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SEP 5 1995

OIL CONSERVATION DIV **Shell Western E&P Inc.**
SANTA FE An affiliate of Shell Oil Company



P. O. Box 576
Houston, TX 77001

DHC 9-25-95
1149

AIRBORNE EXPRESS

August 31, 1995

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Gentlemen:

SUBJECT: REQUEST FOR EXCEPTION TO RULE 303-A
VACUUM FIELD - WOLFCAMP AND MIDDLE PENN POOLS
STATE "A" #10 - API# 30-025-32844
SEC 31, T17S, R35E
LEA COUNTY, NEW MEXICO

Shell Western E&P Inc. (SWEPI) respectfully requests approval for an exception to Rule 303-A to permit downhole commingling of the Wolfcamp and Middle Penn zones in the SWEPI State "A" #10 well.

The State "A" #10 is currently producing from both the Wolfcamp and the Middle Penn zones. The Wolfcamp zone is being rod-pumped, whereas the Middle Penn is flowing, but only for a few hours per day. Due to the Middle Penn zone's inability to produce efficiently under the intermittent flowing conditions, we are seeking to put the Middle Penn on rod-pump to more effectively produce the Middle Penn reserves. Due to the Middle Penn zone's stratigraphic position below the Wolfcamp, we cannot economically provide a mechanical configuration to rod-pump both zones separately. For this reason, we are requesting the two zones be downhole commingled. The combined total production from both zones is currently less than 80 BOPD.

The proposed downhole commingling will allow for efficient production of the Middle Penn zone, as well as allow for the continued production from the Wolfcamp zone. Sucker rod lift will be installed which will allow both the Middle Penn and Wolfcamp zones to be produced to minimum abandonment pressure, thereby preventing waste and ensuring no possibility of crossflow.

Pursuant to Rule 303-C, please find enclosed the required data supporting our request. Should you have any questions or need any additional information, please contact me a (713) 544-3226. Your attention to this matter is appreciated.

Sincerely,

Yvonne Iverson
Western Asset - Asset Administration
Continental Division

Enclosures

A10CMG.DOC

cc: State of New Mexico
Oil Conservation Division
District 1 - Hobbs Office
1000 W. Broadway
Hobbs, NM 88240

Offset Operators - See Attached List

**REQUEST FOR EXCEPTION TO RULE 303-A
DOWNHOLE COMMINGLING**

**STATE "A" #10
VACUUM FIELD**

- 1) Shell Western E&P Inc.
P. O. Box 576
Houston, TX 77001
- 2) State "A" #10
Unit A, 940' FNL, 940' FEL
Section 31, T17S, R35E
Lea County, New Mexico
Commingle Zones: Wolfcamp
 Middle Penn
- 3) A plat of the area is attached showing the lease and offset operations. Also attached is a C-102 form for each zone.
- 4) Form C-116 for each of the formations is attached.
- 5) Since the State "A" 10 has been on production for only a few months, we are attaching a complete resume of the well's completion history including description of treating, testing, etc., of each zone. Also attached are production plots for each zone for the entire time the well has been producing. As shown on the plots, current combined production for both zones is less than 80 BOPD.

SWEPI anticipates the proposed downhole commingling will not affect the base decline of the Wolfcamp zone, since the Wolfcamp is already on rod-pump. Any increases in production will be attributed to the Middle Penn zone.

- 6) Estimated bottom hole pressures: Wolfcamp Shut-in BHP = 1150 psi
 Middle Penn Flowing BHP = 2500 psi
- 7) SWEPI is currently surface commingling the Wolfcamp and Middle Penn production streams and have not encountered any incompatibility problems.
- 8) Since both production streams are already being commingled at the surface, there will be no change in value of the individual production streams.
- 9) Formula for allocation of production.
 As previously stated, it is anticipated the proposed downhole commingling should not affect the base decline of the Wolfcamp production. Therefore, the base decline of the Wolfcamp can be equated to the following hyperbolic equation:

$$Q = Q_i * (1 + n * d_i * t)^{-1/n}$$

where: $Q_i = 80$ bopd (the initial rate)
 $n = 1.8$ (hyperbolic decline equation variable)
 $d_i = 1.1$ (hyperbolic decline equation variable)
 t = time in months since 6/95 (i.e. for 7/95, $t=1$)
 Q = bopd

^ = raised to the power (i.e. $4^2=16$)

Therefore oil production will be allocated as follows:

$$\text{Wolfcamp prod. (bopd)} = 80 * (1 + 1.8 * 1.1^t)^{(1/1.8)}$$

and

$$\text{Middle Penn prod. (bopd)} = \text{Total combined production (bopd)} - 80 * (1 + 1.8 * 1.1^t)^{(1/1.8)}$$

Gas production will be allocated on a percentage basis as determined by the allocated oil production.

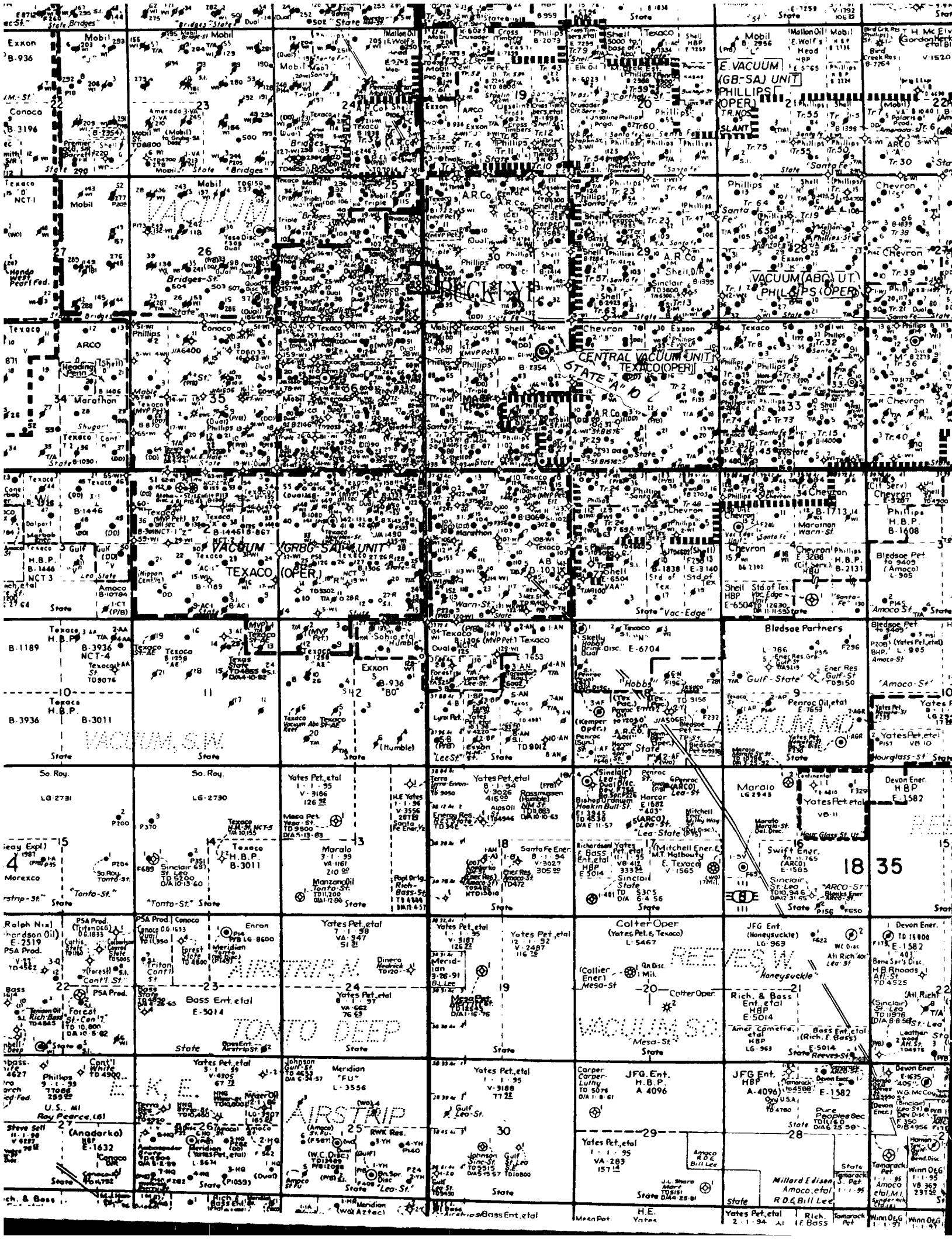
For example:

$$\text{Wolfcamp gas prod.} = (\text{Total combined daily gas prod.}) * (\text{Wolfcamp daily oil prod.}) / (\text{Total combined daily oil prod.})$$

$$\text{Middle Penn gas prod.} = (\text{Total combined daily gas prod.}) * (\text{Middle Penn daily oil prod.}) / (\text{Total combined daily oil prod.})$$

Ownership of the two pools to be commingled are in common and correlative rights will not be violated.

- 10) By copy of this letter we are notifying all offset operators of the proposed commingling.



DISTRICT I
P.O. Box 1880, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Instruction on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-32844	Pool Code 62340	Pool Name VACUUM WOLFCAMP
Property Code 10120	Property Name STATE "A"	Well Number 10
OGSD No. 020676	Operator Name SHELL WESTERN E & P INC.	Elevation 3973

Surface Location

UL or lot No. A	Section 31	Township 17 S	Range 35 E	Lot Idn	Feet from the 940	North/South line NORTH	Feet from the 940	East/West line EAST	County LEA
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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
Dedicated Acres 80	Joint or Infill Y	Consolidation Code	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

LOT 1 37.50 ACRES									
LOT 2 37.51 ACRES									
LOT 3 37.42 ACRES									
LOT 4 37.42 ACRES									

OPERATOR CERTIFICATION

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

G. S. Nady
Signature
G. S. NADY
Printed Name
MGR - ASSET ADMIN.
Title
3-06-95
Date

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.

JANUARY 19, 1995
Date Surveyed
Signature
Professional Surveyor
No. 1-29-95
WFO 94-10-2258
Occurrence
6/6
3234

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Bruzon Rd., Aztec, NM 87410

Form C-102
Revised February 10, 1994
Instruction on back
Submit to Appropriate District Office
State Lease - 4 Copies
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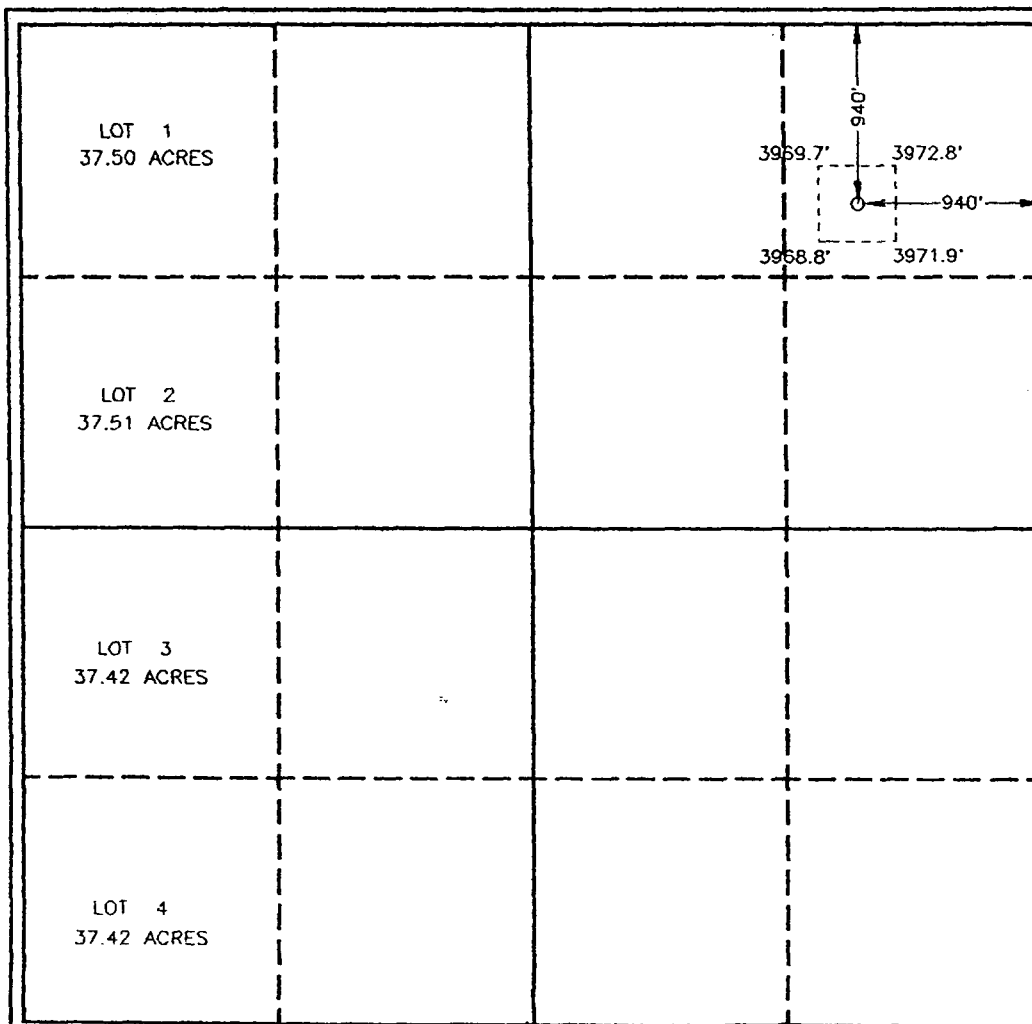
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☒ AMENDED REPORT

API Number 30-025-32844	Pool Code 62300	Pool Name VACUUM; MIDDLE PENN
Property Code 10120	Property Name STATE "A"	Well Number 10
OGRID No. 020676	Operator Name SHELL WESTERN E & P INC.	Elevation 3973

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	31	17 S	35 E		940	NORTH	940	EAST	LEA

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code		Order No.					
40	Y								



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

Signature _____

G. S. NADY

Printed Name _____

MGR-ASSET ADMIN.

Title

Date

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.

JANUARY 19, 1995

Date Surveyed _____
Signature _____ Seal of _____
Professional Surveyor _____

No

195: 1. H. 7. 2.

W.O. Mum. 94-11-2258

Certified to: RONALD J. EDSON, JR. WEST, 676
RONALD J. EDSON, JR. 3239

Submit 2 copies to Appropriate

District Office.

DISTRICT I

P.O. Box 1980, Hobbs, NM 88240

DISTRICT II

P.O. Drawer DD, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Astor, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources DepartmentForm C-116
Revised 1/1/89

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

GAS - OIL RATIO TEST

Operator		Pool		County		LEA CNTY. - NEW MEXICO							
SHELL WESTERN E & P INC.		VACUUM WOLF CAMP											
Address		TYPE OF TEST - (X)		Completion		Special							
P.O. BOX 4655 HOUSTON, TX 77210-4655													
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU FT/BBL.
		U	S	T						R	WATER BBL.S.	GRAV. OIL	
STATE "A"	10L	A	31	17S35E	07/28/95	P	100	M	24	1.0	41.0	35.0	854

Instructions:

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 MCP 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.

(See Rule 301, Rule 1116 & appropriate pool rules.)

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

Kathleen Johnson for
Signature

D.J. VIAL - PROCESS TEAM LEADER
Printed name and title

08/28/95
Date

(713) 241-9119
Telephone No.

Submit 2 copies to Appropriate
District Office.

DISTRICT I

P.O. Box 1980, Hobbs, NM 88240

DISTRICT II

P.O. Drawer DD, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

Form C-116
Revised 1/1/89

GAS - OIL RATIO TEST

Operator		Pool		County									
SHELL WESTERN E & P INC.		VACUUM MIDDLE PENN		LEA CNTY - NEW MEXICO									
Address		TYPE OF TEST - (A)		Completion		Special							
P.O. BOX 4655 HOUSTON, TX 77210-4655		SCHEDULED		COMPLETION		SPECIAL							
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKER SIZE	TBO. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT/BBL.
		U	S	T						R	WATER BBL'S.	GRAV. OIL	
STATE "A"	10	A	31	17S35E	07-26-95	P	280	M	24	4.0	76.0	75.0	987

Instructions:

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 MCP 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.

(See Rule 301, Rule 1116 & appropriate pool rules.)

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

K.K. Fuhrmann
Signature

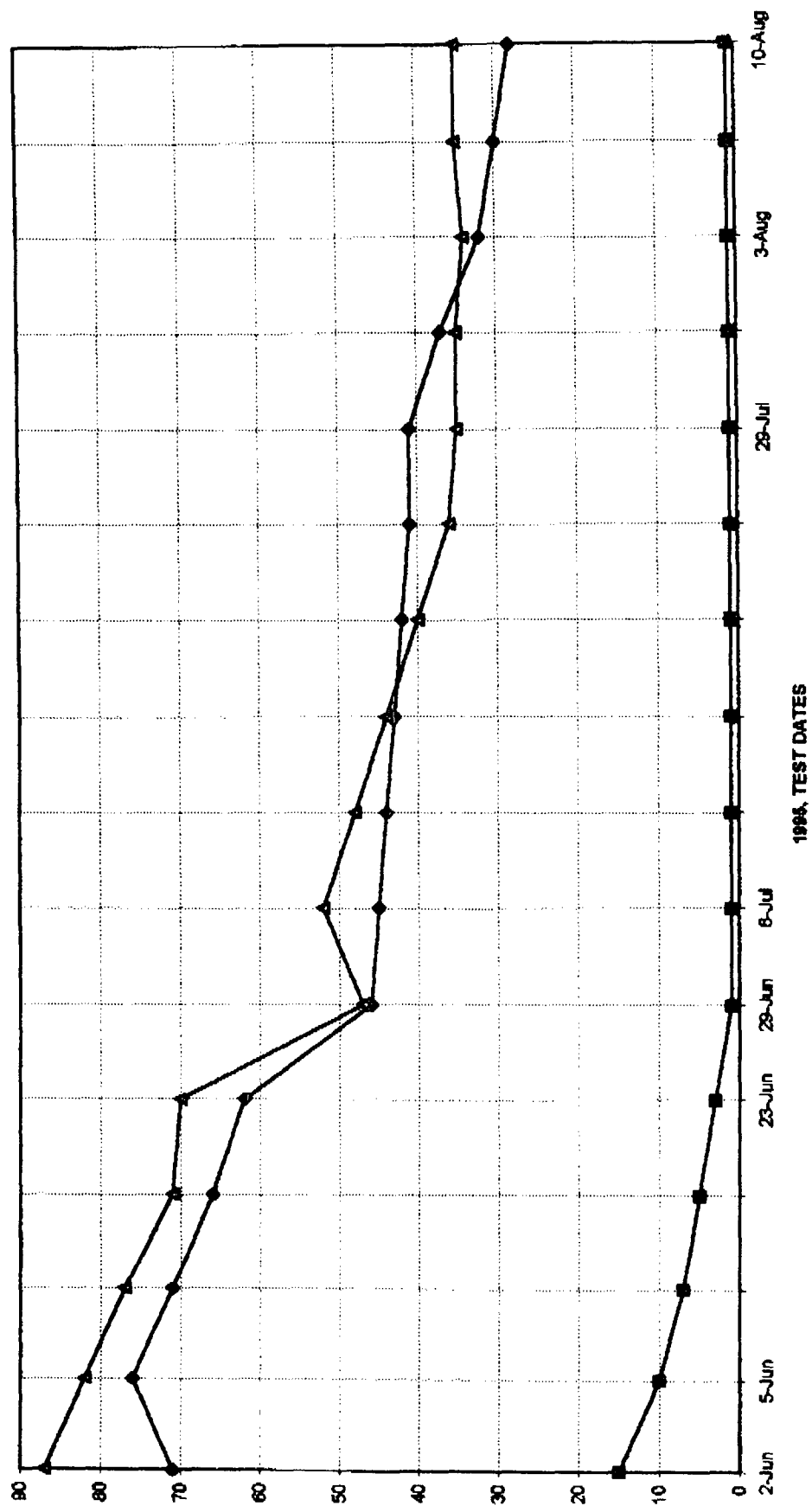
D.J. VIAI - PROCESS TEAM LEADER
Printed name and title

08/28/95 (713) 241-9119

Date

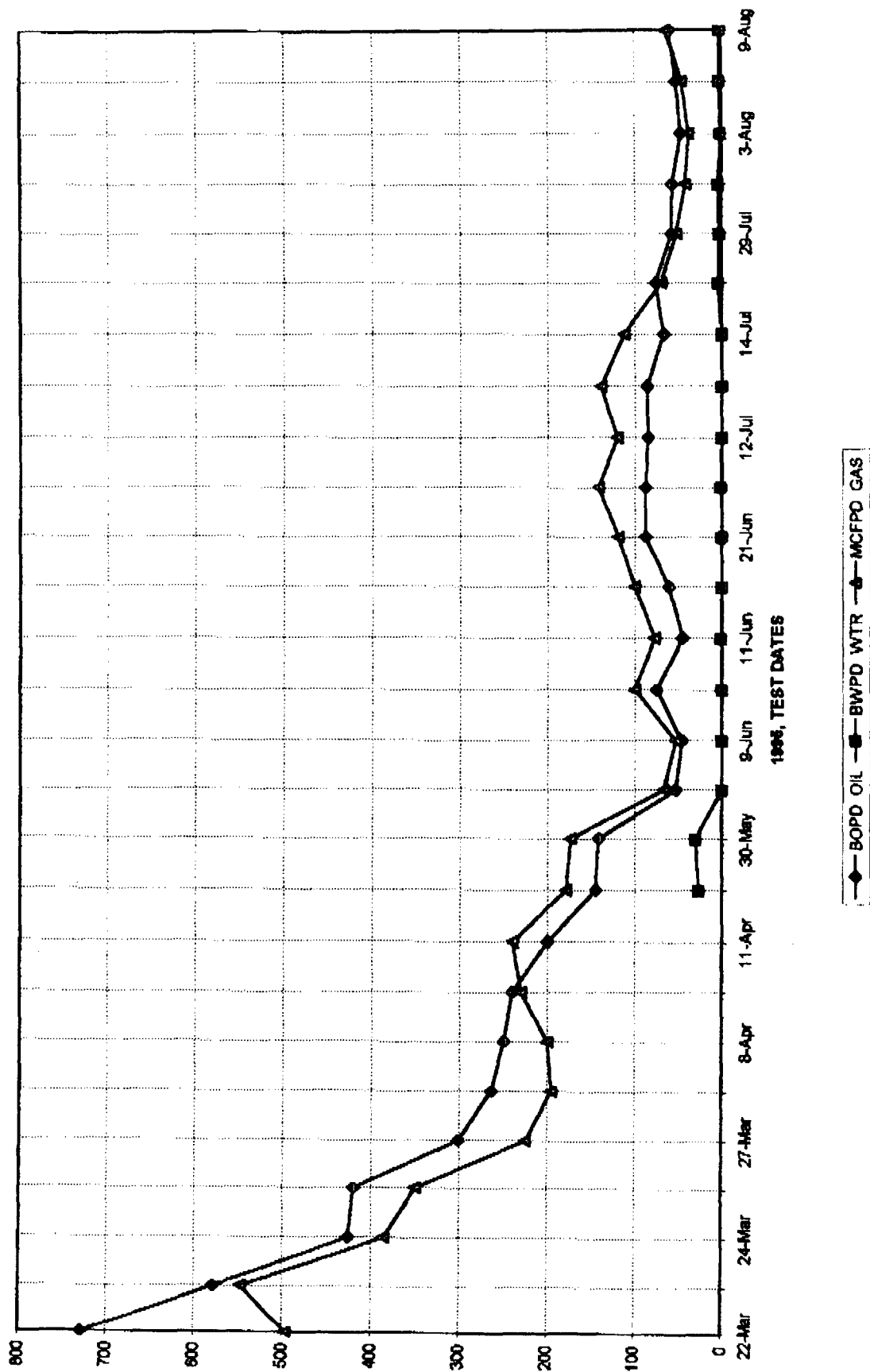
Telephone No.

A10, WOLFCAMP



—◆— BOPD OIL —■— BWPD WTR —▲— MCFPD GAS

A10, PENN



WELL SCHEMATIC
VACUUM (PENN/WOLFCAMP) FIELD
STATE "A" #10

Page 1

LOCATION: 940 FNL & 940 FEL COUNTY: LEA
SECTION: 31 TOWNSHIP 17S RANGE: 35E

<u>DATUM:</u>	3989 KB	<u>GL ELEV.:</u>	3973	<u>TD:</u>	10,700'	<u>PBTD:</u>	10678
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CASING RECORD	<u>SIZE</u>	<u>WEIGHT</u>	<u>DEPTH</u>	<u>CMT (SXS)</u>	<u>TOC</u>
	13-3/8	54.5	1478	1350	Circ.
	9-5/8	36	3706	1250	Circ.
	7	23.26	10700	1430	Circ @ 6635
		DV Tool	6635	980	4230 (CBL)

LOGGING RECORD	<u>DATE</u>	<u>COMPANY</u>	<u>TYPE</u>	<u>INTERVAL</u>
	3/8/95	SCHLMB.	Comp. Neut./GR	3710-10708
	"	"	Natrual GR	3710-10670
	"	"	BHC Sonic/GR	3710-10673
	"	"	Dual Lat/GR	3710-10708
	3/18/95	"	CBL/CET	4000-10680

LOG TOPS:	<u>ZONE</u>	<u>TOP</u>	<u>SUBSEA</u>	<u>GOC</u>	<u>OWC</u>
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PERFORATIONS:	<u>DATE:</u>	<u>ZONE:</u>	<u>DEPTHS</u>	<u>DENS & NO.</u>
	3/20/95	Mid Penn	10600-15	2 JSPF
	3/21/95	"	10524-50	"
	4/12/95	Wolfcamp	9947-10020, 37-46, 63-77, 84-94, 112-126	1 JSPF
	4/20/95	"	9711-54, 70-80, 9810-42	2 JSPF
	4/25/95	"	9444-77, 9527-42, 75-88, 9600-06, 44-56	2 JSPF

* Currently Not Open

WELL SCHEMATIC - State "A" #10

Page 2

SQUEEZE & REPAIRSDATE
5/3/95DEPTH
9444-9656WORK DONE
Sz'd perms w/ 125 sxs cmt**STIMULATION:**

<u>DATE</u>	<u>ZONE</u>	<u>AMOUNT & TYPE</u>	<u>BEFORE</u>	<u>AFTER</u>
3/20/95	10600-15	Spotted 8 bbls of 20% before perfed	New	Swabbed
3/21/95	10524-50	Spotted 8 bbls of 20% before perfed	New	Flowing 35 bph
4/5/95	"	AF, 20,000g 20% + BS	Flowing 3 bph	Flowing 20 bph
4/13/95	9947-10126	AT 5000g, 20%	New	Swab 50% oil
4/22/95	9711-9842	AT 5000g, 20% + BS	New	Swab 80% oil
4/26/95	9444-9656	AT 5000g, 20% + BS	New	Swab all wtr

COMMENTS:

WELL SCHEMATIC - SWEPI, State "A" 10
(Current Completion)

SPUD: 2/95

GL: 3973'
DATUM: 3989 (KB)

13-3/8"
54.5#
1478'
1350 sxs
TOC: Circ

9-5/8"
38#
3706'
1250 sxs

TOC: 4230 (CBL)

DV Tool @ 6635

7"
23# to 5331'
28# ,5331 to TD
10700'
2880 sxs

Long String:
2-1/16", J55 tbg.

Short String:
2-3/8", J55 tbg.

Sqz'd perfs @ 9444-9656

Wolfcamp Perfs @9711-10126'

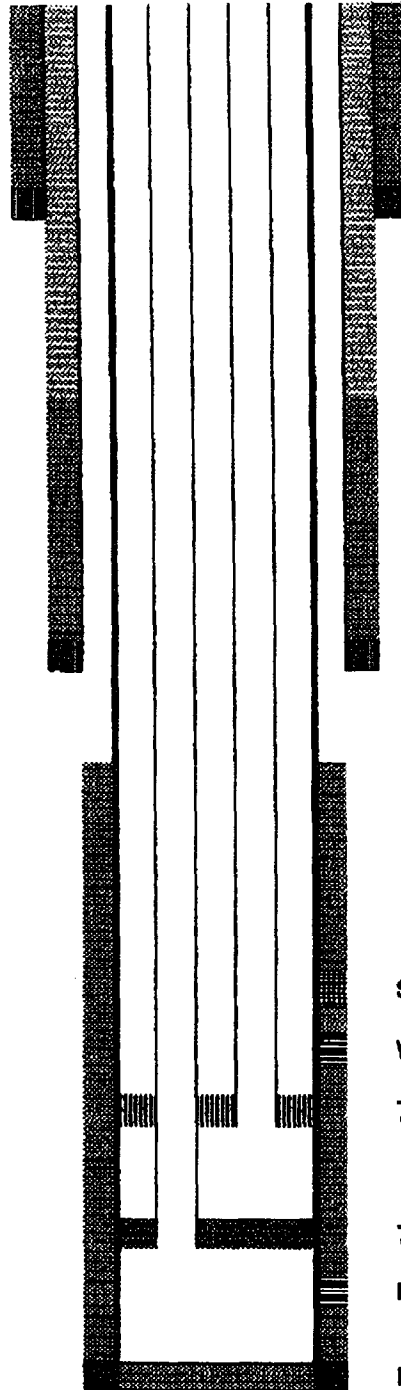
7" dual string tubing anchor @ 10140'

7" Guiberson Uni VI packer @ 10440'

Middle Penn Perfs @ 10524-10600

PBTD: 10,678

TD: 10700'



WELL SCHEMATIC - SWEPI, State "A" 10
(Proposed completion)

SPUD: 2/95

GL: 3973'
DATUM: 3989 (KB)

13-3/8"
54.5#
1478'
1350 sxs
TOC: Circ

Tubing String:
2-7/8", J55

9-5/8"
38#
3706'
1250 sxs

TOC: 4230 (CBL)

DV Tool @ 6635

Sqz'd perms @ 9444-9656

Wolfcamp Perfs @ 9711-10126'

7"
23# to 5331'
26# ,5331 to TD
10700'
2880 sxs

7" dual string tubing anchor @ 10140'

Middle Penn Perfs @ 10524-10600

PBTD: 10,678

TD: 10700'

LIST OF OFFSET OPERATORS

**State "A" #10
Section 31, T17S-R35E
Lea County, New Mexico**

Arco Permian
P. O. Box 1610
Midland, TX 70702

Chevron U.S.A. Inc.
Box 1635
Houston, TX 77251

Marathon Oil Company
Box 552
Midland, TX 79702-0552

Mobil Exploration & Production U.S., Inc.
Box 633
Midland, TX 79702-0633

Phillips Petroleum Company
4001 Penbrook
Odessa, TX 79762

Texaco, Inc.
Box 3109
Midland, TX 79702-3109