Tenneco Oil Company
A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800

Delivery Address:
6162 South Willow Drive
Englewood, Colorado

October 12, 1983

New Mexico Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Attention: Gilbert Quintana

RE: Jicarilla B5E
NW/4 Sec, 21, T26N, R5W
Rio Arriba County, NM

Gentlemen:

We have enclosed all necessary data for administrative approval to commingle production in the referenced well.

Questions concerning this request can be directed to Mr. Mark Owen (303/740-4840).

Very truly yours,

TENNECO OIL COMPANY

Harry Hufft
Division Production Manager

HH/JO/gj

Enclosures

The Jicarilla B #5E is a Mesaverde-Dakota dual completed in August, 1982. Since the well has 4-1/2" casing, only one string of tubing can be run. It has, therefore, been necessary to flow the Mesaverde up the casing-tubing annulus. The well was put on line May 11, 1983, and the Mesaverde has experienced severe liquid loading problems. In the present condition the Mesaverde side of the well cannot be swabbed to unload produced fluids.

Because of the short producing time, we have available a very limited amount of production history. The decline scenarios for these two zones in this area, however, are very similar. I therefore suggest that the allocation of production to each zone could be accurately calculated by assigning a certain percentage of the total to each zone. I recommend that 80% of the production be assigned to the Dakota and 20% to the Mesaverde.

The bottom-hole pressures for each zone were measured after eight days of shut-in. A bottom-hole bomb was run to determine the reservoir pressure of the Dakota, which was 2095 psig. A bomb could not be run in the annulus to determine the bottom-hole pressure of the Mesaverde so the surface pressure was recorded with a dead-weight gauge. The fluid level was then measured to determine the amount of fluid above the perfs. The resulting bottom-hole pressure was found to be 1164 psig. A common datum of 4762' (Mid-perf depth of the Mesaverde formation) was chosen for comparison of the two bottom-hole pressures. The Dakota pressure adjusted to this datum is 1989 psia. The Mesaverde pressure need not be adjusted because the datum was chosen as the midpoint of this zone, but can be expressed as an absolute pressure of 1176 psia. This value is 59% of the adjusted Dakota bottom-hole pressure and therefore satisfies the requirement that the lower pressured zone have a pressure that is greater than 50% of the bottom-hole pressure of the higher pressured zone adjusted to a common datum.

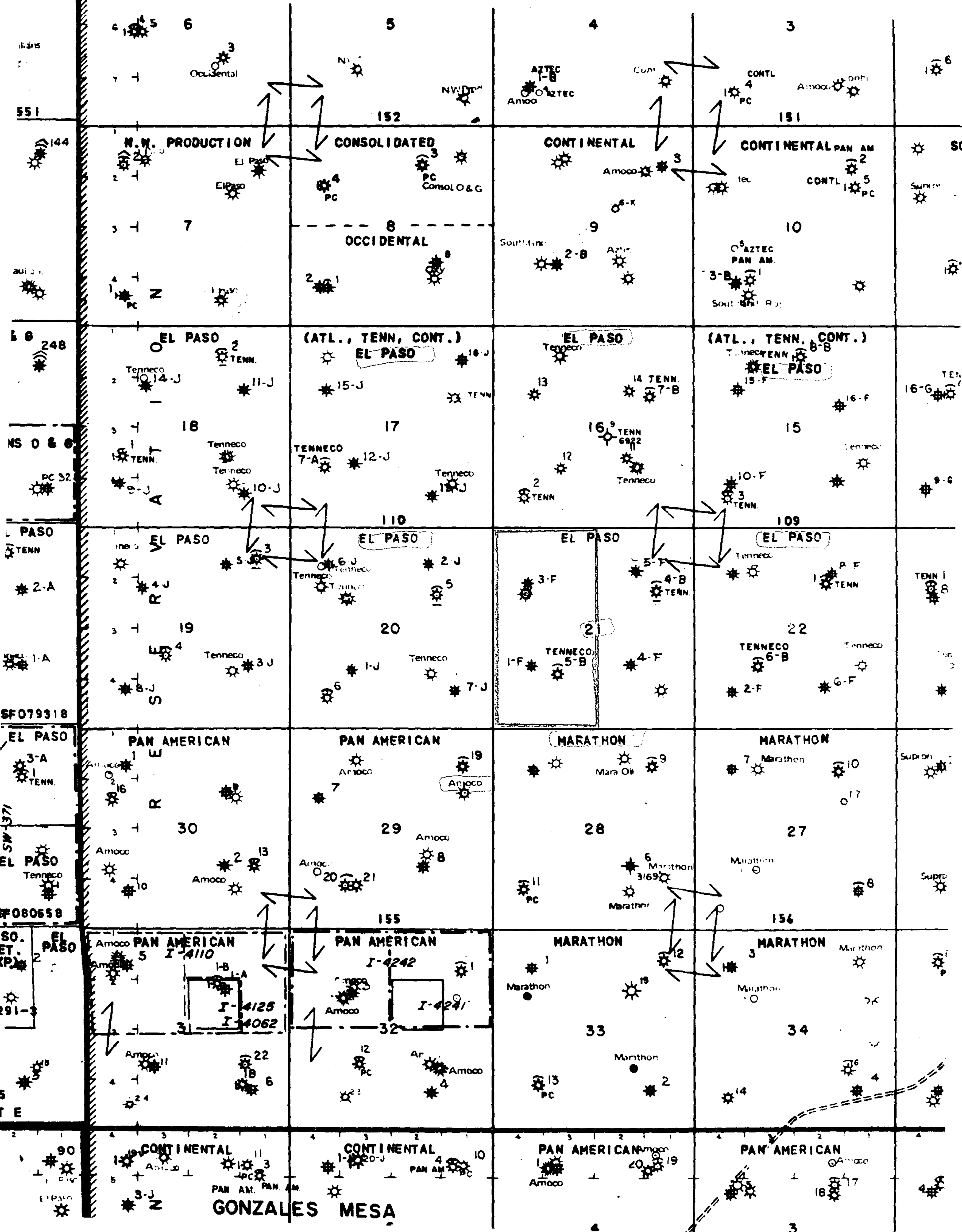
A compatibility test was performed using the produced water for the two zones. The test indicated that no scale or precipitate problems should be caused by commingling the production streams from the Mesaverde and Dakota water. In addition, the salinities of the waters are similar enough that no formation damage should occur due to the presence of produced water from another zone. It should also be noted that Tenneco already operates 10 Mesaverde-Dakota commingled dual wells on their Jicarilla leases. These commingling have been very successful and have experienced no problems with respect to incompatibility of formation waters or otherwise.

The purpose of commingling these two zones is to increase the total production from the well. This will be accomplished by the increased flow velocity obtained by flowing both zones up the tubing. The cross-sectional area of the tubing is 3.13 sq. in. as opposed to 8.47 sq. in. for the tubing and annulus. Even if no production increase were realized, a 2.7 fold increase in average flow velocity would result from this commingling. This velocity increase will enable the well to unload produced fluids and will result in increased gas production from each zone. This greater production rate will further increase the velocity in the tubing, yielding even more liquid lifting capacity.

As mentioned earlier, it is recommended that 80% of the total production from the well be assigned to the Dakota formation and 20% of the total production be assigned to the Mesaverde.

If you need additional information, feel free to call me at (303) 740-4840.

Mark W. Owen
Production Engineer



N.M. PRODUCTION
CONSOLIDATED
CONTINENTAL
CONTINENTAL
PAN AM
OCCIDENTAL
EL PASO
(ATL., TENN, CONT.)
EL PASO
EL PASO
(ATL., TENN, CONT.)
EL PASO
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PAN AMERICAN
PAN AMERICAN
MARATHON
MARATHON
PAN AMERICAN
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CONTINENTAL
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PAN AMERICAN
GONZALES MESA
152
151
110
109
155
156
I-4110
I-4125
I-4062
I-4242
I-4241
SF079318
SF080658
Occidental
Amoco
Tenneco
Marathon

NEW MEXICO OIL CONSERVATION COMMISSION

GAS – OIL RATIO TESTS

C-116
Revised 1-1-65

Operator	Pool	County
Tenneco Oil Company	Basin Dakota	Rio Arriba

Address	TYPE OF TEST – (X)	Scheduled ☐	Completion ☐	Special ☒
Box 3249, Englewood, CO 80155				

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS – OIL RATIO CU.FT./BBL.
Jicarilla	B5E	E	21	26	5	9/8/83	F	none	315	-0-	24	1	51.6	13	190	1462

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

Katharine Jenkins
(Signature)

Agent
(Title)

September 13, 1983
(Date)

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-116
Revised 10-1-78

GAS – OIL RATIO TESTS

Operator	Pool	County
Tenneco Oil Company	Undesignated Mesa Verde	Rio Arriba

Address	TYPE OF TEST – (X)	Scheduled ☐	Completion ☐	Special XX
.Box 3249, Englewood, CO 80155				

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS – OIL RATIO CU.FT/BBL
Jicarilla	B5E	E	21	26	5	9/8/83	F	none	280	-0-	24	-0-	51.6	2	29	1450

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

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

Katharine Jenkins
(Signature)

AGent
(Title)

September 13, 1983

Jic BSE

COMPLETION, STIMULATION AND WORKOVER RECORD

DATE	DESCRIPTION	REMARKS
7-29-82 to 8-14-82	Drilled Dv's @ 2583' and 4018'. Drilled cmt to FC. PT to 3500 psi - OK. Rolled hole w/ 1% KCl water. Spotted 500 gal. 7-1/2% HCl at 7420'. Ran GR/CCL/CBL. Perf'd Dakota B & D: 7319-35 1JSPF 7366-84 47', 47 holes 7405-18 BD Dak. B & D at 1600 psi. ER 26 BPM @ 2150 psi. Acidized and BO w/ 1000 gal. 15% weighted HCl and 70-1.1 SG ball sealers at 27 BPM and 2050 psi. BO complete. RT junk basket. Frac'd Dak B & D with 60,000 gal. 30# XL and 116,000# 20/40 sand at 50 BPM and 2000 psi. ISIP - 1200 psi, 15 min SIP - 900 psi. RIH w/ 2-3/8" tbg and landed at 7375. Kicked around w/ N2. FTCU. Moved rig off for 2 days. POOH with tbg. Set WLSRBP at 7265'. PT to 3500 psi - OK. Spotted 500 gal. 7-1/2% HCl at 7205'. Perf'd Dak A from 7190-7201. Total of 11', 22 shots BD at 1800 psi. ER 16 BPM at 1800 psi. Acidized and BO with 400 gal. 15% weighted HCl and 33-1.1 SG ball sealers. BO complete. RT junk basket. Frac'd A with 27,500 gal. 30# XL and 19,800# 20/40 sand. Screened out when 3# hit perfs. RIH with tbg and retr. head. POOH with RBP. RIH with tbg. SN, and pump-out plug. Land tbg. at 7350'. Kicked around w/ N2. FTCU. RIH with WLSRBP and set at 5200'. Loaded hole with 1% KCl water. PT RBP to 3500 psi - OK. Shot 4 squeeze holes 4835-39. Squeezed with 300 sxs Class B with 6-1/4# gilsonite, 2% CaCl2. DO and PT squeeze holes to 2000 psi - OK. Ran CBL - good bond 45' above and 35' below MV pay. Perf'd MV 2JSPF from 4756-69, 13', 26 holes. BD, ER, acidized, and BO with 750 gals. 15% weighted HCl and 33 - 1.1 SG ball sealers. Acid away at 10 BPM and 1500 psi. BO complete. RT junk basket. Frac'd MV with 34,205 gal slick 1% KCl water and 22,500# 20/40 sand. Screened out with 6,250 gals 2# on formation. ISIP - 1100 psi. RIH w/ tbg. and retr head. POOH w/ RBP. RIH with 2-3/8" tbg, Lok-Set packer, blast jt., and F nipple. Blast jt across MV perfs. Landed at 7090'. FTCU	

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A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
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(303) 740-4800

Delivery Address:
6162 South Willow Drive
Englewood, Colorado

October 12, 1983

Amoco Production Company
Amoco Building
17th Broadway
Denver, CO 80202

Attn: Laura Greeley

RE: Jicarilla B5E
NW/4 Sec. 21, T26N, R5W
Rio Arriba County, NM

Gentlemen:

Tenneco has applied for administrative approval to commingle production from the Mesaverde and Dakota zones in the above referenced well. If you as an offset operator, have no objection to the proposed commingling, please sign the waiver at the bottom of this page and forward to:

New Mexico Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501
Attention: Gilbert Quintana

We would appreciate your returning one copy to the undersigned.

Very truly yours,

TENNECO OIL COMPANY

Harry Hufft
Division Production Manager

HH/JO/gj

W A I V E R

We hereby waive any ojbections to Tenneco Oil Company's application to commingle production as set forth above.

Name:_____ Title:_____

Date:_____

Tenneco Oil Company
A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800

Delivery Address:
6162 South Willow Drive
Englewood, Colorado

October 12, 1983

Marathon Oil Company
Box 120, 159 N. Wolcott
Casper, WY 82602

RE: Jicarilla B5E
NW/4 Sec. 21, T26N, R5W
Rio Arriba County, NM

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Harry Hufft
Division Production Manager

HH/JO/gj

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Date:_____

Tenneco Oil Company
A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800

Delivery Address
6162 South Willow Drive
Englewood, Colorado

October 12, 1983

El Paso Natural Gas Company
P.O. Box 1492
El Paso, TX 79978

RE: Jicarilla B5E
NW/4 Sec. 21, T26N, R5W
Rio Arriba County, NM

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TENNECO OIL COMPANY

Harry Hufft
Division Production Manager

HH/JO/gj

W A I V E R

We hereby waive any ojbections to Tenneco Oil Company's application to commingle production as set forth above.

Name:_____ Title:_____

Date:_____

B & R SERVICE, INC.

P. O. Box 1048
Farmington, New Mexico 87499
(505) 325-2393

Company Tenneco Oil Co. Lease Jicarilla Well B 5E Dak

County Rio Arriba State N. Mex. Date 8-16-83

Shut-In ____ Zero Point G.L. Tbg. Pressure 1570

Casing Pressure ____ Tbg. Depth 7090 Casing Perf. 7190-7418

Max. Temp. ____ Fluid Level None

DEPTH	PSIG	GRADIENT
0	1574	----
1000	1647	.073
2000	1717	.070
3000	1786	.069
4000	1858	.072
5000	1929	.071
6000	2009	.080
7070	2095	.080

DAKOTA

Mesa Verde
Casing Pressure- 490 PSI.
109 Joints To Fluid

MESAVERDE

JICARILLA B5E
MESAVERDE BOTTOM-HOLE PRESSURE
CALCULATED FROM SURFACE INFORMAT

DATE: 10M
FILE: B5E
PROJ: 0

G A S W E L L P R E S S U R E S

MEASURED DEPTH, FEET	4762.	FLOW STREAM ID, INCHES	0.
TRUE VERTICAL DEPTH, FEET	4762.	FLOW STREAM OD, INCHES	1.995
GAS GRAVITY	0.700	CRITICAL TEMPERATURE	390.
BOTTOM HOLE TEMPERATURE	150.	CRITICAL PRESSURE	666.
NITROGEN, MOL %	0.	CONDENSATE GRAVITY, DEG API	50.0
CARBON DIOXIDE, MOL %	0.	WATER GRAVITY	1.047
HYDROGEN SULFIDE, MOL %	0.	PIPE ROUGHNESS, INCHES	0.00060

GAS RATE M/D-----	WH TEMP DEG F--	WELLHEAD PSIG------	BOTTOMHOLE PSIG------	P/Z PSIG------	CONDENSATE STB/MMCF--	WATER BW/MMCF--
0.	60.	490.	537.◆	AT 3379. FEET (MEAS)	FLUID LEVEL	
			1164.◆	AT 4762. FEET (MEAS)	(WTR)	

◆ COMPUTED VALUE

This is a calculation of the bottom-hole pressure of the Mesaverde zone. The fluid level was entered as 3379' and the surface pressure was entered as 490 psig. The resulting bottom-hole pressure is 1164 psig (= 1176 psia).

JICARILLA B #5E
DAKOTA BOTTOM-HOLE PRESSURE
ADJUSTED TO DEPTH OF 4762'

DATE: 08/19/83
FILE: B5E
PROJ: 0

G A S W E L L P R E S S U R E S

MEASURED DEPTH, FEET	2308.	FLOW STREAM ID, INCHES	0.
TRUE VERTICAL DEPTH, FEET	2308.	FLOW STREAM OD, INCHES	1.995
GAS GRAVITY	0.700	CRITICAL TEMPERATURE	390.
BOTTOM HOLE TEMPERATURE	190.	CRITICAL PRESSURE	666.
NITROGEN, MOL %	0.	CONDENSATE GRAVITY, DEG API	50.0
CARBON DIOXIDE, MOL %	0.	WATER GRAVITY	1.047
HYDROGEN SULFIDE, MOL %	0.	PIPE ROUGHNESS, INCHES	0.00060

GAS RATE M/D-----	WH TEMP DEG F--	WELLHEAD PSIG------	BOTTOMHOLE PSIG------	P/Z PSIG------	CONDENSATE STB/MMCF--	WATER BW/MMCF--
0.	150.	1977.* = 1989 psia	2095.	2317.	0.	0.

* COMPUTED VALUE

This computation adjusts the bottom-hole pressure of the Dakota zone (2095 psig) to a datum of 4762'. The wellhead pressure indicated here is actually the pressure at a depth of 4762'. The depth here is the distance between the Dakota zone and the common datum.

SMITH ENERGY SERVICES
Divison of Smith International, Inc.

2198 East Bloomfield Highway
Farmington, New Mexico 87401
Phone (505) 327-7281

August 25, 1983

Tenneco
Western Rocky Mtn. Div.
P.O. Box 3249
Englewood, Co. 80155

ATTN: Mark Owen

Dear Mr. Owen:

A compatability study was conducted using the following formation water samples:

1.	Jicarilla B#5E	Dakota formation
2.	Jicarilla B#5E	Mesa Verde formation
3.	Jicarilla A #8	Gallup formation

A small amount of reddish orange precipitate formed, but this is to be expected when oxygen is admitted to a water sample containing even a trace of iron. This precipitate should pose no problems in a closed system. No solid precipitates of any other type was noted and these samples should be considered to be compatible for mixing in any concentrations needed.

Sincerely,
SMITH ENERGY SERVICES

Loren L. Diede
District Engineer

LLD/kr

REPORT NUMBER : 2
DATE : 8-22-83

COMPANY : TENNECO

ATTENTION OF : JOHN COOK

DATE SAMPLED : 8-20-83
COUNTY :
FIELD :
FORMATION : MESA VERDE
LEASE : JICARILLA "B"
WELL : #5E
SES ANALYST : LOREN L. DIEDE

WATER ANALYSIS

SPECIFIC GRAVITY	1.010	pH :	6.50
CHLORIDE :	11297.453 mg/l	CALCIUM :	1322.640 mg/l
BICARBONATE :	1830.510 mg/l	MAGNESIUM :	144.765 mg/l
SULFATE :	100.000 mg/l	TOTAL IRON :	111.694 mg/l
SULFIDE :	0.000 mg/l	SODIUM :	6177.680 mg/l
POTASSIUM :	0.000 mg/l		

TOTAL HARDNESS (as CaCO3) : 3902.340 mg/l
TOTAL DISSOLVED SOLIDS : 20984.742 mg/l
RESISTIVITY : 0.440 OHM METERS @ 60.0 DEGREES FAHRENHEIT.

Sample Source :

PRODUCED WATER

Analyst's Remarks :

REPORT NUMBER : 2
DATE : 8-22-83

COMPANY : TENNECO
ATTENTION OF : JOHN COOK

DATE SAMPLED : 8-20-83
COUNTY :
FIELD :
FORMATION : DAKOTA
LEASE : JICARILLA "B"
WELL : #5E
SES ANALYST : LOREN L. DIEDE

WATER ANALYSIS

SPECIFIC GRAVITY	1.010	pH :	6.50
CHLORIDE :	7698.264 mg/l	CALCIUM :	440.880 mg/l
BICARBONATE :	610.170 mg/l	MAGNESIUM :	340.030 mg/l
SULFATE :	1500.000 mg/l	TOTAL IRON :	27.924 mg/l
SULFIDE :	0.000 mg/l	SODIUM :	4766.145 mg/l
POTASSIUM :	0.000 mg/l		

TOTAL HARDNESS (as CaCO3) : 2501.500 mg/l
TOTAL DISSOLVED SOLIDS : 15383.413 mg/l
RESISTIVITY : 0.650 OHM METERS @ 60.0 DEGREES FAHRENHEIT.

Sample Source :

PRODUCED WATER

Analyst's Remarks :

JICARILLA B 5E
DETERMINATION OF ALLOCATION PERCENTAGES

The decline scenario for the Mesaverde in this area is 20% decline for the first year, 15% for the second, and 8% from the third year to life. The scenario for the Dakota is 30% for one year, 20% for the second year, and 10% from there on. Based on these scenarios, the reserves attributable to these two zones are as follows:

Mesaverde	81,300 MCF
Dakota	327,800 MCF

This is assuming initial rates of 1060 MCF/month for the Mesaverde and 4447 MCF/month for the Dakota. The economic limit is 300 MCF/month for each zone.

Using these reserve estimates, 20% of the total production from this well should be assigned to the Mesaverde, and 80% should be assigned to the Dakota.

This type of reserves calculation is more accurate than a volumetric estimate in tight gas sands such as the Mesaverde and Dakota. It would be impossible to obtain accurate values of the drainage radius and recovery efficiency that would be needed for a volumetric calculation.

FILE DHC-441

Tenneco Oil Company
A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800

Delivery Address:
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October 12, 1983

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RE: Jicarilla B5E
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Attention: Gilbert Quintana

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Very truly yours,

TENNECO OIL COMPANY

Harry Hufft

Harry Hufft
Division Production Manager

HH/JO/gj

W A I V E R

We hereby waive any ojbections to Tenneco Oil Company's application to commingle production as set forth above.

Name: David M Forye Title: Landman

Date: 10/21/83

Tenneco Oil Company
A Tenneco Company
Western Rocky Mountain Division
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800

Delivery Address:
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October 12, 1983

Marathon Oil Company
Box 120, 159 N. Wolcott
Casper, WY 82602

RE: Jicarilla B5E
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TENNECO OIL COMPANY

Harry Hufft
Division Production Manager

HH/JO/gj

W A I V E R

We hereby waive any ojbections to Tenneco Oil Company's application to commingle production as set forth above.

Name: Doyle H. Jones by JLoneal Title: District Manager

Date: 10/19/83