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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

September 9, 1996

Roddy Production Company, Inc.
P. O. Box 2221
Farmington, New Mexico 87499
Attention: Kenneth E. Roddy

Administrative Order NSL-3707

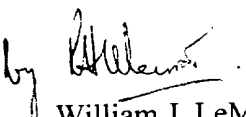
Dear Mr. Roddy:

Reference is made to your application dated August 12, 1996 for a non-standard gas well location for your proposed Lucerne Federal Well No. 7 to be drilled 790 feet from the South line and 2050 feet from the East line (Unit O) of Section 21, Township 28 North, Range 11 West, NMPM, to test the Pictured Cliffs formation, San Juan County, New Mexico. The SE/4 of said Section 21 shall be dedicated to the well to form a standard 160-acre gas spacing and proration unit for either the Undesignated Fulcher Kutz-Pictured Cliffs Pool or the Undesignated West Kutz-Pictured Cliffs Pool.

The application has been duly filed under the provisions of Rule 104.F of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10533, issued by the Oil Conservation Commission in Case 11,351 on January 18, 1996.

By the authority granted me under the provisions of Division General Rule 104.F(2), the above-described unorthodox gas well location is hereby approved.

Sincerely,

by  Deputy Director
William J. LeMay
Director

WJL/MES/kv

cc: Oil Conservation Division - Aztec ✓
U. S. Bureau of Land Management - Farmington

RECEIVED
SEP 11 1996

OIL CON. DIV.
DIST. 3

RODDY PRODUCTION COMPANY, INC.

P.O. BOX 2221 • FARMINGTON, NEW MEXICO 87499

TELEPHONE: (505) 325-5750 • (505) 325-5866

NSL 3707

August 12, 1996

Oil Conservation Division
Box 2088
Sante Fe, New Mexico 87504-2088

Oil Conservation Division
1000 Rio Brazos Rd.
Aztec, New Mexico 87410

Re: **Application for Administrative Approval**
Unorthodox Well Location
Lucerne Federal No.7
SE $\frac{1}{4}$ Section 21 T28N - R11W
West Kutz Pictured Cliffs Field
San Juan County, New Mexico

RECEIVED
AUG 14 1996
OIL CON. DIV.
DIST. 3

Gentlemen:

Roddy Production Company, Inc. hereby requests administrative approval under Rules 104.F.(2) and (3) for the drilling of the Lucerne Federal No.7 well at an unorthodox well location as defined by Rule 104.C.(3)(a). In support of this unorthodox location based on geologic conditions, the following attachments are included:

1. A Well Plat (Form C-102) indicating the proposed well location at 790' FSL and 2050' FSL;
2. A Production Plat showing the month/year of first gas sales, the December 1995 average gas rate, and cumulative gas produced through 1/1/96 for all Pictured Cliffs producers in this well's section as well as the nine offsetting sections;
3. A Land Plat showing this well's location and spacing unit and all the offsetting spacing units;
4. A list of the offset operators and owners with their mailing addresses;
5. A log cross section showing net pay quality and the corresponding production profile; and
6. A net pay isopach for the Pictured Cliffs.

The Pictured Cliff sand at this well's proposed location is interpreted to be deposited as an offshore barrier bar based on petrophysical log characteristics and production characteristics of offsetting wells. This bar, shown on the net pay isopach map as the area between the 30 foot contour intervals, is orientated northwest to southeast, is approximately 1/2 mile wide, and is mappable in length over several townships beyond the area shown in the map.

Lucerne Federal No.7
Unorthodox Well Location Application
Page 2

Net pay on this map is defined as density porosity greater than or equal to 16 percent and the separation between the neutron porosity and density porosity less than or equal to 8 percent. These net pay criteria are based on comparison of porosity to productivity which indicates density porosity less than 16 percent to be too tight to be economically productive; and, when the separation between the neutron and density porosities exceeds 8 percent, the sand contains too much clay to be economically productive. Comparison of the production histories to the porosity curves on the log cross section clearly highlights this relationship. Furthermore, it can be seen by examining the Pictured Cliff Production Plat that all wells currently producing from this bar all have significantly higher producing rates than those found outside the bar.

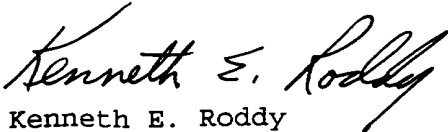
Geologically, the purpose of drilling this well at the proposed location is to encounter this bar at an optimal location for quality sand development and to limit the risk of completely missing the bar. The sand found within the bar is of highest quality on the eastern edge (seaside) as evidenced on the log cross section which shows the Lucerne Federal No. 2 and 4 wells having thickest sand sections with the lowest separation between the neutron porosity and the density porosity curves. Based on the net pay isopach map, it is anticipated the Lucerne No.7 well will encounter sands similar to those found in these two wells.

Of equal concern to penetrating the sand at an optimal location is to reduce the risk of completely missing the bar sand. The seaside of this bar does not have sufficient well control to accurately predict the edge of the bar; however, in other documented offshore bar sands, it is known this edge is quite abrupt and in general fairly straight. At this location, it is believed the risk of missing the bar sand is minimized because it is in alignment with the Lucerne Federal No.2 and 4 wells. An orthodox location for this well would fall more in line with the marginally commercial Lucerne Federal No.5 well.

In accordance with Rule 104.F.(4) and Rule 1207.A.(5), a complete copy of this application was sent by registered mail-return receipt on the same date as the submittal of this application to the affected parties shown in attached list of offset operators and owners. A copy of the cover letter to these parties is also attached.

Should you have any questions regarding this application, please contact the undersigned at the telephone number listed on the letterhead.

Sincerely yours,



Kenneth E. Roddy
President

District I
PO Box 1780, Hobbs, NM 88241-1780
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Nio Huan 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

API Number		Pool Code		Pool Name	
Property Code		Property Name Lucerne Federal			Well Number 7
OGRID No.		Operator Name RODDY PRODUCTION INC.			Elevation 5768'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
0	21	28 N	11 W		790	South	2050	East	S.J.

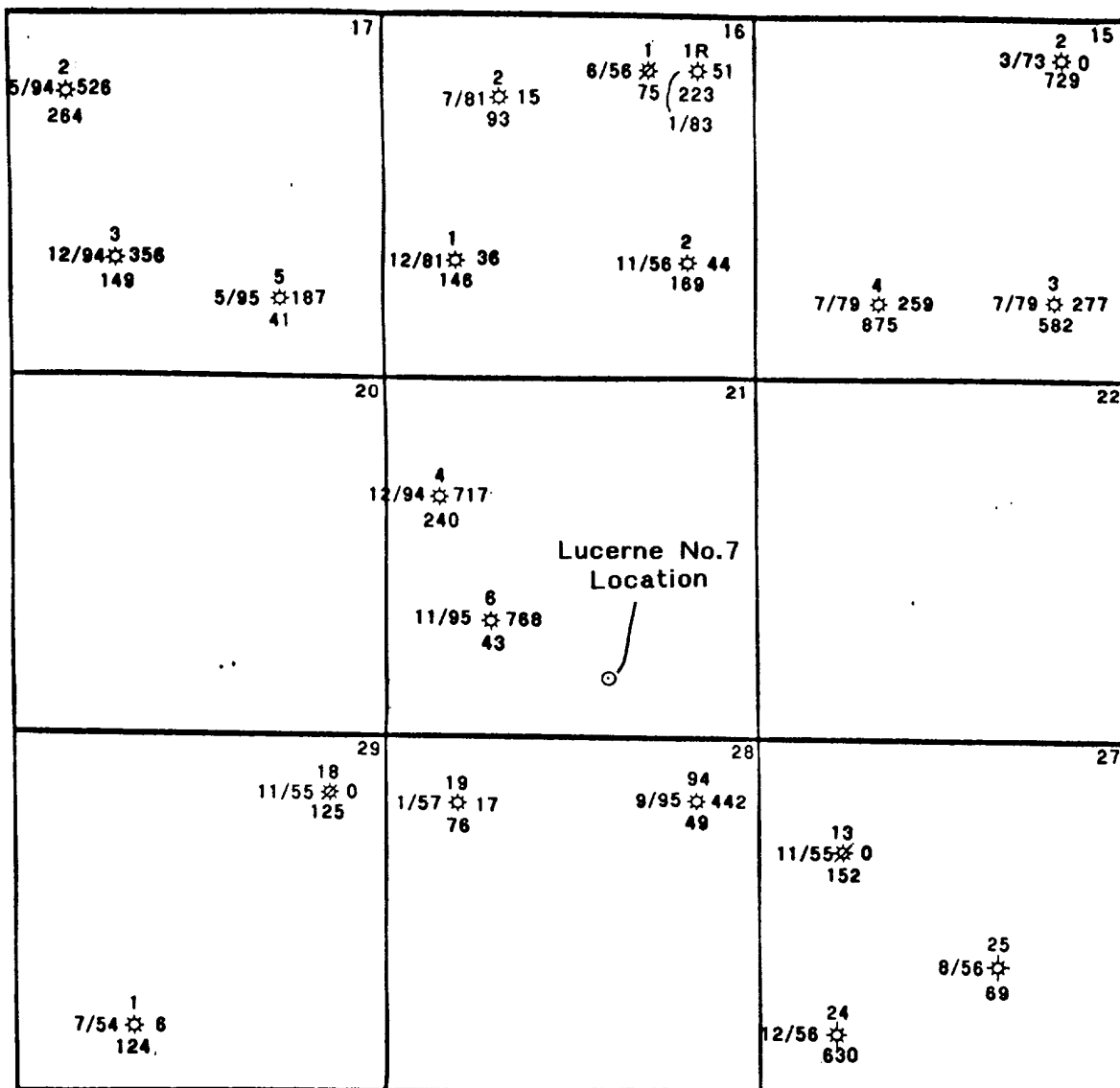
11 Bottom Hole Location If Different From Surface

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

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.

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	5270.10'			
	RECEIVED AUG 14 1996 OIL CON. DIV. DIST. 3			
5280.00'	21	5280.00'	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief	
				Signature
				Printed Name
				Title
				Date
				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.
				7-23-96
				Date of Survey
				Signature and Seal of Professional Surveyor
				HERALD G. EDWARDS 8857 6857
				Certificate Number

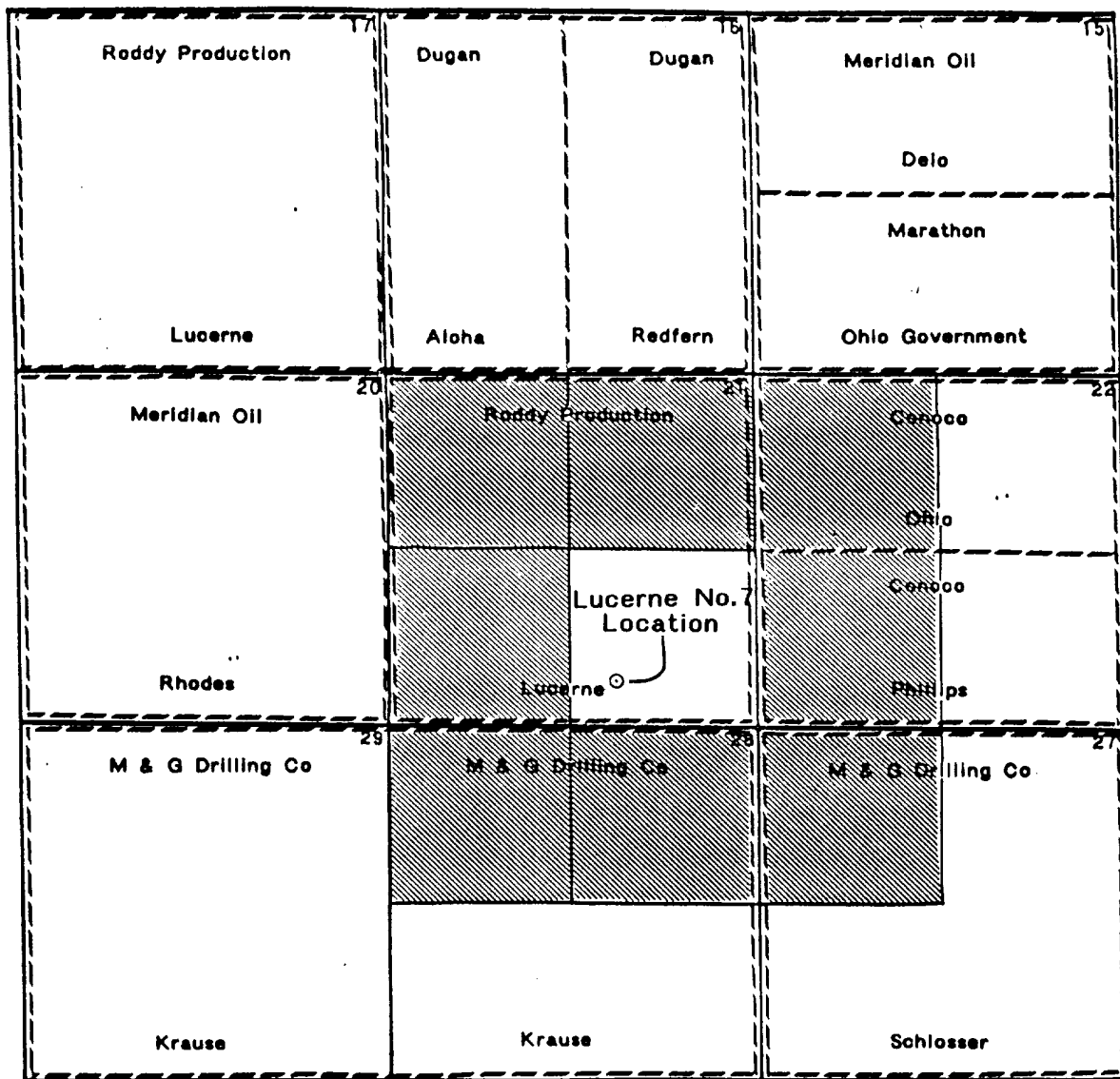


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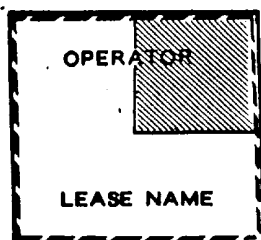
R 11 W

WELL
NO.
1ST GAS SALES ☆ 12/95 RATE, MCFD
1/1/96
CUMULATIVE GAS
MMCF

RODDY PRODUCTION COMPANY LUCERNE PROSPECT SAN JUAN CO., NM
PICTURED CLIFFS PRODUCTION PLAT



R 11 W



OFFSET
SPACING
UNIT

RODDY PRODUCTION COMPANY LUCERNE PROSPECT SAN JUAN CO., NM
LAND PLAT

OFFSET SPACING UNIT OPERATORS/OWNERS
PICTURED CLIFFS FORMATION
SE¼ SECTION 21 T28N - R11W
SAN JUAN COUNTY, NEW MEXICO

<u>SPACING UNIT</u>	<u>OPERATOR/ADDRESS</u>
NW¼ SECTION 21 T28N R11W	Roddy Production Company P.O. Box 2221 Farmington, New Mexico 87499
NE¼ SECTION 21 T28N R11W	Roddy Production Company P.O. Box 2221 Farmington, New Mexico 87499
NW¼ SECTION 22 T28N R11W	Conoco Inc. 10 Desta Dr. W, Ste 100W Midland, Texas 79705
SW¼ SECTION 22 T28N R11W	Conoco Inc. 10 Desta Dr. W, Ste 100W Midland, Texas 79705
NW¼ SECTION 27 T28N R11W	M & G Drilling Company P.O. Box 2406 Farmington, New Mexico 87499-2406
NE¼ SECTION 28 T28N R11W	M & G Drilling Company P.O. Box 2406 Farmington, New Mexico 87499-2406
NW¼ SECTION 28 T28N R11W	M & G Drilling Company P.O. Box 2406 Farmington, New Mexico 87499-2406
SW¼ SECTION 21 T28N R11W	Roddy Production Company P.O. Box 2221 Farmington, New Mexico 87499

Log Cross Section
Lucerne Federal #

FINAL PRINT
Schlumberger

DUAL INDUCTION - SFL
WITH LINEAR CORRELATION LOG

**SIMULTANEOUS
COMPENSATED NEUTRON
FORMATION DENSITY**

HALLIBURTON

DUAL INDUCTION
GUARD



SPECTRAL DENSITY
DUAL SPACED NEUTRONS



HALLIBURTON
GULF INDUSTRIES

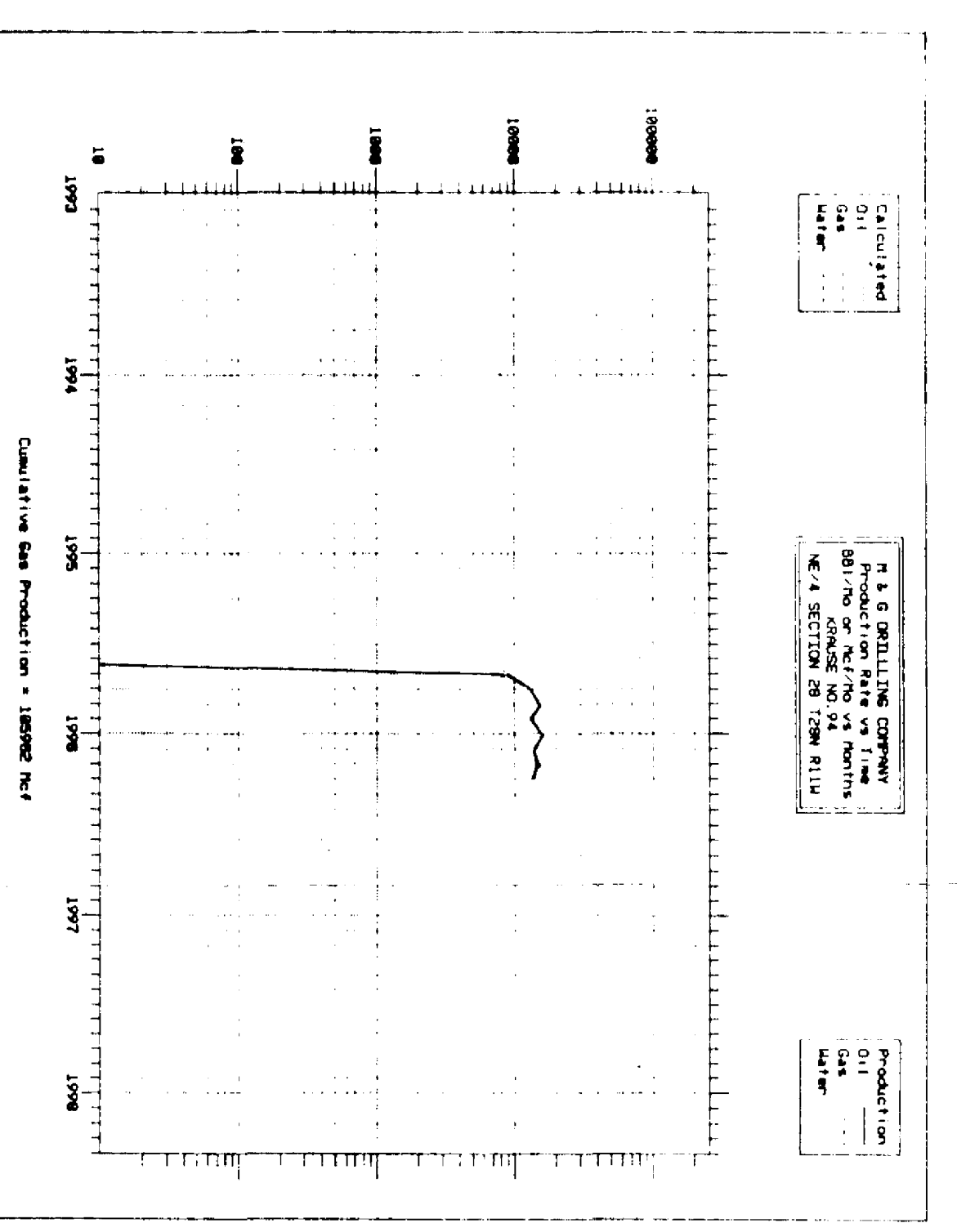
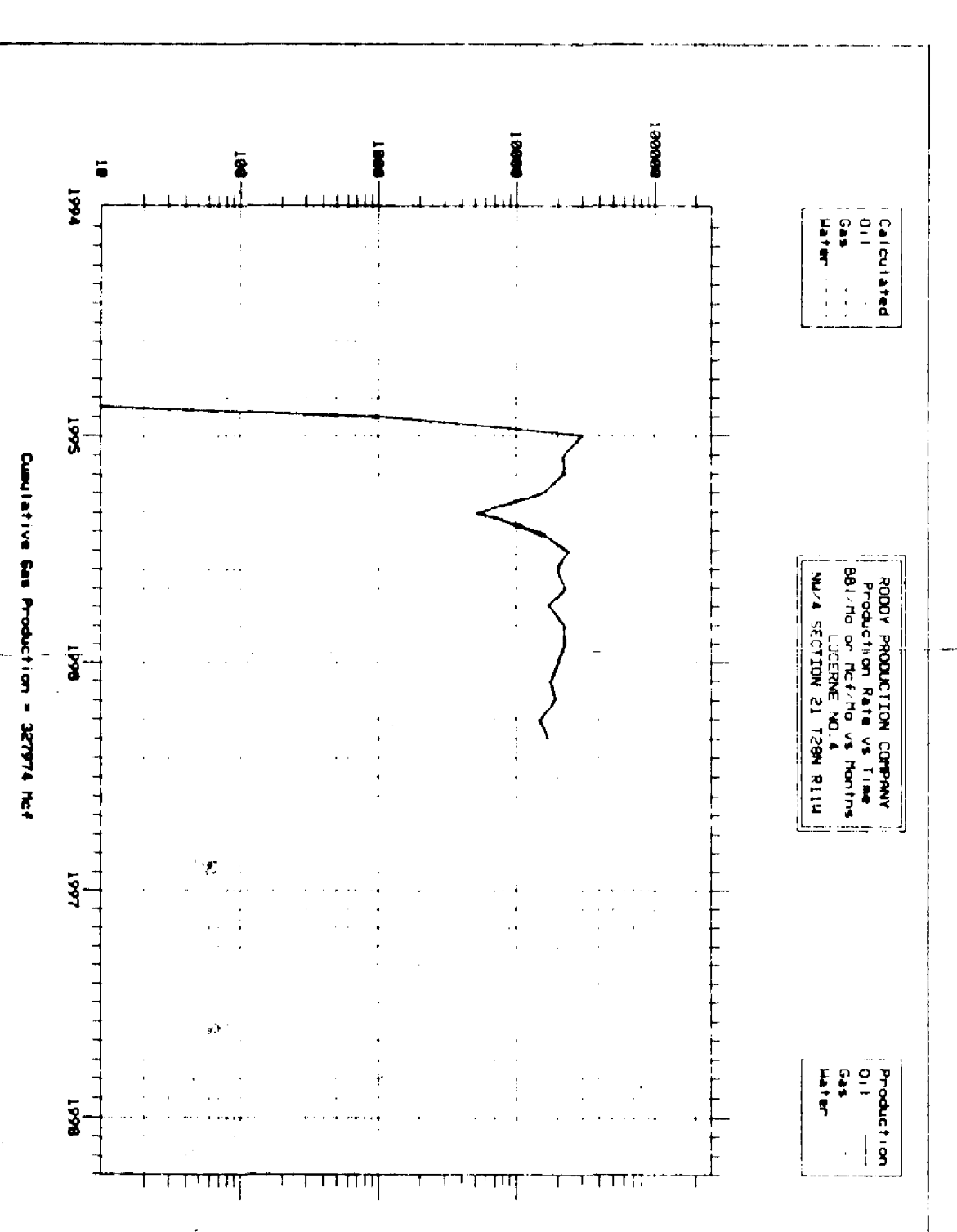
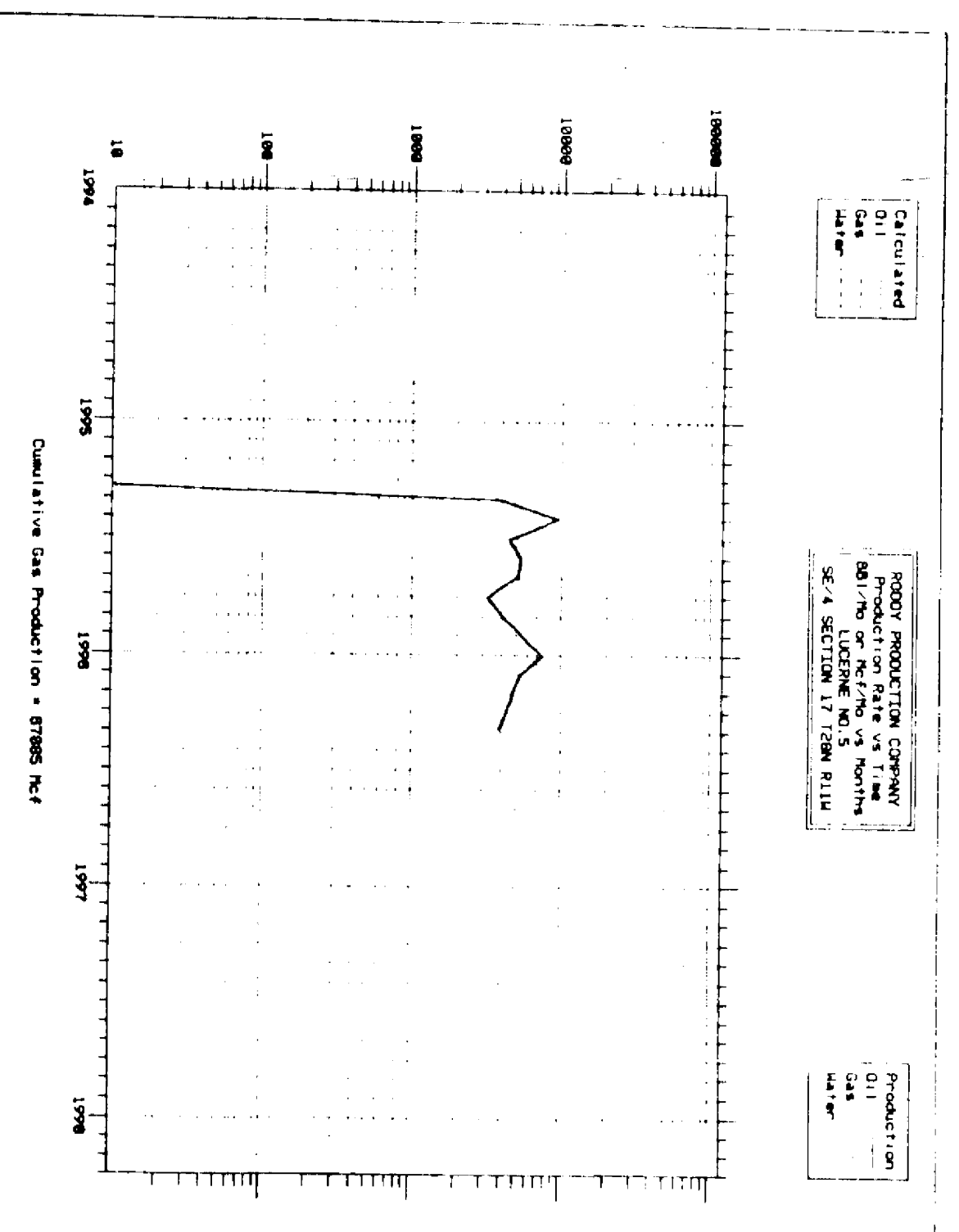
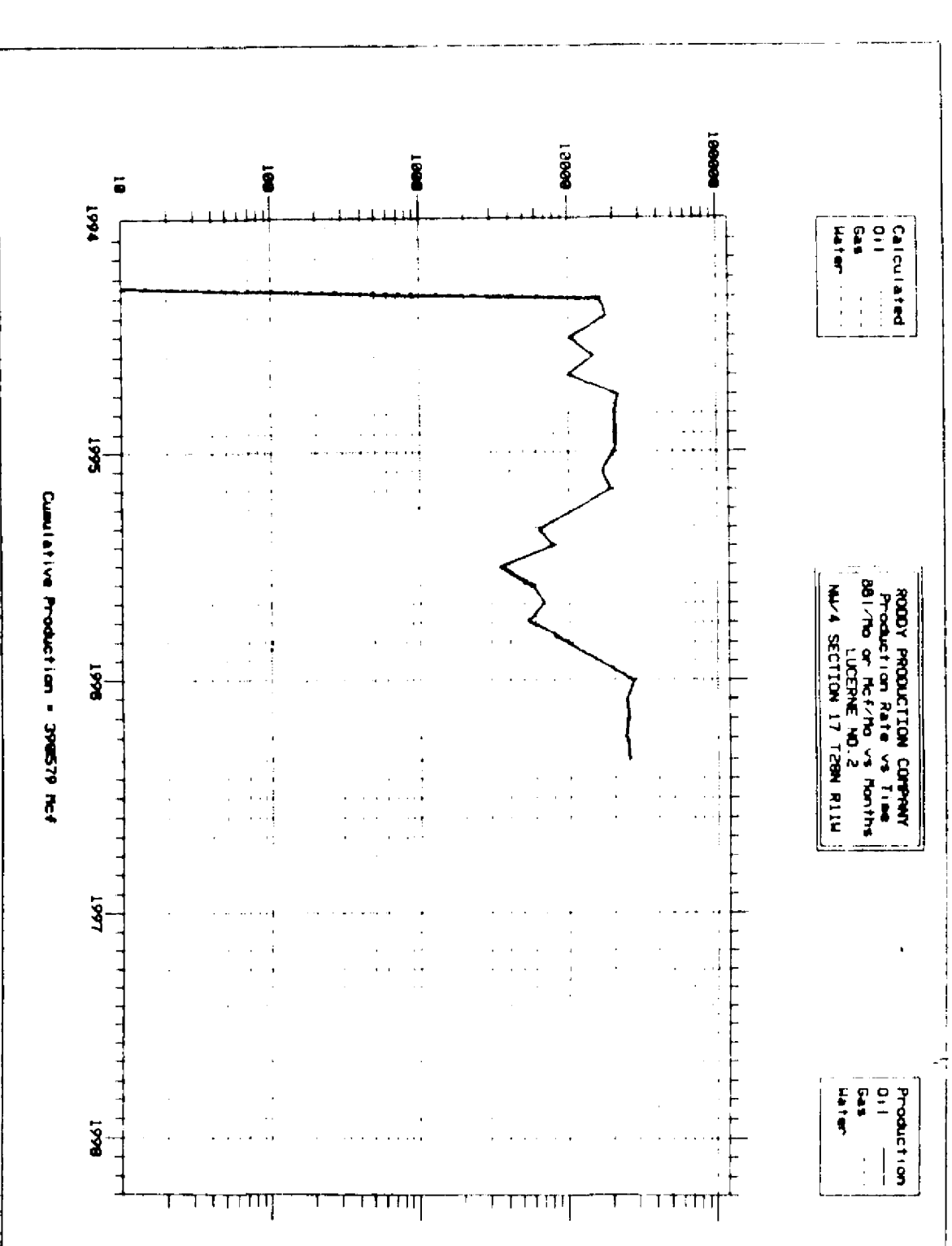
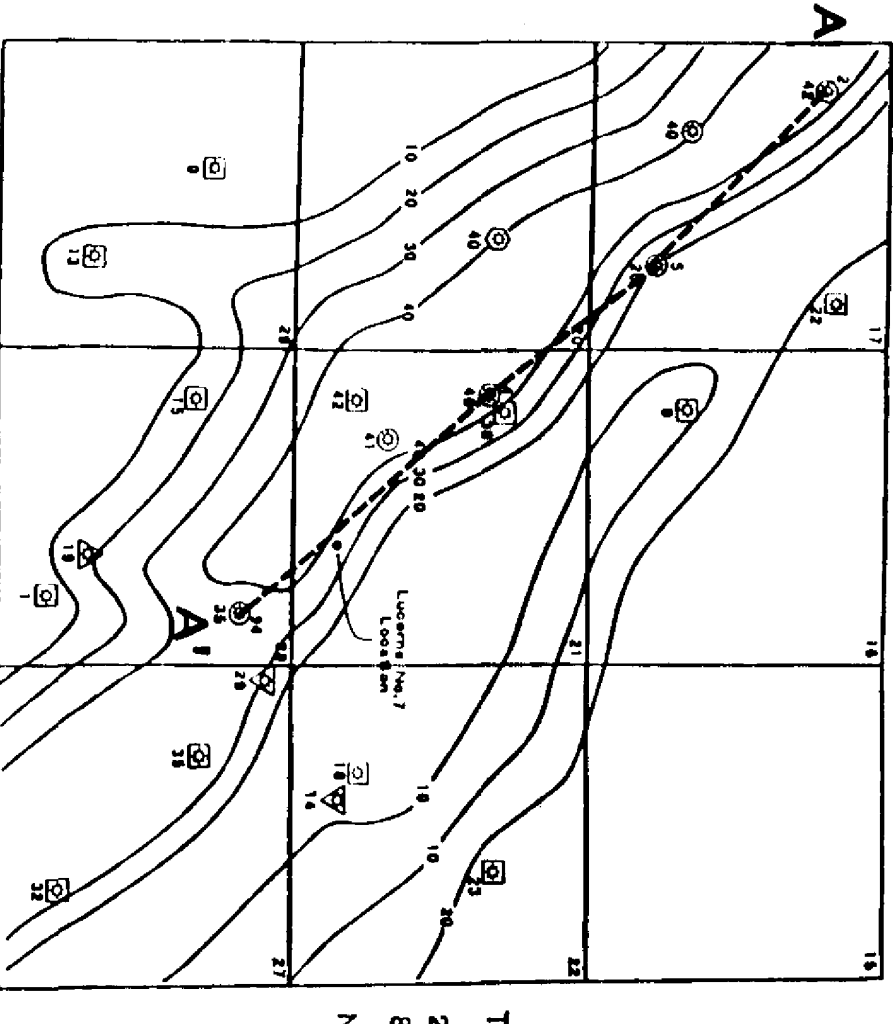
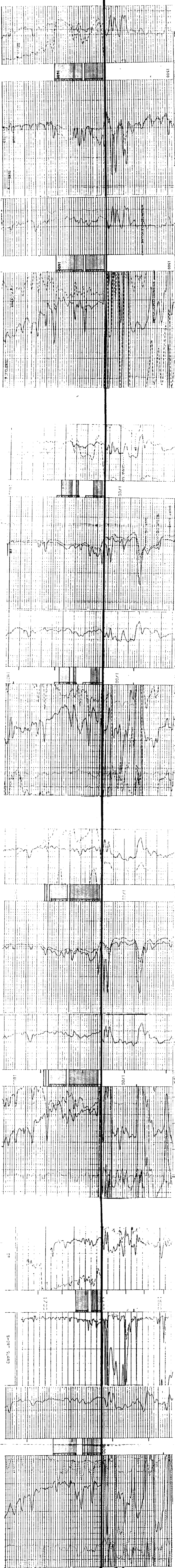
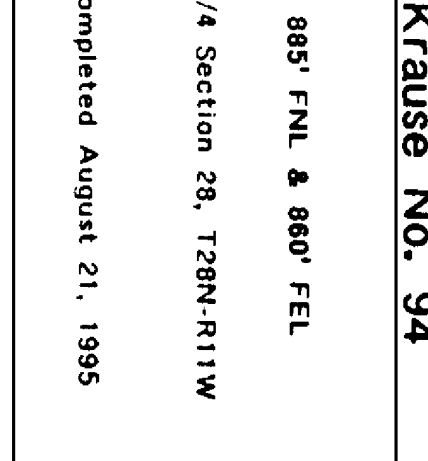
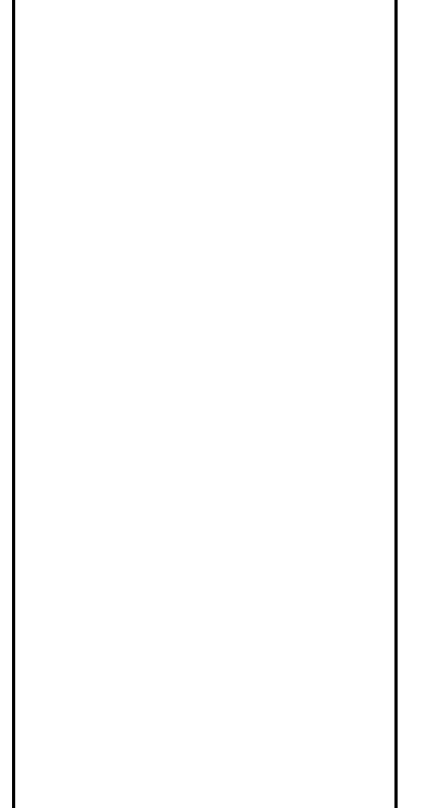
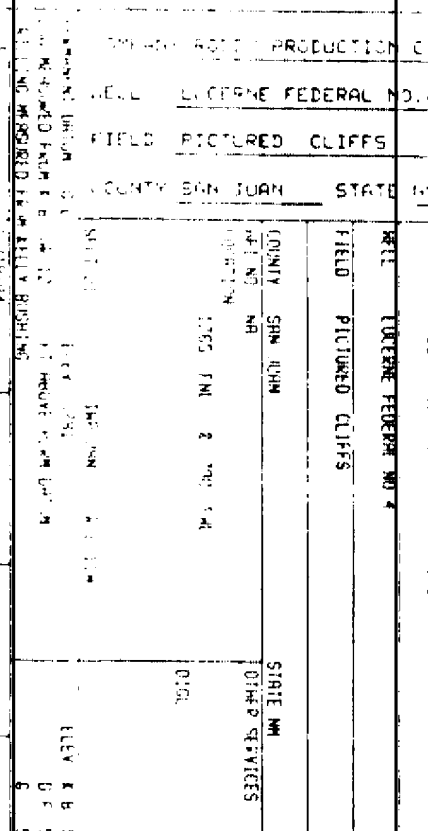
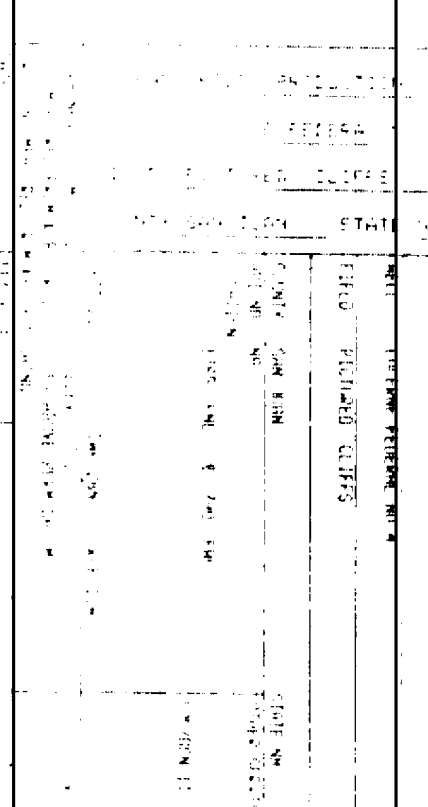
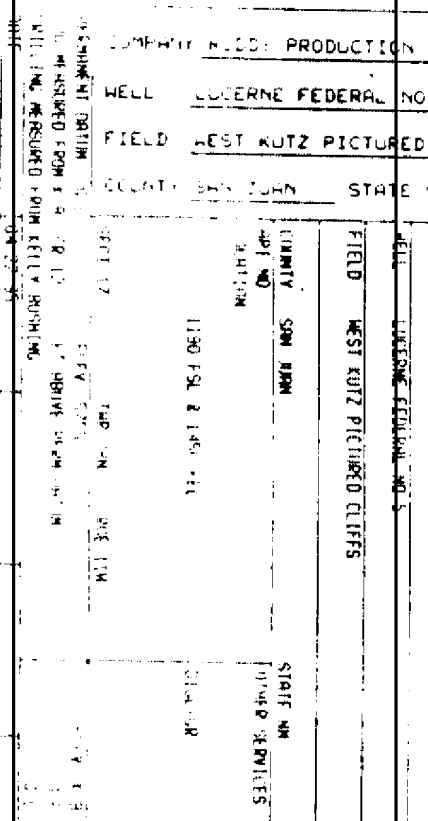
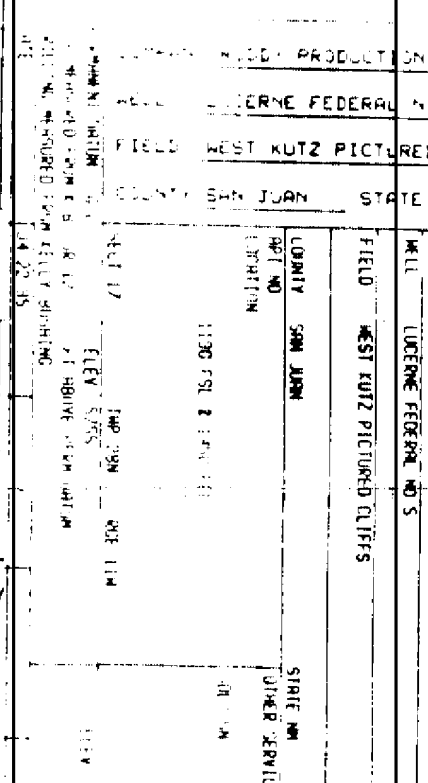
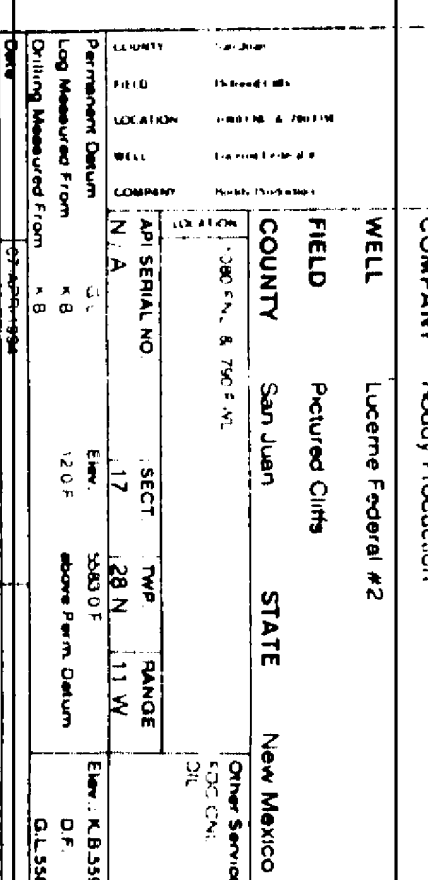
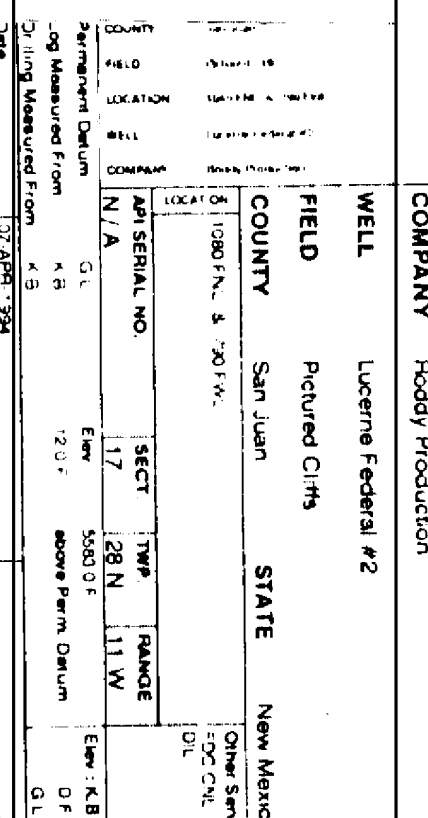
HALLIBURTON
SPECTRAL DENSITY
DUAL SPACED NEUTRON

M&G Drilling Company
Krause No. 94

885' FNL & 860' FEL

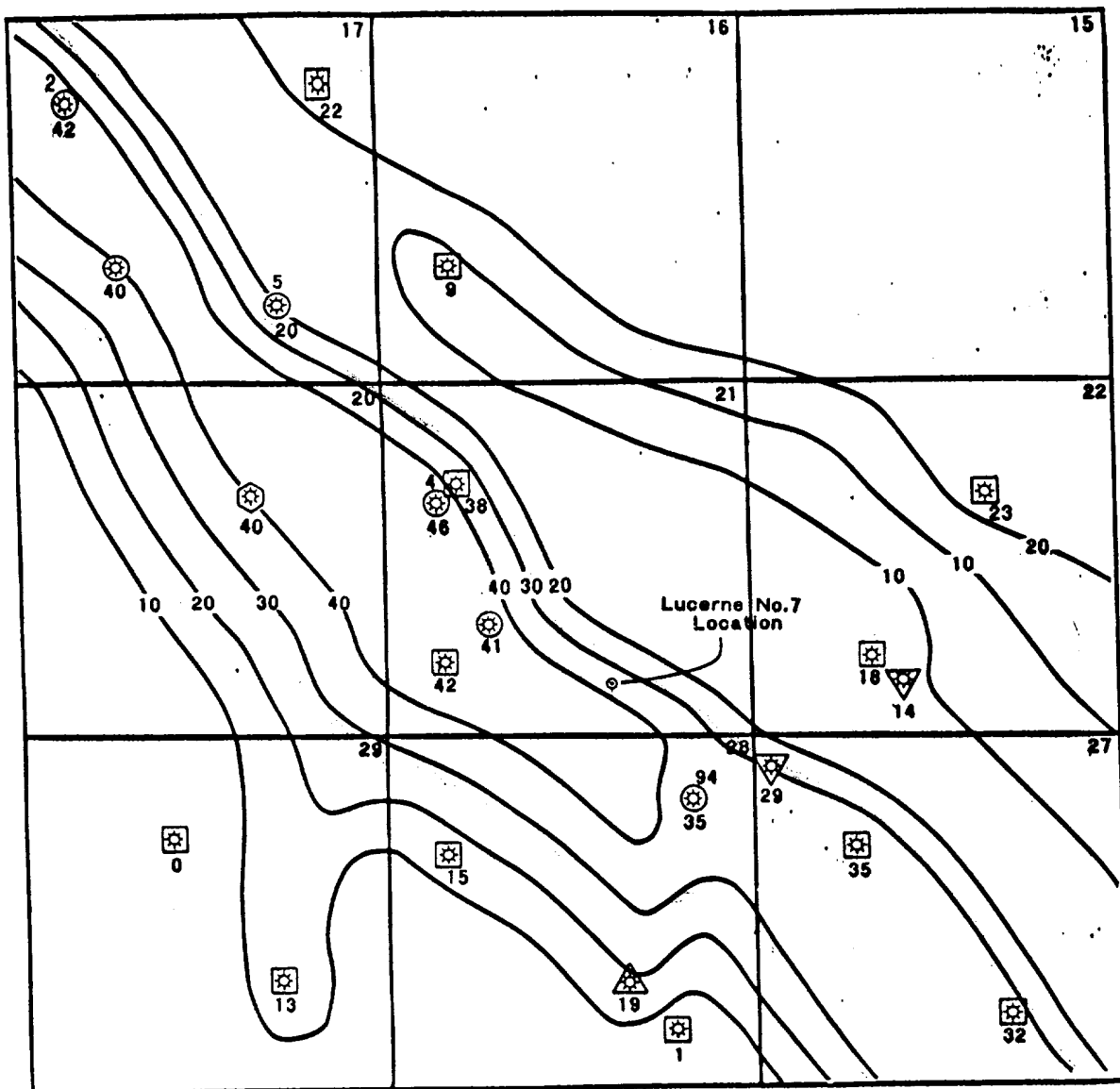
NE/4 Section 28, T28N-R11W

Completed August 21, 1991



PRODUCING FORMATION	
▽	Furrowless
▽	Furrowless Sand
○	Furrowless Coal
○	Pictured Cliffs
□	Darvits

RODDY PRODUCTION COMPANY
"LUCERNE PROSPECT"
"SAN JUAN CO., NM
PICTURED CLIFFS
MET PAY 150PACH
Content Interval = 10"



T
2
8
N

R 11 W

Note: Only Wells With Porosity Logs Shown

NET PAY BASIS	
DENSITY POROSITY	> OR = 16%
&	
NEUTRON/DENSITY SEPARATION	< OR = 8

PRODUCING FORMATION

- ▽ Farmington
- △ Fruitland Sand
- ⬡ Fruitland Coal
- Pictured Cliffs
- Dakota

Well
No.
✱
Net Pay
ft

RODDY PRODUCTION COMPANY
LUCERNE PROSPECT
SAN JUAN CO., NM

PICTURED CLIFFS
NET PAY ISOPACH

Contour Interval = 10'