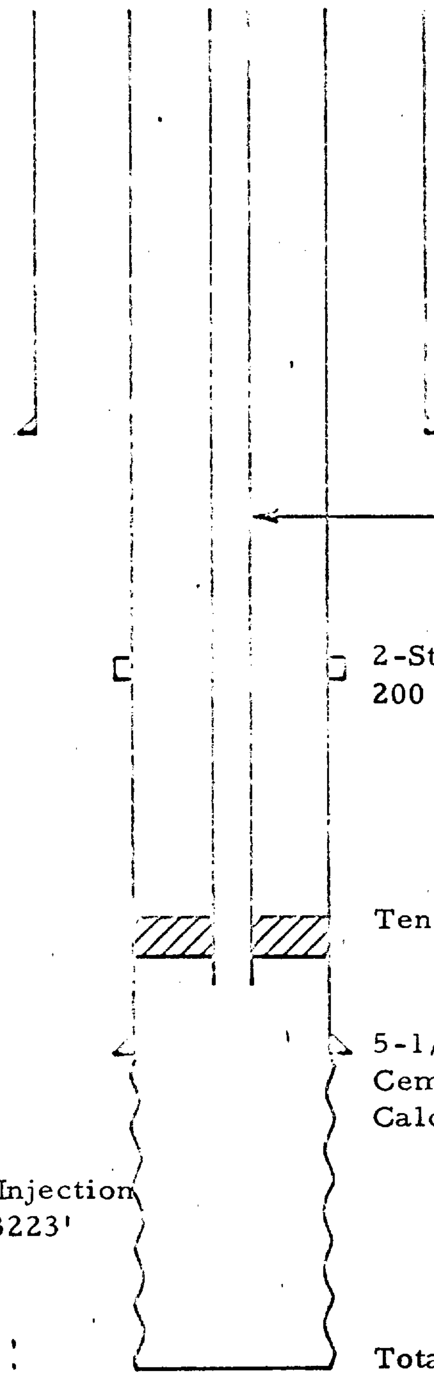
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 4404

EXHIBIT 5
COOPER JAL UNIT
JALMAT ZONE

estimate 3,000,000 addl bbls.

TYPICAL SINGLY COMPLETED INJECTION WELL
ROG VAN ZANDT NO. 2



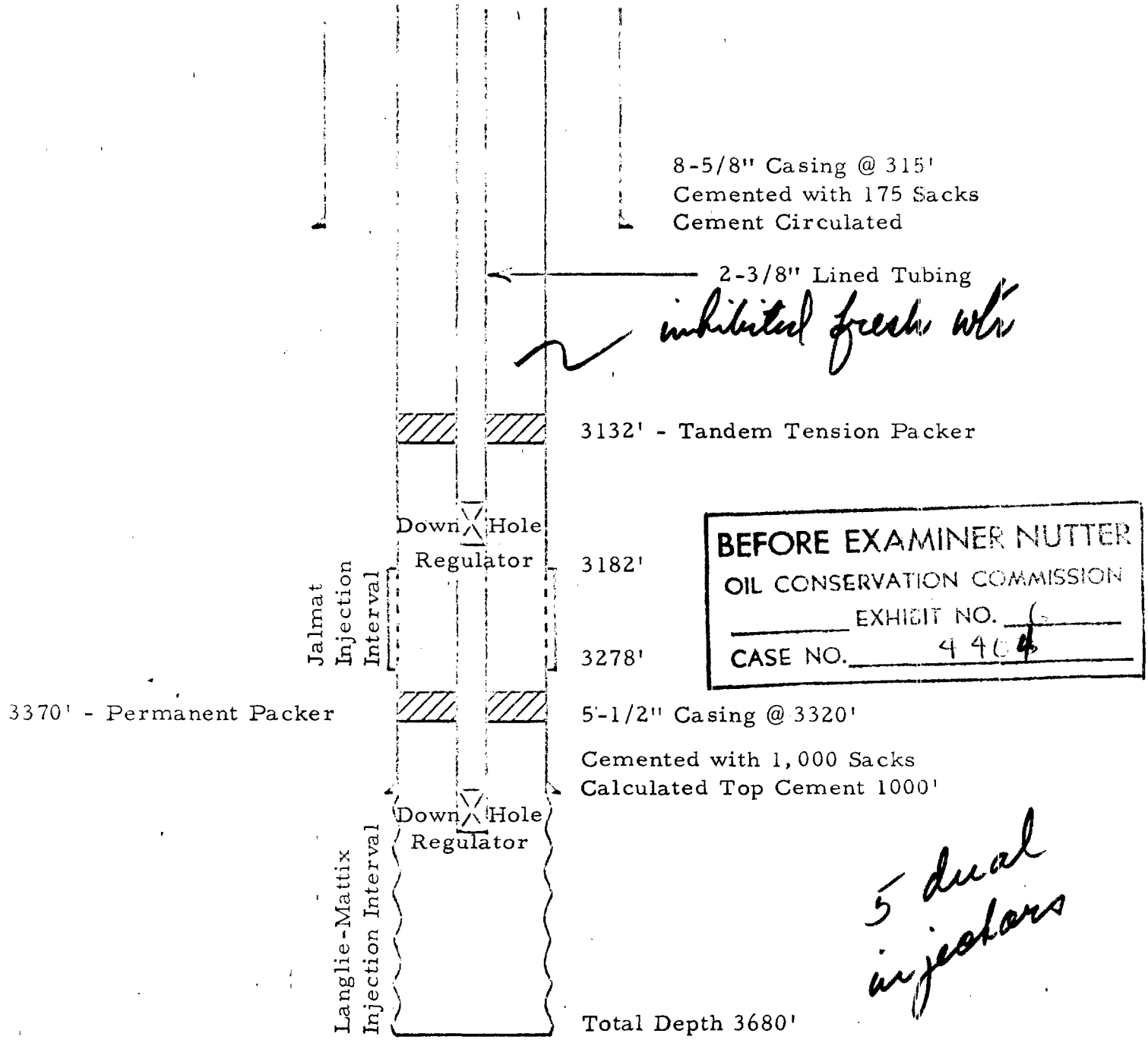
approx 50 above shoe... perf

water source: wtr will be purchased from Skelly (7R & Capitan reef) also prod wtr will be re-inj

18 single injectors

EXHIBIT 6
COOPER JAL UNIT
JALMAT AND LANGLIE-MATTIX ZONES

TYPICAL DUAL INJECTION WELL
AMERADA FALBY NO. 3



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CASE NO. 4404

5 dual injectors

EXHIBIT NO. 7
INJECTION WELL DETAIL
COOPER-JAL UNIT
JALMAT ZONE
LEA COUNTY, NEW MEXICO

Operator Lease	Well No.	LOCATION Distance	Unit	Section	Township	Range	CASING Surface Size	Surface Depth Set	Production Size	Production Depth Set	CEMENT Amount Sacks	Top Feet	Perforations	Open Hole	Total Depth	Plugged Back Total Depth	Injection Interval Perforation or Open Hole	Tubing-Packer Set At	Remarks
Amerada Falby	3	1980 FSL & 1917 FWL	K	19	24S	37E	8-5/8"	315'	5-1/2"	3320'	175 1000	0C 1000C	3182-3278' ✓	3320-3680'	3680'	-	3182-3278'	3130'	Dual Injector.
	4	660 FSL & 628 FEL	M	19	24S	37E	8-5/8"	291'	5-1/2"	3350'	175 1000	0C 1000C	3060-3158'	-	3350'	3270'	3060-3158'	3010'	
Cities Service Jack "A" Federal	1	660 FSL & 660 FWL	M	18	24S	37E	9-5/8"	260'	7"	3410'	150 500	0C 1200	3030-3200'* ✓	3410-3641'	3641'	-	3030-3200'*	2980'	Dual Injector.
Continental Oil Jack Federal 19	1	2310 FNL & 4950 FEL	E	19	24S	37E	9-5/8"	267'	7"	2975'	75 400	0C 1775C	- ✓	2975-3167'	3167'	-	2975-3167'	2925'	Dual Injector. To be deepened to Langlie-Mattix.
	4	1587 FWL & 990 FNL	C	19	24S	37E	10-3/4"	300'	7"	2962'	80 300	0C 2000C	-	2962-3191'	3191'	-	2962-3191'	2912'	
Humble Hunter	3	1980 FNL & 760 FWL	E	24	24S	36E	8-5/8"	309'	5-1/2"	3031'	150 850	0C 1000C	-	3031-3195'	3195'	-	3031-3195'	2980'	
	4	660 FNL & 1980 FWL	C	24	24S	36E	8-5/8"	315'	5-1/2" 4"	3000' 2854-3604'	150 650 45	0C 1440C 2854	3030-3200'* ✓	-	3604'	3574'	3030-3200'*	2980'	Dual Injector.
Thomas	1	660 FSL & 2020 FEL	O	23	24S	36E	13-3/8"	209'	9-5/8" 7"	2774' 3400'	130 800 200	0C 1578C 2700C	2925-85'; 3000-20'	-	3602'	3050'	2925-3020'	2875'	
	3	4620 FNL & 4620 FEL	M	24	24S	36E	8-5/8"	268'	5-1/2"	3035'	150 900	0C 875C	-	3035-3210'	3210'	-	3035-3210'	2985'	
Petroleum Corporation of Texas M. Dunn	1	1710 FEL & 330 FSL	O	13	24S	36E	8-5/8"	304'	5-1/2"	2969'	100 200	0C 2489C	-	2969-3228'	3228'	-	2969-3228'	2900'	
	2	1050 FEL & 1650 FSL	I	13	24S	36E	8-5/8"	300'	5-1/2"	3034'	75 200	0C 2550C	- ✓	3034-3235'	3235'	-	3034-3235'	2785'	Well to be deepened to Langlie-Mattix. Dual Injector.
Harrison	1	330 FNL & 3050 FEL	C	25	24S	36E	8-5/8"	292'	5-1/2"	2970'	100 400	0C 2010C	-	2970-3230'	3230'	-	2970-3230'	2920'	
	7	330 FWL & 1980 FNL	E	25	24S	36E	8-5/8"	292'	5-1/2"	3541'	150 300	0C 2821C	2990-3200'*	-	3589'	-	2990-3200'*	2940'	
Phillips	2	660 FEL & 1980 FSL	I	24	24S	36E	8-5/8"	302'	5-1/2"	2995'	125 400	0C 2035C	-	2995-3225'	3225'	-	2995-3225'	2940'	
Thomas	1	330 FSL & 1720 FEL	O	24	24S	36E	8-5/8"	247'	5-1/2"	2991'	125 350	0C 2151C	-	2991-3250'	3250'	-	2991-3250'	2940'	
	4	1980 FWL & 1980 FSL	K	24	24S	36E	8-5/8"	302'	5-1/2"	3001'	125 400	0C 2040C	-	3001-3244'	3244'	-	3001-3244'	2950'	
Reserve Oil and Gas Company Van Zandt	2	330 FNL & 330 FEL	A	25	24S	36E	8-5/8"	310'	5-1/2"	2989'	100 200 + 200	0C 2508C	-	2989-3223'	3223'	-	2987-3223'	2930'	
	4	1650 FNL & 1650 FEL	G	25	24S	36E	8-5/8"	236'	5-1/2"	3003'	100 200 + 200	0C 2523C	-	3003-3324'	3580'	3324'	3003-3324'	2950'	
Atlantic Richfield Company Dunn SCP	1	1980 FNL & 1650 FEL	G	24	24S	36E	8-5/8"	300'	5-1/2"	2988'	123 400	0 2568C	-	2988-3251'	3251'	-	2988-3251'	2930'	
	3	660 FNL & 330 FEL	A	24	24S	36E	8-5/8"	258'	5-1/2"	2994'	125 400	0C 2514C	-	2994-3237'	3237'	-	2994-3237'	2944'	
Texaco Fristoe "B"	1	1980 FNL & 660 FWL	E	30	24S	37E	13-3/8" 9-5/8"	302' 1174'	7"	2828'	350 500 450	0C 500C 1900C	-	2828-3180'	3180'	-	2828-3180'	2778'	
	3	660 FNL & 1917 FWL	C	30	24S	37E	9-5/8"	1162'	7"	3148'	600 400	0C 1948C	3040-3120'	-	3134'	3125'	3040-3120'	2990'	
Texas Pacific Myers "B" Federal	1	330 FNL & 330 FEL	A	26	24S	36E	8-5/8"	293'	5-1/2"	2981'	150 400	0C 2061C	-	2981-3193'	3193'	-	2981-3193'	2930'	Slotted Liner. 2951-3193'. 4" OD.

NOTES: C = Calculated
* Indicates perforations or deepening to be performed after unitization.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 4407

min cut 'cleaning interval' 175'