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PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

February 15, 1993

Proposed Avalon (Delaware) Unit
Technical Report

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210

Attention: Mr. Bob Fant

Dear Bob,

The enclosed material includes a draft of a proposed addendum and associated exhibit dealing with waterflood and tertiary reserves. I've also enclosed two-work maps and a summary sheet reflecting the overall results for your information. I told Dave last week that I would draft a paragraph addressing Yates' concern over the development plan described in the Report. That draft is also enclosed for your comments. I'd be glad to discuss the procedure, maps and proposals at your convenience.

Sincerely,

Larry D. Long

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Enclosures

Proposed Addendum to Technical Report

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Section G: Flowstreams

The reserves discussed and summarized in Section G of the Technical Report are through-wellbore reserves determined by the procedures detailed in that Section. Those reserves were based on a series of flood pattern configurations largely dictated by existing wellbores as indicated qualitatively in Exhibit G-2. The few producers to-be-drilled were generally centered within their nominal 40-acre tracts. Injectors to-be-drilled were generally placed mid-way between offset producers so as to enhance pattern areal conformance and ultimate recovery. The resulting flood pattern boundaries generally do not conform to lease-lines nor internal nominal 40-acre tract lines. This non-conformance results in some in-place reserves being pushed off their respective tracts to adjacent producing wells during flooding operations.

Exhibit G-24 better represents in-place ownership of the produced reserves. For that Exhibit, primary reserves were not revised from those shown in Exhibit G-19 except for those wells affected by an accompanying addendum as a separate issue. Tract Waterflood Reserves were determined by (1) first determining the reserves associated with the waterflood's nominal quarter-patterns (the polygons shown in Exhibit G-2) for each production well; (2) determining the original-oil-in-place for each of the smaller polygons ("tract-patterns") created by the intersections of the quarter-pattern and 40-acre well-tract boundaries; (3) allocating the quarter-pattern reserves to the tract-patterns by the ratio of the associated OOIP's; and (4) recombining the resulting tract-pattern reserves for each well-tract. Both sets of boundaries are defined by co-ordinates used for other calculations reflected in the Report, most notably the volumes contained in Sections E and G. The Tract Waterflood Reserves shown in Exhibit G-24 include both the workover volumes and the waterflood volumes shown separately in Exhibit G-19. The Tract CO_2 Reserves were determined in an analogous procedure.

BY WELL-TRACT RESERVES
---RUR AS OF 1/1/93---
---VOLUMES ARE KBO---

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WELL TRACT	1/1/93 REMAINING PRIMARY	ULTIMATE PRIMARY RESERVES	TRACT WATERFLOOD RESERVES	TRACT CO2 RESERVES
1109	0.0	0.0	0.0	265.4
1111	0.0	0.0	345.1	530.6
1113	0.0	0.0	0.8	446.7
1309	0.0	0.0	0.0	607.3
1311	43.4	179.8	403.6	1693.0
1313	33.4	152.4	373.3	1045.9
1315	0.0	0.0	0.0	362.5
1509	0.0	0.0	0.0	579.0
1511	53.4	137.1	368.1	1425.9
1513	33.8	154.6	741.5	2177.2
1515	0.0	1.7	0.0	852.5
1517	0.0	0.0	0.0	247.4
1709	0.0	5.1	0.0	174.3
1711	19.3	127.6	174.5	1189.7
1713	40.3	164.8	698.4	2009.3
1715	20.2	66.3	157.5	966.2
1717	0.0	0.0	69.3	481.0
1719	0.0	0.0	0.0	203.9
1909	0.0	0.0	0.0	336.2
1911	66.4	190.7	252.6	1687.4
1913	80.9	268.8	648.3	1861.6
1915	113.5	309.0	1101.1	2271.4
1917	119.4	388.5	156.3	739.5
1919	24.1	68.4	11.3	448.6
1921	0.0	0.0	0.0	143.8
2109	0.0	0.0	0.0	91.4
2111	50.7	138.9	102.5	1195.1
2113	120.3	360.8	553.9	1496.8
2115	38.0	257.6	397.1	1933.6
2117	76.6	275.8	587.5	2241.8
2119	126.9	258.2	232.2	925.2
2121	0.0	0.0	0.0	308.9
2123	0.0	0.0	0.0	51.5
2309	0.4	10.9	0.0	46.7
2311	19.3	150.6	157.9	1207.9
2313	56.7	199.5	264.9	1064.2
2315	0.0	22.7	73.4	523.1
2317	0.0	29.5	28.6	881.0
2319	29.3	173.6	167.5	823.6
2321	3.1	23.2	69.7	741.6
2323	0.0	0.0	0.0	120.1
2509	0.3	6.0	0.0	119.1
2511	0.0	11.9	0.0	522.4
2513	0.0	0.0	0.0	219.4
2515	0.0	0.0	0.4	353.9
2517	0.0	24.6	43.7	525.1
2519	22.5	114.1	88.3	710.5
2521	0.0	0.0	0.1	299.2
2523	0.0	0.0	0.0	19.5
2709	0.0	3.1	0.0	239.4
2711	0.0	0.0	0.0	204.9
2717	0.0	0.0	0.0	148.9
2719	0.0	0.0	0.0	111.9
2721	0.0	0.0	0.0	10.0
TOTAL	1192.2	4275.8	8269.1	39882.9

NOTE: PRIMARY RESERVES ADJUSTED ONLY TO REFLECT ACCOMPANYING ADDENDUM THAT APPLIES TO WELLS 1311, 1313, 1915 AND 1917 (INCLUDES 2016)
NOTE: WELL 2016 RESERVES ARE INCLUDED WITH THOSE OF WELL 1917 SINCE THE WELLS SHARE THE SAME PRIMARY PRORATION TRACT
NOTE: WATERFLOOD RESERVES INCLUDE BOTH WORKOVER AND FLOOD RESERVES

EXHIBIT G-24

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Addendum to Technical Report

The Technical Report, Section H, describes a development plan with a pressure-building water injection step to be implemented in 1993. After approximately three years of water injection, it is anticipated that the area reservoir pressure will be increased to the level desired for CO_2 miscible operations. The analysis performed at the time the Report was compiled indicates that the entire proposed area would achieve acceptable economic performance and that a near-simultaneous implementation across the area achieves the maximum present-worth for the investments required. However, it is also expected that additional reservoir description data resulting from the 1993-94 drill wells; the planned CO_2 injectivity test referenced in the Report; the water injectivity data across the area; the over-all performance data of the water injection phase; and non-technical data such as crude prices will all provide valuable information for optimizing the overall project and its implementation plan. Thus, while the CO_2-injection phase implementation across the entire area in the 1996-97 time-frame appears to be the optimum plan under currently-known conditions, it is likely that additional information gained prior to that time could lead to modifications to the plan. Approval of the implementation plan will require the necessary owner ballot approval.

SUMMARY OF AREA RESERVES WITH AND WITHOUT ADJUSTMENTS
TOTAL RESERVES QUOTED ARE POST-1/1/93

TRACT GROUP	1/1/93 REMAIN PRIMARY	REPORT SECONDARY RESERVES	ADJUSTED SECONDARY RESERVES	REPORT TERTIARY RESERVES	ADJUSTED TERTIARY RESERVES	REPORT TOTAL RESERVE	ADJUSTED TOTAL RESERVE	TOTAL RESERVE ADJUSTMENT
YATES-OPERATED	243.8	3436.2	3332.0	13828.1	13855.2	17508.1	17431.0	-77.1
HUDSON-OPERATED	0.0	0.0	0.0	242.8	203.9	242.8	203.9	-38.9
PREMIER-OPERATED	0.0	0.0	0.0	2055.4	1626.0	2055.4	1626.0	-429.4
MWJ-OPERATED	0.7	0.0	0.0	173.7	165.7	174.4	166.4	-8.0
MERIT-OPERATED	0.0	0.0	0.0	448.5	444.3	448.5	444.3	-4.2
KERR MCGEE-OPERATED	0.0	0.0	0.0	226.9	191.2	226.9	191.2	-35.7
EXXON-OPERATED	947.7	4832.9	4937.1	22907.5	23396.6	28688.1	29281.4	593.3
TOTAL	1192.2	8269.1	8269.1	39882.9	39882.9	49344.2	49344.2	-0.0

Bob,
For your information,
Larry