



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

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

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 9-24-85

RE: Proposed MC _____
Proposed DHC ✓ _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated Sept. 11, 1985
for the Southwest Energy Co. Trinidad 101 #3E E 1-26N-4W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Wm. J. Day



Southland Royalty Company

August 21, 1985

Mr. Richard L. Stamets, Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RECEIVED

SEP 11 1985

**OIL CON. DIV.
DIST. 3**

RE: Downhole Commingling Dakota/Gallup
SRC - Jicarilla 101 #3E
NW/4, Section 1, T26N, R4W
Rio Arriba County, New Mexico

Dear Mr. Stamets:

Southland Royalty Company hereby requests permission to downhole commingle Basin Dakota and BS Mesa Gallup production from the above captioned dual well. The Gallup formation does not produce sufficient quantities of gas to lift the oil it produces. It is felt that the additional gas from the Dakota will allow Gallup hydrocarbons to be produced more efficiently and effectively.

Southland Royalty is currently planning to complete the Mesaverde in the subject well. As casing size will not permit a triple completion, commingling the Dakota and Gallup will allow the Mesaverde to be produced through tubing which is isolated from other producing zones within the wellbore. Based on decline curve analysis reserves of approximately 19 MMCF remain to be produced from the Gallup.

The gas produced from each zone is similar, and although oil gravities differ slightly, it is not felt that this difference will adversely effect production from either formation. Bottom hole pressures differ by only 300 psi, and therefore crossflow and lost production from the proposed commingle should not occur.

A current deliverability test for the Dakota is attached. A current deliverability test for the Gallup is not available. However, the required Gallup shut in pressure report for 1985 is attached along with the most recent deliverability test. As very little production has occurred since the March, 1983 test, it is felt that the test is still representative of the Gallup formation's ability to produce in the subject well. Production plats, decline curves, and miscellaneous data for both zones are also attached. Working interests and royalty ownership in both formations in the Jicarilla 101 #3E are identical.

Mr. Richard L. Stamets
SRC - Jicarilla 101 #3E
Page Two
August 21, 1985

The proposed production allocation between the Dakota and Gallup is based on production performance from each well's decline curve. The proposed allocation is as follows:

Oil Production:	Dakota 98%
	Gallup 2%

Gas Production:	Dakota 95%
	Gallup 5%

A copy of this application has been submitted to the BLM and all offset operators. Please advise if further information is required.

Sincerely,

SOUTHLAND ROYALTY COMPANY



David M. Blandford
Petroleum Engineer

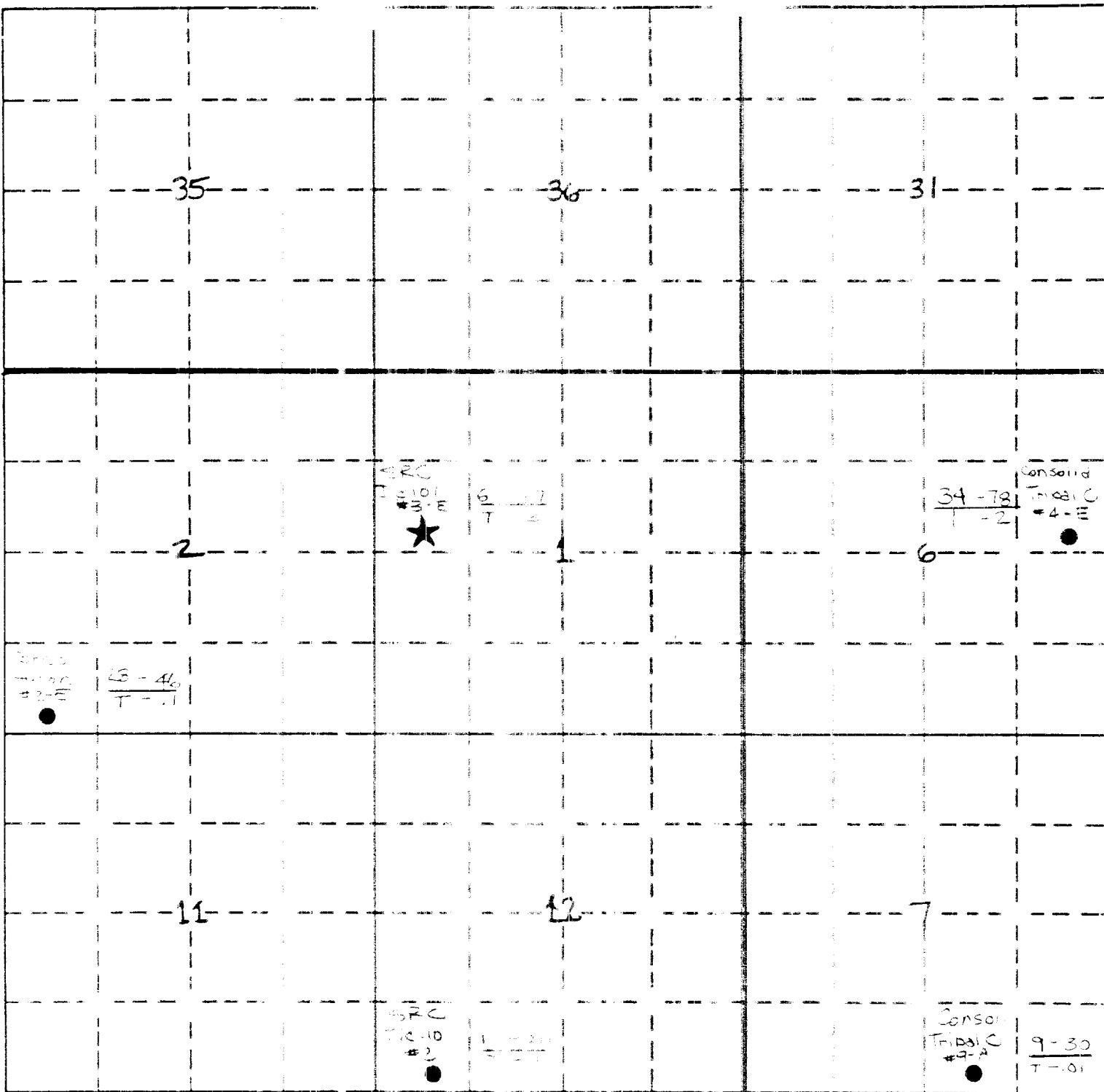
DMB/eg

Attachments

XC: BLM-Farmington, New Mexico
Consolidated Oil & Gas, Inc.-Farmington, New Mexico
El Paso Natural Gas Company-Farmington, New Mexico

MISCELLANEOUS DATA

Dakota Bottom Hole Pressure	=	1220 psi
Gallup Bottom Hole Pressure	=	920 psi
Dakota Oil Gravity	=	64.7° API
Gallup Oil Gravity	=	53.5° API
BTU/cf at 14.73 psia/60°F/Dry (Dakota)	=	1282
BTU/cf at 14.73 psia/60°F/Dry (Gallup)	=	1277



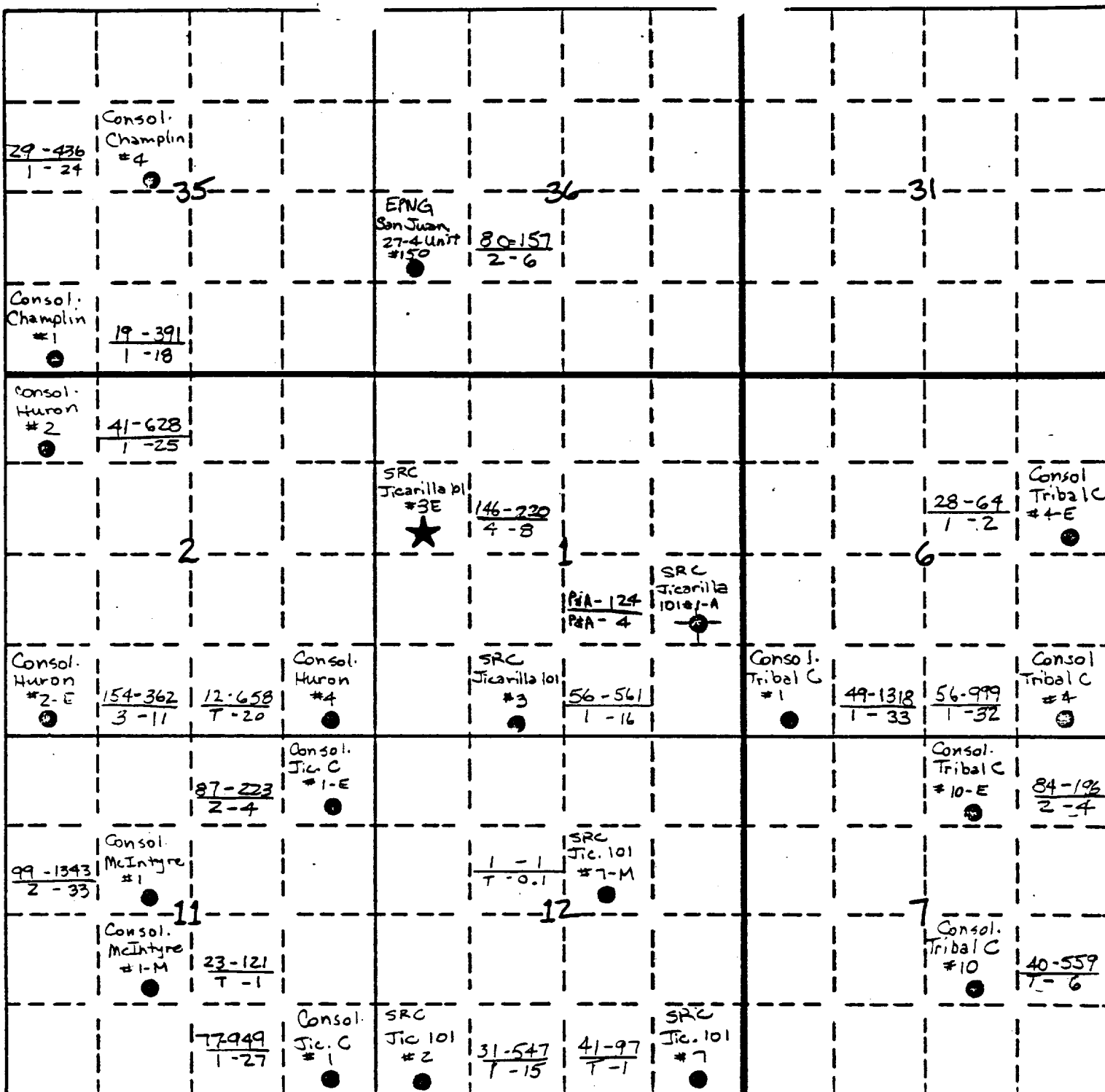
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26
N

- ☐ S.R.C.
- ☒ ★ Subject Well
- ☐
- ☐
- ☐

R4W

R3W

SOUTHLAND ROYALTY COMPANY					
AREA					
T-101 #3-E					
LOCATION					
E) Sect. 36N, R4W, S. 1/4, N.M.					
TYPE OF MAP					
General Prod. # 1000					
CONTOURED					
BY	DATE	REVISED BY	DATE	REFERENCE	DATE
NOTES					
MCFD - MMEF					
BOPD - MEO 300 - 1-85					



R4W

R3W

S.R.C.



Subject Well

SOUTHLAND ROYALTY COMPANY					
AREA Ticarrilla 101 #3E					
LOCATION (E) Sec 1, T26N, R4W					
TYPE OF MAP Basin Dakota Production & Cums					
CONTOURED			C1		
BY	DATE	REVISED BY	DATE	REFERENCE	DATE
NOTES MCFD-MMCF BOPD-MBO, as of 1-1-85					

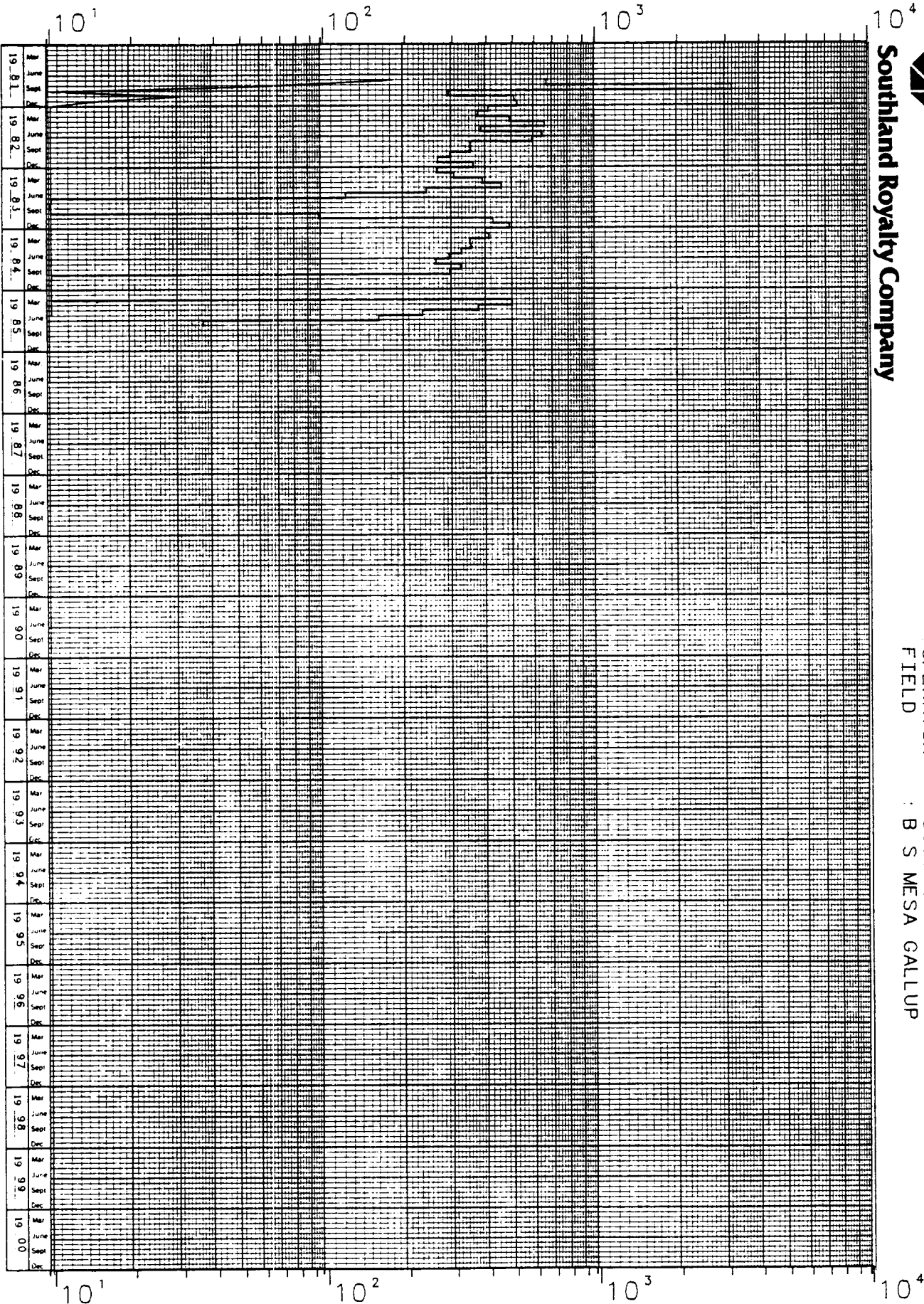


Cums: 16,529 MCF
438 BO

PROPERTY NO: 0020343A
PROPERTY : JICARILLA 101 3E
COUNTY : RIO ARriba
STATE : NEW MEXICO
OPERATOR : SOUTHLAND ROYALTY COMPANY
FIELD : B S MESA GALLUP

Southland Royalty Company

GROSS OIL BBL (LINEAR)



GROSS GAS MCF (HISTOGRAM)

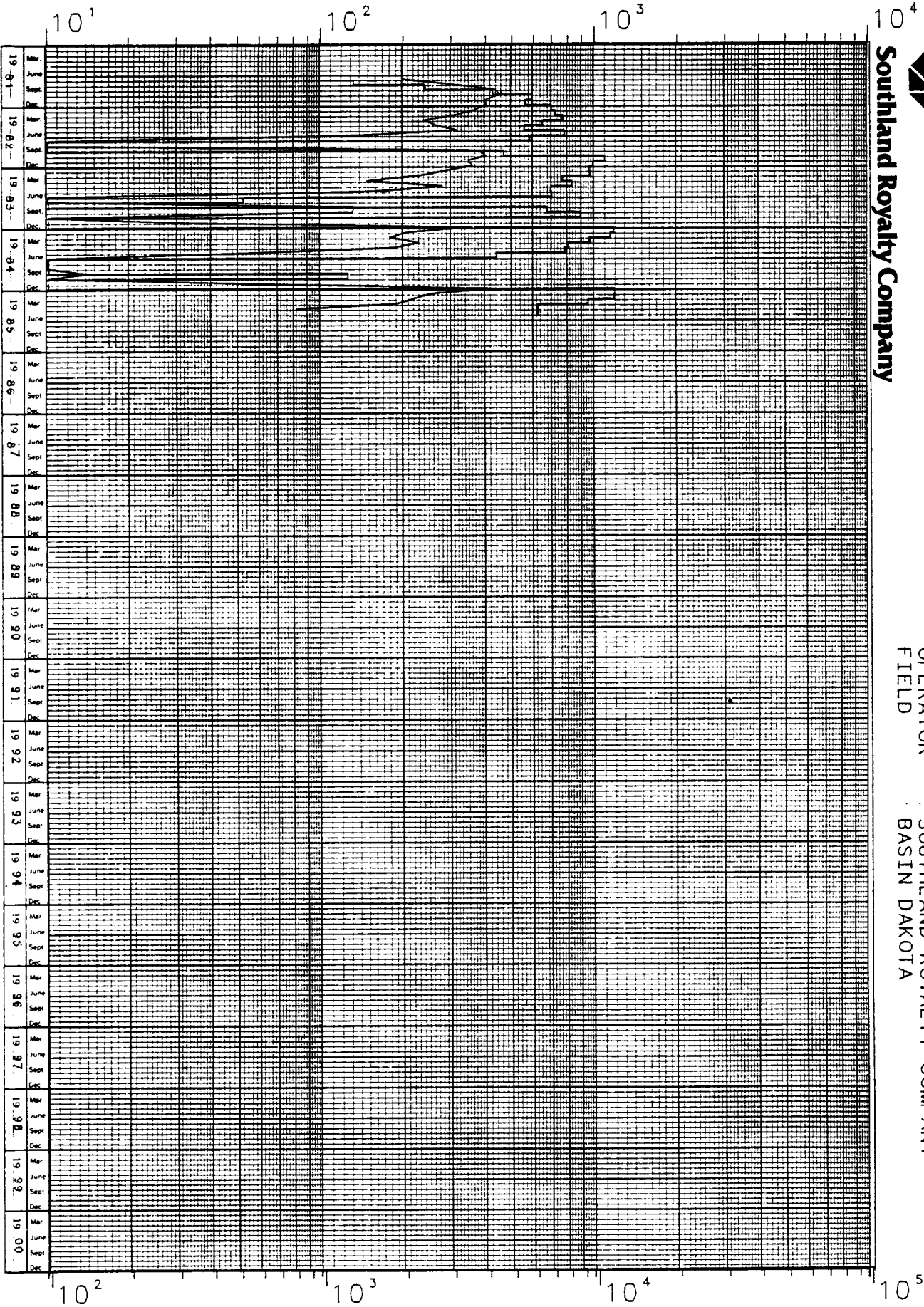
GROSS OIL BBL (LINEAR)



Cums: 219,660 MCF
8,349 BO

Southland Royalty Company

PROPERTY NO: 0020343A
PROPERTY : JICARILLA 101 3E
COUNTY : RIO ARriba
STATE : NEW MEXICO
OPERATOR : SOUTHLAND ROYALTY COMPANY
FIELD : BASIN DAKOTA



GROSS GAS MCF (HISTOGRAM)

WELL DELIVERABILITY TEST REPORT FOR 19 85

POOL NAME Basin	POOL SLOPE n=.75	FORMATION Dakota	COUNTY Rio Arriba
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COMPANY Southland Royalty Company			WELL NAME AND NUMBER Jicarilla 101 #3E		
UNIT LETTER E	SECTION 01	TOWNSHIP 26	RANGE 04	PURCHASING PIPELINE Gas Company of New Mexico	
CASING I.D. - INCHES 7.6250 5.5000	CASING O.D. - INCHES 6.9690 4.9500	SECTION DEPTH - FEET 4086 8242	TUBING O.D. - INCHES 2.0625	TUBING I.D. - INCHES 1.7500	TOP - TUBING PERF. - FEET 8196
GAS PAY ZONE FROM 8029 TO 8202		WELL PRODUCING THRU CASING TUBING X		GAS GRAVITY .746	GRAVITY x LENGTH 6114
DATE OF FLOW TEST FROM 04-09-85 TO 04-16-85			DATE SHUT-IN PRESSURE MEASURED 04-24-85		

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (Df)	(b) Flowing Tubing Pressure (Df)	(c) Flowing Meter Pressure (Df)	(d) Flow Chart Static Reading	(e) Meter Error (Item c - Item d)	(f) Friction Loss (a - c) or (b - c)	(g) Average Meter Pressure (Integr.)
	404	387	387	+0	+17	387
(h) Corrected Meter Pressure (g + c)	(i) Avg. Wellhead Press. $P_h = (h + i)$	(j) Shut-in Casing Pressure (Df)	(k) Shut-in Tubing Pressure (Df)	(l) P_c = higher value of (j) or (k)	(m) Del. Pressure $P_d = 40 \times P_c$	(n) Separator or Dehydrator Pr. (Df) for critical flow only
387	404		1027	1027	411	

FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D	Quotient of $\frac{\text{Item c}}{\text{Item d}}$	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$	Corrected Volume
221	1.0000	1.0000	Q = 221 MCF/D

WORKING PRESSURE CALCULATION

$(1 - e^{-a})$	$(P_c Q_m)^2 (1000)$	$R^2 = (1 - e^{-a}) (P_c Q_m)^2 (1000)$	P_i^2	$P_w^2 = P_i^2 + R^2$	$P_w = \sqrt{P_w^2}$
.359	8560	3073	163216	166289	408

DELIVERABILITY CALCULATION

$Q = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n =$	221	$\left[\frac{885808}{888440} \right]^n =$	$\left[\frac{.9970}{.9978} \right]^n =$	.9978	$=$	221	MCF/D
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REMARKS:

SUMMARY

Item b	387	Psia
P_c	1027	Psia
Q	221	MCF/D
P_w	408	Psia
P_d	411	Psia
D	221	MCF/D

Company Southland Royalty Company
By R. E. Faldut
Title District Manager
Witnessed by _____
Company _____

MAY 30 1985

GAS COMPANY OF NEW MEXICO
REPORT OF BTU TEST RESULTS

TO: SOUTHLAND ROYALTY CO (526)

REF: JICARILLA 101 3E (OK)
4236
NORTHWEST NEW MEXICO (70)

DP 36037
DATE OF THIS TEST: 1/29/85 EFFECTIVE DATE 2-25-85
DATE OF LAST TEST: 3/22/84
TEST FREQUENCY: NOT SPECIFIED

RESULTS: SPECIFIC GRAVITY: 0.7486
BTU/CF @ 14.73/60F/DRY: 1282.4

	MOLE %	B.P.M.
CARBON DIOXIDE	0.833	0.0000
NITROGEN	0.500	0.0000
METHANE	75.610	0.0000
ETHANE	13.970	0.7410
PROPANE	5.708	1.5750
ISOBUTANE	0.835	0.2730
N-BUTANE	1.525	0.4810
ISOPENTANE	0.402	0.1590
N-PENTANE	0.315	0.1140
HEXANE -	0.250	0.1180
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TOTAL	100.018	0.4600

Operator
Southland Royalty Company

Address
Farmington, NM 87499 - 570

Pool
B S Mesa Gallup

Rio Arriba
County

GAS WELL. SHUT-IN PRESSURE REPORT

LEASE	WELL NO.	LOCATION				DATE PRESS. RUN	TIME S.I. HRS./MIN.	S.I. PRESSURE PSIG (DWT)
		UNIT	SEC.	TWP.	RGE.			
Jicarilla 101	3E	E	01	26	04	6-04-85	192	SICP - 785 SITP - 785

I hereby certify that the above information is true and complete to the best of my knowledge and belief. (28FRCM.1.1-102)

Signature John C. MacFarland Title _____

District Production Superintendent

11

June 6, 1985

WELL DELIVERABILITY TEST REPORT FOR 19 83

POOL NAME BS Mesa	POOL SLOPE n= .75	FORMATION Gallup	COUNTY Rio Arriba
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COMPANY Southland Royalty Company			WELL NAME AND NUMBER Jicarilla 101 #3E		
UNIT LETTER E	SECTION 01	TOWNSHIP 26	RANGE 04	PURCHASING PIPELINE Gas Company of New Mexico	
CASING O.D. - INCHES 5.5000 7.6250	CASING I.D. - INCHES 4.9500 6.9690	SET AT DEPTH - FEET 8242 4086	TUBING O.D. - INCHES 1.9000	TUBING I.D. - INCHES 1.6100	TOP - TUBING PERF. - FEET 7540
GAS PAY ZONE FROM 7004 TO 7551		WELL PRODUCING THRU CASING TUBING X		GAS GRAVITY .709	GRAVITY & LENGTH 5346
DATE OF FLOW TEST FROM 3-16-83 TO 3-24-83			DATE SHUT-IN PRESSURE MEASURED 3-31-83		

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWt)	(b) Flowing Tubing Pressure (DWt)	(c) Flowing Meter Pressure (DWt)	(d) Flow Chart Static Reading	(e) Meter Error (Item c - Item d)	(f) Friction Loss (a-c) or (b-c)	(g) Average Meter Pressure (Integr.)
385	275	272	274	-2	+3	293
(h) Corrected Meter Pressure (g + e)	(i) Avg. Wellhead Press. $P_t = (h + f)$	(j) Shut-in Casing Pressure (DWt)	(k) Shut-in Tubing Pressure (DWt)	(l) P_c = higher value of (j) or (k)	(m) Del. Pressure $P_d = \frac{80}{\%P_c}$	(n) Separator or Dehydrator Pr. (DWt) for critical flow only
291	294	677	677	677	542	

FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D	Quotient of $\frac{\text{Item c}}{\text{Item d}}$	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$	Corrected Volume
21	.9927	.9963	Q = 21 MCF/D

WORKING PRESSURE CALCULATION

$(1 - e^{-x})$	$(P_c Q_m)^2 (1000)$	$R^2 = (1 - e^{-x}) (P_c Q_m)^2 (1000)$	P_t^2	$P_w^2 = P_t^2 + R^2$	$P_w = \sqrt{P_w^2}$
.322	119	38	86436	86474	294

DELIVERABILITY CALCULATION

$$D = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n = 21 \left[\frac{164565}{371855} \right]^n \left(\frac{.4426}{.5426} \right)^n = 11 \text{ MCF/D}$$

REMARKS:

SUMMARY

Item b 291 P_{st}
P_c 677 P_{st}
Q 21 MCF/D
P_w 294 P_{st}
P_d 542 P_{st}
D 11 MCF/D

Company Southland Royalty Company
By *[Signature]*
Title District Manager
Witnessed By
Company

April 19, 1983

GAS ANALYSIS: TRANSCRIPTION OF TAPE FROM AUTOMATIC CHROMATOGRAPH

1

NAME/LOCATION:

SAMPLE DATE: 4/01/85

STREAM NO. 3

STATION NO. 4972-G6

SPECIFIC GRAVITY 0.7411 ✓ BTU/CF 14.73/60F/DRY: 1277.1 ✓

COMPONENT	MOLE%	G. P. M.
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CARBON DIOXIDE	0.824 ✓✓	0.0005
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NITROGEN	0.421 ✓✓	0.0005
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METHANE	76.030	0.0005
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ETHANE	10.930	3.7300
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PROPANE	5.560	1.5340
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ISOBUTANE	0.804	0.2630
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N-BUTANE	1.450	0.4570
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ISOPENTHANE	0.421	0.1540
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N-PENTHANE	0.335	0.1210
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HEXANE	0.248	0.1010
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TOTAL	100.023	6.3600
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STATION NAME: JICARILLA 101 3E

LAST BTU TEST DATE 84/03/22

LAST BTU TEST RESULT: 1267

TEST RUN: 09:24 02/04/85

1

TEST TRANSCRIBED ON: 85/04/08

RECEIVED
AUG 15 1985
FARMINGTON DISTRICTWELL # 4972-G6/762 DUE: 3/22/85
NAME: JICARILLA 101 3E
RUN# 109 FREQ: 12 LAST BTU: 1267
DATE PULLED: 7/1/85 STREAM: 3
DATE TESTED: 7/2/85 TIME: 3