

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

March 20, 1995

W THOMAS KELLAHIN*

*NEW MEXICO BOARD OF LEGAL SPECIALIZATION
RECOGNIZED SPECIALIST IN THE AREA OF
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

TELEPHONE (505) 982-4285
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HAND DELIVERED

Mr. David R. Catanach
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RECEIVED

MAR 20 1995

Oil Conservation Division

Re: NMOCD Case 11212
*Application of Conoco Inc. for downhole
commingling and an exception to the GOR limit
established in Order R-8909 for certain wells
in the Warren Unit, Lea County, New Mexico*

Dear Mr. Catanach:

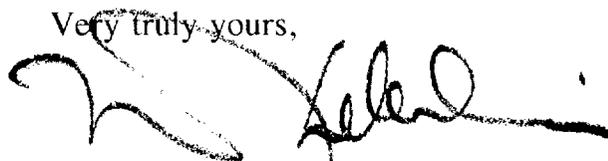
On behalf of Conoco Inc, I presented the referenced case to you on your March 2, 1995 docket. You granted my request to submit corrected allocation formulas for the Warren Unit Well No. 113 (Exhibit 22) and Well No. 115 (Exhibit 22). The corrected were required because of new production information from the Drinkard formation in those two wells.

In addition, you inquired about possible waterflood response in the Blinebry-Tubb zones of Warren Unit Wells 9,26,97 and 99 and that potential affect on projected allocation formulas for those proposed downhole commingled wells.

In response to both issues, Mr. Damian Barrett, Conoco's petroleum engineer who testified before you, has prepared the enclosed Replacement and Supplemental Exhibits & Testimony.

Please call me if you have any questions.

Very truly yours,



W. Thomas Kellahin

cc: Conoco Inc.
Attn: Jerry Hoover

REPLACEMENT & SUPPLEMENTAL

EXHIBITS and TESTIMONY

FOR

EXAMINER HEARING

CASE 11212

**Application for Downhole Commingling
for Certain Wells in the Warren Unit
Lea County, New Mexico**

Submitted by: Conoco Inc.

Hearing Date: March 2, 1995

SUPPLEMENTAL TESTIMONY

BY DAMIAN BARRETT

The attached EXHIBITS 5, 7, 10, 22, 25, and 27 (4 graphs) are submitted as replacements for the same numbered and labeled EXHIBITS presented to the Examiner at the hearing on March 2, 1995.

As I explained to the Examiner in testimony at the hearing, updated production rates for Drinkard production in Warren Unit Well Nos. 113 and 115 only became available the day before the hearing after witnesses had arrived in Santa Fe. Therefore, the updated Drinkard producing rates for these two wells on EXHIBITS 5, 10, and the appropriate C-116's in EXHIBIT 25 were changed by hand prior to the hearing. Since well Nos. 113 and 115 are recent completions (newly drilled wells) stabilized production rates were not yet available when the EXHIBITS were originally prepared. It was important to incorporate this newer data into the case.

For your convenience, two of these hand-changed EXHIBITS, NOS. 5 and 10 have been reprinted and are submitted here as replacements for the same numbered EXHIBITS. Certain other EXHIBITS that needed to be updated based on the newer Drinkard production rates on these two wells required calculations that could not be done in Santa Fe prior to the hearing. Therefore, these corrections have been completed and are submitted as follows:

EXHIBIT NO. 7

Since the Drinkard reserves for these two wells would naturally be changed with revised producing rates and declines, EXHIBIT NO. 7 has been updated and an updated copy is herein submitted.

EXHIBIT NOS. 22 & 24

Particularly important was the recalculation of the proposed annual allocation formulas for Well Nos. 113 and 115 utilizing the updated producing rates. These formulas have been updated and are herein submitted as replacements for EXHIBIT NOS. 22 and 24.

EXHIBIT NO. 27 (4 Graphs Only)

Drinkard oil and gas production graphs for Well Nos. 113 and 115 have been updated and replotted. These four graphs are herein submitted as replacements for the same graphs submitted at the hearing.

In response to the Examiner's questions concerning possible waterflood response in the Blinebry-Tubb zones of Warren Unit Well Nos. 9, 26, 97, and 99, and their potential affect on projected allocation formulas for these wells, the following additional EXHIBIT No. 30 and the following discussion is herein submitted for the Examiners aid in considering this case.

EXHIBIT NO. 30 (New Supplemental Exhibit)

This map of the Warren Unit was previously submitted in Case No. 10897 in which Order No. R-10068-A approved the 2nd Expansion of the Warren Blinebry-Tubb Waterflood Project. This map shows the three stages (Pilot, 1st Expansion, and 2nd Expansion) in the development of this waterflood project. It also identifies the (a) current injection wells and flood patterns in blue triangles and lines and (b) future, proposed injection wells and flood patterns in dark pink.

Notice on EXHIBIT NO. 30 that Well Nos. 97 and 99 are in closest proximity to the early Pilot Stage of this waterflood project that was begun in 1983. These two wells were not drilled until 1991. Without available pressure sinks from producing wells at these locations, absolutely no waterflood sweep would have moved toward these locations between 1983 and 1991.

Since drilling them in 1991 both of these new wells have been on a normal primary recovery decline and have shown no waterflood response. This is demonstrated by the Blinebry-Tubb oil and gas producing curves for these two wells which were included in the hearing EXHIBIT No. 26. The production history on these wells confirms that only producers within three-quarter or complete flood patterns can be expected to experience any flood response. As peripheral edge wells to the Pilot Stage these two wells had absolutely no flood containment to produce a sweep in their direction, and would not have been expected to receive any significant flood response.

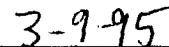
Looking at Well Nos. 9 and 26, in Section 27, we see exactly the same geographic relationship of these two wells to the 1st Expansion to the Waterflood Project as Nos. 97 and 99 have to the Pilot Stage. They too are peripheral edge wells to the 1st Expansion flood patterns. Although none of the wells in the 1st Expansion have shown flood response as yet, earlier study and evaluation of the Pilot Stage has confirmed that unconfined patterns cannot be expected to produce flood response. Therefore, the vertical row of wells in the W/2 W/2 of Section 27 should not experience any flood response until they are enclosed in complete flood patterns by the conversion of the 2nd Expansion Area to waterflooding.

Since, this conversion will not be done until the Drinkard is plugged off and the commingling phase is completed, the allocation formulas for all four of these wells, which are based on current decline curve analysis, should not be affected by the waterflooding activities in the Pilot and 1st Expansion stages of the project.

Thank you for the opportunity to update EXHIBITS 5, 7, 10, 22, 24, and 27 and to submit EXHIBIT 30 and this additional testimony in response to your questions during the hearing. If I can be of any further assistance please contact me at (915) 686-5497.



Damian Barrett



Date

WARREN UNIT

CURRENT PRODUCTIVITY TESTS

WELL	DRINKARD					SHUT-IN DATE	BLINEBRY TUBB				
	OIL	GAS	GOR	WATER			OIL	GAS	GOR	WATER	
9	10	60	6,000	0		3/88	18	301	16,720	1	
10	11	78	7,090	0		10/57	2	276	138,000	1	
26	3	86	28,660	0		5/89	29	465	16,030	7	
94	8	380	47,500	21			16	380	23,750	20	
97	6	73	12,160	102		5/94	21	550	26,190	0	
98	6	28	4,660	70		8/92	25	148	5,920	2	
99	3	175	58,330	21		7/91	1	200	200,000	0	
113	6	175	29,170	10			51	502	9,840	3	
114	6	240	40,000	4			46	890	19,340	36	
115	12	123	10,250	10			80	780	9,750	46	
116	NEW DRILL										
117	NEW DRILL										
118	PROPOSED WELL										
119	PROPOSED WELL										

BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 5
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

WARREN UNIT

Blinebry-Tubb DHC with Drinkard

Additional Reserves Beyond Economic Limit Through DHC

	* Drinkard		Blinebry-Tubb	
	Ult. Primary Res.			
	To 2007 start of Flood		Ult. Primary Res.	
WELL	OIL MBO	GAS MMCF	OIL MBO	GAS MMCF
9	24	137	29	423
10	16	118	1	507
26	7	207	38	578
94	16	1060	10	929
97	14	61	30	1458
98	6	35	15	150
99	5	280	1	395
113	11	287	74	918
114	13	448	67	1488
115	20	200	101	1323
TOTAL	132	2833	366	8169

* ESTIMATED B-T FLOOD START

BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 7
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

WARREN UNIT

DOWNHOLE COMMINGLED PRODUCTION

WELL	OIL	GAS	WATER	GOR
9	28	361	1	12,890
10	13	354	1	27,230
26	32	551	7	17,220
94	24	760	41	31,660
97	27	623	102	23,070
98	31	176	72	5,680
99	4	375	21	93,750
113	57	677	13	11,870
114	52	1130	40	21,730
115	92	903	56	9,820

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. **10**
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

W.U. #113 – Annual Allocation Formulas

Warren Unit Blinebry–Tubb DHC Drinkard Allocation Formula

Warren Unit #113

YR	Blinebry–Tubb BOPD	Drinkard BOPD	Total % Blinebry–Tubb	% Drinkard
1995	48	6	54	0.89
1996	37	5	42	0.88
1997	28	4	32	0.87
1998	22	4	25	0.86
1999	17	3	20	0.85
2000	13	3	15	0.84
2001	10	2	12	0.82
2002	7	2	9	0.80
2003	6	2	7	0.79
2004	4	1	6	0.77
2005	3	1	4	0.75
2006	3		3	1.00
2007	2		2	1.00
			2	1.00

YR	Blinebry–Tubb MCFPD	Drinkard MCFPD	Total % Blinebry–Tubb	% Drinkard
1995	502	156	658	0.76
1996	403	128	532	0.76
1997	324	105	429	0.76
1998	261	85	346	0.75
1999	210	69	279	0.75
2000	169	56	225	0.75
2001	136	46	182	0.75
2002	109	37	146	0.74
2003	88	30	118	0.74
2004	71	25	95	0.74
2005	57	20	77	0.74
2006	46	16	62	0.74
2007	37	13	50	0.73

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. **22**
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

W.U. #115 – Annual Allocation Formulas

Warren Unit Blinebry–Tubb DHC Drinkard Allocation Formula

Warren Unit #115

YR	Blinebry–Tubb BOPD	Drinkard BOPD	TOTAL	Formula % Blinebry–Tubb	
1995	66	11	77	0.86	0.14
1996	50	9	60	0.85	0.15
1997	39	8	46	0.84	0.16
1998	30	7	36	0.82	0.18
1999	23	6	28	0.80	0.20
2000	17	5	22	0.79	0.21
2001	13	4	17	0.77	0.23
2002	10	3	14	0.76	0.24
2003	8	3	11	0.74	0.26
2004	6	2	8	0.72	0.28
2005	5	2	7	0.69	0.31
2006	4	6	4	1.00	0.00
2007	3	5	3	1.00	0.00

	Blinebry–Tubb MCFPD	Drinkard MCFPD	TOTAL	% Blinebry–Tubb	% Drinkard
1995	719	112	831	0.87	0.13
1996	578	92	670	0.86	0.14
1997	465	75	540	0.86	0.14
1998	374	61	435	0.86	0.14
1999	301	50	350	0.86	0.14
2000	242	40	282	0.86	0.14
2001	194	33	227	0.86	0.14
2002	156	27	183	0.85	0.15
2003	126	22	147	0.85	0.15
2004	101	18	119	0.85	0.15
2005	81	14	96	0.85	0.15
2006	65	12	77	0.85	0.15
2007	53	10	63	0.84	0.16

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. 24
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

DRINKARD

OIL & GAS PRODUCTION CURVES

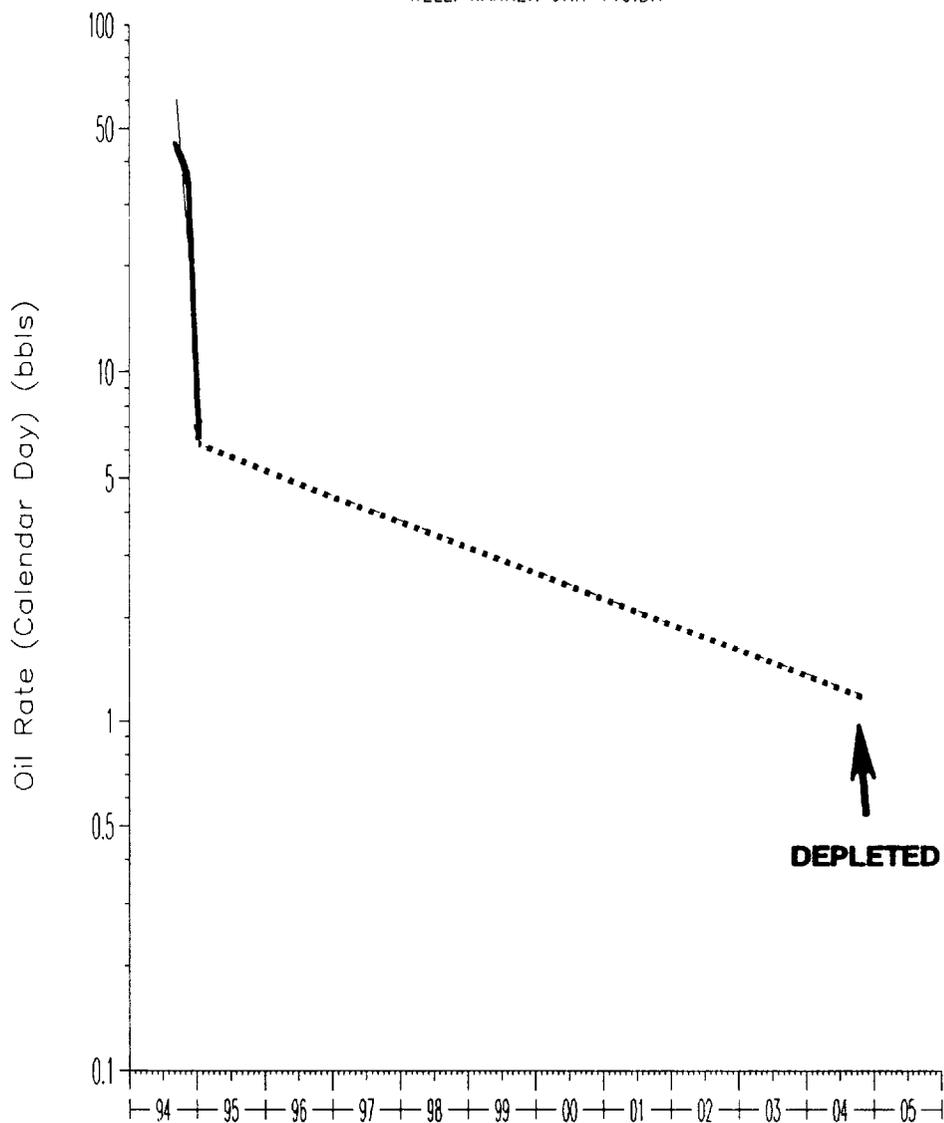
FOR WARREN UNIT WELL NOS.

9, 10, 26, 94, 97, 98, 99, 113, 114, 115

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

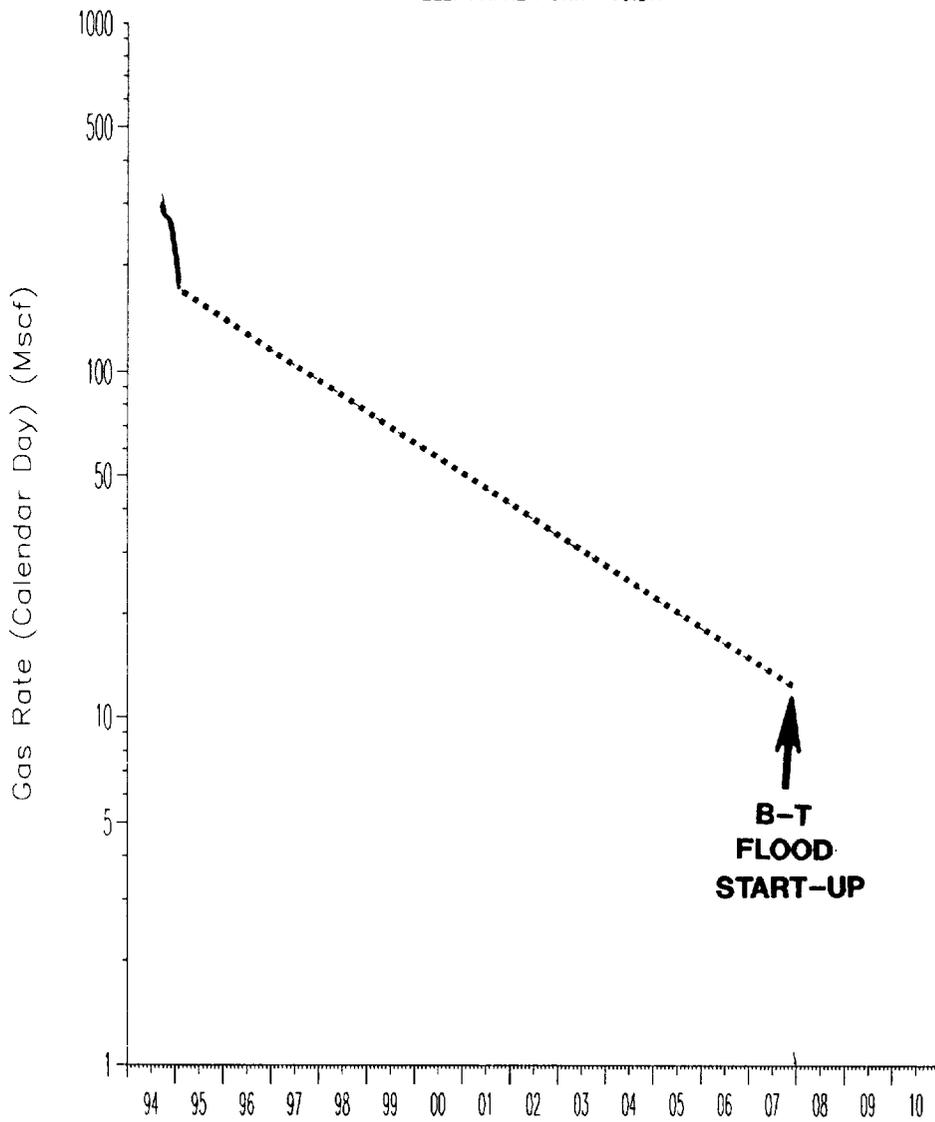
EXHIBIT NO. 27
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

WELL: WARREN UNIT 113:DR



Current Decline : 0.014000
Current Oil rate: 6.2 bbls/d
Economic Limit: 1.0 bbls/d
Cumulative Oil Produced: 4.3 Mbbls
Remaining Reserves: 10.9 Mbbls
Total Reserves: 15.3 Mbbls - At End of Forecast

WELL: WARREN UNIT 113:DR



Current Decline : 0.017000

Current Gas rate: 171.60 Mscf/d

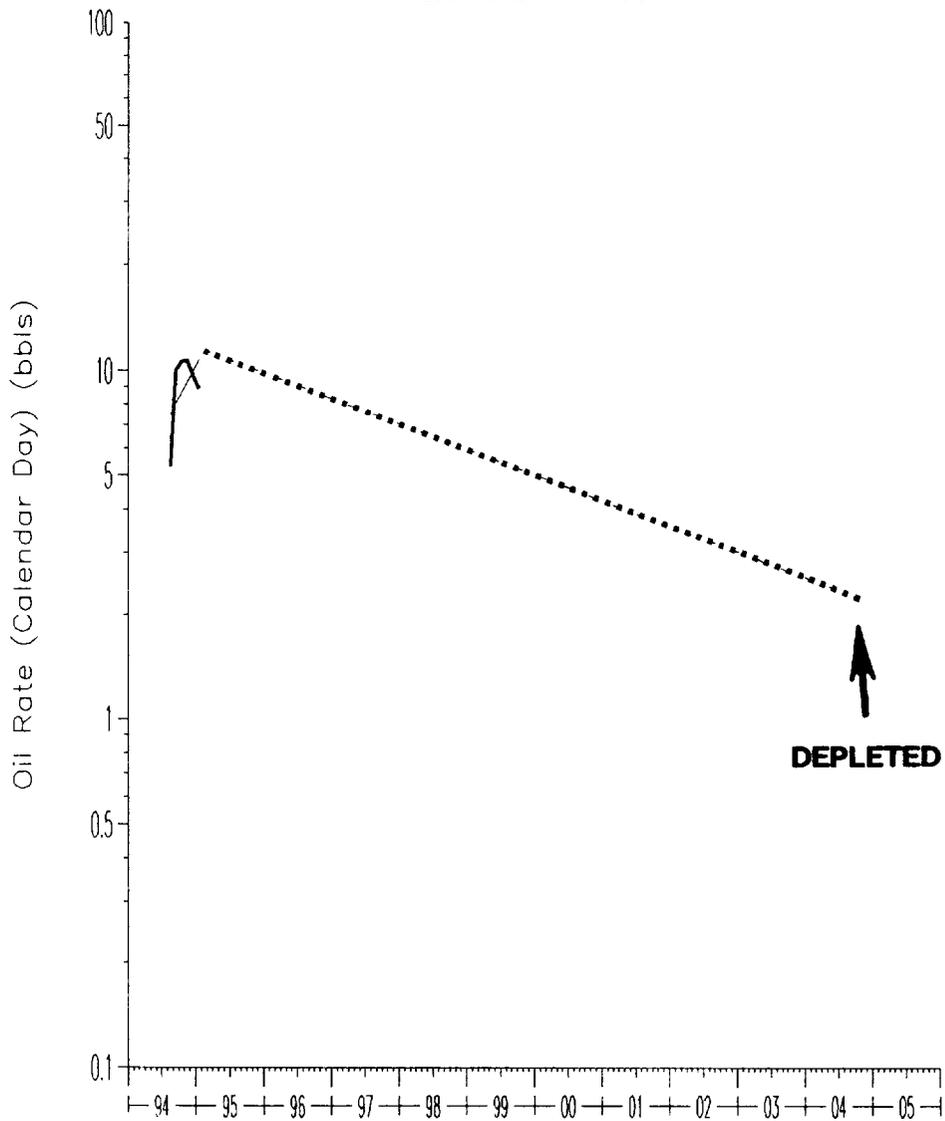
Economic Limit: 10.000 Mscf/d

Cumulative Gas Produced: 39.17 MMscf

Remaining Reserves: 286.7 MMscf

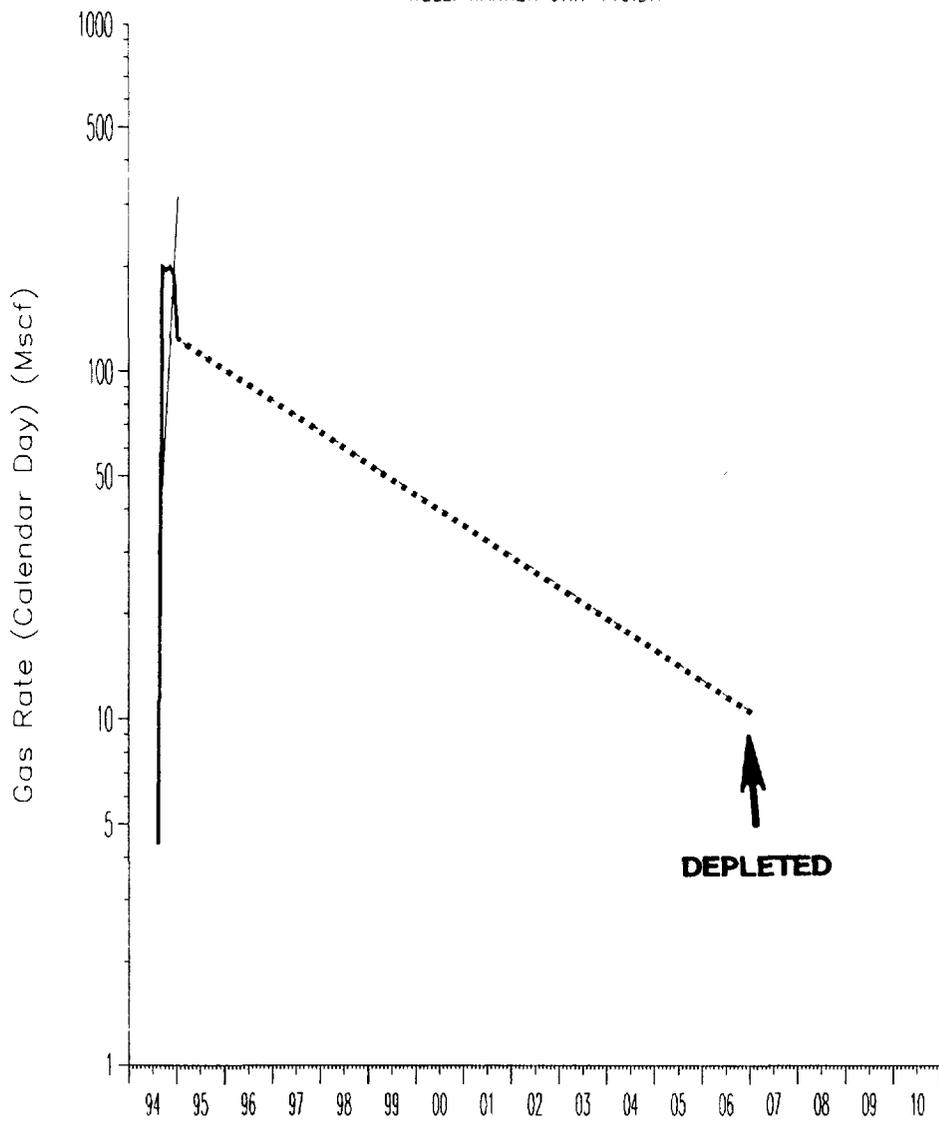
Total Reserves: 325.9 MMscf - At the Economic Limit

WELL: WARREN UNIT 115:DR



Current Decline : 0.014000
Current Oil rate: 11.5 bbls/d
Economic Limit: 1.0 bbls/d
Cumulative Oil Produced: 1.7 Mbbls
Remaining Reserves: 20.2 Mbbls
Total Reserves: 21.9 Mbbls - At End of Forecast

WELL: WARREN UNIT 115:DR



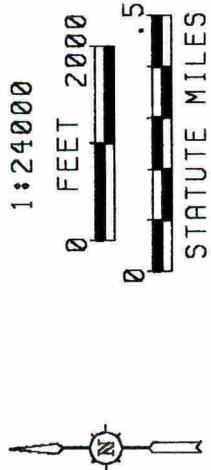
DEPLETED

Current Decline : 0.017000
Current Gas rate: 122.60 Mscf/d
Economic Limit: 10.000 Mscf/d
Cumulative Gas Produced: 27.93 MMscf
Remaining Reserves: 200.0 MMscf
Total Reserves: 227.9 MMscf - At the Economic Limit

LEGEND

-  Current Waterflood
-  1994 Drilling Program
-  1995 Well Conversions
-  1995 Drilling Program
-  1999 Well Conversions

-  Pilot Waterflood
-  1st Waterflood Expansion
-  2nd Waterflood Expansion



CONOCO - MIDLAND DIVISION

WARREN BLINEBRY-TUBB WATERFLOOD EXPANSION BY STAGES

LEA COUNTY, NEW MEXICO

1:24000 CONOCO MIDLAND DIVISION 18-MID-93
HOBBS OIL TEAM

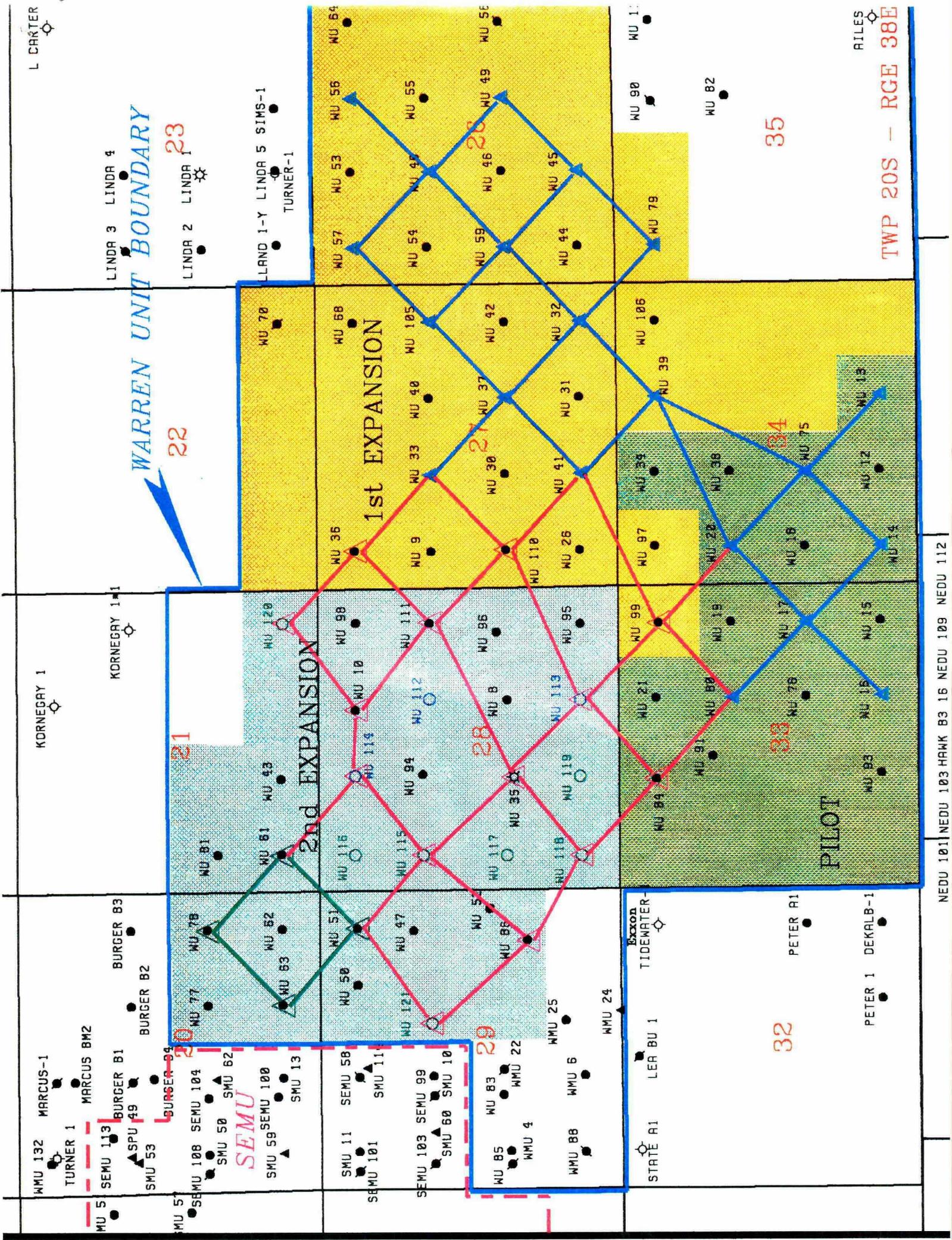
BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. **30**

CASE NO.: 11212

Submitted by: Conoco Inc.

Hearing Date: Mar 2, 1995



NEDU 101 NEDU 103 HAWK B3 16 NEDU 109 NEDU 112

TWP 20S - RGE 38E

RILES

REPLACEMENT & SUPPLEMENTAL
EXHIBITS and TESTIMONY

FOR

EXAMINER HEARING

CASE 11212

**Application for Downhole Commingling
for Certain Wells in the Warren Unit
Lea County, New Mexico**

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BY DAMIAN BARRETT

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Since, this conversion will not be done until the Drinkard is plugged off and the commingling phase is completed, the allocation formulas for all four of these wells, which are based on current decline curve analysis, should not be affected by the waterflooding activities in the Pilot and 1st Expansion stages of the project.

Thank you for the opportunity to update EXHIBITS 5, 7, 10, 22, 24, and 27 and to submit EXHIBIT 30 and this additional testimony in response to your questions during the hearing. If I can be of any further assistance please contact me at (915) 686-5497.

Damian Barrett

Damian Barrett

3-9-95

Date

WARREN UNIT

CURRENT PRODUCTIVITY TESTS

WELL	DRINKARD					SHUT-IN DATE	BLINEBRY TUBB				
	OIL	GAS	GOR	WATER			OIL	GAS	GOR	WATER	
9	10	60	6,000	0		3/88	18	301	16,720	1	
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26	3	86	28,660	0		5/89	29	465	16,030	7	
94	8	380	47,500	21			16	380	23,750	20	
97	6	73	12,160	102		5/94	21	550	26,190	0	
98	6	28	4,660	70		8/92	25	148	5,920	2	
99	3	175	58,330	21		7/91	1	200	200,000	0	
113	6	175	29,170	10			51	502	9,840	3	
114	6	240	40,000	4			46	890	19,340	36	
115	12	123	10,250	10			80	780	9,750	46	
116	NEW DRILL										
117	NEW DRILL										
118	PROPOSED WELL										
119	PROPOSED WELL										

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. 5

CASE NO.: 11212

Submitted by: Conoco Inc.

Hearing Date: Mar 2, 1995

WARREN UNIT

Blinebry-Tubb DHC with Drinkard

Additional Reserves Beyond Economic Limit Through DHC

* Drinkard

To 2007 start of Flood

Blinebry-Tubb
Ult. Primary Res.

WELL	OIL MBO	GAS MMCF	OIL MBO	GAS MMCF
9	24	137	29	423
10	16	118	1	507
26	7	207	38	578
94	16	1060	10	929
97	14	61	30	1458
98	6	35	15	150
99	5	280	1	395
113	11	287	74	918
114	13	448	67	1488
115	20	200	101	1323
TOTAL	132	2833	366	8169

* ESTIMATED B-T FLOOD START

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. 7
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

WARREN UNIT

DOWNHOLE COMMINGLED PRODUCTION

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99	4	375	21	93,750
113	57	677	13	11,870
114	52	1130	40	21,730
115	92	903	56	9,820

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. **10**
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

W.U. #113 – Annual Allocation Formulas

Warren Unit Blinebry–Tubb DHC Drinkard Allocation Formula

Warren Unit #113

YR	Blinebry–Tubb BOPD	Drinkard BOPD	Total	% Blinebry–Tubb	% Drinkard
1995	48	6	54	0.89	0.11
1996	37	5	42	0.88	0.12
1997	28	4	32	0.87	0.13
1998	22	4	25	0.86	0.14
1999	17	3	20	0.85	0.15
2000	13	3	15	0.84	0.16
2001	10	2	12	0.82	0.18
2002	7	2	9	0.80	0.20
2003	6	2	7	0.79	0.21
2004	4	1	6	0.77	0.23
2005	3	1	4	0.75	0.25
2006	3		3	1.00	0.00
2007	2		2	1.00	0.00

YR	Blinebry–Tubb MCFPD	Drinkard MCFPD	Total	% Blinebry–Tubb	% Drinkard
1995	502	156	658	0.76	0.24
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1998	261	85	346	0.75	0.25
1999	210	69	279	0.75	0.25
2000	169	56	225	0.75	0.25
2001	136	46	182	0.75	0.25
2002	109	37	146	0.74	0.26
2003	88	30	118	0.74	0.26
2004	71	25	95	0.74	0.26
2005	57	20	77	0.74	0.26
2006	46	16	62	0.74	0.26
2007	37	13	50	0.73	0.27

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. **22**
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

W.U. #115 – Annual Allocation Formulas

Warren Unit Blinebry–Tubb DHC Drinkard Allocation Formula

Warren Unit #115

YR	Blinebry–Tubb BOPD	Drinkard BOPD	TOTAL	Formula % Blinebry–Tubb	
1995	66	11	77	0.86	0.14
1996	50	9	60	0.85	0.15
1997	39	8	46	0.84	0.16
1998	30	7	36	0.82	0.18
1999	23	6	28	0.80	0.20
2000	17	5	22	0.79	0.21
2001	13	4	17	0.77	0.23
2002	10	3	14	0.76	0.24
2003	8	3	11	0.74	0.26
2004	6	2	8	0.72	0.28
2005	5	2	7	0.69	0.31
2006	4	6	4	1.00	0.00
2007	3	5	3	1.00	0.00

	Blinebry–Tubb MCFPD	Drinkard MCFPD	TOTAL	% Blinebry–Tubb	% Drinkard
1995	719	112	831	0.87	0.13
1996	578	92	670	0.86	0.14
1997	465	75	540	0.86	0.14
1998	374	61	435	0.86	0.14
1999	301	50	350	0.86	0.14
2000	242	40	282	0.86	0.14
2001	194	33	227	0.86	0.14
2002	156	27	183	0.85	0.15
2003	126	22	147	0.85	0.15
2004	101	18	119	0.85	0.15
2005	81	14	96	0.85	0.15
2006	65	12	77	0.85	0.15
2007	53	10	63	0.84	0.16

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

EXHIBIT NO. 24
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

DRINKARD

OIL & GAS PRODUCTION CURVES

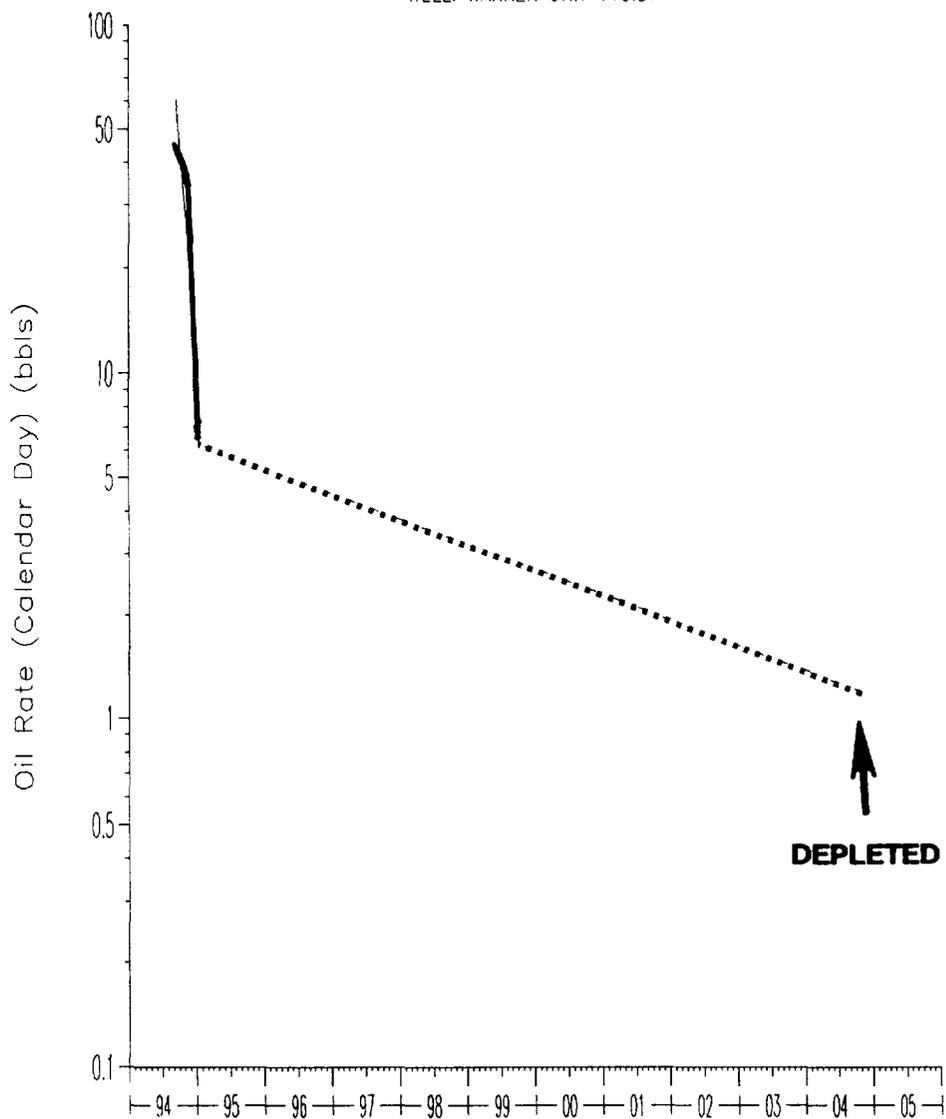
FOR WARREN UNIT WELL NOS.

9, 10, 26, 94, 97, 98, 99, 113, 114, 115

BEFORE AN EXAMINER OF THE
OIL CONSERVATION DIVISION

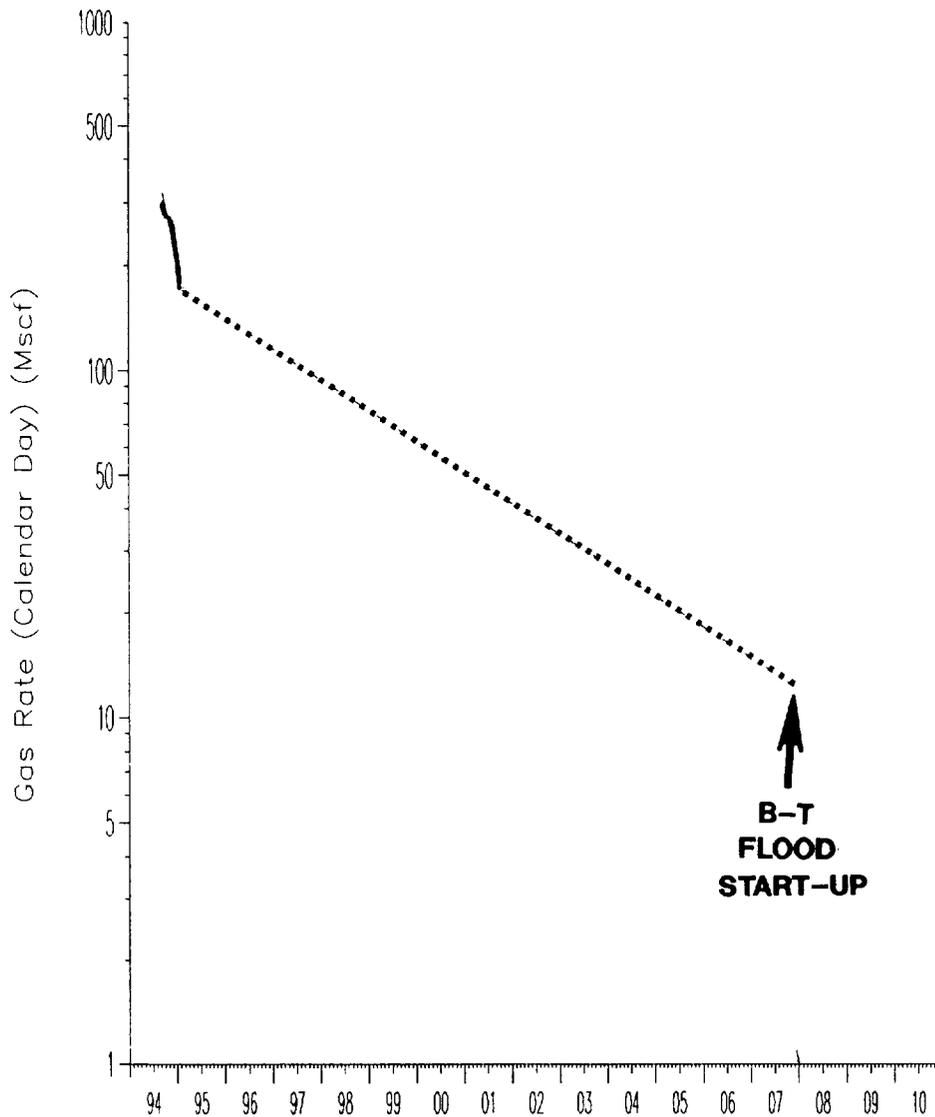
EXHIBIT NO. 27
CASE NO.: 11212
Submitted by: Conoco Inc.
Hearing Date: Mar 2, 1995

WELL: WARREN UNIT 113:DR



Current Decline : 0.014000
Current Oil rate: 6.2 bbls/d
Economic Limit: 1.0 bbls/d
Cumulative Oil Produced: 4.3 Mbbls
Remaining Reserves: 10.9 Mbbls
Total Reserves: 15.3 Mbbls - At End of Forecast

WELL: WARREN UNIT 113:DR



Current Decline : 0.017000

Current Gas rate: 171.60 Mscf/d

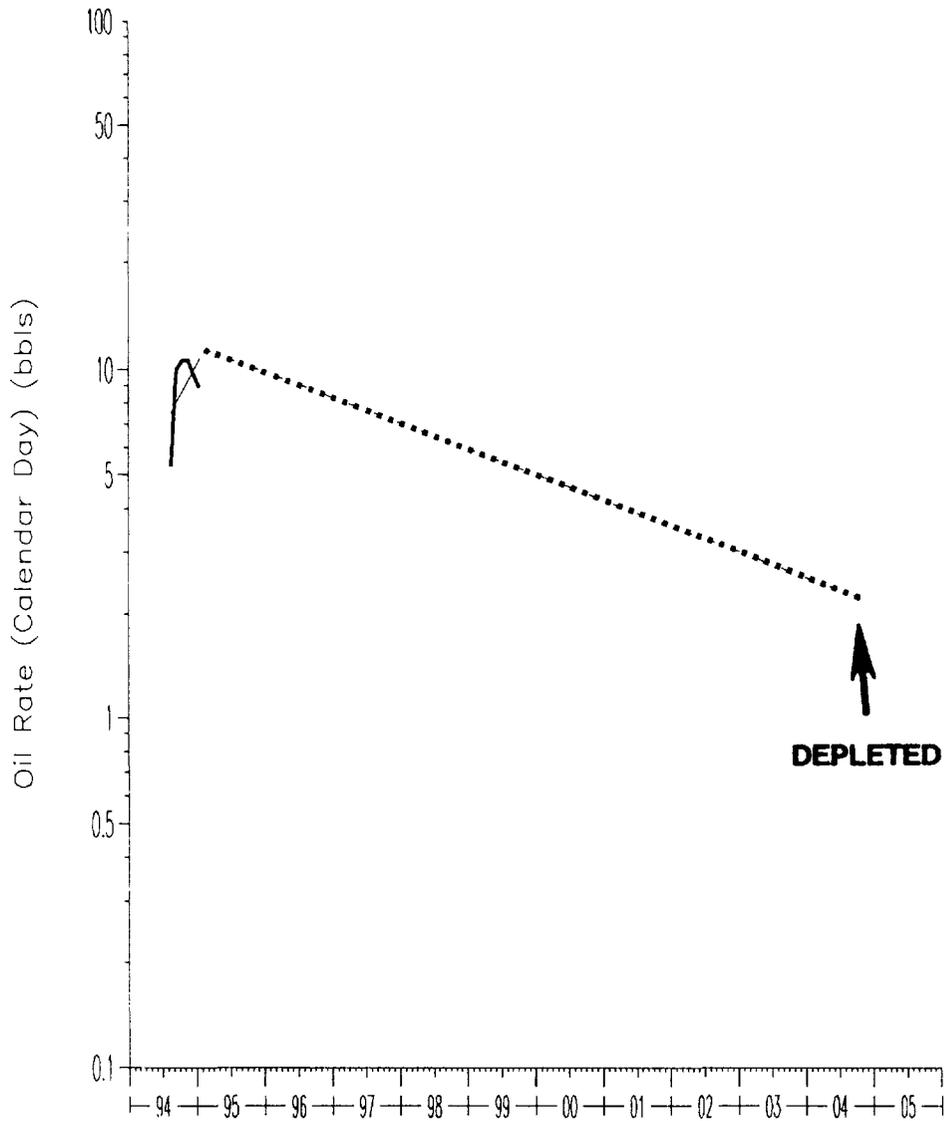
Economic Limit: 10.000 Mscf/d

Cumulative Gas Produced: 39.17 MMscf

Remaining Reserves: 286.7 MMscf

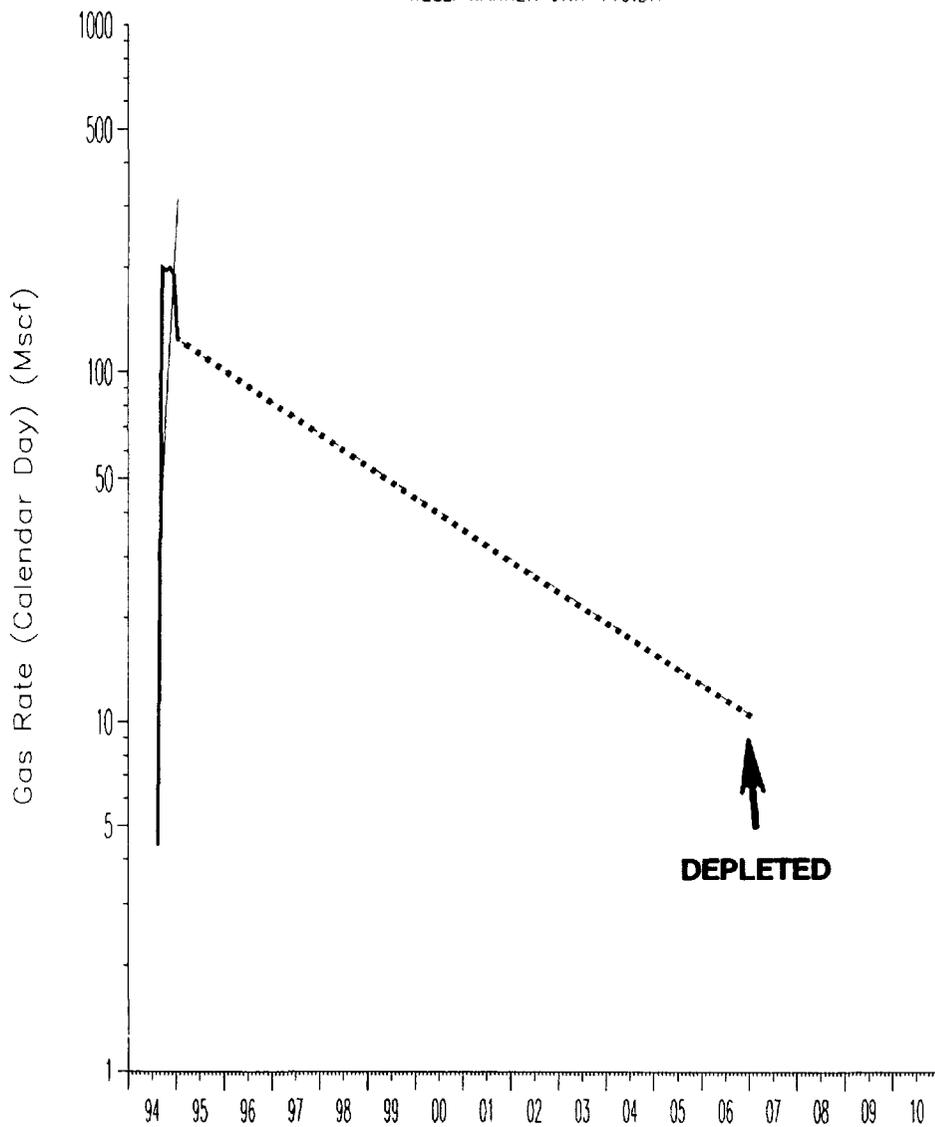
Total Reserves: 325.9 MMscf - At the Economic Limit

WELL: WARREN UNIT 115:DR



Current Decline : 0.014000
Current Oil rate: 11.5 bbls/d
Economic Limit: 1.0 bbls/d
Cumulative Oil Produced: 1.7 Mbbls
Remaining Reserves: 20.2 Mbbls
Total Reserves: 21.9 Mbbls - At End of Forecast

WELL: WARREN UNIT 115:DR



Current Decline : 0.017000

Current Gas rate: 122.60 Mscf/d

Economic Limit: 10.000 Mscf/d

Cumulative Gas Produced: 27.93 MMscf

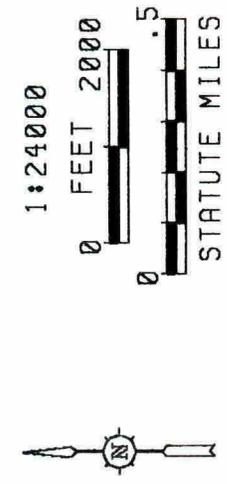
Remaining Reserves: 200.0 MMscf

Total Reserves: 227.9 MMscf - At the Economic Limit

LEGEND

-  Current Waterflood
-  1994 Drilling Program
-  1995 Well Conversions
-  1995 Drilling Program
-  1999 Well Conversions

-  Pilot Waterflood
-  1st Waterflood Expansion
-  2nd Waterflood Expansion

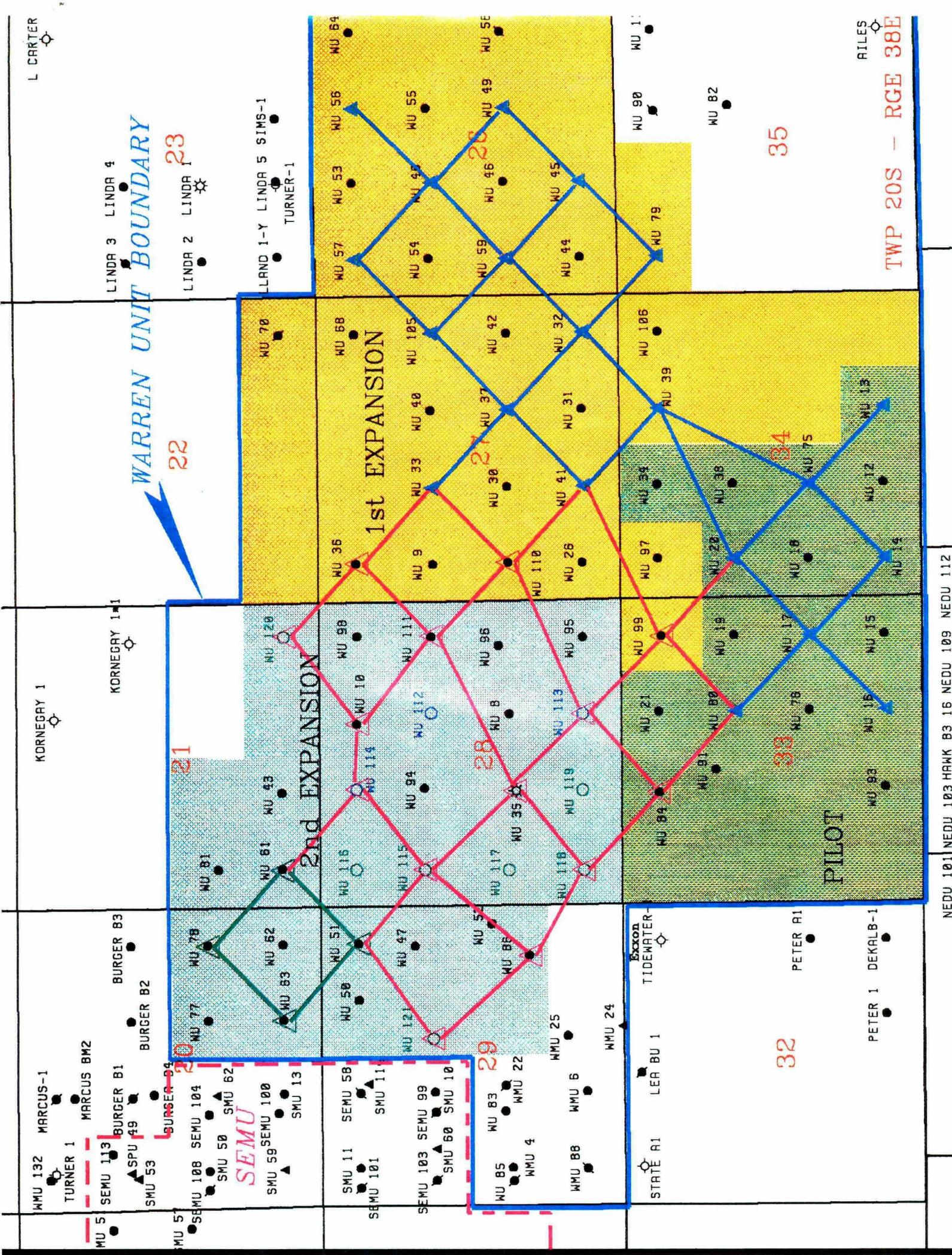


CONOCO - MIDLAND DIVISION
WARREN BLINEBRY-TUBB
WATERFLOOD EXPANSION
BY STAGES
 LEA COUNTY, NEW MEXICO

1:24000 CONOCO MIDLAND DIVISION
 10-10-1994-95

BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. **30**
 CASE NO.: 11212
 Submitted by: Conoco Inc.
 Hearing Date: Mar 2, 1995



TWP 20S - RGE 38E

RILES

NEDU 101 NEDU 103 HANK 83 16 NEDU 109 NEDU 112