

HN56CMD 19:36CDT 09/07/73

CMF RUN STARTED
RUN-100 EAAP

EAAP 19:36CDT 09/07/73

TO: N.M.O.C.C. DIST II (3)
P.O. DRAWER DD
ARTESIA, NEW MEXICO 88210
ATTN: MR. J.A. GRESSETT

EMPIRE ABO PRESSURE MAINTENANCE PROJECT
(N.M.O.C.C. ORDERS R-454R, R-4549)
ATLANTIC RICHFIELD COMPANY - OPERATOR
MONTHLY REPORT FOR MAR. . 1973 .

PROJECT AREA: EMPIRE ABO UNIT														
SHEET A TOTAL REQUESTED ALLOWABLE FOR JUNE . 1973 IS 3700. BOPD														
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)				
											REQUES			
											*INJECTION-AVERAGE * VOID *REQUE- * NET *REQU-			
											* (MAR. . 1973) *AVAIL. * STED * VOID * VOID *ESTED			
											* WHINJ CUM. *FOR(1)* VOID *AT NUA*(8+9) * OIL			
											* (2) *SEE I9*ALLOW			
TCT WELL	*WFL DATE	OIL	*TR GAS	GOR	* OIL	*TR GAS	GOR	* GAS	PRESS	INJ	*TRANS.*TRANS.*			
NO.	NO.	UN	SEC	T	P	*STA	M	YR	RRL	RHL	MCF	CF/R	* BOPD	BOPD

1	1	A	36	17	27*	T							* 2773. 1800.	250.* 485.*
1	2	R	36	17	27*	F	3	74	350.	0.	245.	700.*300.	0.	210. 700.*
1	3	C	36	17	27*	F	3	74	400.	0.	320.	800.*300.	0.	240. 800.*
1	4	D	36	17	27*	F	3	74	365.	0.	329.	901.*300.	0.	270. 900.*
1	5	F	36	17	27*	F	3	74	382.	0.	382.	1000.*300.	0.	300. 1000.*
1	6	F	36	17	27*	F	3	74	424.	0.	466.	1099.*348.	0.	393. 1101.*
1	7	G	36	17	27*	F	3	74	372.	0.	446.	1199.*284.X	0.	341. 1201.*
1	8	H	36	17	27*	F	3	74	325.	0.	228.	702.*284.X	0.	199. 701.*
1	9	I	36	17	27*	F	3	74	310.	0.	248.	800.*284.X	0.	227. 799.*
1	10	J	36	17	27*	F	3	74	360.	0.	324.	900.*250.	0.	225. 900.*
1	11	K	36	17	27*	F	3	74	250.	0.	250.	1000.*250.	0.	250. 1000.*
1	12	L	36	17	27*	F	3	74	250.	0.	275.	1100.*210.	0.	231. 1100.*
1	13	M	36	17	27*	F	3	74	150.	0.	180.	1200.*150.	0.	180. 1200.*
1	14	N	36	17	27*	P	3	74	150.	100.	180.	1200.*150.	100.	180. 1200.*
1	15	O	36	17	27*	P	3	74	150.	75.	105.	700.*150.	75.	105. 700.*
1	16	P	36	17	27*	F	3	74	100.	35.	500.	5000.*100.Y	35.	500. 5000.*
1	17	Q	36	17	27*	F	3	74	40.	0.	120.	3000.* 40.Y	0.	120. 3000.*
1	18	R	36	17	27*	S	3	74	14.	2.	42.	3000.*		
1	19	S	36	17	27*	S	3	74	5.	1.	70.	14000.*		
1	20	T	36	17	27*	S	3	74	158.	0.	553.	3500.*		

EMPIRE ABO UNIT OIL PRODUCTION= 3700. BOPD
EMPIRE ABO UNIT WATER PRODUCTION= 210. BOPD
EMPIRE ABO UNIT GAS PRODUCTION= 3961. MCF/D
EMPIRE ABO UNIT GOR= 1071. CF/R
TOTAL DAILY GAS INJECTION= 2773. MCF/D

TOTAL VOIDAGE AVAIL. FOR TRANS.= 1143. RSVB/D
TOTAL REQUESTED VOIDAGE TRANS.= 881. RSVB/D
TOTAL NET VOIDAGE AT NUA= 1422. RSVB/D
TOTAL REQUESTED NET VOIDAGE= 2303. RSVB/D
TOTAL REQUESTED OIL ALLOWABLE= 3700. BOPD

(1-SEE ATTACHMENT I (B) COL. (9)).
(2-SEE ATTACHMENT I (A) COL. (10)).
(X=PRODUCTION LIMITED TO TWICE NUA)
(Y=LIMITED CAPACITY. SEE ATTACHMENT I (C) COL.'S (9) & 9(C).)

EMPIRE ABO PRESSURE MAINTENANCE PROJECT
MONTHLY REPORT FOR MAR. . 1973 .

ATTACHMENT I: ALLOWABLE CALCULATIONS BASED ON NET RESERVOIR VOIDAGE.

A)	WELLS ACCEPTING*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	TRANSFERRED	*	* QO=	*	*	*	*	*	*	*	*	*
	ALLOWABLES	*	* PER	* GI/GP	* 1- GI/GP	* RP.FROM	* RPN=	* VR(HC)	* VR(W)	* VRT=	* VR(HC)	*
		*	* WELL	*	*	* COL. A-5*	* FOU. 1A*	*	*	* (7)+(8)	* PER WELL*	*
		*	* ALLOW	* (46/A5)	* (1-(3))	*	*	* (EQU. 1)*	* (EQU. 2)*	* TOTAL	* AT NUA	*
	TCT WELL PROD	*	*	*	* GOR	* (5)X(4)*	*	*	*	* RES VOID*(EQU. 1)*		
	*NO.	*NO.	*STROPD*	*FRACTION*	*FRACTION*	* MCF/RD	* MCF/RD	* RSVB/D	* RSVB/D	* RSVB/D	* RSVB/D	*

	1	2	300.	* 0.700	* 0.300	* 0.700	* 0.210	* 124.	* -9.0	* 115.	* 59.	*
	1	3	300.	* 0.700	* 0.300	* 0.800	* 0.240	* 140.	* -9.0	* 131.	* 66.	*
	1	4	300.	* 0.700	* 0.300	* 0.900	* 0.270	* 155.	* -9.0	* 146.	* 73.	*
	1	5	300.	* 0.700	* 0.300	* 1.000	* 0.300	* 171.	* -9.0	* 162.	* 81.	*
	1	6	348.	* 0.700	* 0.300	* 1.101	* 0.330	* 216.	* -9.0	* 207.	* 88.	*
	1	7	284.	* 0.700	* 0.300	* 1.201	* 0.360	* 191.	* -9.0	* 182.	* 95.	*
	1	8	284.	* 0.700	* 0.300	* 0.701	* 0.210	* 118.	* -9.0	* 109.	* 59.	*
	1	9	284.	* 0.700	* 0.300	* 0.799	* 0.240	* 132.	* -9.0	* 123.	* 66.	*
	1	10	250.	* 0.700	* 0.300	* 0.900	* 0.270	* 129.	* -9.0	* 120.	* 73.	*
	1	11	250.	* 0.700	* 0.300	* 1.000	* 0.300	* 142.	* -9.0	* 133.	* 81.	*
	1	12	210.	* 0.700	* 0.300	* 1.100	* 0.330	* 130.	* -9.0	* 121.	* 88.	*
	1	13	150.	* 0.700	* 0.300	* 1.200	* 0.360	* 101.	* -9.0	* 92.	* 95.	*
	1	14	150.	* 0.700	* 0.300	* 1.200	* 0.360	* 101.	* 91.0	* 192.	* 95.	*
	1	15	150.	* 0.700	* 0.300	* 0.700	* 0.210	* 62.	* 66.0	* 128.	* 59.	*

A) TOTALS: 3560. 1911. 49.0 1960. 1079.

B) WELLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
TRANSFERRED	*	*	*	*	*	*	*	*	*	*	*
ALLOWABLES	*	*	*	*	*	*	*	*	*	*	*
1	1	* 142.	* 0.	* 1.000	* 2.000	* 2.000	* 494.	* -9.0	* 485.	*	*
1	14	* 14.	* 0.	* 1.000	* 3.000	* 3.000	* 73.	* -7.0	* 66.	*	*
1	19	* 5.	* 0.	* 1.000	* 14.000	* 14.000	* 120.	* -8.0	* 112.	*	*
1	20	* 81.	* 0.	* 1.000	* 3.500	* 3.500	* 490.	* -9.0	* 481.	*	*

B) TOTALS: 242. 1176. -33.0 1143.

C) CAPACITY WELLS*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ALLOWABLE	*	*	*	*	*	*	*	*	*	*	*
CALCULATIONS	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
1	16	* 100.	* 0.700	* 0.300	* 5.000	* 1.500	* 262.	* 26.0	* 288.	* 485.	* 1.682
1	17	* 40.	* 0.700	* 0.300	* 3.000	* 0.900	* 64.	* -9.0	* 55.	* 485.	* 8.847

(Z NOTE: CAPACITY WELLS ALLOWED TO PRODUCE AT ANY RATE AS LONG AS VRT(9A)/VRT(9) > OR = 1.0
WHEN VRT(9A)/VRT(9) < 1.0, DAILY OIL ALLOWABLE OF CAPACITY WELLS MUST BE NO GREATER
THAN (2) X VRT(9A)/VRT(9) OR (2) X (9R)).

FLUID FACTORS: (BASED ON PREVIOUS RESERVOIR PRESSURE SURVEY, 1343. PSI, JULY, 1973):
BO. OIL FORMATION VOLUME FACTOR, RES. RBLS/STRO = 1.415
RG. GAS FORMATION VOLUME FACTOR, RES. RBLS/MCF = 1.710
RS. SOLUTION GAS-OIL RATIO, MCF/STRO = 0.795
BW. WATER FORMATION VOLUME FACTOR, RES. RBLS/STRO = 1.000

ESTABLISHED CONSTANTS: QWF. NATURAL WATER ENCROACHMENT, STRO/DAY, BASED ON NUMERIC MODEL STUDIES = 1950. BOPD
QO. TOP PER-WELL N.O.A., STROPD = 142.

BASIC VOIDAGE EQUATIONS: 1) VR(HC)=QO X (BO + (RPN - RS) X RG). NET HYDROCARBON RESV. VOIDAGE, RSVB/D
1A) RPN= RP X (1.0 - GI/GP) . MCF/STRO
2) VRW= (QWP - QWF(PER WELL)) X BW. NET RESV. SPACE VOIDED BY WATER, RSVB/D
3) VRT= VR(HC) + VRW. TOTAL NET RESV. SPACE VOIDED ON DAILY BASIS, RSVB/D

ADDITIONAL ALLOWABLE IN EXCESS OF 30000. BOPD

(BASED ON R=(GI/GP)X10.0, RATIO)

ADDITIONAL ALLOWABLE = 97.97 X (2PRX + R).BOPD

R= (GI/GP)X10.0 = 7.000

ADDITIONAL ALLOWABLE = 10192. BOPD

PROGRAM STOP AT 1885
READY
END OF CMF RUN
READY