

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION



April 2, 1987

GARREY CARRUTHERS  
GOVERNOR

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-5800

Shell Western E & P Inc.  
P. O. Box 991  
Houston, Texas 77001

Attention: A. J. Fore

Re: Administrative Order NFL-164

Dear Mr. Fore:

Reference is made to your application for an Infill Well Finding and Well-Spacing Waiver made pursuant to Section 271.305(b) of the Federal Energy Regulatory Commission regulations, Natural Gas Policy Act of 1978, and Oil Conservation Division Order No. R-6013 for the following described well:

North Hobbs Unit Well No. 413 located 1200 feet from the North line and 206 feet from the East line (Unit A) of Section 24, Township 18 South, Range 37 East, NMPM, Lea County, New Mexico.

THE DIVISION FINDS THAT:

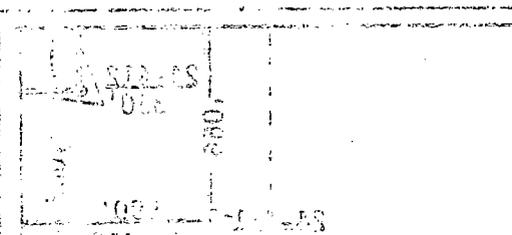
(1) Section 271.305(b) of the Federal Energy Regulatory Commission Interim Regulations promulgated pursuant to the Natural Gas Policy Act of 1978 provides that, in order for an infill well to qualify as a new onshore production well under Section 103 of said Act, the Division must find, prior to the commencement of drilling, that the well is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit which cannot be so drained by any existing well within that unit, and must grant a waiver of existing well-spacing requirements.

(2) By Division Order No. R-6013, dated June 7, 1979, the Division established an administrative procedure whereby the Division Director and the Division Examiners are empowered to act for the Division and find that an infill well is necessary.

(3) The well for which a finding is sought is to be completed in the Hobbs Grayburg San Andres Pool, and the standard spacing unit in said pool is 40 acres.

NEW MINE OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACQUISITION NOTIFICATION PLAN

All distances shall be from the nearest boundary of the location.

<p>Well No. 111</p> <p>Location: 111</p>	<p>Well No. 112</p> <p>Location: 112</p>	<p>Well No. 113</p> <p>Location: 113</p>
<p>Company Well No. 114</p> <p>Location: 114</p>		
<p>1. Outline the acreage to be leased to the well or wells located herein in blocks on the plan below.</p>		
<p>2. If more than one lease is indicated to the well, indicate on the well location diagram the acreage to be worked, interest and royalty.</p>		
<p>3. If more than one lease of different acreage is indicated on the well location diagram, indicate the acreage to be worked based by commission, well location, acreage, etc.</p>		
<p>If answer is "Yes", type of acreage: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>		
<p>If answer is "Yes", has the owner and acreage been previously leased? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>		
<p>If answer is "Yes", will it be necessary to lease additional acreage to the well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>		
<p>If answer is "Yes", will it be necessary to lease additional acreage to the well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>		
<p>COMPLETION</p> <p>1. Indicate the location of the well on the plan below.</p> <p>2. Indicate the location of the well on the plan below.</p>		
<p>111</p>	<p>112</p>	
<p>113</p>	<p>114</p>	
<p>115</p>	<p>116</p>	
<p>117</p>	<p>118</p>	
<p>119</p>	<p>120</p>	
<p>121</p>	<p>122</p>	
<p>123</p>	<p>124</p>	
<p>125</p>	<p>126</p>	
<p>127</p>	<p>128</p>	
<p>129</p>	<p>130</p>	
<p>131</p>	<p>132</p>	
<p>133</p>	<p>134</p>	

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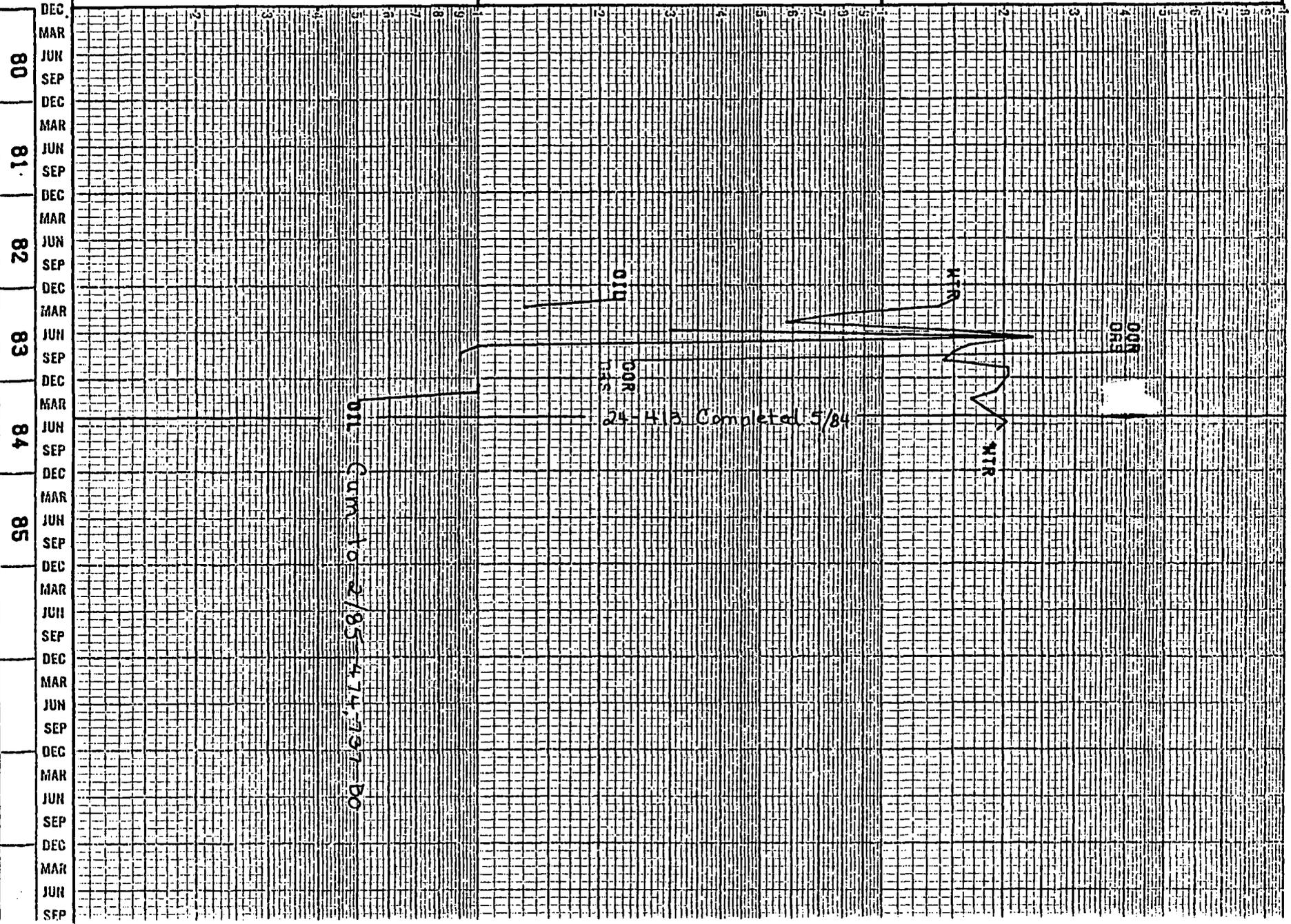
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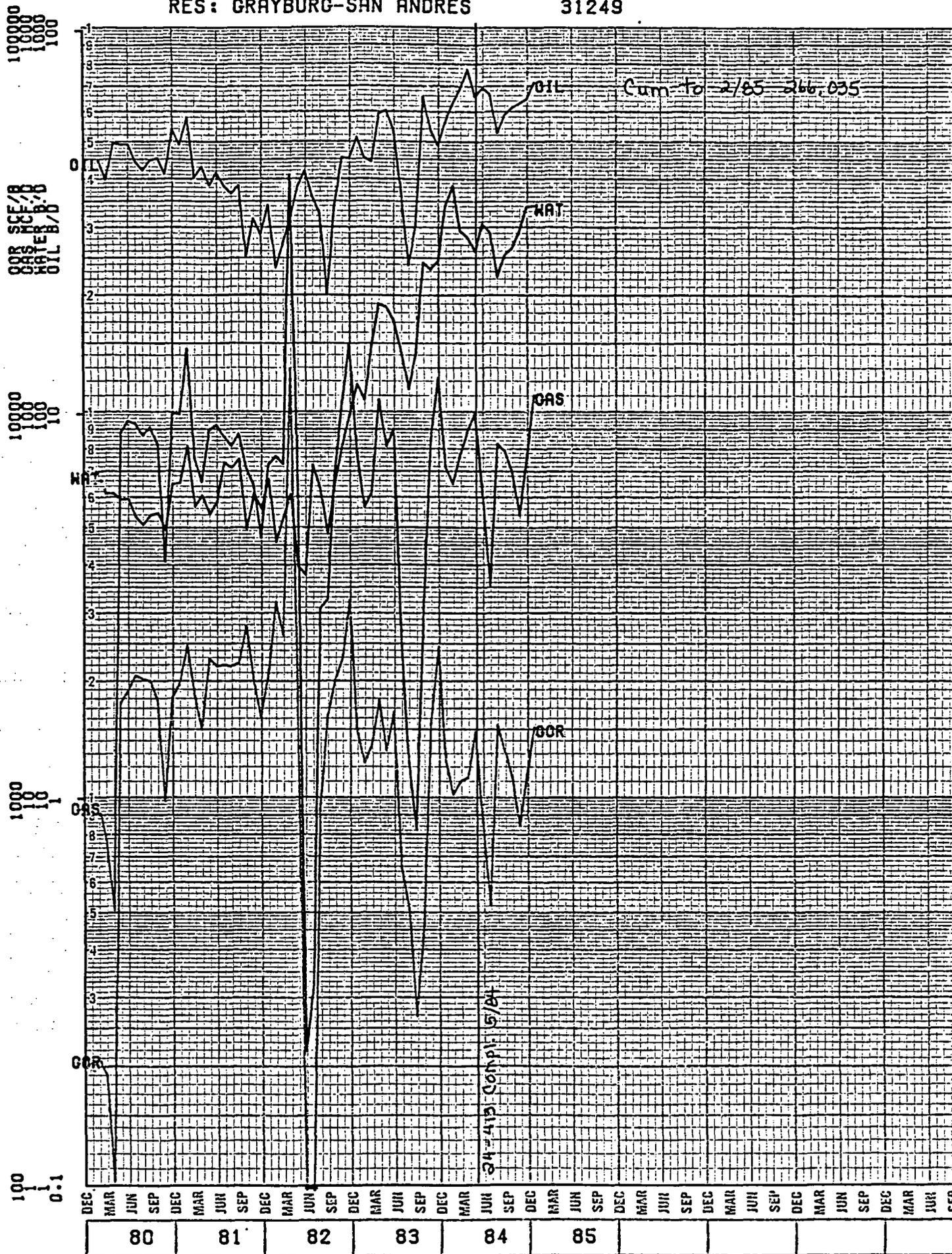
PRODUCTION UNIT 047: NEM MEXICO  
LSE: HOBBS NORTH UNIT  
RES: GRAYBURG-SAN ANDRES  
FLO: HOBBS N. 707.  
33601 WLL: 412-24 75120  
31249



DEC	
MAR	
JUN	80
SEP	
DEC	
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PRODUCTION UNIT 647: NEW MEXICO  
 LSE: HOBBS NORTH UNIT  
 RES: GRAYBURG-SAN ANDRES

FLD: HOBBS N.  
 33601 WLL: 411-24  
 31249



P 658 011 764

**RECEIPT FOR CERTIFIED MAIL**

NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL

(See Reverse)

★ U.S.G.P.O. 1983-403-517  
PS Form 3800, Feb. 1982

Sent to AMOCO PRODUCTION COMPANY ATTN: H. L. McDONALD	
Street and No. P. O. BOX 3092	
P.O., State and ZIP Code HOUSTON, TX 77253	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date D. M. UPSON WCK 4435 5-20-85	



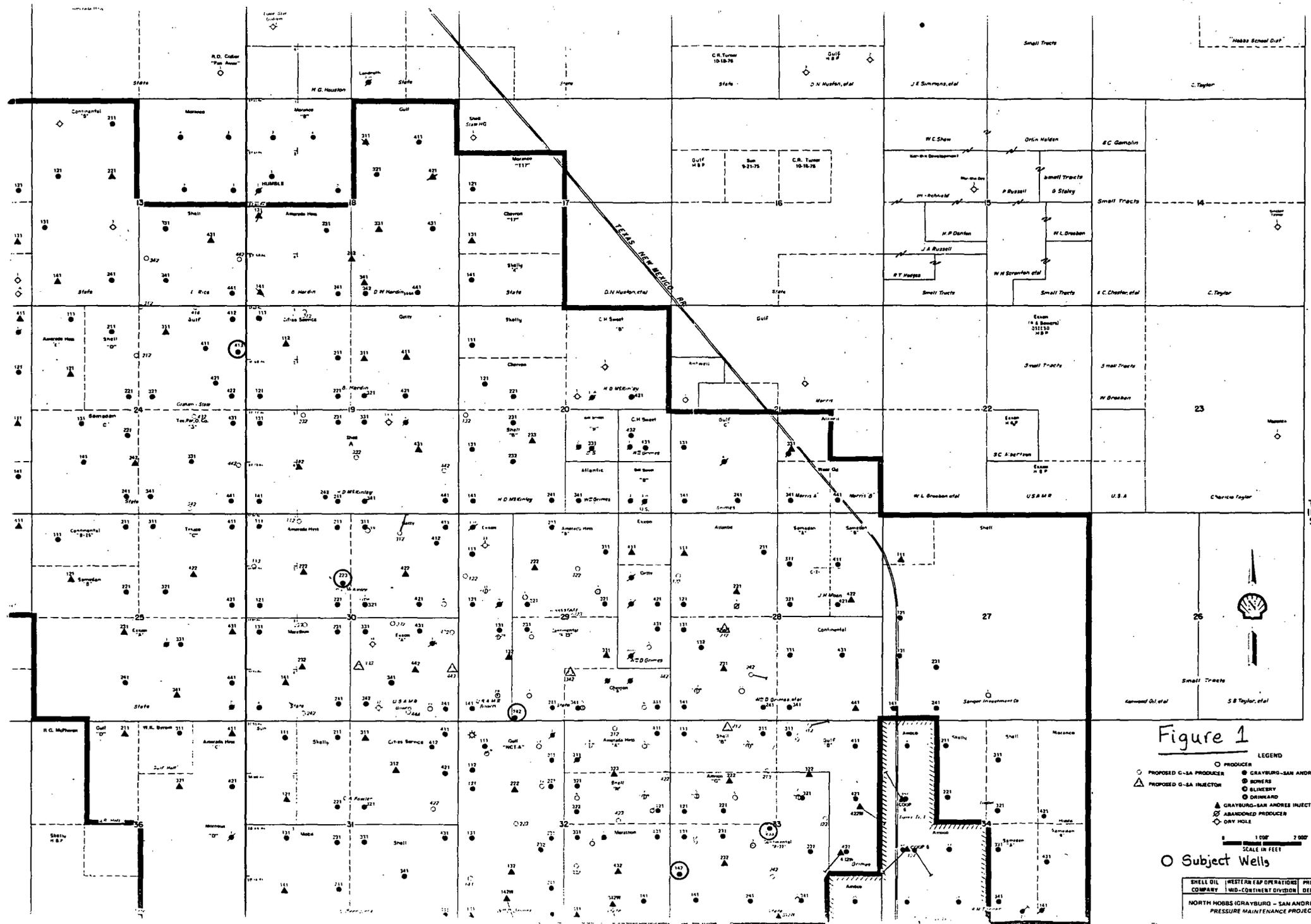


Figure 1

**LEGEND**

- PRODUCER
- PROPOSED G-SA PRODUCER
- △ PROPOSED G-SA INJECTOR
- GRAYBURG-SAN ANDRES INJECTION WELL
- ABANDONED PRODUCER
- ◇ DRY HOLE
- PRODUCER
- GRAYBURG-SAN ANDRES
- BOWERS
- BLINNEY
- DRINKARD

○ Subject Wells

0 1000 2000  
SCALE IN FEET

SHELL OIL (WESTERN OIL OPERATIONS) PRODUCTION COMPANY (MID-CONTINENT DIVISION) DEPARTMENT NORTH HOBBS (GRAYBURG - SAN ANDRES) UNIT. PRESSURE MAINTENANCE PROJECT

NEW MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102  
Supersedes C-128  
Effective 1-1-65

All distances must be from the outer boundaries of the Section

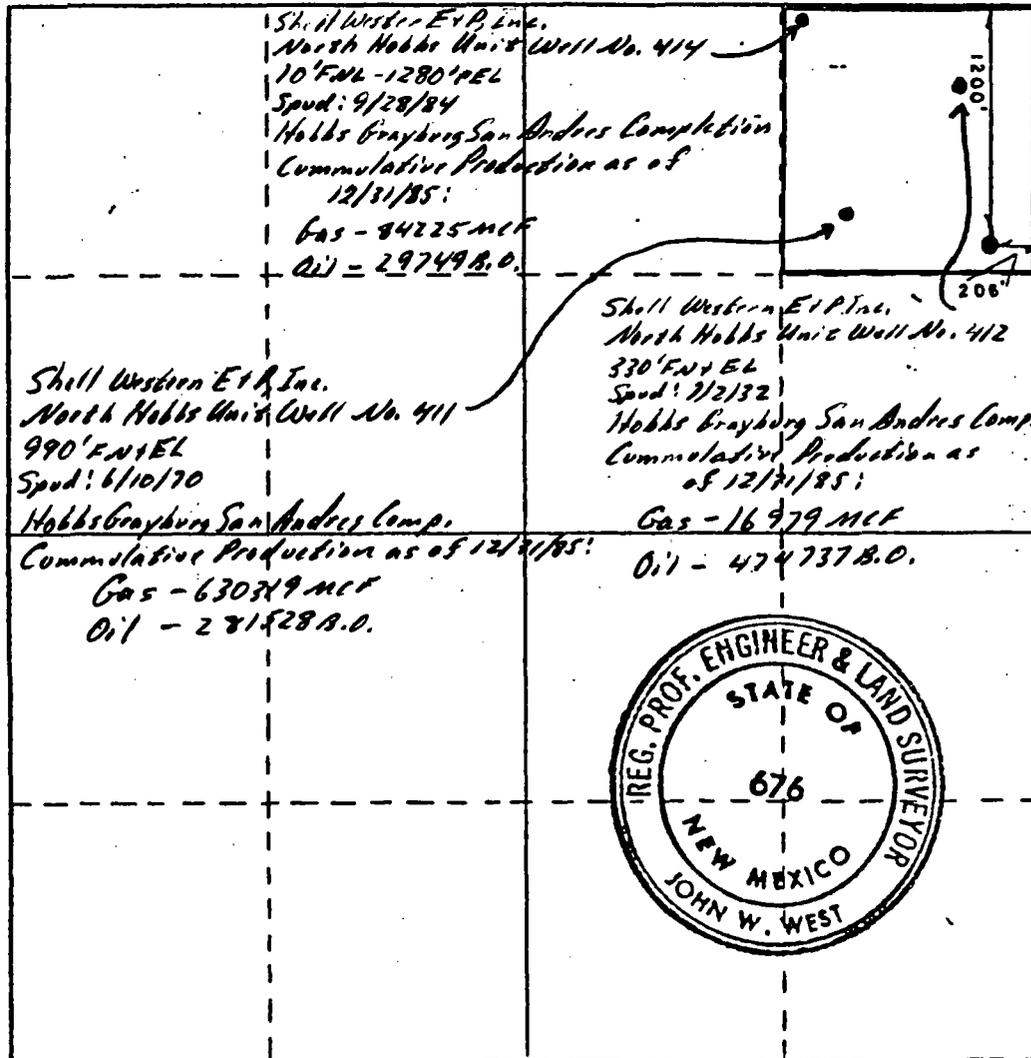
SHELL WESTERN E&P INC.		Lease NORTH HOBBS UNIT <i>Sec. 24</i>		Well No. 413
Section A	Section 24	Township 18 SOUTH	Range 37 EAST	County LEA
Actual Footage Location of Well:				
1200 feet from the NORTH line and		206 feet from the EAST line		
Ground Level Elev. 3661.6'	Producing Formation GRAYBURG/SAN ANDRES	Pool HOBBS (GRAYBURG/SAN ANDRES)	Dedicated Acreage: 40 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- 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 UNITIZATION

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.



**CERTIFICATION**

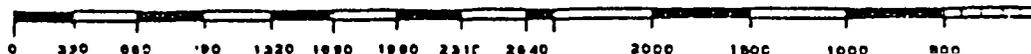
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: *A. J. FORE* A. J. FORE  
Position: SUPERVISOR REG. & PERMITTING  
Company: SHELL OIL COMPANY  
Date: NOVEMBER 14, 1984

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: OCTOBER 21, 1983  
Registered Professional Engineer and/or Land Surveyor: *John W. West*

Certificate No. JOHN W. WEST, 676  
RONALD J. EIDSON, 3239



NEW MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT

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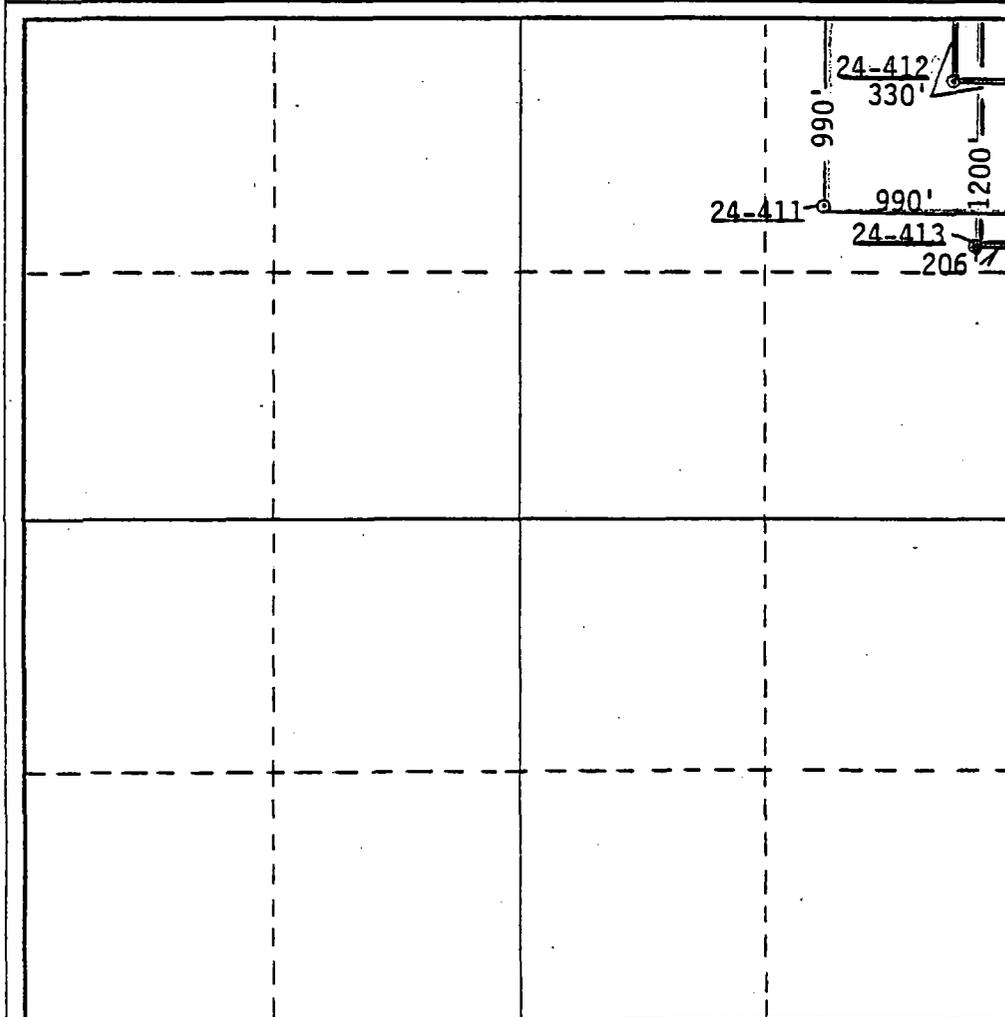
Operator <b>SHELL WESTERN E&amp;P INC.</b>		Lease <b>N. HOBBS (G/SA) UNIT SECTION 24</b>			Well No. <b>411, 412, 413</b>
Unit Letter <b>A</b>	Section <b>24</b>	Township <b>18-S</b>	Range <b>37-E</b>	County <b>LEA</b>	
Actual Footage Location of Well:					
feet from the		line and		feet from the	
Ground Level Elev.	Producing Formation <b>GRAYBURG/SAN ANDRES</b>	Pool <b>HOBBS (G/SA)</b>	Dedicated Acreage:  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 UNITIZATION

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.



CERTIFICATION

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

Name **A. J. FORE**

Position **SUPV. REGULATORY & PERMITTING**

Company **SHELL WESTERN E&P INC.**

Date **MAY 20 1985**

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 \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



# Shell Western E&P Inc.

A Subsidiary of Shell Oil Company



P.O. Box 991

Houston, TX 77001

May 20, 1985

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
ATTN R. L. Stamets, Director  
P. O. Box 2088  
Santa Fe, NM 87501

Gentlemen:

SUBJECT: INFILL DRILLING FINDING  
PURSUANT TO SECTION 271.305(b)  
FEDERAL ENERGY REGULATORY COMMISSION REGULATIONS,  
NATURAL GAS POLICY ACT OF 1978 AND  
OIL CONSERVATION DIVISION ORDER NO. R-6013-A

Shell Western E&P Inc. (SWEPI), respectfully requests an administrative finding that the following infill wells are necessary to effectively and efficiently drain a portion of the Grayburg/San Andres reservoir:

SHELL WESTERN E&P INC. OPERATED  
NORTH HOBBS (GRAYBURG/SAN ANDRES) UNIT  
HOBBS (GRAYBURG/SAN ANDRES) POOL  
LEA COUNTY, NEW MEXICO

<u>WELL NO.</u>		<u>LOCATION</u>
24-413	A-24-18S-37E	1200' FNL & 206' FEL
29-242	N-29-18S-38E	100' FSL & 1400' FWL
30-312	F-30-18S-38E	1770' FNL & 2405' FWL
33-142	M-33-18S-38E	1250' FSL & 185' FWL
33-233	K-33-18S-38E	2380' FSL & 2472' FWL.

Administrative Order NSL-1749 dated October 4, 1983 and amended December 13, 1983, approved the above-described unorthodox locations. Additional data in support of this request is attached.

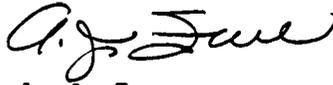
Based on the results of these initial five (5) infill wells, the Division issued Order No. R-7670 dated September 21, 1985 approving Shell Western's proposal to drill thirty-eight (38) additional producers and five (5) injectors and found that the 38 wells were necessary to effectively and efficiently drain portions of the Grayburg/San Andres reservoir. Shell Western is now requesting and Effective and Efficient finding for the initial five wells.

The only operator of a proration or spacing unit offsetting the subject unit is Amoco Production Company, which operates the South Hobbs (Grayburg/San Andres) Unit. Amoco has been notified by certified mail of this request.

BNBG8512703

If additional information is required, please advise.

Yours very truly,



A. J. Fore  
Supervisor Regulatory and Permitting  
Mid-Continent Division

DMU

Attachments

cc: State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 1980  
Hobbs, NM 88240

Amoco Production Company  
P. O. Box 3092  
Houston, TX 77253

## INFILL DRILLING FINDING

SHELL WESTERN E&P INC. OPERATED  
NORTH HOBBS (GRAYBURG/SAN ANDRES) UNIT  
HOBBS (GRAYBURG/SAN ANDRES) POOL  
LEA COUNTY, NEW MEXICO

<u>WELL NO.</u>		<u>LOCATION</u>
24-413	A-24-18S-37E	1200' FNL & 206' FEL
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30-312	F-30-18S-38E	1770' FNL & 2405' FWL
33-142	M-33-18S-38E	1250' FSL & 185' FWL
33-233	K-33-18S-38E	2380' FSL & 2472' FWL.

The North Hobbs (G/SA) Unit and pressure maintenance project which was authorized by Division Order No. R-6198 and R-6199, became effective on February 1, 1980. Prior to drilling the subject wells, the Unit was developed by 189 producers and 74 injectors, utilizing a modified 5-spot flood pattern (Figure No. 1). Average daily oil production amounted to 9849 barrels of oil and 50,408 barrels of water in January 1984. For the same period, water injection averaged 57,629 barrels per day. The Unit development plans as originally proposed were essentially completed with the drilling of the line injection wells on the boundary between the North and South Hobbs (G/SA) Units in 1983.

About 85 percent of the wells drilled in the central portion of the Unit are located off-center, usually 330+ feet from the lease line. The sweep efficiencies with this off-center configuration were reviewed and 48+ potential infill well locations were identified. It was determined that the drilling of 48± infill wells would develop an estimated 6.0± MMB of reserves that would not be produced with the existing well configuration. The five (5) subject infill wells were drilled to confirm the unique oil potential of the infill drilling program in the subject Unit. Order No. R-7670 dated September 21, 1984, approved the unorthodox locations of the 38 remaining infill wells as necessary to effectively and efficiently drain a portion of the Grayburg/San Andres reservoir which could not be drained by any existing well within the proration unit.

Each of these wells is the second or subsequent well drilled on an established proration unit. The completion of these five (5) infill wells had no appreciable affect on the oil production of the first or subsequent wells as shown by the attached production decline curves.

Based on the foregoing, it is our opinion that the reserves developed by these five (5) infill wells are unique and would not be recovered by any other wells in the existing proration unit. Therefore, we recommend an effective and efficient finding be made for each of these wells.

### GAS RESERVE CALCULATION

The North Hobbs (G/SA) Unit average producing GOR is currently 1100 cu ft per barrel. However, we expect with continued response to the water injection program the GOR will decline to near the solution GOR of 645 cu ft per barrel.

To determine gas reserves attributable to each well, we have assumed a lifetime GOR of 800 cu ft per barrel.

Estimated Ultimate Oil Recovery = 150,000 bbls per well

150,000 X 800 = 120 MMCFGas per well.

ADDITIONAL DATA - SECOND OR SUBSEQUENT WELLS

<u>LOCATION</u>		<u>SPUD DATE</u>	<u>FORMER OPERATOR/WELL NAME &amp; NO.</u>
<u>N. Hobbs Unit</u> <u>No. 24-413</u>			
24-411	A/24-18S-37E	990' FNL & 990' FEL	6-10-70
24-412	A/24-18S-37E	330' FNL & 330' FEL	7-02-32
Gulf - Graham State (NCT A) #6 Gypsy - Graham State A #2			
<u>N. Hobbs Unit</u> <u>No. 29-242</u>			
29-241	N/29-18S-38E	330' FSL & 2310' FWL	7-25-30
Conoco - State A-29 #2			
<u>N. Hobbs Unit</u> <u>No. 30-223</u>			
30-221	F/30-18S-38E	2310' FNL & 2310' FWL	4-20-30
30-222W	F/30-18S-38E	1470' FNL & 1395' FWL	6-23-80
Amerada - H. D. McKinley #2 Shell - N. Hobbs (G/SA) Unit #30-222 (Converted to injector 11-29-82)			
<u>N. Hobbs Unit</u> <u>No. 33-142</u>			
33-141	M/33-18S-38E	660' FSL & 660' FWL	7-05-30
Conoco - State A-33 #1			
<u>N. Hobbs Unit</u> <u>No. 33-233</u>			
33-231	K/33-18S-38E	2310' FSL & 1320' FWL	8-13-30
33-232W	K/33-18S-38E	2595' FSL & 1370' FWL	8-15-80
Conoco - State A-33 #3 Shell - N. Hobbs (G/SA) Unit #33-232 (Completed as an injector 6-16-81)			

NEW MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102  
Supersedes C-128  
Effective 1-1-65

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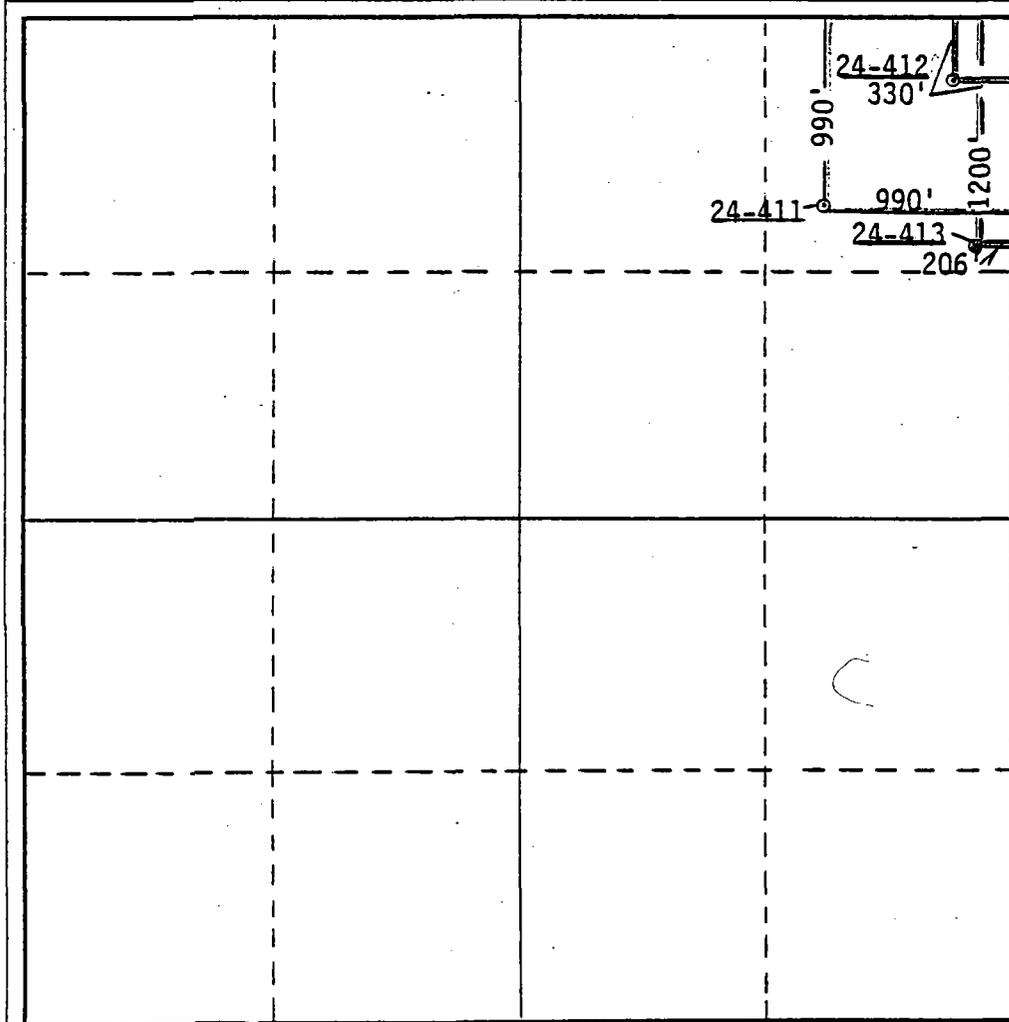
Operator <b>SHELL WESTERN E&amp;P INC.</b>		Lease <b>N. HOBBS (G/SA) UNIT SECTION 24</b>			Well No. <b>411, 412, 413</b>
Unit Letter <b>A</b>	Section <b>24</b>	Township <b>18-S</b>	Range <b>37-E</b>	County <b>LEA</b>	
Actual Footage Location of Well:					
feet from the		line and		feet from the	
Ground Level Elev.	Producing Formation <b>GRAYBURG/SAN ANDRES</b>		Pool <b>HOBBS (G/SA)</b>		Dedicated Acreage:  Acres

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

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

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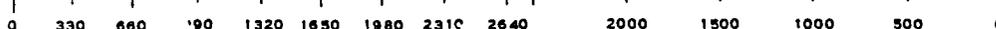
CERTIFICATION

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

Name	<b>A. J. FORE</b>
Position	<b>SUPV. REGULATORY &amp; PERMITTING</b>
Company	<b>SHELL WESTERN E&amp;P INC.</b>
Date	<b>MAY 20 1985</b>

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	
Registered Professional Engineer and/or Land Surveyor	
Certificate No.	



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WELL LOCATION AND ACREAGE DEDICATION PLAT

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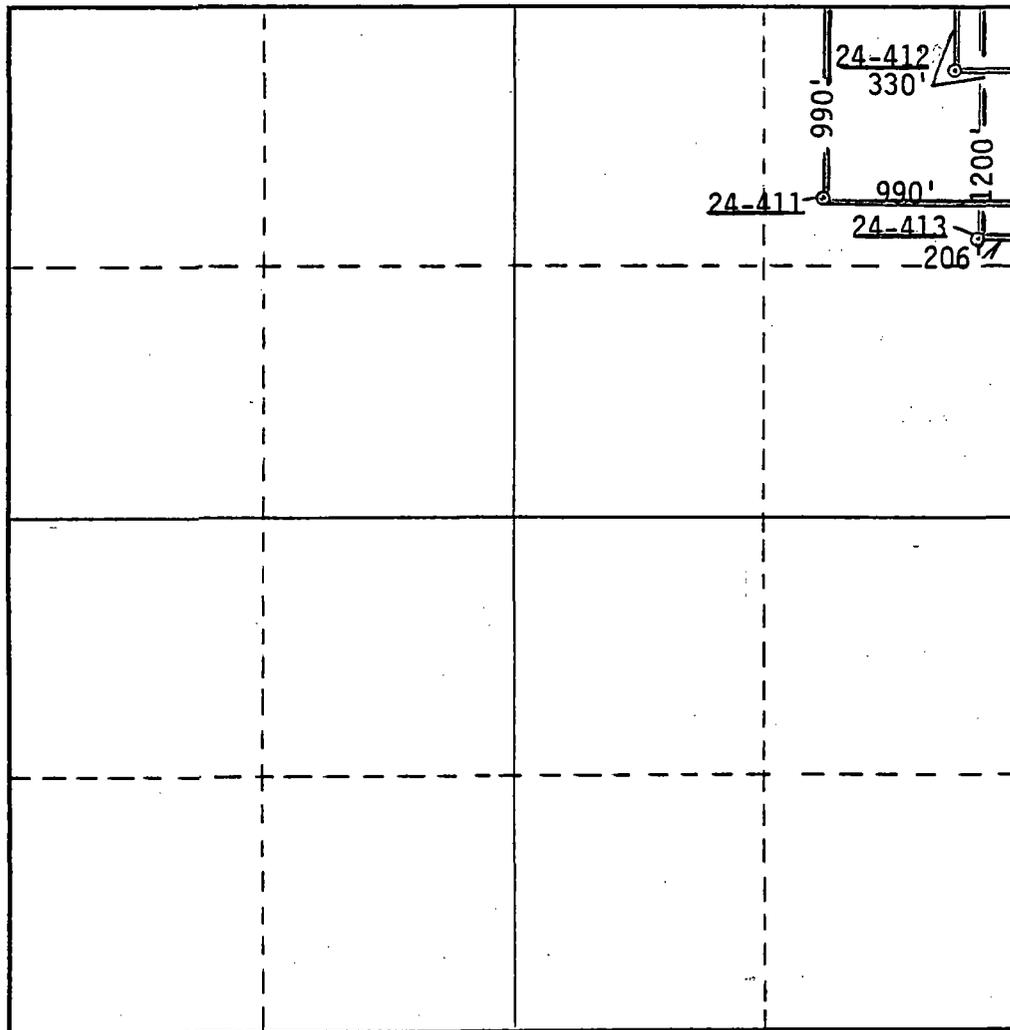
Operator <b>SHELL WESTERN E&amp;P INC.</b>			Lease <b>N. HOBBS (G/SA) UNIT SECTION 24</b>		Well No. <b>411, 412, 413</b>
Unit Letter <b>A</b>	Section <b>24</b>	Township <b>18-S</b>	Range <b>37-E</b>	County <b>LEA</b>	
Actual Footage Location of Well:					
feet from the		line and		feet from the line	
Ground Level Elev.	Producing Formation <b>GRAYBURG/SAN ANDRES</b>		Pool <b>HOBBS (G/SA)</b>		Dedicated Acreage:  Acres

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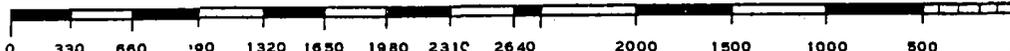
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Position	<b>SUPV. REGULATORY &amp; PERMITTING</b>
Company	<b>SHELL WESTERN E&amp;P INC.</b>
Date	<b>MAY 20 1985</b>

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	
Registered Professional Engineer and/or Land Surveyor	
Certificate No.	



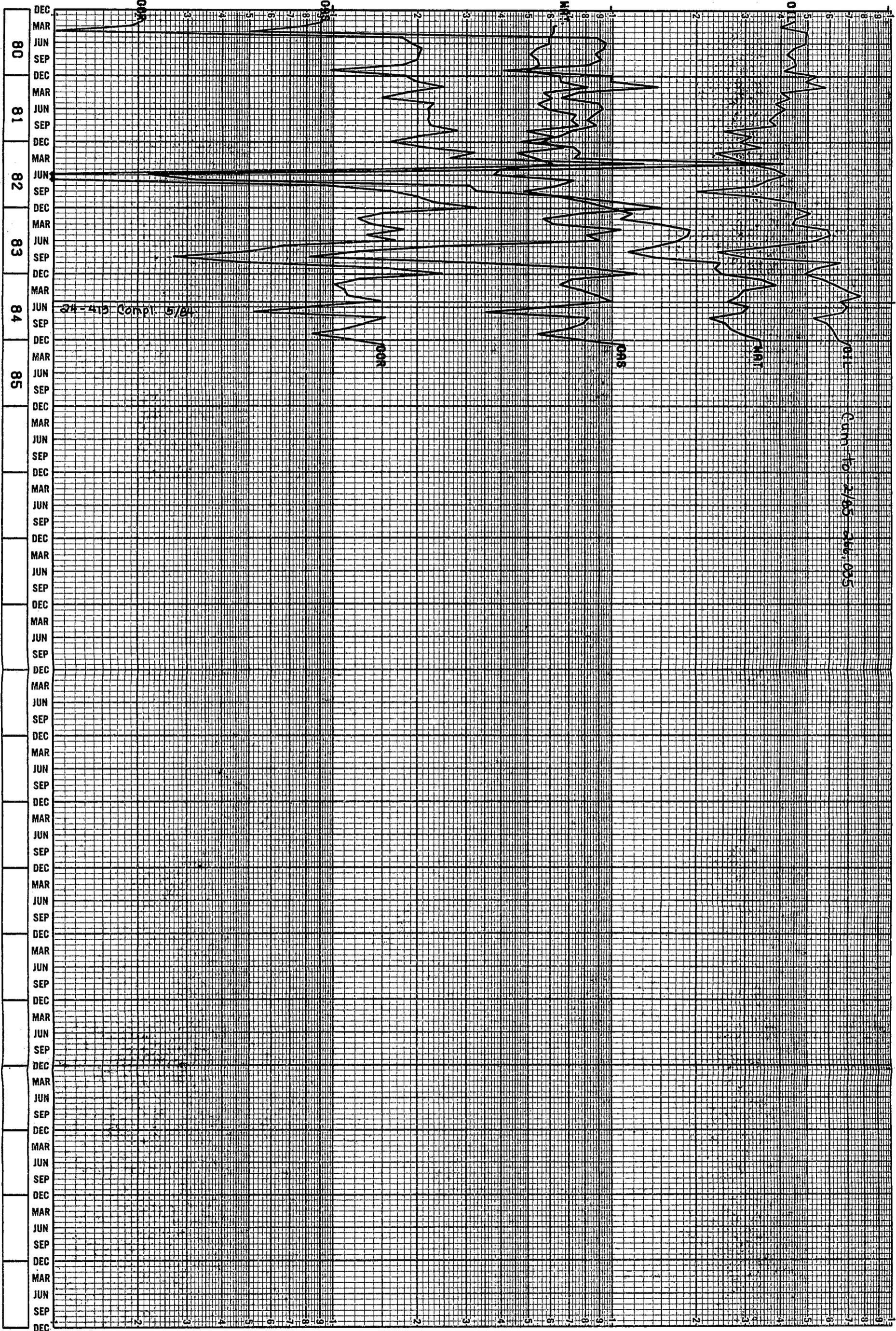
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24-410 Compl. 5/84

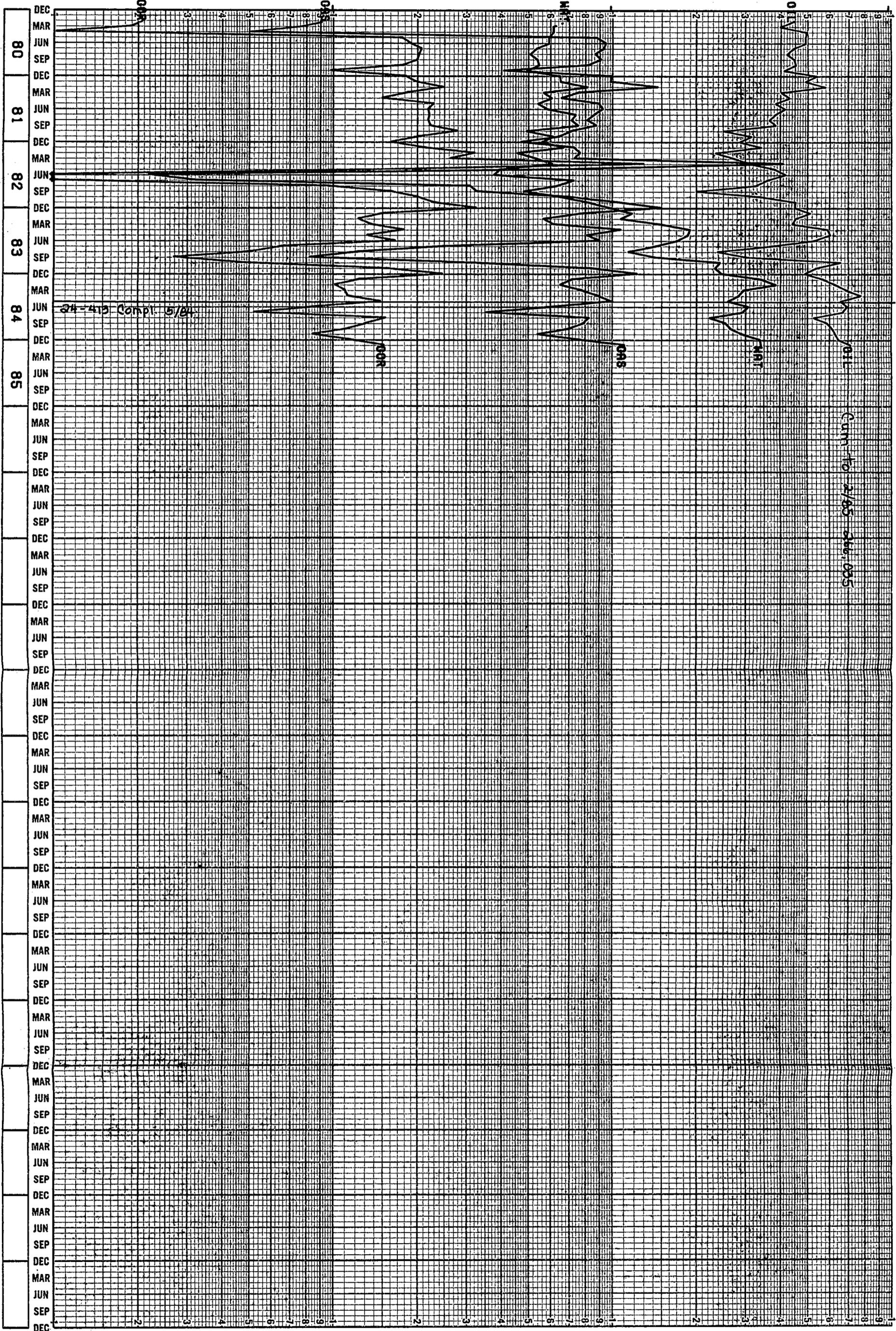
Cum. to 2/85 866,035

GOR

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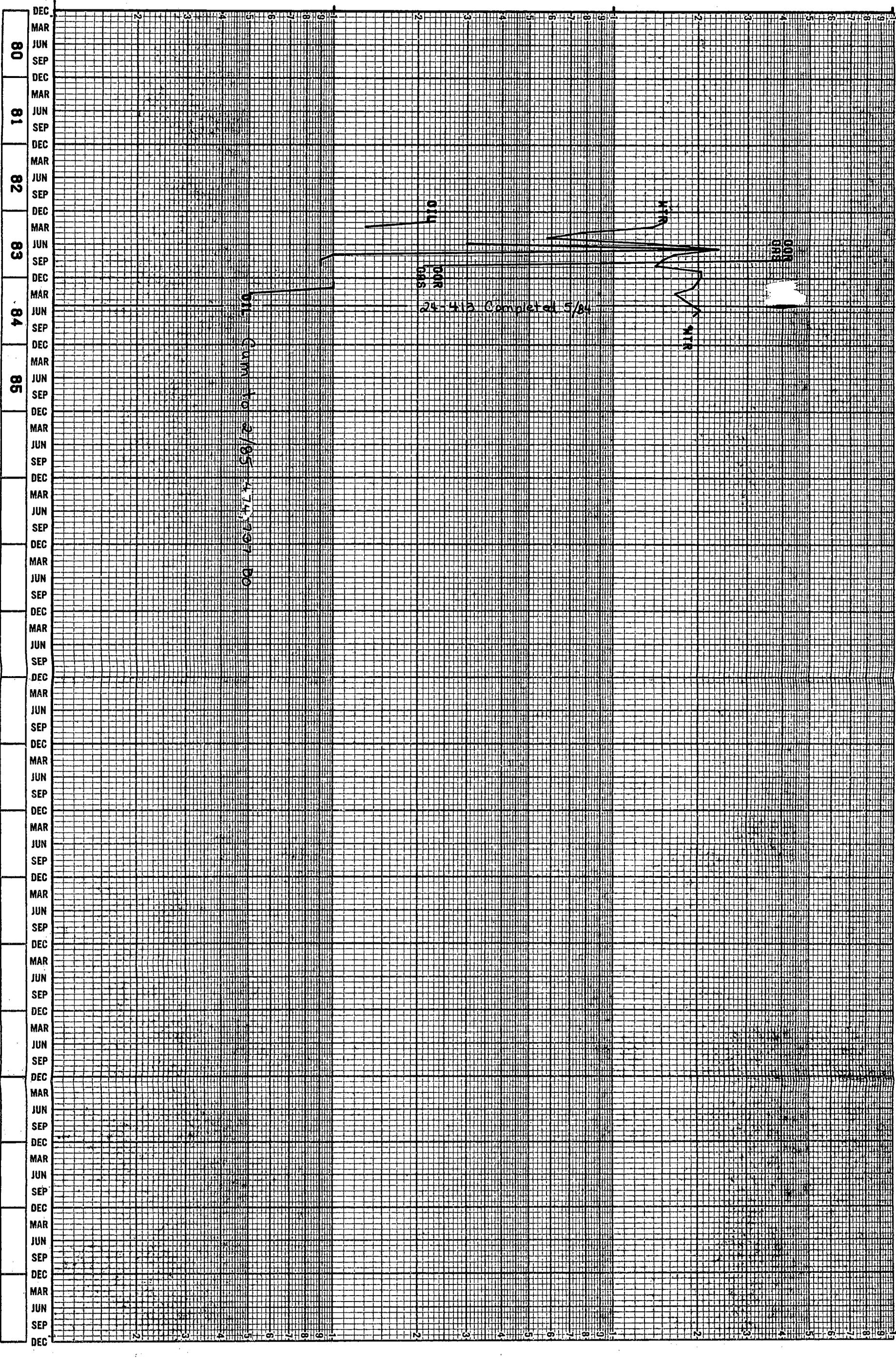
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GOR SCF/B  
CBS MCF/D  
WTR B/D  
OIL B/D

1000  
100  
1000  
100



Oil Cum to 2/85 4.73997 DO

OIL

GOR

WTR

CBS

24-413 Completed 5/84

WTR

WTR

GOR

WTR

CBS

OIL

P 658 011 764

**RECEIPT FOR CERTIFIED MAIL**

NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3800, Feb. 1982  
\* U.S.G.P.O. 1983-403-517

Sent to AMOCO PRODUCTION COMPANY ATTN: H. L. McDONALD	
Street and No. P. O. BOX 3092	
P.O., State and ZIP Code HOUSTON, TX 77253	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date D. M. UPSON WCK 4435 5-20-85	

**CERTIFIED**

P 658 011 764

**MAIL**