STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

TONEY ANAYA
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

June 8, 1984

Mr. Joe D. Ramey
Oil Conservation Div.
P.O. Box 2088
Santa Fe, NM 87501

Re: M. J. Brannon Federal 20 #1R J-20-25N-9W

Dear Mr. Ramey:

Emergency approval of a hardship gas well classification is hereby granted to the referenced well. This approval will expire September 5, 1984.

Sincerely,

Frank T. Chavez
District Supervisor

FTC/dj

xc: M. J. Brannon
EPNG
Well File

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

June 7, 1984

Emergency granted expires 7-5-84

Mr. Frank Chavez
New Mexico Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico 87410

REF: M. J. Brannon
Case No. 8216
June 6, 1984
Hardship Gas Well
Federal 20, No. 1-R

Dear Mr. Chavez:

Enclosed you will find Exhibits No. 2 through No. 5 presented during the above-referred-to hearing. Exhibit No. 1 was a copy of the original application submitted April 25, 1984. Also enclosed you will find the copy of the original application that you returned to this office.

The examiner, Dick Stamets, was advised during the first portion of the hearing that the application was to be amended as to the Minimum Rate Requested. The Minimum Rate was amended from 100 MCF per day to 130 MCF per day. The amendment was requested due to additional production history indicating that the well would probably be capable of producing 100 to 130 MCF per day.

The examiner approved hearing the case with the understanding that the case would be continued until July 11, 1984 and the offset operators would be notified of the amended minimum rate.

For your information, the following is an explanation of Exhibits No. 2 through No. 5.

Exhibit No. 2 - Production Data

Exhibit presented to also indicate water production. The water production was inadvertently not indicated on the production data submitted with the original application.

Also included with the production data is a tabulation of the Average Gas Gathering Line Pressures during the period or reported production.

Exhibit No. 3 - Wellbore Sketch

Exhibit presented to correct the depth of 2-3/8" tubing to 6390', 15' above top perforation. The wellbore sketch with the original application indicated a depth of 6327'.

Exhibit No. 4 - Production Decline Curve and Gathering Line Pressure Curve

Exhibit presented to indicate affect of apparent damage to formation, and productivity, after shut in during 1983. When an attempt to produce well in August 1983 indicated a problem with water production, a workover was performed. The productivity after the workover was not as good as the productivity before shut in during 1983.

The Gathering Line Pressure curve is to indicate the affect on productivity and when the pressure increases the well will log off and has to be swabbed to continue production.

Exhibit No. 5 - Cash Flow Analysis

Exhibit presented to indicate estimated volume of gas to be recovered or produced with the well approved or classified as a Hardship Gas Well. The initial production was estimated to be 100 MCF per day, or 3,000 MCF per month, and declined at the rate of 5.0% per year.

It is estimated that 608,911 MCF could be recovered with approval as Hardship Gas Well. Without approval as Hardship Gas Well, it is estimated that possibly 400,000 MCF to 608,911 MCF will not be recovered.

Also you will find enclosed a copy of testimony concerning the consideration given to squeeze cementing, installation of smaller diameter tubing, installation of pumping unit, rods and subsurface pump and plunger installation.

After conclusion of hearing Mr. Dick Stamets advised that I contact you concerning the approval of a 90 day emergency period to prevent the well from being shut in during the time period the case is under consideration.

Therefore, it is requested that the 90 day emergency period be immediately approved.

If you have any questions please do not hesitate to call upon me.

Very truly yours,

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon w/o Encl.
Mr. Dick Stamets, OCD, Santa Fe, N.M. w/o Encl.
Mr. Bill Carr, Attorney, Santa Fe, N.M. w/o Encl.
Enclosures

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Joe Ramey, Director
N.M. Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

REF: M. J. Brannon, Operator
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
Basin Dakota Pool
San Juan County, New Mexico

Dear Mr. Ramey:

Enclosed you will find the Application for Classification as Hardship Gas well for the above-referred-to well.

It is also requested that an emergency approval, on a temporary basis for a permit not to exceed 90 days or until such time of final action by your office, be granted.

Thank you for your consideration and cooperation in this matter.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Frank Chavez, NMOCD, Aztec, N.M.
El Paso Exploration Company, Farmington, N.M.
R. L. Bayless, Farmington, N.M.
Energy Reserves Group, Casper, Wyoming
Damson Oil Company, Houston, Texas
Enclosure

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Chris Holten
DAMSON OIL COMPANY
201 N. Wolcott, Suite 107
Casper, Wyoming 82601

REF: Application of M. J. Brannon
Operator for Classification as
Hardship Gas Well
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
San Juan County, New Mexico

Dear Mr. Holten:

Enclosed you will find a copy of the above-referred-to application.

Your notification, to Mr. Joe Ramey, Director Oil Conservation Commission, Santa Fe, New Mexico, of your approval of the application would be appreciated.

Thank you for your consideration and cooperation in this matter. If you have any questions please do not hesitate to call upon me.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Joe Ramey, Director
Oil Conservation Commission, Santa Fe, N.M.
Mr. Frank Chaves
Oil Conservation Commission, Aztec, N.M.

Enclosure

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P O Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Robert L. Bayless
P. O. Box 1541
Farmington, N.M. 87499

REF: Application of M. J. Brannon
Operator, for Classification as
Hardship Gas Well
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
San Juan County, New Mexico

Dear Mr. Bayless:

Enclosed you will find a copy of the above-referred-to application.

Your notification to Mr. Joe Ramey, Director, Oil Conservation Commission, Santa Fe, New Mexico, of your approval of the application would be appreciated.

Thank you for your consideration and cooperation in this matter. If you have any questions, please do not hesitate to call upon me.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Joe Ramey, Director
Oil Conservation Commission, Santa Fe, N.M.
Mr. Frank Chavez
Oil Conservation Commission, Aztec, N.M.

Enclosure

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Don Read
Regional Production Manager
El Paso Exploration Company
P. O. Box 4289
Farmington, New Mexico 87499

REF: Application of M. J. Brannon
Operator, for Classification as
Hardship Gas Well
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
San Juan County, New Mexico

Dear Mr. Read:

Enclosed you will find a copy of the above-referred-to application.

Your notification, to Mr. Joe Ramey, Director, Oil Conservation Commission, Santa Fe, New Mexico, of your approval of the application would be appreciated.

Thank you for your consideration and cooperation in this matter. If you have any questions, please do not hesitate to call upon me.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH
Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Joe Ramey, Director
Oil Conservation Commission, Santa Fe, N.M.
Mr. Frank Chavez
Oil Conservation Commission, Aztec, N.M.

Enclosure

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Lee McLean
District Production Manager
Energy Reserves Group
P. O. Box 3280
Casper, Wyoming 82602

REF: Application for M. J. Brannon
Operator, for Classification as
Hardship Gas Well
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
San Juan County, New Mexico

Dear Mr. McLean:

Enclosed you will find a copy of the above-referred-to application.

Your notification, to Mr. Joe Ramey, Director, Oil Conservation Commission, Santa Fe, New Mexico, of your approval of the application would be appreciated.

Thank you for your consideration and cooperation in this matter. If you have any questions, please do not hesitate to call upon me.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Joe Ramey, Director
Oil Conservation Commission, Santa Fe, N.M.
Mr. Frank Chavez
Oil Conservation Commission, Aztec, N.M.

Enclosure

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

3001 Northridge Drive
P.O. Drawer 419
Farmington, New Mexico 87401
(505) 327-4892

April 25, 1984

Mr. Floyd E. Ellison
Vice President - Operations
Rocky Mountain Division
Consolidated Oil & Gas Inc.
1860 Lincoln Street, Suite 1300
Denver, Colorado 80295

REF: Application of M. J. Brannon
Operator, for Classification as
Hardship Gas Well
Federal 20, No. 1-R
Unit J, Section 20-T25N-R9W
San Juan County, New Mexico

Dear Mr. Ellison:

Enclosed you will find a copy of the above-referred-to application.

Your notification, to Mr. Joe Ramey, Director, Oil Conservation Commission, Santa Fe, New Mexico, of your approval of the application would be appreciated.

Thank you for your consideration and cooperation in this matter. If you have any questions, please do not hesitate to call upon me.

Very truly yours,

ORIGINAL SIGNED BY
EWELL N. WALSH

Ewell N. Walsh, P.E.
President

ENW:rr
cc: M. J. Brannon
Mr. Joe Ramey, Director
Oil Conservation Commission, Santa Fe, N.M.
Mr. Frank Chavez
Oil Conservation Commission, Aztec, N.M.

Enclosures

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. Box 2088
Santa Fe, New Mexico 87501

Adopted 3-2-84
Side 1

APPLICATION FOR CLASSIFICATION AS HARDSHIP GAS WELL

Operator M. J. BRANNON c/o Walsh Engr. & Prod. Corp. Contact Party Ewell N. Walsh, President ~~Walsh Eng. & Prod. Corp.~~

Address P.O. Drawer 419, Farmington, N.M. 87499 Phone No. 505 327-4892

Lease Federal 20 Well No. 1-R UT J Sec. 20 TWP 25N RGE 9W

Pool Name Basin Dakota Minimum Rate Requested 100 MCF Per day

Transporter Name El Paso Natural Gas Purchaser (if different) _____

Are you seeking emergency "hardship" classification for this well? X yes _____ no

Applicant must provide the following information to support his contention that the subject well qualifies as a hardship gas well.

1) Provide a statement of the problem that leads the applicant to believe that "underground waste" will occur if the subject well is shut-in or is curtailed below its ability to produce. (The definition of underground waste is shown on the reverse side of this form)

2) Document that you as applicant have done all you reasonably and economically can do to eliminate or prevent the problem(s) leading to this application.

   a) Well history. Explain fully all attempts made to rectify the problem. If no attempts have been made, explain reasons for failure to do so.

   b) Mechanical condition of the well(provide wellbore sketch). Explain fully mechanical attempts to rectify the problem, including but not limited to:

      i) the use of "smallbore" tubing; ii) other de-watering devices, such as plunger lift, rod pumping units, etc.

3) Present historical data which demonstrates conditions that can lead to waste. Such data should include:

   a) Permanent loss of productivity after shut-in periods (i.e., formation damage).

   b) Frequency of swabbing required after the well is shut-in or curtailed.

   c) Length of time swabbing is required to return well to production after being shut-in.

   d) Actual cost figures showing inability to continue operations without special relief

4) If failure to obtain a hardship gas well classification would result in premature abandonment, calculate the quantity of gas reserves which would be lost

5) Show the minimum sustainable producing rate of the subject well. This rate can be determined by:

   a) Minimum flow or "log off" test; and/or

   b) Documentation of well production history (producing rates and pressures, as well as gas/water ratio, both before and after shut-in periods due to the well dying, and other appropriate production data).

6) Attach a plat and/or map showing the proration unit dedicated to the well and the ownership of all offsetting acreage.

7) Submit any other appropriate data which will support the need for a hardship classification.

8) If the well is in a prorated pool, please show its current under- or over-produced status.

9) Attach a signed statement certifying that all information submitted with this application is true and correct to the best of your knowledge; that one copy of the application has been submitted to the appropriate Division district office (give the name) and that notice of the application has been given to the transporter/purchaser and all offset operators.

RECEIVED
APR 26 1984
OIL CON. DIV.
DIST. 3

April 25, 1984

GENERAL INFORMATION APPLICABLE TO HARDSHIP GAS WELL CLASSIFICATION

1) Definition of Underground Waste.

> "Underground Waste as those words are generally understood in the oil and gas business, and in any event to embrace the inefficient, excessive, or improper use or dissipation of the reservoir energy, including gas energy and water drive, of any pool, and the locating, spacing, drilling, equipping, operating, or producing, of any well or wells in a manner to reduce or tend to reduce the total quantity of crude petroleum oil or natural gas ultimately recovered from any pool, and the use of inefficient underground storage of natural gas."

2) The only acceptable basis for obtaining a "hardship" classification is prevention of waste with the burden of proof solely on the applicant. The applicant must not only prove waste will occur without the "hardship" classification, but also that he has acted in a responsible and prudent manner to minimize or eliminate the problem prior to requesting this special consideration. If the subject well is classified as a "hardship" well, it will be permitted to produce at a specified minimum sustainable rate without being subject to shut-in by the purchaser due to low demand. The Division can rescind approval at any time without notice and require the operator to show cause why the classification should not be permanently rescinded if abuse of this special classification becomes apparent.

3) The minimum rate will be the minimum sustainable rate at which the well will flow. If data from historical production is insufficient to support this rate (in the opinion of the Director), or if an offset operator or purchaser objects to the requested rate, a minimum flow ("log off") test may be required. The operator may, if he desires, conduct the minimum flow test, and submit this information with his application.

4) If a minimum flow test is to be run, either at the operator's option or at the request of the Division, the offset operators, any protesting party, the purchaser and OCD will be notified of the date of the test and given the opportunity to witness, if they so desire.

5) Any interested party may review the data submitted at either the Santa Fe office or the appropriate OCD District Office.

6) The Director can approve uncontested applications administratively if, in his opinion, sufficient justification is furnished. Notice shall be given of intent to approve by attaching such notice to the regular examiner's hearing docket. Within 20 days following the date of such hearing, the affected parties will be permitted to file an objection. If no objection has been filed, the application may be approved.

7) Should a protest be filed in writing, the applicant will be permitted to either withdraw the application, or request it to be set for hearing.

8) An emergency approval, on a temporary basis for a period not to exceed 90 days, may be granted by the District Supervisor, pending filing of formal application and final action of the OCD Director. This temporary approval may be granted only if the District Supervisor is convinced waste will occur without immediate relief. If granted, the District Supervisor will notify the purchaser.

9) After a well receives a "hardship" classification, it will be retained for a period of one year unless rescinded sooner by the Division. The applicant will be required to certify annually that conditions have not changed substantially in order to continue to retain this classification.

10) Nothing here withstanding, the Division may, on its own motion, require any and all operators to show cause why approval(s) should not be rescinded if abuse is suspected or market conditions substantially change in the State of New Mexico.

11) A well classified as a "hardship well" will continue to accumulate over and under production (prorated pools). Should allowables exceed the hardship allowable assigned, the well will be permitted to produce at the higher rate, if capable of doing so, and would be treated as any other non-hardship well. Any cumulative overproduction accrued either before or after being classified "hardship" must, however, be balanced before the well can be allowed to produce at the higher rate.

SUPPLEMENT TO
APPLICATION FOR CLASSIFICATION
AS HARDSHIP GAS WELL

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
BASIN DAKOTA FIELD
San Juan County, New Mexico

Item No. 1

Underground waste will occur if well is subject to shut in or curtailment due to the following:

A. Encroachment of formation water from water producing interval into porosity in gas producing interval.

B. After shut in or curtailment the reservoir energy, natural gas, would be dissipated, to the atmosphere, while attempting to remove sufficient water to maintain a producing condition.

Item No. 2

Enclosed you will find copies of Workover Report describing the work performed in attempt to shut off the water production. Briefly, a cement retainer was set, as a temporary bridge plug, above the lower perforations to attempt to shut off water. This was not successful due to communication, within the formation, between the gas and water producing intervals.

Enclosed is a well bore sketch indicating the present downhole mechanical conditions.

Utilization of small bore tubing and plungers are not given consideration due to depth of well, gas volume and amount of water production. The possible use of rod pumping unit is being evaluated.

The use of cement squeeze is not considered satisfactory due to the extreme probability of squeezing of the gas producing interval and consequently complete loss of gas production.

Item No. 3

Enclosed is tabulated and production curve data of the production of the well.

Item No. 3 - Cont.

It was necessary to swab well, after shut in period, in September 1983. It was also necessary to swab well in January, 1984 when increase in gathering line pressure decreased the flow of gas and well logged off. Approximately one to two 10 hour swabbing periods were required to put well in a producing situation.

Cost to swab well and check for producing conditions will range from $2,000.00 to $5,000.00 for each occurrance.

Item No. 4

Failure to obtain a hardship well classification and premature abandonment could result in an estimated 400,000 to 600,000 MCF loss in gas reserves.

Item No. 5

It is estimated that the minimum flow to maintain gas production is 100 MCF per day. Due to varying gathering line pressures a true minimum flow is hard to determine.

Problems with lifting of water occur when, after sustained production, the gathering line pressure increases to 260 psig or more. The increase in pressure decreases gas flow to the point at which the produced water is not removed from the well bore and the well logs off.

Item No. 6

Enclosed is a plat indicating the offset acreage ownership and a plat indicating the dedicated proration unit.

Item No. 7

None

Item No. 8

The well is classified as marginal, therefore, there is no over/under produced status.

Item No. 9

See Enclosure.

WORKOVER REPORT

M. J. BRANNON
FEDERAL 20, NO. 1-R
1850'FSL, 1800'FEL, SEC. 20-T25N-R9W
San Juan County, New Mexico

9/8/83 Line up service companies and to location with Contractor to check out location and anchors.

9/9/83 Move in Aztec Well Servicing Rig No. 142. Bleed down well. Rig up rig and remove Christmas Tree and install Blow Out Preventer. Lower tubing to 6484'. No fill at 6484'. Measure out of hole with 197 joints, (6319.03'). Rig Blue Jet and set Baker cement retainer at 6429'. Run in hole with tubing (197 joints) land at 6327' with notch collar and seating nipple on bottom. Remove Blow Out Preventer and install tree. Secure rig and well at 6:00 PM.

9/10/83 Tubing 425 psig, casing 150 psig. Float collar 3500'. Bleed off well. Lower 2 joints (63.15') tubing with a total of 199 joints measuring 6382.18', land down 8' notch collar at 6390.18'. Perforate at 6504'. Collar 15' above perforation. Master valve leaking bad and change out master valve with new one. Made two swab runs from 6000'. Well flowing at 12:30 PM. Flow to 5:00 PM with 240 psig on casing. Well producing 1 to 1-1/2 inch stream of water, estimated water flow 40 barrels. Closed well in at 5:00 PM with 240 psig on casing. Closed for the week end. NOTE: 2 joints tubing and master valve from Totah Supply.

9/12/83 Tubing pressure 1000 lbs., casing pressure 950 lbs. Open tubing to pit. Well flowing. Clean up to pit. Making 1 inch stream water. Release rig at approximately 11:00 AM and turn well over to Bill Garrison with L & L Oilfield Service at 12:30 PM for continued clean up and test.

WORKOVER REPORT

M. J. BRANNON
FEDERAL 20, NO. 1-R
1850'FSL, 1800'FEL, SEC. 20-T25N-R9W
San Juan County, New Mexico

1/13/84 To location and check on swabbing. Arrived at location and well shut in with 340 psig on casing. Had been swabbing water until shut down, heading with some gas. Return to Farmington.

1/14/84 Start swabbing after opening master valve with no flow. Casing pressure 420. Each time we ran swab with fluid at 3600', we pulled casing pressure down 10 to 20 psig. Continue to swab and fluid level remains at 4600' with gas and water. Pulled casing pressure down to 340 psig. Shut well in for 1 hour and started build up. Open up and flowing small stream of water and little to no gas. Continue watching pressure on casing. Slight build up. Shut well in until Monday morning. Return to Farmington. Took water samples to HOWCO.

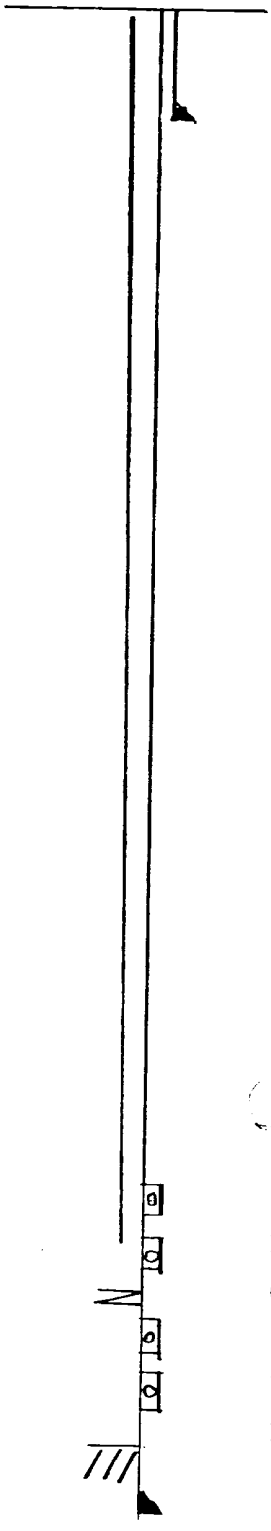
1/16/84 To location. Shut in pressure of 670 on casing and 175 psig on tubing. Open well and flowed some water then gas. Rig down swabbing unit and turn well into system.

7:00 AM, casing pressure 670, tubing pressure 175 psig.
8:00 AM, casing pressure 610, tubing pressure 220 psig.
9:00 AM, casing pressure 610, tubing pressure 250 psig.
10:00 AM, casing pressure 610, tubing pressure 255 psig.
11:00 AM, casing pressure 610, tubing pressure 255 psig.

Return to Farmington, went to HOWCO and picked up water sample and then to office.

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
BASIN DAKOTA FIELD
San Juan County, New Mexico

WELLBORE SKETCH



8-5/8" casing set at 258'

2-3/8", EUE tubing set at 6327'

Perforations: 6405'-6417'

Perforations: 6421'-6426'

Cement retainer (Temporary Bridge Plug): 6429'

Perforations: 6432'-6434'

Perforations: 6437'-6439'

P.B.T.D. - 6545'

4-1/2" casing set at 6609'

Total Depth: 6610'

April 25, 1984

Basin Dakota
FIELD

WALSH
ENGINEERING & PRODUCTION
CORPORATION

M. G. Brannon
OPERATOR

Fed. 20- 1R
WELL NO.

COUNTY

1R-J
SEC 20 TWP 25 RGE 9W

PRODUCTION DATA

LEASE

SPUDDING DATE	COMPLETION OR RECOMPLETION DATE	TOTAL DEPTH	EFFECTIVE DEPTH	W. S. O.	PERFORATED INTERVAL FROM	PERFORATED INTERVAL TO	CUMULATIVE PRODUCTION NET OIL BBLS.	CUMULATIVE PRODUCTION FORM GAS M.C.F.	MONTHS PRODUCED	ZONE

YEAR 1981

MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL.
FORWARD													
JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.							-0-			-0-			
NOV.							-0-			-0-			
DEC.							-0-			-0-			
TOTAL													

YEAR 1982

MONTH	STATUS	DAYS PROD.	ALLOWABLE	WATER MONTHLY	WATER CUMULATIVE	DLY. AVG.	OIL MONTHLY	OIL CUMULATIVE	DLY. AVG.	GAS MONTHLY	GAS CUMULATIVE	DLY. AVG.	GAS – OIL RATIO
JAN.		29					255		8	[illegible]		5[illegible]	[illegible]
FEB.		21					173		8	8751		416	[illegible]
MAR.		24					165		7	[illegible]		[illegible]	77,[illegible]
APR.		26					217		7	[illegible]		[illegible]	[illegible]
MAY		16					138		9	7887		[illegible]	57,15[illegible]
JUNE		30					51	976	2	10,391	65,7[illegible]2	346	20[illegible]
JULY		31					161	1143	5	9351	75,08[illegible]	[illegible]	55,[illegible]
AUG.		[illegible]					65	1208	2	6214	81,297	[illegible]	95.6
SEPT.		–					-0-	1208	–	-0-	81297	–	
OCT.		–					-0-	1208	–	-0-	[illegible]	–	
NOV.		2					31	[illegible]	15	[illegible]	[illegible]		[illegible]
DEC.		28					155	1394	6	11362	93490	406	73,303
TOTAL													

YEAR 1983

MONTH	STATUS	DAYS PROD.	ALLOWABLE	WATER MONTHLY	WATER CUMULATIVE	DLY. AVG.	OIL MONTHLY	OIL CUMULATIVE	DLY. AVG.	GAS MONTHLY	GAS CUMULATIVE	DLY. AVG.	GAS – OIL RATIO
JAN.		31					118	1512	4	9654	103144	311	81,[illegible]
FEB.		28					99	1611	4	6503	109647	[illegible]	65,68[illegible]
MAR.		30					98	1709	3	8341	117988	278	85,1125
APR.		27					99	1808	4	7997	125985	296	80,777
MAY		25					37	1845	1	5488	131473	[illegible]	148,3[illegible]
JUNE		–					-0-	1845	–	-0-	131473	–	
JULY		–					-0-		–	-0-		–	
AUG.		–					-0-	1845	–	-0-	131473	–	
SEPT.		15					-0-	1845	–	628	132101	42	
OCT.		31					52	1897	2	3660	135761	118	70,[illegible]
NOV.		30					51	1948	2	3989	139750	133	78,215
DEC.		31					58	2006	2	4214	143964	136	72,741
TOTAL													

FIELD

COUNTY

SEC [illegible] TWP [illegible] RGE [illegible]

ENGINEERING & PRODUCTION CORPORATION

PRODUCTION DATA

OPERATOR [illegible]

WELL NO. [illegible]

LEASE

SPUDDING DATE	COMPLETION OR RECOMPLETION DATE	TOTAL DEPTH	EFFECTIVE DEPTH	W. S. O.	PERFORATED INTERVAL FROM	PERFORATED INTERVAL TO	CUMULATIVE PRODUCTION NET OIL BBLS.	CUMULATIVE PRODUCTION FORM GAS M.C.F.	MONTHS PRODUCED	ZONE

YEAR [illegible]

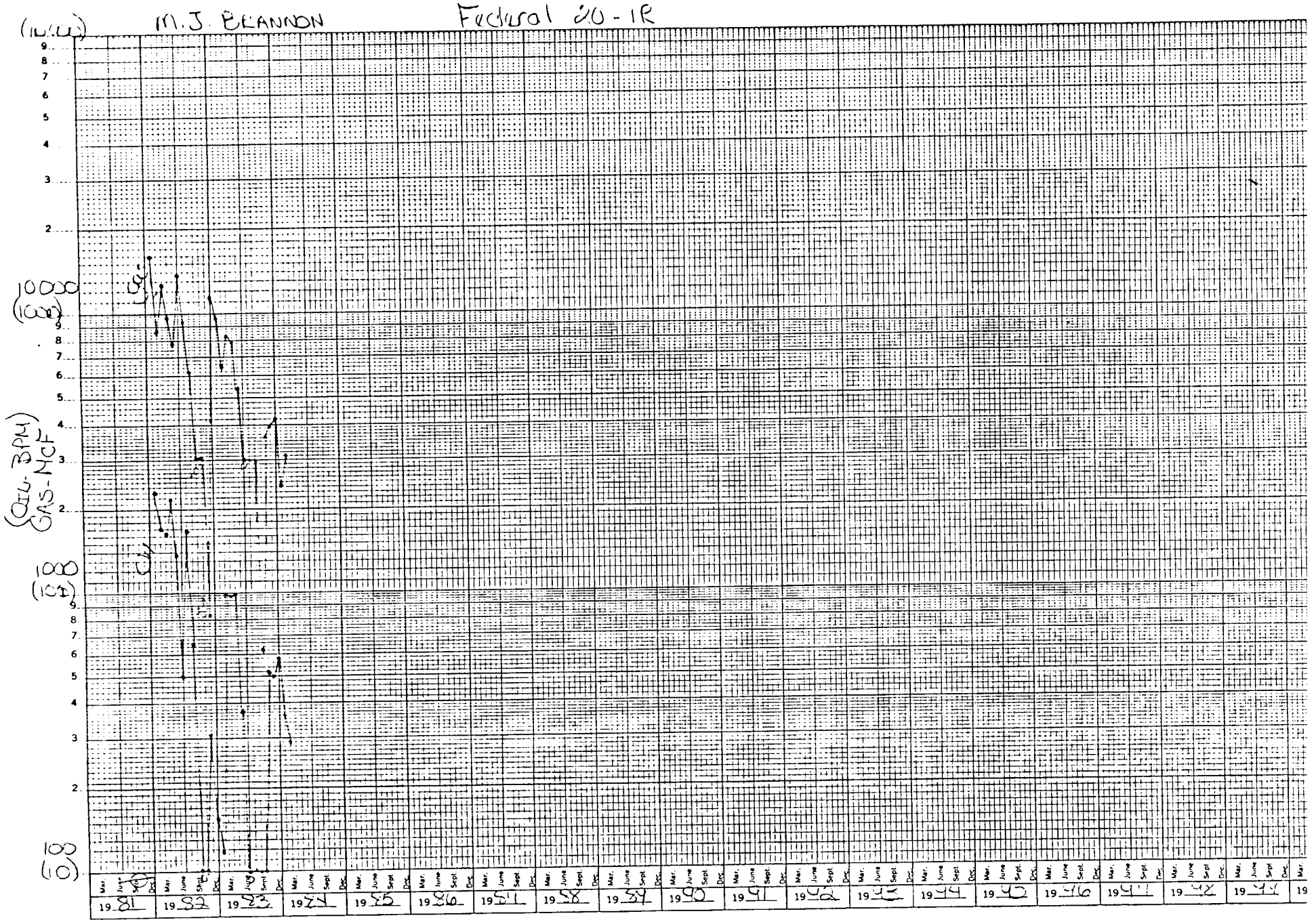
MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL
FORWARD								[illegible]			14346-1		
JAN.		[illegible]					36	[illegible]	1	2460	146429	79	[illegible]
FEB.		21					21		1	3124		108	107.85
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													
TOTAL													

YEAR _____

JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													
TOTAL													

YEAR _____

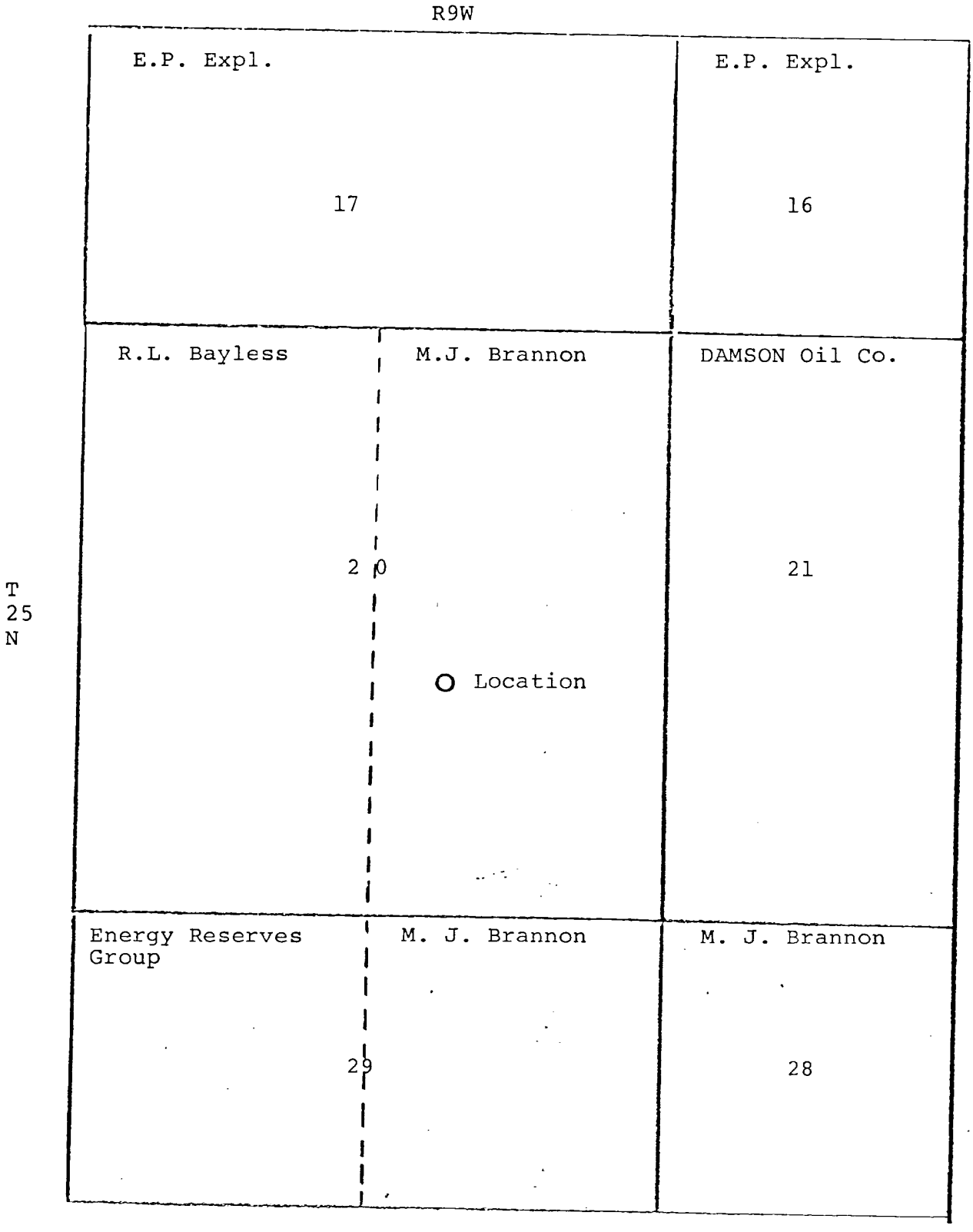
JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													
TOTAL													



K•E 20 YEARS BY MONTHS X 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.
47 6843

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
Basin Dakota Field
San Juan County, New Mexico

PLAT OF OFFSET OWNERSHIP



April 25, 1984

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
M. J. BRANNON	FEDERAL 20	1R

Unit Letter	Section	Township	Range	County
J	20	25N	9W	San Juan

Actual Footage Location of Well:
1850 feet from the South line and 1800 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6675	Dakota	Basin Dakota	320 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

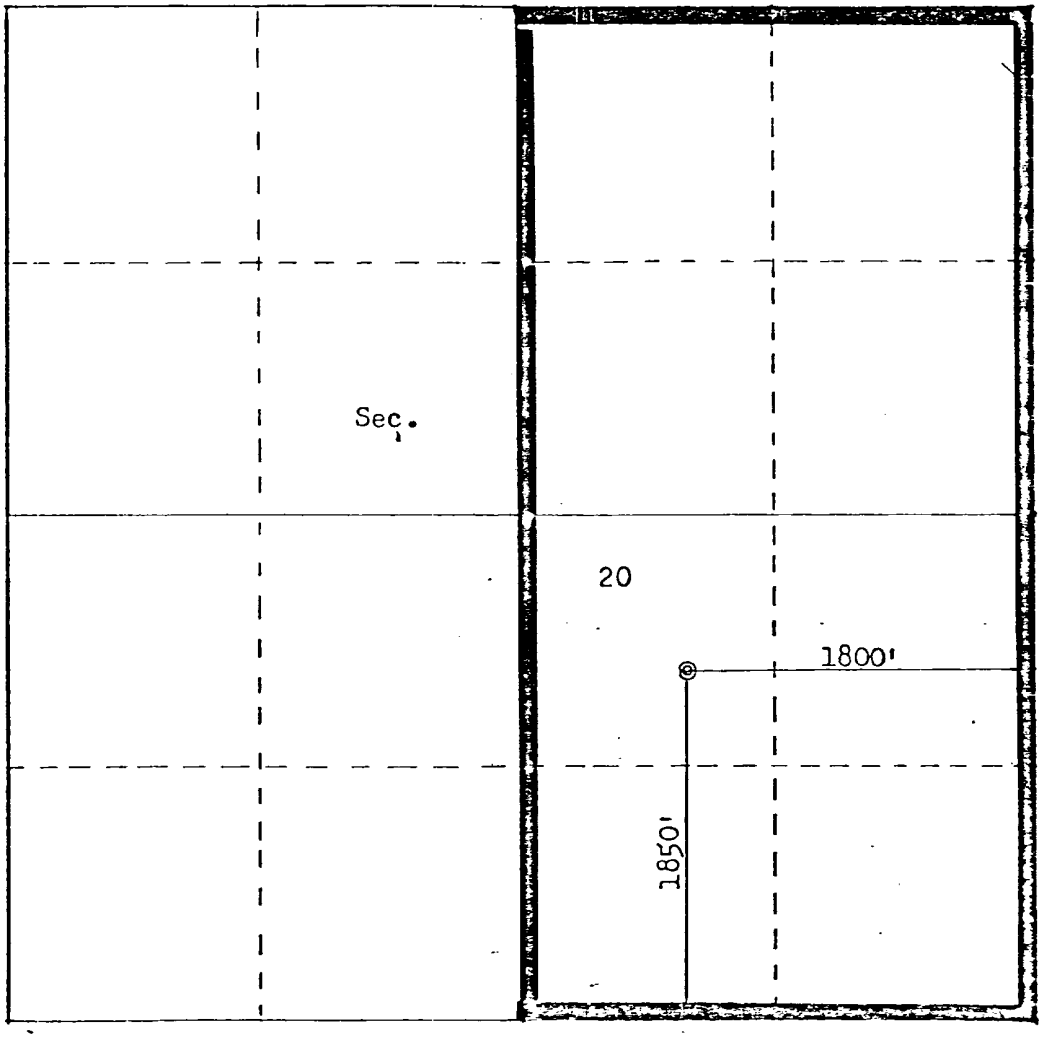
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



Scale: 1"=1000'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

FOR: M.J. Brannon

Name Ewell N. Walsh, P.E.

Position President, Walsh Engr. & Production Corporation

Company

Date 3-25-81

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed March 20, 1981

Registered Professional Engineer and Land Surveyor

Fred B. Kerr Jr.

Certificate No. 3950

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
Basin Dakota Field
San Juan County, New Mexico

CERTIFICATION

The undersigned hereby certifies that information submitted with this application is true and correct to the best of his knowledge.

Also a copy of this application has been submitted to the Oil Conservation Commission District Office, Aztec, New Mexico, to Gas Purchaser, El Paso Natural Gas Company and to offset operators.

Ewell N. Walsh, P.E.

Basin Dakota
FIELD

WALSH
ENGINEERING & PRODUCTION
CORPORATION

M. G. Brannon
OPERATOR

Fed. 20-1R
WELL NO.

COUNTY

1R-J
SEC 20 TWP 25 RGE 9W

PRODUCTION DATA

Exhibit No. 2

LEASE

SPUDDING DATE	COMPLETION OR RECOMPLETION DATE	TOTAL DEPTH	EFFECTIVE DEPTH	W. S. O.	PERFORATED INTERVAL FROM	PERFORATED INTERVAL TO	CUMULATIVE PRODUCTION NET OIL BBLS.	CUMULATIVE PRODUCTION FORM GAS M.C.F.	MONTHS PRODUCED	ZONE

YEAR 1981

MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL.
FORWARD													
JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.				-0-			-0-			-0-			
NOV.				-0-			-0-			-0-			
DEC.				-0-			-0-			-0-			
TOTAL					-0-								

YEAR 1982

MONTH	STATUS	DAYS PROD.	ALLOWABLE	WATER MONTHLY	WATER CUMULATIVE	DLY. AVG.	OIL MONTHLY	OIL CUMULATIVE	DLY. AVG.	GAS MONTHLY	GAS CUMULATIVE	DLY. AVG.	GAS – OIL RATIO
JAN.		29		54	54	2	232		8	[illegible]		55[illegible]	[illegible]
FEB.		21		37	91	2	173		8	8731		416	[illegible]
MAR.		24		42		2	165		7	12,357		[illegible]	77.[illegible]
APR.		30		42	175	1	217		7	4773		[illegible]	[illegible]
MAY		16		69	244	4	138		9	7887		49[illegible]	57.15[illegible]
JUNE		30		90	334	3	51	976	2	10,391	65,73[illegible]	346	20[illegible]
JULY		31		86	420	3	161	1143	5	9351	75,08[illegible]	30[illegible]	55.4[illegible]
AUG.		31		36	456	1	[illegible]	1208	2	6214	81,297	[illegible]	45 6
SEPT.		—		-0-		—	-0-	1208	—	-0-	81297	—	
OCT.		—		-0-		—	-0-	1208	—	-0-	81297	—	
NOV.		2		21	477	10	31	1239	15	[illegible]	82127		[illegible]
DEC.		28		127	604	4	155	1394	6	11,362	93490	406	73,303
TOTAL													

YEAR 1983

MONTH	STATUS	DAYS PROD.	ALLOWABLE	WATER MONTHLY	WATER CUMULATIVE	DLY. AVG.	OIL MONTHLY	OIL CUMULATIVE	DLY. AVG.	GAS MONTHLY	GAS CUMULATIVE	DLY. AVG.	GAS – OIL RATIO
JAN.		31		89	695	3	118	1512	4	9659	103149	311	81,[illegible]
FEB.		28		81	774	3	99	1611	4	6503	109647	[illegible]	65,68
MAR.		31		86	860	3	98	1709	3	8341	117988	278	85,112
APR.		27		81	941	3	99	1808	4	7997	125985	296	80,[illegible]
MAY		25		49	990	2	37	1845	1	5488	131473	[illegible]	148,32
JUNE		—		-0-			-0-	1845	—	-0-	131473	—	
JULY		—		-0-			-0-		—	-0-		—	
AUG.		—		-0-			-0-	1845	—	-0-	131473	—	
SEPT.		15		93	1083	6	-0-	1845	—	628	132101	42	
OCT.		31		128	1211	4	52	1897	2	3660	135761	118	70,[illegible]
NOV.		30		124	1335	4	51	1948	2	3989	139750	133	78,215
DEC.		31		124	1459	4	58	2006	2	4219	143969	[illegible]	72,741

FIELD

ENGINEERING & PRODUCTION CORPORATION

OPERATOR

COUNTY

SEC 5 TWP 25N RGE 4W

PRODUCTION DATA

WELL NO. 1-B

LEASE

SPUDDING DATE	COMPLETION OR RECOMPLETION DATE	TOTAL DEPTH	EFFECTIVE DEPTH	W. S. O.	PERFORATED INTERVAL FROM	PERFORATED INTERVAL TO	CUMULATIVE PRODUCTION NET OIL BBLS.	CUMULATIVE PRODUCTION FORM GAS M.C.F.	MONTHS PRODUCED	ZONE

YEAR 1951

MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL
FORWARD					1459			2006			14346-1		
JAN.		31		103	1562	3	36	2042	1	2460	146424	79	68
FEB.		28		119	1681	4	39		1	3124		108	107
MAR.		31		129	1810	4	99	2170	3	3754	153312	121	379
APR.		27		111	1921	4	37	2207	1	3419	156731	127	92,4
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													
TOTAL													

YEAR _____

MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL
JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													
TOTAL													

YEAR _____

MONTH	STATUS	DAYS PROD.	ALLOWABLE	TOTAL WATER & BS & W BARRELS MONTHLY	TOTAL WATER & BS & W BARRELS CUMULATIVE	DLY. AVG.	NET OIL PRODUCTION BARRELS MONTHLY	NET OIL PRODUCTION BARRELS CUMULATIVE	DLY. AVG.	FORMATION GAS PRODUCTION M.C.F. MONTHLY	FORMATION GAS PRODUCTION M.C.F. CUMULATIVE	DLY. AVG.	GAS – OIL RATIO CU. FT./BBL
JAN.													
FEB.													
MAR.													
APR.													
MAY													
JUNE													
JULY													
AUG.													
SEPT.													
OCT.													
NOV.													
DEC.													

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
San Juan County, New Mexico

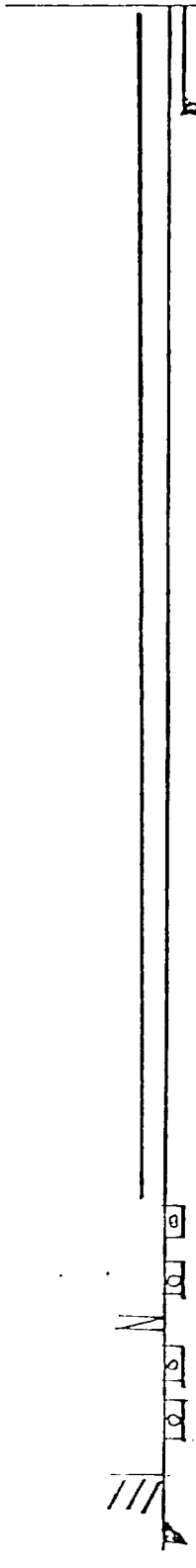
AVERAGE GAS GATHERING LINE PRESSURES

YEAR	MONTH	AVER. PRESSURE PSIA
1982	January	247
	February	262
	March	256
	April	256
	May	272
	June	259
	July	253
	August	254
	September	SI
	October	SI
	November	256
	December	250
1983	January	267
	February	299
	March	259
	April	255
	May	279
	June	SI
	July	SI
	August	SI
	September	244
	October	244
	November	236
	December	259
1984	January	290
	February	243
	March	250
	April	268

Exhibit No. 3

M. J. BRANNON
FEDERAL 20, NO. 1-R
UNIT J, SECTION 20-T25N-R9W
BASIN DAKOTA FIELD
San Juan County, New Mexico

WELLBORE SKETCH



8-5/8" casing set at 258'

2-3/8", EUE tubing set at 6390'

Perforations: 6405'-6417'

Perforations: 6421'-6426'

Cement retainer (Temporary Bridge Plug): 6429'

Perforations: 6432'-6434'

Perforations: 6437'-6439'

P.B.T.D. - 6545'

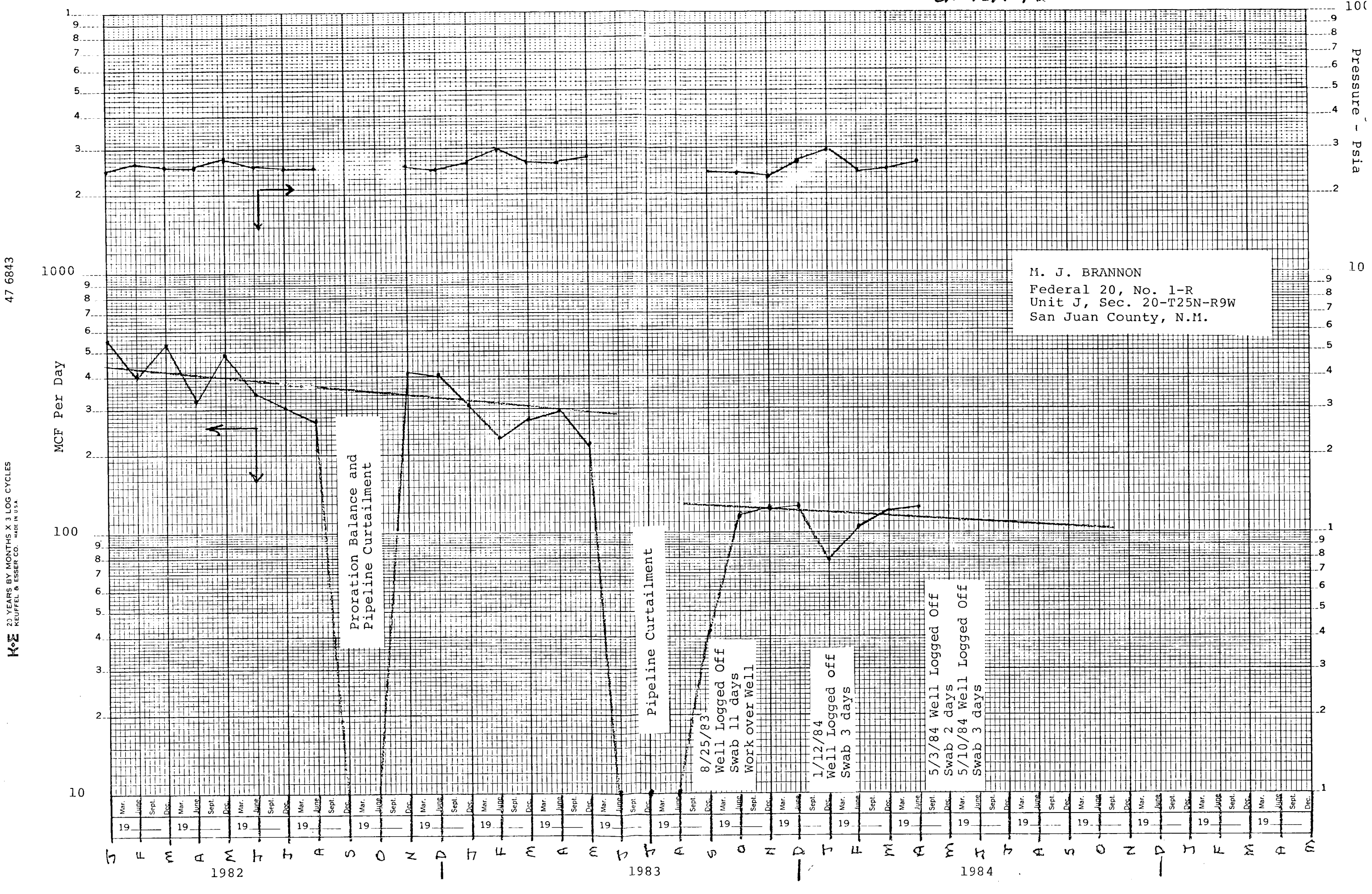
4-1/2" casing set at 6609'

Total Depth: 6610'

April 25, 1984

Gathering L
Pressure
1
5
6
7
8
9
100

Exhibit No. 4


M. J. BRANNON
Federal 20, No. 1-R
Unit J, Sec. 20-T25N-R9W
San Juan County, N.M.
MCF Per Day
Pressure - Psia
Proration Balance and Pipeline Curtailment
Pipeline Curtailment
8/25/83 Well Logged Off Swab 11 days Work over Well
1/12/84 Well Logged off Swab 3 days
5/3/84 Well Logged Off Swab 2 days
5/10/84 Well Logged Off Swab 3 days
1982
1983
1984
47 6843
K+E 21 YEARS BY MONTHS X 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

AS OF MAY 1, 1984 W A L S H E N G I N E E R I N G A N D P R O D U C T I O N
RUN DATE JUN 4, 1984

LEASE NAME: FEDERAL 20, NO. 1-R
FIELD NAME: BASIN DAKOTA
FORMATION : DAKOTA

EVALUATION: SEQ.# 126 IN DB: THOMAS.DB
OPERATOR : M. J. BRANNON
CNTY,STATE: SAN JUAN, NEW MEXICO

Exhibit No 5

INTERESTS AND DATE FIRST EFFECTIVE
COST LIQUID GAS DATE
1.0000000 .8450000 .8450000 5/1/84

IDENTITY: 004-01-01-01-111-07-07-01-02-500

WALSH ENGINEERING AND PRODUCTION CORP.
EVALUATION FOR: M. J. BRANNON
NM84-000

PRESENT WORTH	M$
10.00	628.521
15.00	493.915
20.00	408.508
25.00	349.820
30.00	307.094

	WELL COUNT GROSS	WELL COUNT NET OR BTU	API BASE PRICE	TRANS. CHARGE	PROD. TAXES	ADVAL TAXES	.... P R I C E S .... BEGIN	ENDING	LIFE WT	CF/BBL BL/MMCF	G R O S S CUMULATIVE	R E S E R V E S REMAINING	ULTIMATE	% GROSS REMAINING	
GAS	1.	1.00		0.0%	8.0%	0.4%	3.80	3.96	3.96	7.	0.000	608.911	608.911	100.00%	GAS
COND.				0.0%	8.0%	0.4%	29.60	29.60	29.60		0.000	4.262	4.262	100.00%	COND.

YEAR	GROSS WELL COUNT WELLS/MO	GROSS GAS PRODUCTION MMCF	NET GAS PRODUCTION MMCF	EFFECTIVE GAS PRICE $/MCF	GAS SALES M$	GROSS OIL + COND PROD MBBLS	NET OIL + COND PROD MBBLS	EFF OIL & COND PRICE $/BBL	OIL + COND SALES M$	TOTAL SALES M$
1984 (9 MO)	1.000	23.594	19.937	3.867	77.092	0.165	0.140	29.600	4.131	81.223
1985	1.000	33.913	28.656	3.960	113.478	0.237	0.201	29.600	5.938	119.416
1986	1.000	32.217	27.223	3.960	107.804	0.226	0.191	29.600	5.641	113.445
1987	1.000	30.606	25.862	3.960	102.414	0.214	0.181	29.600	5.359	107.773
1988	1.000	29.076	24.569	3.960	97.293	0.204	0.172	29.600	5.091	102.384
1989	1.000	27.622	23.341	3.960	92.429	0.193	0.163	29.600	4.836	97.265
1990	1.000	26.241	22.174	3.960	87.807	0.184	0.155	29.600	4.594	92.402
1991	1.000	24.929	21.065	3.960	83.417	0.175	0.147	29.600	4.365	87.782
1992	1.000	23.682	20.012	3.960	79.246	0.166	0.140	29.600	4.146	83.393
1993	1.000	22.498	19.011	3.960	75.284	0.157	0.133	29.600	3.939	79.223
1994	1.000	21.373	18.061	3.960	71.520	0.150	0.126	29.600	3.742	75.262
1995	1.000	20.305	17.157	3.960	67.944	0.142	0.120	29.600	3.555	71.499
1996	1.000	19.289	16.300	3.960	64.546	0.135	0.114	29.600	3.377	67.924
1997	1.000	18.325	15.485	3.960	61.319	0.128	0.108	29.600	3.208	64.526
1998	1.000	17.409	14.710	3.960	58.253	0.122	0.103	29.600	3.048	61.301
SUB TOTAL	1.000	371.080	313.562	3.954	1239.847	2.598	2.195	29.600	64.970	1304.818
REMAINDER	1.000	237.831	200.967	3.960	795.831	1.665	1.407	29.600	41.640	837.471
TOT 35.4 YR	1.000	608.911	514.530	3.956	2035.678	4.262	3.602	29.600	106.611	2142.289

YEAR	PROD & WPT TAXES + TTC M$	DIR OPR EXP + ADVAL TAX M$	TOT OPR EXP + TAXES M$	OPERATING REVENUE M$	TANGIBLE INVESTMENT M$	INTANGIBLE INVESTMENT M$	BFIT CASHFLOW M$	CUM BFIT CASHFLOW M$	BFIT C.F. DISC 13.50% M$	CUM C.F. DISC 13.50% M$
1984 (9 MO)	6.520	10.172	16.692	64.531	0.000	0.000	64.531	64.531	61.558	61.558
1985	9.553	15.808	25.362	94.054	0.000	0.000	94.054	158.585	80.814	142.372
1986	9.076	15.787	24.863	88.582	0.000	0.000	88.582	247.167	67.059	209.431
1987	8.622	15.767	24.389	83.384	0.000	0.000	83.384	330.551	55.616	265.048
1988	8.191	15.748	23.939	78.446	0.000	0.000	78.446	408.997	46.099	311.147
1989	7.781	15.730	23.511	73.754	0.000	0.000	73.754	482.751	38.187	349.334
1990	7.392	15.712	23.105	69.297	0.000	0.000	69.297	552.048	31.612	380.947
1991	7.023	15.696	22.719	65.063	0.000	0.000	65.063	617.111	26.151	407.097
1992	6.671	15.680	22.352	61.041	0.000	0.000	61.041	678.152	21.616	428.713
1993	6.338	15.666	22.004	57.219	0.000	0.000	57.219	735.371	17.853	446.566
1994	6.021	15.652	21.673	53.589	0.000	0.000	53.589	788.961	14.732	461.298
1995	5.720	15.638	21.358	50.141	0.000	0.000	50.141	839.101	12.144	473.442
1996	5.434	15.626	21.059	46.864	0.000	0.000	46.864	885.965	10.001	483.443
1997	5.162	15.613	20.776	43.752	0.000	0.000	43.752	929.717	8.226	491.669
1998	4.904	15.602	20.506	40.795	0.000	0.000	40.795	970.512	6.758	498.427
SUB TOTAL	104.408	229.898	334.305	970.512	0.000	0.000	970.512	970.512	498.427	498.427
REMAINDER	66.998	383.737	450.735	386.736	0.000	0.000	386.736	1357.248	29.153	527.581
TOT 35.4 YR	171.405	613.635	785.040	1357.248	0.000	0.000	1357.248	1357.248	527.581	527.581

M. J. Brannon
Federal 20, No. 1-R
Unit J, Section 20-T24N-R9W
San Juan County, New Mexico

ITEM NO. 19
Attachment "A"

Testimony Item No. 19

What attempts have you made to eliminate this problem?

1. Workover performed September 9 thru September 12, 1983.

   A. Lower tubing to determine that no fill, in casing, occurred to cover up perforations.

   B. Set wireline retainer at 6429' to attempt to shut off water, if produced from lower sets of perforations, 6432' to 6434' and 6437' to 6439'.

   C. Ran 2-3/8" tubing and landed tubing at 6390', 15' above top perforation.

   D. Swab well and put on production.

      Comment: After setting the cement retainer there was no evident decrease in water production. This indicated that water production was coming through

formation to the top perforations. Consideration was given to performing a cement squeeze, of the perforations below the retainer, however, the probability of also squeezing cement into the porosity in the formation above the retainer and damaging, or completely plugging the porosity, was high and the consideration was discarded.

2. Consideration of the installation of smaller diameter tubing was not considered applicable or feasible due to:

   A. In my opinion the utilization of smaller diameter tubing, with low gas producing rates and water production rates, could compound the situation of loading up or logging off of well.

   B. If the smaller diameter tubing created a condition that required more frequent swabbing, the cost of swabbing would increase not only due to increased frequency of swabbing but also the increase in swabbing time due to swabbing in a smaller diameter tubing.

C. If the smaller diameter tubing was installed and it was determined that a pumping unit, rods and subsurface pump had to be installed to effectively remove water, the additional cost of replacing the smaller diameter tubing with 2-3/8" tubing could probably not be justified.

D. Replacing the 2-3/8" tubing with a smaller diameter tubing, such as 1-1/2", would burden the production and recoverable reserves with an additional cost that could cause abandonment earlier than the point in time that would occur without expending the cost of smaller diameter tubing plus installation. (Estimated Cost - $29,000.00)

3. Consideration of installation of pumping unit, rods, and subsurface pump was not considered applicable or feasible due to:

A. Well is now capable of producing without expenditure for equipment and installation. (Estimated Cost - $40,000.00)

B. Before making such an installation at some time in the future an economic feasibility study would be performed

at that time to determine if the cost of such an installation could be justified.

4. Consideration of plunger installation was not considered applicable or feasible due to:

   A. Well does not produce sufficient gas volume, estimated requirement, 300 MCF per day, to effectively operate a plunger lift condition.

5. Also consideration of any before mentioned installations is of no avail if the well is not classified as a Hardship Gas Well, and is not allowed to effectively produce on a continued basis.

The shut-in of the production of the well will allow the produced water to enter the gas filled porosity and block or prevent the production of the gas. Such a condition could bring about the premature abandonment of the well and loss or waste of underground reserves.