

DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II

811 S. First St., Artesia, NM 88210-2835

DISTRICT III

1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 875054-6429

Form C-107-A

New 3-12-96

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☐ YES ☒ NO

APPLICATION FOR DOWNHOLE COMMINGLING

Taurus Exploration U.S.A., Inc.

2198 Bloomfield Highway, Farmington, New Mexico 87401

Operator

Address

Jicarilla 117E

7A

0

28

T26N

R3W

Rio Arriba

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

OGRID NO. 162928

Property Code 007171

API NO. Not Assigned

Spacing Unit Lease Types: (check 1 or more)
Federal ☒ State ☐ (and/or) Fee ☐

The following facts are submitted in support of downhole commingling.	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	Tapacito PC 85920		Blanco Mesa Verde 72319
2. Top and Bottom of Pay Section (Perforations)	3957 - 4019'		4401 - 6550'
3. Type of production (Oil or Gas)	Gas		Gas
4. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing
5. Bottomhole Pressure	a. (Current) 750 Calc.	a.	a. 875 Calc.
Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing: Measured Current All Gas Zones: Estimated Or Measured Original	b. (Original) 1064 Calc.	b.	b. 1335 Calc.
6. Oil Gravity (°API) or Gas BTU Content)	1142 BTU		1224 BTU
7. Producing or Shut-In?	Not Yet Completed		Not Yet Completed
Production Marginal? (yes or no)	No		Yes
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data	Date: Rates:	Date: Rates:	Date: Rates:
* If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: N/A Rates: N/A	Date: Rates:	Date: N/A Rates: N/A
8. Fixed Percentage Allocation Formula - % for each zone	Oil: See % Gas: Attached %	Oil: % Gas: %	Oil: See % Gas: Attached %

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones?
If not, have all working, overriding, and royalty interests been notified by certified mail?
Have all offset operators been given written notice of the proposed downhole commingling?☒ Yes ☐ No
☐ Yes ☐ No
☒ Yes ☐ No11. Will cross-flow occur? ☐ Yes ☒ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. ☐ Yes ☐ No (If No, attach explanation)12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ☐ No13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)14. If this well in on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ☒ Yes ☐ No

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S).

16. ATTACHMENTS:

- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- * Production curve for each zone for at least one year. (If not available, attach explanation.)
- * For zones with no production history, estimated production rates and supporting data.
- * Data to support allocation method or formula.
- * Notification list of all offset operators.
- * Notification list of working, overriding, and royalty interests for uncommon interest cases.
- * Any additional statements, data, or documents required to support commingling.

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

SIGNATURE

TITLE Prod. Superintendent DATE 9/28/98

TYPE OR PRINT NAME Gary Brink

TELEPHONE NO. (505) 325-6800

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code		3 Pool Name	
		85920/72319		Tapacito PC/Blanco MV	
4 Property Code		5 Property Name			6 Well Number
		JICARILLA 117E			7A
7 OGRID No.		8 Operator Name			9 Elevation
162928		TAURUS EXPLORATION U.S.A., INC.			7362

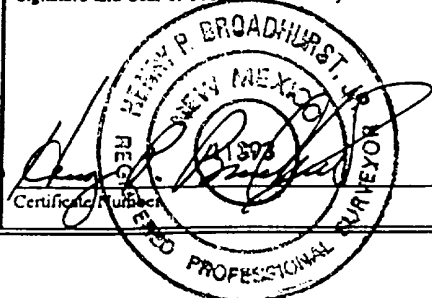
10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	28	26N	3W		790	SOUTH	1850	EAST	RIO ARRIBA
12 Dedicated Acres		13 Joint or Infill		14 Consolidation Code		15 Order No.			
160/320									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16		---5280.0'		17 OPERATOR CERTIFICATION	
RECEIVED SEP 29 1998 OIL CON. DIV. DIST. 3		28		I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief	
				Signature Garv W. Brink Printed Name Production Superintendent Title 7/13/98 Date	
5280.0'		5280.0'		18 SURVEYOR CERTIFICATION	
				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 belief.	
5280.0'		5280.0'		6-10-98 Date of Survey	
				Signature and Seal of Professional Surveyor: 	
5280.0'		5280.0'		1850'	
5280.0'		5280.0'		790'	

Taurus Exploration U.S.A., Inc

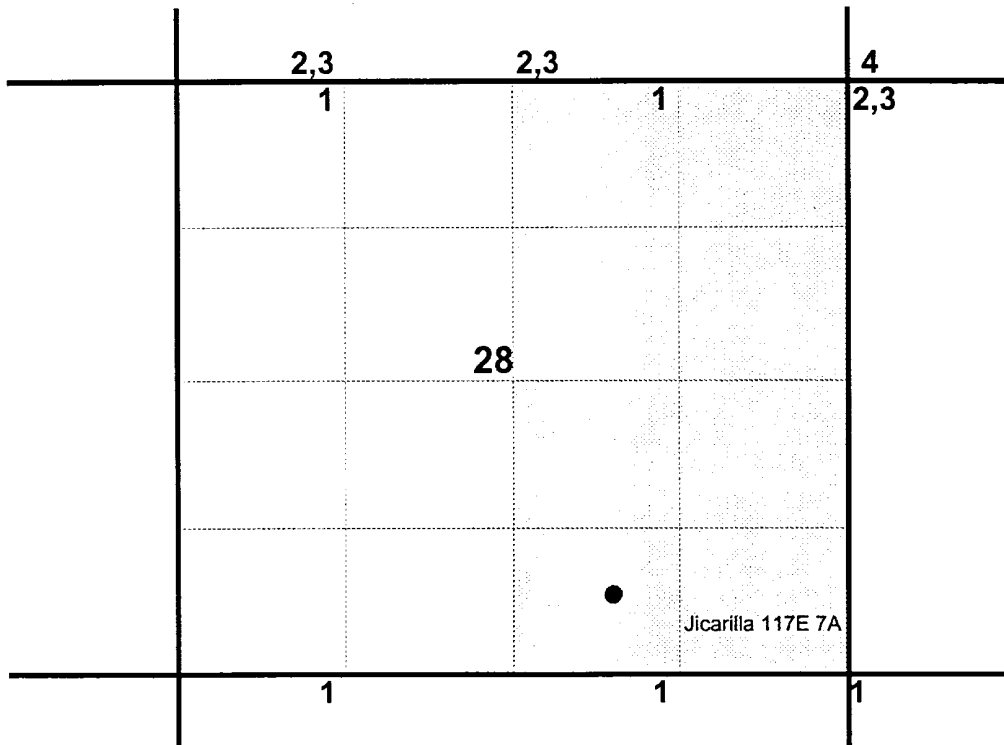
Jicarilla 117E #7A

Offset Operator / Ownership Plat

Tapacito Pictured Cliffs/ Blanco Mesa Verde

Downhole Commingling

Township 26 N, Range 3 W



1) Taurus Exploration U.S.A., Inc

2) Conoco

10 Desta Dr., Suite 100 W

Midland, Tx. 79705

3) Dugan Production Corp.

P.O. Box 420

Farmington, N.M. 87401

4) Un-leased

Recommended Allocation Method

Jicarilla 117E# 7A
Unit O, Sec. 28, T26N, R3W
Rio Arriba Co., N.M.

1. Complete both the Pictured Cliffs and Mesa Verde
2. Clean out to below Pictured Cliffs and test zone
3. Clean out to total depth and test well
4. Report flow test data to NMOCD Aztec District office
5. Allocate production as follows:

$$PC = PC \text{ test rate} / \text{Total combined rate}$$

$$MV = \text{Total combined rate} - PC \text{ test rate} / \text{Total combined rate}$$

Date: September 15, 1998
To: File
From: Joe O'Leary J.O.
Subject: Documentation for Downhole Commingling Application for Jicarilla 117E #7A

This Memo to File serves to provide the required information and analytical process utilized to evaluate the Tapacito-Pictured Cliffs and Blanco Mesaverde gas pools. The final data provided within, should meet the requirements of the NMOCD in order to process the application for downhole commingling within the Jicarilla 117 Contract area. A summary of key reservoir parameters developed from this study is outlined on Figure #1.

Initial bottomhole pressure data for the existing offset wells was collected for both pools from Dwights production database and mapped on Figures #2 - #3. The average initial bottomhole pressure for the Pictured Cliff formation was 1,064 psi while the Mesaverde averaged 1,335 psi. Current BHP data was not available from any of the surrounding offset locations so current BHP values were estimated using P/Z analysis where sufficient production had taken place. Initial BHP data was utilized in conjunction with historic EUR data from decline curve analysis to generate a P/Z vs. cumulative production plot. Abandonment pressures were assumed to equal line pressures for the area. A plot was generated using the initial pressure data and the expected EUR at abandonment pressure. Entering the X-axis at the current cumulative production and extrapolating to the P/Z vs. cumulative production; the Y-axis intersection provides the corresponding current BHP. Attached on Figures #4 - #11 is an estimate of current bottomhole pressures for both the Pictured Cliffs and Mesaverde formation along with the supporting P/Z analysis. The current bottomhole pressure value for the proposed well was estimated based on offset initial and current pressure data, net pay, and production within each pool.

The projected initial gas rates and subsequent recoverable reserve estimates were determined by evaluating offset well performance, net pay, and pressure depletion. Attached on Figures #12 - #15 are cumulative production plots and projected EUR values for the area obtained by matching the historic hyperbolic decline and extending the plot out to the well's economic limit. Initial performance for the development well was determined by extrapolating between the initial stabilized rates and the current rates of the offset wells. Attached on Figures #16 - #19 are contour maps of initial and current rates for the offset wells; the development wells are expected to have a slightly greater decline rate due to reservoir depletion. BTU values from several offset wells were utilized to determine an average BTU value for each pool. All BTU values are shown on Figures #20 - #21 as dry samples at 60°F and 14.73 psi.

Memo to Files
Page 2
September 15, 1998

Well economics were run for both a commingled and dual completion to determine the economic viability for each scenario. Gross well costs were estimated for a Pictured Cliffs/Mesaverde commingle and dual well. Well costs were estimated to be \$496,185/well for a commingle completion and \$606,185/well for a dual completion. Initial well costs were \$110,000 greater per well on a dual completion due to increased hole size, casing size, additional tubulars, packers, and rig expense. The projected initial rate of 165 Mcfd for a commingled well was reduced by 30 Mcfd for the dual well to account for additional wellbore restrictions and friction pressure associated with dual completions. Holding all other variables constant, the economic model yielded the following results:

- EUR is increased from .67 BCF to .84 BCF by utilizing a commingled completion.
- Economic well life is extended by two years by utilizing a commingled completion.
- Recovery of gas-in-place is maximized.
- IRR of the project is increased from 5.1% to 12.0 %.

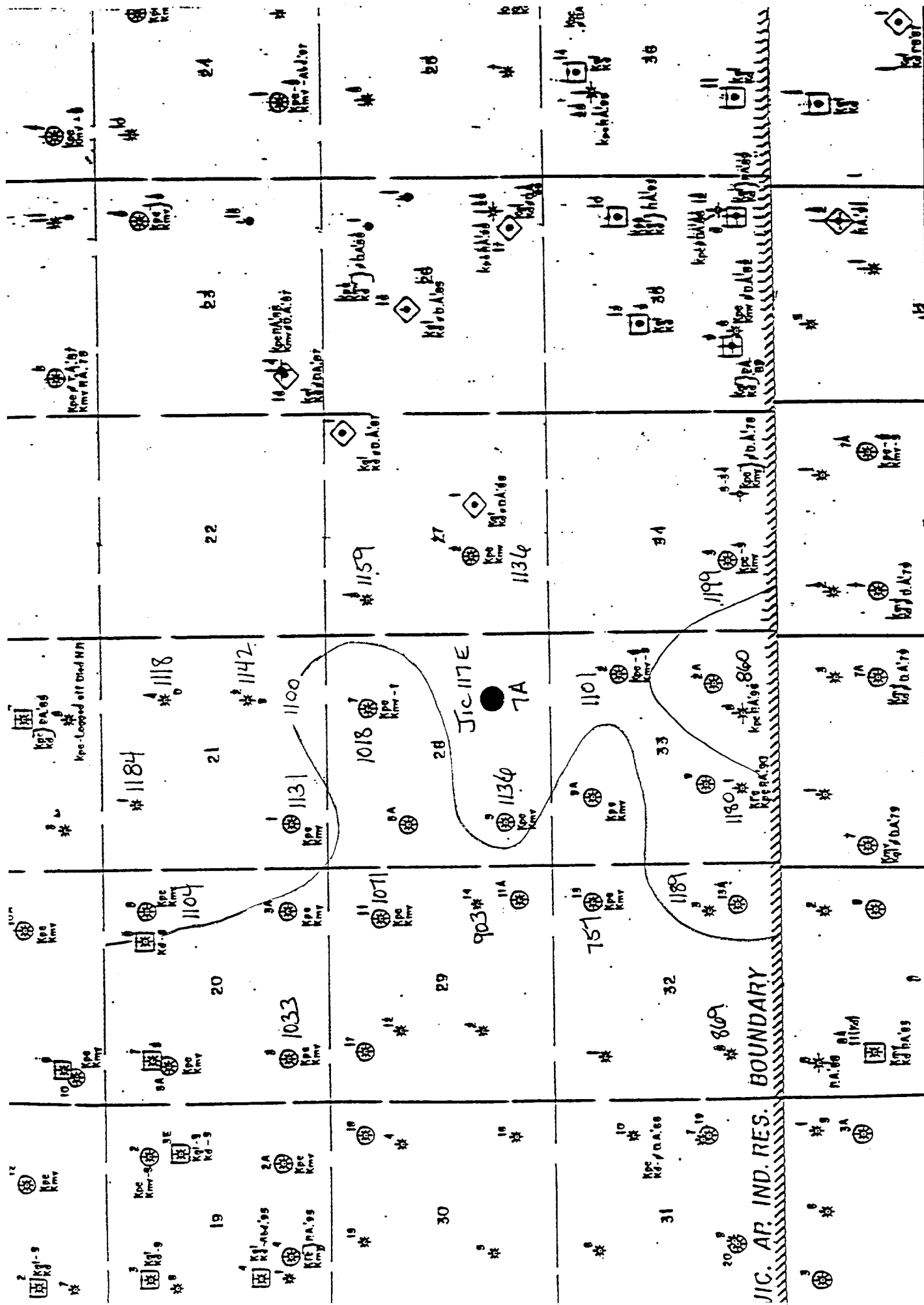
The project economics under a dual completion scenario are uneconomic and do not warrant development, whereas the commingled completion meets Taurus' economic threshold for project viability and maximizes the recovery of the gas-in-place. Attached on Figures #22 - #23 is a detailed economic analysis for both a commingled and dual scenario. Each analysis shows the economic parameters that were applied as well as a composite production profile for both zones.

JMO/lcw

Cc: Joe Niederhofer
Gary Brink
Rich Corcoran
Paul Sparks
Jerry Saulsberry
Ron Tisdale

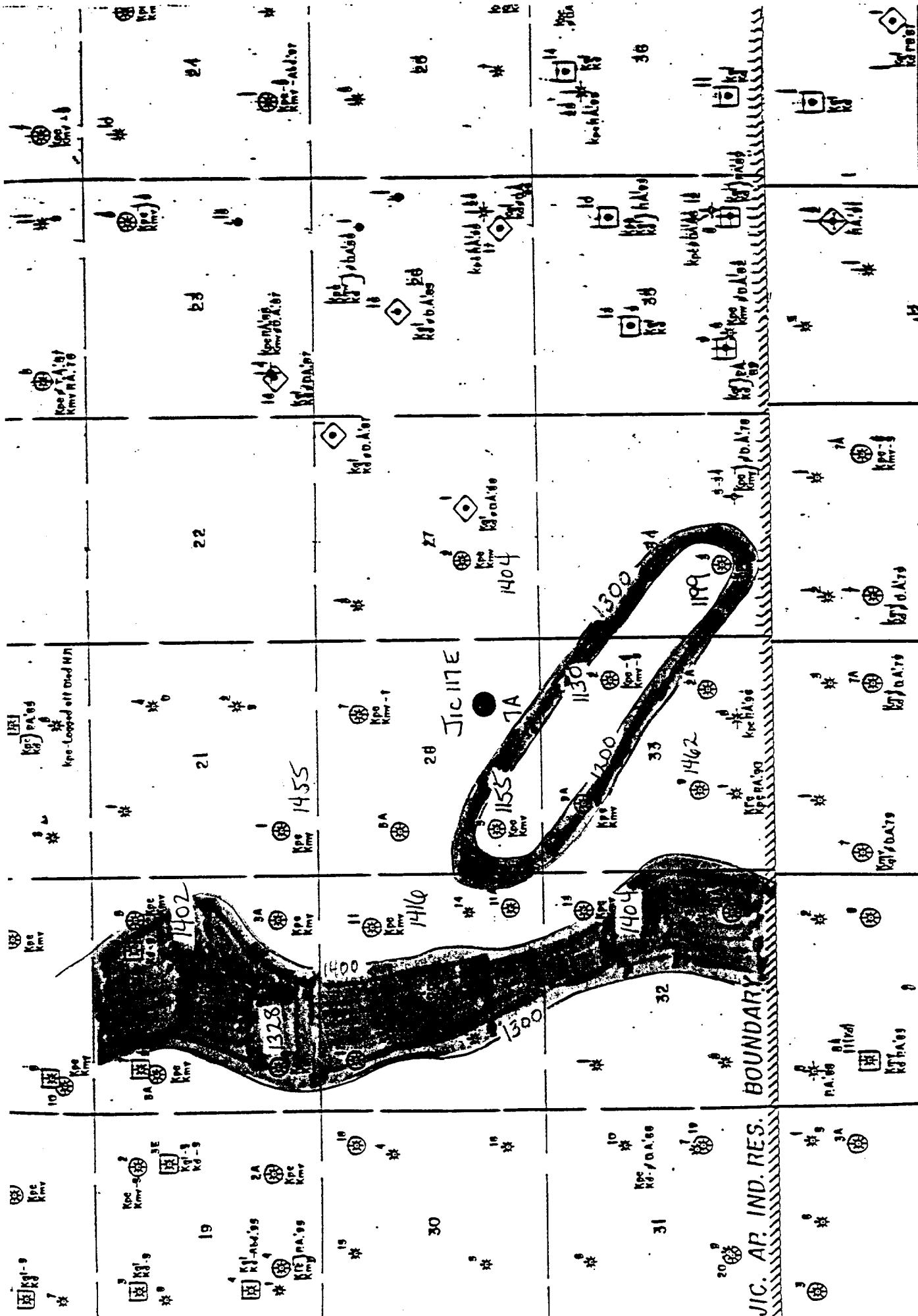
Figure #1

JICARILLA 117 E #7A EXPECTED RESERVOIR PARAMETERS		
	PICTURED CLIFFS	MESAVERDE
EXPECTED INITIAL RATE	100 MCFD	65 MCFD
EXPECTED EUR	0.48 BCF	0.29 BCF
CURRENT BHP	750 PSI	875 PSI
INITIAL BHP	1,064 PSI	1,335 PSI
BTU VALUE	1,142 BTU	1,224 BTU



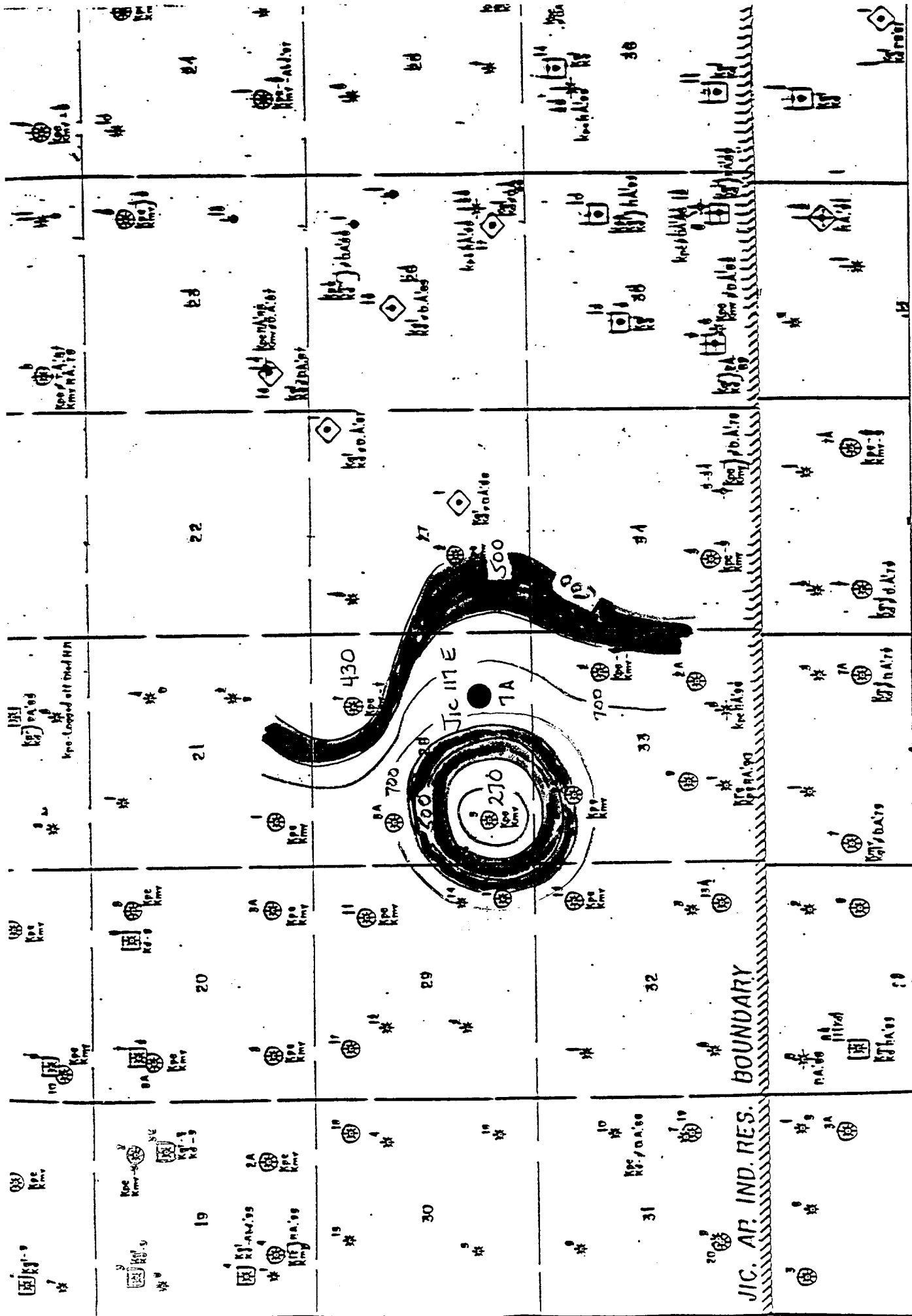
PICTURED CLIFFS INITIAL BOTTOMHOLE PRESSURE

FIGURE #2



MESAVERDE INITIAL BOTTOMHOLE PRESSURE

FIGURE #3



PICTURED CLIFFS CURRENT BOTTOMHOLE PRESSURE

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997
by Douglas M Boone

Well Name	JICARILLA 117 E #5		Version 5.0
			10-Sep-98
Gas gravity	0.67	SG	% N2: 0.00
Condensate (yes=1)	1		% CO2: 0.00
Reservoir Temp	120	F	% H2S: 0.00
Surface temp	80	F	For manual Curve:
Depth of zone	4,000	feet	Pi/Zi manual 0
Abandonment press	250	psia	GIP manual 0

**Gas in place	1,933,943	Mcf
**Recoverable Gas	1,568,842	Mcf

Enter BHP	Cum Gas	Surf Pres	BHP	Z	BHP/Z
if known	Mcf	psia	psia		
1136	0	1,200	1,136	0.8578	1,324
270	1,541,000	1,056	270	0.9633	280
250	1,556,000	450	250	0.9660	259
0 x	0	0	#DIV/0!	#DIV/0!	#DIV/0!
0 x	0	0	#DIV/0!	#DIV/0!	#DIV/0!

0

JICARILLA 117 E #5

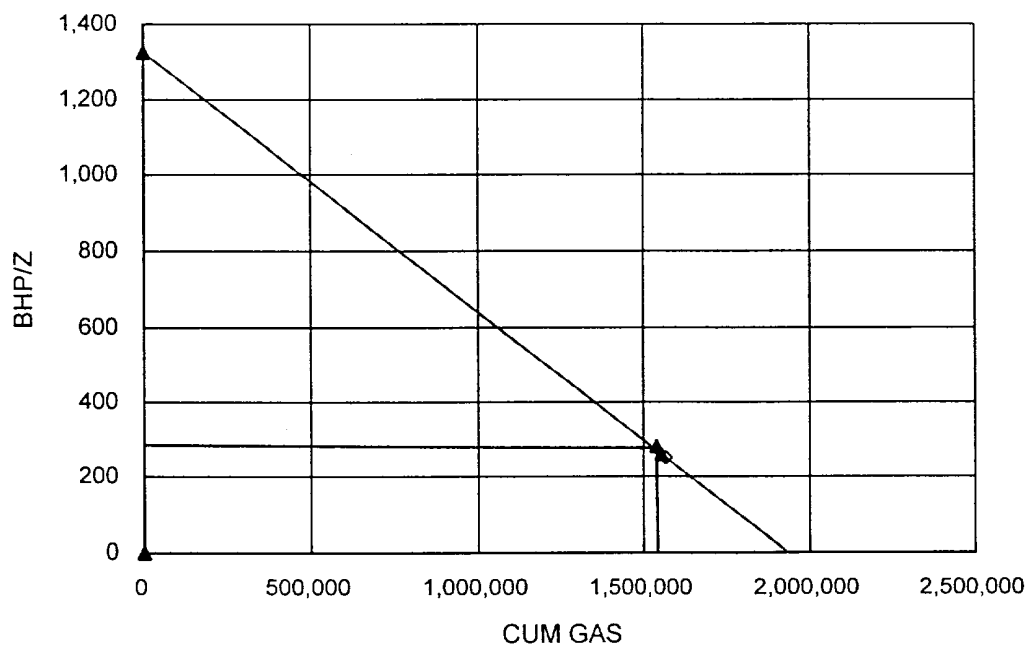


FIGURE #5

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997

by Douglas M Boone

Version 5.0

10-Sep-98

Well Name

JICARILLA E #2

Gas gravity

0.67 SG

% N2:

0.00

Condensate (yes=1)

1

% CO2:

0.00

Reservoir Temp

120 F

% H2S:

0.00

Surface temp

80 F

For manual Curve:

Depth of zone

4,000 feet

Pi/Zi manual

0

Abandonment press

250 psia

GIP manual

0

**Gas in place

860,083 Mcf

**Recoverable Gas

697,711 Mcf

Enter BHP

Cum Gas

Surf Pres

BHP

Z

BHP/Z

if known

Mcf

psia

psia

1136

0

1,200

1,136

0.8578

1,324

500

516,000

1,056

500

0.9330

536

250

692,000 EUR

450

250

0.9660

259

0 x

0

0

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0 x

0

0

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JICARILLA E #2

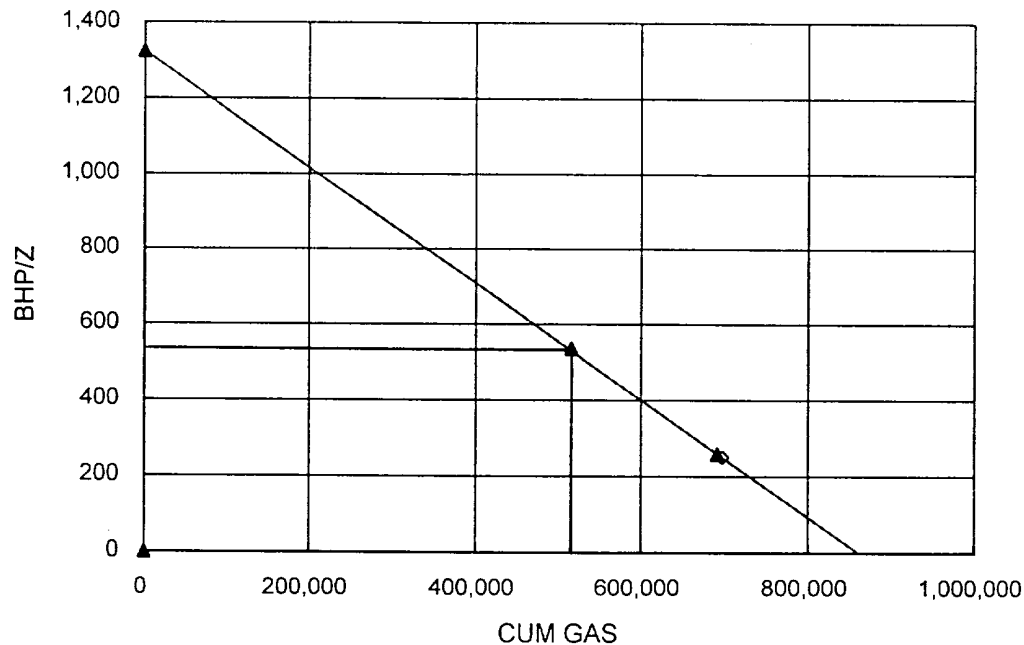


FIGURE #6

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997

by Douglas M Boone

Version 5.0

10-Sep-98

Well Name

JICARILLA 117 E #7

Gas gravity

0.67 SG

% N2:

0.00

Condensate (yes=1)

1

% CO2:

0.00

Reservoir Temp

120 F

% H2S:

0.00

Surface temp

80 F

For manual Curve:

Depth of zone

4,000 feet

Pi/Zi manual

0

Abandonment press

250 psia

GIP manual

0

**Gas in place

1,162,130 Mcf

**Recoverable Gas

913,737 Mcf

Enter BHP if known	Cum Gas Mcf	Surf Pres psia	BHP psia	Z	BHP/Z
1018	0	1,200	1,018	0.8703	1,170
430	711,000	1,056	430	0.9421	456
250	905,000	EUR 450	250	0.9660	259
0 x	0	0	#DIV/0!	#DIV/0!	#DIV/0!
0 x	0	0	#DIV/0!	#DIV/0!	#DIV/0!

0

JICARILLA 117 E #7

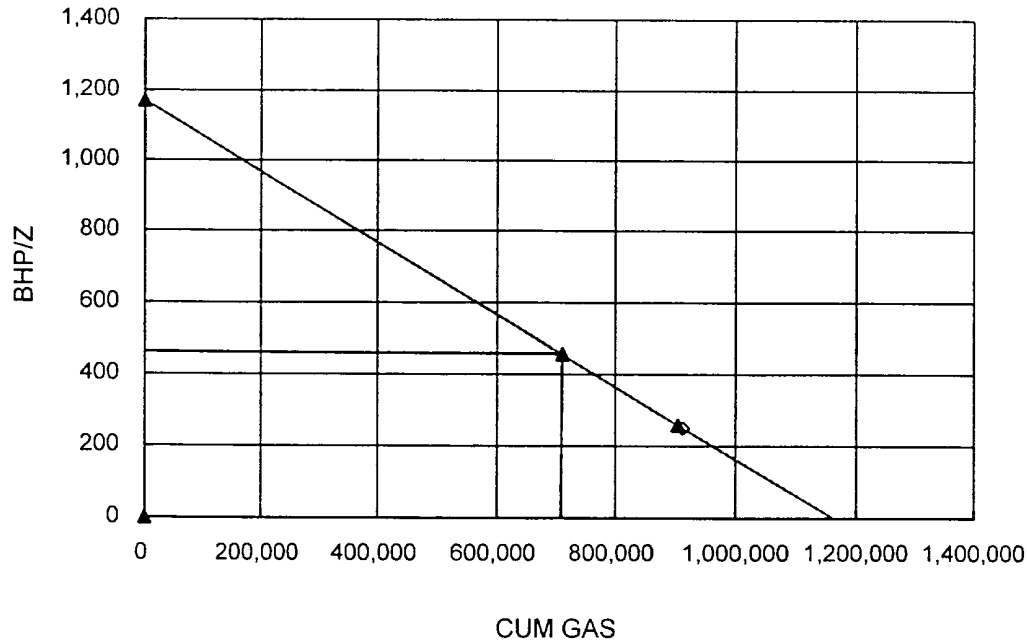
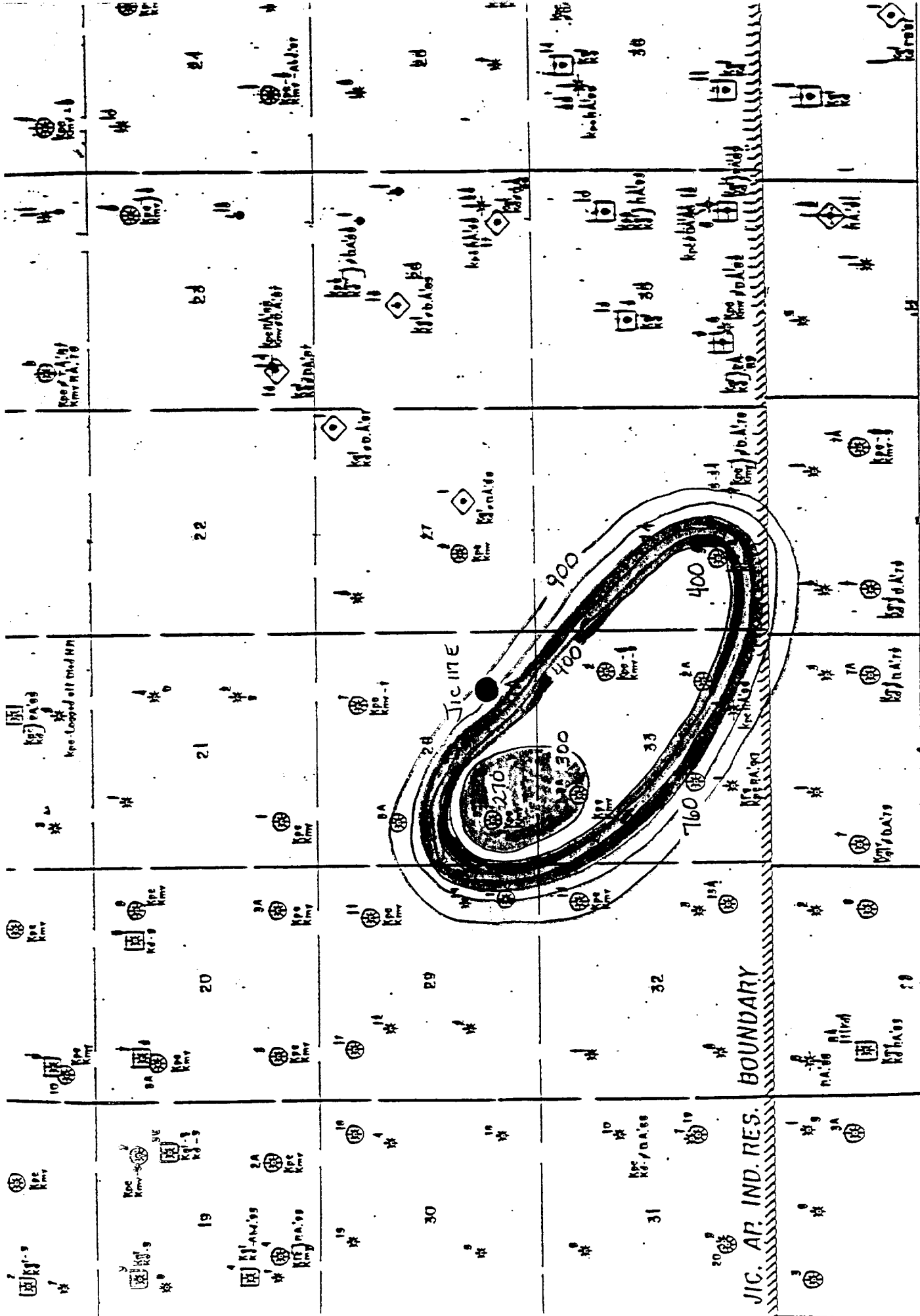


FIGURE #7



MESAVERDE CURRENT BOTTOMHOLE PRESSURE

FIGURE #8

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997

by Douglas M Boone

Version 5.0

10-Sep-98

Well Name

JICARILLA 117 E #5

Gas gravity

0.67 SG

% N2:

0.00

Condensate (yes=1)

1

% CO2:

0.00

Reservoir Temp

150 F

% H2S:

0.00

Surface temp

80 F

For manual Curve:

Depth of zone

6,000 feet

Pi/Zi manual

0

Abandonment press

250 psia

GIP manual

0

**Gas in place

1,286,775 Mcf

**Recoverable Gas

1,041,244 Mcf

Enter BHP

Cum Gas

Surf Pres

BHP

Z

BHP/Z

if known

Mcf

psia

psia

1155

0

1,200

1,155

0.8815

1,310

270

1,027,000

1,056

270

0.9691

279

250

1,034,000

EUR

450

250

0.9713

257

0 x

0

0

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0 x

0

0

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JICARILLA 117 E #5

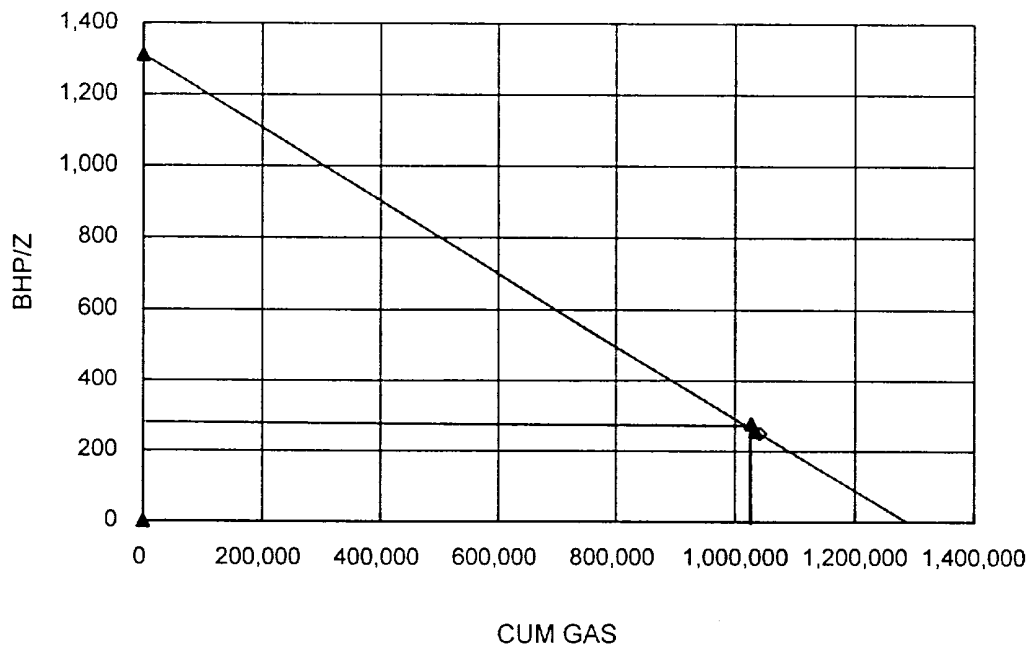


FIGURE #9

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997

by Douglas M Boone

Version 5.0

10-Sep-98

Well Name

JICARILLA 117 E #3

Gas gravity

0.67 SG

% N2:

0.00

Condensate (yes=1)

1

% CO2:

0.00

Reservoir Temp

150 F

% H2S:

0.00

Surface temp

80 F

For manual Curve:

Depth of zone

6,000 feet

Pi/Zi manual

0

Abandonment press

250 psia

GIP manual

0

**Gas in place

1,544,023 Mcf

**Recoverable Gas

1,261,340 Mcf

Enter BHP

Cum Gas

Surf Pres

BHP

Z

BHP/Z

if known

Mcf

psia

psia

1199

0

1,200

1,199

0.8781

1,366

400

1,079,000

1,056

400

0.9547

419

250

1,253,000

EUR

450

250

0.9713

257

0 x

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JICARILLA 117 E #3

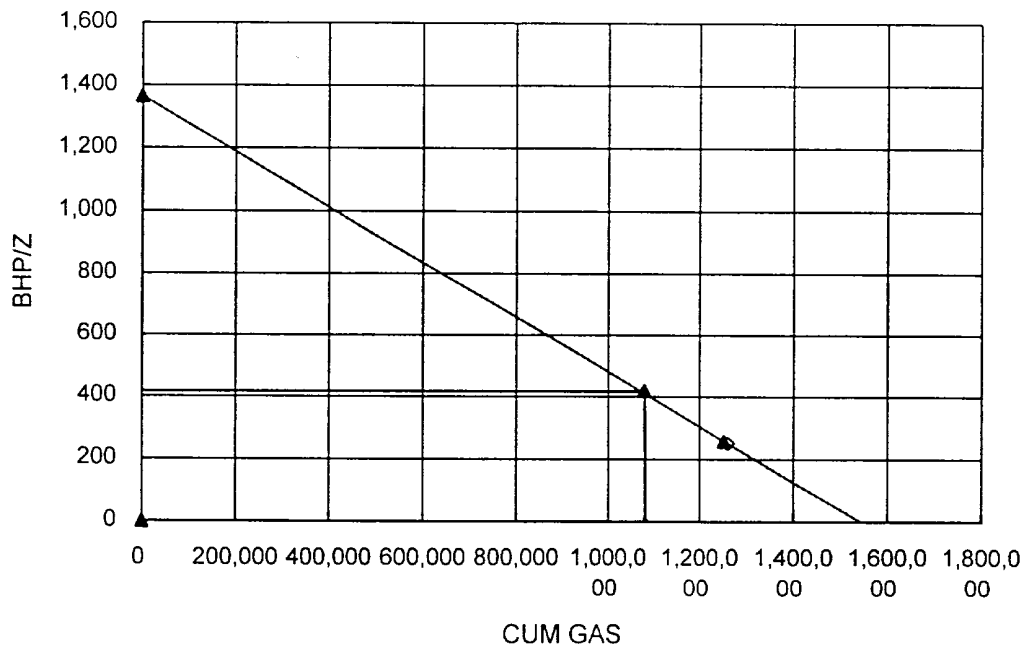


FIGURE #10

BHP/Z vs cum gas calculation

(C) Copyright 1993-1997

by Douglas M Boone

Version 5.0

10-Sep-98

Well Name

JICARILLA 117 E #9

Gas gravity

0.67 SG

% N2:

0.00

Condensate (yes=1)

1

% CO2:

0.00

Reservoir Temp

150 F

% H2S:

0.00

Surface temp

80 F

For manual Curve:

Depth of zone

6,000 feet

Pi/Zi manual

0

Abandonment press

250 psia

GIP manual

0

**Gas in place

1,319,712 Mcf

**Recoverable Gas

1,125,723 Mcf

Enter BHP

Cum Gas

Surf Pres

BHP

Z

BHP/Z

if known

Mcf

psia

psia

1462

0

1,200

1,462

0.8596

1,701

760

676,000

1,056

760

0.9171

829

250

1,120,000 EUR

450

250

0.9713

257

0 x

0

0

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0 x

0

0

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0

JICARILLA 117 E #9

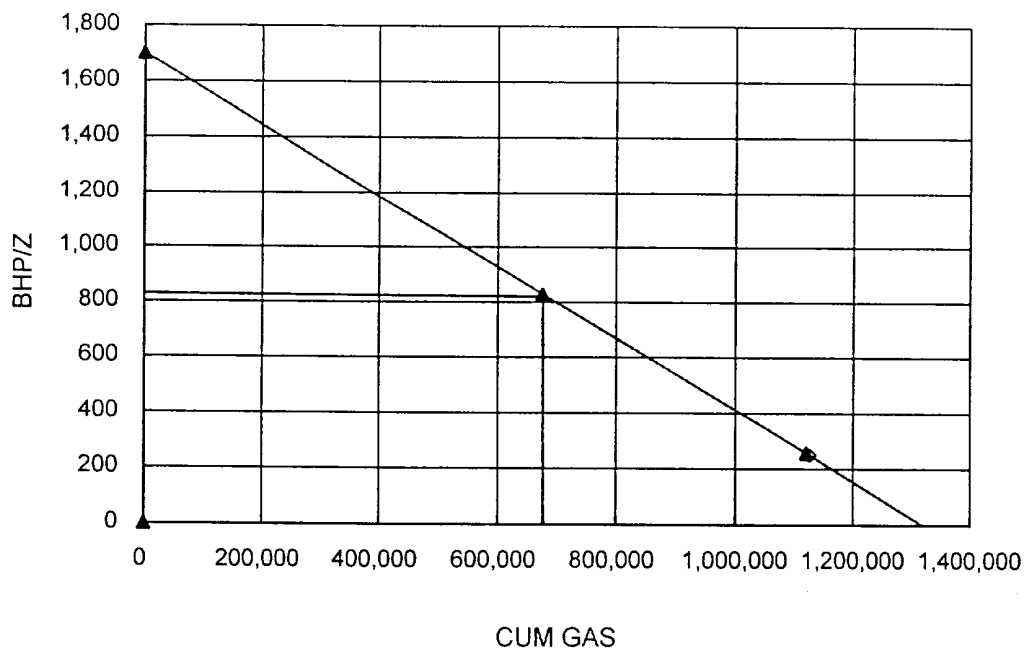


FIGURE #11

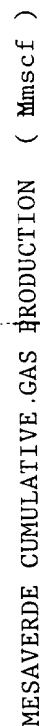
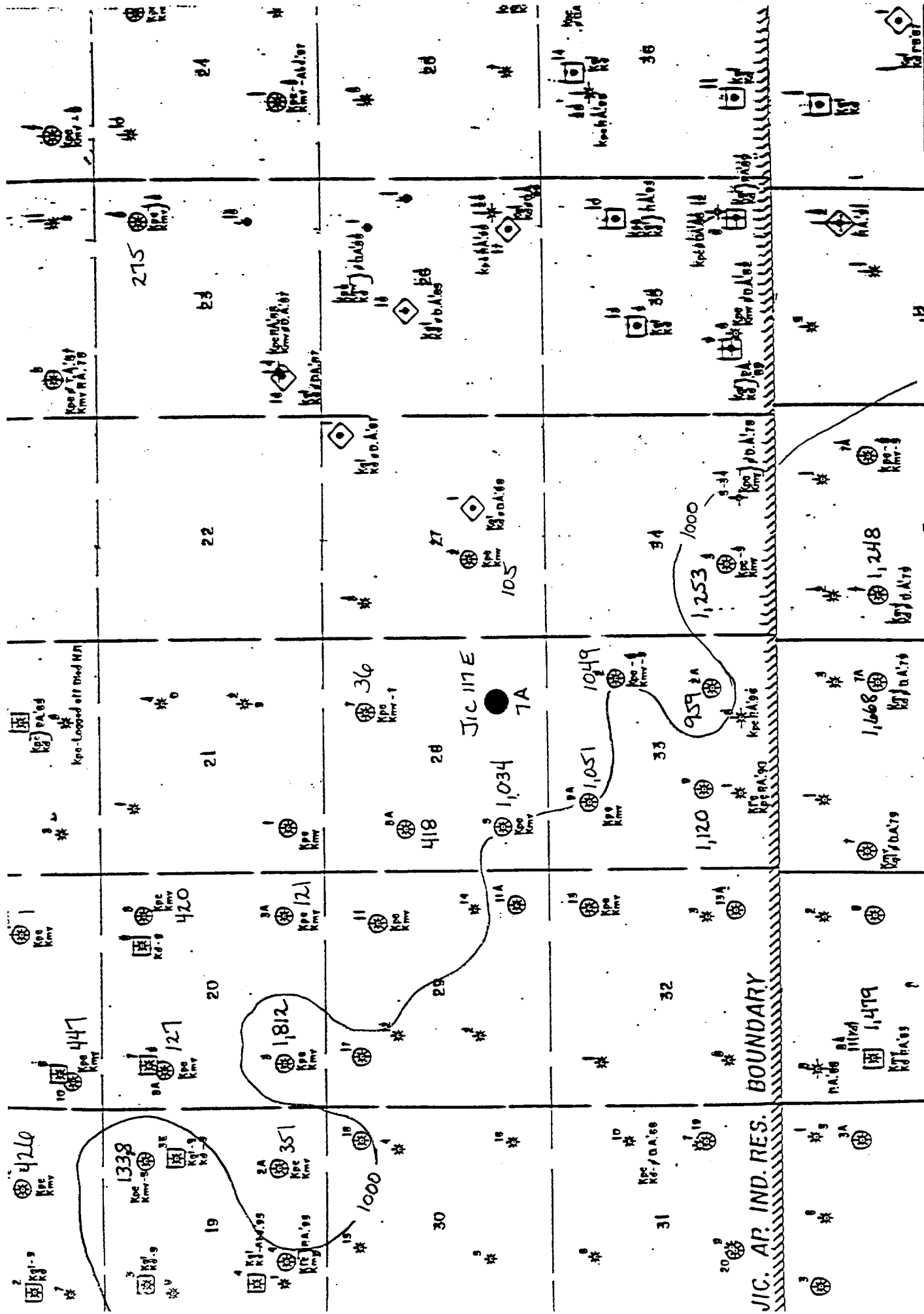
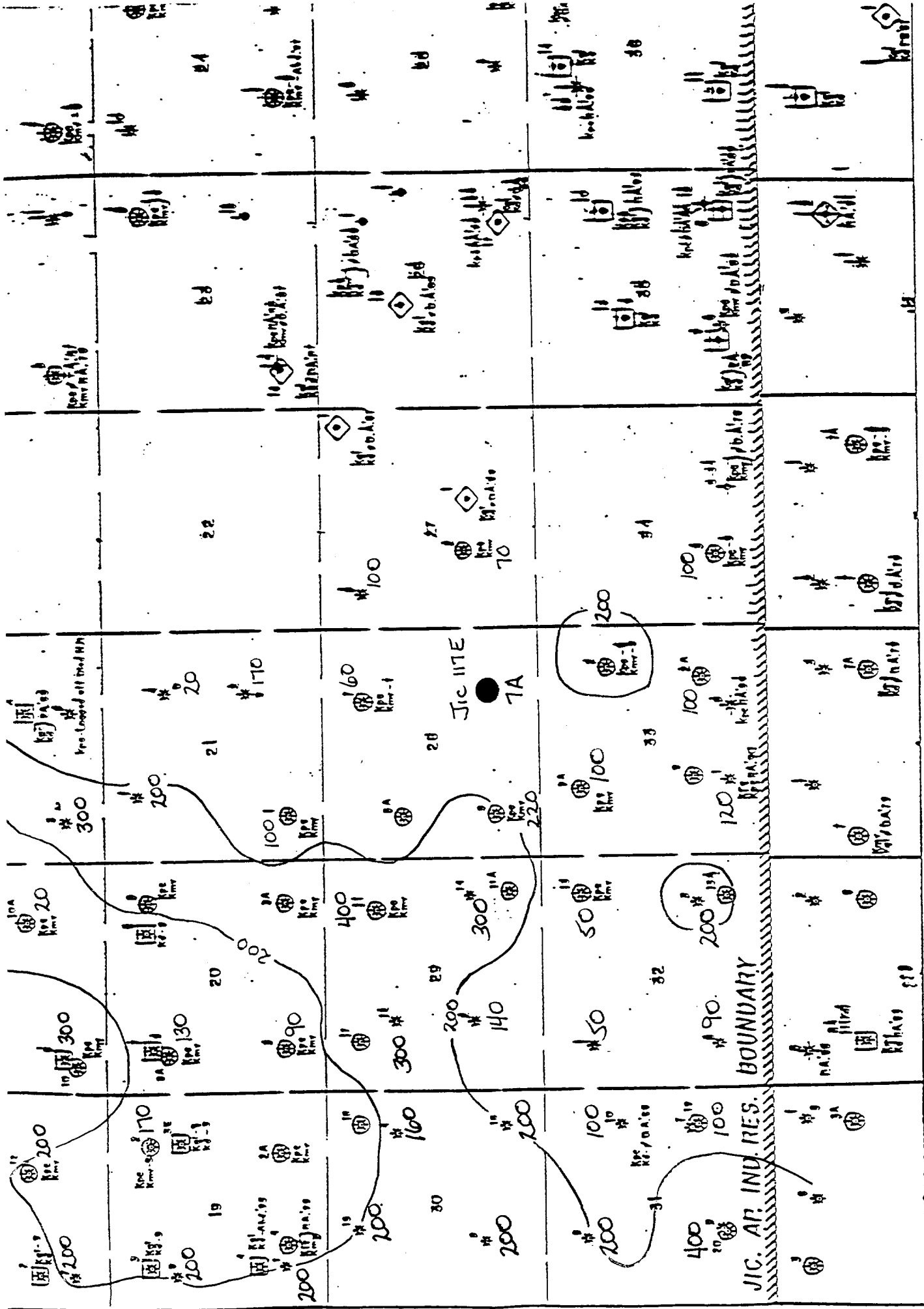


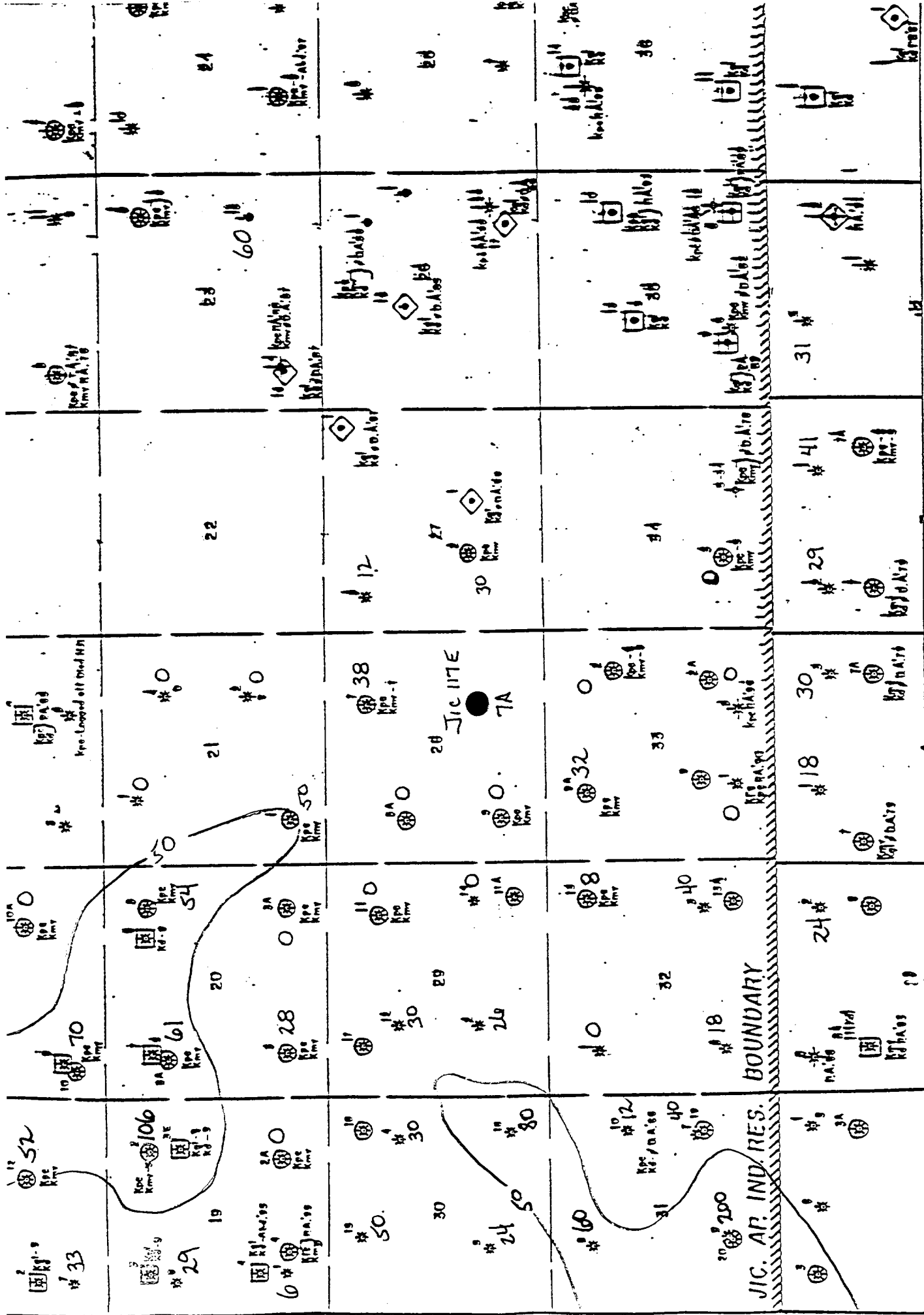
FIGURE #14



MESAVERDE EUR PRODUCTION (Mmscf)

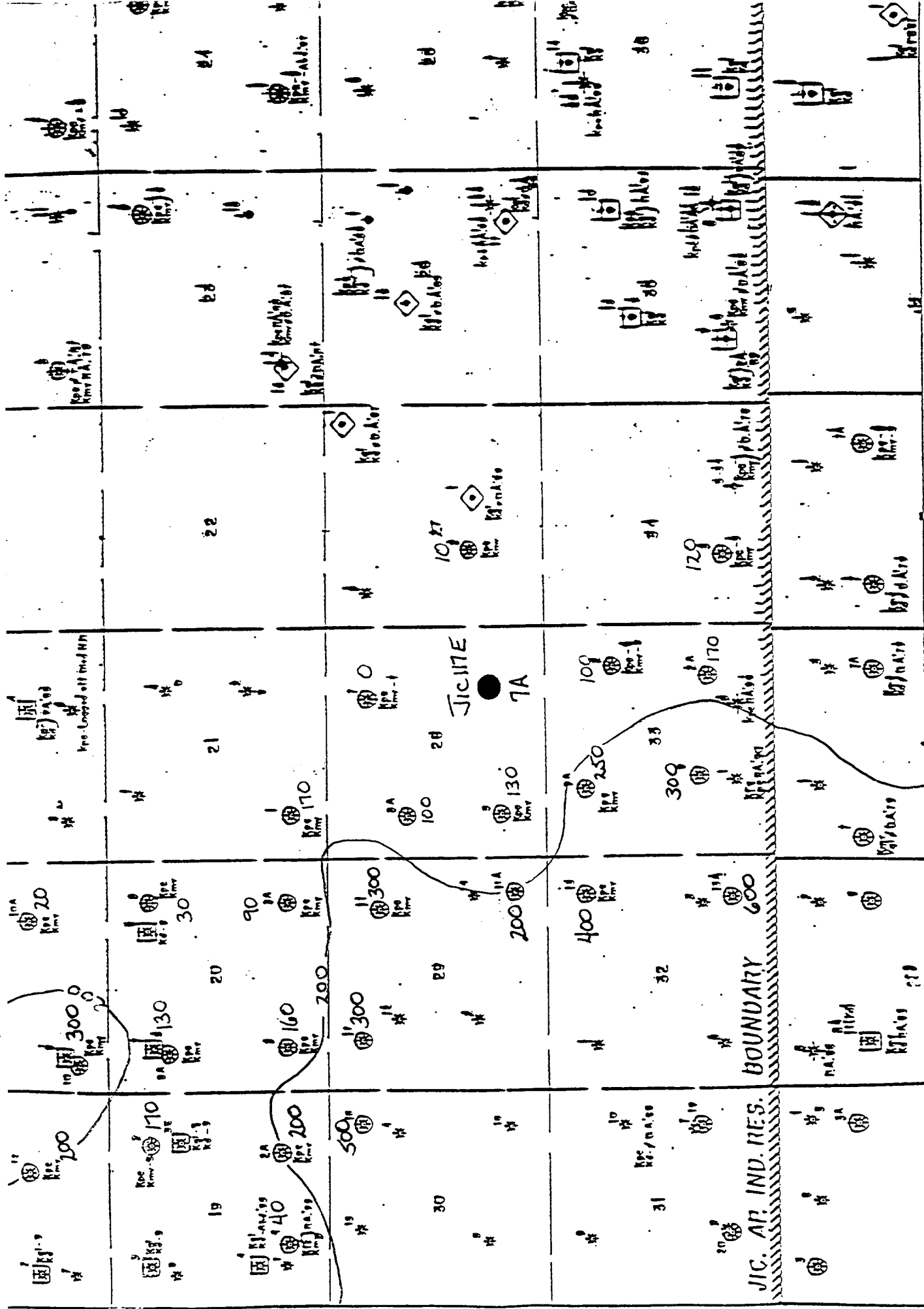


PICTURED CLIFFS INITIAL PRODUCTION RATES (MCFD)



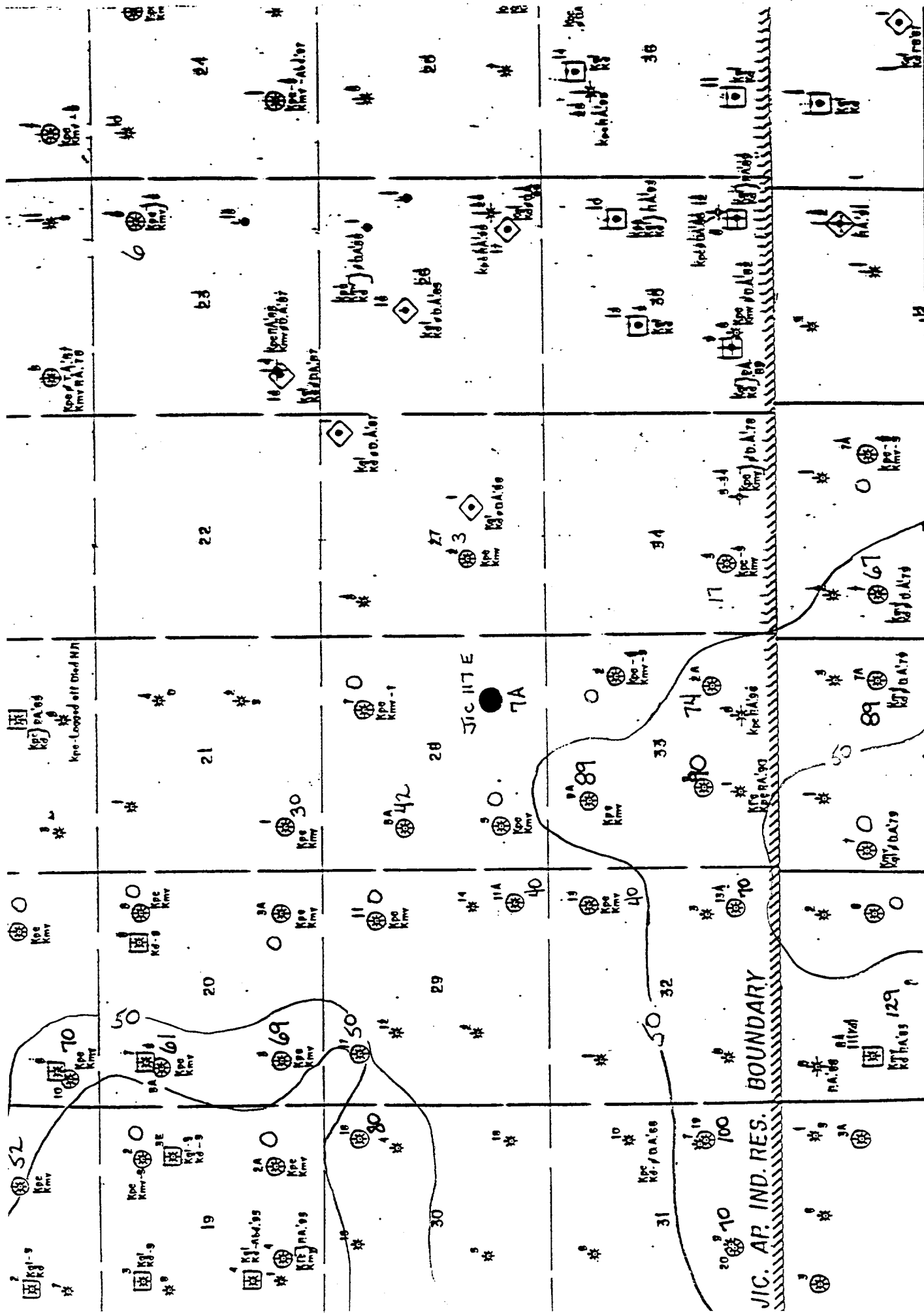
PICTURED CLIFFS DAILY RATE (MCFD)

FIGURE #17

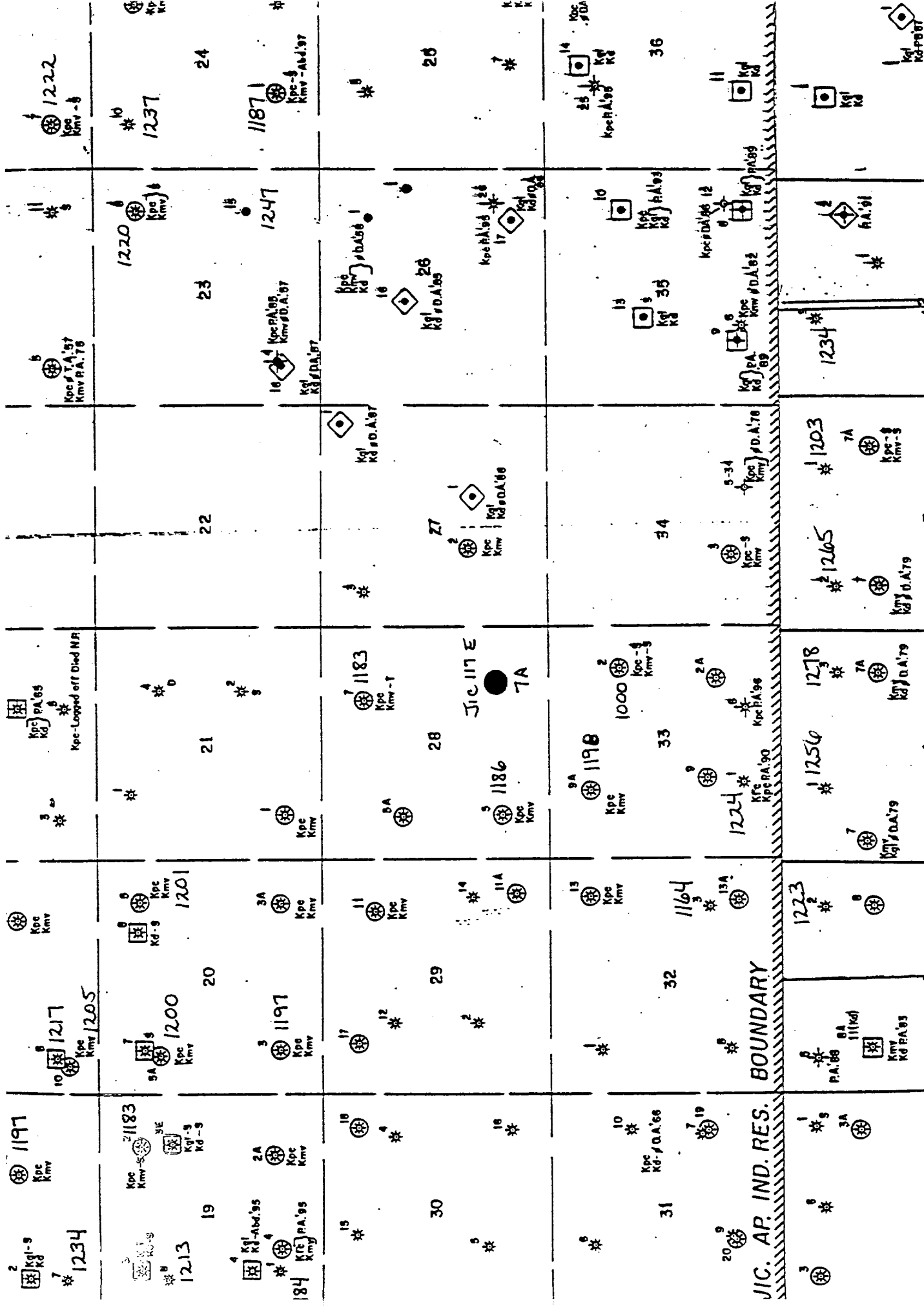


MESAVERDE INITIAL PRODUCTION RATES (MCFD)

FIGURE #18

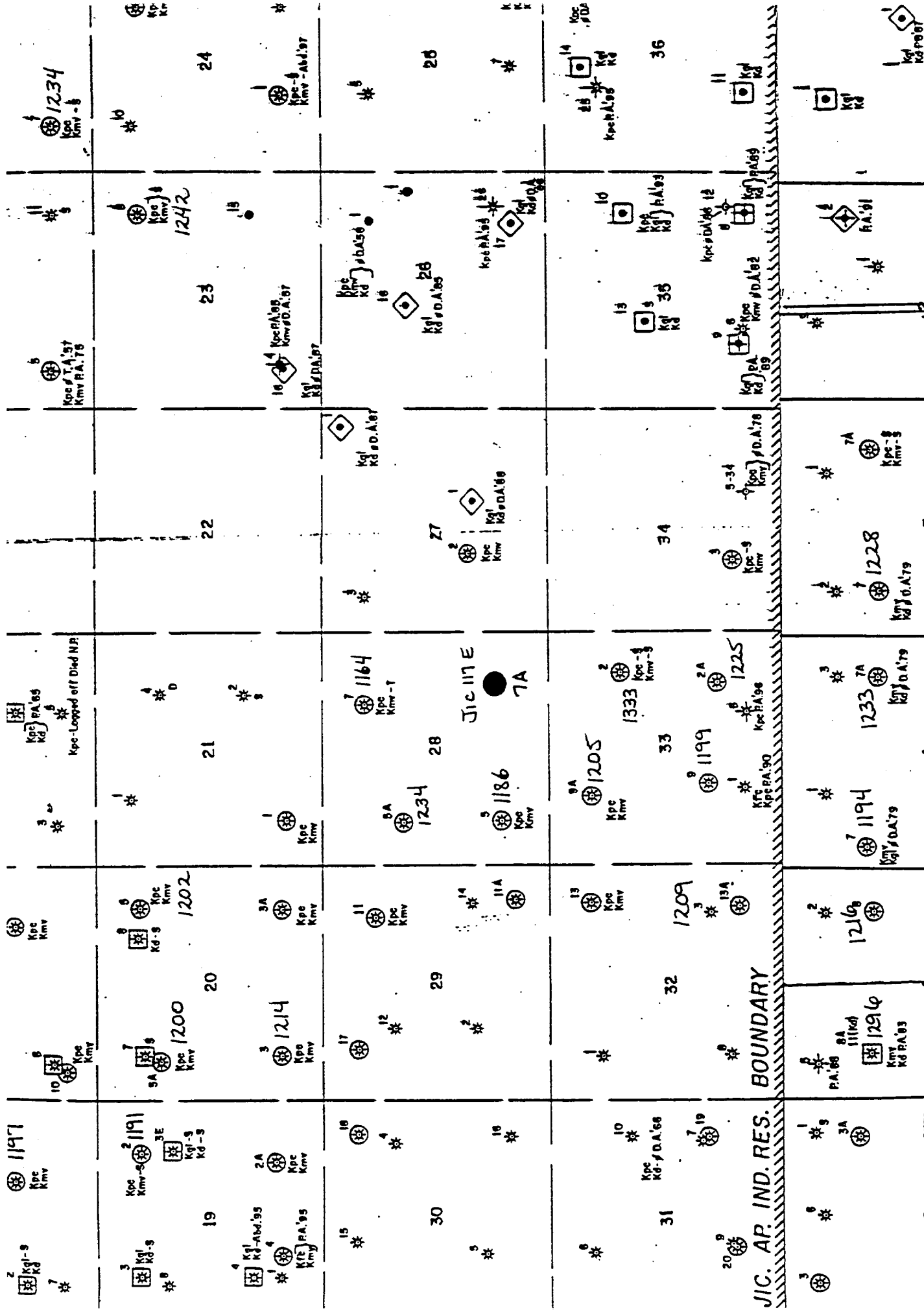


MESAVERDE CURRENT DAILY RATE (MCFD)



PICTURED CLIFFS BTU VALUE @ 14.73 DRY

FIGURE #20



MESAVERDE BTU VALUE @ 14.73 DRY
FIGURE #21

FIGURE #22

JICARILLA 117 E # 7A

MESAVERDE / PICTURED CLIFFS COMPLETION

COMINGLED

Well Name:

Field Name:

Formation:

Date: 9/14/98

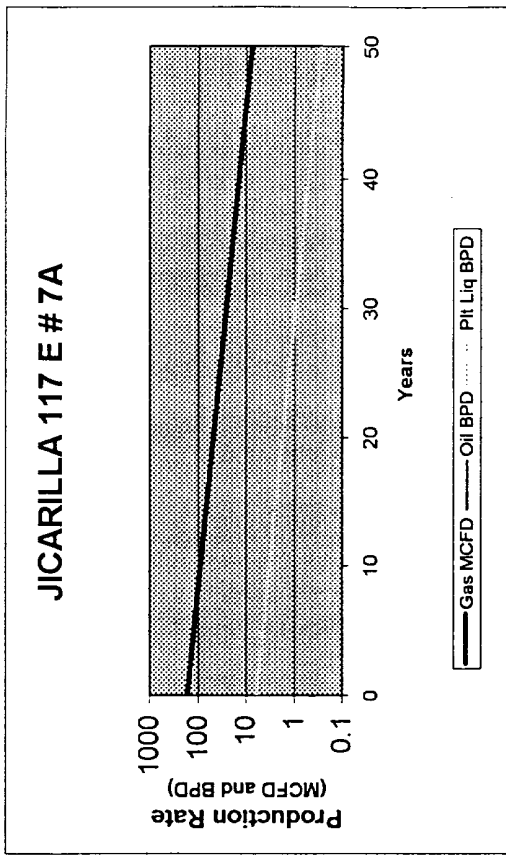
Main Input	
Initial Gas Rate (MMCFD)	165
Gas Decline Rate (%/yr)	6.00%
Initial Oil Rate (BPD)	0
Oil Decline Rate (%/yr)	8.00%
Initial BTU Content (MMBTU)	1180
Operating Costs (\$/Month)	700
Working Interest	100.00%
Revenue Interest	87.50%
Indian Land (Y or N)	N
Liquid Plant Code Number	2
NYMEX Gas Price (\$/MCF)	\$2.00
NYMEX Oil Price (\$/STB)	\$14.00
Discount Rate	12.0%
Plant Lq. Price net of T&F (\$/gal)	\$0.18

RESULTS	
Net Present Value	\$497,457
Economic Life of Well (yrs)	32.9
Gross Gas (MMCF)	846
Gross Oil (MMSTB)	0
Net Sales Gas (MMCF)	662
Net Oil (B/STB)	0
Net Plant Liquids (Mgal)	4,132

Additional Input	
NYMEX Oil Price Cap (NGL price is capped at time of oil cap)	\$30.00
Gas & NGL Production Taxes for Non-Indian Land	9.39%
Gas & NGL Production Taxes for Indian Land	22.43%
Oil Production Taxes for Non-Indian Land	8.54%
Oil Production Taxes for Indian Land	17.74%
Gas Basis Differential (\$/MCF)	-\$0.50
Gas Price Escalation	3.0%
Price Cap on NYMEX Gas Price	\$3.50
Oil Basis Differential (\$/STB)	-\$1.50
Oil and NGL Price Escalation	3.0%
Operating Cost Esc.	3.0%

WH/Tailgate	WH/Tailgate	Yield - gal/MCF
Liquid Plant and Code Number	Gas Vol. Ratio	Based on WH
1: ChacoBlanco Plant	0.8917	0.829
2: Ignacio Plant	0.8938	0.9322
3: Williams Kutz Pant	0.8426	0.84
4: Lybrook Plant	0.8095	0.8494
		3.009

Comments:



Year	Gross WH Gas MMCF	Gross Oil STB	Plant Liquid Mgal	Net WH Gas MCF	Net Sales Gas Vol. MCF	Gas Price \$/MCF	BTU Adj. \$/MCF	Net Gas Sales \$	Oil Price \$/STB	Net Oil Sales \$	Pit. Lq. Price \$/gal.	Net Lq. Sales \$	Net O.C. \$	Net Tax \$	Net Income \$	Disc. Net Income \$	Cum. Net Income \$
1	58.37	0	89.30	51072	45648	\$1.53	\$1.68	\$76,682	\$12.69	\$0	\$0.18	\$14,281	\$8,515	\$8,541	\$73,917	\$69,885	\$69,885
2	54.87	0	83.94	48007	42909	\$1.59	\$1.75	\$74,961	\$13.12	\$0	\$0.19	\$13,874	\$8,770	\$8,340	\$71,725	\$60,547	\$130,432
3	51.57	0	78.91	45127	40334	\$1.65	\$1.82	\$73,243	\$13.56	\$0	\$0.20	\$13,478	\$9,033	\$8,142	\$69,546	\$52,418	\$182,850
4	48.48	0	74.17	42419	37914	\$1.72	\$1.89	\$71,540	\$14.01	\$0	\$0.20	\$13,091	\$9,304	\$7,945	\$67,381	\$45,345	\$228,195
5	45.57	0	69.72	39874	35640	\$1.78	\$1.96	\$69,853	\$14.47	\$0	\$0.21	\$12,714	\$9,584	\$7,552	\$65,232	\$39,196	\$267,391
6	42.84	0	65.54	37482	33501	\$1.85	\$2.04	\$68,184	\$14.95	\$0	\$0.22	\$12,347	\$9,871	\$7,560	\$63,100	\$33,853	\$301,243
7	40.27	0	61.61	35233	31491	\$1.92	\$2.11	\$66,535	\$15.45	\$0	\$0.22	\$11,989	\$10,167	\$7,372	\$60,986	\$29,213	\$330,456
8	37.85	0	57.91	33119	29602	\$1.99	\$2.19	\$64,908	\$15.95	\$0	\$0.23	\$11,641	\$10,472	\$7,187	\$58,890	\$25,187	\$355,643
9	35.58	0	54.44	31132	27826	\$2.07	\$2.28	\$63,303	\$16.48	\$0	\$0.24	\$11,302	\$10,786	\$7,004	\$56,814	\$21,696	\$377,339
10	33.44	0	51.17	29264	26156	\$2.15	\$2.36	\$61,722	\$17.02	\$0	\$0.25	\$10,971	\$11,110	\$6,825	\$54,758	\$18,671	\$396,010
11	31.44	0	48.10	27508	24587	\$2.22	\$2.45	\$60,165	\$17.57	\$0	\$0.25	\$10,650	\$11,443	\$6,648	\$52,723	\$16,051	\$412,060
12	29.55	0	45.21	25857	23111	\$2.31	\$2.54	\$58,633	\$18.14	\$0	\$0.26	\$10,337	\$11,787	\$6,475	\$50,708	\$13,783	\$425,844
13	27.78	0	42.50	24306	21725	\$2.39	\$2.63	\$57,127	\$18.73	\$0	\$0.27	\$10,032	\$12,140	\$6,305	\$48,713	\$11,823	\$437,666
14	26.11	0	39.95	22848	20421	\$2.48	\$2.72	\$55,647	\$19.34	\$0	\$0.28	\$9,736	\$12,504	\$6,138	\$46,740	\$10,128	\$447,795
15	24.54	0	37.55	21477	19196	\$2.57	\$2.82	\$54,194	\$19.97	\$0	\$0.29	\$9,447	\$12,880	\$5,975	\$44,787	\$8,665	\$456,460
16	23.07	0	35.30	20188	18044	\$2.66	\$2.92	\$52,768	\$20.61	\$0	\$0.30	\$9,167	\$13,266	\$5,815	\$42,855	\$7,403	\$463,863
17	21.69	0	33.18	18977	16962	\$2.75	\$3.03	\$51,370	\$21.27	\$0	\$0.31	\$8,894	\$13,664	\$5,658	\$40,943	\$6,315	\$470,178
18	20.39	0	31.19	17838	15944	\$2.85	\$3.14	\$50,000	\$21.96	\$0	\$0.32	\$8,629	\$14,074	\$5,504	\$39,051	\$5,378	\$475,557
19	19.16	0	29.32	16768	14987	\$2.95	\$3.25	\$48,657	\$22.66	\$0	\$0.33	\$8,371	\$14,496	\$5,354	\$37,178	\$4,572	\$480,128
20	18.01	0	27.56	15762	14068	\$3.00	\$3.30	\$46,490	\$23.38	\$0	\$0.34	\$8,121	\$14,931	\$5,208	\$35,352	\$3,796	\$483,924
21	16.93	0	25.91	14816	13243	\$3.00	\$3.30	\$43,701	\$24.13	\$0	\$0.35	\$7,877	\$15,379	\$5,054	\$33,566	\$3,076	\$487,000
22	15.92	0	24.35	13927	12448	\$3.00	\$3.30	\$41,079	\$24.90	\$0	\$0.36	\$7,641	\$15,840	\$4,905	\$31,843	\$2,479	\$489,479
23	14.96	0	22.89	13092	11701	\$3.00	\$3.30	\$38,614	\$25.69	\$0	\$0.37	\$7,411	\$16,315	\$4,752	\$29,388	\$1,986	\$491,465
24	14.06	0	21.52	12306	10999	\$3.00	\$3.30	\$36,297	\$26.51	\$0	\$0.38	\$7,187	\$16,805	\$4,603	\$27,596	\$1,578	\$493,043
25	13.22	0	20.23	11568	10339	\$3.00	\$3.30	\$34,119	\$27.35	\$0	\$0.39	\$6,970	\$17,309	\$4,458	\$25,922	\$1,242	\$494,285
26	12.43	0	19.01	10874	9719	\$3.00	\$3.30	\$32,072	\$28.20	\$0	\$0.41	\$6,756	\$17,828	\$4,314	\$24,354	\$966	\$495,252
27	11.68	0	17.87	10221	9136	\$3.00	\$3.30	\$30,148	\$28.50	\$0	\$0.41	\$6,541	\$18,363	\$4,179	\$22,889	\$735	\$495,986
28	10.98	0	16.80	9608	8568	\$3.00	\$3.30	\$28,339	\$28.50	\$0	\$0.41	\$6,333	\$18,914	\$4,044	\$21,430	\$543	\$496,529

Year	Gross WH Gas MMCF	Gross Oil STB	Plant Liquid Mgal	Net WH Gas MCF	Net Sales Gas Vol. MCF	Gas Price \$/MCF	BTU Adj. Gas Price \$/MCF	Net Gas Sales \$	Oil Price \$/STB	Net Oil Sales \$	Pit. Liq. Price \$/gal.	Net Pit. Liq. Sales \$	Net O.C. \$	Net Prd. Tax \$	Net Income \$	Disc. Net Income \$	Cum. Disc. Net Income \$
29	10.32		0	15.79	9032												
30	9.70		0	14.84	8490	\$3.00	\$3.30	\$25,639	\$28.50	\$0	\$0.41	\$5,671	\$19,481	\$3,034	\$9,794	\$389	\$496,918
31	9.12		0	13.95	7980	\$3.00	\$3.30	\$25,040	\$28.50	\$0	\$0.41	\$5,331	\$20,066	\$2,852	\$7,453	\$264	\$497,182
32	8.57		0	13.12	7501	\$3.00	\$3.30	\$23,538	\$28.50	\$0	\$0.41	\$5,011	\$20,668	\$2,681	\$5,200	\$165	\$497,347
33	7.41		0	11.33	6480	\$3.00	\$3.30	\$22,126	\$28.50	\$0	\$0.41	\$4,710	\$21,288	\$2,520	\$3,028	\$86	\$497,433
34	0.00		0	0.00	0	\$0.00	\$0.00	\$19,114	\$28.50	\$0	\$0.41	\$4,069	\$20,074	\$2,177	\$931	\$24	\$497,457
35	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
36	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
37	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
38	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
39	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
40	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
41	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
42	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
43	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
44	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
45	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
46	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
47	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
48	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
49	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457
50	0.00		0	0.00	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$497,457

FIGURE #23

JICARILLA 117 E #7A

MESAVERDE / PICTURED CLIFFS COMPLETION

DUAL

Well Name:

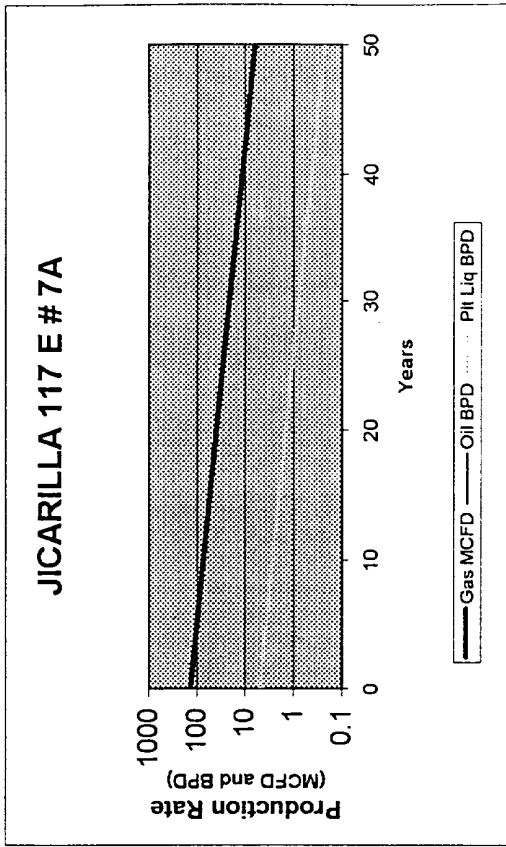
Field Name:

Formation:

Date: 9/14/98

Main Input		
Initial Gas Rate (MMCFD)	135	
Gas Decline Rate (%/yr)	6.00%	
Initial Oil Rate (BPD)	0	
Oil Decline Rate (%/yr)	8.00%	
Gas BTU Content (MMBTU)	1180	
Operating Costs (\$/Month)	700	
Working Interest	100.00%	
Revenue Interest	87.50%	
Indian Land (Y or N)	N	
Liquid Plant Code Number	2	
NYMEX Gas Price (\$/MMCF)	\$2.00	
NYMEX Oil Price (\$/STB)	\$14.00	
Discount Rate	5.1%	
Plant Liq. Price net of T&F (\$/gal)	\$0.18	
RESULTS		
Net Present Value =	\$608,980	
Economic Life of Well (Yrs) =	33.8	
Gross Gas (MMCF) =	877	
Gross Oil (MMSTB) =	0	
Net Sales Gas (MMCF) =	530	
Net Oil (B/STB) =	0	
Net Plant Liquids (Mgals) =	807	

Additional Input		
NYMEX Oil Price Cap (NGL price is capped at time of oil cap)	\$30.00	
Gas & NGL Production Taxes for Non-Indian Land	9.35%	
Gas & NGL Production Taxes for Indian Land	22.43%	
Oil Production Taxes for Non-Indian Land	8.54%	
Oil Production Taxes for Indian Land	17.74%	
Gas Basis Differential (\$/MCF)	-\$0.50	
Gas Price Escalation	3.0%	
Price Cap on NYMEX Gas Price	\$3.50	
Oil Basis Differential (\$/STB)	-\$1.50	
Oil and NGL Price Escalation	3.0%	
Operating Cost Esc.	3.0%	
Liquid Plant and Code Number		Yield - gal/MCF
1: Chaco/Blanco Plant	0.829	2.23
2: Ignacio Plant	0.932	1.53
3: Williams Kutz Plant	0.842	3.08
4: Lybrook Plant	0.809	3.009
Comments:		



Year	Gross WH Gas MMCF	Gross Oil STB	Plant Liquid Mgals	Net WH Gas MCF	Net Sales Gas Vol. MCF	Gas Price \$/MCF	Gas Price \$/STB	Net Gas Sales \$	Oil Price \$/STB	Net Oil Sales \$	Pit. Price \$/gal.	Pit. Liq. Sales \$	Net P.L. O.C.	Net Tax Income	Disc. Net Income	Cum. Net Income
1	47.76	0	73.07	41786	37348	\$1.53	\$12.69	\$62,748	\$12.69	\$0	\$0.18	\$11,684	\$8,515	\$6,988	\$57,481	\$57,481
2	44.89	0	68.68	39279	35107	\$1.59	\$13.12	\$61,332	\$13.12	\$0	\$0.19	\$11,352	\$8,770	\$6,824	\$52,984	\$110,465
3	42.20	0	64.56	36922	33001	\$1.65	\$13.56	\$59,926	\$13.56	\$0	\$0.20	\$11,027	\$9,033	\$6,661	\$48,797	\$159,262
4	39.66	0	60.69	34707	31021	\$1.72	\$14.01	\$58,532	\$14.01	\$0	\$0.21	\$10,711	\$9,304	\$6,501	\$44,899	\$204,161
5	37.28	0	57.05	32624	29160	\$1.78	\$14.47	\$57,152	\$14.47	\$0	\$0.22	\$10,403	\$9,584	\$6,342	\$41,274	\$245,436
6	35.05	0	53.62	30667	27410	\$1.85	\$14.95	\$55,787	\$14.95	\$0	\$0.22	\$10,102	\$9,871	\$6,186	\$37,905	\$283,341
7	32.94	0	50.41	28827	25765	\$1.92	\$15.45	\$54,438	\$15.45	\$0	\$0.22	\$9,810	\$10,167	\$6,032	\$34,775	\$318,115
8	30.97	0	47.38	27097	24220	\$2.07	\$15.95	\$53,107	\$15.95	\$0	\$0.23	\$9,524	\$10,472	\$5,880	\$31,869	\$349,984
9	29.11	0	44.54	25471	22766	\$2.15	\$16.48	\$51,793	\$16.48	\$0	\$0.24	\$9,247	\$10,786	\$5,731	\$29,172	\$379,156
10	27.36	0	41.87	23943	21400	\$2.22	\$17.02	\$50,500	\$17.02	\$0	\$0.25	\$8,977	\$11,110	\$5,584	\$26,671	\$405,828
11	25.72	0	39.35	22507	20116	\$2.31	\$17.57	\$49,226	\$17.57	\$0	\$0.25	\$8,713	\$11,443	\$5,439	\$24,353	\$430,181
12	24.18	0	36.99	21156	18909	\$2.39	\$18.14	\$47,972	\$18.14	\$0	\$0.26	\$8,457	\$11,787	\$5,298	\$22,206	\$452,387
13	22.73	0	34.77	19887	17775	\$2.48	\$18.73	\$46,740	\$18.73	\$0	\$0.27	\$8,208	\$12,140	\$5,159	\$20,218	\$472,605
14	21.36	0	32.69	18694	16708	\$2.57	\$19.34	\$45,529	\$19.34	\$0	\$0.28	\$7,966	\$12,504	\$5,022	\$18,378	\$490,982
15	20.08	0	30.73	17572	15706	\$2.66	\$19.97	\$44,341	\$19.97	\$0	\$0.29	\$7,730	\$12,880	\$4,889	\$16,676	\$507,659
16	18.88	0	28.88	16518	14763	\$2.75	\$20.61	\$43,174	\$20.61	\$0	\$0.30	\$7,500	\$13,266	\$4,757	\$15,103	\$522,762
17	17.74	0	27.15	15527	13878	\$2.85	\$21.27	\$42,030	\$21.27	\$0	\$0.31	\$7,277	\$13,664	\$4,629	\$13,650	\$536,412
18	16.68	0	25.62	14595	13045	\$2.95	\$21.96	\$40,909	\$21.96	\$0	\$0.32	\$7,060	\$14,074	\$4,504	\$12,308	\$548,720
19	15.68	0	23.99	13719	12262	\$3.05	\$22.66	\$39,810	\$22.66	\$0	\$0.33	\$6,849	\$14,496	\$4,381	\$11,070	\$559,790
20	14.74	0	22.55	12886	11527	\$3.15	\$23.38	\$38,735	\$23.38	\$0	\$0.34	\$6,644	\$14,931	\$4,260	\$9,853	\$569,483
21	13.85	0	21.20	12122	10835	\$3.25	\$24.13	\$37,655	\$24.13	\$0	\$0.35	\$6,445	\$15,379	\$4,146	\$8,650	\$577,732
22	13.02	0	19.92	11395	10185	\$3.35	\$24.90	\$36,610	\$24.90	\$0	\$0.36	\$6,251	\$15,840	\$4,033	\$7,463	\$584,696
23	12.24	0	18.73	10711	9574	\$3.45	\$25.69	\$35,610	\$25.69	\$0	\$0.37	\$6,063	\$16,315	\$3,920	\$6,291	\$590,513
24	11.51	0	17.61	10069	8999	\$3.55	\$26.51	\$34,658	\$26.51	\$0	\$0.38	\$5,880	\$16,800	\$3,807	\$5,133	\$595,311
25	10.82	0	16.55	9465	8459	\$3.65	\$27.35	\$33,741	\$27.35	\$0	\$0.39	\$5,703	\$17,293	\$3,694	\$3,981	\$599,203
26	10.17	0	15.56	8897	7952	\$3.75	\$28.20	\$32,866	\$28.20	\$0	\$0.41	\$5,528	\$17,798	\$3,581	\$2,835	\$602,287
27	9.56	0	14.62	8363	7475	\$3.85	\$29.05	\$32,030	\$29.05	\$0	\$0.41	\$5,351	\$18,313	\$3,468	\$1,688	\$604,630
28	8.98	0	13.75	7861	7026	\$3.95	\$29.90	\$31,238	\$29.90	\$0	\$0.41	\$5,174	\$18,838	\$3,355	\$50	\$606,305

Year	Gross WH Gas MMCF	Gross Oil STB	Plant Liquid Mgal	Net WH Gas MCF	Net Sales Gas Vol. MCF	Gas Price \$/MCF	BTU Adj. Gas Price \$/MMCF	Net Gas Sales \$	Oil Price \$/STB	Net Oil Sales \$	Pit. Liq. Price \$/gal.	Net Pit. Liq. Sales \$	Net O.C. \$	Net Prd. Tax \$	Net Income \$	Disc. Net Income \$	Cum. Disc. Net Income \$
29	8.45	0	12.92	7389	6605	\$3.00	\$3.30	\$21,795	\$28.50	\$0	\$0.41	\$4,640	\$19,481	\$2,482	\$4,471	\$1,086	\$607,391
30	7.94	0	12.15	6946	6208	\$3.00	\$3.30	\$20,488	\$28.50	\$0	\$0.41	\$4,362	\$20,066	\$2,333	\$2,450	\$567	\$607,957
31	5.64	0	8.63	4935	4411	\$3.00	\$3.30	\$14,555	\$28.50	\$0	\$0.41	\$3,099	\$15,443	\$1,658	\$552	\$123	\$608,080
32	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
33	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
34	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
35	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
36	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
37	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
38	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
39	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
40	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
41	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
42	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
43	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
44	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
45	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
46	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
47	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
48	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
49	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080
50	0.00	0	0.00	0	0	\$0.00	\$0.00	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0	\$0	\$608,080