CASE 6820: BOYD OPERATING CO. FOR A DUAL COMPLETION AND UNORTHODOX WELL LOCATION, CHAVES COUNTY, NEW MEXICO

Case No.

6820

Application

Transcripts

Small Exhibits

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

March 14, 1980

Re: CASE NO. 6820
ORDER NO. R-6289

Mr. William F. Carr
Campbell and Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Applicant:

Boyd Operating Co.

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6820
Order No. R-6289

APPLICATION OF BOYD OPERATING CO.
FOR A DUAL COMPLETION AND UNORTHODOX
WELL LOCATION, CHAVES COUNTY, NEW
MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 27, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 13th day of March, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Boyd Operating Co., seeks authority to complete its Blakemore Federal Well No. 1 at an unorthodox Wolfcamp location 660 feet from the North line and 660 feet from the West line of Section 20, Township 9 South, Range 26 East, NMPM, Chaves County, New Mexico, as a dual completion (conventional) to produce gas from the Wolfcamp and Abo formations.

(3) That the applicant seeks the dismissal of that portion of this case for an unorthodox location, the actual well location being in Unit D rather than Unit A as advertised.

(4) That the application for unorthodox location should be dismissed without prejudice.

(5) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

(6) That approval of the subject application will prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Boyd Operating Co., is hereby authorized to complete its Blakemore Federal Well No. 1, located in Unit D of Section 20, Township 9 South, Range 26 East, NMPM, Chaves County, New Mexico, as a dual completion (conventional) to produce gas from the Wolfcamp formation through a string of 2 3/8-inch tubing and gas from the Abo formation through the casing-tubing annulus with separation of the zones by means of a packer set at approximately 5218 feet.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Division Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take packer leakage tests upon completion and annually thereafter during the Annual Shut-In Pressure Test Period for gas wells in Southeast New Mexico.

(2) That that portion of this case seeking approval of an unorthodox location for said Blakemore Federal Well No. 1 is hereby dismissed.

(3) That the applicant must obtain separate approval for the unorthodox location of the subject well at a point 660 feet from the North line and 660 feet from the West line of the aforesaid Section 20.

(4) That 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 herein-abo[redacted]ed.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S
fd/

CASE 6819: Application of V-F Petroleum, Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the McKee or Devonian formations, or both, underlying four 40-acre units, being the SE/4 SE/4, NE/4 SE/4, NW/4 SE/4, and SW/4 SE/4 of Section 21, Township 23 South, Range 37 East, North Teague Field, each to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6373: (Reopened and Readvertised) (Continued from January 30, 1980, Examiner Hearing)

In the matter of Case 6373 being reopened pursuant to the provisions of Order No. R-5875 which order created the East High Hope-Abo Gas Pool with temporary special rules therefor providing for 320-acre spacing. All interested parties may appear and show cause why the East High Hope-Abo Gas Pool should not be developed on 160-acre spacing units.

CASE 6820: Application of Boyd Operating Co. for a dual completion and unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Blakemore Federal Well No. 1 at an unorthodox Wolfcamp location in the center of Unit A of Section 20, Township 9 South, Range 26 East, to produce gas from the Wolfcamp and Abo formations.

CASE 6821: Application of Shell Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinebry and Drinkard production in the wellbore of its Andrews Well No. 1 located in Unit F of Section 14, Township 21 South, Range 37 East.

CASE 6822: Application of Mesa Petroleum Co. for a gas well classification and unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the classification of its Jog State Well No. 1 as a retrograde gas condensate well with 320-acre spacing; applicant further seeks approval for the unorthodox location of said well in the center of Unit L of Section 2, Township 24 South, Range 32 East, the S/2 of said Section 2 to be dedicated to the well.

CASE 6767: (Continued from February 13, 1980, Examiner Hearing)

Application of Alpha Twenty-One Production Company for two non-standard gas proration units, unorthodox well location, and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 40-acre non-standard proration unit comprising the NW/4 NW/4 of Section 27, Township 25 South, Range 37 East, Jalmat Gas Pool, to be dedicated to El Paso Natural Gas Company's Harrison Well No. 2, and also a 200-acre unit comprising the S/2 N/2 and NE/4 NW/4 of said Section 27 to be dedicated to a well to be drilled at an unorthodox location 1980 feet from the North line and 560 feet from the West line of Section 27. Applicant further seeks a finding that the drilling of the latter well is necessary to effectively and efficiently drain that portion of an existing proration unit which cannot be so drained by the existing well.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
27 February 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Boyd Operating Company for a dual completion and unorthodox well location, Chaves County, New Mexico.

CASE 6820

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.
CAMPBELL & BLACK P. A.
P. O. Box 2208
Santa Fe, New Mexico 87501

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I N D E X

T. M. BOYD, JR.

E X H I B I T S

MR. STAMETS: We'll call next Case 6820.

MR. PADILLA: Application of Boyd Operating Company for a dual completion and unorthodox well location, Chaves County, New Mexico.

MR. STAMETS: Call for appearances.

MR. CARR: May it please the Examiner, I am William F. Carr, Campbell and Black, P. A., appearing on behalf of the applicant. I have one witness who needs to be sworn.

(Witness sworn.)

MR. CARR: Initially, Mr. Examiner, there was an error in the ad. The ad shows that the well is to be drilled in Unit A of Section 20, and actually it will be drilled in Unit E.

The unorthodox location does qualify for administrative approval. We are going to be able to obtain waivers from all offsetting operators and will file an application this week for administrative approval.

Therefor we ask that the portion of this case relating to the unorthodox well location be dismissed.

MR. STAMETS: That portion of this case will be dismissed.

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T. M. BOYD, JR.

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. Tom Boyd, Roswell, New Mexico.

Q. Mr. Boyd, by whom are you employed and in what capacity?

A. President of Boyd Operating Company.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the application in this case?

A. Yes.

Q. And the subject area?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STAMETS: For the edification of the

Examiner, did you qualify in the past as an engineer, geologist, or practical oil man?

A. Engineer.

MR. STAMETS: Thank you, Mr. Boyd.

Yes, the witness is considered qualified.

Q. Mr. Boyd, have you prepared for introduction in this case certain exhibits?

A. Yes, sir.

Q. Will you please refer to what has been marked for identification as Exhibit Number One, which is Oil Conservation Commission form C-107, and review the information contained thereon for the Examiner?

A. It's the standard C-107 from, showing the perforations in the Abo and the Wolfcamp, both gas wells, and all the questions have been answered yes. Two offset operators are Pennzoil and Margene Blakemore Estate Trust.

Q. Will you now identify what has been marked Exhibits Two and Three?

A. Exhibit Two is a waiver from Pennzoil and Exhibit Three -- this is a waiver on the application for dual completion. Exhibit Three is a waiver from Margene Blakemore Estate Trust on our application for dual completion.

Q. And I believe you stated there are no other offsetting operators?

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A. None.

Q. Will you now refer to what has been marked for identification as Boyd's Exhibit Number Four and review this for Mr. Stamets?

A. This is a plat of this township, showing the location of this well, Unit D, Section 20, 9 South, 26 East.

There are three additional Abo wells in the area; one in Section 3; one in 10; and one in Section 31.

The McConkey Well in Section 10 was originally announced as a Wolfcamp discovery. That is not correct. It's an Abo producer.

Q. And the acreage you plan to dedicate to this well is outlined in red, is that correct?

A. Right, the west half of Section 20.

Q. Are there any other wells in the immediate area which are downhole commingled in the fashion you propose?

A. No.

Q. In this application?

A. To my knowledge there is no Wolfcamp production within twenty or thirty miles of this well.

Q. Mr. Boyd, will you now refer to what has been marked for identification as Exhibit Number Five and explain to the Examiner what it shows?

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A. I just brought one log, Dick, I'm short a log. Or Mr. Examiner, pardon me.

MR. STAMETS: That's all right. Is there anything in particular --

A. I have marked the tops of all the zones in there and shown the perforations on the Abo and the Wolfcamp.

Abo perforations are 4198 to 4210; 4272 to 76; 4323 to 4333; 4340 to 4344.

Wolfcamp is 5334 to 44; and 5376 to 80.

Q. Mr. Boyd, will you now refer to what has been marked Exhibit Number Six and summarize the information contained thereon for Mr. Stamets?

A. This is a diagrammatic sketch of the wellbore showing the 13-3/8ths set at 312 feet, cement circulated; 8-5/8ths at 1576 with cement circulated. The 4-1/2 inch was set at 5700.

The Granite Wash was perforated, tested, we plugged back, set a bridge plug at 5560 with 35 sacks of cement on top of it. The plugged back TD on the well right now is 5525.

Next are the Wolfcamp perforations; a Baker Lok-Set Packer at 5218 with an on-and-off tool on top of that, a Mandrel, and a sliding sleeve at 5190 with two profiles in there, one at 5189, above the sliding sleeve;

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one at 5217, which is in the packer.

2-3/8ths inch tubing; top of the cement 3600 on the 4-1/2 inch.

Q. Mr. Boyd, why are you proposing to complete this well in this fashion?

A. Well, it was a wildcat well. We weren't sure what we had in the Abo, Wolfcamp, or Granite Wash. We elected to run 4-1/2 inch, ended up with the Wolfcamp zone, and Abo zone, and felt like this was the only feasible way to complete the well and produce both zones.

Q. In your opinion does this method of completion conform with good engineering practices and insure the separation of the two zones and insure that there will be no commingling downhole between the zones?

A. That's correct.

Q. In your opinion is this proposed method of dual completion the best possible from which to recover the hydrocarbons from the two producing zones?

A. Well, with 4-1/2 inch casing we had set, the only other solution would have been run a string of inch and a half and one inch or two strings of inch and a quarter.

This would have to be hy-drilled. We didn't feel like that we could sustain the flow after large frac jobs, get the wells cleaned up, sustain the flow, and

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get them under production with the small tubing.

Q. Will you now refer to Boyd Exhibits Seven and Eight and review the data contained therein?

A. Seven and Eight are -- well, they are essentially identical.

Seven is the Form C-122 on the Abo. Eight is the C-122 on the Wolfcamp.

I have included in here AOF calculations, gas sample. We ran a 72-hour bottom hole pressure buildup on each zone. All the bottom hole pressures are shown on a graph and also listed. During the buildup as well as the AOF test.

Q. Will you please identify what has been marked for identification as Boyd Operating Company Exhibit Number Nine?

A. Exhibit Number Nine is a packer setting affidavit, or packer setting report, stating that the packer was set at 5218 on November the 28th.

Q. In your opinion will granting this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A. It will.

Q. Were Exhibits One through Nine either prepared by you or under your direction and supervision?

A. Yes, they were.

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MR. CARR: At this time, Mr. Examiner, we would offer Applicant's Exhibits One through Nine into evidence.

MR. STAMETS: These exhibits are admitted.

MR. CARR: And we have nothing further on direct.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Boyd, it would appear from looking at Exhibits Seven and Eight that neither of these zones produces liquids.

A. After it cleaned up, they're both dry gas. It takes awhile to clean them up because of the large frac job with water.

Q. Has the Abo cleaned up at this point?

A. Yes.

Q. Okay, so it's producing dry gas?

How about the other Abo wells in the area, are they producing any liquids?

A. Well, none of these wells are on production. Transwestern is -- they were supposed to get the first wells on, which are four wells that Jack McClellan, McClellan Oil Corporation has southwest of me that were supposed to be turned on yesterday.

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Q. If the Abo for any reason started producing liquids and caused a production problem, could you run a string of inch, inch and a quarter, pipe in there to take care of the liquids?

A. No. I would set a profile, or plug in one of the profiles, open up the sliding sleeve, and clean it up, swab it in and clean it up.

Q. Talking about later, though, after it's been on production for a year or so?

A. Not unless we changed out both -- we'd have to go with two small strings of tubing. There's no physical way we can do it, or would want to.

Q. In all likelihood what would you do in that case?

A. What would we do? Plug off the Wolfcamp and produce the Abo, or shut off the Abo and produce the Wolfcamp.

MR. STAMETS: Any other questions of the witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

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REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6820 heard by me on 2-27 1980

Richard L. Stamets, Examiner
Oil Conservation Division

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ENERGY AND MINERALS DEPARTMENT

STATE LAND OFFICE BLDG.

27 February 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Boyd Operating Company for [illegible] and [illegible] well location, Chaves County, New Mexico.

CASE 6820

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
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For the Applicant: William F. Carr, Esq.
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I N D E X

W. R. BOYD, D.D.S.

E X H I B I T S

[illegible] 8220.

[illegible] Operating Company [illegible] Location, Chaves County, [illegible]

[illegible] call for appearances.

MR. [illegible]: May it please the Examiner, I am William F. Carr, Campbell and Black, P. A., appearing on behalf of the applicant. I have one witness who needs to be sworn.

(Witness sworn.)

MR. CARR: Initially, Mr. Examiner, there was an error in the ad. The ad shows that the well is to be drilled in Unit A of Section 20, and actually it will be drilled in Unit H.

The unorthodox location does qualify for administrative approval. We are going to be able to obtain waivers from all offsetting operators and will file an application this week for administrative approval.

Therefor we ask that the portion of this case relating to the unorthodox well location be dismissed.

MR. STAMETS: That portion of this case will be dismissed.

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[illegible] sworn upon [illegible]

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. Tom Boyd, Roswell, New Mexico.

Q. Mr. Boyd, by whom are you employed and in what capacity?

A. President of Boyd Operating Company.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the application in this case?

A. Yes.

Q. And the subject area?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STAMETS: For the edification of the

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[illegible], did you [illegible], geolo-gi[illegible] [illegible]?

A [illegible]

[illegible], Mr. Boyd.

[illegible] qualified.

Q [illegible] intro-duction in this case [illegible]?

A [illegible].

Q Will you please refer to what has been marked for identification as Exhibit Number One, which is Oil Conservation Commission form C-107, and review the information contained thereon for the Examiner?

A It's the standard C-107 from, showing the perforations in the Abo and the Wolfcamp, both gas wells, and all the questions have been answered yes. Two offset operators are Pennzoil and Margene Blakemore Estate Trust.

Q Will you now identify what has been marked Exhibits Two and Three?

A Exhibit Two is a waiver from Pennzoil and Exhibit Three -- this is a waiver on the application for dual completion. Exhibit Three is a waiver from Margene Blakemore Estate Trust on our application for dual completion.

Q And I believe you stated there are no other offsetting operators?

[illegible] that has been marked for [illegible] Four and review this for the [illegible].

A [illegible] plat of this township, showing the location of the [illegible] Section 20, [illegible] South, [illegible] East.

There are three additional Abo wells in the area; one in Section 3; one in 1[illegible]; and one in Section 31.

The [illegible] Well in Section 10 was originally announced as a Wolfcamp discovery. That is not correct. It's an Abo producer.

Q And the acreage you plan to dedicate to this well is outlined in red, is that correct?

A Right, the west half of Section 20.

Q Are there any other wells in the immediate area which are downhole commingled in the fashion you propose?

A No.

Q In this application?

A To my knowledge there is no Wolfcamp production within twenty or thirty miles of this well.

Q Mr. Boyd, will you now refer to what has been marked for identification as Exhibit Number Five and explain to the Examiner what it shows?

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[illegible] short a log. Q Mr. [illegible].

[illegible] all right. Is there anything [illegible]

A [illegible] all the zones in there and [illegible] and the Wolfcamp.

[illegible] perforations are 4199 to 4210; 4272 to 76; 4323 to 4332; 4340 to 4344.

Wolfcamp is 5334 to 44; and 5376 to 80.

Q Mr. Boyd, will you now refer to what has been marked Exhibit Number Six and summarize the information contained thereon for Mr. Stamets?

A This is a diagrammatic sketch of the wellbore showing the 13-3/8ths set at 312 feet, cement circulated; 8-5/8ths at 1576 with cement circulated. The 4-1/2 inch was set at 5700.

The Granite Wash was perforated, tested, we plugged back, set a bridge plug at 5560 with 35 sacks of cement on top of it. The plugged back TD on the well right now is 5525.

Next are the Wolfcamp perforations; a Baker Lok-Set Packer at 5213 with an on-and-off tool on top of that, a Mandrel, and a sliding sleeve at 5190 with two profiles in there, one at 5189, above the sliding sleeve;

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[illegible] at 12 7, which [illegible]

[illegible] cement [illegible] 4-1/2 [illegible].

[illegible] to complete this well [illegible]?

[illegible] We weren't sure that we had [illegible], Wolfcamp, or Granite Wash. We elected to run [illegible] 1/2 inch, [illegible] with the Wolfcamp zone, and Abo zone, [illegible] felt like this was the only feasible way to complete the [illegible] and produce both zones.

Q [illegible] your opinion does this method of completion conform with good engineering practices and insure the separation of the two zones and insure that there will be no commingling downhole between the zones?

A. That's correct.

Q In your opinion is this proposed method of dual completion the best possible from which to recover the hydrocarbons from the two producing zones?

A. Well, with 4-1/2 inch casing we had set, the only other solution would have been run a string of inch and a half and one inch or two strings of inch and a quarter.

This would have to be hy-drilled. We didn't feel like that we could sustain the flow after large frac jobs, get the wells cleaned up, sustain the flow, and

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got them under [illegible]

Q [illegible] thereto?

A [illegible] well, they are essentially identical.

[illegible] on the Abo. Eight is the C-122 on the Wolfcamp.

I have included in [illegible] AOF calculations, gas sample. We ran a 72-hour bottom hole pressure buildup on each zone. All the bottom hole pressures are shown on a graph and also listed. During the buildup as well as the AOF test.

Q Will you please identify what has been marked for identification as Boyd Operating Company Exhibit Number Nine?

A Exhibit Number Nine is a packer setting affidavit, or packer setting report, stating that the packer was set at 5218 on November the 28th.

Q In your opinion will granting this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A It will.

Q Were Exhibits One through Nine either prepared by you or under your direction and supervision?

A Yes, they were.

MR. CARR: At this time, Mr. Examiner, we would offer Applicant's Exhibits One through Nine into evidence.

MR. STAMETS: These exhibits are admitted.

MR. CARR: And we have nothing further on direct.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Boyd, it would appear from looking at Exhibits Seven and Eight that neither of these zones produces liquids.

A. After it cleaned up, they're both dry gas. It takes awhile to clean them up because of the large frac job with water.

Q. Was the Abo cleaned up at this point?

A. Yes.

Q. Okay, so it's producing dry gas?

How about the other Abo wells in the area, are they producing any liquids?

A. Well, none of these wells are on production. Transwestern is -- they were supposed to get the first wells on, which are four wells that Jack McClellan, McClellan Oil Corporation has southwest of me that were supposed to be turned on yesterday.

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Q [illegible] for some reason [illegible] producing liquids and caused [illegible] production problem, could you run a string of [illegible] inch and a quarter pipe in there to take care of the liquids?

A No. I would set a profile, or plug in one of the profiles, open up the sliding sleeve, and clean it up, swab it in and clean it up.

Q Talking about later, though, after it's been on production for a year or so?

A Not unless we changed out both -- we'd have to go with two small strings of tubing. There's no physical way we can do it, or would want to.

Q In all likelihood what would you do in that case?

A What would we do? Plug off the Wolfcamp and produce the Abo, or shut off the Abo and produce the Wolfcamp.

MR. STAMETS: Any other questions of the witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 8750[illegible]
Phone (505) 455-7409

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____ heard by me on _____, 19__.

_____, Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Form C-107
5-1-61

Operator	County	Date
BOYD OPERATING COMPANY	CHAVES	1/10/80
Address	**Lease**	**Well No.**
P. O. Box 1756, Roswell, New Mexico 88201	Blakemore Federal	#1

Location of Well	Unit	Section	Township	Range
	D	20	9S	26E

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES _____ NO X

2. If answer is yes, identify one such instance: Order No. _____ ; Operator Lease, and Well No.: _____

3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Abo		Wolfcamp
b. Top and Bottom of Pay Section (Perforations)	4198-4210 4272-76, 4323-33, 4340-44		5334-44 5376-80
c. Type of production (Oil or Gas)	Gas		Gas
d. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing

4. The following are attached. (Please check YES or NO)

Yes	No	
X		a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
X		b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
X		c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*
X		d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

Pennzoil Company; P. O. Drawer 1828, Midland, Texas 79702

Margene Blakemore Estate Trust; 2100 1st National Bank Buildng, Midland, Texas 79701

Attention: Mr. Ron Sowders

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES X NO _____. If answer is yes, give date of such notification February 1, 1980.

CERTIFICATE: I, the undersigned, state that I am the President of the Boyd Operating Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

T. M. Boyd
Signature

Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard proration unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

PENNZOIL COMPANY
WESTERN DIVISION
MIDLAND DISTRICT GIBRALTAR SAVINGS BUILDING • 915/682-7316
MAILING ADDRESS P.O. DRAWER 1828 MIDLAND, TEXAS 79702

L. CHARLES MARQUART
District Production Manager

February 5, 1980

Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Boyd Operating Company
Blakemore Federal No. 1
Application for Dual Completion

Gentlemen:

Pennzoil as offset operator to the above referenced well hereby consents to the Application for Multiple Completion (C-107) as submitted by Boyd Operating Company.

The Wolfcamp zone (5334'-5380') will consist of a 320 acre proration unit and the Abo zone (4198'-4344') will consist of a 160 acre proration unit as set out in Rule 104, B, 1 (a).

The Abo will be produced through the tubing annulus and the Wolfcamp through the 2-3/8" tubing.

Very truly yours,

PENNZOIL COMPANY
WESTERN DIVISION

L. Charles Marquart

L. Charles Marquart
District Production Manager

PETROLEUM ENGINEERING TABLETS
OIL CONSERVATION DIVISION
Boyd Exhibit No. 2
Case No. 6820
Submitted by: Tom Boyd
Hearing Date: 2/27/80

LCM/afb

Margene Blakemore Estate Trust
2100 First National Bank Building
Midland, Texas 79701

February 21, 1980

Energy and Minerals Deparment
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Boyd Operating Company
Blakemore Federal #1
Application for Dual Completion

Gentlemen:

~~Pennzoil~~ (Blakemore Estate) as offset operator to the above referenced well hereby consents to the Application for Multiple Completion (C-107) as submitted by Boyd Operating Company.

The Wolfcamp zone (5334'-5380') will consist of a 320 acre proration unit and the Abo zone (4198'-4344') will consist of a 160 acre proration unit as set out in Rule 104, B, 1 (a).

The Abo will be produced through the tubing annulus and the Wolfcamp through the 2 3/8" tubing.

Very truly yours,

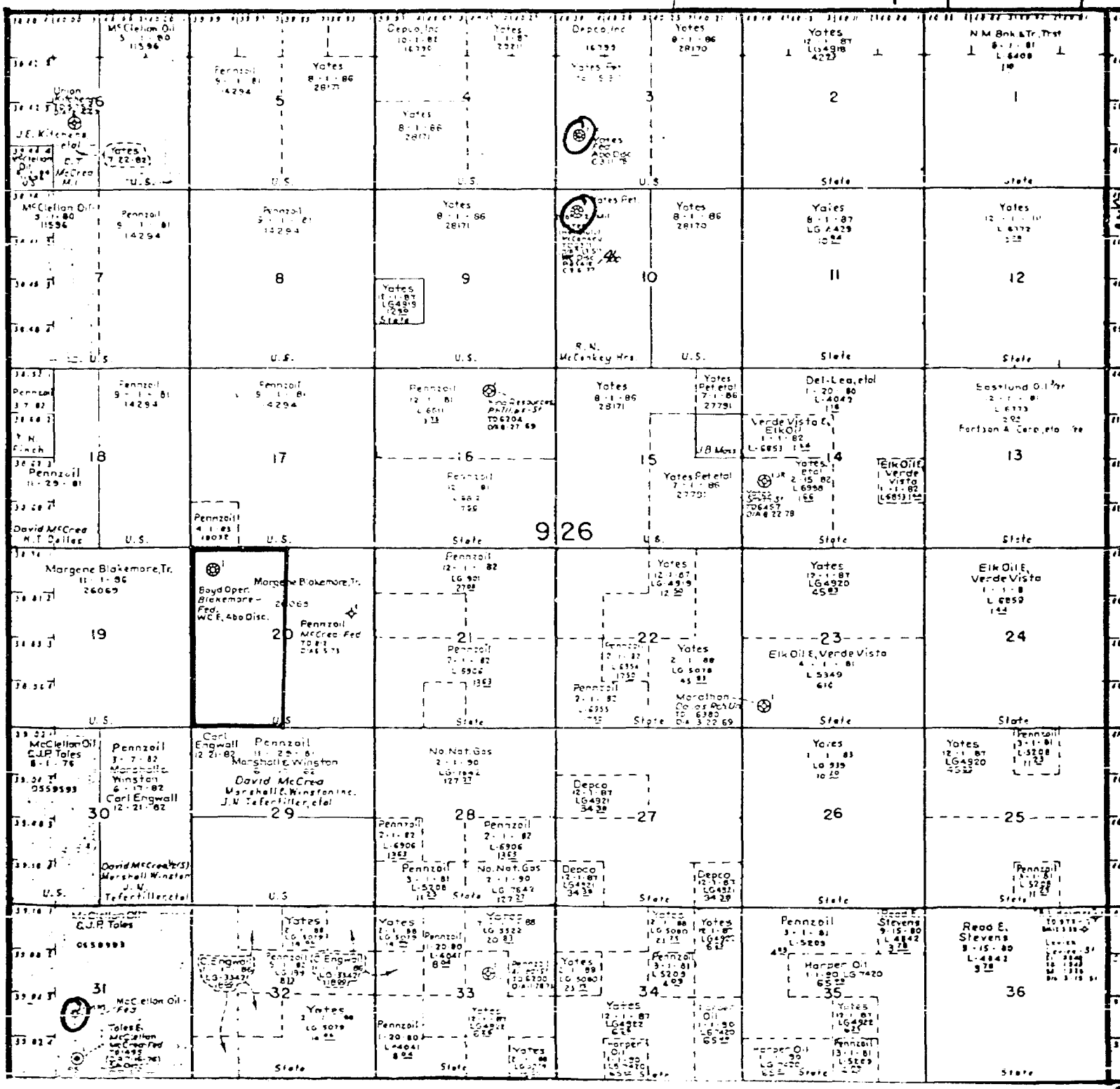
Tommy Phipps
Trustee

TP/ej

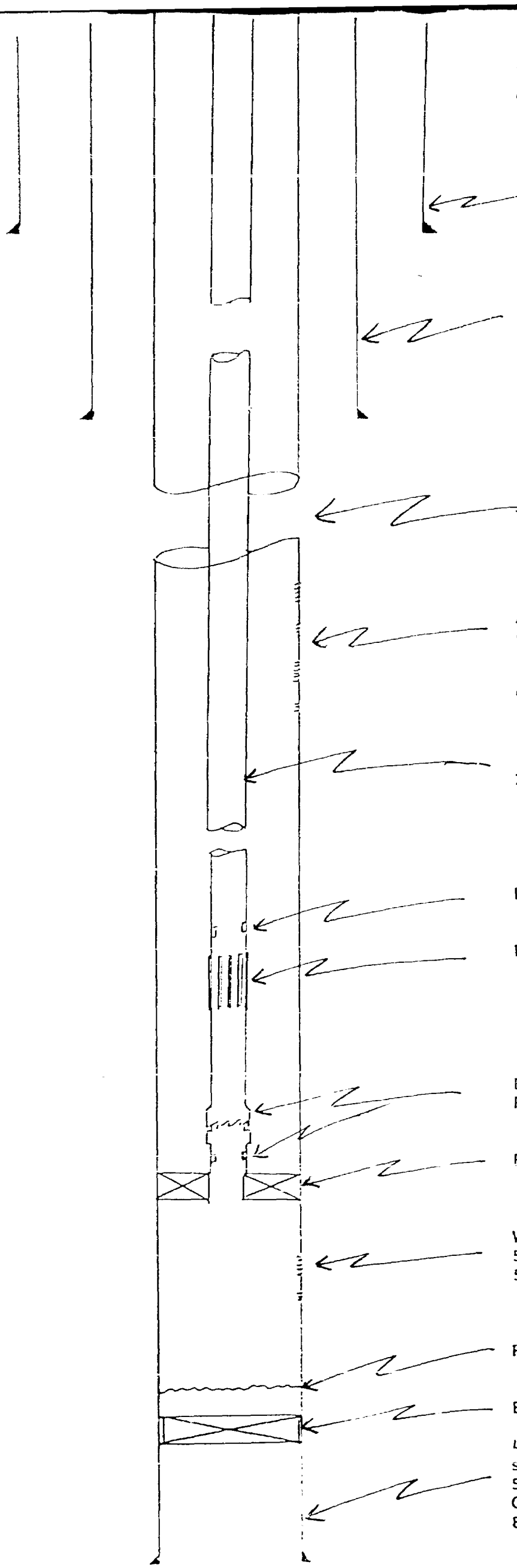
BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 3
CASE NO. 6820
Submitted by Tom Boyd
Hearing Date 2/27/80

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL # 1
660 FNL, 660 FWL, T9S, R26E
Chaves County, New Mexico

Boyd 4
6820
Tom Boyd
2/27/80



BOYD OPERATING COMPANY
BLAKEMORE FEDERAL #1
Sec. 20, T-9-S, R-26-E
Chaves County, New Mexico



13 3/8", 48# (centralizer-btm joint) set @ 312' K.B. Cemented w/300 sx. Class C w/2% $CaCl_2$. Circulated 75 sx.

8 5/8", 24# (3centralizers, 2 baskets) set @ 1576' K.B. Cemented w/775 sx. HowcoLite & Class "C". Circulated 30 sx.

Top of cement @ 3600'.

Abo Perforations - 2 jets/ft.
4198-4210
4272-4276
4323-4333
4340-4344

2 3/8" E.U.E. Tubing.

1.87" Profile Nipple @ 5189'.

Baker Sliding Sleeve @ 5190'.

Baker on-Off Mandrel @ 5217 w/1.78" Profile.

Baker Lok-Set Packer @ 5218'.

Wolfcamp Perforations - 2 jets/ft.
5334-5344
5376-5380

P.B.T.D. - 5525'.

Bridge Plug at 5560' w/35' cement.

4 1/2" 10.5# set @ 5700'. Centralizers & scratchers from 4150-4350, 5300-5350 & 5600-5650. Baskets @ 4200 & 5100'. Cemented w/625 sx. Class C 50-50 Pozmix, 8# Salt, 2# gel & 1/4# flocele.

Boyd 7
6820
Tom Boyd
2/27/80

NEW MEXICO OIL CONSERVATION COMMSSION

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date: 12-10-79	
Company: BOYD OPERATING COMPANY			Connection: TO AIR		
Pool:			Unit: ABO		
Completion Date: 12-10-79	Total Depth: 5700		Plug Back TD: 5560	Elevation: 3744GL	Farm or Lease Name: BLAKEMORE FEDERAL
Csg. Size: 4 1/2" / Wt.: 9.50 / d: 4.090 / Set At: 5700			Perforations: From 4198 To 4344		Well No.: 1
Tbg. Size: 2 3/8" / Wt.: 4.60 / d: 2.375 / Set At: 5183			Perforations: From SLIDING SLEEVE To		Unit: D / Sec.: 20 / Twp.: 9S / Rge.: 26E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: DUAL COMPLETION			Packer Set At: 5217 KB		County: CHAVES
Producing Thru: TBG.	Reservoir Temp. °F: @	Mean Annual Temp. °F: 60°	Baro. Press. – P_a: 13.2		State: NEW MEXICO
L:	H:	Gg: .706	% CO_2: 5.226	% N_2: .5918	% H_2S:
Prover: 6" POSITIVE CHOKE	Meter Run:	Taps:			

NO.	FLOW DATA: Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	TUBING DATA: Press. p.s.i.g.	Temp. °F	CASING DATA: Press. p.s.i.g.	Temp. °F	Duration of Flow
SI			1/8				871		989		
1.			1/8	832		57	832		942		1 HR.
2.			5/32	782		62	782		883		1 HR.
3.			3/16	685		65	685		798		1 HR.
4.			7/32	500		62	500		607		1 HR.
5.											

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	.2618		845.2	1.003	1.238	1.078	296
2.	.4173		795.2	.9981	1.238	1.071	439
3.	.6101		698.2	.9952	1.238	1.061	557
4.	.8419		513.2	.9981	1.238	1.045	558
5.							

NO.	P_t	Temp. °R	T_r	Z
1.	1.25	517	1.44	.860
2.	1.18	522	1.45	.871
3.	1.03	525	1.46	.889
4.	.76	522	1.45	.915
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure 675 P.S.I.A. _____ P.S.I.A.
Critical Temperature 359 R _____ R

P_c 1002.2 P_c^2 1004.4

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		955.2	912.4	92.0
2		896.2	803.2	201.2
3		811.2	658.0	346.4
4		620.2	384.6	619.8
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = 10.917 (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 3.304

A.O.F. $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = .978

Absolute Open Flow 978 Mcfd @ 15.025 | Angle of Slope θ 63.5 | Slope, n .500

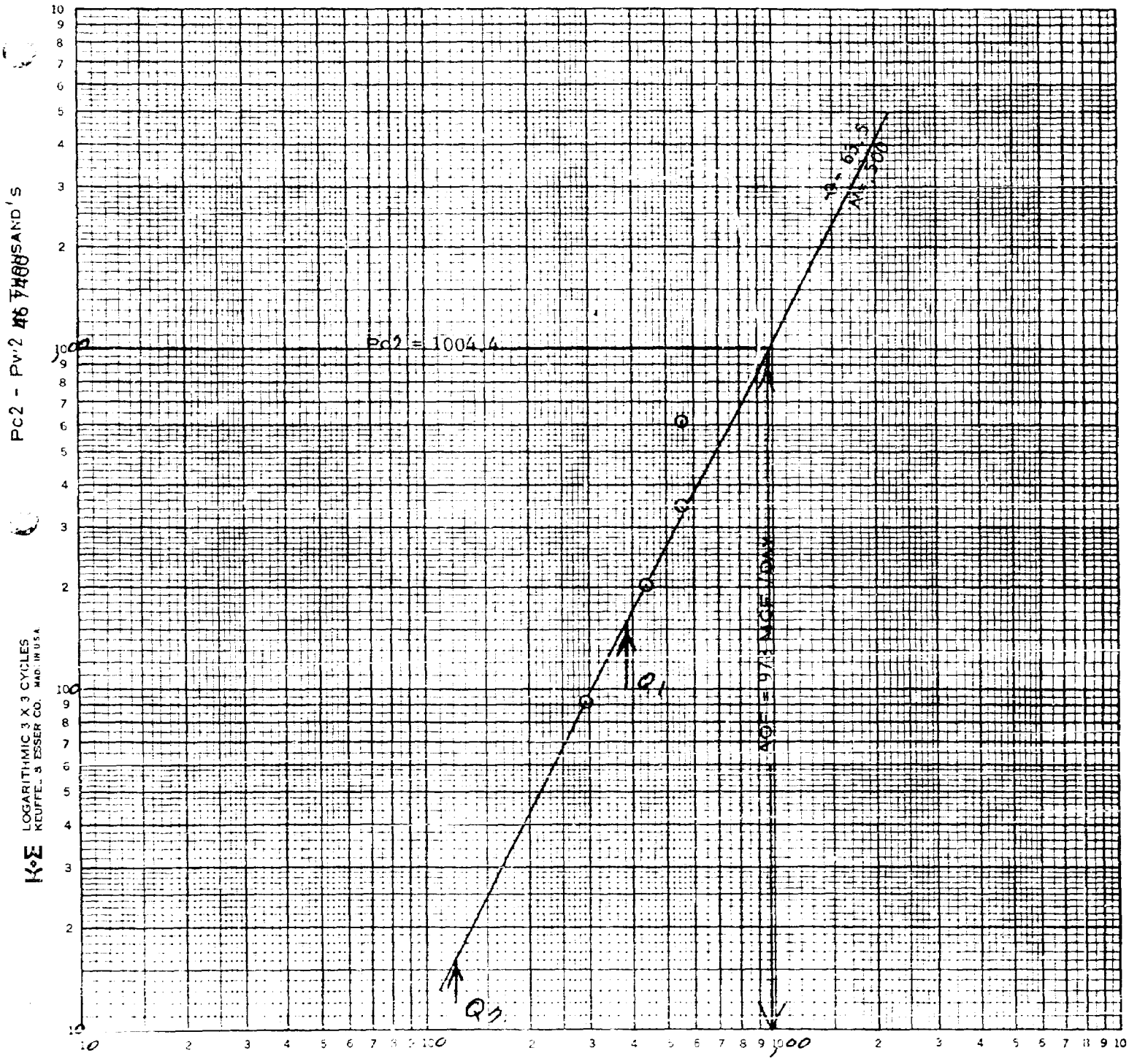
Remarks:

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	MB	RR	JWW

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1

ABS (N) = Q1 = 386 = 2.586359
Q2 = 122 = 2.086359
N = .500000

CAOF = 978 $\left(\frac{1004.4}{92.0}\right)^{.500}$ = 978 MCF / DAY



NEW-TEX LAB
P. O. BOX 1151
HOBBS, N.M. 88240

No. 1991
Run No.
Date of Run 12-13-79
Date Secured

CERTIFICATE OF ANALYSIS

A Sample of Boyd Blakemore Federal
Secured from West Engineering
At 412 N. Dal Paso Secured by
Hobbs, N.M. 88240 Time Date
Sampling conditions Press
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	5.226		
Air			
Nitrogen	5.918		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	80.763		
Ethane	4.234		1.129
Propane	1.901		.524
Butanes			
Iso-Butane	.317		.103
N-Butane	.501		.158
Pentanes			
Iso-Pentane	.229		.084
N-Pentane	.228		.082
Hexanes	.235		.096
Heptanes	.448		.191
Octanes			
TOTAL	100.000		2.367

Calc. Sp. Gr.— 0.7058
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt. 20.48

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.524
Butanes Calc. G.P.M.	.261
Pentanes Plus. G.P.M.	.453
Ethane Calc. G.P.M.	1.129
___ RVP Gasoline G.P.M.	

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.
Dry Basis 1017
Wet Basis 999

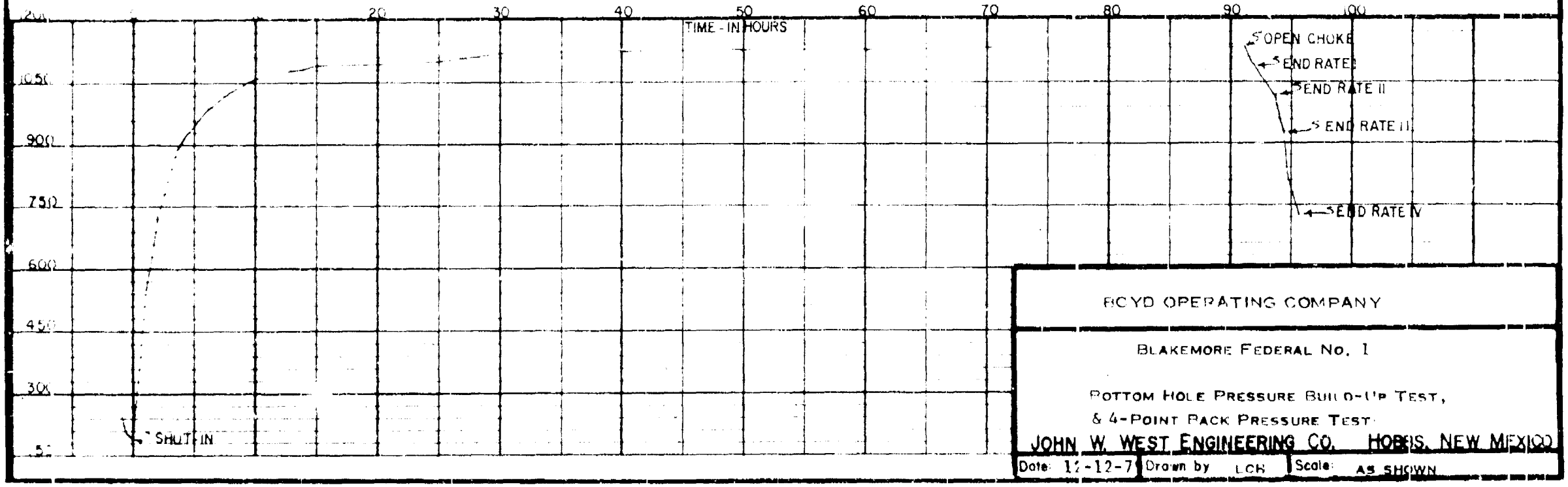
Sulfur Analysis by Titration Gr./100 Cu. Ft.
Hydrogen Sulfide
Mercaptans
Sulfides
Residual Sulfur
Total Sulfur

Run by Deane Simpson Checked by Approved by Deane Simpson

Additional Data and Remarks

TEST DATE:	DECEMBER 6, TO DECEMBER 10, 1979
TEST DEPTH:	5200 FEET
ELEMENT NO.:	14659N
RANGE:	0 - 3600 PSI
CLOCK NO.:	11798
RANGE:	120 HOURS

NOTE: SEE FOLLOWING PAGE FOR TABULATION OF TIMES AND PRESSURES.



BOYD OPERATING COMPANY

BLAKEMORE FEDERAL NO. 1

BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST

JOHN W. WEST ENGINEERING CO. HOBBS, NEW MEXICO

Date: 12-12-7 | Drawn by LCH | Scale: AS SHOWN

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIME AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: DECEMBER 6, TO DECEMBER 10, 1979
TEST DEPTH: 5200 FEET
ELEMENT NO.: 14659N
OPERATOR: M.B.

DATE	TIME	CUM. HRS.	/ MIN.	PSIG @ 5200 FEET	
12-6-79	1:00 PM			254	GAUGE REACHED 5200'; FLOWING
	1:15 PM			221	
	1:30 PM			207	
	1:45 PM			201	
12-6-79	2:00 PM	00 HRS.	00 MIN.	190	SHUT-IN; BEGIN BUILD-UP
	2:15 PM	00	15	301	
	2:30 PM	00	30	362	
	2:45 PM	00	45	460	
	3:00 PM	01	00	546	
	3:15 PM	01	15	591	
	3:30 PM	01	30	635	
	3:45 PM	01	45	677	
	4:00 PM	02	00	723	
12-6-79	4:30 PM	02	30	779	
	5:00 PM	03	00	834	
	5:30 PM	03	30	891	
	6:00 PM	04	00	916	
12-6-79	7:00 PM	05	00	951	
	8:00 PM	06	00	985	
12-6-79	10:00 PM	08	00	1028	
12-7-79	12:00 MIDNIGHT	10	00	1055	
12-7-79	5:00 AM	15	00	1086	
	10:00 AM	20	00	1099	
	3:00 PM	25	00	1108	
	8:00 PM	30	00	1114	
12-8-79	6:00 AM	40	00	1121	
	4:00 PM	50	00	1125	
12-9-79	2:00 AM	60	00	1130	
	12:00 NOON	70	00	1132	
	10:00 PM	80	00	1134	
12-10-79	8:00 AM	90	00	1136	
12-10-79	11:20 AM	91	20	1136	END BUILD-UP
12-10-79	11:20 AM	91	20	1136	OPEN CHOKE
	11:35 AM	91	35	1114	BEGIN 4-POINT
	11:50 AM	91	50	1104	
	12:05 PM	92	05	1099	
	12:20 PM	92	20	1092	END RATE I
12-10-79	12:35 PM	92	35	1068	
	12:50 PM	92	50	1050	
	1:05 PM	93	05	1040	
	1:20 PM	93	20	1026	END RATE II

CONTINUED ON PAGE 2

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

CONTINUED FROM PAGE 1

DATE	TIME	CUM. HRS. / MIN.		PSIG @ 5200 FEET	
12-10-79	1:35 PM	93 HRS.	35 MIN.	987	
	1:50 PM	93	50	964	
	2:05 PM	94	05	956	
	2:20 PM	94	20	925	END RATE III
12-10-79	2:35 PM	94	35	878	
	2:50 PM	94	50	823	
	3:05 PM	95	05	770	
	3:20 PM	95	20	723	END RATE IV; END 4-POINT; GAUGE OUT; END TEST

Boyd 8
6820
Tom Boyd
2/27/80

NEW MEXICO OIL CONSERVATION COMMSSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date	
Company: BOYD OPERATING COMPANY		Connection: To Air			Unit
Pool: WILDCAT		Formation: WOLFCAMP			
Completion Date: 11-15-79	Total Depth: 5700		Plug Back TD: 5560	Elevation: 3744 GL	Farm or Lease Name: BLAKEMORE FEDERAL
Csg. Size: 4 1/2" / Wt.: 9.50 / d: 4.090 / Set At: 5700			Perforations: From 5334 To 5380		Well No.: 1
Tbg. Size: 2 3/8' / Wt.: 4.60 / d: 2.375 / Set At: 5290			Perforations: From OPEN To END		Unit: — Sec.: 20 Twp.: 9S Rge.: 36E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: SINGLE			Packer Set At: NONE		County: CHAVES
Producing Thru: TUBING	Reservoir Temp. °F: 128 @ 5357	Mean Annual Temp. °F: 60	Baro. Press. – P_a: 13.2		State: NEW MEXICO

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
.5357	5357	.652	3.116	4.304		2"		

	FLOW DATA				TUBING DATA		CASING DATA		
NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI						1102				
1.	2	x 1/8	850		61	961				1 HR.
2.	2	x 3/16	680		61	729				1 HR.
3.	2	x 1/4	425		62	483				1 HR.
4.	2	x 3/8	130		64	315				1 HR.
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	.2648		863.2	.9990	1.238	1.077	304
2.	.6082		693.2	.9990	1.238	1.061	769
3.	1.087		438.2	.9981	1.238	1.039	612
4.	2.378		143.2	.9962	1.238	1.012	425
5.							

NO.	P_t	Temp. °R	T_r	Z
1.	1.23	521	1.44	.862
2.	.99	521	1.44	.888
3.	.63	522	1.44	.926
4.	.20	524	1.44	.977
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure 699 P.S.I.A. _____ P.S.I.A.
Critical Temperature 363 R _____ R

P_c 1147.8 P_c^2 1317.4

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		969.3	939.5	377.9
2		744.8	554.7	762.7
3		529.5	280.4	1037.0
4		407.2	165.8	1151.6
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = 3.486 (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1.867

$\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = .568

Absolute Open Flow 568 MCF / DAY Mcfd @ 15.025 | Angle of Slope θ 63.5 | Slope, n .500

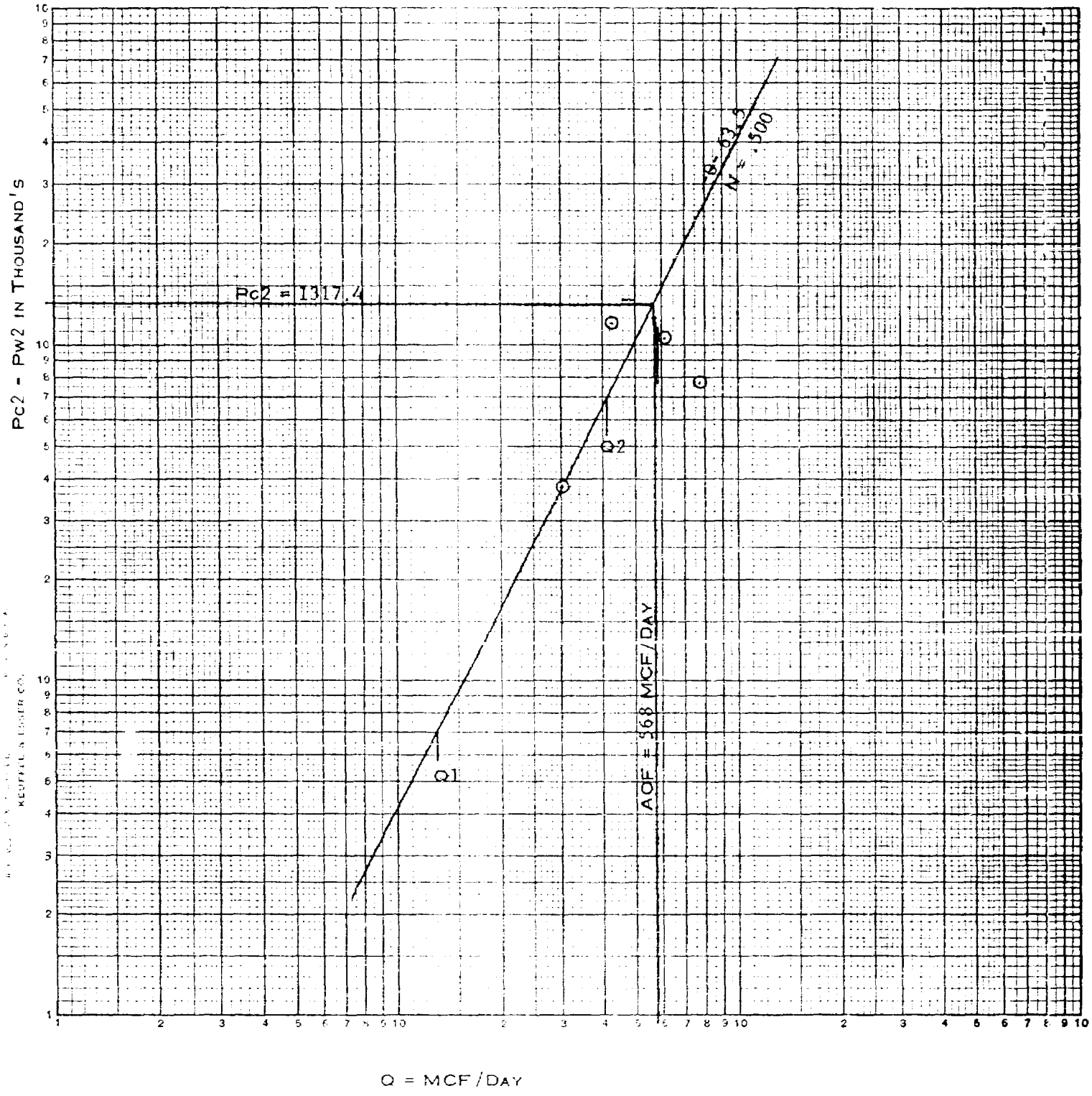
Remarks: CALCULATED FROM KNOWN BHP. BHP MEASURED WITH KUSTER GAUGE.

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	LCH	RR	JWW

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1

ABS SLOPE (N) = Q1 = 411 = 2.613943
Q2 = 130 = 2.113943
N = .500000

CAOF = .304 $\frac{(1317.4)^{.500}}{(377.9)}$ = 568 MCF / DAY



WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_t or P_w)

FROM KNOWN BOTTOM HOLE PRESSURE (P_t or P_s)

Form C-121F
Adopted 9-1-65

COMPANY Boyd LEASE Blakemore Fed WELL NO. 1 DATE

LOCATION: Unit Section 20 Township 9 Range 36

L 5357 H 5357 L/H 1.00 G .652 % CO_2 3.116 % N_2 4.304 % H_2S

GH 3493 P_{cr} 709 (TABLE IX & X) T_{cr} 563 (TABLE IX & X)

LINE		1	2	3	4	5	6	7	8
1	T_w(W.H. °R)	530	530	530	530	530	530	[illegible]	[illegible]
2	T_s(B.H. °R)	588	588	588	588	588	[illegible]	[illegible]	[illegible]
3	$T=(\frac{T_w + T_s}{2})$	561	561	561	561	561	561	[illegible]	[illegible]
4	Z (Est.)	.952	.960	.883	.870	.915	[illegible]	[illegible]	[illegible]
5	TZ	478	482	495	499	513	[illegible]	[illegible]	526
6	GH/TZ	7.31	7.24	7.05	6.99	6.805	[illegible]	6.661	6.645
7	e^S(Table XIV)	1.315	1.312	1.303	1.300	1.291	1.284	1.274	1.273
8	P_f or P_s	1110.2	1110.2	849.2	849.2	601.2	601.2	461.2	461.2
9	P_f^2 or P_s^2	1232.5	1232.5	721.2	721.1	361.4	361.4	212.7	212.7
10	$P_c^2 = P_f^2/e^s$ or $P_w^2 = P_s^2/e^s$	937.1	939.5	553.6	554.7	280.0	280.3	165.6	165.8
11	P_c or P_w	968.0	969.3	744.0	744.8	529.2	529.5	407.0	407.2
12	$P=(\frac{P_w + P_s}{2})$ or $(\frac{P_c + P_f}{2})$	1039.1	1036.2	796.6	796.9	565.2	565.3	434.1	434.2
13	$P_r = (P/P_{cr})$	1.49	1.49	1.14	1.14	.81	.81	.62	.62
14	$T_r = (T/T_{cr})$	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55

Form C-121F
Adopted 9-1-65

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_w)
FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

COMPANY Boyd LEASE Blakemore WELL NO. 1 DATE

LOCATION: Unit ______ Section 20 Township 9 Range 36

L 5357 H 5357 L/H 1.00 G .652 % CO_2 3.116 % N_2 4.304 % H_2S ______

GH 3493 P_{cr} 699 (TABLE IX & X) T_{cr} 363 (TABLE IX & X)

LINE		1	2	3	4	5	6	7	8
1	T_w (W.H. °R)	530	534						
2	T_s (B.H. °R)	588	588						
3	$T = (\frac{T_w + T_s}{2})$	561	561						
4	Z (Est.)	.831	.839						
5	TZ	466.2	470.7						
6	GH/TZ	7.493	7.421						
7	e^s (Table XIV)	1.324	1.321						
8	P_f or P_s	1315.2	1315.2						
9	P_f^2 or P_s^2	1740.3	1740.3						
10	$P_c^2 = P_f^2/e^s$ or $P_w^2 = P_s^2/e^s$	1314.0	1317.5						
11	P_c or P_w	1146.3	1147.8						
12	$P = (\frac{P_w + P_s}{2})$ or $(\frac{P_c + P_f}{2})$	1232.7	1233.5						
13	$P_r = (P/P_{cr})$	1.76	1.76						
14	$T_r = (T/T_{cr})$	1.55	1.55						
15	Z (Table XI)								

NEW-TEX LAB
P. O. BOX 1161
HOBBS, N.M. 88240

No. 1912
Run No.
Date of Run 11-20-79
Date Secured 11-19-79

CERTIFICATE OF ANALYSIS

Sample of Boyd Operating
Secured from West Engineering
412 N. Dal Paso
Hobbs, N. M. 88240
Secured by
Time Date
Sampling conditions Press.
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	3.116		
Nitrogen	4.304		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	86.408		
Ethane	3.592		.958
Propane	1.182		.326
Butanes			
i-Butane	.193		.063
n-Butane	.456		.143
Pentanes			
i-Pentane	.143		.052
n-Pentane	.170		.061
Hexanes	.166		.068
Heptanes	.270		.115
Octanes			
TOTAL	100.000		1.786

Calc. Sp. Gr.— 0.6517
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt.

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.326
Butanes Calc. G.P.M.	.206
Pentanes Plus. G.P.M.	.296
Ethane Calc. G.P.M.	.958
*RVP Gasoline G.P.M.	

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.

Dry Basis	1023
Wet Basis	1005

Sulfur Analysis by Titration Gr./100 Cu. Ft.

Hydrogen Sulfide	
Mercaptans	
Sulfides	
Residual Sulfur	
Total Sulfur	

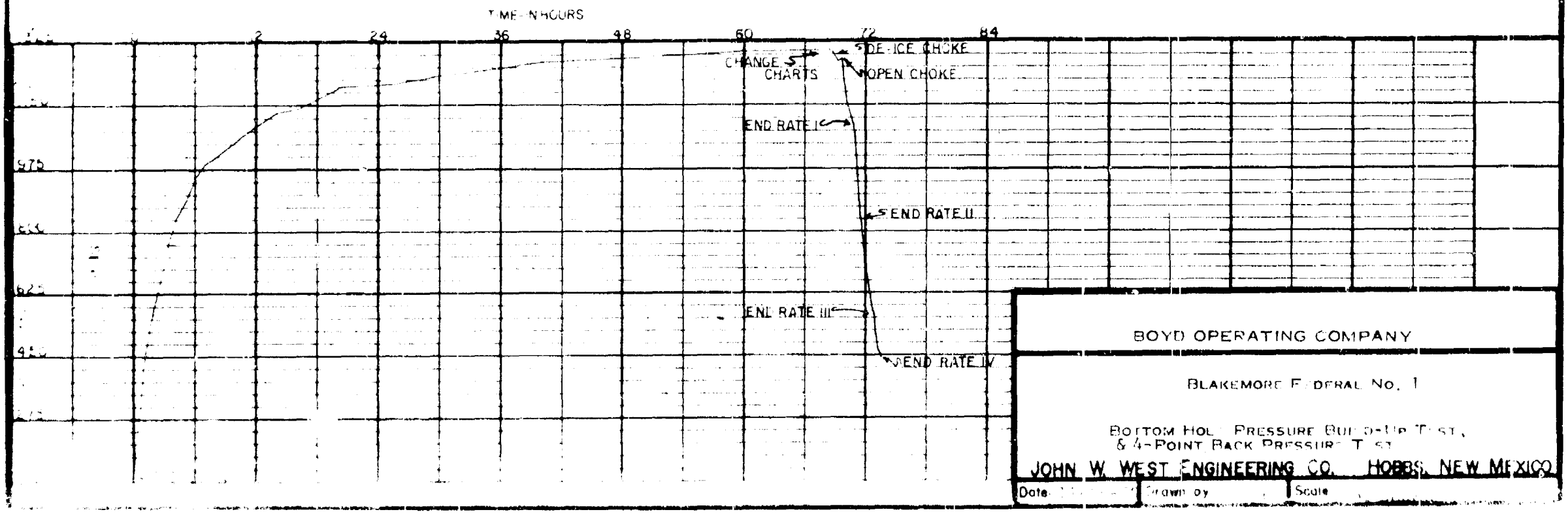
Analyzed by Deane Simpson Checked by Approved by Deane Simpson

Additional Data and Remarks

TEST DATE: NOVEMBER 16, TO NOVEMBER 19, 1979
TEST DEPTH: 5357 FEET

ELEMENT NO.: 17711
RANGE: 0 - 2550 PSI
CLOCK NO.: 22509
RANGE: 72 HOURS
CLOCK NO.: 21389
RANGE: 24 HOURS

NOTE: SEE FOLLOWING PAGE FOR TABULATION OF TIMES AND PRESSURES.



BOYD OPERATING COMPANY

BLAKEMORE FEDERAL No. 1

BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST

JOHN W. WEST ENGINEERING CO. HOBBS, NEW MEXICO

Date | Drawn by | Scale

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: NOVEMBER 16, TO NOVEMBER 19, 1979
TEST DEPTH: 5357 FEET
ELEMENT NO.: 17711
OPERATOR: B.J.T.

DATE	TIME	CUM. HRS.	/ MIN.	PSIG @ 5357 FEET	
11-16-79	3:00 PM			111	GAUGE REACHED 5357' FLOWING
11-16-79	3:15 PM	00 HRS.	00 MIN.	111	SHUT-IN; BEGIN BUILD-UP
	3:30 PM	00	15	214	
	3:45 PM	00	30	301	
	4:00 PM	00	45	367	
	4:15 PM	01	00	435	
	4:30 PM	01	15	480	
	4:45 PM	01	30	526	
	5:00 PM	01	45	562	
	5:15 PM	02	00	617	
	5:30 PM	02	15	657	
	5:45 PM	02	30	682	
	6:00 PM	02	45	724	
	6:15 PM	03	00	756	
11-16-79	6:45 PM	03	30	795	
	7:15 PM	04	00	836	
	7:45 PM	04	30	866	
	8:15 PM	05	00	896	
11-16-79	9:15 PM	06	00	945	
	10:15 PM	07	00	981	
	11:15 PM	08	00	1009	
11-17-79	1:15 AM	10	00	1056	
	3:15 AM	12	00	1095	
	5:15 AM	14	00	1122	
	7:15 AM	16	00	1144	
	9:15 AM	18	00	1162	
	11:15 AM	20	00	1176	
11-17-79	4:15 PM	25	00	1204	
	9:15 PM	30	00	1228	
11-18-79	7:15 AM	40	00	1262	
	5:15 PM	50	00	1280	
11-19-79	3:15 AM	60	00	1291	
11-19-79	10:45 AM	67	30	1306	GAUGE OUT; CHANGE CHARTS
11-19-79	11:30 AM	68	15	1306	GAUGE RETURNED TO 5357'; OPEN CHOKE
11-19-79	12:00 NOON	68	45	1300	OFF BOTTOM TO DE-ICE CHOKE
11-19-79	12:40 PM	69	25	1268	BACK TO 5357' AFTER DE-ICE
11-19-79	12:45 PM	69	30	1274	OPEN CHOKE
	1:00 PM	69	45	1236	BEGIN 4-POINT
	1:15 PM	70	00	1178	
	1:30 PM	70	15	1133	
	1:45 PM	70	30	1097	END RATE 1

CONTINUED ON PAGE 2

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

CONTINUED FROM PAGE 1

DATE	TIME	CUM. HRS. / MIN.		PSIG @ 5357 FEET	
11-19-79	2:00 PM	70 HRS.	45 MIN.	1054	
	2:15 PM	71	00	962	
	2:30 PM	71	15	893	
	2:45 PM	71	30	836	END RATE II
11-19-79	3:00 PM	71	45	812	
	3:15 PM	72	00	711	
	3:30 PM	72	15	639	
	3:45 PM	72	30	588	END RATE III
11-19-79	4:00 PM	72	45	581	
	4:15 PM	73	00	503	
	4:30 PM	73	15	468	
	4:45 PM	73	30	448	END RATE IV; GAUGE OUT; END TEST

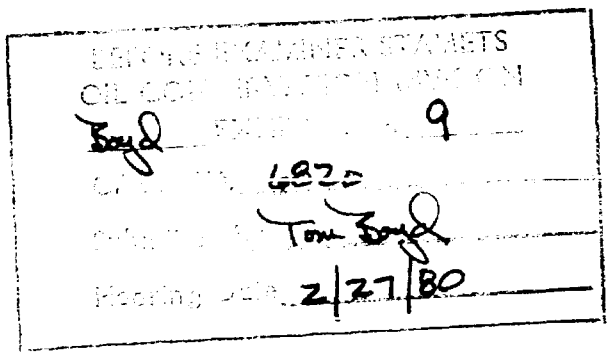
PACKER SETTING REPORT

I, J. Michael Kelly being of lawful age and having full knowledge of the facts hereinbelow set out do state:

That I was employed by Boyd Operating Company in the capacity of Consulting Engineer, that on November 28, 1979, I personally supervised the setting of a Baker Lok-Set Packer in Boyd Operating Company, Blakemore Federal Well No. 1, located in undesignated field, Chaves County, State of New Mexico, at a subsurface depth of 5218', said depth measurement was taken from a tubing tally. That the purpose of setting this packer was to effect a seal in the annular space between the casing and tubing and the packer was set so as to prevent the commingling, in the bore of this well, of gas produced from a stratum below the packer with gas produced from a stratum above the packer; that this packer was properly set and that it did, when set, effectively and absolutely seal off the annular space between the two strings of pipe where it was set in such manner as that it prevented any movement of fluids across the packer.

J. Michael Kelly
Consulting Engineer

Dated: February 25, 1980



NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Form C-107
5-1-61

Operator	County	Date
BOYD OPERATING COMPANY	CHAVES	1/10/80
Address	**Lease**	**Well No.**
P. O. Box 1756, Roswell, New Mexico 88201	Blakemore Federal	#1

Location of Well	Unit	Section	Township	Range
	D	20	9S	26E

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES _____ NO X

2. If answer is yes, identify one such instance: Order No. _____ ; Operator Lease, and Well No.: _____

3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Abo		Wolfcamp
b. Top and Bottom of Pay Section (Perforations)	4198-4210 4272-76, 4323-33, 4340-44		5334-44 5376-80
c. Type of production (Oil or Gas)	Gas		Gas
d. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing

4. The following are attached. (Please check YES or NO)

Yes	No	
X		a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
X		b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
X		c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*
X		d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

Pennzoil Company; P. O. Drawer 1828, Midland, Texas 79702

Margene Blakemore Estate Trust; 2100 1st National Bank Buildng, Midland, Texas 79701

Attention: Mr. Ron Sowders

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES X NO _____. If answer is yes, give date of such notification February 1, 1980.

CERTIFICATE: I, the undersigned, state that I am the President of the Boyd Operating Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

T. M. Boyd
Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard proration unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

PENNZOIL COMPANY
WESTERN DIVISION

MIDLAND DISTRICT GIBRALTAR SAVINGS BUILDING • (915) 682-7316
MAILING ADDRESS P. O. DRAWER 1828 MIDLAND, TEXAS 79702

L. CHARLES MARQUART
District Production Manager

February 5, 1980

Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Boyd Operating Company
Blakemore Federal No. 1
Application for Dual Completion

Gentlemen:

Pennzoil as offset operator to the above referenced well hereby consents to the Application for Multiple Completion (C-107) as submitted by Boyd Operating Company.

The Wolfcamp zone (5334'-5380') will consist of a 320 acre proration unit and the Abo zone (4198'-4344') will consist of a 160 acre proration unit as set out in Rule 104, B, 1 (a).

The Abo will be produced through the tubing annulus and the Wolfcamp through the 2-3/8" tubing.

RECEIVED EXAMINER'S EXHIBITS
OIL CONSERVATION DIVISION
Boyd EXHIBIT NO. 2
CASE NO. 6820
Submitted by: Tom Boyd
Hearing Date 2/27/80

Very truly yours,

PENNZOIL COMPANY
WESTERN DIVISION

L. Charles Marquart

L. Charles Marquart
District Production Manager

LCM/afb

Margene Blakemore Estate Trust
2100 First National Bank Building
Midland, Texas 79701

February 21, 1980

Energy and Minerals Deparment
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Boyd Operating Company
Blakemore Federal #1
Application for Dual Completion

Gentlemen:

~~Pennzoil~~ (Blakemore Estate) as offset operator to the above referenced well hereby consents to the Application for Multiple Completion (C-107) as submitted by Boyd Operating Company.

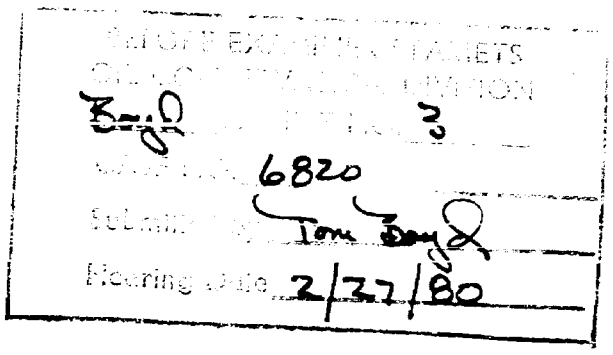
The Wolfcamp zone (5334'-5380') will consist of a 320 acre proration unit and the Abo zone (4198'-4344') will consist of a 160 acre proration unit as set out in Rule 104, B, 1 (a).

The Abo will be produced through the tubing annulus and the Wolfcamp through the 2 3/8" tubing.

Very truly yours,

Tommy Phipps
Trustee

TP/ej



BOYD OPERATING COMPANY
BLAKEMORE FEDERAL #1
660 FNL, 660 FWL, T9S, R26E
Chaves County, New Mexico

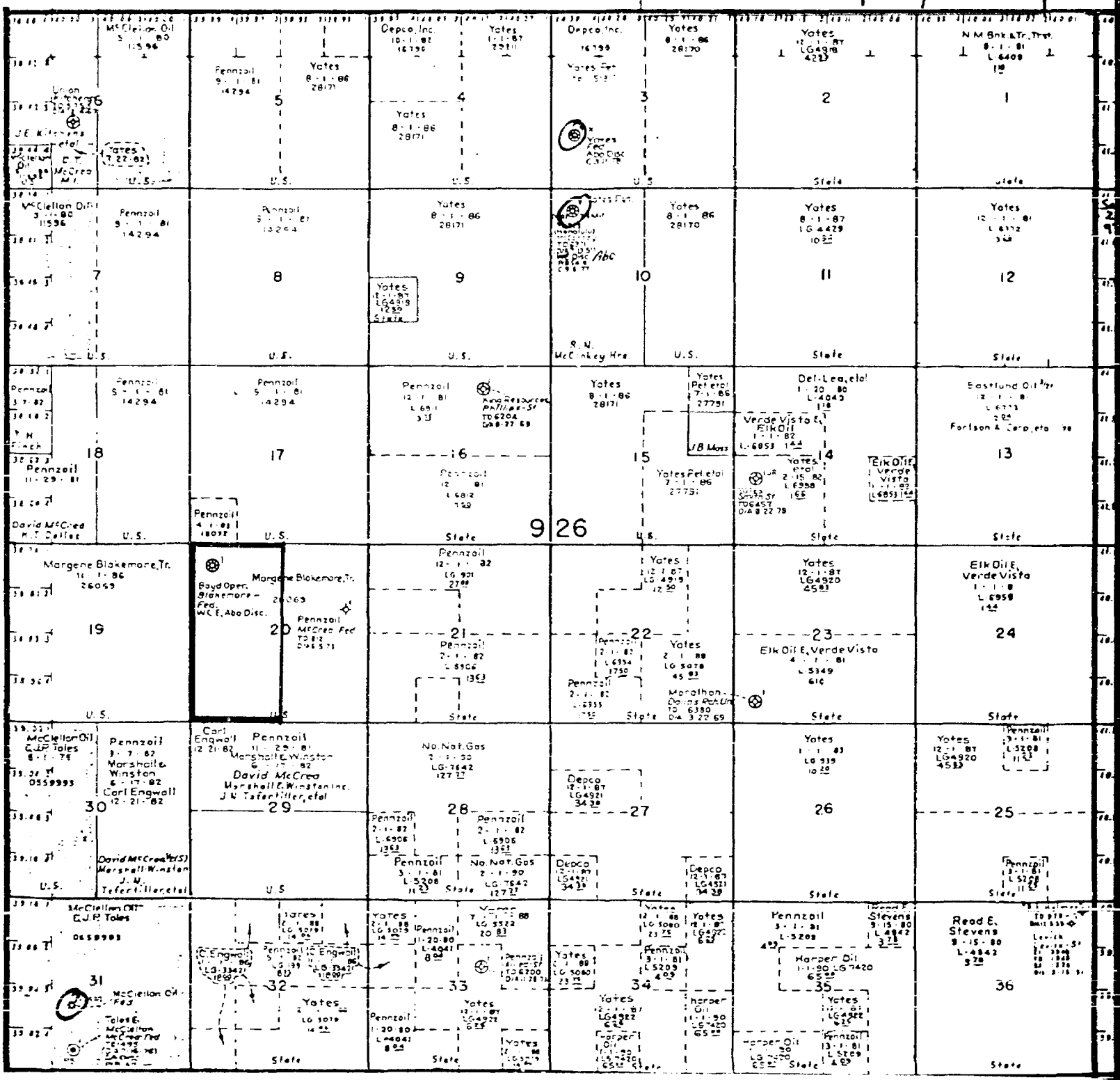
Boyd

4

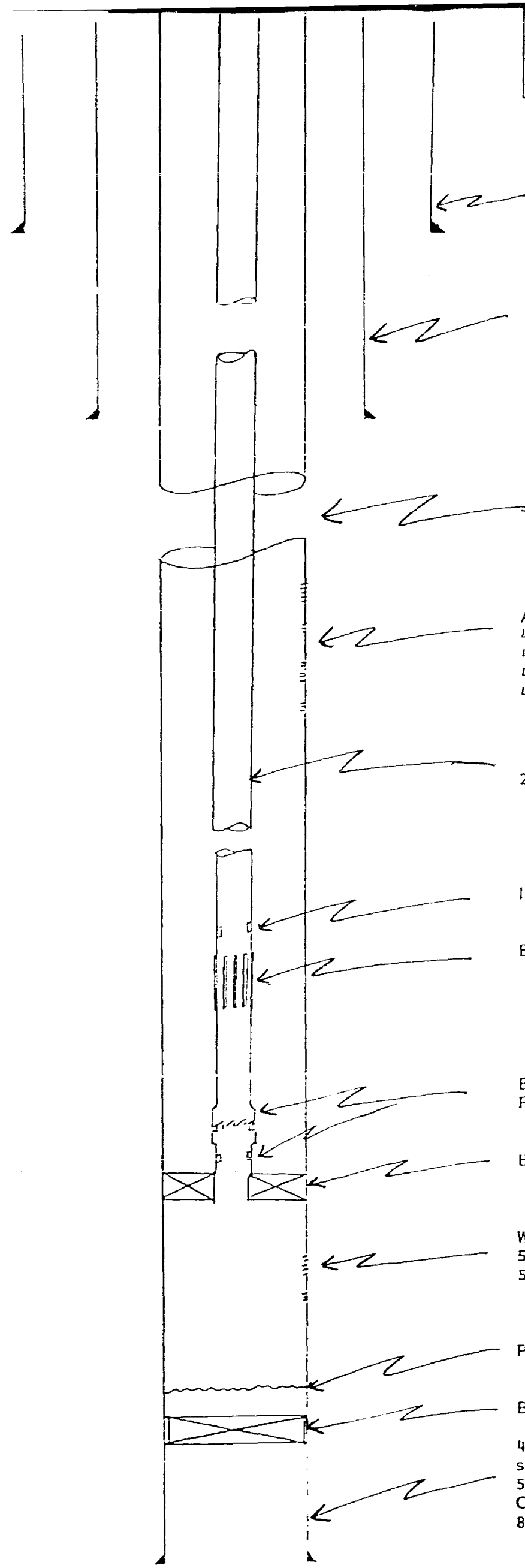
6820

Tom Boyd

2/27/80



BOYD OPERATING COMPANY
BLAKEMORE FEDERAL #1
Sec. 20, T-9-S, R-26-E
Chaves County, New Mexico



13 3/8", 48# (centralizer-btm joint) set @ 312' K.B. Cemented w/300 sx. Class C w/2% $CaCl_2$. Circulated 75 sx.

8 5/8", 24# (3centralizers, 2 baskets) set @ 1576' K.B. Cemented w/775 sx. HowcoLite & Class "C". Circulated 30 sx.

Top of cement @ 3600'.

Abo Perforations - 2 jets/ft.
4198-4210
4272-4276
4323-4333
4340-4344

2 3/8" E.U.E. Tubing.

1.87" Profile Nipple @ 5189'.

Baker Sliding Sleeve @ 5190'.

Baker on-Off Mandrel @ 5217 w/1.78" Profile.

Baker Lok-Set Packer @ 5218'.

Wolfcamp Perforations - 2 jets/ft.
5334-5344
5376-5380

P.B.T.D. - 5525'.

Bridge Plug at 5560' w/35' cement.

4 1/2" 10.5# set @ 5700'. Centralizers & scratchers from 4150-4350, 5300-5350 & 5600-5650. Baskets @ 4200 & 5100'. Cemented w/625 sx. Class C 50-50 Pozmix, 8# Salt, 2# gel & 1/4# flocele.

Boyd 7
6820
Tom Boyd
Hearing Date 2 27 80

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test: ☒ Initial ☐ Annual ☐ Special				Test Date: 12-10-79	
Company: BOYD OPERATING COMPANY			Connection: To Air		
Pool			Formation: ABO		Unit
Completion Date: 12-10-79	Total Depth: 5700		Plug Back TD: 5560	Elevation: 3744GL	Farm or Lease Name: BLAKEMORE FEDERAL
Csg. Size: 4 1/2" / Wt.: 9.50 / d: 4.090 / Set At: 5700			Perforations: From 4198 To 4344		Well No.: 1
Tbg. Size: 2 3/8" / Wt.: 4.60 / d: 2.375 / Set At: 5183			Perforations: From SLIDING SLEEVE To		Unit: D / Sec.: 20 / Twp.: 9S / Rge.: 26E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: DUAL COMPLETION			Packer Set At: 5217 KB		County: CHAVES
Producing Thru: TBG.	Reservoir Temp. °F	Mean Annual Temp. °F: 60°	Baro. Press. – P_a: 13.2		State: NEW MEXICO
L	H	Gg: .706	% CO_2: 5.226	% N_2: .5918	% H_2S / Prover: 6" POSITIVE CHOKE / Meter Run / Taps

FLOW DATA / TUBING DATA / CASING DATA

NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Tubing Press. p.s.i.g.	Tubing Temp. °F	Casing Press. p.s.i.g.	Casing Temp. °F	Duration of Flow
SI		1/8				871		989		
1.		1/8	832		57	832		942		1 HR.
2.		5/32	782		62	782		883		1 HR.
3.		3/16	685		65	685		798		1 HR.
4.		7/32	500		62	500		607		1 HR.
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	.2618		845.2	1.003	1.238	1.078	296
2.	.4173		795.2	.9981	1.238	1.071	439
3.	.6101		698.2	.9952	1.238	1.061	557
4.	.8419		513.2	.9981	1.238	1.045	558
5.							

NO.	P_t	Temp. °R	T_r	Z
1	1.25	517	1.44	.860
2.	1.18	522	1.45	.871
3.	1.03	525	1.46	.889
4.	.76	522	1.45	.915
5.				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure 675 P.S.I.A. _____ P.S.I.A.
Critical Temperature 359 R _____ R

P_c 1002.2 P_c^2 1004.4

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		955.2	912.4	92.0
2		896.2	803.2	201.2
3		811.2	658.0	346.4
4		620.2	384.6	619.8
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2}$ = 10.917 (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 3.304

AOFP = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 978

Absolute Open Flow 978 Mcfd @ 15.025 | Angle of Slope θ 63.5 | Slope, n 500

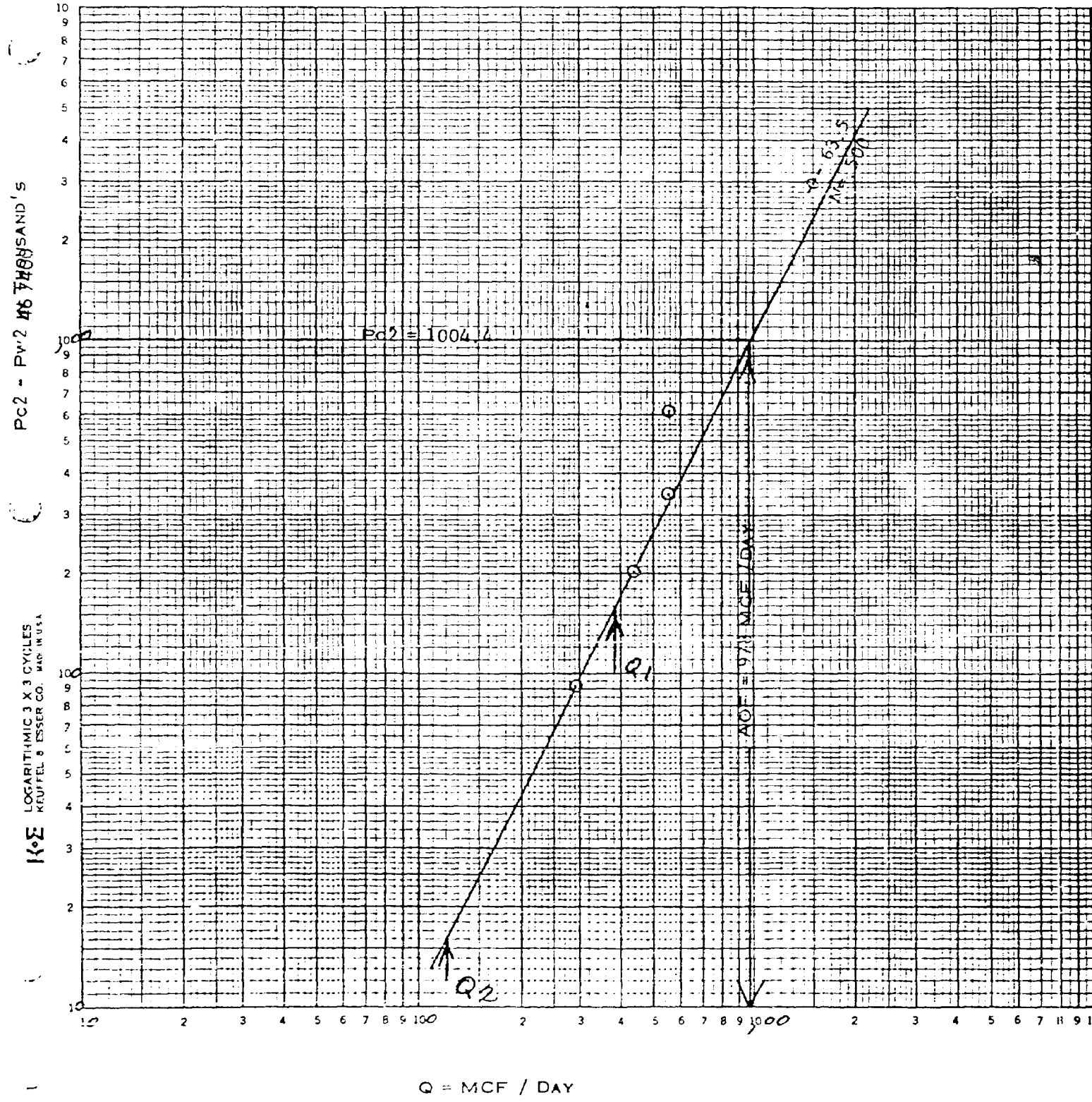
Remarks: _____

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	MB	RR	JWW

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL No. 1

ABS (N) = Q1 = 386 = 2.586359
Q2 = 122 = 2.086359
N = .500000

$$CAOF = 978 \frac{(1004.4)}{(92.0)}^{.500} = 978 \text{ MCF / DAY}$$



NEW-TEX LAB
P. O. BOX 1161
HOBBS, N.M. 88240

CERTIFICATE OF ANALYSIS

No. 1991
Run No.
Date of Run 12-13-79
Date Secured

A Sample of Boyd Blakemore Federal
Secured from West Engineering
At 412 N. Dal Paso Secured by
Hobbs, N.M. 88240 Time Date
Sampling conditions Press
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
.....			
.....			
.....			
Carbon Dioxide	5.226		
Air			
Nitrogen	.5.918		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	80.763		
Ethane	4.234		1.129
Propane	1.901		.524
Butanes			
Iso-Butane	.317		.103
N-Butane	.501		.158
Pentanes			
Iso-Pentane	.229		.084
N-Pentane	.228		.082
Hexanes	.235		.096
Heptanes	.448		.191
Octanes			
TOTAL	100.000		2.367

Calc. Sp. Gr.— 0.7058
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt. 20.48

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.524
Butanes Calc. G.P.M.	.261
Pentanes Plus. G.P.M.	.453
Ethane Calc. G.P.M.	1.129
___ RVP Gasoline G.P.M.	

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.
Dry Basis 1017
Wet Basis 999

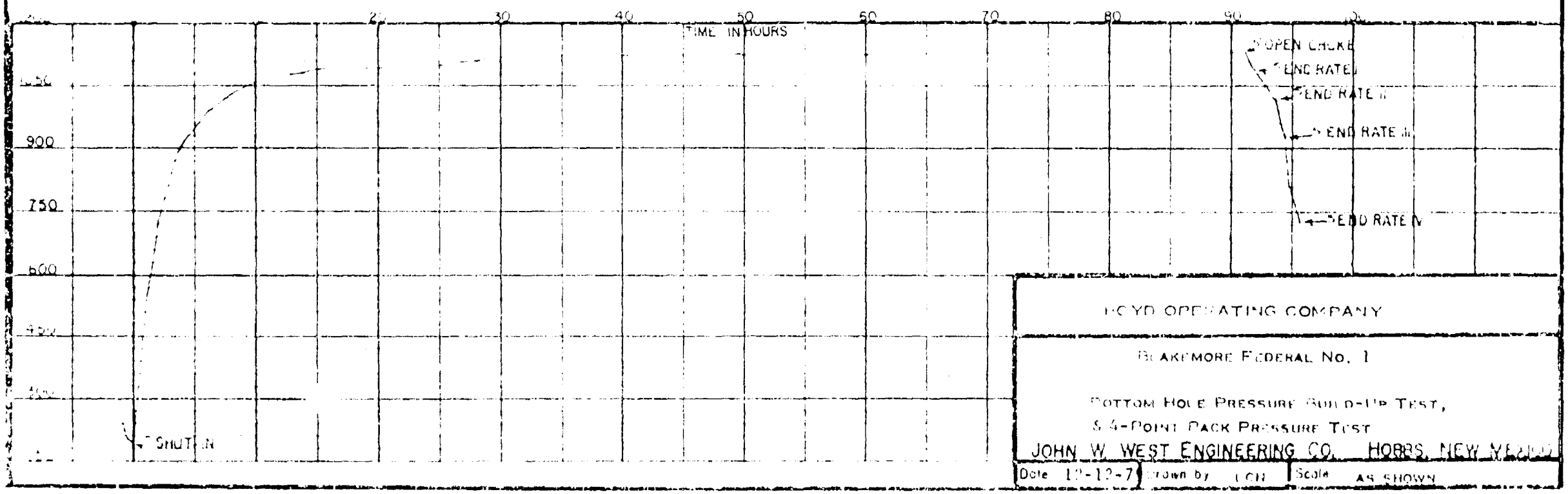
Sulfur Analysis by Titration Gr./100 Cu. Ft.
Hydrogen Sulfide
Mercaptans
Sulfides
Residual Sulfur
Total Sulfur

Run by Deane Simpson Checked by Approved by Deane Simpson

Additional Data and Remarks

TEST DATE:	DECEMBER 6, TO DECEMBER 10, 1979
TEST DEPTH:	5200 FEET
ELEMENT NO.:	14659N
RANGE:	0 - 3600 PSI
CLOCK NO.:	11798
RANGE:	120 HOURS

NOTE: SEE FOLLOWING PAGE FOR TABULATION OF TIMES AND PRESSURES.



HOYD OPERATING COMPANY

BLAKEMORE FEDERAL NO. 1

BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT PACK PRESSURE TEST

JOHN W. WEST ENGINEERING CO. HOBBS, NEW MEXICO

Date 12-12-79 | Drawn by LCH | Scale AS SHOWN

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIME AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: DECEMBER 6, TO DECEMBER 10, 1979
TEST DEPTH: 5200 FEET
ELEMENT NO.: 14659N
OPERATOR: M.B.

DATE	TIME	CUM. HRS.	/ MIN.	PSIG @ 5200 FEET	
12-6-79	1:00 PM			254	GAUGE REACHED 5200'; FLOWING
	1:15 PM			221	
	1:30 PM			207	
	1:45 PM			201	
12-6-79	2:00 PM	00 HRS.	00 MIN.	190	SHUT-IN; BEGIN BUILD-UP
	2:15 PM	00	15	301	
	2:30 PM	00	30	362	
	2:45 PM	00	45	460	
	3:00 PM	01	00	546	
	3:15 PM	01	15	591	
	3:30 PM	01	30	635	
	3:45 PM	01	45	677	
	4:00 PM	02	00	723	
12-6-79	4:30 PM	02	30	779	
	5:00 PM	03	00	834	
	5:30 PM	03	30	891	
	6:00 PM	04	00	916	
12-6-79	7:00 PM	05	00	951	
	8:00 PM	06	00	985	
12-6-79	10:00 PM	08	00	1028	
12-7-79	12:00 MIDNIGHT	10	00	1055	
12-7-79	5:00 AM	15	00	1086	
	10:00 AM	20	00	1099	
	3:00 PM	25	00	1108	
	8:00 PM	30	00	1114	
12-8-79	6:00 AM	40	00	1121	
	4:00 PM	50	00	1125	
12-9-79	2:00 AM	60	00	1130	
	12:00 NOON	70	00	1132	
	10:00 PM	80	00	1134	
12-10-79	8:00 AM	90	00	1136	
12-10-79	11:20 AM	91	20	1136	END BUILD-UP
12-10-79	11:20 AM	91	20	1136	OPEN CHOKE
	11:35 AM	91	35	1114	BEGIN 4-POINT
	11:50 AM	91	50	1104	
	12:05 PM	92	05	1099	
	12:20 PM	92	20	1092	END RATE I
12-10-79	12:35 PM	92	35	1068	
	12:50 PM	92	50	1050	
	1:05 PM	93	05	1040	
	1:20 PM	93	20	1026	END RATE II

CONTINUED ON PAGE 2

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

CONTINUED FROM PAGE 1

DATE	TIME	CUM. HRS. / MIN.		PSIG @ 5200 FEET	
12-10-79	1:35 PM	93 HRS.	35 MIN.	987	
	1:50 PM	93	50	964	
	2:05 PM	94	05	956	
	2:20 PM	94	20	925	END RATE III
12-10-79	2:35 PM	94	35	878	
	2:50 PM	94	50	823	
	3:05 PM	95	05	770	
	3:20 PM	95	20	723	END RATE IV; END 4-POINT; GAUGE OUT; END TEST

Boyd 8
6820
Tom Boyd
Recvd 2/27/80

NEW MEXICO OIL CONSERVATION COMMSSION

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date	
Company: BOYD OPERATING COMPANY		Connection: TO AIR			
Pool: WILDCAT		Formation: WOLFCAMP			Unit
Completion Date: 11-15-79	Total Depth: 5700		Plug Back T.D.: 5560	Elevation: 3744 GL	Farm or Lease Name: BLAKEMORE FEDERAL
Csg. Size: 4 1/2" / Wt.: 9.50 / d: 4.090 / Set At: 5700				Perforations: From 5334 To 5380	Well No.: 1
Tbg. Size: 2 3/8" / Wt.: 4.60 / d: 2.375 / Set At: 5290				Perforations: From OPEN To END	Unit: — Sec.: 20 Twp.: 9S Rge.: 36E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: SINGLE			Packer Set At: NONE		County: CHAVES
Producing Thru: TUBING	Reservoir Temp. °F: 128 @ 5357	Mean Annual Temp. °F: 60	Baro. Press. – P_a: 13.2		State: NEW MEXICO
L: 5357	H: 5357	Gg: .652	% CO_2: 3.116	% N_2: 4.304	% H_2S:	Prover: 2"	Meter Run:	Taps:

NO.	FLOW DATA: Prover Line Size x Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	TUBING DATA: Press. p.s.i.g.	Temp. °F	CASING DATA: Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					1102				
1.	2 x 1/8	850		61	961				1 HR.
2.	2 x 3/16	680		61	729				1 HR.
3.	2 x 1/4	425		62	483				1 HR.
4.	2 x 3/8	130		64	315				1 HR.
5.									

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	.2648		863.2	.9990	1.238	1.077	304
2	.6082		693.2	.9990	1.238	1.061	769
3	1.087		438.2	.9981	1.238	1.039	612
4	2.378		143.2	.9962	1.238	1.012	425
5							

NO.	P_t	Temp. °R	T_t	Z
1	1.23	521	1.44	.862
2	.99	521	1.44	.888
3	.63	522	1.44	.926
4	.20	524	1.44	.977
5				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
Specific Gravity Separator Gas _____ XXXXXXXXXX
Specific Gravity Flowing Fluid XXXXX _____
Critical Pressure 699 P.S.I.A. _____ P.S.I.A.
Critical Temperature 363 R _____ R

P_c 1147.8 P_c^2 1317.4

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		969.3	939.5	377.9
2		744.8	554.7	762.7
3		529.5	280.4	1037.0
4		407.2	165.8	1151.6
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.486$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.867$

$\therefore \left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = .568$

Absolute Open Flow 568 MCF / DAY Mcfd @ 15.025 Angle of Slope θ 63.5 Slope, n .500

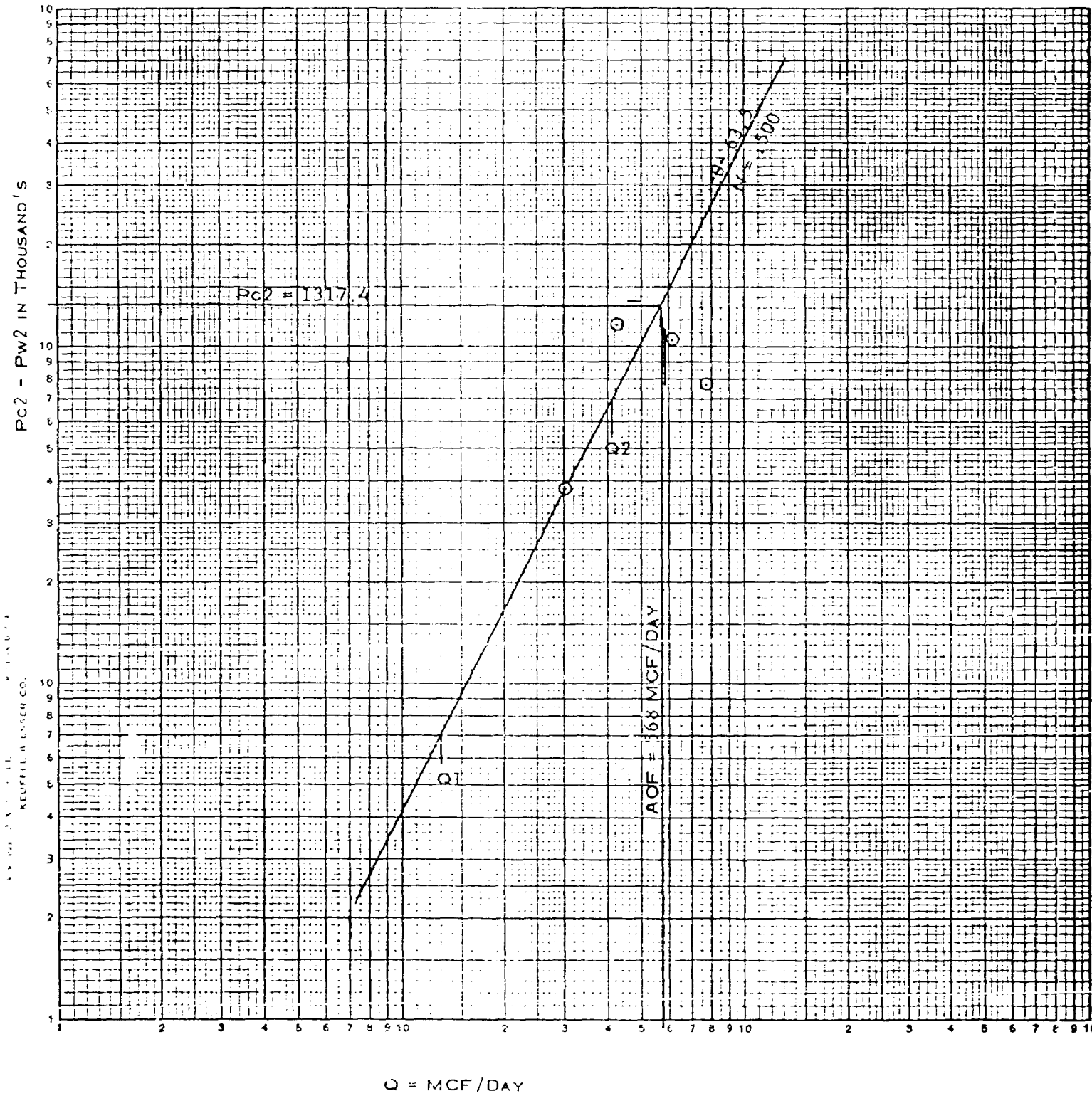
Remarks: CALCULATED FROM KNOWN BHP. BHP MEASURED WITH KUSTER GAUGE

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	LCH	RR	JWW

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1

ABS SLOPE (N) = Q1 = 411 = 2.613943
Q2 = 130 = 2.113943
N = .500000

CAOF = .304 $\frac{(1317.4)^{.500}}{(377.9)}$ = 568 MCF/DAY



WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_t or P_w)

FROM KNOWN BOTTOM HOLE PRESSURE (P_s or P_s)

Form C-111F
Adopted 1-1-65

COMPANY Boyd LEASE Alabama Fuel WELL NO. 1 DATE

LOCATION: Unit Section 20 Township 9 Range 36

L 5357 H 5357 L/H 1.00 G .1652 % CO_2 3.116 % N_2 4.304 % H_2S

GH 3493 P_{cr} 699 (TABLE IX & X) T_{cr} 363 (TABLE IX & X)

LINE		1	2	3	4	5	6	7	8
1	T_w(W.H. °R)	534	534	534	534	534	534	534	534
2	T_s(B.H. °R)	588	588	588	588	588	588	588	588
3	$T=(\frac{T_w + T_s}{2})$	561	561	561	561	561	561	561	561
4	Z (Est.)	.852	.860	.882	.890	.915	.913	.934	.937
5	TZ	478	482	495	499	513	513	524	526
6	GH/TZ	7.31	7.24	7.05	6.99	6.805	6.775	6.666	6.645
7	e^S(Table XIV)	1.315	1.312	1.303	1.300	1.291	1.289	1.284	1.283
8	P_f or P_s	1110.2	1110.2	849.2	849.2	601.2	601.2	461.2	461.2
9	P_f^2 or P_s^2	1232.5	1232.5	721.2	721.1	361.4	361.4	212.7	212.7
10	$P_c^2 = P_f^2/e^s$ or $P_w^2 = P_s^2/e^s$	937.1	939.5	553.6	554.7	280.0	280.3	165.6	165.8
11	P_c or P_w	968.0	969.3	744.0	744.8	529.2	529.5	407.6	407.2
12	$P_n=(\frac{P_w + P_s}{2})$ or $(\frac{P_c + P_f}{2})$	1039.1	1039.7	796.6	796.0	565.2	565.3	434.1	434.2
13	$P_r = (P/P_{cr})$	1.49	1.49	1.14	1.14	.81	.81	.62	.62
14	$T_r = (T/T_{cr})$	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_{sw})

FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

Form C-122P
Adopted 9-1-65

COMPANY Boyd LEASE Rhoomie WELL NO. 1 DATE _____

LOCATION: Unit _____ Section 20 Township 9 Range 36

L 5357 H 5357 L/H 1.00 G .6552 % CO_2 3.116 % N_2 4.304 % H_2S _____

GH 3493 P_{ct} 699 (TABLE IX & X) T_{ct} 363 (TABLE IX & X)

LINE		1	2	3	4	5	6	7	8
1	T_w(W.H. °R)	530	534						
2	T_s(B.H. °R)	588	588						
3	$T=(\frac{T_w + T_s}{2})$	561	561						
4	Z (Est.)	.831	.839						
5	TZ	466.2	470.7						
6	GH/TZ	7.493	7.421						
7	e^s(Table XIV)	1.324	1.321						
8	P_f or P_s	1315.2	1315.2						
9	P_f^2 or P_s^2	1740.3	1740.3						
10	$P_c^2 = P_f^2/e^s$ or $P_w^2 = P_s^2/e^s$	1314.0	1312.5						
11	P_c or P_{sw}	1146.3	1147.8						
12	$P=(\frac{P_w + P_s}{2})$ or $(\frac{P_c + P_f}{2})$	1232.7	1233.5						
13	$P_r = (P/P_{ct})$	1.76	1.76						
14	$T_r = (T/T_{ct})$	1.55	1.55						
15	Z (Table XI)								

NEW-TEX LAB
P. O. BOX 1161
HOBBS, N.M. 88240

CERTIFICATE OF ANALYSIS

No. 1912
Run No.
Date of Run 11-20-79
Date Secured 11-19-79

Sample of Boyd Operating
Secured from West Engineering
412 N. Dal Paso
Hobbs, N. M. 88240
Secured by
Time Date
Sampling conditions Press.
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	3.116		
Nitrogen	4.304		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Ethane	86.408		
Propane	3.592		.958
Isobutane	1.182		.326
Butanes			
n-Butane	.193		.063
Butane	.456		.143
Pentanes			
i-Pentane	.143		.052
n-Pentane	.170		.061
Hexanes	.166		.068
Heptanes	.270		.115
Octanes			
TOTAL	100.000		1.786

Calc. Sp. Gr.— 0.6517
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt.

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.326
Butanes Calc. G.P.M.	.206
Pentanes Plus. G.P.M.	.296
Ethane Calc. G.P.M.	.958
___ RVP Gasoline G.P.M.	

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.
Dry Basis 1023
Wet Basis 1005

Sulfur Analysis by Titration Gr./100 Cu. Ft.
Hydrogen Sulfide
Mercaptans
Sulfides
Residual Sulfur
Total Sulfur

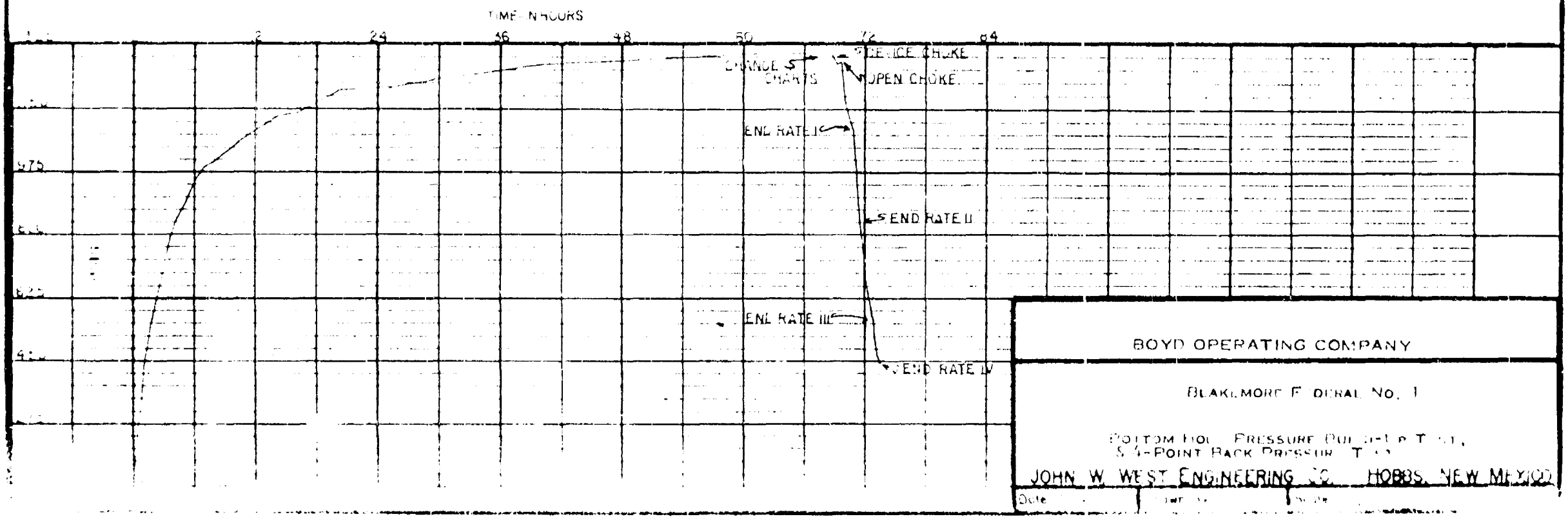
Analyzed by Deane Simpson Checked by Approved by Deane Simpson

Additional Data and Remarks

TEST DATE : NOVEMBER 16, TO NOVEMBER 19, 1979
TEST DEPTH: 5357 FEET

ELEMENT NO. : 17711
RANGE : 0 - 2550 PSI
CLOCK NO. : 22509
RANGE : 72 HOURS
CLOCK NO. : 21389
RANGE : 24 HOURS

NOTE: SEE FOLLOWING PAGE FOR TABULATION OF TIMES AND PRESSURES.



BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: NOVEMBER 16, TO NOVEMBER 19, 1979
TEST DEPTH: 5357 FEET
ELEMENT NO.: 17711
OPERATOR: B.J.T.

DATE	TIME	CUM. HRS.	/ MIN.	PSIG @ 5357 FEET	
11-16-79	3:00 PM			111	GAUGE REACHED 5357' FLOWING
11-16-79	3:15 PM	00 HRS.	00 MIN.	111	SHUT-IN; BEGIN BUILD-UP
	3:30 PM	00	15	214	
	3:45 PM	00	30	301	
	4:00 PM	00	45	367	
	4:15 PM	01	00	435	
	4:30 PM	01	15	480	
	4:45 PM	01	30	526	
	5:00 PM	01	45	562	
	5:15 PM	02	00	617	
	5:30 PM	02	15	657	
	5:45 PM	02	30	682	
	6:00 PM	02	45	724	
	6:15 PM	03	00	756	
11-16-79	6:45 PM	03	30	795	
	7:15 PM	04	00	836	
	7:45 PM	04	30	866	
	8:15 PM	05	00	896	
11-16-79	9:15 PM	06	00	945	
	10:15 PM	07	00	981	
	11:15 PM	08	00	1009	
11-17-79	1:15 AM	10	00	1056	
	3:15 AM	12	00	1095	
	5:15 AM	14	00	1122	
	7:15 AM	16	00	1144	
	9:15 AM	18	00	1162	
	11:15 AM	20	00	1176	
11-17-79	4:15 PM	25	00	1204	
	9:15 PM	30	00	1228	
11-18-79	7:15 AM	40	00	1262	
	5:15 PM	50	00	1280	
11-19-79	3:15 AM	60	00	1291	
11-19-79	10:45 AM	67	30	1306	GAUGE OUT; CHANGE CHARTS
11-19-79	11:30 AM	68	15	1306	GAUGE RETURNED TO 5357'; OPEN CHOKE
11-19-79	12:00 NOON	68	45	1300	OFF BOTTOM TO DE-ICE CHOKE
11-19-79	12:40 PM	69	25	1268	BACK TO 5357' AFTER DE-ICE
11-19-79	12:45 PM	69	30	1274	OPEN CHOKE
	1:00 PM	69	45	1236	BEGIN 4-POINT
	1:15 PM	70	00	1178	
	1:30 PM	70	15	1133	
	1:45 PM	70	30	1097	END RATE 1

CONTINUED ON PAGE 2

BOYD OPERATING COMPANY
BLAKEMORE FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST,
& 4-POINT BACK PRESSURE TEST
TABULATION OF TIMES AND PRESSURES

CONTINUED FROM PAGE 1

DATE	TIME	CUM. HRS. / MIN.		PSIG @ 5357 FEET	
11-19-79	2:00 PM	70 HRS.	45 MIN.	1054	
	2:15 PM	71	00	962	
	2:30 PM	71	15	893	
	2:45 PM	71	30	836	END RATE II
11-19-79	3:00 PM	71	45	812	
	3:15 PM	72	00	711	
	3:30 PM	72	15	639	
	3:45 PM	72	30	588	END RATE III
11-19-79	4:00 PM	72	45	581	
	4:15 PM	73	00	503	
	4:30 PM	73	15	468	
	4:45 PM	73	30	448	END RATE IV; GAUGE OUT; END TEST

PACKER SETTING REPORT

I, J. Michael Kelly being of lawful age and having full knowledge of the facts hereinbelow set out do state:

That I was employed by Boyd Operating Company in the capacity of Consulting Engineer, that on November 28, 1979, I personally supervised the setting of a Baker Lok-Set Packer in Boyd Operating Company, Blakemore Federal Well No. 1, located in undesignated field, Chaves County, State of New Mexico, at a subsurface depth of 5218', said depth measurement was taken from a tubing tally. That the purpose of setting this packer was to effect a seal in the annular space between the casing and tubing and the packer was set so as to prevent the commingling, in the bore of this well, of gas produced from a stratum below the packer with gas produced from a stratum above the packer; that this packer was properly set and that it did, when set, effectively and absolutely seal off the annular space between the two strings of pipe where it was set in such manner as that it prevented any movement of fluids across the packer.

J. Michael Kelly
Consulting Engineer

Dated: February 25, 1980

SERVICE EXAMINER'S STATEMENTS
OIL CONSERVATION DIVISION
Boyd [illegible] 9
[illegible] 6820
[illegible] Tom Boyd
Hearing Date 2/27/80

CAMPBELL AND BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
PAUL R. CALDWELL

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

February 6, 1980

RECEIVED
OIL CONSERVATION DIVISION
SANTA FE

Case 6820

Mr. Joe D. Ramey
Division Director
Oil Conservation Division
New Mexico Department of Energy
& Minerals
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Application of Boyd Drilling Co. for Dual Completion and Unorthodox Gas Well Location, Chaves County, New Mexico

Dear Mr. Ramey:

Enclosed in triplicate is the application of Boyd Operating Co. in the above-referenced matter.

The applicant requests that this case be included on the docket for the examiner hearing scheduled to be held on February 27, 1980.

Very truly yours,

William F. Carr

William F. Carr

WFC:lr

Enclosures

cc: Mr. Tom Boyd

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF BOYD OPERATING CO. FOR APPROVAL OF DUAL COMPLETION AND UNORTHODOX GAS WELL LOCATION, CHAVES COUNTY, NEW MEXICO.

No. 6920

APPLICATION

Comes now BOYD OPERATING CO., by and through its undersigned attorneys and hereby makes application for an order authorizing the dual completion of its Blakemore Federal Well No. 1 located 660 feet from the North and East lines of Section 20, Township 9 South, Range 26 East, N.M.P.M., Chaves County, New Mexico, for production from the Wolfcamp formation and the Abo formation and for approval of an unorthodox location for said well and in support thereof would show the Commission:

1. Applicant drilled the Blakemore Federal Well No. 1 to to the Granite Wash which was not productive of hydrocarbons and thereafter plugged back and proposes to recomplete the well as a gas-gas dual completion in the Wolfcamp and Abo formations.

2. The subject well will be completed in such a manner as to effectively prevent communication between the two producing horizons.

3. The subject well was previously drilled at an orthodox location but due to the proposed recompletion, is now located at an unorthodox location.

4. Approval of this application will result in a greater ultimate recovery of hydrocarbons from the Wolfcamp and Abo formations.

5. Approval of this application will be in the interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, BOYD OPERATING CO. requests that this application be set for hearing before the Division's duly appointed examiner and that after notice and hearing as required by law, the Division enter its order approving this application and making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By _____

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF BOYD OPERATING CO. FOR APPROVAL OF DUAL COMPLETION AND UNORTHODOX GAS WELL LOCATION, CHAVES COUNTY, NEW MEXICO.

No. 6820

APPLICATION

Comes now BOYD OPERATING CO., by and through its undersigned attorneys and hereby makes application for an order authorizing the dual completion of its Blakemore Federal Well No. 1 located 660 feet from the North and East lines of Section 20, Township 9 South, Range 26 East, N.M.P.M., Chaves County, New Mexico, for production from the Wolfcamp formation and the Abo formation and for approval of an unorthodox location for said well and in support thereof would show the Commission:

1. Applicant drilled the Blakemore Federal Well No. 1 to to the Granite Wash which was not productive of hydrocarbons and thereafter plugged back and proposes to recomplete the well as a gas-gas dual completion in the Wolfcamp and Abo formations.

2. The subject well will be completed in such a manner as to effectively prevent communication between the two producing horizons.

3. The subject well was previcusly drilled at an orthodox location but due to the proposed recompletion, is now located at an unorthodox location.

4. Approval of this application will result in a greater ultimate recovery of hydrocarbons from the Wolfcamp and Abo formations.

5. Approval of this application will be in the interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, BOYD OPERATING CO. requests that this application be set for hearing before the Division's duly appointed examiner and that after notice and hearing as required by law, the Division enter its order approving this application and making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By s/ William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF BOYD OPERATING CO. FOR APPROVAL OF DUAL COMPLETION AND UNORTHODOX GAS WELL LOCATION, CHAVES COUNTY, NEW MEXICO.

No. 6820

APPLICATION

Comes now BOYD OPERATING CO., by and through its undersigned attorneys and hereby makes application for an order authorizing the dual completion of its Blakemore Federal Well No. 1 located 660 feet from the North and East lines of Section 20, Township 9 South, Range 26 East, N.M.P.M., Chaves County, New Mexico, for production from the Wolfcamp formation and the Abo formation and for approval of an unorthodox location for said well and in support thereof would show the Commission:

1. Applicant drilled the Blakemore Federal Well No. 1 to to the Granite Wash which was not productive of hydrocarbons and thereafter plugged back and proposes to recomplete the well as a gas-gas dual completion in the Wolfcamp and Abo formations.

2. The subject well will be completed in such a manner as to effectively prevent communication between the two producing horizons.

3. The subject well was previously drilled at an orthodox location but due to the proposed recompletion, is now located at an unorthodox location.

4. Approval of this application will result in a greater ultimate recovery of hydrocarbons from the Wolfcamp and Abo formations.

5. Approval of this application will be in the interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, BOYD OPERATING CO. requests that this application be set for hearing before the Division's duly appointed examiner and that after notice and hearing as required by law, the Division enter its order approving this application and making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By s/ William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

ROUGH

dr/

CHAVES

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6820

Order No. R- 6299

APPLICATION OF BOYD OPERATING CO.
FOR A DUAL COMPLETION AND UNORTHODOX WELL LOCATION,
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 o'clock a.m. on February 27, 19 80, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this ____ day of March, 19 80, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Boyd Operating Co., seeks authority to complete its Blakemore Federal Well No. 1 / ~~xxxxxxxxxxxxxxxxxxxxxxxx~~ at an unorthodox Wolfcamp location 660 feet from the North line and 660 feet from the West line of Section 20, Township 9 South, Range 26 East, NMPM, _____ County, New Mexico, as a dual completion (conventional) ~~(combination)~~ ~~(tubingless)~~ to produce ~~oil~~ gas from the Wolfcamp and Abo formations.

(3) That the applicant seeks the dismissal of that portion of this case for an unorthodox location, the actual well location being in Unit D rather than Unit D as advertised.

(4) That the application for unorthodox location should be dismissed without prejudice.

(5) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

(6) That approval of the subject application will prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Boyd Operating Co, is hereby authorized to complete its Blakemore Federal ~~at an unorthodox Wolfcamp location~~ Well No. 1/, located in Unit D of Section 20, Township 9 South, Range 26 East, NMPM, Chaves County, New Mexico, as a dual completion (conventional) ~~(combination) (tubingless)~~ to produce ~~oil~~ gas from the Wolfcamp formation through a string of 2 3/8-inch tubing and gas from the Abo formation through the casing-tubing annulus with separation of the zones by means of a packer set at approximately 5218 feet.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Division Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take packer leakage tests upon completion and annually thereafter during the Annual Shut In Pressure Test Period for ~~the~~ gas wells in Southeast New Mexico ~~Pool~~.

(4) That 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.

(2) That that portion of this Case seeking approval of an unorthodox location for said Blakemore Federal Well No 1 is hereby dismissed.

(3) That the applicant must obtain separate approval for the unorthodox location of the subject well at a point 660 feet from the North line and 660 feet from the West line of the aforesaid Section 20.