



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



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

October 25, 1993

RE: CASES NOS. 10721, 10722, 10723,  
10724, and 10725  
Order No. R-9920-A

Mr. Thomas Kellahin  
Kellahin and Kellahin  
Attorneys at Law  
Post Office Box 2265  
Santa Fe, New Mexico 87504-2265

Dear Mr. Kellahin:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

A handwritten signature in cursive script that reads "Florene Davidson".

Florene Davidson  
OC Staff Specialist

Copy of order also sent to:

Hobbs OCD   x    
Artesia OCD   x    
Aztec OCD   x    
Steve Keene

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:

APPLICATION OF MERIDIAN OIL INC.  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

*Reopened Case No. 10721*

APPLICATION OF MERIDIAN OIL INC.  
FOR DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

*Reopened Case No. 10722*

APPLICATION OF MERIDIAN OIL INC.  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

*Reopened Case No. 10723*

APPLICATION OF MERIDIAN OIL INC.  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

*Reopened Case No. 10724*

APPLICATION OF MERIDIAN OIL INC.  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

*Reopened Case No. 10725*

*Order No. R-9920-A*

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 26, 1993, at Santa Fe, New Mexico, before Michael E. Stogner.

NOW, on this 22nd day of October, 1993, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

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) At the August 26, 1993 Division Hearing, Case Nos. 10721 through 10725 and Case Nos. 10745 and 10754 were Reopened and consolidated for the purpose of presenting additional testimony.

(3) These cases all involve applications by Meridian Oil Inc. ("Meridian") for approval to initially drill, complete and produce each subject well as downhole commingled wells which would commingle production from the Pictured Cliffs formation with production from the Basin-Fruitland Coal Gas Pool.

(4) On July 9, 1993 the Division entered Order No. R-9920 approving the applications in Case Nos. 10721 through 10725, which adopted Meridian's proposed allocation formula but which also established economic limitations on downhole commingling of the production from these two formations which provided:

"...in the event total gas production from both pools in a well exceeds 300 MCF per Day, downhole commingling will not be allowed in the effected well until the combined rate drops below 300 MCF/day."

(5) Meridian timely requested that these cases be reopened so that it could present supplemental evidence concerning this issue in order to demonstrate that this economic limitation, unless amended, would restrict Meridian's ability to produce the Pictured Cliffs formation gas and Basin Fruitland Coal gas in these wells.

(6) Meridian presented additional engineering testimony and economic analysis which supports the adoption of an "Economic Limit" for downhole commingling in these wells with such Economic Limit being based upon the relationship of costs to rate and estimated ultimate gas recovery from either the Pictured Cliffs formation or the Basin Fruitland Coal Gas Pool.

(7) In addition, Meridian presented a graph which may be utilized by the Division as an accurate and reliable means by which to establish an Economic Limit for the downhole commingling of production from either of these pools in this area and should be adopted as Exhibit "B" to the original Order.

(8) The Economic Limit plotted on said Exhibit "B", attached hereto and made a part hereof, is based upon either the Pictured Cliff formation or Basin Fruitland Coal Gas Pool well costs with three individual curves representing the minimum estimated cost of:

- (a) a single well (\$320,000.00);
- (b) a dual completed well (\$270,000.00); or,
- (c) a downhole commingled well (\$200,000.00).

(9) As established by Exhibit "B", if the combination of initial rate and estimated ultimate gas recovery ("EUR") for each of the subject wells falls below the curve plotted for the dual completed cost example, then and in that event downhole commingling may be allowed as an alternative economic means by which to produce either pool. For example, if the initial rate of a well is 500 MCFPD and an EUR has been calculated for the well to be 400 MMCF, then as indicated on Exhibit "B" the example well's Economic Limit will be below the dual completion economic limit curve and therefore the example well is entitled to be downhole commingled.

(10) In contrast, the Economic Limit adopted in Order No. R-9920 is too restrictive because it failed to address the fact that there are various combinations of either rate or EUR other than those used in Order R-9920 which would be economic or uneconomic.

(11) As observed by the applicant, Division Order No. R-9920 is more restrictive than the Division's statewide Rule 303-C(1)(b)(i) which allows downhole commingling based upon the economics of a single zone rather than requiring the combined total gas production from both zones to be uneconomic.

(12) The issue of downhole commingling unconventional coal gas production in northwest New Mexico is covered in RULE 12 of the Special Rules and Regulations for the Basin Fruitland Coal Gas Pool, as promulgated by Division Order No. R-8768, as amended, for those reasons covered in this matter such downhole commingling is in itself more confining and is in greater need of protection from abuses than commingling conventional gas production.

(13) No operator or interested party appeared in opposition to the application.

(14) This application should therefore be granted.

IT IS THEREFORE ORDERED THAT:

(1) The application of Meridian Oil Inc. to amend Division Order No. R-9920 to include additional factors in the Economic Limit provisions of said order based upon the relationship of costs to rate and estimated ultimate gas recovery from either the Pictured Cliffs formation or the Basin Fruitland Coal Gas Pool is hereby approved.

(2) The proviso included as a part of Decretory Paragraph No. (1) on page 8 of said Order No. R-9920 is hereby amended to read as follows:

"PROVIDED HOWEVER, in the event the Economic Limit plotted for production from either pool in a well is less than the curve for the dual completion case as plotted on Exhibit "B" [being a plot of costs compared to both maximum average daily producing rate against pipeline pressure ("Initial Rate") and an estimated ultimate gas recovery ("EUR")] attached hereto and made a part hereof, then and in that event, downhole commingling shall be allowed in the effected well. In the event the Economic Limit plotted for production from both pools in a well initially exceeds the curve for the dual completion case, then downhole commingling shall not be allowed in the well until such time as the Economic Limit in that well for production from either pool drops below the dual completion curve plotted on Exhibit "B"."

(3) Decretory Paragraph No. (3) on page 8 being one in the same shall be changed to read in its entirety as follows:

"(3) The operator shall consult with the Supervisor of the Aztec Office of the Division to insure the validity and accuracy of the initial test on each well. Further, as part of the procedure for obtaining authorization to produce the subject well as a downhole commingled well, the operator shall submit to the Supervisor of the Aztec Office of the Division a sworn certificate verifying the cost, the Initial Rate and the EUR for that well. The Supervisor of the Aztec Office of the Division shall approve the downhole commingling and authorize the operator to produce the well if the Economic Limit for production from either pool in that well is less than the curve for the dual completion case as plotted on Exhibit "B". In the event the well initially fails to qualify for downhole commingling, the well can still qualify at some future date if and when the Economic Limit in that well for production from either pool drops below the dual completion case curve plotted on Exhibit "B"."

*Reopened Case Nos. 10721 through 10725*

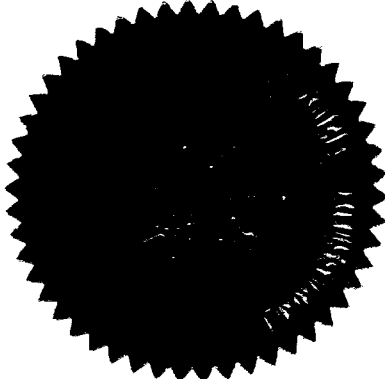
*Order No. R-9920-1*

*Page 5*

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(4) Exhibit "B" attached hereto shall be made a part of the order issued in Case Nos. 10721 through 10725.

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



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

A handwritten signature in black ink, appearing to read "William J. Lemay". The signature is fluid and stylized, with a long horizontal stroke at the end.

WILLIAM J. LEMAY  
Director

Exhibit "B"

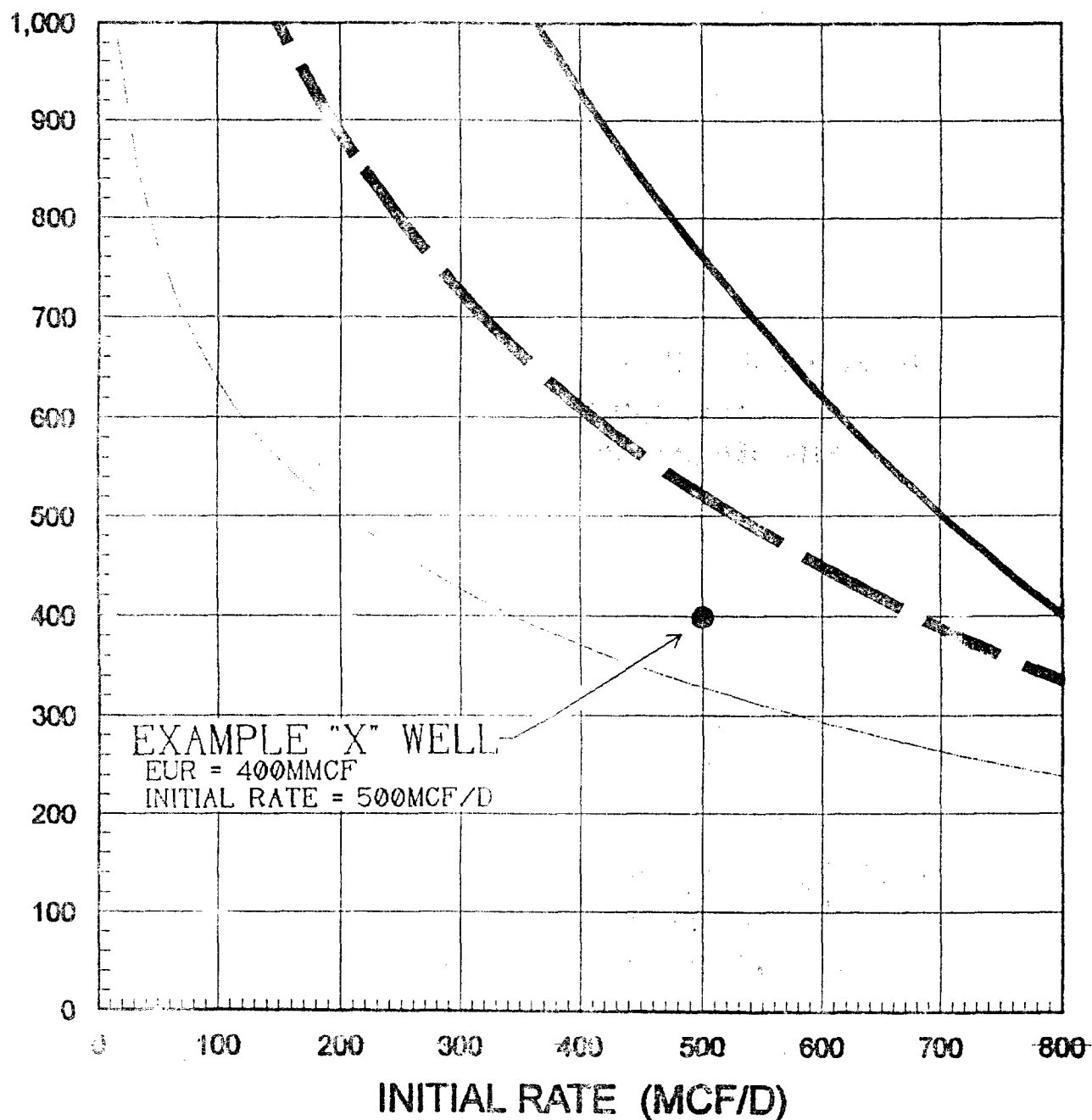
Consolidated Case Nos. 10721, 10722, 10723, 10724, and 10725.  
Division Order No. R-9920, as amended by R-9920-A

**PICTURED CLIFFS / FRUITLAND COAL**

**ECONOMIC EVALUATION**

**COMPLETION TECHNIQUE SENSITIVITY**

EUR (MMCF)



SINGLE DUAL COMMINGLE

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

TELEPHONE (505) 982-4285

TELEFAX (505) 982-2047

W. THOMAS KELLAHIN\*

\*NEW MEXICO BOARD OF LEGAL SPECIALIZATION  
RECOGNIZED SPECIALIST IN THE AREA OF  
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

September 15, 1993

HAND DELIVERED

Mr. Michael E. Stogner  
Hearing Examiner  
Oil Conservation Division  
310 Old Santa Fe Trail  
Santa Fe, New Mexico 87501

Re: Meridian Oil Inc.'s  
Downhole Commingling Cases

Dear Mr Stogner:

On behalf of Meridian Oil Inc., please find enclosed our suggested order. I have drafted it as an "A" Order to supplement Order R-9920.

If you approve this request, then a combination of both Order R-9920 as modified by this "A" Order would be appropriate for the following additional cases:

OCD Case 10745 (Valdez #5 Well)  
OCD Case 10754 (San Juan 28-4 Unit #225 Well)

If you desire me to draft these additional orders, I will be happy to do so. Please let me know.

Very truly yours



W. Thomas Kellahin

cc: Alan Alexander  
Meridian Oil Inc. (Farmington)



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:

APPLICATION OF MERIDIAN OIL INC. Case No. 10721  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

APPLICATION OF MERIDIAN OIL INC. Case No. 10722  
FOR DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

APPLICATION OF MERIDIAN OIL INC. Case No. 10723  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

APPLICATION OF MERIDIAN OIL INC. Case No. 10724  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

APPLICATION OF MERIDIAN OIL INC. Case No. 10725  
FOR AN UNORTHODOX GAS WELL LOCATION  
AND DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.

Order No. R-9920-A

MERIDIAN OIL INC.'S PROPOSED  
ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April  
22, 1993, at Santa Fe, New Mexico, before Michael E.  
Stogner.

Case No.s 10721 through 10725  
Order No. R-9920-A  
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NOW, on this \_\_\_\_ day of September, 1993, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

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) On August 26, 1993, Case Nos. 10721 through 10725 and Case Nos. 10745 and 10754 were Re-opened and consolidated for the purpose of presenting additional testimony.

(3) These cases all involve applications by Meridian Oil Inc. ("Meridian") for approval to initially drill, complete and produce each subject well as downhole commingled wells which would commingle production from the Pictured Cliffs formation with production from the Basin-Fruitland Coal Gas Pool.

(4) On July 9, 1993 the Division entered Order R-9920 approving the applications in Case Nos 10721 through 10725, which adopted Meridian's proposed allocation formula but which also established economic limitations on downhole commingling of the production from these two formations which provided:

"...in the event total gas production from both pools in a well exceeds 300 MCF per Day, downhole commingling will not be allowed in the effected well until the combined rate drops below 300 MCF/day."

Case No.s 10721 through 10725  
Order No. R-9920-A  
Page 3

(5) In addition, the Division proposed to issue orders in Cases 10845 and 10754 containing similar economic limitations as set forth in Order R-9920.

(6) Meridian timely requested that these cases be reopened so that it could present supplemental evidence concerning this issue in order to demonstrate that this economic limitation, unless amended, would preclude the only economic method available to produce the Pictured Cliffs and Basin Fruitland Coal Gas formation gas in these wells.

(7) Meridian presented expert petroleum engineering data and economic analysis which support adoption of an "Economic Limit" for downhole commingling in all seven cases with such Economic Limit being based upon the relationship of costs to rate and estimated ultimate gas recovery from either the Pictured Cliffs formation or the Basin Fruitland Coal Gas Pool.

(8) In addition, Meridian has presented a graph which can be utilized by the Division as an accurate and reliable means by which to establish an Economic Limit for the downhole commingling of production from either of these pools in this area and is hereby adopted as Exhibit "B" to the original Order.

(9) The Economic Limit plotted on Exhibit "B" is based upon either the Pictured Cliff or Basin Fruitland Coal Gas Pool well costs with three individual curves representing the minimum estimated cost of (1) a single well (\$320,000.), (2) a dual completed well (\$270,000.) or (3) a downhole commingled well (\$200,000.).

Case No.s 10721 through 10725  
Order No. R-9920-A  
Page 4

(10) As established by Exhibit "B", if the combination of initial rate and estimated ultimate gas recovery for each of the subject wells falls below the curve plotted for the dual completed cost example, then and in that event downhole commingling is the only economic means by which to produce either pool.

(11) For example, if the initial rate of a well is 500 MCFPD and an EUR has been calculated for the well to be 400 MMCF, then as indicated on Exhibit "B" the example well's Economic Limit will be below the dual completion economic limit curve and therefore the example well is entitled to be downhole commingled.

(12) In contrast, the Economic Limit adopted in Order R-9920 is too restrictive because it failed to address the fact that there are various combinations of either rate or EUR other than those used in Order R-9920 which would be economic or uneconomic.

(13) Meridian's graph adopted as Exhibit "B" provides an Economic Limit which solves the difficulties of this provision of the current order.

(14) Also, Division Order R-9920 is more restrictive than the Division's statewide Rule 303-C(1)(b)(i) which allows downhole commingling based upon the economics of a single zone rather than requiring the combined total gas production from both zones to be uneconomic.

(15) No operator or interested party appeared in opposition to the application.

(16) This application should be granted.

Case No.s 10721 through 10725  
Order No. R-9920-A  
Page 5

IT IS THEREFORE ORDERED THAT:

(1) Meridian's request to amend Order R-9920 is approved.

(2) The following ordering paragraph contained on Page 8 of Order R-9920 is amended by deleting the following:

"PROVIDED HOWEVER, in the event total gas production from both pools in a well exceeds 300 MCF per Day, downhole commingling will not be allowed in the effected well until the combined rate drops below 300 MCF/day."

and the substituting the following:

"PROVIDED HOWEVER, in the event the Economic Limit plotted for production from either pool in a well is less than the curve for the dual completion case as plotted on Exhibit "B" [being a plot of costs compared to both maximum average daily producing rate against pipeline pressure ("Initial Rate") and an estimated ultimate gas recovery ("EUR")], then and in that event, downhole commingling shall be allowed in the effected well. In the event the Economic Limit plotted for production from both pools in a well initially exceeds the curve for the dual completion case, then downhole commingling shall not be allowed in the well until such time as the Economic Limit in that well for production from either pool drops below the dual completion curve plotted on Exhibit "B".

add a new ordering paragraph (3) as follows:

" As part of the procedure for obtaining authorization to produce the subject well as a downhole commingled well, the operator shall submit to the Supervisor of the Aztec Office of the Division a sworn

Case No.s 10721 through 10725  
Order No. R-9920-A  
Page 6

certificate verifying the cost, the Initial Rate and the EUR for that well. The Supervisor of the Aztec Office of the Division shall approve the downhole commingling and authorize the operator to produce the well if the Economic Limit for production from either pool in that well is less than the curve for the dual completion case as plotted on Exhibit "B". In the event the well initially fails to qualify for downhole commingling, the well can still qualify at some future date if and when the Economic Limit in that well for production from either pool drops below the dual completion case curve plotted on Exhibit "B".

renumber existing ordering paragraph (3) through (8)

(3) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY  
Director

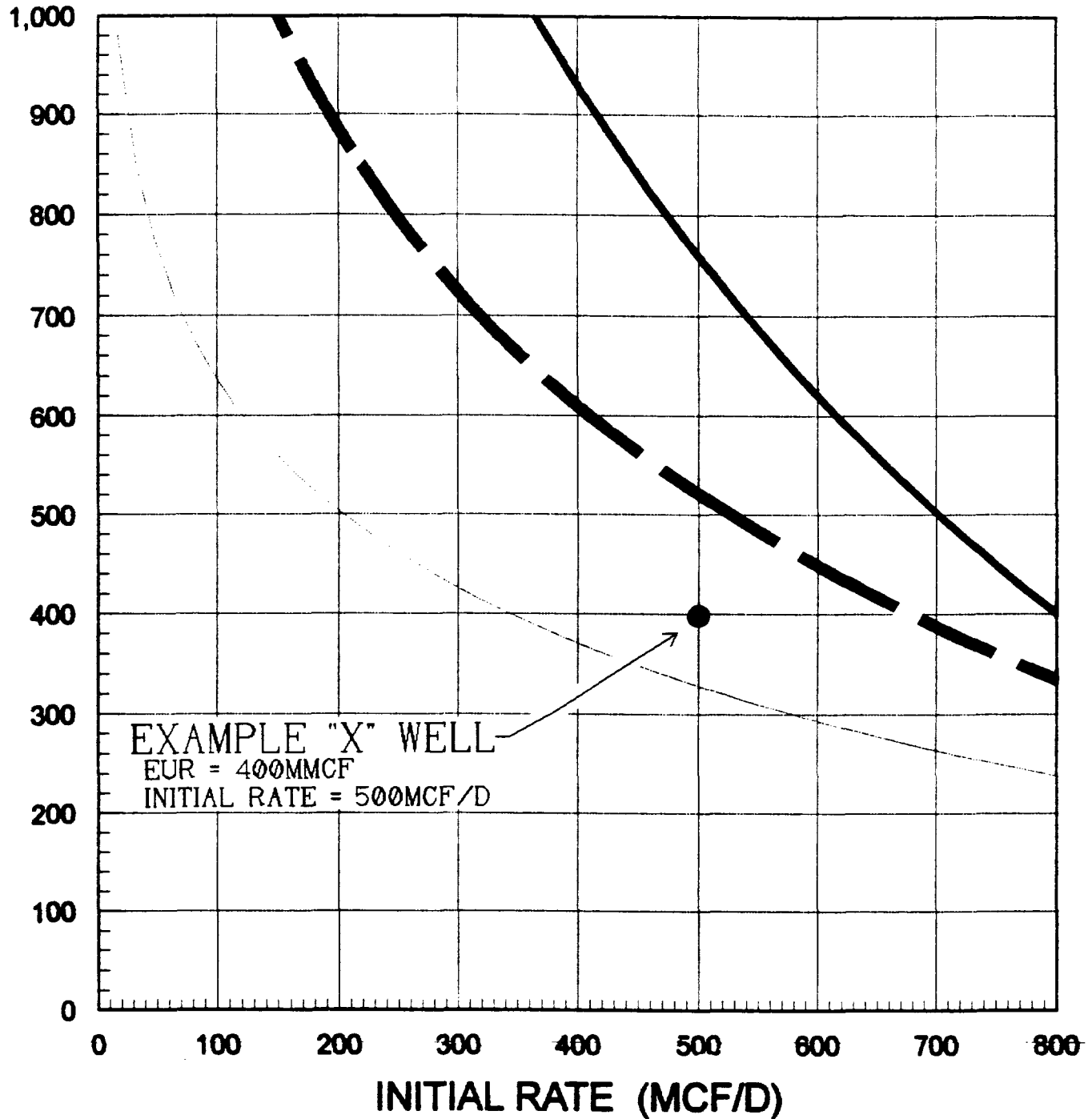
S E A L

# PICTURED CLIFFS / FRUITLAND COAL

## ECONOMIC EVALUATION

### COMPLETION TECHNIQUE SENSITIVITY

EUR (MMCF)



SINGLE DUAL COMMINGLE  
15% ROR 15% ROR 15% ROR

— — —

INITIAL RATE VS EUR