

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 9364
ORDER NO. R-7773-A

APPLICATION OF ANADARKO PETROLEUM
CORPORATION FOR THE AMENDMENT OF
DIVISION ORDER NO. R-7773, EDDY
COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 27, 1988, at Santa Fe, New Mexico.

NOW, on this 8th day of September, 1988, the Division Director, having considered the testimony and the record,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Anadarko Petroleum Corporation, seeks the amendment of Division Order No. R-7773 to increase the surface injection pressure limitation for ten certain injection wells in its Ballard GSA Unit Waterflood Project to 450 psi above the formation parting pressure as determined from step-rate tests for said ten injection wells in the Grayburg formation of the Loco Hills Pool within the project area consisting of a portion of Sections 4, 6, 7, 17 and all of Sections 5 and 8, Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) Applicant is the operator of the Ballard GSA Loco Hills Waterflood Project authorized by Division Order No. R-4493, as amended.

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(4) Division Order No. R-7000 (1982 expansion) authorized the operator to expand the Ballard GSA Unit Waterflood project by the completion for injection or conversion to water injection of ten certain wells located in Township 18 South, Range 29 East, NMPM, Loco Hills Pool, Eddy County, New Mexico.

(5) Division Order No. R-7773 (1985 expansion) authorized an additional ten injection wells also located in Township 18 South, Range 29 East, NMPM, as shown on Exhibit "A" attached hereto and made a part hereof.

(6) Division Order No. R-4493 imposed no pressure limitation but Order No. R-7000 authorized a surface injection pressure limitation of 1550 psi, and Order No. R-7773 imposed a pressure limitation of 0.2 psi per foot of depth.

(7) The 1985 expansion area under Order No. R-7773 has shown no response to injection.

(8) Decline curve analysis indicates that 237,000 barrels of oil may be recovered as a result of injection into wells added to the Ballard GSA Unit under Order No. R-7000 (1982 expansion) and that an approximately equal volume of additional recovery may be had by the 1985 expansion approved by Order No. R-7773; however, continuation of the pressure limitation imposed by that order will preclude that additional recovery.

(9) Temperature logs from injection wells operated under Order No. R-4493-A (1973 project, no surface injection pressure limit) and Order No. R-7000 (1982 expansion, 1550 psi maximum surface injection pressure, \pm .65 psi/ft) indicate that all injected water is being contained within the Grayburg formation.

(10) Engineering evidence presented at the hearing indicates injection conducted at 450 psi above the parting pressure will create a fracture that will not propagate outside of the vertical limits of the Grayburg formation (the confining strata).

(11) The improved injectivity from increased pressure limitations will allow for the timely completion of waterflood operations in the Ballard GSA Unit and result in an additional 250 MBO being recovered from the 1985 expansion area.

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(12) In order to prevent waste a new pressure limitation of 450 psi above the formation parting pressure, as determined by step-rate tests, or 1550 psi whichever is less, is considered proper for the Ballard GSA Unit wells operated under Order No. R-7773 as tabulated on Exhibit "A" attached hereto and made a part hereof.

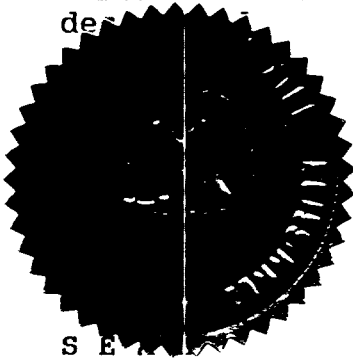
(13) Approval of this application will prevent waste, protect correlative rights and will not constitute a risk to fresh water sources.

IT IS THEREFORE ORDERED THAT:

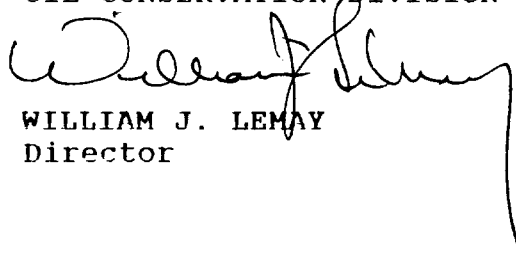
(1) The applicant, Anadarko Petroleum Corporation, is hereby authorized to increase the surface injection pressure in its Ballard Grayburg-San Andres Unit Waterflood Project wells in the 1985 expansion (Order No. R-7773) to 450 psi above formation parting pressure as determined by step-rate tests, or to 1550 psi, whichever is less, all located as described in Exhibit "A" attached hereto and made a part hereof.

(2) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove
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STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director

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EXHIBIT "A"

<u>TRACT NO. - WELL NO.</u>		<u>WELL LOCATION</u>
10	9	approximately 1980' FNL & 1310' FWL in Section 4
26	4	approximately 800' FSL & 1310' FWL in Section 4
5	9	1980' FNL & 990' FEL in Section 8
5	14	990' FSL & 1310' FEL in Section 8
8	4	660' FNL & 1980' FEL in Section 5
9	2	1980' FNL & 1980' FWL in Section 5
10	1	1980' FNL & 660' FEL in Section 5
11	1	2310' FNL & 330' FEL in Section 6
13	2	660' FNL & 660' FWL in Section 5
24	2	660' FSL & 990' FEL in Section 5

All wells are located in Township 18 South, Range 29 East, NMPM, Loco Hills Pool, Eddy County, New Mexico.