

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. 10858  
ORDER NO. R-10122

**APPLICATION OF MITCHELL ENERGY CORPORATION FOR A WAIVER OF  
THE SALT PROTECTION STRING REQUIREMENTS OF ORDER NO. R-111-P FOR  
CERTAIN WELLS IN THE OIL/POTASH AREA, LEA COUNTY, NEW MEXICO**

ORDER OF THE DIVISION

BY THE DIVISION

This cause came on for hearing at 8:15 a.m. on April 28, 1994, at Santa Fe, New Mexico, before Examiner Jim Morrow.

NOW, on this 31st day of May, 1994, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premisses,

FINDS THAT:

(1) Due public notice having been given as required by law and in accordance with New Mexico Oil Conservation Division/Commission Order No. R-111-P, the Division has jurisdiction of this cause, the parties and the subject matter herein.

(2) Mitchell Energy Corporation ("Mitchell") has the right to develop the oil and gas minerals underlying all of Section 4, Township 20 South, Range 33 East, NMPM, Lea County, New Mexico, and proposes to test for production in the Yates formation of the West Teas Yates-Seven Rivers Pool by drilling nine oil wells, each to an anticipated depth of approximately 3,600 feet and all located on separate 40-acre spacing and proration units within said Section 4.

(3) Mitchell has filed its application in this case seeking Division approval to delete the "salt protection string" requirements of Order R-111-P from the well program for each of these shallow oil wells which are identified on Exhibit "A" attached hereto.

BEFORE THE OIL CONSERVATION DIVISION  
Santa Fe, New Mexico  
Case No. 12506 Exhibit No. 5  
Submitted by:  
Sapient Energy Corporation  
Hearing Date: October 19, 2000

(4) Prior to the Commission's adoption of Order R-111-P effective April 21, 1988, Section 4 was outside the boundaries of the "Potash Area" as described in Order R-111, as amended, and these wells would not have been subject to the casing and cementing requirements of that order.

(5) Order R-111-P expanded the Potash Area as described in Order R-111-O but further provided:

"Finding (22). Expansion of the R-111 area to coincide with the KPLA (Known Potash Leasing Area, established by the BLM) will bring under the purview of this order areas where potash is either absent or noncommercial and such areas should be granted less stringent casing, cementing and plugging requirements, at the discretion of the OCD district supervisor.", and

"Decretory Paragraph C. (4) provides that "the Division's District Supervisor may waive the requirements of Section D and F (dealing with drilling, casing and plugging) which are more rigorous than the general rules upon satisfactory showing that a location is outside the Life of the Mine Reserves (LMR) and surrounding buffer zone as defined hereinbelow and that no commercial potash reserves will be unduly diminished."

(6) In accordance with Order R-111-P, Mitchell has notified the proper parties and the only timely filed objection was made by Mississippi Potash, Inc. on November 2, 1993, but was subsequently withdrawn on November 8, 1993. The applicant was the only party to appear at the hearing and there is no opposition to the granting of this application from any party in this matter.

(7) On September 20, 1993, the District Supervisor of the Division's Hobbs office advised Mitchell that he was referring Mitchell's request to the Division Director for hearing.

(8) Mitchell has taken the necessary action to amend its applications for permits to drill ("APD") to conform to the well plan submitted at hearing as Mitchell Exhibit (10) and except for the issue of waiving the "salt protection string," Mitchell believes that its APDs are ready for approval by the respective regulatory agency with the authority to grant those APDs.

(9) All of Section 4 (except for approximately 20 acres in the NE/4 NE/4) is identified as "Barren" of commercial potash on both the 1984 and 1993 Bureau of Land Management Potash Resources Map.

(10) Section 4 is not located within an "LMR" or a buffer zone as defined by Order R-111-P.

(11) The nearest potash mine (New Mexico Potash) is approximately five miles southwest of Section 4.

(12) Of the ten wells which have been drilled in Section 9, Township 20 South, Range 33 East, NMPM, to the West Teas Yates-Seven Rivers Pool, nine of those wells have been authorized to be drilled without the salt protection string. Two of those wells, the Stevens & Tull, Inc. Federal "9" Well Nos. 3 and 5, are located only 330 feet from the southern boundary of Section 4.

(13) Mitchell's correlative rights will be impaired because they will be at a competitive disadvantage with other operators in this pool unless they are granted a waiver of the "salt protection string."

(14) Mitchell's geologic and reservoir engineering evidence demonstrated that:

- (a) based upon conventional geologic investigation utilizing cross sections, structure map, isopachs, there is a reasonable scientific probability that the proposed well locations are a geologically logical extension of the north end of the Yates formation of the West Teas Yates-Seven Rivers Pool;
- (b) the expected average ultimate recovery for all wells which have produced from the Yates formation of the pool is approximately 63,000 barrels of oil;
- (c) the total cost of a well with the salt protection string but without the external-casing packer would be \$341,000 and with an external-casing packer but without the salt protection string would be \$290,500;
- (d) the deletion of the salt protection string results in almost doubling the discount profitability index for this project and directly affects the economic viability of this project;
- (e) the deletion of the salt protection string significantly improves Mitchell's opportunity to drill these wells and to recover oil that might otherwise be lost or subject to drainage;

- (f) deletion of the salt protection string will provide Mitchell with the same opportunity as the offsetting operators who have not been required to pay the costs of salt protection strings in their wells thereby protecting Mitchell's correlative rights;
- (g) the expected producing life of these wells is estimated to be approximately 8.5 years.

(15) Mitchell's experts on drilling, completing and producing these wells presented evidence which demonstrated that:

- (a) these wells can be drilled, cased, cemented, completed and produced by deleting the "salt protection string" without risk to miner's safety or causing the undue waste of commercial deposits of potash;
- (b) each of these wells will have surface casing set in the "Red Bed" section of the basal Rustler formation immediately above the salt section in such a manner as to protect any and all fresh water, and then shall be cemented using a combination DV tool and external casing packer such that there shall be a continuous column of cement from the surface to the total depth of each well isolating all formations including the Salado ("salt") section from the 4-1/2" production casing;
- (c) prior to completing each well, a temperature survey or a cement bond log shall be run and any necessary remedial cementing operations shall be conducted in accordance with Division procedures;
- (d) each of these wells will be monitored during its productive life for mechanical integrity including detection of casing leaks and any effects of corrosion;
- (e) the wellbore integrity of these wells is expected to continue for a longer time than the time required to produce the wells to abandonment.

(16) Mitchell's potash expert presented evidence that:

- (a) demonstrated with publicly available potash core data and ore grade information, that all of Section 4 was within an area "barren" of commercial potash and thus validated the BLM's potash maps which had reached the same conclusion;
  - (b) no commercial potash currently exists in Section 4 or within one-half mile of said Section, nor is it expected to exist in the foreseeable future given the depressed state of the New Mexico potash mining industry;
  - (c) potash mining activity would not occur within one mile of Section 4 at any time during the life of the wells being produced in the West Teas Yates-Seven Rivers Pool;
  - (d) by using subsidence calculations, the removal of potash ore from the McNutt member of the Salado formation at a depth of 2,000 feet would have to come to within 1200 feet of any of these wells before any said well would be subject to the effects of potash mining subsidence;
  - (e) the conductivity data demonstrates that the Salado formation is plastic and virtually impermeable to fluid flow;
  - (f) Since 1966, mining in the potash area has been on a significant decline and it is highly improbable that mining activity will occur towards Section 4 from any existing mining operation.
- (17) The deletion of the salt protection string from these wells will not unduly reduce the total quantity of commercial deposits of potash which may reasonably be recovered in commercial quantities, nor will it interfere unduly with the orderly commercial development of the potash deposits.
- (18) A substantial savings in the costs of each of these wells will be realized by deleting the salt protection string.
- (19) The deletion of salt protection string from these wells will not constitute a risk to miner's health or safety.

(20) Approval of this application will afford Mitchell the opportunity to produce its just and equitable share of the hydrocarbons in the Yates formation of the West Teas Yates Seven Rivers Pool, will prevent the economic loss caused by drilling of wells with unnecessary salt protection strings and will otherwise prevent waste and protect correlative rights.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Mitchell Energy Corporation for approval to delete the "salt protection string" requirements of Order R-111-P is hereby granted for each of the wells identified and described on Exhibit "A" attached hereto and incorporated by reference into this Order;

- (a) that each said well shall be drilled, cased, cemented in accordance with the Well Plan introduced at the hearing as Mitchell Exhibit (10) which is hereby incorporated by reference into this order;
- (b) that each said well shall be completed, produced and abandoned in accordance with the exhibits and procedures introduced at the hearing as Mitchell's Exhibit (12) which is hereby incorporated by reference into this Order.

(2) Mitchell shall provide the OCD District Supervisor of the Hobbs Office with copies of Exhibits (10) and (12) and shall notify him of the times when casing is to be run and cemented, when bond or temperature logs are to be run, and when remedial cementing operations are to occur.

(3) Except as modified by Decretory Paragraph No. (1) of this order, all of the provisions of Order R-111-P applicable to the casing, actual drilling, cementing and plugging of a shallow well within the "Designated Potash Area" shall be strictly adhered to.

(4) The operator of the subject well and unit shall notify the Director of the Division in writing of the subsequent voluntary agreement of all parties subject to the force-pooling provisions of this order.

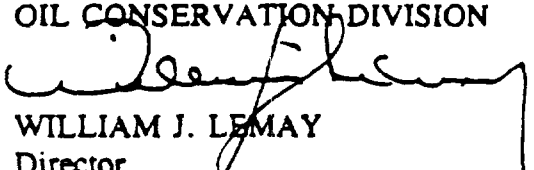
(5) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

Case No. 10858  
Order No. R-10122  
Page 7

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DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY  
Director

S E A L

**EXHIBIT "A"**  
**CASE NO. 10858**  
**DIVISION ORDER R-10122**

*Mitchell Energy Corporation*  
*Approved Oil Wells*

- (1) Anasazi 4" State No. 1,  
Unit N, 330' FSL & 1980' FWL
- (2) Anasazi "4" State No. 2,  
Unit I, 660' FEL & 1650' FSL
- (3) Anasazi "4" State No. 3,  
Unit J, 1980' FEL & 1650' FSL
- (4) Anasazi "4" State No. 4,  
Unit G, 2310' FNL & 1980' FEL
- (5) Anasazi "4" Federal No. 5,  
Unit K, 1980' FWL & 1650' FSL
- (6) Anasazi "4" Federal No. 6,  
Unit H, 2150' FNL & 660' FEL
- (7) Anasazi "4" State No. 9,  
Unit M, 660' FWL & 330' FSL
- (8) Anasazi "4" State No. 10,  
Unit L, 660' FWL & 1650' FSL
- (9) Scharbauer "4" No. 3,  
Unit P, 660' FSL & 660' FEL
- (10) Scharbauer "4" No. 2,  
Unit O, 330' FSL & 2055' FEL

*This well is deleted from this order at the request of the applicant.*