AUTHORITY FOR EXPENDITURE

DEPT.	BRANCH OFFICE	ORIGINATING OFFICE	AFE NO
PRODUCTION	WESTERN DIVISION	RESV.-DEVEL.	83879, 83880

LOCATION OF PROJECT

Northeast Drinkard Unit
New Mexico Production Unit
Lea County, New Mexico

Oil Phase II Participation

APPROPRIATION NO. //-

DATE PREPARED: 4/6/87
DATE REGISTERED:

COMPLETION: EST. / ACTUAL

LOCATION NUMBER

WORK ORDER NUMBER	TYPE	DESCRIPTION	100% COST	SWEPI'S 43.83050 % SHARE BUDGET	NONBUDGET	EXPENSE	TOTAL
838792	C	Production Facilities	$4850M	$2397M			$2308M
838797	E		$ 175M			$ 77M	$ 77M
838793	C	Injection Facilities	$3850M	$1832M			$1832M
838794	C	Source Water Facilities	$1000M	$ 476M			$ 476M
838795	C	Elec. Distribution System	$2350M	$1118M			$1118M
838807	R&R	Well workovers: Producer to injector conversions (35), oil producer workovers (87), source water workovers (10)	$4820M			$2113M	$2113M
838802	C	Production & Injection Well Equipment	$ 480M	$228M			$228M
	(647)	SUBTOTALS	$17525M	$5962M		$2190M	$8040M

BUDGET POSITION				
AVAILABLE IN BUDGET		RETIREMENT EXPENSE (LESS SALVAGE)		
NEW CAPITAL FUNDS REQUIRED BY BUDGET REVISION		TOTAL COST →		$8040M

APPROVED*

Company:______________

By:______________

Date:______________

Return to: B. M. Bradley, WCK 2127
Shell Western E&P Inc.
P. O. Box 576
Houston, TX 77001

* This AFE approval is given subject to regulatory approvals of the Northeast Drinkard Unit by the New Mexico Oil Conservation Division, the Commissioner of Public Lands, and the Bureau of Land Management, according to Section 24 of the Unit Agreement.

Northeast Drinkard Unit
Exhibit Twenty-Six
Cases 9230
9231
9232

RECOMMENDED	APPROVALS	
5/1 5/1/87 5/1/87 5/5/87 5/5/87 5/6/87	5/11/87	5/15/87 APPROVAL CERTIFIED 5/22/87

5700/AFE02 SWEP-0415

BNBK8709601/0001.0.0 5-6-87 5/6/87 5-4-87

AUTHORITY FOR EXPENDITURE

DEPT.	BRANCH OFFICE	ORIGINATING OFFICE	AFE NO.
PRODUCTION	WESTERN DIVISION	RESV.-DEVEL.	83881

LOCATION OF PROJECT
Northeast Drinkard Unit
New Mexico Production Unit
Lea County, New Mexico

Gas Phase I Participation

APPROPRIATION NO.

DATE PREPARED: 4/1/87 DATE REGISTERED:

EST. COMPLETION ACTUAL

LOCATION NUMBER

SWEPI'S 57.19624 % SHARE

WORK ORDER NUMBER	TYPE	DESCRIPTION	100% COST	BUDGET	NONBUDGET	EXPENSE	TOTAL
838812	C	Gas Facilities	$725M	$450M			$450M
838817	R&R	Gas Producer Workovers (20)	$400M			$229M	$229M
	(647)	SUBTOTALS	$1125M	$450M		$229M	$679M

BUDGET POSITION				
	AVAILABLE IN BUDGET		RETIREMENT EXPENSE (LESS SALVAGE)	
	NEW CAPITAL FUNDS REQUIRED BY BUDGET REVISION		TOTAL COST →	$679M

APPROVED*

Company: ____________________

By: ____________________

Date: ____________________

Return to: B. M. Bradley, WCK 2127
Shell Western E&P Inc.
P. O. Box 576
Houston, TX 77001

* This AFE approval is given subject to regulatory approvals of the Northeast Drinkard Unit by the New Mexico Oil Conservation Division, the Commissioner of Public Lands, and the Bureau of Land Management, according to Section 24 of the Unit Agreement.

RECOMMENDED	APPROVALS	
APS 5/1/87 RRS 5/1/87 JBE 5/1/87 RGG 5/1/87	R. Plauty	M. L. Blanton 5/19/87 APPROVAL CERTIFIED
RM JAB 5/5/87 DB RPH 5/6/87	J. D. Dimmer 5/11/87	5/20/87

5700/AFE02 SWEP-0415
BNBK8709101/0001.0.0 MAW 5-6-87 McBetts 5/6/87 5-8-87

JUSTIFICATION

NORTHEAST DRINKARD UNIT
WATERFLOOD PROJECT

We recommend approval of the attached AFE for the purpose of implementing the Northeast Drinkard waterflood project. The $24.2 MM ultimate investment is expected to result in additional supplemental oil recovery of 14.7 MMBO and return an incremental $38.2 MM PVPAT (174% PVPAT).

The proposed Northeast Drinkard Unit is located in Lea County, New Mexico approximately 18 miles south of Hobbs, New Mexico. The unit boundary encompasses 5018 acres and is developed on 40-acre spacing. The vertical interval to be unitized includes the Blinebry, Tubb, and Drinkard formations at depths ranging from approximately 5500' to 6700'. SWEPI will be operator of the unit with 43.8 percent working interest in the supplemental oil recovery (Phase II oil participation).

The proposed unitized interval contains both gas zones and oil zones. The upper two layers of the Blinebry and most of the Tubb pay produce non-associated gas. The remaining primary gas will be depleted using 20 gas wells located throughout the unit. Oil is produced from the bottom three layers of the Blinebry, oil pocket accumulations in the Tubb, and the entire Drinkard zone. The oil zones, whose primary production mechanism was a solution gas drive, will be flooded using a five-spot injection pattern.

The proposed Northeast Drinkard Unit waterflood forecast is based on the Central Drinkard Unit, a mature waterflood adjoining the proposed unit area. The Central Drinkard Unit waterflood, operated by Chevron, is projected to increase ultimate recovery in the Unit area by 50% (Ult Sec./Ult Prim.= 0.50). Thus, the proposed Northeast Drinkard Unit waterflood area, with a projected ultimate primary recovery of 29.4 MMBO, is expected to recover an additional 14.7 MMBO.

An initial investment of $18.7 MM is required to implement the total program. Items covered by the AFE include the water injection station, flowlines, injection lines, central battery, satellites, producer-to-injector conversions, producer recompletions, source water system, and CAO (computer assisted operations) system. Future expenditures estimated at $5.5 MM are expected for larger lift equipment.

Total Gross Summary

Secondary Reserve Additions	14,738 MBO
Investment	
Initial	$18.7 MM$
Ultimate	$24.2 MM
PV Profit, AFIT, 10% Nominal Disc. Rate	$38.2 MM
% PVP, AFIT, 10% Nominal Disc. Rate	174%
Payout AFIT	7.9 yrs.
Nom. Earning Power, AFIT	23%

($18/BO, $1/MCF, 5% inflation rate on all revenues, investments and operating costs.)

These economics contain no SWEPI premises and are included for information purposes only.

BNBK8707105

PROPOSED NORTHEAST DRINKARD UNIT

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PROPOSED NORTHEAST DRINKARD UNIT
SUMMARY, 1987$
PRODUCTION/OPERATING COST/INVESTMENT

	PRIMARY OPERATIONS			SECONDARY OPERATIONS						
							Investment			
							Oil (Ph.II)		Gas (Ph.I)	
Year	Oil Production (STB)	Total Gas Production (MMCF)	Total Unit Operating Cost (M$)	Oil Production (STB)	Total Gas Production (MMCF)	Total Unit Operating Cost (M$)	CAPEX	Expense	CAPEX	Expense
1987*	82,536	2,491	661	65,278	2,376	1,284	4,563	500	73	40
1988	185,328	5,575	1,586	147,116	5,316	2,995	7,902	3395	652	160
1989	168,572	5,043	1,586	141,264	4,758	2,898	52	880		160
1990	153,331	4,562	1,586	222,483	4,364	2,812	13	220		40
1991	139,468	4,126	1,586	372,692	4,037	2,735	689			
1992	126,859	3,733	1,586	491,883	3,681	2,665	1,377			
1993	115,389	3,376	1,586	613,369**	3,341	2,587**	1,377			
1994	104,956	3,054	1,586	755,583	3,029	2,535	1,377			
1995	95,467	2,763	1,586	796,620	2,712	2,490	689			
1996	86,836	2,499	1,586	796,620	2,420	2,490				
1997	78,985	2,261	1,586	796,620	2,206	2,490				
1998	71,843	2,046	1,586	796,620	2,012	2,490				
1999	65,348	1,850	1,586	796,620	1,835	2,490				
2000	59,440	1,673	1,586	796,620	1,676	2,490				
2001	54,066	1,514	1,586	796,620	1,532	2,490				
2002	49,177	1,369	1,586	796,620	1,402	2,490				
2003	44,731	1,239	1,586	796,620	1,284	2,490				
2004		1,055	69	796,620	1,177	2,490				
2005		955	69	796,620	1,081	2,490				
2006		864	69	788,247	992	2,490				
2007		782	69	696,690	894	2,490				
2008		708	69	597,062	802	2,490				
2009		641	69	511,681	721	2,490				
2010		580	69	438,509	648	2,490				
2011		525	69	375,801	582	2,490				
2012		475	69	322,061	522	2,490				
2013		430	69	276,006	470	2,490				
2014		389	69	236,536	422	2,490				
2015		352	69	202,711	381	2,490				
2016				173,723	35	2,490				
2017				148,830	30	2,490				
2018				80,328	16	2,490				
	1,682,352	56,930		16,420,723	56,754		18,039	4,995	725	400

* 5 months
** Phase II oil participation is estimated to begin 6/1/93
BNBK8707505

PROPOSED N. E. DRINKARD UNIT
LEA COUNTY, NEW MEXICO

REMAINING PRIMARY PRODUCTION FORECAST

Year		Oil Production (STB)	Gas Zone Gas Production (MMCF)	Solution Gas Production (MMCF)	Total Gas Production (MMCF)	Solution GOR (SCF/STB)
1987	(5 mo)	82,536	2,326	165	2,491	2,000
1988		185,328	5,204	371	5,575	2,000
1989		168,572	4,710	333	5,043	1,975
1990		153,331	4,263	299	4,562	1,950
1991		139,468	3,858	268	4,126	1,925
1992		126,859	3,492	241	3,733	1,900
1993		115,389	3,160	216	3,376	1,875
1994		104,956	2,860	194	3,054	1,850
1995		95,467	2,589	174	2,763	1,825
1996		86,836	2,343	156	2,499	1,800
1997		78,985	2,121	140	2,261	1,775
1998		71,843	1,920	126	2,046	1,750
1999		65,348	1,737	113	1,850	1,725
2000		59,440	1,572	101	1,673	1,700
2001		54,066	1,423	91	1,514	1,675
2002		49,177	1,288	81	1,369	1,650
2003		44,731	1,166	73	1,239	1,625
2004			1,055		1,055	
2005			955		955	
2006			864		864	
2007			782		782	
2008			708		708	
2009			641		641	
2010			580		580	
2011			525		525	
2012			475		475	
2013			430		430	
2014			389		389	
2015			352		352	
		1,682,352	53,788	3,142	56,930	

PROPOSED NORTHEAST DRINKARD UNIT
LEA COUNTY, NEW MEXICO

REMAINING PRIMARY OPERATIONS
OPERATING COST FORECAST
(1987$)

Year	Production Facilities O&M (M$)	Production Wells (M$)	Total Unit Operating Cost (M$)
1987 (5 mo.)	26	635	661
1988	62	1,524	1,586
1989	62	1,524	1,586
1990	62	1,524	1,586
1991	62	1,524	1,586
1992	62	1,524	1,586
1993	62	1,524	1,586
1994	62	1,524	1,586
1995	62	1,524	1,586
1996	62	1,524	1,586
1997	62	1,524	1,586
1998	62	1,524	1,586
1999	62	1,524	1,586
2000	62	1,524	1,586
2001	62	1,524	1,586
2002	62	1,524	1,586
2003	62	1,524	1,586
2004	9	60	69
2005	9	60	69
2006	9	60	69
2007	9	60	69
2008	9	60	69
2009	9	60	69
2010	9	60	69
2011	9	60	69
2012	9	60	69
2013	9	60	69
2014	9	60	69
2015	9	60	69

PROPOSED N. E. DRINKARD UNIT
LEA COUNTY, NEW MEXICO

WATERFLOOD OIL AND GAS PRODUCTION

Year	Oil Production (STB)	Gas Zone Gas Production (MMCF)	Solution Gas Production (MMCF)	Total Gas Production (MMCF)	Solution GOR (SCF/STB)
1987 (5 mo)	65,278	2,245	131	2,376	2,000
1988	147,116	5,022	294	5,316	2,000
1989	141,264	4,546	212	4,758	1,500
1990	222,483	4,114	250	4,364	1,125
1991	372,692	3,723	314	4,037	843
1992	491,883	3,370	311	3,681	632
1993	613,369*	3,050	291	3,341	474
1994	755,583	2,760	269	3,029	356
1995	796,620	2,499	213	2,712	267
1996	796,620	2,261	159	2,420	200
1997	796,620	2,047	159	2,206	200
1998	796,620	1,853	159	2,012	200
1999	796,620	1,676	159	1,835	200
2000	796,620	1,517	159	1,676	200
2001	796,620	1,373	159	1,532	200
2002	796,620	1,243	159	1,402	200
2003	796,620	1,125	159	1,284	200
2004	796,620	1,018	159	1,177	200
2005	796,620	922	159	1,081	200
2006	788,247	834	158	992	200
2007	696,690	755	139	894	200
2008	597,062	683	119	802	200
2009	511,681	619	102	721	200
2010	438,509	560	88	648	200
2011	375,801	507	75	582	200
2012	322,061	458	64	522	200
2013	276,006	415	55	470	200
2014	236,536	375	47	422	200
2015	202,711	340	41	381	200
2016	173,723	0	35	35	200
2017	148,830	0	30	30	200
2018	80,328	0	16	16	200
	16,420,723	51,910	4,844	56,754	

* Switch from Phase I to Phase II oil participation is estimated to occur 6/1/93.

PROPOSED N.E. DRINKARD UNIT
LEA COUNTY, NEW MEXICO

WATERFLOOD OPERATIONS
WATER PRODUCTION AND INJECTION FORECAST

Year	Total Produced Water BWPD	Produced Water Disposed of BWPD	Reinjected Produced Water BWPD	Injected Make-Up Water BWPD	Total Injected Water BWPD
1987 (5 mo)	140	140	-	-	-
1988*	134	134	0	49,650 (5 mo)	49,650 (5 mo)
1989	137	137	0	49,650	49,650
1990	236	236	0	41,343	41,343
1991	458	458	0	34,425	34,425
1992	726	726	0	28,665	28,665
1993	1121	0	1,121	22,748	23,869
1994	1764	0	1,764	18,112	19,876
1995	2271	0	2,271	14,279	16,550
1996	2778	0	2,778	13,772	16,550
1997	3274	0	3,274	13,276	16,550
1998	3882	0	3,882	12,668	16,550
1999	4430	0	4,430	12,120	16,550
2000	5093	0	5,093	11,457	16,550
2001	5901	0	5,901	10,649	16,550
2002	6912	0	6,912	9,638	16,550
2003	7737	0	7,737	8,813	16,550
2004	8729	0	8,729	7,821	16,550
2005	9942	0	9,942	6,608	16,550
2006	11,367	0	11,367	5,183	16,550
2007	11,817	0	11,817	4,733	16,550
2008	12,145	0	12,145	4,405	16,550
2009	11,542	0	11,542	5,008	16,550
2010	11,061	0	11,061	5,489	16,550
2011	10,704	0	10,704	5,846	16,550
2012	10,487	0	10,487	6,063	16,550
2013	10,437	0	10,437	6,113	16,550
2014	10,602	0	10,602	5,948	16,550
2015	11,076	0	11,076	5,474	16,550
2016	12,053	0	12,053	4,497	16,550
2017	14,024	0	14,024	2,526	16,550
2018	16,550	0	16,550	-	16,550

* Initial water injection assumed 8/1/88.

PROPOSED NORTHEAST BLINEBRY UNIT
LEA COUNTY, NEW MEXICO

WATERFLOOD OPERATIONS
OPERATING COST FORECAST
(1987$)

Year	Facilities O&M (M$)	Production & Injection Wells (M$)	Total Unit Operating Cost (M$)
1987 (5 mo.)	483	765	1,284
1988	1,158	1,837	2,995
1989	1,061	1,837	2,898
1990	975	1,837	2,812
1991	898	1,837	2,735
1992	828	1,837	2,665
1993	750	1,837	2,587
1994	698	1,837	2,535
1995	653	1,837	2,490
1996	653	1,837	2,490
1997	653	1,837	2,490
1998	653	1,837	2,490
1999	653	1,837	2,490
2000	653	1,837	2,490
2001	653	1,837	2,490
2002	653	1,837	2,490
2003	653	1,837	2,490
2004	653	1,837	2,490
2005	653	1,837	2,490
2006	653	1,837	2,490
2007	653	1,837	2,490
2008	653	1,837	2,490
2009	653	1,837	2,490
2010	653	1,837	2,490
2011	653	1,837	2,490
2012	653	1,837	2,490
2013	653	1,837	2,490
2014	653	1,837	2,490
2015	653	1,837	2,490
2016	653	1,837	2,490
2017	653	1,837	2,490
2018	653	1,837	2,490

PROPOSED NORTHEAST DRINKARD UNIT
LEA COUNTY, NEW MEXICO
WATERFLOOD INVESTMENT SCHEDULE

YEAR	ITEM	TOTAL COST 1987$ M$
	Initial Investment - Facilities	
	Production Facilities	
	Central Battery	1,000
	Satellites	2,250
	Flowlines	1,050
	Transfer Lines	725
	Injection Facilities	
	Injection Plant	2,525
	Injection Lines	1,325
	Gas Facilities	725
	Source Water Facilities	1,000
	Electrical System	2,350
	Subtotal - Facilities	12,950
	Initial Investment - Well Preparations	
	117 Producer Workovers	
	87 Commingled Oil (Blinebry/Tubb/Drinkard)	2,330
	20 Gas (Tubb)	400
	10 Source Water (San Andres)	350
	35 Producer-to-Injector Conversions	
	35 Single Commingled Injectors	2,620
	Subtotal - Well Preparations	5,700
	Total Initial Investment	18,650
YEAR		
1987	35% Facilities, 10% Conversions, Source Water Workovers, 10% Workovers	5,176
1988	65% Facilities, 90% Conversions, Source Water Workovers, 40% Workovers	12,109
1989	40% Workovers	1,092
1990	10% Workovers	273
1991	Larger Lift Equipment	689
1992	Larger Lift Equipment	1,377
1993	Larger Lift Equipment	1,377
1994	Larger Lift Equipment	1,377
1995	Larger Lift Equipment	689
	TOTAL WATERFLOOD INVESTMENT	24,159

NORTHEAST DRINKARD UNIT

WATERFLOOD FACILITIES DESCRIPTION

PRODUCTION SYSTEM

Groups of 8-16 wells will flow into three remote headers and five satellites. A remote header consists of a production manifold which functions as an extension of the production manifold at the satellite. Use of remote headers reduces the number of satellites required. A satellite consists of a production manifold, a test separator, and a production separator. From the satellites, the liquids are pumped to a central battery and the gas is transported via a casinghead gas gathering system. The battery has a free water knockout followed by a wash tank for oil dehydration. Approximately 2½ days of oil storage at peak production is provided. The gas system consists of a 2-phase separator at each gas well with separate casinghead and gas well gas gathering systems.

INJECTION SYSTEM

Injection water will be provided from source wells and from produced water. Source water will be submersibly pumped from wells completed in the San Andres. The source water is produced into a skim tank for oil removal. A separate skim tank collects produced water. The produced water then flows to a storage tank which provides approximately 18 hours of storage capacity at peak rates upon complete loss of injection capacity. Five centrifugal injection pumps take common suction on the two sources of water and deliver water into a branched distribution system.

ELECTRICAL SYSTEM

A new power system will provide increased reliability and subsequent higher on-stream production. The system consists of three main high voltage distribution feeders with individual well supply and voltage transformation.

CAO SYSTEM

The Computer Assisted Operations (CAO) equipment will provide beam pumping unit control, injection well control, gas well control, production facility monitoring and automatic well testing.

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Production Battery

QUANTITY	DESCRIPTION	AMOUNT (Thousands)	TOTAL
1	10' x 30' FWKO	$100	$100
2	2M Bbl stock tanks	$ 30	$ 60
1	1.5M Bbl wash tank	$ 40	$ 40
1	LACT	$ 35	$ 35
1	Vapor Recovery unit	$ 25	$ 25
2	Recirculating Pumps	$ 7	$ 14
1	Control panel	$ 25	$ 25
1	Satellite header	$ 50	$ 50
1	Pipe, valves, and fittings	$150	$150
1	Electrical material and labor	$ 60	$ 60
1	Civil material and labor	$ 15	$ 15
1	Painting material and labor	$ 25	$ 25
1	Mechanical Labor	$200	$200
1	Battery metering/alarm monitoring	$ 14	$ 14
1	Site damages	$ 6	$ 6
	Inspection		$ 40
	Taxes and Transportation		$ 91
	Capital Total		$950
Expense	Facility Retirement		$ 50
	Grand Total		$1000

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Production Satellites

QUANTITY	DESCRIPTION	AMOUNT (Thousands)	TOTAL
5	3' x 10' 3 ph test seps	$28	$138
5	4' x 12' 2 ph prod seps	$33	$165
5	500 Bbl pump tanks	$ 8	$ 40
5	Transfer pumps	$ 3	$ 15
8	Production Manifolds	$15	$120
1	Pipe, valves, and fittings	$130	$130
1	Electrical material and labor	$80	$ 80
1	Civil material and labor	$65	$ 65
1	Painting material and labor	$50	$ 50
1	Mechanical labor	$400	$400
5	Satellite monitoring/control	$17.5	$ 88
3	Remote header monitoring/control	$7.5	$ 23
88	Bm pumping well monitoring/control	$4.0	$352
88	Header actuation	$1.5	$132
8	Site damages	$6	$ 48
	Inspection		$ 90
	Taxes and Transportation		$190
	Capital Total		$2125
Expense	Facility Retirement		$ 50
	Software Implementation		$ 75
	Grand Total		$2,250

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Production Flowlines

QUANTITY	DESCRIPTION	AMOUNT	(Thousands) TOTAL
201.6 M'	2 7/8" LPO	$3.50/ft.	$706
201.6 M'	Surface Damages	$1.00/ft.	$202
	Inspection		$ 45
	Taxes and transportation		$ 98
	Capital Cost		$1050

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

BNBK8709204/0003.0.0

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Oil Transfer Lines

QUANTITY	DESCRIPTION	AMOUNT	(Thousands) TOTAL
27 M'	8" Fiberglass Line	$10.50/ft.	$284
13 M'	10" Fiberglass Line	$15.50/ft.	$202
4.5 M'	12" Fiberglass Line	$21.25/ft.	$ 96
44.5 M'	Surface Damages	$1.00/ft.	$ 45
	Inspection		$ 30
	Taxes and transportation		$ 70
	Capital Cost		$725

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Water Plant

QUANTITY	DESCRIPTION	AMOUNT (Thousands)	TOTAL
5	Injection pumps	$ 80	$400
1	1000 Bbl skim tank	$ 27	$ 27
1	10,000 Bbl skim tank	$130	$130
1	300 Bbl skim pump tank	$ 7	$ 7
1	10,000 Bbl storage tank	$ 80	$ 80
1	Control building	$ 45	$ 45
1	Overhead crane	$ 60	$ 60
1	Manifold	$ 40	$ 40
1	Pipe, valves, and fittings	$400	$400
1	Electrical material and labor	$150	$150
1	Civil material and labor	$ 40	$ 40
1	Painting material and labor	$ 25	$ 25
1	Mechanical Labor	$600	$600
35	Injection well monitoring/control	$ 5	$175
	Inspection		$110
	Taxes and Transportation		$236
	Capital Cost		$2,525

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO
J. P. Sattler	4/3/87		

WORK ORDER COST ESTIMATE

FORM NO. EP-220 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Injection Lines

(Thousands)

QUANTITY	DESCRIPTION	AMOUNT	TOTAL
39 M'	2" High press fiberglass line	$7.0/ft.	$273
5.5 M'	3" High pressure fiberglass line	$8.0/ft.	$ 44
18 M'	4" High press fiberglass line	$9.0/ft.	$162
17 M'	6" Steel header	$16.0/ft.	$272
3.7 M'	8" Steel header	$26.5/ft.	$ 98
83.2 M'	Surface damages	$1.0/ft.	$ 83
35	Wellhead filtration	$1,500/ea.	$ 53
35	Wellhead connection labor	$5,000/ea.	$175
	Inspection		$ 55
	Taxes and Transportation		$110
	Capital Total		$1,325

PREPARED BY	DATE PREPARED	A.F.E. NO	WORK ORDER NO
J. P. Sattler	4/3/87		

BNBK8709204/0006.0.0

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Gas Facilities and Flowlines

QUANTITY	DESCRIPTION	AMOUNT (Thousands)	TOTAL
	Casinghead		
13 M'	3" PEP (polyethylene pipe) gathering line	$2.0/ft.	$ 26
	Gas Well		
18.5 M'	4" PEP gathering line	$3.4/ft.	$ 63
18.5 M'	6" PEP gathering line	$4.7/ft.	$ 87
14.5 M'	8" PEP gathering line	$8.6/ft.	$125
6 M'	10" PEP gathering line	$13.9/ft.	$ 83
20	Gas well monitoring/control	$6.0/ea.	$120
20	Facility labor	$2.5/ea.	$ 50
70.5 M'	Surface damages	$1.0/ft.	$ 71
	Inspection		$ 30
	Taxes and transportation		$71
	Capital Total		$725

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

WORK ORDER COST ESTIMATE

FORM NO. EF-225 (4-66)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Source Water Facilities

QUANTITY	DESCRIPTION	AMOUNT	(Thousands) TOTAL
10.4 M'	4" PEP gathering line	$3.00/ft.	$ 31
12.4 M'	6" PEP gathering line	$4.00/ft.	$ 50
1.9 M'	8" PEP gathering line	$7.25/ft.	$14
6.4 M'	10" PEP gathering line	$12.75/ft.	$ 82
31.1 M'	Surface Damages	$1.00/ft.	$31
10	Source well monitoring/control	$4M ea.	$ 40
10	5000 B/D submersible pumps	$60M ea.	$600
	Inspection		$ 50
	Taxes and Transportation		$102
	Capital Total		$1,000

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO.
J. P. Sattler	4/3/87		

BNBK8709204/0007.0.0

WORK ORDER COST ESTIMATE

FORM NO. EP-225 (4-86)

WORK ORDER DESCRIPTION

Northeast Drinkard Unit
Electrical

QUANTITY	DESCRIPTION	(Thousands) AMOUNT	TOTAL
227 M'	Powerline	$5.00/ft.	$1,135
3	Oil Circuit Recloser	$8.00	$ 24
70	75 KVA transformers (oil wells)	$2.50	$ 175
70	Control Panels	$1.50	$ 105
30	37.5 KVA transformers (source water)	$1.00	$ 30
10	Control Panels	$2.00	$ 20
35	10 KVA transformers (injectors)	$0.50	$ 18
4	45 KVA transformers (satellites)	$1.50	$ 6
3	667 KVA transformers (water plant)	$5.00	$ 15
3	100 KVA transformers (battery)	$1.67	$ 5
1	5000 Volt isolation switch	$7.00	$ 7
3	Capacitors for power factor correction	$5.00	$ 15
97	Well installations (not injection)	$2.00	$ 194
35	Injection well installation	$1.00	$ 35
5	Satellite installations	$1.50	$ 8
1	Central battery/water plant installation	$14.00	$ 14
1	Survey and stake	$20.00	$ 20
227 M'	Surface Damages	$1.00/ft.	$ 227
	Inspection		$ 100
	Taxes and Transportation		$ 197
	Capital Total		$2,350

PREPARED BY	DATE PREPARED	A.F.E. NO.	WORK ORDER NO
J. P. Sattler	4/3/87		

NORTHEAST DRINKARD UNIT
LEA COUNTY, NEW MEXICO

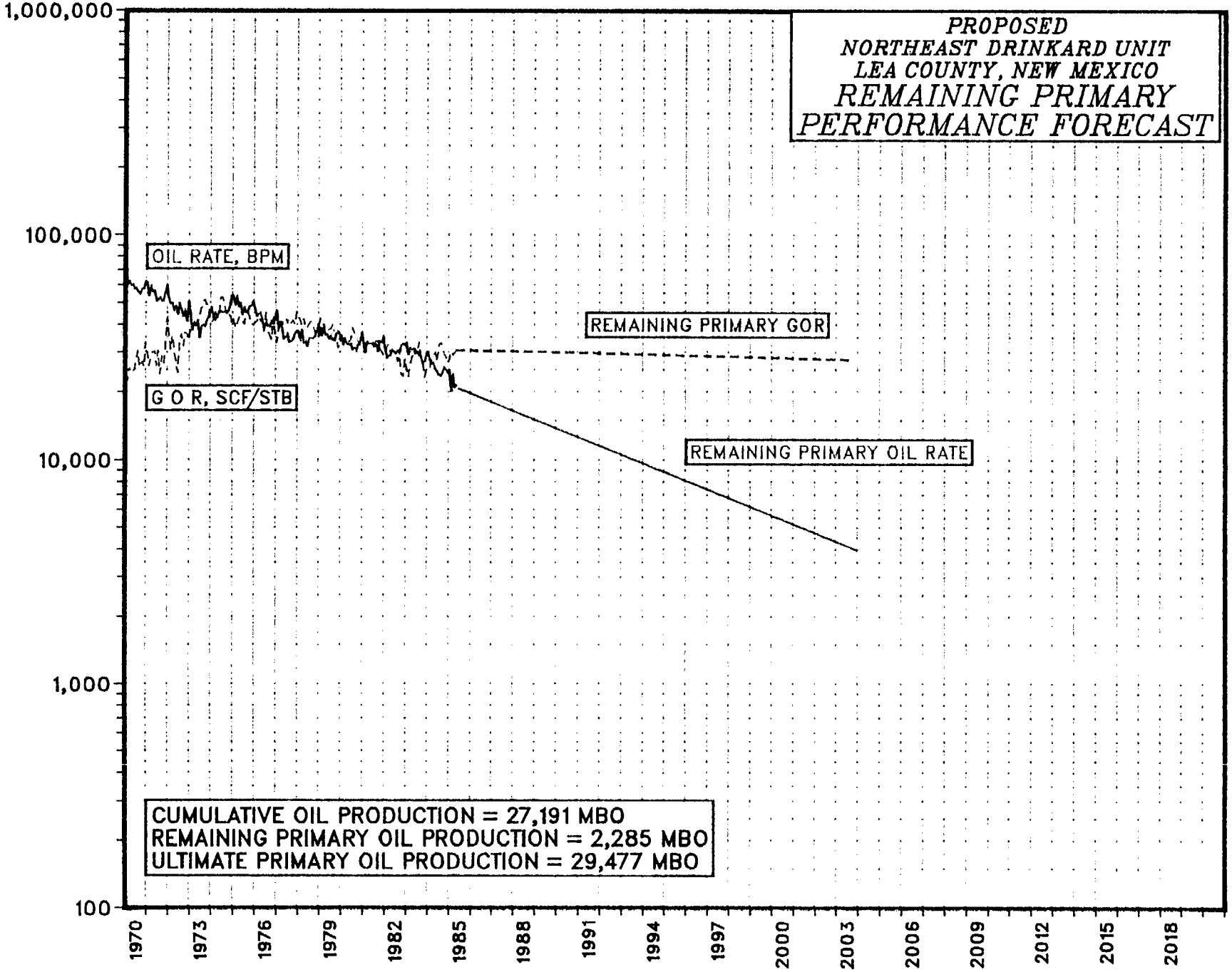
WELL CONFIGURATIONS AND COST ESTIMATES

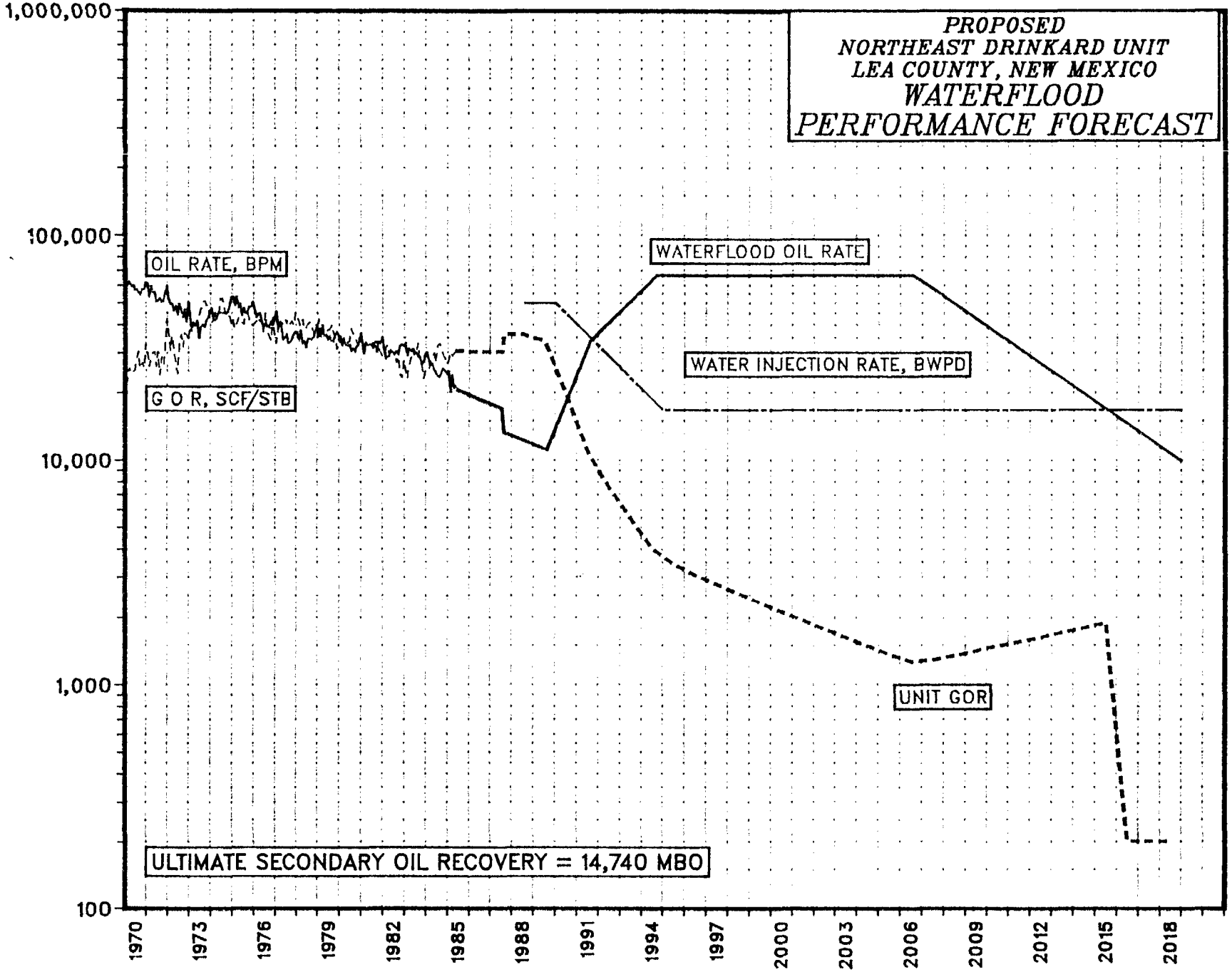
	Description (# Wells)	Zones	Completion Type	Preparation Costs**	Operating Costs** Per Month
1.	Single Injector (1)	Blinebry-Oil	Injection Well Completion w/Packer Set Above Blinebry	$60,000 (Exp.) $10,000 (Cap.)	$1,000
2.	Commingled Injector (26)	Blinebry-Oil Drinkard-Oil	Single Tubing String w/Packers and downhole flow regulators	$65,000 (Exp.) $10,000 (Cap.)	$1,000
3.	Commingled Injector (8)	Blinebry/Tubb-Oil Drinkard-Oil	Single Tubing String w/Packers and downhole flow regulators	$65,000 (Exp.) $10,000 (Cap.)	$1,000
4.	Single Producer (13)	Blinebry-Oil	Conventional Pumping or Flowing Well Design	$20,000 (Exp.) $5,000*(Cap.)	$1,000 (Primary) $1,300 (Secondary)
5.	Commingled Producer (56)	Blinebry-Oil Drinkard-Oil	Conventional Pumping or Flowing Well Design	$25,000 (Exp.) $5,000*(Cap.)	$1,000 (Primary) $1,300 (Secondary)
6.	Commingled Producer (18)	Blinebry-Oil Tubb-Oil Drinkard-Oil	Conventional Pumping or Flowing Well Design	$30,000 (Exp.) $5,000*(Cap.)	$1,000 (Primary) $1,300 (Secondary)
7.	Gas Producer (20)	Blinebry-Gas and/or Tubb-Gas	Flowing Well Completion w/Packer Set Above Blinebry	$20,000 (Exp.)	$250

NORTHEAST DRINKARD UNIT
(Cont.)

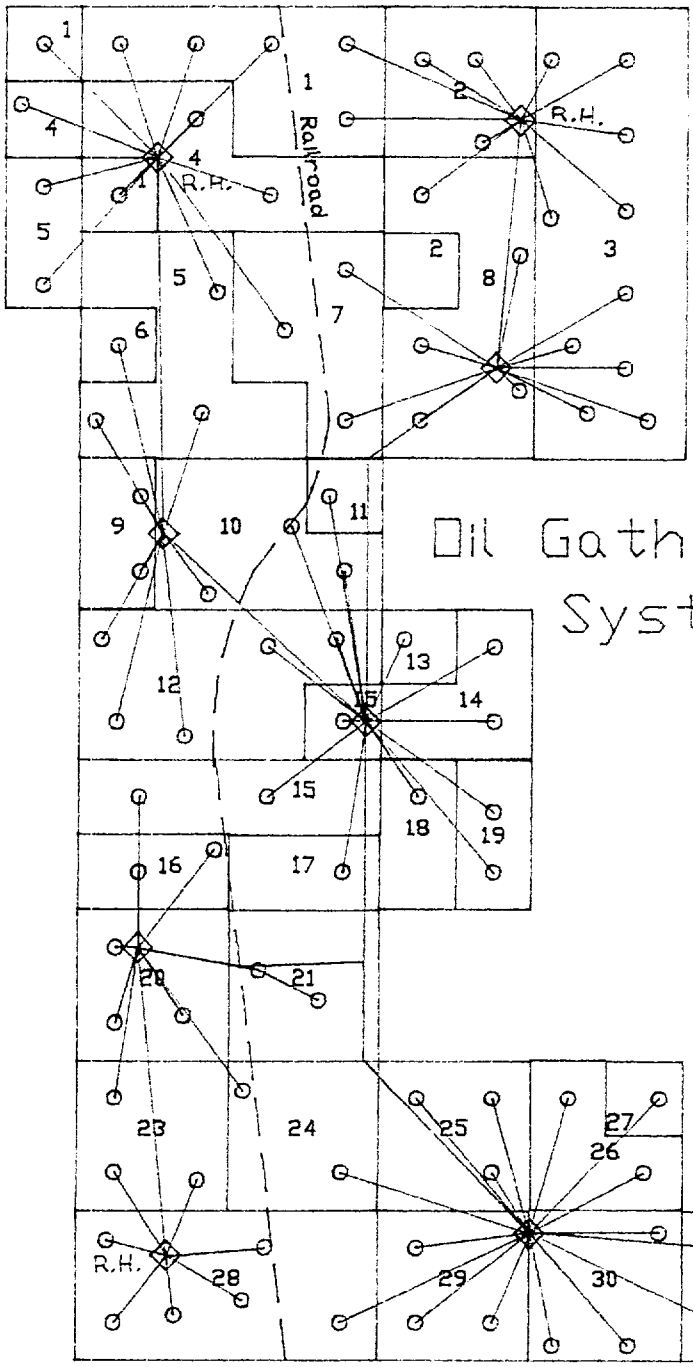
	Description (# Wells)	Zones	Completion Type	Preparation Costs**	Operating Costs** Per Month
8.	Source Water Producer (10)	San Andres-Water	Submersible Pumping Design	$35,000 (Exp.)	$1,500 (Sub-Pumped)

Notes: * Only 30% of the producers will require initial artificial lift installations.
** All costs are 1987$.


PROPOSED
NORTHEAST DRINKARD UNIT
LEA COUNTY, NEW MEXICO
REMAINING PRIMARY
PERFORMANCE FORECAST
1,000,000
100,000
10,000
1,000
100
OIL RATE, BPM
G O R, SCF/STB
REMAINING PRIMARY GOR
REMAINING PRIMARY OIL RATE
CUMULATIVE OIL PRODUCTION = 27,191 MBO
REMAINING PRIMARY OIL PRODUCTION = 2,285 MBO
ULTIMATE PRIMARY OIL PRODUCTION = 29,477 MBO
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
2015
2018


PROPOSED
NORTHEAST DRINKARD UNIT
LEA COUNTY, NEW MEXICO
WATERFLOOD
PERFORMANCE FORECAST
1,000,000
100,000
10,000
1,000
100
OIL RATE, BPM
G O R, SCF/STB
WATERFLOOD OIL RATE
WATER INJECTION RATE, BWPD
UNIT GOR
ULTIMATE SECONDARY OIL RECOVERY = 14,740 MBO
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
2015
2018

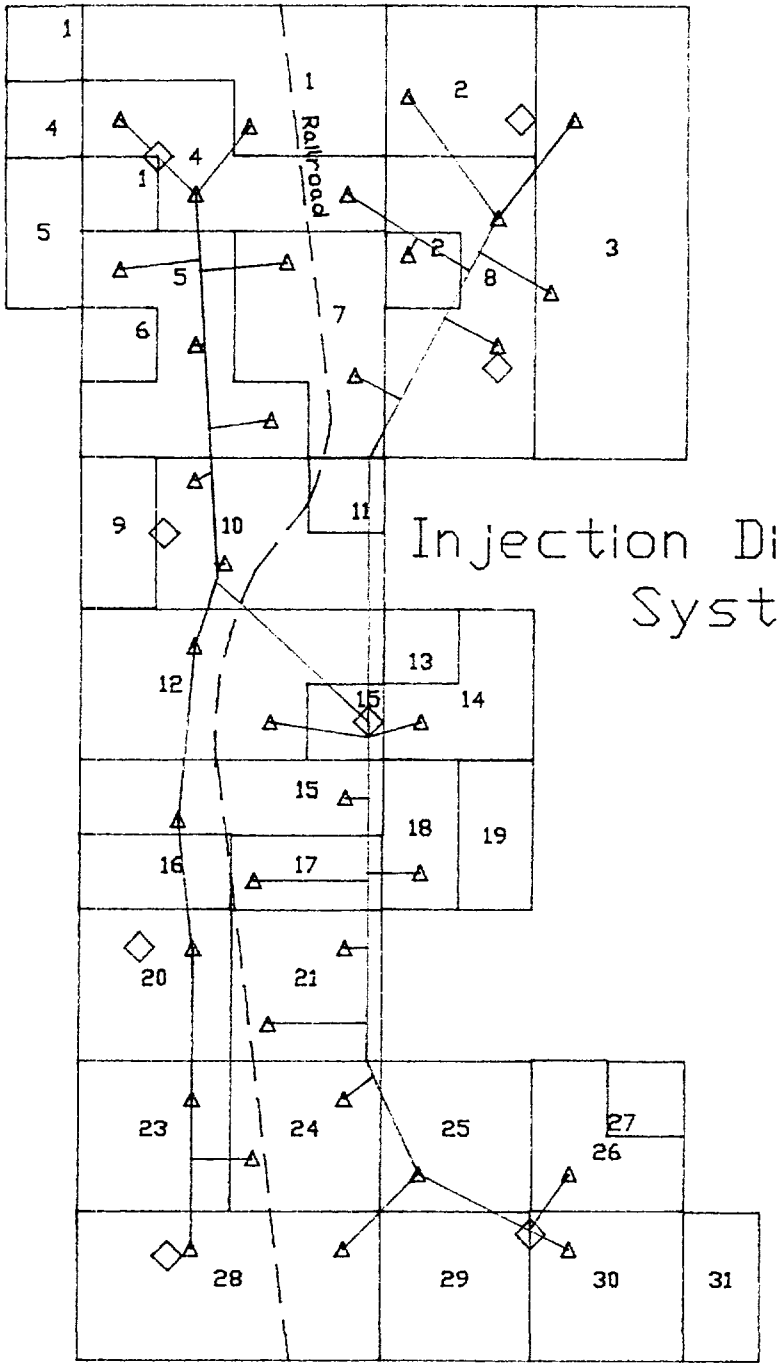
DRINKARD WATERFLOOD



Oil Gathering System

By: JPS
3/24/87

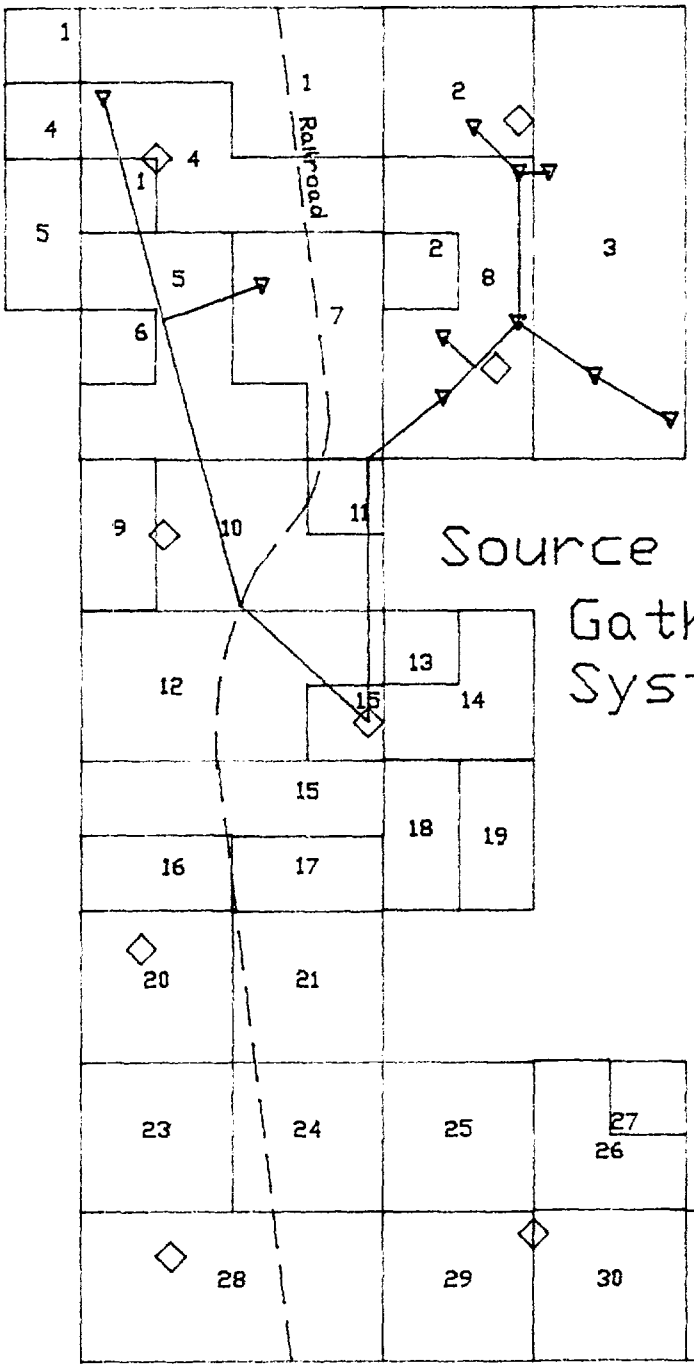
DRINKARD WATERFLOOD



Injection Distribution System

By: JPS
3/24/87

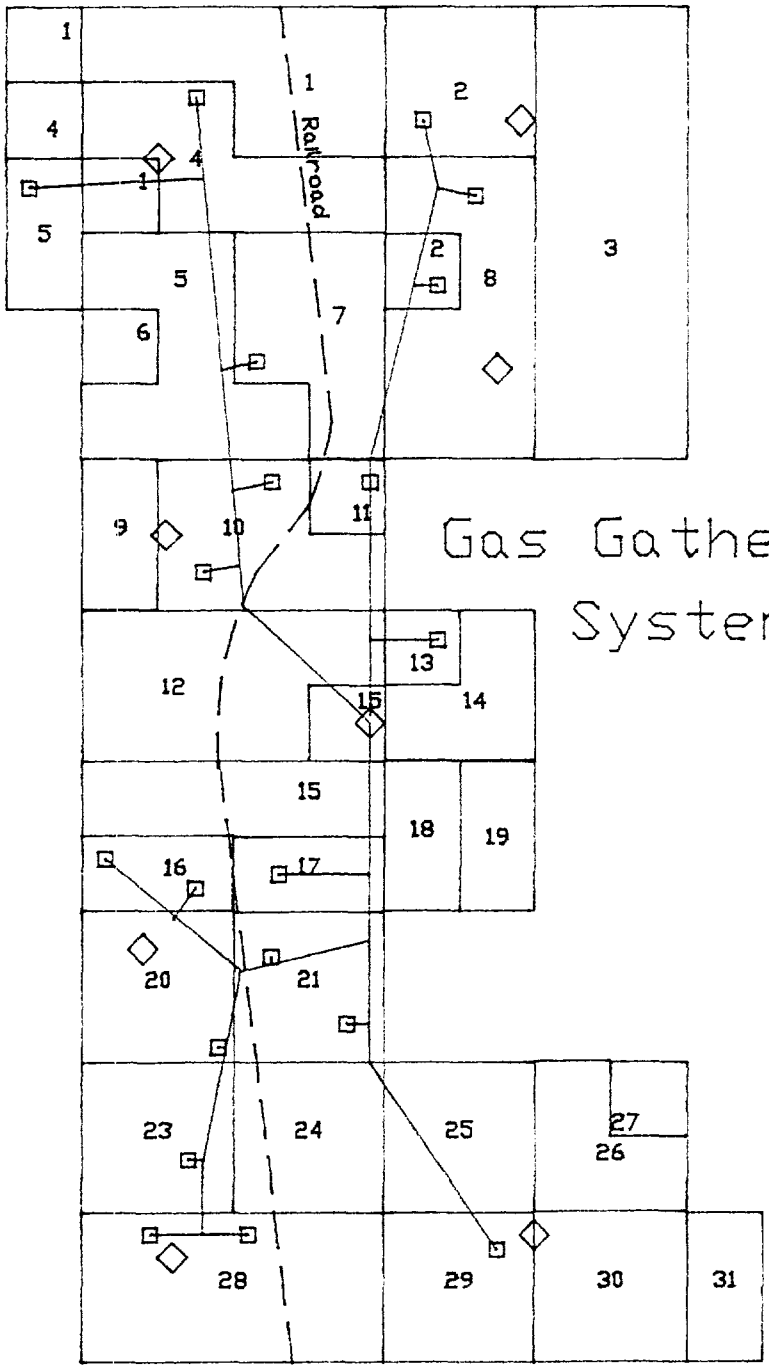
DRINKARD WATERFLOOD



Source Water Gathering System

By: JPS
3/24/87

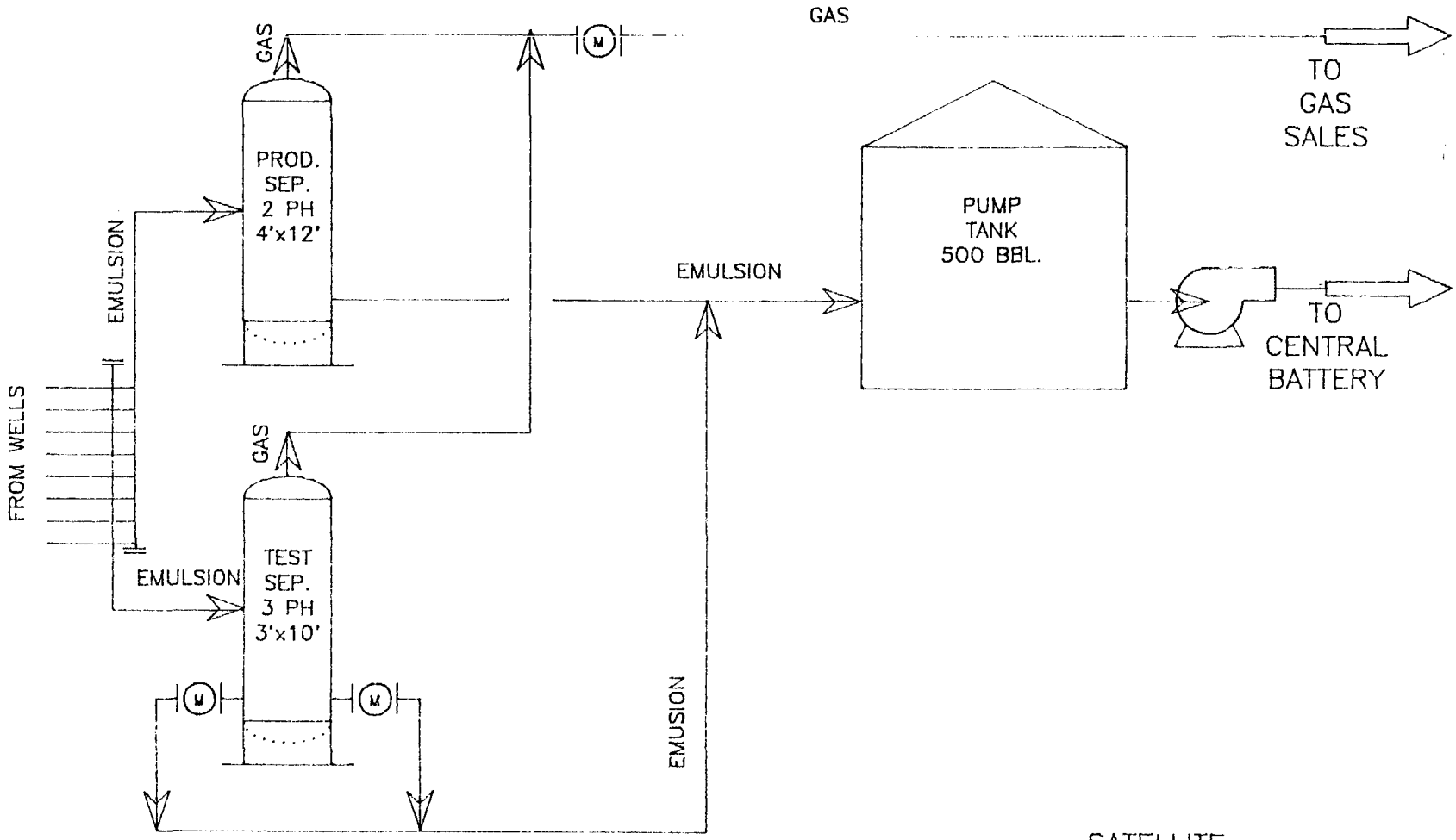
DRINKARD WATERFLOOD



Gas Gathering System

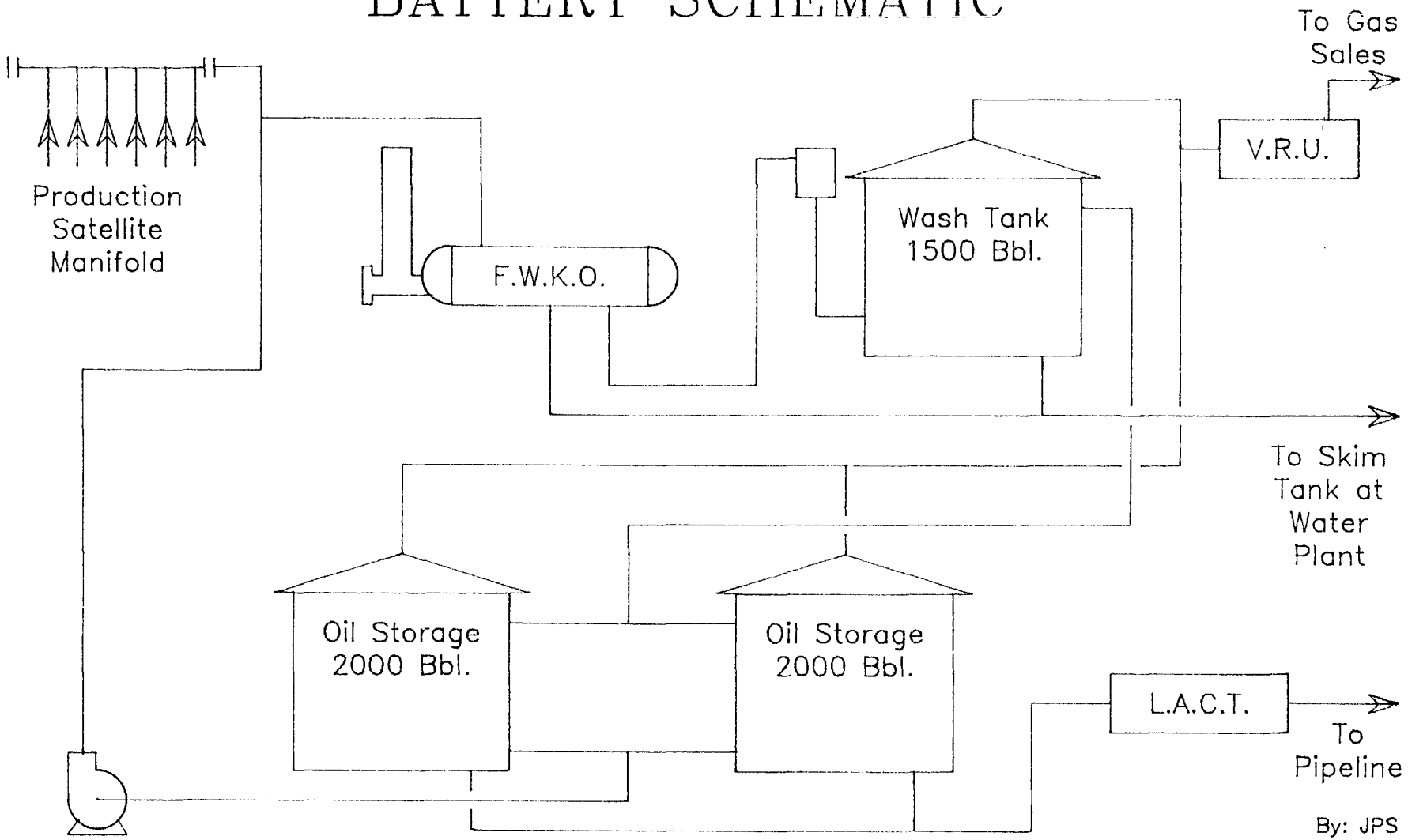
By: JPS
3/24/87

NORTHEAST DRINKARD UNIT
SATELLITE SCHEMATIC

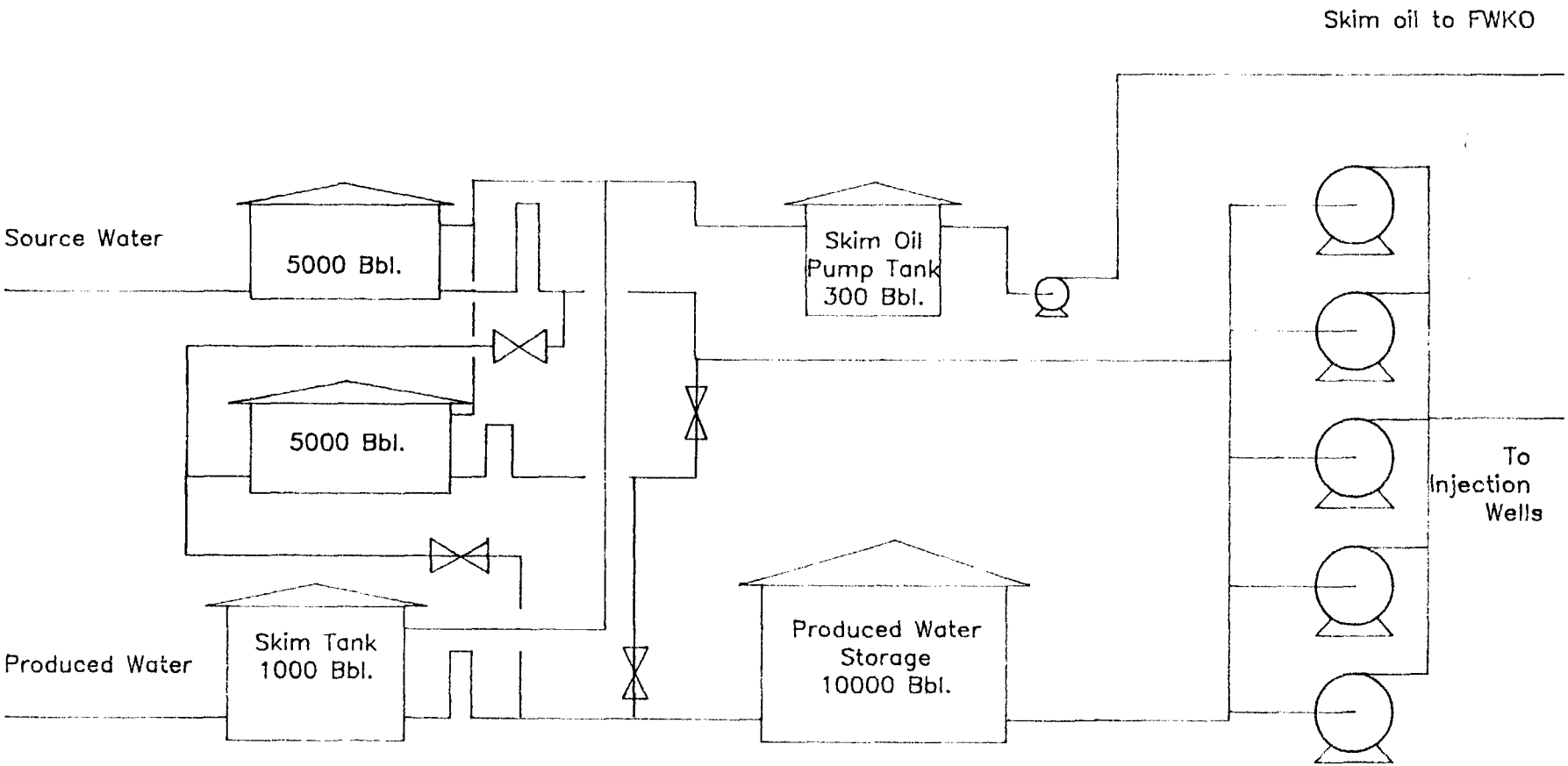


SATELLITE
SCHEMATIC FLOW DIAGRAM
By: IRP

NORTHEAST DRINKARD UNIT
BATTERY SCHEMATIC

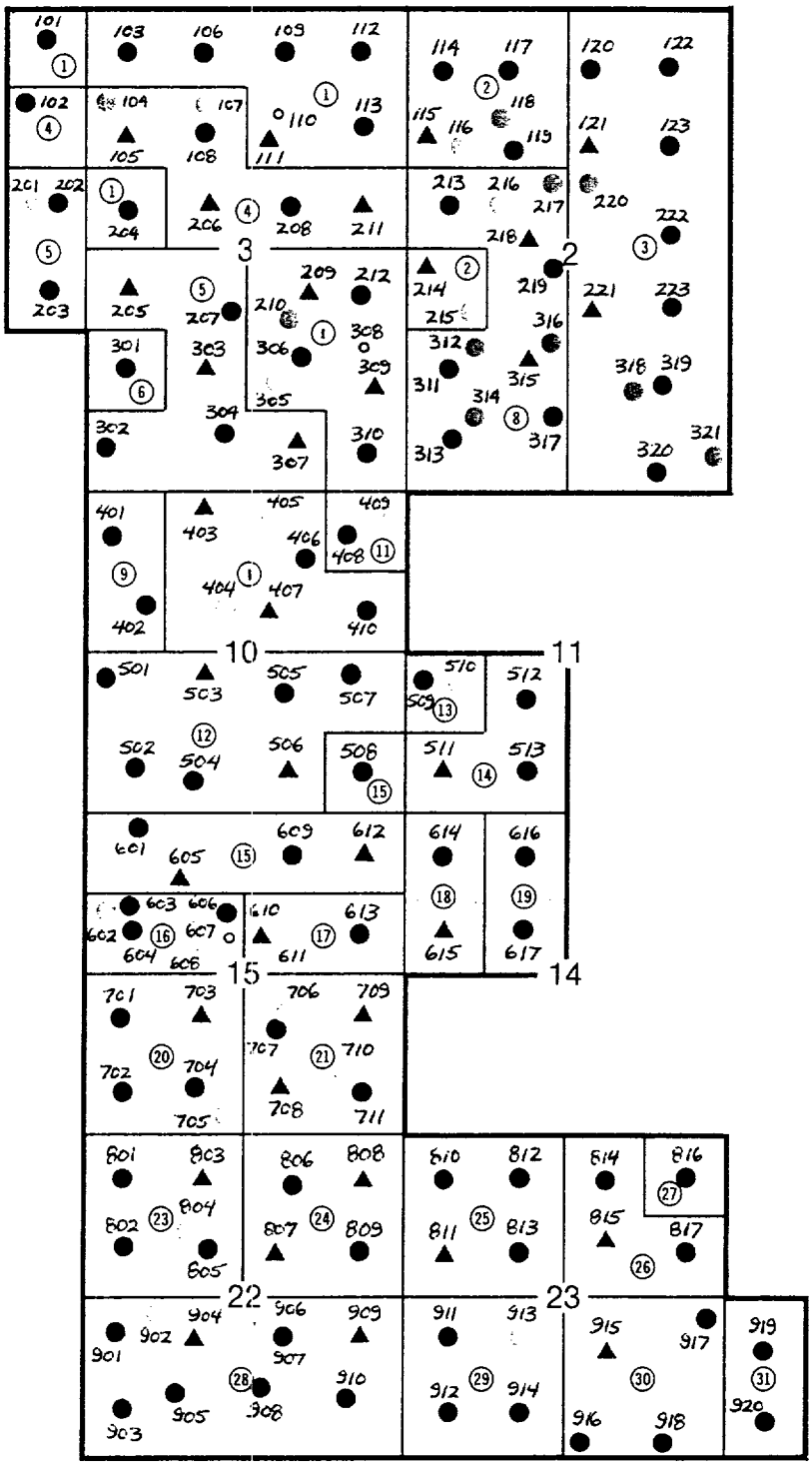


DRINKARD WATERFLOOD WATER PLANT



By: JPS
3/24/87

Proposed Flood Plan



LEGEND

- WATER SOURCE WELL
- GAS WELL
- OIL WELL
- ▲ WATER INJECTION WELL
- ① TRACT NUMBER

N

1 MILE
½ MILE
SCALE

PROPOSED NORTHEAST DRINKARD UNIT

WELLBORE UTILIZATION & INJECTION PATTERN