

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

W. THOMAS KELLAHIN*

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

TELEPHONE (505) 982-4285
TELEFAX (505) 982-2047

JASON KELLAHIN (RETIRED 1991)

October 23, 1992

HAND DELIVERED

Mr. William J. LeMay
Chairman
Oil Conservation Commission
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

6 1994

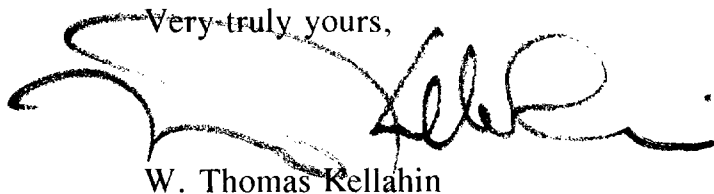
Re: NMOCD CASE 11019 (DeNovo)
Application of Yates Petroleum Corporation
for an Unorthodox Well Location
Eddy County, New Mexico

Dear Mr. LeMay:

On behalf of Bass Enterprises Production Company, please find enclosed Mr. Ronnie Platt's response to the post hearing submittal made on September 29, 1994 by Yates Petroleum Corporation which comments on Bass' Exhibits 14(A) through 14(D).

Bass Enterprises Production Company requests that its post hearing response be made part of the official record.

Very truly yours,



W. Thomas Kellahin

cc: Commissioner Bill Weiss
cc: Commissioner Gary Carlson
cc: Earnest Carroll, Esq.
cc: Bass Enterprises (Wayne Bailey)

RESPONSE TO YATES PETROLEUM ADDITIONAL TESTIMONY

**COMPARISON OF WELL PRESSURE DATA
AND COMPUTER SIMULATION WELL PRESSURES**

**BASS EXHIBITS 14 A-D
DE NOVO CASE NO. 11019
SEPTEMBER 22, 1994**

Mr. Robert S. Fant's "Additional Testimony" submitted in regard to Bass Exhibits 14 A - D is not accurate and does not properly compare the "history match" data submitted by Bass and Yates Petroleum. The following comments will address Bass Exhibits 14 A - D and the late testimony of Mr. Fant:

1. James Ranch Unit #11 well should be excluded in any comparison of well pressure and computer simulation pressures.

The James Ranch Unit #11 well pressure measurements are approximately 1,000 psi less than pressures measured in nearby wells at the same time and are not valid indications of reservoir pressure (Bass Exhibits 4 and 6). Even Yates Petroleum Exhibits 14 and 15 in the July 1994 hearing indicate a difference of over 1,000 psi between the JRU #11 well pressure and the computed pressure. The gas production from the JRU #11 well represents less than 3% of the gas production from the reservoir. The JRU #11 well was and should be excluded from consideration in a comparison of measured well pressures and reservoir simulation well pressures. A summary and comparison of the Bass measured well pressures and the reservoir simulation pressures, taken from Yates Petroleum's late field testimony, are shown in the attached tabulation, Table 1. As indicated by this tabulation, the overall average difference between the simulated well pressures and the measured well pressures is 8.6%, not the 27.3% as shown by Mr. Fant in his simulation tabulation.

In addition to excluding the JRU #11 well from the tabulation, Table I, the actual and simulated pressure for the Apache Federal 13 #1 and Apache Federal 25 #1 wells were included (from Bass Exhibits 9 and 10).

2. Purpose of the Bass computer simulation was to confirm the geologic reservoir description of the north area of the pool.

As I indicated in my testimony, the primary consideration for the reservoir simulation study was to confirm the geologic reservoir description of the north area of the reservoir in the area of the Apache Federal 13 #1 well and the proposed Yates Petroleum Llama ALL Fed. #1 well. As indicated by Bass Exhibit No. 10, the actual measured pressure for the 13 - #1 well was 3,119 psi and the computer simulated pressure was 3,132, a difference of 14 psi or 0.4%. This very close match uses the exact reservoir volume description for the north area of the field as shown on Mr. Hillis' map, Exhibit 1.

In my direct testimony I indicated that a closer match of the well pressures in the southern region of the reservoir could be made with additional runs, however, this would only refine the description of the southern region of the reservoir which is approximately 4 miles from the area under consideration in this hearing. The reservoir pore volume, as defined by Mr. Hillis, in the northern area would be unchanged with this refinement.

3. Yates Petroleum failed to provide a well pressure history match comparison.

Yates Petroleum did not provide any individual well pressure history match comparison data for the four wells in the southern reservoir area as Bass presented in Exhibits 14 A - D. Yates

presented only Exhibit 12, a comparison of "average SIBHP" and "Southern Region Average Pressure". Mr. Fant's "Average SIBHP" appear to be an average of the calculated bottomhole pressures reported by Dwights and not the measured bottomhole pressures used by Bass. The calculated average reported well pressure data from Dwights used by Mr. Fant in his computer work is inaccurate and substantially different from the actual measured well bottomhole pressure data used by Bass in the computer simulation history match. The "Southern Region" average pressure was never defined or explained by Mr. Fant. Mr. Fant's failure to match individual well pressures makes his computer simulation at best only a gross material balance model and does not validate any detailed reservoir description.

4. The errors in the Yates Petroleum reservoir simulation also demonstrates the mischaracterization of the reservoir by Mr. Fant.

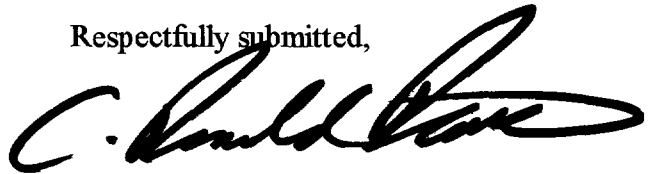
During the hearing, it was pointed out to Mr. Fant that he had used the wrong initial pressure for the reservoir. Mr. Fant used 8,219 psi, as reported by Dwight in 1958, as the initial pressure rather than the initial measured bottom hole pressure of 8,426 psi in the discovery well (Bass Exhibit No. 8). Mr. Fant used the 8,219 psi as the initial pressure in his computer simulation at a production start date of January 1966. The reservoir pressure in 1966 was approximately 7,000 psi and not the 8,219 psi used by Mr. Fant. Mr. Fant used not only the wrong initial reservoir pressure but the wrong initial production date in his computer model. The JRU #1 well was completed in this reservoir in March 1958 and commenced production on that date. Mr. Fant uses incorrect pressure and production data for the period prior to 1970 in his computer simulation.

If Mr. Fant corrects the initial pressure in the computer model, the computer simulation pressures will be higher for all periods of time and would not match his "Average SIBHP".

The "average error" of 0.9% reported by Mr. Fant for his work would be substantially higher.

The assumed reservoir description and performance used by Mr. Fant in his reservoir simulation does not conform to the actual reservoir description, the Yates Petroleum geologist's description of the reservoir, and the actual reservoir performance data.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "C. Ronald Platt", with a stylized, flowing script.

C. Ronald Platt, P.E.

TABLE 1

**Response Tabulation
Comparison of Reservoir Pressure - Bass Simulation
From Yates Petroleum
Los Medanos (Atoka) Field
Eddy County, New Mexico**

**Includes Apache Federal Wells Pressure Data
Excludes JRU No. 11 Well Pressure Data**

Well	Actual Pressure (psia)	Simulated Pressure (psia)	Difference (psia)	% Difference
Apache 25 No. 1	2424	2514	90	3.4
Apache 13 No. 1	3119	3132	14	0.04
James Ranch Unit #1	5202	5607	405	7.8
James Ranch Unit #1	4770	5270	500	10.5
James Ranch Unit #1	4702	4851	149	3.2
James Ranch Unit #1	3932	4229	297	7.6
James Ranch Unit #1	3757	4108	351	9.3
James Ranch Unit #1	3541	3946	405	11.4
James Ranch Unit #1	3405	3756	351	10.3
James Ranch Unit #1	1973	2297	324	16.4
James Ranch Unit #1	2054	2405	351	17.1
James Ranch Unit #10	3318	3371	53	1.6
James Ranch Unit #10	2789	3006	217	7.8
James Ranch Unit #10	2120	2398	278	13.1
James Ranch Unit #13	2710	2919	209	7.7
James Ranch Unit #13	2641	2849	208	7.9
James Ranch Unit #13	1807	1998	191	10.6
AVERAGE:				8.6

LAW OFFICES

LOSEE, CARSON, HAAS & CARROLL, P. A.

ERNEST L. CARROLL
JOEL M. CARSON
DEAN B. CROSS
JAMES E. HAAS
A. J. LOSEE
MARY LYNN BOGLE

300 YATES PETROLEUM BUILDING
P. O. DRAWER 239
ARTESIA, NEW MEXICO 88211-0239

TELEPHONE
(505) 746-3505
TELECOPY
(505) 746-6316

September 29, 1994

30 1994

VIA FACSIMILE AND FEDERAL EXPRESS

Mr. William J. LeMay, Chairman
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Application of Yates Petroleum Corporation
Case No. 11019/De Novo

Dear Mr. LeMay:

I am conveying herewith Yates Petroleum Corporation's response to Exhibits 14A through D presented by Bass Enterprises at the de novo hearing of this matter on September 22, 1994, as requested by Commissioner Weissman.

Yates Petroleum Corporation requests that this response be made part of the official record, and considered to be testimony or an exhibit, at the Commission's discretion, for the referenced case.

I am enclosing one original for filing, along with three copies for the Commissioners' consideration.

Very truly yours,

LOSEE, CARSON, HAAS & CARROLL, P.A.



Ernest L. Carroll

ELC:kth
Encl.

xc w/encl: Mr. W. Thomas Kellahin, Esq.
Mr. Robert Fant
Ms. Mecca Mauritsen

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



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

S. P. YATES
CHAIRMAN OF THE BOARD
JOHN A. YATES
PRESIDENT
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EXECUTIVE VICE PRESIDENT
RANDY G. PATTERSON
SECRETARY
DENNIS G. KINSEY
TREASURER

8 0 1994

Additional Testimony
Prepared by Robert S. Fant for Presentation in Case No. 11019 (De Novo)
in Response to the Introduction of Bass Exhibits 14 (A through D)

This letter will document Yates Petroleum Corporation's response to the Exhibits 14 (A through D) presented by Mr. Platt on behalf of Bass Enterprises Production Company in the subject case.

Mr. Platt claims that these four plots illustrate that the simulation runs he performed accurately match the historical data from the producing wells. The production numbers match simply because production is an input into the simulator. A "history match" is only achieved when the pressures are also matched. Mr. Platt's own exhibits show that the pressures are never matched. Below is a summary of the 18 pressure data points in Exhibit 14 (A through D).

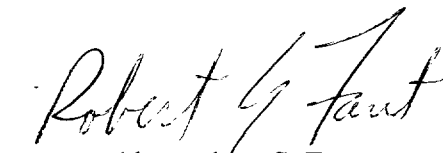
Well	Actual Pressure (psia)	Simulated Pressure (psia)	Error (psi)	% Error
James Ranch Unit #1	5202	5607	405	7.8
James Ranch Unit #1	4770	5270	500	10.5
James Ranch Unit #1	4702	4851	149	3.2
James Ranch Unit #1	3932	4229	297	7.6
James Ranch Unit #1	3757	4108	351	9.3
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James Ranch Unit #10	3318	3371	53	1.6
James Ranch Unit #10	2789	3006	217	7.8
James Ranch Unit #10	2120	2398	278	13.1
James Ranch Unit #11	2665	3424	759	28.5
James Ranch Unit #11	1059	3088	2029	191.6
James Ranch Unit #11	1094	2506	1412	129.1
James Ranch Unit #13	2710	2919	209	7.7
James Ranch Unit #13	2641	2849	208	7.9
James Ranch Unit #13	1807	1998	191	10.6
Average	2974	3446	472	27.3

Please note on the Exhibits that in most instances the simulated pressure date did not correspond with the actual pressure date. In these instances, interpolation had to be used to estimate the simulated pressure at the time of the actual pressure measurement.

Upon examination of the data in the table, it should be noted that in all instances the simulated pressure is much higher than the measured pressure, an immediate indication that the reservoir description utilized in the simulation is inaccurate. The average error is over 27%. In the Yates simulation attempts, I had achieved a better fit than this by the second attempt. I subsequently spent several weeks improving the fit of the Yates reservoir description until the average error in the Yates simulation was less than 0.9%. In other words, the average error in the Bass simulation is over 30 times greater than that in the Yates simulation.

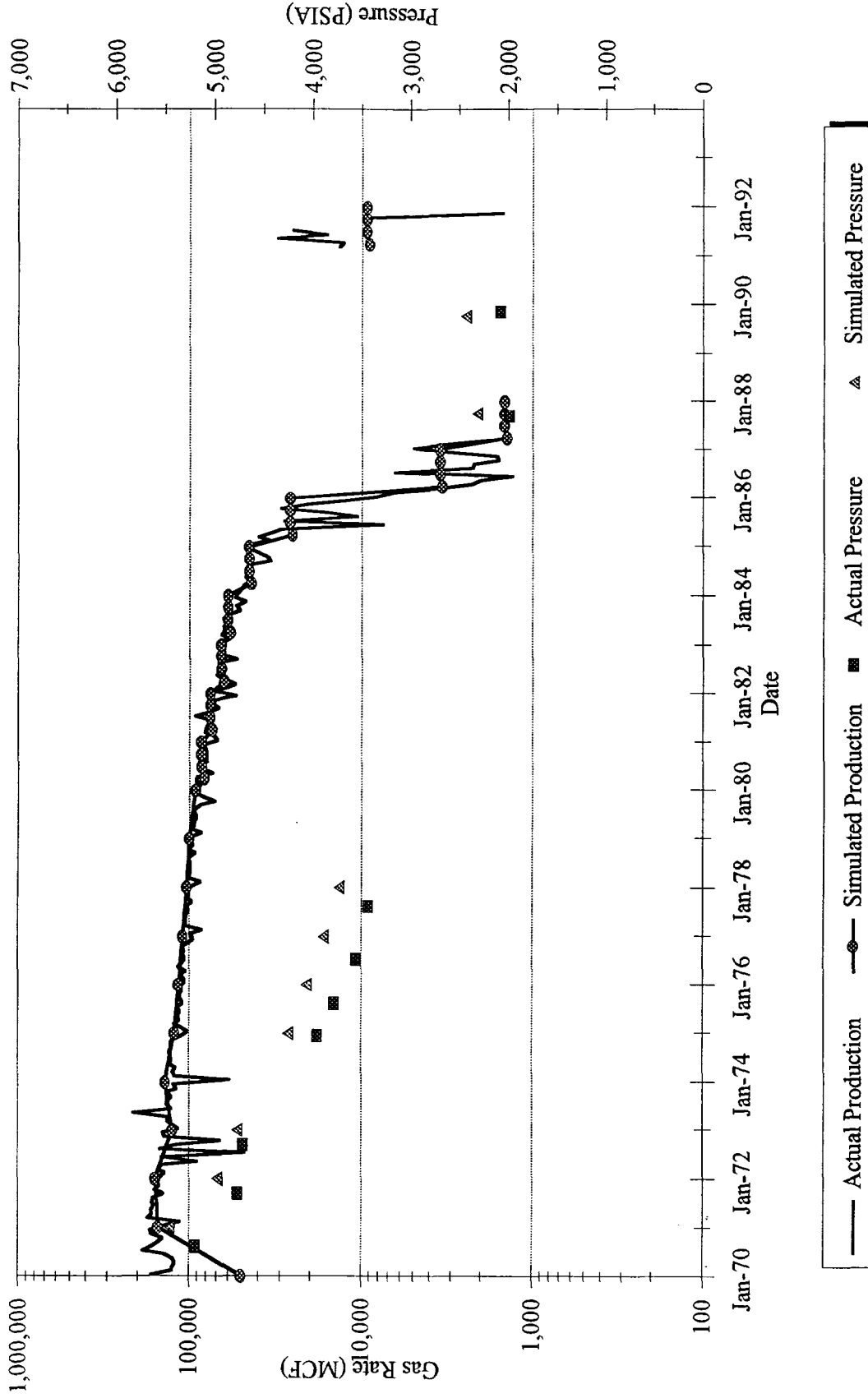
It must be recognized that theoretically, with respect to any actual reservoir, more than one reservoir description may achieve a match with the historical data (both rates and pressures). If you have more than one simulation matching the historical data, then you are faced with determining, based on other data, which reservoir description attempt more accurately describes the actual reservoir. In the case of Mr. Platt's simulation, there is no match between the historical pressures and the simulated pressures in the wells depicted in exhibits 14 (A-D). This indicates that the reservoir description used in the Bass simulation is not within the set of possible solutions, and therefore cannot be considered to be an accurate representation of the reservoir. There is a good match between the historical and simulated pressures in the Yates simulation. This indicates that the Yates simulation is within the set of solutions.

The reservoir description for the Bass simulation was based on the work of Mr. Hillis. On the basis of the analysis presented herein, it is apparent that the geological reservoir interpretation as presented by Mr. Hillis and adapted by Mr. Platt cannot and does not represent the physical reservoir. Furthermore, since the reservoir description presented by Bass cannot represent the actual reservoir, the testimony of Bass' witnesses in no way impeaches the accuracy of the Yates' reservoir description.



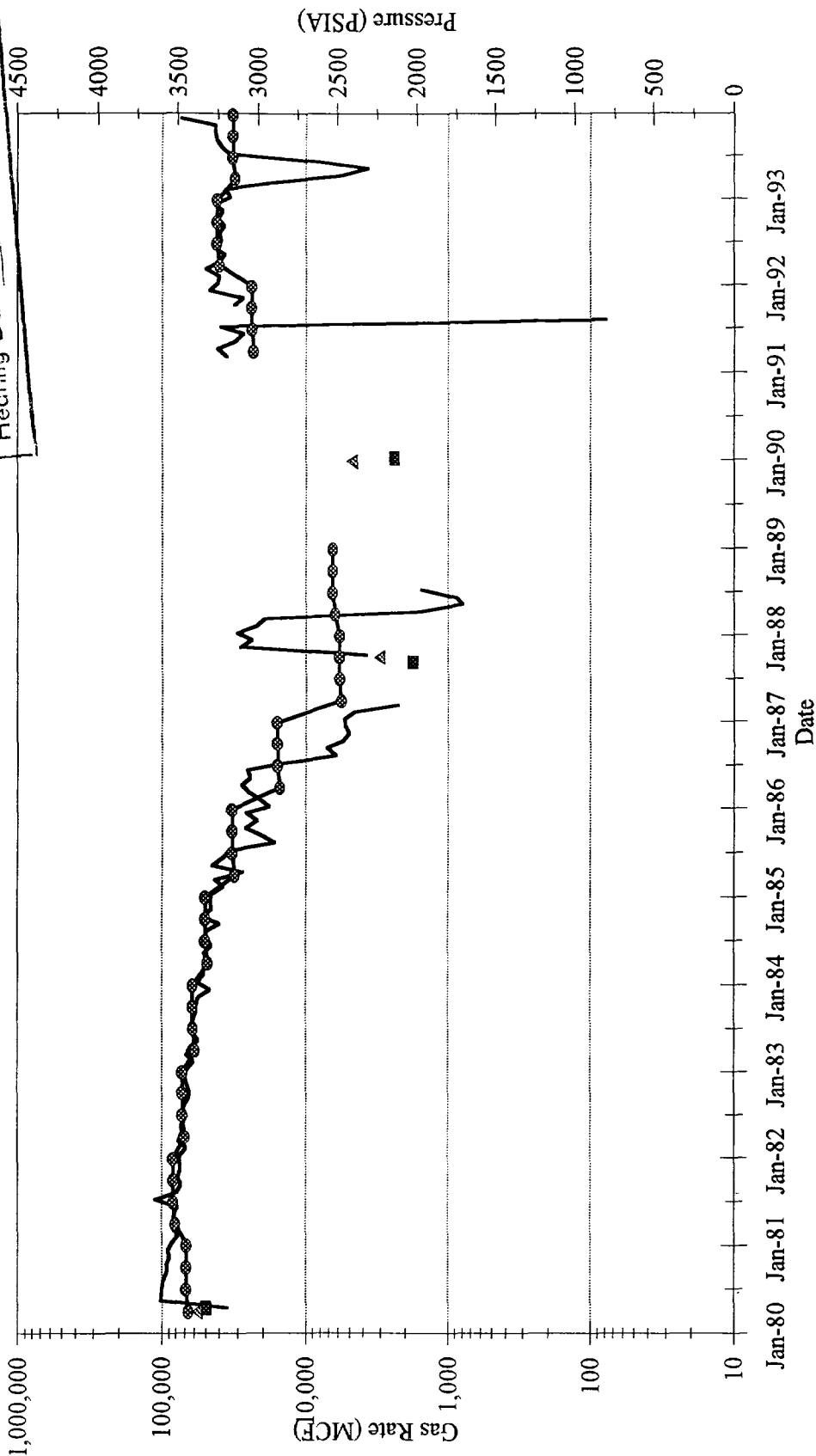
Prepared by Robert S. Fant

James Ranch Unit # 1
Bass Enterprises Production Co.
Los Medanos (Atoka) PA



James Ranch Unit # 10
Bass Enterprises Production Co.
Los Medanos (Atoka) PA

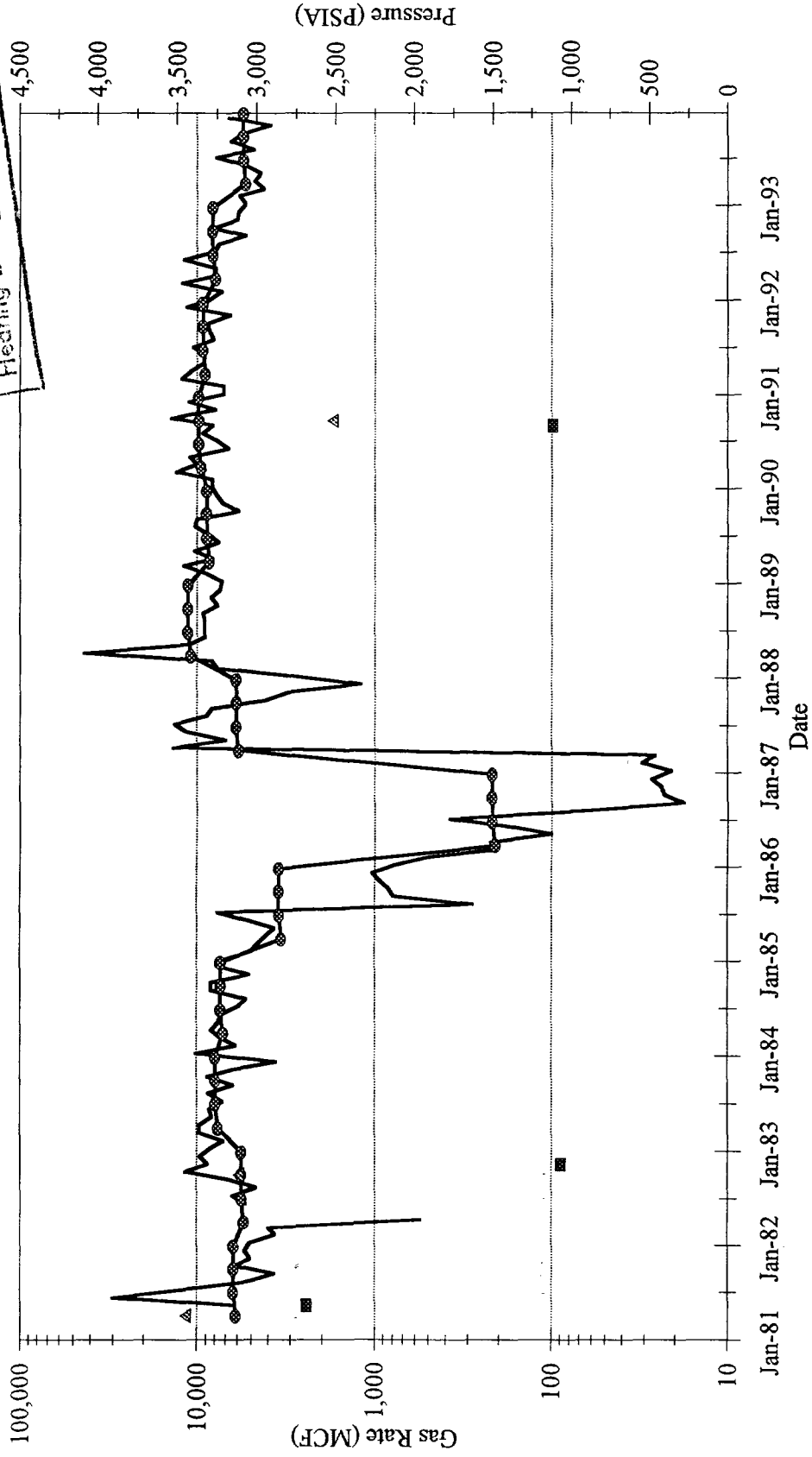
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 1019 Exhibit No. 14-B
Submitted by BASS
Hearing Date _____



— Actual Production —●— Simulated Production ■ Actual Pressure ▲ Simulated Pressure

James Ranch Unit # 11
Enron Oil & Gas Co.
Los Medanos (Atoka) PA

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. **11019** Exhibit No. **14-C**
Submitted by **BASS**
Hearing Date _____



— Actual Production —●— Simulated Production ■ Actual Pressure ▲ Simulated Pressure

James Ranch Unit # 13
Bass Enterprises Production Co.
Los Medanos (Atoka) PA

BEFORE THE

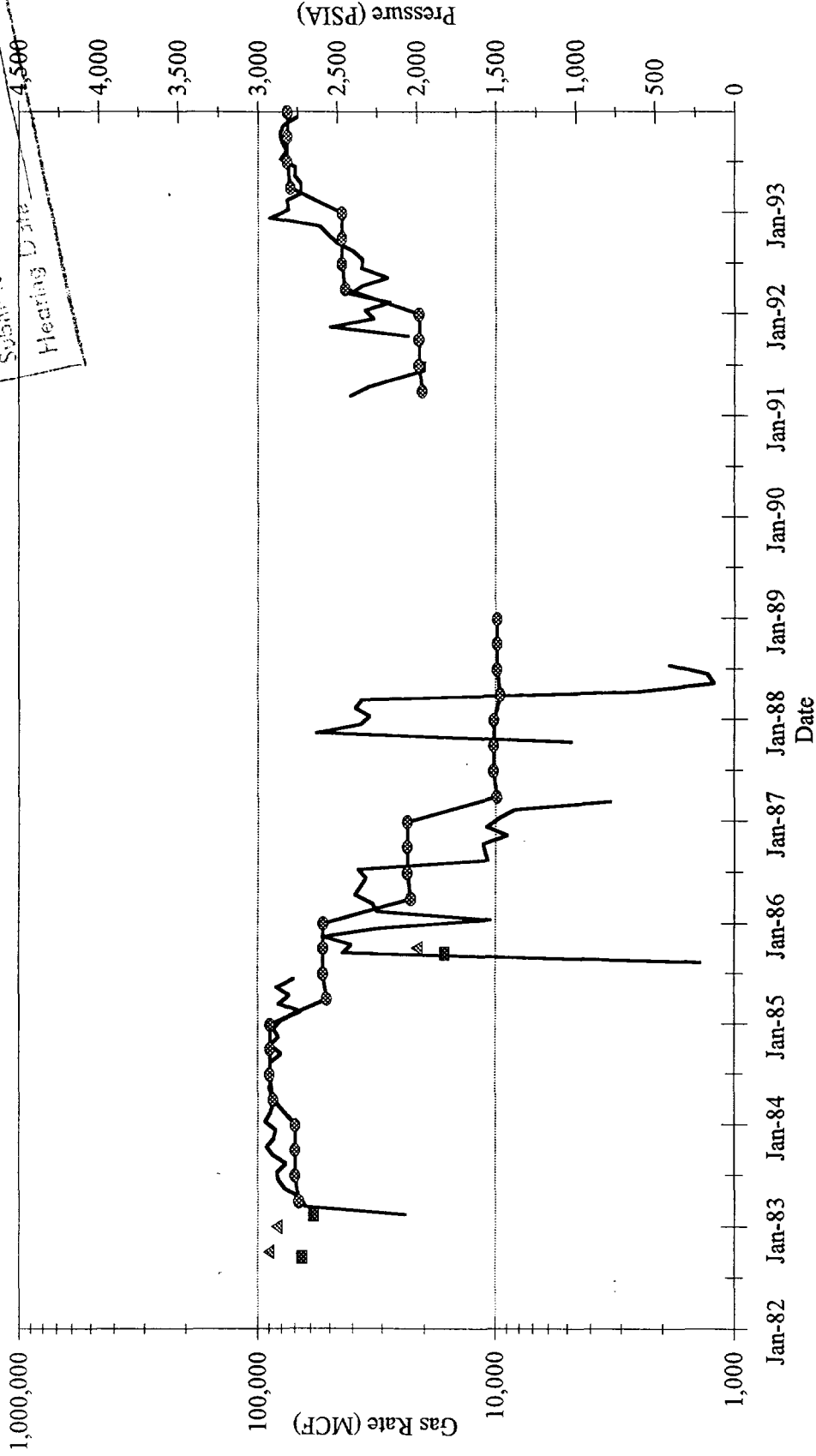
OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Case No. 11019 Exhibit No. 14-D

Submitted by BASS

Hearing Date 4,500



— Actual Production —◆— Simulated Production ■ Actual Pressure ▲ Simulated Pressure

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:

THE APPLICATION OF YATES PETROLEUM
CORPORATION FOR AN UNORTHODOX GAS WELL
LOCATION, EDDY COUNTY, NEW MEXICO

De Novo
CASE NO. 11019
ORDER NO. R-10160

YATES PETROLEUM'S PROPOSED
ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on September 22, 1994, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as "the Commission."

NOW on this ____ day of _____, 1994, the Commission, a quorum being present, having considered the record and being fully advised in the premises,

FINDS THAT:

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

(2) This matter originally came on for hearing at 8:15 a.m. on July 21, 1994, at Santa Fe, New Mexico, before Examiner Jim Morrow.

(3) The applicant, Yates Petroleum Corporation, seeks authorization to drill the Llama ALL Federal No. 1 Well at an unorthodox gas well location 330 feet from the South line and 950 feet from the West line (Lot 4-Unit M) of Irregular Section 7, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico, to test the Undesignated Cabin Lake-Morrow Gas Pool and other gas pools in the area.

(4) Lots 3 and 4, the E/2 SW/4 and the SE/4 (S/2 Equivalent) of said Section 7 are to be dedicated to the well to form a 319.81-acre gas spacing proration unit.

(5) Yates proposes to drill the well to sufficient depth to test the Morrow formation, but the primary objective is the

"Apache" sand of the Atoka formation. The proposed location is approximately 1938 feet Northeast of Mitchell Energy Corporation's Apache 13 Federal No. 1 Well, an Atoka completion for which Mitchell reported an initial potential of 4,536 MCFGPD with completion in September, 1993. They reported 0.6 BCF cumulative recovery through April, 1994. Yates' testimony indicates the Mitchell well averaged 5,000 MCFGPD during April, 1994.

(6) If completed in the Atoka, Yates proposes that the Llama ALL Federal No. 1 Well be assigned to the Los Medanos-Atoka Gas Pool, which along with the Cabin Lake-Morrow Pool is subject to Oil Conservation Division General Rule 104.C(2)(b). It specifies 320-acre gas spacing and proration units and well locations not closer than 660 feet to the nearest side boundary nor closer than 1980 feet to the nearest end boundary.

(7) The primary term of Yates' lease in Section 7 expired September 1, 1994.

(8) Operations for the drilling of the Llama ALL Federal No. 1 Well commenced prior to September 1, 1994.

(12) Yates' testimony showed that the Mitchell Apache 13 Federal No. 1 Well in Section 13 and the Bass James Ranch Unit No. 70 Well in Section 12 and the proposed Yates well are located in the northern part of the Los Medanos/Atoka gas reservoir. Yates testified that the reservoir is composed of two large, highly permeable sand bodies connected by a narrow, lower permeability sand section. Yates further testified that the north-south axis of the sand bodies lies to the east of the Mitchell Apache 13 Federal No. 1 Well. The southern part of the reservoir was developed beginning in 1957, and has produced approximately 37 BCF since that time. Development of the northern portion of the reservoir began in 1993, with the Mitchell Apache 13 Federal No. 1 Well. Mitchell's geological testimony at the Division hearing likewise showed the north-south axis of the Atoka reservoir lies east of their Apache Federal 13 No. 1 Well.

(13) Bass' geologic and engineering testimony differed significantly from that of Yates and Mitchell in that it depicted the reservoir as a single, continuous sand body with its north-south axis located west of the Mitchell Apache 13 Federal No. 1 Well. Bass' interpretation further predicted no sand in the Atoka and insignificant sands in the Morrow underlying the proposed location of the Llama ALL Federal No. 1 Well. Bass' geologic and engineering testimony and supporting exhibits indicate that neither a Morrow nor Atoka completion would be productive at the Yates proposed location.

(14) Bass did present, however, geologic testimony that Yates might catch the very edge of the productive reservoir and produce significant quantities of gas from the reservoir underlying the Bass James Ranch Unit No. 70 Well. Bass and Yates agreed that wells which have been drilled into the edge of the Atoka reservoir by other operators are nonproductive. Bass presented no evidence for significant production from a thin Atoka or Morrow sand at the Yates Llama location. Further, uncontested testimony by Yates showed that the Mitchell Apache 13 Federal No. 1 has already depleted significant gas reserves from the Bass lease and in the area of the proposed Yates well. Further, a Yates well completed in a thin sand would compete poorly with highly productive Mitchell and Bass wells directly offset to the south and west.

(15) Yates' testimony showed that the Atoka reservoir is highly permeable. They expect that the Mitchell Apache 13 Federal No. 1 Well, their proposed well, and the Bass James Ranch Unit No. 70 Well would be capable of recovering the remaining reserves in the partially depleted northern part of the pool.

(16) Yates' witnesses testified that there would be essentially no difference in the productive capacity and total recovery of a well drilled vertically from their proposed location compared to a directional well drilled to the nearest orthodox location. In their opinion, a well at the proposed unorthodox location would not

decrease production from the Mitchell Apache 13 Federal No. 1 Well, or the James Ranch Unit No. 70 Well anymore than a well at the orthodox location.

(17) Mitchell's engineering and geological testimony was similar to Yates'. At the Division hearing, Mitchell presented Morrow and Atoka sand structure and isopach maps, cross-sections, and P/Z Study to estimate total reservoir recovery. Their studies show that the orthodox location originally proposed by Yates (660 feet from the South line and 1980 feet from the West line) is a better location than the currently proposed unorthodox location (330 feet from the South line and 950 feet from the West line). Bass' geologic and engineering testimony was markedly different from that of Mitchell's and Yates'.

(18) Bass presented a reservoir simulation attempt on the Atoka reservoir that did not present an accurate historical matching of pressures. Thus, Bass' simulation model could not accurately corroborate Bass' geological testimony. Further, even if it were accepted that Bass' geological testimony accurately depicted the Atoka formation, Bass admitted that its simulation and geological picture would predict no production from the Atoka or Morrow formation by Yates' Llama ALL Federal No. 1 Well.

(19) Mitchell's drilling cost studies presented in the Division hearing show that a vertical well at the proposed Yates location would cost \$1,291,000, compared to \$1,580,000 for a directional well to the nearest orthodox location. Yates presented drilling cost information to show that a vertical well drilled from their proposed location would cost \$1,357,800 and that a directional well to the nearest orthodox location (the one originally proposed) would cost \$2,216,600 to drill.

(20) Mitchell, at the Division hearing, did not recommend a penalty for the unorthodox location proposed by Yates. Mitchell's witnesses testified without supporting evidence that, because the unorthodox location would be closer to the Mitchell well, it would cause interference and decrease recoveries from both wells. Yates' engineer presented simulation results which contradicted such a conclusion. Mitchell also took the position that, because Yates failed to show that the orthodox location is better geologically than the orthodox location and would recover otherwise unrecoverable gas reserves, the Division should deny the Yates application.

(21) Bass proposed that a 50% penalty should be assessed against the production of the Yates Llama ALL Federal No. 1 Well, even though their geologic and engineering testimony indicated that the Yates well would be incapable of any production.

(22) Yates, on the other hand, contends that their application should be approved based on BLM requirements for potash protection, which Yates considers as topographical conditions and a valid basis

for approval as outlined in Oil Conservation Division General Rule 104.F.

(23) Yates further contends that no penalty should be imposed because Bass failed to present any evidence which would show that the Yates well would have any advantage over the Bass James Ranch Unit No. 70 Well by virtue of its unorthodox location. During the Division hearing, Mitchell's geologist agreed that the Yates well would not have any advantage over its Apache 13 Federal No. 1 Well. Yates maintains that a penalty is improper under such a record pursuant to Oil Conservation Division General Rule 104.G.

(24) Both the Mitchell Apache 13 Federal No. 1 Well and the proposed Yates Llama ALL Federal No. 1 Well are 330 feet from the WIPP Site Boundary. Both could be expected to produce significant volumes of gas reserves from beneath the WIPP Site. The Mitchell well, also unorthodox, is located in a drill island authorized by the Bureau of Land Management. Mitchell's location is approximately 1,173 feet from the southwest corner of Yates' lease in Section 7. The proposed Yates location is 950 feet from the nearest Mitchell and Bass lease boundaries. The distance between the proposed Yates location and both the Mitchell well and the Bass well is greater than the distance which would be required by the Oil Conservation Division rules for two standard locations, each located 660 feet from a common side boundary, and, further, the distance between the Yates location and the Bass location is greater than the distance between the Yates location and the Mitchell location.

(25) Approval of the application will allow Yates to recover reserves underlying their lease without damage to correlative rights.

(26) Approval should therefore be granted.

IT IS THEREFORE ORDERED THAT:

(1) Yates Petroleum Corporation is hereby authorized to drill the Llama ALL Federal No. 1 Well at an unorthodox location 330 feet from the South line and 950 feet from the West line (Lot 4-Unit M) of Irregular Section 7, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico. No penalty shall be imposed upon the production of said well.

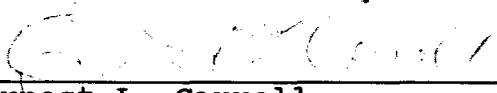
(2) Lots 3 and 4, the E/2 SW/4 and the SE/4 (S/2 equivalent) of said Section 7 shall be dedicated to the well to form a 319.81-acre gas spacing and proration unit.

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

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

Respectfully submitted,

LOSEE, CARSON, HAAS & CARROLL, P.A.

By: 

Ernest L. Carroll

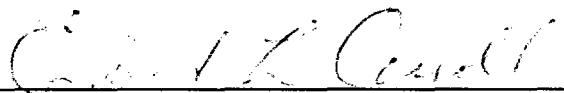
P. O. Drawer 239

Artesia, New Mexico 88211-0239

(505)746-3505

Attorneys for Applicant Yates Petroleum Corporation

I hereby certify that I caused to be mailed a true and correct copy of the foregoing to all counsel of record this October 5, 1994.


Ernest L. Carroll

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

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JASON KELLAHIN (RETIRED 1991)

October 14, 1994

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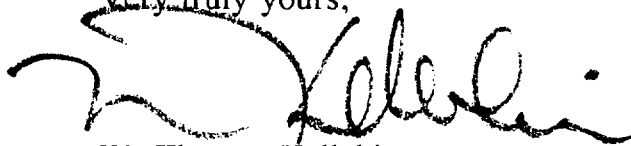
Mr. William J. LeMay
Chairman
Oil Conservation Commission
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Re: NMOCD CASE 11019 (DeNovo)
Application of Yates Petroleum Corporation
for an Unorthodox Well Location
Eddy County, New Mexico

Dear Mr. LeMay:

On behalf of Bass Enterprises Production Company, please find enclosed our proposed order for consideration by the Commission.

Very truly yours,



W. Thomas Kellahin

cc: Commissioner Bill Weiss
cc: Commissioner Gary Carlson
cc: Earnest Carroll, Esq.
cc: Bass Enterprises (Wayne Bailey)

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

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

CASE NO. 11019 (DeNovo)
Order No. R-10160-A

APPLICATION OF YATES PETROLEUM
CORPORATION FOR AN UNORTHODOX OIL WELL
LOCATION, EDDY COUNTY, NEW MEXICO.

BASS ENTERPRISES PRODUCTION COMPANY'S
PROPOSED
ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on September 22, 1994, at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this ____ day of October, 1994, the Commission, a quorum being present, having considered the testimony presented and exhibits received as said hearing, 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) The applicant, Yates Petroleum Corporation ("Yates"), seeks authorization to drill its Llama ALL Federal Well No. 1 ("Llama Well") at an unorthodox gas location 330 feet from the South line and 950 feet from the West line (Lot 4-Unit M) of Irregular Section 7, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico, to test the Undesignated Cabin Lake-Morrow Gas Pool, the Undesignated Cabin Lake-Atoka Gas Pool and other gas pools in the area.

(3) Lots 3 and 4, the E/2 and the SE/4 (S/2 equivalent) of said Section 7 are to be dedicated to the Llama Well to form a standard 319.81 acre gas proration and spacing unit.

(4) While Yates proposes to drill the Llama Well to a depth sufficient to test the Morrow formation, the primary objective is the "Apache" sand of the Atoka formation which is currently being produced by the Mitchell Energy Corporation's Apache "13" Federal Well No. 1 located 1330 feet from the north line and 333 feet from the east line of Section 13, Township 22 South Range 30 East, NMPM, which is the Southwest diagonal offset to Yates' proposed Llama Well.

(5) At the Examiner hearing held on July 21, 1994, Mitchell Energy Corporation ("Mitchell") appeared in opposition to Yates and presented technical geologic and engineering data by which Mitchell contended that Yates economically and efficiently could directionally drill the Llama Well from the unorthodox surface location to a standard bottomhole location in order to test for Atoka production.

(6) At the Examiner hearing, Yates contended that its proposed unorthodox surface location 950 feet from the west line and 330 feet from the south line was the only surface location in the SW/4 of Section 7 it could obtain from the Bureau of Land Management ("BLM") because of the apparent presence of potash mineralization.

(7) The Division Examiner elected not to require that Yates' Llama Well be directionally drilled and approved the well without any production penalty.

(8) At the Commission hearing, Bass Enterprises Production Company ("Bass") which is the operator for the S/2 of Section 12, Township 22 South Range 30 East, NMPM, appeared and presented technical geologic and engineering evidence contending that Yates' Llama Well should be subject to at least a 50 % production penalty.

(9) The Llama Well's gas spacing and proration unit is subject to the Division's Statewide General Rule 104, which provide, among other things:

(a) for 320-acre gas proration and spacing units for gas production from any formation below the top of the Wolfcamp; and

(b) wells be located no closer than 660 feet to the nearest side boundary of the unit nor closer than 1980 feet to the nearest end boundary of that spacing unit.

(10) On August 30, 1994, Yates' commenced the drilling of the Llama Well and at the time of the Commission hearing the well had been drilled into the Bone Springs formation at a depth of approximately 9,000 feet.

(11) Yates' requested unorthodox well location encroaches towards an offsetting spacing unit operated by Bass which proposes to drill its gas well at a standard location 1980 feet from the East line and 660 feet from the South line of Section 12, Township 22 South, Range 30 East, NMPM, and also encroaches towards Mitchell's Apache "13" Federal Well No. 1.

(12) Yates sought approval of the unorthodox location WITHOUT a penalty based upon a combination of BLM "potash limitations" and geologic evidence which showed:

a) that the unorthodox well location was necessary because the proposed surface location will serve to avoid the "potash" restrictions imposed by the BLM as the surface/mineral agency for this particular spacing unit;

b) that the location of Apache sand as mapped by Yates, showed that the proposed unorthodox location was comparable to any standard location in the SW/4 of Section 7;

c) that Yates' geologic interpretation showed the Atoka "Apache" sand to be an elongated shaped reservoir oriented north and south with the northern nose oriented easterly such that the northern nose is "centered" over the Yates acreage in Section 7;

d) that a computer generated reservoir simulation based upon Yates' geologic interpretation predicted that a well at the proposed unorthodox location would recover an amount of total gas similar to the amount which a well at a standard gas well location in the SW/4 of Section 7 might recover;

e) that the unorthodox well location should not be penalized because Yates' would not recover any more of the remaining gas in the Atoka "Apache" reservoir than it might recover at a standard location

(13) Mitchell had sought to have the Yates' proposed unorthodox location DENIED based upon the following land, geologic and petroleum engineering evidence:

- a) that on July 19, 1994, the BLM approved a "drilling island" in the SW/4 of Section 7 from which Yates was authorized by the BLM to drill either vertically or directionally from said island;
- b) that standard bottomhole location were available to Yates in the SW/4 of Section 7 which were geologically better than its proposed unorthodox well location;
- c) that it would cost only \$289,000.00 more to drill a directional well than a vertical well with the directionally drilled well paying out in 20 months versus the vertical well which would pay out in 17 months;
- d) that Yates had available to it standard bottomhole locations which would afford to Yates the opportunity to exercise its correlative rights without the necessity of an unorthodox well location;
- e) that the standard bottomhole location represented the best opportunity to encounter reservoir which has not been pressure depleted by offset production;
- f) that the Yates requested unorthodox well location, if drilled, will leave recoverable hydrocarbons in the reservoir thereby causing waste;

g) that apparent available standard location represent viable, economic opportunities to recover the gas reserves underlying Yates's acreage in the SW/4 of Section 7;

h) Yates' unorthodox well location cannot be justified based upon geologic reasons;

i) Yates' requested unorthodox well location if approved even with a penalty will give Yates an unfair advantage over the offsetting interest owners and will violate correlative rights;

j) Yates is using a "potash" excuse to gain an unfair and unnecessary advantage over Mitchell and Bass;

(14) Bass sought to have the unorthodox location PENALIZED based upon the following land, geologic and petroleum engineering evidence:

a) that Bass' geologic interpretation showed the Atoka "Apache" sand to be an elongated shaped reservoir oriented north and south with the northern nose oriented westerly such that the northern nose is "centered" over the Bass acreage in Section 12;

b) a computer generated reservoir simulation had validated the accuracy of Bass' geologic interpretation by "history matching" all available production data;

c) that a well at the proposed unorthodox location would recover a significant amount of its total gas production by draining Bass' adjoining spacing unit.

(15) The Commission finds that:

a) That while both the Bass and Yates petroleum engineering witnesses each agreed on the estimated original total gas in place in the Atoka reservoir, each simulation was based upon substantially different geologic description of the shape, location and orientation of the reservoir.

b) Yates' petroleum engineer provided various computer generated shaped Atoka reservoirs each of which contained approximately 65 BCFG in place BUT which were substantially different from the Yates' geologic witness' interpretation;

c) Bass' consulting petroleum engineering witness, based upon computer simulation, was able to obtain "history match" for all wells thus validating the size and shape of the Bass' geologic interpretation of the Atoka "Apache" reservoir;

d) While there is substantial and significant difference in the geologic interpretations presented by Yates and presented by Bass, it is not yet possible to determine the amount of remaining recoverable gas per spacing unit, it is possible with an adequate degree of technical probability to determine that the Yates' Llama Well will enjoy a competitive advantage over the Bass well as they compete for the remaining recoverable gas in the reservoir;

e) Testimony and geologic exhibits presented by Yates demonstrated that a standard location could be drilled that would have been equivalent to or better than the unorthodox location.

f) Yates' geologic evidence does not support the necessity for an unorthodox well location in order for Yates to obtain its share of remaining recoverable gas in the reservoirs.

g) it is not a justification to allow wells at unorthodox well location simply because of topographical constraints, "potash" limitations, or offsetting wells which may be draining a portion of the spacing unit. Granting approval of an application based upon that position would circumvent well spacing rules and lead to unrestricted competitive drilling at multiple unorthodox well locations all to the damage of correlative rights and prevention of waste.

h) that there were standard bottom hole location available to Yates within its proposed spacing unit which would have provided to Yates an adequate and efficient opportunity to produce its share of recoverable hydrocarbons;

i) that Yates failed to demonstrate the geologic necessity for the proposed unorthodox well location;

j) Yates' argument for no production penalty is entirely predicated upon the presumption that its computer generated reservoir simulation represents a "unique" match and therefore is absolutely correct;

k) However Yates' failed to establish such a "unique" match for its interpretation and therefore Bass' geologic interpretation should be adopted by the Commission as the most probably interpretation because it was far more detailed and comprehensive than Yates' geologic interpretation and the

computer generated reservoir simulation validated the Bass' geologic interpretation;

l) When speaking to the issue of authorizing exceptions to well location requirements, Division General Rule 104(G) provides that:

"Whenever an exception is granted, the Division may take such action as will offset any advantage which the person securing the exception may obtain over other producers by reason of the unorthodox location."

m) The records of the Division reflect that such action is commonly taken when an unorthodox location is opposed by an offset operator.

n) These same records also show that such action is in the form of a reduction in authority for the well at the unorthodox location to produce.

o) These records show that such reductions have taken the form of reduced acreage factors in prorated pools and production limitation factors in non-prorated pools.

p) These records show that the factors taken into account in determining penalties to be applied to production have included net productive acres, net acre feet of pay, and other factors derived from geological and/or engineering evidence presented at hearing:

q) The records show that when there is inadequate geological and/or engineering evidence presented at hearing upon which to base a penalty, The Division utilizes a penalty formula which takes into account the percentage variation of the proposed location from the nearest standard location.

r) If a line projected from the closest standard location on a spacing unit is projected to and through a proposed unorthodox well location, it will eventually cross into another spacing unit

s) At the standard location, the operator would enjoy a 100 percent right to produce from the spacing unit in question while at the point where the line crossed into another spacing unit such right would be zero.

t) the procedure described above yields a factor which diminishes the right to produce from 100 percent to zero percent as the requested unorthodox well location approaches the boundary of its spacing unit.

u) theoretical net additional drainage may be determined by using such a footage encroachment penalty;

v) In the absence of adequate geological and/or engineering evidence to establish a penalty factor or procedure to offset any advantage gained over other producers, as a result of the unorthodox location, a formula which utilized a footage encroachment factor is logical and serves to protect correlative rights;

w) that the applicant's request for an unorthodox well location is not justified and should therefore have been denied. However, because Yates has assumed the risk of commencing to drill the subject well prior to the Commission hearing of this matter, then the location should be approved SUBJECT to a 50 % production penalty.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Yates Petroleum Corporation, is hereby authorized to drill its proposed Llama ALL Federal Well No. 1 at an unorthodox gas location 330 feet from the South line and 950 feet from the West line (Unit M) of Section 7, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) Lots 3 and 4, the E/2SW/4 and the SE/4 (S/2 equivalent) of said Section shall be dedicated to the well forming a standard 319.81 acre gas spacing and proration unit.

(3) The applicant is authorized to produce the subject well from any formation from below the top of the Wolfcamp formation SUBJECT to an assigned production limitation factor of 50 % (50 % penalty) to be applied against its initial deliverability test to be conducted within thirty (30) days after the commencement of first production.

(4) This production limitation factor shall be applied against the well's ability to produce into the pipeline as determined by 24 hour sustained rate deliverability tests conducted on the well within thirty (30) days after commencement of first production and then on an annual basis thereafter. The well shall be allowed to produce at its penalized rate or 500 MCFPD which ever is greater.

(5) The penalized allowable set forth above shall be applied to the subject well from the date of first production. In the event the well has been overproduced, its production limitation factor allowable on a monthly basis (30 days being a month) then and in that event, the well shall be shut-in until that over production has been made up with a portion of the next month's production allowable.

(6) That Yates, upon completing the well and in order to obtain approval to produce, shall provide the Division and all offset operators with the following data:

(a) a deviation survey of the well

(b) electric logs, mudlog, drill stem test/perforation/production test results.

(7) 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 designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

GARY CARLSON, Member

WILLIAM W. WEISS, Member

WILLIAM J. LEMAY, Chairman

S E A L

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505



BRUCE KING
GOVERNOR



ANITA LOCKWOOD
CABINET SECRETARY

October 27, 1994

LOSEE, CARSON, HAAS & CARROLL
Attorneys at Law
P. O. Drawer 239
Artesia, New Mexico 88211-0239

RE: CASE NO. 11019
ORDER NO. R-10160-A

Dear Sir:

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

Sincerely,


Sally E. Martinez
Administrative Secretary

Enclosure

cc: BLM - Carlsbad
Tom Kellahin

VILLAGRA BUILDING - 408 Galisteo

Forestry and Resources Conservation Division
P.O. Box 1948 87504-1948
827-5830

Park and Recreation Division
P.O. Box 1147 87504-1147
827-7465

2040 South Pacheco

Office of the Secretary
827-5950

Administrative Services
827-5925

Energy Conservation & Management
827-5900

Mining and Minerals
827-5970

LAND OFFICE BUILDING - 310 Old Santa Fe Trail

Oil Conservation Division
P.O. Box 2088 87504-2088
827-5800