MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986

Witness: Ray Beck

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

HEARING: Compulsory Pooling Dagger "ZW" Com #2
1980' FSL & 660' FEL of Sec. 25-19S-24E
Case 9860

Beck Answer: I am here to testify and present evidence relating to geological risk in the drilling of Dagger "ZW" Com #2 and to recommend a risk penalty

Exhibit #6 is a map of a large portion of Dagger Draw Upper Penn North Oil Field. Dagger Draw Upper Penn North produces oil, sour gas and brackish sulphur water from a combined stratigraphic and hydrodynamic trap consisting of a band of partially porous and permeable dolomite pinching out updip into tight sealing limestone. Downdip economic production is limited by water. There is no water-free production in this field; however, there is a hydrodynamically Northeast tilted surface below which the dolomite reservoir is virtually all water filled. This water filled part of the reservoir is referred to as the "big water" by Yates and most operators try to perforate above the "big water."

This exhibit is a combined Canyon or Upper Penn dolomite isolith and top-of-dolomite structural map. Solid contours are 100 foot contours of the net Canyon dolomite thickness and show the net dolomite to range from zero to a little over 300 feet. Dotted contours show the structural configuration of the top of the Canyon dolomite in 100 foot contours and it can be seen that, generally, the dolomite body dips to the East and East Southeast. It is porous and permeable zones in this body of Canyon dolomite that constitutes the producing reservoir in Dagger Draw upper Penn North Field.

Circled well spots are Canyon or deeper penetrations. Green colored well spots are Dagger Draw Upper Penn North producers; the one red spot is a Canyon sour gas well. It can be seen that thirteen producers have been plugged in the area mapped. Uncolored circled gas well spots indicate gas production from zones stratigraphically lower than the Canyon such as the Strawn, Atoka and Morrow.

According to the map the proposed Dagger" ZW" #2 in the Northeast of the Southeast of Section 25 of 19 South-24 East should encounter approximately 175 feet of net Canyon dolomite and should hit the top of the dolomite at about minus 4027 subsea all

of which will hopefully result in an economically successful oil, sour gas and water well. However, let me hasten to say that the Dagger Draw reservoir is a carbonate reservoir and like virtually all carbonate reservoirs it is complex in geometry and variable in reservoir quality from place to place. That is, there is always geological risk in drilling for and developing carbonate reservoirs. The carbonate reservoir may abruptly thin or change from porous and permeable rock to tight or impermeable rock resulting in a so-called inside location becoming an uneconomic well.

Examples of four wells will be presented to show geological risk in drilling in the Dagger Draw Upper Penn North Field. These four wells are marked by orange arrows on the map. This is, of course, a currently developing field with a number of recently completed wells with little production history and it must be remembered that the wells produce not only oil but sour gas and large amounts of water. Therefore, there is a risk that a number of wells will turn out to be uneconomic. Another Yates witness will testify in more detail about high drilling, equipping and lease operations costs in this field.

The first of the four examples to show geological risk is the Hanks Molly #1 located 990 feet from the South and East of Section 13 of 19S-24E which encountered a respectable 142 feet of Canyon dolomite. This well was completed on 12-29-1976 for an IPP of 45 barrels of oil per day plus 299 barrels of water per day. It was plugged in 1979 with a final uneconomic cumulative production of 2594 barrels of oil plus 20879 MCF of gas and 24367 barrels of water. Yet, the Hanks Molly #1 is only 467 feet northwest of a later drilled well, the Yates Molly "QD" #1, which is one of the best wells in the field.

The second example is the ARCO Cone Federal #1 located 660 feet from the North and East line of Section 24 of 19S-24E which cut 171 feet of Canyon dolomite and is surrounded by five good to excellent Canyon producers; but, the Cone Federal was completed on 11-12-1964 and was plugged in 1966 with a final uneconomic cumulative production of 4168 barrels of oil.

The third well to show geological risk is the Conoco (formerly the Ralph Nix) Debbie #1 located 1980 feet from the South line and 660 feet from the East line of Section 11 of 20 South-24 East which encountered 307 feet of Canyon dolomite of which 174 feet was above the "big water." The Debbie well was originally completed on 5-25-1982 by Ralph Nix for an IPP of 55 barrels of oil and 162 barrels of water per day. Later when Nix wished to plug the well, Conoco took over operations in an attempt to improve the production. Conoco then finally plugged the well in 11-1986 with a final cumulative uneconomic production of 5496 barrels of oil, 28607 MCF of gas and 211269 barrels of water.

The fourth well to show geological risk is the Yates Cacti "AGB" State #1 in Section 2 of 20 South-24 East which will be

discussed with the next exhibit, a cross-section whose trace is shown on this map exhibit.

Exhibit # 7 is a Northwest to Southeast structural cross-section depicting the depth dimension across the southern part of Dagger Draw Upper Penn North Oil Field. The Compensated Neutron-Density porosity logs are hung on a minus 3500 feet below sea level datum. Vertical scale is 2-1/2 inches equals 100 feet. The horizontal distance between wells is only proportional to map distances.

Shown is the top of the Canyon Limestone, called Upper Penn by some workers. Also shown is the limits of the dolomite reservoir facies and the hydrodynamically tilted "big water" contact.

In order to have a chance at finding commercially economic hydrocarbons in Dagger Draw Field one must encounter adequate porous and permeable dolomite reservoir facies above the tilted "big water" contact below which the dolomite reservoir facies is almost all water-filled.

The fourth well from the left on the cross-section, the Yates Cacti "AGB" State #1, cut 116 feet of section between the top of the dolomite to the "big water"; however, 52 feet of the middle of that section was not dolomite reservoir but a tight interval of interbedded shale and lime. This Cacti well is currently producing from the Morrow and will be later perforated in the Canyon dolomite; however, it is possible that this well will not be an economically commercial producer from the Dagger Draw Upper Penn North Field because of the 52 foot tight interval. The point is that the proposed Dagger "ZW" Com #2 which appears at first to be an inside location is at some risk to encounter an inadequate amount of porous and permeable dolomite reservoir facies above the "big water" much like or worse than the Cacti well which is approximately 2.5 miles to the South Southwest and, therefore geological risk is introduced into the drilling of the proposed Dagger "ZW" Com #2.

The graphic example of the Yates Cacti only re-iterates the common experience that geologists have with carbonate reservoirs which is that they are complex bodies of rock which may thicken or thin erratically or change facies erratically from porous, permeable reservoir rock to impermeable rock. There is always that risk in drilling for carbonate reservoirs.

Beck Answer: I recommend a charge for risk, that is, a risk penalty of 200 percent.

MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

February 26, 1990

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87503-2088

Attention: William J. LeMay

RE: Case No. 9860
Order No. R-9115

Gentlemen:

Enclosed for your records is an itemized schedule of well costs furnished to the working interest owners under the captioned.

Thank you.

Very truly yours,

YATES PETROLEUM CORPORATION

Kathy H. Porter

Kathy H. Porter
Landman

KHP:cp

Enclosure

YATES PETROLEUM CORPORATION

207 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210

AUTHORITY FOR EXPENDITURE
Revised 02-05-90

OIL CONSERVATION DIVISION
RECEIVED
'90 FEB 28 AM 8 57

AFE # 89-124-0
REVISION #
DATE 7-26-89

LEASE NAME Dagger ZW Com #2 — LOCATION 1980'S 660/E, Sec. 25-19S-24E
COUNTY Eddy — STATE New Mexico — FIELD
HORIZON Canyon — EST. T. D. 8100' — EST. SPUD DATE
EST. COMPLETION DATE — DRILLING CONTRACTOR

PRIMARY OBJECTIVE: [XX] OIL [ ] GAS [ ] OIL AND/OR GAS
PURPOSE : [XX] DRILLING-NEW [ ] RECOMPLETION [ ] OTHER (SUPPLEMENTAL AFE, ETC.)
TYPE WELL : [XX] DEVELOPMENT [ ] EXPLORATION

	INTANGIBLE COSTS:	DRY HOLE	COMPLETION
9210	STAKING PERMIT & LEGAL FEES	$ 500	$ 500
9211	LOCATION, RIGHT-OF-WAY	10800	10800
9212	DRILLING, FOOTAGE 8100' @ $14.50/ft	117500	117500
9213	DRILLING, DAYWORK 5 days @ $4000/day	20000	20000
9214	DRILLING WATER	12000	12000
9215	DRILLING MUD & ADDITIVES	10000	10000
9216	MUD LOGGING UNIT	5900	5900
9217	SURFACE & INT. CEMENT, CSG., TOOLS & SERVICES	12500	12500
9218	DRILL STEM TESTING	-	-
9219	ELECTRIC LOGS - OPEN HOLE	11000	11000
9220	TOOL & EQUIP. RENTAL, TRUCKING, WELDING	6300	6300
9221	SUPERVISION & OVERHEAD	7500	7500
9223	CORING, TOOLS & SERVICES	-	-
9224	BITS, TOOLS & SUPPLIES	300	300
9235	PRODUCTION CEMENT, CASING, TOOLS & SERVICES	-	8000
9222	CONTINGENCY	10000	10000
9241	COMPLETION UNIT	-	7800
9242	WATER FOR COMPLETION	-	1100
9243	MUD ADDITIVES FOR COMPLETION	-	600
9244	CEMENT, TOOLS, SERVICES & TEMP. SURV. FOR COMP.	-	-
9245	ELECTRIC LOGS, PERFORATION TEST FOR COMPLETION	-	4000
9246	TOOLS, TRUCK, WELD. & EQUIP. RENTAL FOR COMP.	-	8000
9247	STIMULATION - COMPLETION	-	10000
9248	SUPERVISION & OVERHEAD - COMPLETION	-	5400
9249	ADDT'L LOCATION, ROAD WORK & SURFACE DAMAGES	-	3300
9251	BITS, TOOLS, ETC. PURCHASED FOR COMPLETION	-	2300
9250	CONTINGENCY - COMPLETION	-	4500
	TOTAL INTANGIBLES	224300	279300
	EQUIPMENT COSTS:		
9301	CHRISTMAS TREE AND WELL HEAD	2200	15700
9302	CASING	-	-
9302	9-5/8" 36# K-55 @1150'	14000	14000
9302	7" 26# K-55+23# S-95 @8100'	-	78400
9303	TUBING 2-7/8" 6.4# J-55 @7850'	-	19800
9304	PACKER & SPECIAL EQUIPMENT	-	1500
9350	CONTINGENCY	500	1400
	WELL EQUIPMENT	16700	130700
	LEASE & BATTERY EQUIPMENT COSTS:		
9401	PUMPING EQUIPMENT	-	75000
9402	STORAGE 2-500b. welded tnk/w-210b. fbrgl tnks	-	13500
9403	SEPARATION EQUIP., FLOWLINES, VALVES, FITTINGS	-	21000
9404	TRUCKING & CONSTRUCTION COSTS	-	19500
	TOTAL LEASE & BATTERY EQUIP.	-	129000
	TOTALS	$241000	$539000

APPROVAL OF THIS AFE CONSTITUTES APPROVAL OF THE OPERATOR'S OPTION TO CHARGE THE JOINT ACCOUNT WITH TUBULAR GOODS FROM OPERATOR'S WAREHOUSE STOCK AT THE RATES STATED ABOVE.

YATES PETROLEUM CORPORATION	DATE	SHARE
BY Albert G. Springer III		53.38125%
BY S.P. YATES		
BY - 2nd of two CONOCO, INC.		.75625%
BY		27.51875%
BY		

AFE # 89-124-0
Date 7-26-89
Location 1980/S 660/E, Sec. 25-19S-24E
Eddy County, New Mexico

DAGGER ZW Com. #2

MARATHON OIL COMPANY

By:_____ Date_____ 5.96250%

DEKALB ENERGY COMPANY

By:_____ Date_____ 5.62500%

KATHLEEN CONE

By:_____ Date_____ 3.00000%

SPIRAL, INC.

By:_____ Date_____ .75625%

CATHIE CONE AUVENSHINE

By:_____ Date_____ .60000%

CLIFFORD CONE

By:_____ Date_____ .60000%

DOUGLAS L. CONE

By:_____ Date_____ .60000%

KENNETH G. CONE

By:_____ Date_____ .60000%

TOM R. CONE

By:_____ Date_____ .60000%