WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	661	.0	.0	.00	3114.9	.00	3732.5	431.2	16.40	9332.0	.00
0009240012612	.50000	744	157.2	9.3	33.66	.0	.00	980.2	156.8	167.78	.0	.00
0010240012610	.50000	744	30.6	6.2	6.73	.0	.00	1473.1	69.1	57.59	.0	.00
0011240012610	.25000	744	32.8	9.3	2.52	.0	.00	1656.6	100.0	41.34	.0	.00
0014240012610	.50000	744	43.7	12.4	2.95	.0	.00	2600.6	156.8	91.39	.0	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0002250012612	.50000	692	294.5	34.6	57.14	.0	.00	2076.9	160.9	284.43	.0	.00
0201250012610	.25000	720	142.7	663.7	7.33	.0	.00	1507.6	1732.6	209.14	.0	.00
0016240012610	1.00000	744	31.3	6.2	11.78	.0	.00	2324.4	125.9	280.42	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2752	462.9	208.7	77.21	3114.9	.00	11103.9	1300.2	741.90	9332.0	.00
RESERVR UNITS	4.75000	2752	541.6	208.7	1312.77	3114.9	.00	12991.6	1300.2	.00	9332.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 66.5 M3/CALDAY TO REPLACE REQUIRES 2.72 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.1 AVERAGE GAS-OIL RATIO IS 166.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 151.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 65.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	661	.0	.0	.00	2106.1	.00	.0	.0	.00	5994.2	.00
0011240012610	.25000	744	32.8	9.3	2.52	.0	.00	1656.6	100.0	41.34	.0	.00
0012240012612	.50000	720	307.9	330.3	62.98	.0	.00	1635.0	671.2	155.91	.0	.00
0009230012610	.25000	772	395.3	629.5	11.88	.0	.00	3102.8	2842.1	80.41	.0	.00
0016230012610	.50000	726	488.7	18.2	29.56	.0	.00	5864.3	3292.0	138.92	.0	.00
0001260012610	.25000	744	247.2	103.0	17.17	.0	.00	2931.6	1865.1	109.37	.0	.00
0004250012612	.50000	575	369.6	45.6	46.50	.0	.00	2521.3	283.4	200.10	.0	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0014240012610	.50000	744	43.7	12.4	2.95	.0	.00	2600.6	156.8	91.39	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2128	898.5	391.7	91.61	2106.1	.00	8923.9	3416.6	432.80	5994.2	.00
RESERVR UNITS	4.00000	2128	1047.7	391.7	722.49	2106.1	.00	10441.0	3416.6	.00	5994.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 69.7 M3/CALDAY TO REPLACE REQUIRES 4.62 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 30.4 AVERAGE GAS-OIL RATIO IS 102.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 97.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 43.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	744	139.8	78.6	5.89	.0	.00	2760.7	755.4	66.71	.0	.00
0009230012610	.25000	772	395.3	629.5	11.88	.0	.00	3102.8	2842.1	80.41	.0	.00
0210230012610	.50000	693	368.8	67.7	16.01	.0	.00	488.0	84.6	41.06	.0	.00
0014230012610	1.00000	744	136.9	291.7	8.70	.0	.00	1558.5	1517.8	47.75	.0	.00
0003260012610	.50000	720	59.9	32.0	4.61	.0	.00	1779.9	327.6	53.31	.0	.00
0002260012610	.50000	744	193.6	93.1	17.39	.0	.00	2992.3	801.5	104.51	.0	.00
0001260012610	.25000	744	247.2	103.0	17.17	.0	.00	2931.6	1865.1	109.37	.0	.00
0016230012610	.50000	726	488.7	18.2	29.56	.0	.00	5864.3	3292.0	138.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	3309	992.8	658.9	55.64	.0	.00	11390.1	5702.8	330.80	.0	.00
RESERVR UNITS	4.50000	3309	1161.6	658.9	237.40	.0	.00	13326.4	5702.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 66.4 M3/CALDAY TO REPLACE REQUIRES 2.71 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.9 AVERAGE GAS-OIL RATIO IS 56.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	641	.0	.0	.00	3521.0	.00	3762.4	582.7	13.10	14601.8	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0004250012612	.50000	575	369.6	45.6	46.50	.0	.00	2521.3	283.4	200.10	.0	.00
0001260012610	.25000	744	247.2	103.0	17.17	.0	.00	2931.6	1865.1	109.37	.0	.00
0008260012610	.50000	744	394.9	88.1	22.72	.0	.00	4076.5	361.6	91.26	.0	.00
0012250012610	.50000	744	186.4	556.5	12.90	.0	.00	2603.6	3097.8	104.39	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0006250012610	.50000	716	395.1	265.8	16.60	.0	.00	4396.6	1229.3	93.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1941	917.7	509.1	71.40	3521.0	.00	12888.4	3595.0	410.38	14601.8	.00
RESERVR UNITS	3.75000	1941	1069.3	509.1	375.75	3521.0	.00	15079.5	3595.0	.00	14601.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 63.0 M3/CALDAY TO REPLACE REQUIRES 4.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.7 AVERAGE GAS-OIL RATIO IS 77.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 180.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 78.2

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	661	.0	.0	.00	2663.0	.00	1914.4	608.2	37.70	9199.2	.00
0201250012610	.25000	720	142.7	663.7	7.33	.0	.00	1507.6	1732.6	209.14	.0	.00
0002250012612	.50000	692	294.5	34.6	57.14	.0	.00	2076.9	160.9	284.43	.0	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0006250012610	.50000	716	395.1	265.8	16.60	.0	.00	4396.6	1229.3	93.90	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0010250012610	.50000	744	282.8	9.3	24.83	.0	.00	3686.3	290.7	266.98	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0008250012610	.50000	288	13.7	.0	2.72	.0	.00	2146.4	278.6	32.31	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1855	716.2	326.8	71.34	2663.0	.00	10485.3	2120.1	559.78	9199.2	.00
RESERVR UNITS	4.00000	1855	834.6	326.8	530.08	2663.0	.00	12267.8	2120.1	.00	9199.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 54.6 M3/CALDAY TO REPLACE REQUIRES 3.76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.3 AVERAGE GAS-OIL RATIO IS 99.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 157.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 63.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	732	26.9	9.2	4.14	.0	.00	425.6	129.3	30.99	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0010250012610	.50000	744	282.8	9.3	24.83	.0	.00	3686.3	290.7	266.98	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0014250012610	.50000	327	19.2	.0	1.11	.0	.00	125.0	109.0	36.88	.0	.00
0016250012610	.50000	744	21.8	.0	3.09	.0	.00	495.0	180.1	24.06	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1915	251.5	16.9	24.80	.0	.00	3929.1	505.0	244.07	.0	.00
RESERVR UNITS	3.00000	1915	294.3	16.9	292.98	.0	.00	4597.1	505.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.5 M3/CALDAY TO REPLACE REQUIRES .80 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.3 AVERAGE GAS-OIL RATIO IS 98.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 6 OF 1983

THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3

THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	689	.0	.0	.00	1412.4	.00	3732.5	431.2	16.40	6217.1	.00
0009240012612	.50000	720	166.7	32.3	32.26	.0	.00	823.0	147.5	134.12	.0	.00
0010240012610	.50000	720	27.4	3.6	7.09	.0	.00	1442.5	62.9	50.86	.0	.00
0011240012610	.25000	720	38.9	7.2	4.56	.0	.00	1623.8	90.7	38.82	.0	.00
0014240012610	.50000	720	46.1	5.4	5.86	.0	.00	2556.9	144.4	88.45	.0	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0002250012612	.50000	712	380.5	31.9	52.20	.0	.00	1782.4	126.3	227.29	.0	.00
0201250012610	.25000	720	108.4	287.2	3.42	.0	.00	1364.9	1068.9	201.81	.0	.00
0016240012610	1.00000	720	35.8	7.2	14.34	.0	.00	2293.1	119.7	268.64	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2688	518.6	120.8	84.25	1412.4	.00	10641.0	1091.5	664.69	6217.1	.00
RESERVR UNITS	4.75000	2688	606.8	120.8	1428.44	1412.4	.00	12450.0	1091.5	.00	6217.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.9 M3/CALDAY TO REPLACE REQUIRES 2.93 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 18.9 AVERAGE GAS-OIL RATIO IS 162.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 65.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 45.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 6 OF 1983

THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3

THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	713	.0	.0	.00	1585.6	.00	.0	.0	.00	3888.1	.00
0011240012610	.25000	720	38.9	7.2	4.56	.0	.00	1623.8	90.7	38.82	.0	.00
0012240012612	.50000	720	375.4	152.6	36.17	.0	.00	1327.1	340.9	92.93	.0	.00
0009230012610	.25000	720	469.9	275.5	12.46	.0	.00	2707.5	2212.6	68.53	.0	.00
0016230012610	.50000	720	534.0	41.9	12.71	.0	.00	5375.6	3273.8	109.36	.0	.00
0001260012610	.25000	712	257.1	81.6	7.73	.0	.00	2684.4	1762.1	92.20	.0	.00
0004250012612	.50000	641	519.7	53.3	56.85	.0	.00	2151.7	237.8	153.60	.0	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0014240012610	.50000	720	46.1	5.4	5.86	.0	.00	2556.9	144.4	88.45	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2110	1064.8	221.1	81.19	1585.6	.00	8025.4	3024.9	341.19	3888.1	.00
RESERVR UNITS	4.00000	2110	1241.6	221.1	579.27	1585.6	.00	9389.7	3024.9	.00	3888.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 68.1 M3/CALDAY TO REPLACE REQUIRES 4.51 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.2 AVERAGE GAS-OIL RATIO IS 76.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 77.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 31.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	720	146.9	55.0	8.80	.0	.00	2620.9	676.8	60.82	.0	.00
0009230012610	.25000	720	469.9	275.5	12.46	.0	.00	2707.5	2212.6	68.53	.0	.00
0210230012610	.50000	268	119.2	16.9	25.05	.0	.00	119.2	16.9	25.05	.0	.00
0014230012610	1.00000	720	147.5	167.8	5.38	.0	.00	1421.6	1226.1	39.05	.0	.00
0003260012610	.50000	720	72.9	2.7	4.40	.0	.00	1720.0	295.6	48.69	.0	.00
0002260012610	.50000	720	217.4	23.3	16.37	.0	.00	2798.7	708.4	87.12	.0	.00
0001260012610	.25000	712	257.1	81.6	7.73	.0	.00	2684.4	1762.1	92.20	.0	.00
0016230012610	.50000	720	534.0	41.9	12.71	.0	.00	5375.6	3273.8	109.36	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	3012	947.9	354.5	48.49	.0	.00	10397.2	5043.9	275.16	.0	.00
RESERVR UNITS	4.50000	3012	1109.0	354.5	337.16	.0	.00	12164.8	5043.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 60.0 M3/CALDAY TO REPLACE REQUIRES 2.45 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 27.2 AVERAGE GAS-OIL RATIO IS 51.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	713	.0	.0	.00	3155.2	.00	3762.4	582.7	13.10	11080.8	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0004250012612	.50000	641	519.7	53.3	56.85	.0	.00	2151.7	237.8	153.60	.0	.00
0001260012610	.25000	712	257.1	81.6	7.73	.0	.00	2684.4	1762.1	92.20	.0	.00
0008260012610	.50000	720	279.8	39.5	8.80	.0	.00	3681.6	273.5	68.54	.0	.00
0012250012610	.50000	714	193.1	546.4	15.99	.0	.00	2417.2	2541.3	91.49	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0006250012610	.50000	720	387.9	232.1	15.64	.0	.00	4001.5	963.5	77.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1926	977.3	461.6	82.70	3155.2	.00	11970.7	3086.0	338.98	11080.8	.00
RESERVR UNITS	3.75000	1926	1138.7	461.6	556.20	3155.2	.00	14005.7	3086.0	.00	11080.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.9 M3/CALDAY TO REPLACE REQUIRES 5.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.1 AVERAGE GAS-OIL RATIO IS 84.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 146.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 64.8

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	689	.0	.0	.00	1634.8	.00	1914.4	608.2	37.70	6536.2	.00
0201250012610	.25000	720	108.4	287.2	3.42	.0	.00	1364.9	1068.9	201.81	.0	.00
0002250012612	.50000	712	380.5	31.9	52.20	.0	.00	1782.4	126.3	227.29	.0	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0006250012610	.50000	720	387.9	232.1	15.64	.0	.00	4001.5	963.5	77.30	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0010250012610	.50000	714	298.3	5.9	34.90	.0	.00	3403.5	281.4	242.16	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0008250012610	.50000	336	10.9	5.0	1.82	.0	.00	2132.7	278.6	29.59	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1945	796.8	215.2	87.98	1634.8	.00	9769.1	1793.2	488.44	6536.2	.00
RESERVR UNITS	4.00000	1945	928.6	215.2	723.51	1634.8	.00	11429.9	1793.2	.00	6536.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 62.2 M3/CALDAY TO REPLACE REQUIRES 4.29 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.3 AVERAGE GAS-OIL RATIO IS 110.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 87.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 49.4

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	714	32.4	1.8	2.42	.0	.00	398.7	120.1	26.85	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0010250012610	.50000	714	298.3	5.9	34.90	.0	.00	3403.5	281.4	242.16	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0014250012610	.50000	168	1.1	5.0	.00	.0	.00	105.8	109.0	35.77	.0	.00
0016250012610	.50000	720	20.2	.0	1.95	.0	.00	473.2	180.1	20.98	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1868	287.5	9.8	36.49	.0	.00	3677.6	488.1	219.28	.0	.00
RESERVR UNITS	3.00000	1868	336.3	9.8	535.15	.0	.00	4302.8	488.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.4 M3/CALDAY TO REPLACE REQUIRES 1.20 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 3.3 AVERAGE GAS-OIL RATIO IS 126.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	.0	.00	.0	.00	0	0	.00	.0	.00
0013230012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004260012610	.50000	744	286.3	238.8	7.51	.0	.00	727.9	532.2	17.88	.0	.00
0001270012610	.50000	744	99.6	301.7	11.87	0	.00	131.4	356.9	14.13	.0	.00
0002270012610	.50000	744	164.2	156.4	19.05	0	.00	426.1	308.0	32.14	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1116	275.0	348.2	19.21	.0	.00	842.7	598.5	32.02	.0	.00
RESERVR UNITS	3.50000	1116	321.8	348.2	213.83	.0	.00	752.0	598.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 28.5 M3/CALDAY TO REPLACE REQUIRES 1.16 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.9 AVERAGE GAS-OIL RATIO IS 69.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	720	112.1	292.1	2.88	.0	.00	261.7	374.3	13.45	.0	.00
0003270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0012270012610	.50000	716	213.9	156.5	26.95	.0	.00	643.5	368.3	45.10	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1078	219.1	370.3	16.36	.0	.00	583.4	558.4	36.00	.0	.00
RESERVR UNITS	3.75000	1078	256.3	370.3	196.40	.0	.00	682.6	558.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.5 M3/CALDAY TO REPLACE REQUIRES 1.08 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.8 AVERAGE GAS-OIL RATIO IS 74.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	694	399.1	124.1	50.38	.0	.00	596.1	245.4	64.35	.0	.00
0001270012610	.25000	744	99.6	381.3	11.87	.0	.00	131.4	356.9	14.13	.0	.00
0002270012610	.50000	744	164.2	156.4	19.05	.0	.00	426.1	308.0	32.14	.0	.00
0003270012610	.50000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0010270012610	.50000	744	187.9	358.1	9.91	.0	.00	382.4	466.9	23.66	.0	.00
0009270012610	.25000	744	115.4	376.7	12.63	.0	.00	254.8	489.8	22.49	.0	.00
0008270012610	.50000	732	98.3	676.4	12.24	.0	.00	989.5	1285.0	19.70	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2176	677.0	891.0	77.10	.0	.00	1591.7	1487.0	111.26	.0	.00
RESERVR UNITS	4.25000	2176	792.1	891.0	1042.44	.0	.00	1862.2	1487.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 87.9 M3/CALDAY TO REPLACE REQUIRES 3.59 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 17.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.8 AVERAGE GAS-OIL RATIO IS 113.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	574	267.8	25.0	15.98	.0	.00	2170.5	282.2	32.92	.0	.00
0003260012610	.25000	742	204.1	53.4	13.96	.0	.00	1365.0	258.6	29.38	.0	.00
0004260012610	.50000	744	286.3	238.8	7.51	.0	.00	727.9	532.2	17.88	.0	.00
0001270012610	.25000	744	99.6	381.3	11.87	.0	.00	131.4	356.9	14.13	.0	.00
0008270012610	.50000	732	98.3	676.4	12.24	.0	.00	989.5	1285.0	19.70	.0	.00
0009270012610	.25000	744	115.4	376.7	12.63	.0	.00	254.8	489.8	22.49	.0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011260012610	.25000	648	128.5	145.8	4.06	.0	.00	952.9	960.9	11.92	.0	.00
0006260012610	.50000	744	148.7	18.5	10.69	.0	.00	1517.5	194.1	27.46	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2404	671.3	711.1	41.83	.0	.00	9464.0	1804.4	84.92	.0	.00
RESERVR UNITS	4.00000	2404	785.5	711.1	387.64	.0	.00	5222.9	1804.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 57.6 M3/CALDAY TO REPLACE REQUIRES 2.35 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 13.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 51.4 AVERAGE GAS-OIL RATIO IS 62.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	590	161.3	86.5	5.70	.0	.00	3636.4	524.0	8.58	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0004250012612	.50000	744	166.3	25.1	4.28	.0	.00	406.9	85.0	8.18	.0	.00
0001260012610	.25000	740	215.3	200.6	24.98	.0	.00	1622.1	1438.6	40.80	.0	.00
0008260012610	.50000	366	102.5	17.1	11.89	.0	.00	2214.4	156.7	26.19	.0	.00
0012250012610	.50000	744	154.6	195.5	6.80	.0	.00	1438.6	1044.8	25.81	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0006250012610	.50000	744	262.4	56.4	9.13	.0	.00	2364.2	362.7	14.51	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2248	595.3	285.1	29.46	.0	.00	7724.6	1743.9	62.85	.0	.00
RESERVR UNITS	3.75000	2248	693.6	285.1	98.45	.0	.00	9037.8	1743.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.7 M3/CALDAY TO REPLACE REQUIRES 2.84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.4 AVERAGE GAS-OIL RATIO IS 49.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	744	272.4	35.0	8.55	.0	.00	578.4	150.0	9.52	.0	.00
0008260012610	.50000	366	102.5	17.1	11.89	.0	.00	2214.4	156.7	26.19	.0	.00
0001260012610	.25000	740	215.3	200.6	24.98	.0	.00	1622.1	1438.6	40.80	.0	.00
0002260012610	.50000	744	205.8	102.9	5.05	.0	.00	1824.9	566.4	10.76	.0	.00
0003260012610	.25000	742	204.1	53.4	13.96	.0	.00	1365.0	258.6	29.38	.0	.00
0006260012610	.50000	744	140.7	18.5	10.69	.0	.00	1517.5	194.1	27.46	.0	.00
0011260012610	.25000	648	126.5	145.8	4.06	.0	.00	952.9	960.9	11.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.25000	2204	637.9	204.2	33.11	.0	.00	4341.8	1273.1	62.25	.0	.00
RESERVR UNITS	3.25000	2204	746.3	204.2	226.94	.0	.00	5079.9	1273.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.0 M3/CALDAY TO REPLACE REQUIRES 1.55 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.2 AVERAGE GAS-OIL RATIO IS 51.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	704	47.7	.8	5.88	0	.00	197.5	108.0	12.72	.0	.00
0009250012610	.25000	744	16.5	8.9	1.17	0	.00	1688.8	146.1	1.41	.0	.00
0010250012610	.50000	722	276.9	26.2	24.71	.0	.00	1911.6	233.9	72.09	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	0	.00	1866.2	137.7	25.70	.0	.00
0014250012610	.50000	710	20.2	18.1	2.60	.0	.00	56.5	38.5	8.02	.0	.00
0016250012610	.50000	744	36.9	4.1	4.66	.0	.00	320.1	165.9	10.04	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2149	251.8	27.4	23.41	.0	.00	2234.4	398.1	64.57	.0	.00
RESERVR UNITS	3.00000	2149	294.5	27.4	271.10	.0	.00	2614.2	398.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.1 M3/CALDAY TO REPLACE REQUIRES .78 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 9.8 AVERAGE GAS-OIL RATIO IS 93.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	744	35.5	1.2	4.28	.0	.00	160.8	115.6	10.67	.0	.00
0014250012610	.50000	710	20.2	18.1	2.60	.0	.00	56.5	38.5	8.02	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0012250012610	.50000	744	154.6	195.5	6.80	.0	.00	1438.6	1044.8	25.61	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1642	157.3	108.2	10.23	.0	.00	1374.9	691.7	34.01	.0	.00
RESERVR UNITS	2.25000	1642	184.1	108.2	79.69	.0	.00	1608.6	691.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 12.0 M3/CALDAY TO REPLACE REQUIRES .49 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.8 AVERAGE GAS-OIL RATIO IS 65.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009270012610	.25000	744	115.4	376.7	12.63	.0	.00	254.8	489.8	22.49	.0	.00
0010270012610	.50000	744	187.9	358.1	9.91	.0	.00	382.4	466.9	23.66	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	600	26.7	154.1	3.37	.0	.00	199.4	983.5	5.74	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	858	136.2	350.3	9.80	.0	.00	354.6	847.6	20.32	.0	.00
RESERVR UNITS	4.50000	858	159.3	350.3	69.79	.0	.00	414.9	847.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 18.7 M3/CALDAY TO REPLACE REQUIRES .76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.0 AVERAGE GAS-OIL RATIO IS 72.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013260012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011260012610	.50000	648	128.5	145.8	4.06	.0	.00	952.9	960.9	11.92	.0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009270012610	.25000	744	115.4	376.7	12.63	.0	.00	254.8	489.8	22.49	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003350012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014260012610	1.00000	744	117.8	286.2	9.72	.0	.00	190.7	984.8	13.49	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	1254	210.9	495.3	14.91	.0	.00	730.8	1587.7	25.07	.0	.00
RESERVR UNITS	4.75000	1254	246.8	495.3	132.12	.0	.00	855.1	1587.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.9 M3/CALDAY TO REPLACE REQUIRES 1.10 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 68.3 AVERAGE GAS-OIL RATIO IS 70.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA UPPER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0012270012610	.50000	716	213.9	156.5	26.95	.0	.00	643.5	368.3	45.10	.0	.00
0001330012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	600	26.7	154.1	3.37	.0	.00	199.4	983.5	5.74	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	658	120.3	155.3	15.16	.0	.00	421.4	675.9	25.42	.0	.00
RESERVR UNITS	3.75000	658	140.8	155.3	220.99	.0	.00	493.1	675.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.7 M3/CALDAY TO REPLACE REQUIRES .68 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.3 AVERAGE GAS-OIL RATIO IS 126.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003310012510	.25000	744	46.8	80.1	5.89	.0	.00	1272.7	438.7	9.31	.0	.00
0004310012510	.50000	744	167.0	122.9	21.03	.0	.00	938.1	487.9	33.24	.0	.00
0011310012510	.50000	744	244.7	177.7	30.82	.0	.00	363.7	239.5	39.24	.0	.00
0006310012510	.50000	648	262.1	49.9	33.02	.0	.00	1072.3	219.5	55.01	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1254	348.6	195.3	43.91	.0	.00	1505.2	583.1	66.07	.0	.00
RESERVR UNITS	2.75000	1254	407.9	195.3	639.82	.0	.00	1761.1	583.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.1 M3/CALDAY TO REPLACE REQUIRES 1.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.9 AVERAGE GAS-OIL RATIO IS 126.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	1.00000	642	264.0	198.5	11.43	.0	.00	641.1	462.5	35.26	.1	.05
[illegible]	.25000	518	110.0	221.5	12.93	.0	.00	241.4	487.9	27.06	.0	.00
0012260012610	.50000	648	139.3	86.4	5.02	.0	.00	565.9	394.4	32.86	.6	.03
0012270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0012270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
[illegible]	.2500.	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
[illegible]	.25000	672	133.0	159.5	9.23	.0	.00	947.8	922.2	30.55	.7	.04
0012270012610	.25000	588	42.1	271.4	1.64	.0	.00	296.9	761.2	24.12	.0	.00
0012270012610	.50000	660	391.7	226.2	4.01	.0	.00	1231.2	1511.2	23.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO FREE GAS & Bo=1.17

SURFACE UNITS	4.25000	1266	381.0	604.9	38.09	.0	.00	2132.8	3011.1	141.06	.0	.00
RESERVR UNITS	4.25000	1266	450.0	337.1	781.53	.0	.00	3405.2	3011.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/DAY TO PRODUCE 1M3 OF OIL
THE GOR OIL RATE IS [illegible] M3/DAY/NET WELL AVERAGE RESERVOIR VOIDAGE REPLACEMENT RATIO IS 1.17 M3/DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.0 AVERAGE GAS-OIL RATIO IS 56 M3/M3
CURRENT REMAINING VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

NASKAPA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.2 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJECT IN RES M3	INJECT IN RES KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	648	216.9	11.6	25.21	.0	.00	2389.4	271.8	58.16	.0	.00
0003260012610	.25000	648	31.3	18.8	2.53	.0	.00	1596.6	360.6	31.71	.0	.00
0004260012610	.50000	648	294.2	183.1	6.48	.0	.00	1022.1	715.3	24.26	.0	.00
0001270012610	.25000	516	110.0	131.0	12.73	0	.00	241.4	487.9	27.06	.0	.00
0008270012610	.50000	600	291.7	226.2	4.01	.0	.00	1231.2	1511.2	23.71	.0	.00
0002270012610	.25000	588	42.1	271.4	1.64	.0	.00	296.9	761.2	24.12	0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0011260012610	.25000	672	133.0	159.5	2.62	.0	.00	1095.9	1119.4	14.54	.0	.00
0005260012610	.50000	672	112.3	5.2	8.98	.0	.00	1629.8	199.3	36.44	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO FREE GAS & Bo=1.17

SURFACE UNITS	4.00000	2193	647.2	341.0	39.38	.0	.00	5111.1	2166.0	134.04	.0	.00
RESERVR UNITS	4.00000	2193	757.2	241.4	457.54	.0	.00	5980.6	2166.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.5 M3/DAY TO PRODUCE 1M3 OF OIL AVERAGE RESERVOIR VOIDAGE REPLACEMENT 1.17 M3/DAY/NET WELL
AVERAGE OIL RATE IS 7.1 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 11.1 M3/DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.8 AVERAGE GAS-OIL RATIO IS 51.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
00[illegible]012610	1.00000	672	986.9	17.2	14.82	.0	.00	775.0	1267.2	33.30	0	.00
00[illegible]012610	.50000	672	727.4	15.5	4.86	.0	.00	2[illegible]	1[illegible]	31.06	0	.00
0001[illegible]012610	.25000	504	135.9	13.1	.56	.0	.00	1758.0	1456.7	41.26	0	.00
0[illegible]012610	.50000	360	65.9	25.9	6.41	.0	.00	1891.8	502.2	17.17	.0	.00
0003[illegible]012610	.25000	480	31.6	10.0	2.53	.0	.00	1394.6	248.6	31.91	0	00
0[illegible]012610	.50000	672	116.3	5.2	2.98	0	.00	1[illegible]	1[illegible]	31.14	.0	00
0011[illegible]012610	.25000	432	122.0	150.2	3.60	.0	.00	1005.2	1119.1	25.28	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	2102	1[illegible]	2[illegible]	25.07	.0	.00	8[illegible]	1[illegible]	88.[illegible]	0	.00
RESERVR UNITS	3.25000	2102	760.7	87.1	189.15	.0	.00	9[illegible]	1[illegible]	00	0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/CALDAY TO REPLACE REQUIRES 1.59 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.9 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 8.9 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.0 AVERAGE GAS-OIL RATIO IS 50.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 2 OF 1993
THE AVERAGE FORMATION PRESSURE=7511 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	432	126.0	59.7	4.45	227.7	.00	3762.4	592.7	13.10	227.7	.00
0003250012610	.25000	259	72.6	1.7	5.62	.0	.00	38.3	4.6	4.73	0	.00
0004250012610	.50000	672	208.4	22.1	6.74	.0	.00	635.0	107.1	14.72	.0	.00
0001260012610	.25000	504	135.9	13.1	.56	.0	.00	1758.0	1456.7	41.26	.0	.00
0003260012610	.50000	672	277.4	15.5	4.66	.0	.00	2491.0	172.2	31.06	.0	.00
0012250012610	.50000	644	172.5	212.1	10.71	.0	.00	1611.1	1256.9	36.52	.0	00
0011250012610	.25000	646	264.5	20 9	11.20	.0	.00	2130.5	159.6	36.36	.0	.00
0006250012610	.50000	648	234.4	49.0	10.46	.0	.00	2598.6	412.5	29.27	.0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2102	700.5	218.3	25.19	227.7	.00	8423.1	1952.5	88.85	227.7	.00
RESERVR UNITS	3.75000	2102	816.2	248.6	29.84	227.7	.00	9857.4	1962.5	.00	227.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 27.7 M3/CALDAY TO REPLACE REQUIRES 2.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.0 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.9 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 25.0 AVERAGE GAS-OIL RATIO IS 35.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.7

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0112C0012510	.50000	648	15.8	4.2	1.04	0	.00	193.1	112.0	15.61	.0	.00
0112C0012610	.25000	648	17.0	7	2.14	0	.00	171.1	14[illegible]	5.35	0	.00
0113C0012510	.50000	632	279.7	10.3	11.84	0	.00	2191.3	344.3	38.93	0	.00
0113C0012610	.25000	648	264.3	10.4	11.33	.0	.00	2150.5	155.3	36.93	.0	.00
0114C0012510	.50000	648	24.2	3.3	23.02	0	.00	80.7	41.3	31.04	.0	.00
0116C0012610	.50000	648	36.5	1.3	1.80	0	.00	594.5	12[illegible].3	11.54	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1913	78.5	17.1	22.85	0	.00	2520.2	415.2	91.63	.0	.00
RESERVR UNITS	3.50000	1913	87.8	17.1	25.55	0	.00	2818.5	415.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.8 M3/CALDAY TO REPLACE REQUIRES .87 KM3 GAS REINJECTION
AVERAGE OIL RATE IS [illegible] M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS [illegible] M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.0 SURFACE GAS-OIL RATIO IS 24.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

MARKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RLS.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL EFACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013C0012610	1.00000	644	19.1	7.6	2.51	.0	.00	179.9	122.3	13.10	.0	.00
0014C0012510	.50000	648	24.2	3.3	23.02	.0	.00	80.7	41.3	31.04	.0	.00
0011C0012610	.25000	648	264.3	10.9	11.29	.0	.00	2150.5	155.3	36.70	.0	.00
0012C0012610	.50000	644	172.5	11.1	10.71	.0	.00	1611.1	125.7	36.52	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1451	103.5	120.5	22.17	.0	.00	1550.4	912.2	56.18	.0	.00
RESERVR UNITS	2.25000	1451	214.7	120.5	327.02	.0	.00	1823.4	812.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 23.7 M3/CALDAY TO REPLACE REQUIRES .97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 5.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.6 AVERAGE GAS-OIL RATIO IS 120.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
021 2[illegible]012610	1.00000	.0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.0	.00
00[illegible]012610	.50000	672	133.1	158.5	3.32	.0	.00	1[illegible]	[illegible]	19.34	.0	.0	.00
0[illegible]012610	.50000	.0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.0	.00
0[illegible]012610	.25000	508	40.1	271.4	1.64	.0	.00	2[illegible]	[illegible]	24.12	.0	.0	.00
0[illegible]012610	.50000	.0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.0	.00
0[illegible]012610	1.00000	.0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.0	.00
0[illegible]012610	1.00000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	2[illegible]	[illegible]	24.29	.0	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO CROSS GAS & Bo=1.17

SURFACE UNITS	4.75000	1052	173.3	324.3	12.32	.0	.00	[illegible]	[illegible]	[illegible]	.0	.0	.00
RESERVR UNITS	4.75000	1059	202.0	244.0	146.80	.0	.00	[illegible]	[illegible]	[illegible]	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/DAY TO REPLACE REQUIRES [illegible] M3 [illegible] OF INJECTION
AVERAGE OIL RATE IS [illegible] M3/DAY/NET WELL AVERAGE TOTAL FLUID RATE IS [illegible] M3 PER DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.2 AVERAGE GAS-OIL RATIO IS 30.0 M3/M3
CURRENT CUMULATIVE VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=31.04 M3/M3

WELL NAME	WELL PRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
021S270012610	1.00000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
00[illegible]012610	.25000	580	42.1	271.9	1.64	0	.00	2[illegible]	[illegible]	24.12	.0	.00
0[illegible]012610	.50000	636	164.9	345.3	4.77	0	.00	[illegible]	[illegible]	30.34	.0	.00
021[illegible]012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
021[illegible]012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
00033400126[illegible]	.50000	672	27.5	124.1	3.37	.0	.00	226.9	[illegible]	9.10	.0	.00
00023400126[illegible]	1.00000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
021A270012610	.50000	0	.0	0	.00	.0	.00	0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE. CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO CROSS GAS & Bo=1.17

SURFACE UNITS	4.50000	801	106.7	312.5	5.46	.0	.00	961.3	[illegible]	25.27	0	.0	.00
RESERVR UNITS	4.50000	801	124.9	312.5	24.09	.0	.00	[illegible]	[illegible]	.00	0	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/DAY TO REPLACE REQUIRES [illegible] M3 OF INJECTION
AVERAGE OIL RATE IS [illegible] M3/DAY/NET WELL AVERAGE TOTAL FLUID RATE IS [illegible] M3 PER DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74.3 AVERAGE GAS-OIL RATIO IS [illegible] M3/M3
CURRENT CUMULATIVE VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

THE FOLLOWING [illegible] ARE [illegible] OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bg=[illegible]

SURFACE UNITS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RESERVR UNITS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/CALDAY TO REPLACE REQUIRES [illegible] M3/DAY GAS REINJECTION
AVERAGE OIL RATE IS [illegible] M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF [illegible] M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS [illegible] % AVERAGE GAS-OIL RATIO IS [illegible] M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible]

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4208 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 34.5 DEC.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.00 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
00052700126 10	1.00000	744	112.5	209.7	15.80	.0	.00	453.0	940.0	38.63	.0	.00
00052700126 10	.50000	552	56.4	52.1	7.95	.0	.00	54.5	52.1	7.95	.0	.00
00052700126 10	1.00000	720	197.1	177.2	27.00	.0	.00	636.4	277.4	38.10	.0	.00
00102700126 10	.50000	744	101.9	232.8	14.11	.0	.00	834.0	742.3	69.60	.0	.00
00102700126 10	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
00062700126 10	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bg=1.17

SURFACE UNITS	3.75000	2104	365.5	582.1	53.83	.0	.00	1233.9	1644.6	107.63	.0	.00
RESERVR UNITS	3.75000	2104	451.1	599.1	836.71	.0	.00	1445.9	1644.6	.00	0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 60.5 M3/CALDAY TO REPLACE REQUIRES 2.47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.4 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 63 % AVERAGE GAS-OIL RATIO IS 139.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	408	9[illegible]	[illegible]09.0	5.99	0	.00	997.7	1038.7	91.27	.0	.00
0010270012610	.25000	408	200.0	101.5	23.13	.0	.00	441.8	589.4	55.19	.0	.00
0002270012610	.50000	408	24.4	160.1	3.69	0	.00	591.3	559.5	36.55	.0	.00
0003270012610	.50000	552	54.4	92.1	7.95	0	.00	56.4	92.1	7.95	0	.00
0006270012610	.50000	0	0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0013270012610	.50000	600	251.9	706.1	10.92	.0	.00	299.2	1030.4	40.60	.0	.00
0008270012610	.25000	576	105.2	97.0	6.76	.0	.00	405.1	858.2	30.90	.0	.00
0009270012610	.50000	596	108.2	97.0	6.78	.0	.00	405.1	858.2	30.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Pa=1.17

SURFACE UNITS	4.25000	2097	539.3	781.7	53.04	.0	.00	2671.9	3052.8	195.09	.0	.00
RESERVR UNITS	4.25000	2097	631.0	781.7	664.71	.0	.00	3126.2	3052.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/DAYDAY TO REPLACE REQUIRES 2.69 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 57.9 AVERAGE GAS-OIL RATIO IS 99.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.34 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	632	332.2	28.0	45.05	0	.00	2711.6	313.8	103.04	0	.00
0003260012610	.25000	636	117.6	12.7	3.49	.0	.00	1017.0	931.3	35.40	.0	.00
0004260012610	.50000	632	262.9	216.6	7.67	.0	.00	1285.0	931.8	31.95	.0	.00
0001270012610	.25000	608	200.0	101.5	28.13	.0	.00	441.8	589.4	55.19	.0	.00
0002270012610	.50000	606	396.6	108.1	55.79	.0	.00	1677.8	1619.3	79.50	.0	.00
0009270012610	.25000	596	108.2	97.0	6.78	.0	.00	405.1	858.2	30.90	.0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011260012610	.25000	632	133.0	128.2	4.42	.0	.00	1218.9	1247.6	18.96	.0	.00
0006260012610	.50000	632	114.7	8.1	7.67	.0	.00	1744.5	207.4	44.11	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Pa=1.17

SURFACE UNITS	4.00000	2105	846.5	271.2	91.32	.0	.00	5959.6	2437.2	216.13	.0	.00
RESERVR UNITS	4.00000	2105	992.7	271.2	1075.99	.0	.00	6972.8	2437.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 91.3 M3/DAYDAY TO REPLACE REQUIRES 3.94 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL. AVERAGE TOTAL FLUID RATE IF 12.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.0 AVERAGE GAS-OIL RATIO IS 107.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0002260012610	1.00000	485	288.6	14.5	10.30	.0	.00	1285.9	181.7	44.14	.0	.00
0008260012610	.50000	632	298.7	9.5	4.79	.0	.00	2790.5	181.7	35.85	.0	.00
0001260012610	.25000	632	187.6	59.5	17.73	.0	.00	1945.6	1516.2	59.10	.0	.00
0001260012610	.50000	377	81.8	21.8	9.15	.0	.00	1974.6	614.8	26.32	0	.00
0002260012610	.25000	630	115.1	12.7	3.49	.0	.00	1512.2	281.3	35.40	.0	.00
0006260012610	.50000	632	114.2	8.1	7.67	.0	.00	1744.3	207.4	44.11	0	.00
0011260012610	.25000	632	133.0	128.2	4.42	.0	.00	1218.9	1247.6	18.96	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	1779	637.7	84.3	27.51	.0	.00	5629.9	1949.5	125.65	.0	.00
RESERVR UNITS	3.25000	1779	746.2	80.3	132.51	.0	.00	6587.9	1449.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 91.1 M3 CALDAY TO REPLACE REQUIRES 1.27 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11 % AVERAGE GAS-OIL RATIO IS 43.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	696	.0	.0	.00	1860.4	.00	3762.4	532.7	13.10	2088.1	.00
0003250012612	.25000	588	439.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0004250012612	.50000	632	241.2	26.6	8.37	.0	.00	877.2	133.7	23.28	.0	.00
0001260012610	.25000	632	187.6	59.5	17.73	.0	.00	1945.6	1516.2	59.10	.0	.00
0008260012610	.50000	632	298.7	9.5	4.79	.0	.00	2790.5	181.7	35.85	.0	.00
0012250012610	.50000	591	197.3	182.7	6.72	.0	.00	1808.4	1439.6	43.24	.0	.00
0011250012610	.25000	616	294.2	3.4	14.02	.0	.00	2424.7	162.0	50.92	.0	.00
0006250012610	.50000	632	372.0	46.9	11.74	.0	.00	2970.6	459.4	36.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1703	734.3	149.5	28.09	1860.4	.00	9209.4	2112.9	116.18	2088.1	.00
RESERVR UNITS	3.75000	1703	913.8	149.3	29.08	1860.4	.00	10775.0	2112.0	.00	2088.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.2 M3/CALDAY TO REPLACE REQUIRES 2.47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 13.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.0 AVERAGE GAS-OIL RATIO IS 38.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 170.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 16.2

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	616	41.3	1.6	2.39	.0	.00	785.2	113.6	17.95	.0	.00
0014250012610	.25000	24	.8	.5	.11	.0	.00	170.5	142.3	3.66	.0	.00
0012250012610	.50000	616	285.8	10.1	24.71	0	.00	2476.3	284.3	113.64	.0	.00
0011250012610	.25000	616	294.2	3.9	14.02	.0	.00	2424.7	162.0	50.22	0	.00
0014250012610	.50000	616	18.5	14.5	2.80	.0	.00	91.2	56.3	33.85	.0	.00
0016250012610	.50000	616	29.3	4.2	1.67	.0	.00	394.4	171.4	13.71	0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1790	378.5	17.9	29.56	.0	.00	2799.2	432.2	112.20	.0	.00
RESERVR UNITS	3.00000	1790	325.6	17.3	161.67	.0	.00	3275.1	432.2	00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.3 M3/CALDAY TO REPLACE REQUIRES .56 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.7 AVERAGE GAS-OIL RATIO IS 73.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	616	17.7	16.4	3.27	.0	.00	197.6	139.6	16.45	.0	.00
0014250012610	.50000	616	18.5	14.5	2.80	.0	.00	91.2	56.3	33.85	.0	.00
0011250012610	.25000	616	294.2	3.9	14.02	.0	.00	2424.7	162.0	50.22	.0	00
0012250012610	.50000	591	197.2	182.7	8.72	0	.00	1800.4	1439.6	43.24	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1374	195.2	115.9	11.56	.0	.00	1753.6	928.0	67.72	.0	.00
RESERVR UNITS	2.25000	1374	228.3	115.9	85.72	.0	.00	2051.7	928.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 13.9 M3/CALDAY TO REPLACE REQUIRES .57 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 37.3 AVERAGE GAS-OIL RATIO IS 59.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	390	[illegible]	214.1	3.51	0	.00	[illegible]	214.1	3.51	0	.00
0911260012610	.50000	632	133.0	128.2	4.42	.0	.00	1215.9	1347.6	18.96	0	.00
1212260012610	.50000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
0809270012610	.25000	596	108.2	97.0	6.78	0	.00	405.1	858.2	30.90	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0303350012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0814260012610	1.00000	708	53.9	346.2	1.66	.0	.00	320.9	1472.7	26.05	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	1563	177.8	948.6	9.97	.0	.00	1881.9	2531.2	46.74	.0	.00
RESERVR UNITS	4.75000	1563	208.0	948.6	30.90	.0	.00	1265.9	2531.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 208.0 M3 CAL/DAY TO REPLACE REQUIRES 1.17 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/CPDAY NET WELL AVERAGE TOTAL FLUID RATE IS 12.7 M3/CPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 78.5 AVERAGE GAS-OIL RATIO IS 51.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0809270012610	.25000	596	108.2	97.0	6.78	0	.00	405.1	858.2	30.90	.0	.00
0810270012610	.50000	606	251.9	206.2	10.22	.0	.00	799.2	1038.4	40.60	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	552	45.9	78.0	6.28	.0	.00	272.8	1185.6	15.38	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.50000	729	176.0	166.4	9.94	.0	.00	687.2	1326.6	35.71	.0	.00
RESERVR UNITS	4.50000	729	205.9	166.4	55.93	.0	.00	745.6	1326.6	00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 13.0 M3/CALDAY TO REPLACE REQUIRES .56 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/CPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 11.2 M3/CPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 48.4 AVERAGE GAS-OIL RATIO IS 56.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJ-WAT M3	INJ-GAS 10**3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS 10**3
0005310012510	1.00000	0	.0	.0	0.0	.0	0.0	.0	0	0.0	.0	0.0
0003310012510	.25000	538	29.3	15.4	.00	0	.00	2367.2	969.1	12.75	.0	0.0
0004310012510	.50000	632	5.3	37.3	.06	0	0.0	2427.2	2774.4	32.41	.0	0.0
0011310012510	.50000	744	28.0	2.1	13.88	.0	.00	1736.5	618.7	44.0	.0	0.0
0006310012510	.50000	633	73.4	130.0	4.84	0	.00	1257.1	1294.8	18.21	.0	0.0

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Ba=1.17

SURFACE UNITS	2.75000	1139	106.3	125.1	10.74	0	.00	1706.6	1052.0	87.93	.0	0.0
RESERVR UNITS	2.75000	1139	124.9	125.1	36.88	0	.00	1996.7	1052.0	.00	.0	0.0

AVERAGE RATE OF VOIDAGE CREATION IS 14.4 M3/CALDAY TO REPLACE REQUIRES .59 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 3.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 63.5 % AVERAGE GAS-OIL RATIO IS 191.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO 0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0616220012610	1.00000	0	0	.0	.00	.0	.00	.0	0	.00	.0	.00
0013230012610	1.00000	0	0	.0	.00	.0	.00	0	0	.00	.0	.00
0004260012610	.50000	720	332.5	199.5	24.62	.0	.00	1622.5	1131.2	56.57	.0	.00
0012270012610	.50000	720	69.5	281.0	4.33	.0	.00	510.9	980.4	59.51	.0	.00
0003270012610	.50000	720	60.9	227.4	3.29	.0	.00	682.6	751.9	39.80	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1080	233.9	258.9	16.10	.0	.00	1393.0	1396.8	77.74	.0	.00
RESERVR UNITS	3.50000	1080	273.7	358.9	101.96	.0	.00	1629.8	1396.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.5 M3/CALDAY TO REPLACE REQUIRES 1.00 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.5 AVERAGE GAS-OIL RATIO IS 68.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 4 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	382	54.4	138.2	2.30	.0	.00	508.2	1078.2	40.93	.0	.00
0003270012610	.50000	664	35.5	140.7	1.67	.0	.00	91.9	232.8	9.83	.0	.00
0004270012610	1.00000	240	59.6	45.8	2.71	.0	.00	396.0	323.2	32.88	.0	.00
0012270012610	.50000	636	130.4	237.3	1.79	.0	.00	965.2	999.6	71.47	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1272	197.0	373.0	6.84	.0	.00	1432.8	2017.6	114.46	.0	.00
RESERVR UNITS	3.75000	1272	230.4	373.0	.71	.0	.00	1676.3	2017.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.1 M3/CALDAY TO REPLACE REQUIRES .82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.4 AVERAGE GAS-OIL RATIO IS 34.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	720	311.5	258.3	12.55	.0	.00	1208.3	1239.0	103.85	.0	.00
0001270012610	.25000	720	64.5	291.0	4.33	.0	.00	510.9	880.4	59.51	.0	.00
0002270012610	.50000	720	60.8	227.4	3.25	.0	.00	652.6	781.9	39.30	.0	.00
0003270012610	.50000	664	35.5	140.7	1.67	0	00	91.9	232.8	9.83	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	0	.00	.0	.00	0	.0	00	.0	.00
0010270012610	.50000	408	116.7	126.8	9.93	.0	.00	915.9	1165.2	50.53	.0	.00
0009270012610	.25000	708	86.6	121.5	11.57	0	.00	491.7	979.7	42.48	.0	.00
0008270012610	.50000	720	292.8	293.0	12.58	.0	.00	1970.6	1912.3	92.09	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2363	603.4	747.4	30.37	.0	.00	3275.4	3800.1	225.47	0	.00
RESERVE UNITS	4.25000	2362	706.0	747.4	99.77	.0	.00	3853.2	3800.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.9 M3/CALDAY TO REPLACE REQUIRES 2.11 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.3 AVERAGE GAS-OIL RATIO IS 50.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	720	270.0	44.3	38.15	.0	.00	2989.6	358.1	141.39	.0	.00
0003260012610	.25000	720	67.2	6.2	4.35	.0	.00	1579.4	287.5	39.75	.0	.00
0004260012610	.50000	720	337.5	199.4	24.62	.0	.00	1622.5	1131.2	56.57	.0	.00
0001270012610	.25000	720	69.5	291.0	4.33	.0	.00	510.9	880.4	59.51	.0	00
0008270012610	.50000	720	292.8	293.0	12.58	.0	.00	1970.6	1912.3	92.09	.0	.00
0009270012610	.25000	708	86.6	121.5	11.57	.0	.00	491.7	979.7	42.48	.0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011260012610	.25000	720	198.3	89.1	5.42	.0	.00	1417.2	1336.7	24.38	.0	.00
0006260012610	.50000	696	73.6	17.7	13.86	.0	.00	1818.1	225.1	57.97	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2505	735.3	426.3	79.10	.0	00	6695.0	2863.5	286.23	.0	.00
RESERVR UNITS	4.00000	2505	860.4	426.3	855.61	.0	.00	7933.1	2863.5	.00	.0	00

AVERAGE RATE OF VOIDAGE CREATION IS 71.4 M3/CALDAY TO REPLACE REQUIRES 2.91 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 36.7 AVERAGE GAS-OIL RATIO IS 95.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	720	182.7	76.6	50.33	.0	.00	1588.1	218.3	94.68	.0	.00
0003260012610	.50000	720	296.6	28.2	11.16	0	00	3087.1	209.9	47.01	.0	.00
0001260012610	.25000	720	207.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00
0004260012610	.50000	716	250.1	47.0	9.42	.0	00	2224.7	661.0	35.74	.0	.00
0002260012610	.25000	720	67.2	6.2	4.35	.0	.00	1570.4	287.5	39.25	.0	.00
0006260012610	.50000	696	72.6	17.7	13.06	0	.00	1818.1	225.1	57.97	.0	.00
0011260012610	.25000	720	198.3	69.1	5.42	.0	00	1417.2	1236.7	24.68	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	2326	810.6	125.2	72.79	.0	.00	6440.5	1569.7	198.35	.0	.00
RESERVR UNITS	3.25000	2326	948.4	125.2	885.93	.0	.00	7535.4	1569.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 65.3 M3/CALDAY TO REPLACE REQUIRES 3.67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.7 M3 OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 13.4 AVERAGE GAS-OIL RATIO IS 89.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	701	.0	.0	.00	2619.1	.00	3762.4	582.7	13.10	4707.2	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0004250012612	.50000	720	335.8	16.4	25.91	.0	.00	1213.0	150.1	49.10	.0	.00
0001260012610	.25000	720	207.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00
0008260012610	.50000	720	296.6	28.2	11.16	.0	.00	3087.1	209.9	47.01	.0	.00
0012250012610	.50000	704	194.9	245.7	12.70	.0	.00	2003.3	1685.3	55.94	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0006250012610	.50000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1923	852.4	210.2	64.04	2619.1	.00	10061.8	2322.2	180.21	4707.2	.00
RESERVR UNITS	3.75000	1923	993.1	210.2	324.45	2619.1	.00	11772.3	2322.2	.00	4707.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.7 M3/CALDAY TO REPLACE REQUIRES 3.57 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 19.8 AVERAGE GAS-OIL RATIO IS 75.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 171.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 33.4

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	720	44.7	3.1	4.06	.0	.00	329.9	117.0	22.00	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1717.0	149.1	4.13	.0	.00
0010250012610	.50000	720	305.3	12.2	49.52	.0	.00	2781.[illegible]	266.5	163.16	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0014250012610	.50000	720	8.4	19.6	1.92	.0	.00	99.6	75.9	35.77	.0	.00
0016250012610	.50000	720	32.3	6.1	3.25	.0	.00	426.7	177.5	16.56	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE. CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2022	394.4	26.4	37.66	.0	.00	3094.0	455.7	149.85	.0	.00
RESERVR UNITS	3.00000	2022	344.9	23.4	554.12	.0	.00	3620.0	455.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 30.7 M3/CALDAY TO REPLACE REQUIRES 1.26 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 7.4 AVERAGE GAS-OIL RATIO IS 127.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	720	16.3	15.1	2.40	.0	.00	213.9	154.7	18.85	.0	.00
0014250012610	.50000	720	8.4	19.6	1.92	.0	.00	99.6	75.9	35.77	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0012250012610	.50000	704	194.9	245.7	12.70	.0	.00	2003.3	1685.3	55.94	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1612	193.7	148.7	15.85	.0	.00	1947.2	1076.8	83.57	.0	.00
RESERVR UNITS	2.25000	1612	226.6	148.7	146.17	.0	.00	2278.3	1076.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 17.4 M3/CALDAY TO REPLACE REQUIRES .71 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.4 AVERAGE GAS-OIL RATIO IS 81.8 M3/M3.
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0313280012610	1.00000	306	41.5	117.5	3.36	0	.00	92.7	351.6	6.99	0	.00
0911280012610	.50000	720	198.3	89.1	5.41	.0	.00	1417.2	1336.7	24.28	.0	.00
0112280012610	.50000	0	.0	0	.00	0	.00	.0	.0	.00	.0	.00
0809270012610	.25000	708	86.6	121.5	11.57	0	.00	691.7	979.7	42.48	.0	.00
0216270012610	.50000	0	.0	0	.00	.0	.00	0	.0	.00	.0	.00
0803350012610	1.00000	0	.0	.0	.00	0	.00	.0	.0	.00	.0	.00
0819280012610	1.00000	616	26.9	381.3	1.62	.0	.00	347.9	1860.0	27.47	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	1459	189.6	772.7	10.60	.0	.00	1971.5	3104.9	57.37	.0	.00
RESERVR UNITS	4.75000	1459	221.9	573.7	30.26	0	.00	1407.2	3104.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.2 M3/CALDAY TO REPLACE REQUIRES 1.14 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.2 AVERAGE GAS-OIL RATIO IS 55.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0809270012610	.25000	708	86.6	121.5	11.57	0	.00	691.7	979.7	42.48	.0	.00
0810270012610	.50000	468	110.7	126.8	9.93	.0	.00	915.9	1165.3	50.53	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0803340012610	.50000	592	44.9	82.8	2.00	.0	.00	317.7	1268.4	17.39	.0	.00
0802340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	707	102.5	135.2	8.86	.0	.00	739.7	1461.7	44.58	.0	.00
RESERVR UNITS	4.50000	707	119.9	135.2	92.47	.0	.00	865.5	1461.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.6 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.9 AVERAGE GAS-OIL RATIO IS 93.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]
[illegible] M3
[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0012270012610	.50000	636	130.4	237.3	1.79	.0	.00	965.2	999.6	71.47	.0	.00
0001330012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	592	44.9	82.8	2.00	.0	.00	317.7	1268.4	17.39	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	614	87.6	160.1	1.90	.0	.00	641.4	1134.0	44.43	.0	.00
RESERVR UNITS	3.75000	614	102.6	160.1	.00	.0	.00	750.5	1134.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 8.8 M3/CALDAY TO REPLACE REQUIRES .36 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.5 AVERAGE GAS-OIL RATIO IS 21.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003310012510	.25000	720	37.2	27.5	1.22	.0	.00	1364.4	511.6	11.67	.0	.00
0004310012510	.50000	720	5.3	35.8	.43	.0	.00	967.5	609.2	37.88	.0	.00
0011310012510	.50000	684	104.2	121.8	19.35	.0	.00	634.4	732.5	86.34	.0	.00
0006310012510	.50000	720	79.5	285.2	9.12	.0	.00	1337.0	964.6	75.33	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1242	104.0	228.3	14.76	.0	.00	1810.6	1281.1	102.69	.0	.00
RESERVR UNITS	2.75000	1242	121.6	228.3	235.67	.0	.00	2118.3	1281.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.5 M3/CALDAY TO REPLACE REQUIRES .80 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 68.7 AVERAGE GAS-OIL RATIO IS 141.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016270012610	1.00000	0	.0	0	.00	.0	.00	0	.0	.00	.0	.00
0016270012610	1.00000	0	.0	.0	.00	.0	.00	0	.0	.00	.0	.00
0004270012610	.50000	744	239.3	257.3	39.56	.0	.00	1911.6	1388.6	96.13	.0	.00
0001270012610	.50000	744	72.3	303.6	2.73	.0	.00	587.2	1184.0	62.34	.0	.00
0002270012610	.50000	744	35.5	273.4	1.36	.0	.00	683.1	1058.6	41.16	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1116	198.6	417.1	21.82	.0	.00	1591.6	1813.9	99.76	.0	.00
RESERVR UNITS	3.50000	1116	232.3	417.1	303.73	.0	.00	1862.1	1813.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 30.7 M3/CALDAY TO REPLACE REQUIRES 1.26 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 13.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 67.8 AVERAGE GAS-OIL RATIO IS 109.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	728	145.9	183.9	1.46	.0	.00	653.2	1181.2	42.39	.0	.00
0003270012610	.50000	744	22.8	201.0	.45	.0	.00	114.7	433.8	10.28	.0	.00
0004270012610	1.00000	650	163.0	166.8	3.97	.0	.00	559.0	490.0	36.85	.0	.00
0012270012610	.50000	720	104.0	409.8	2.35	.0	.00	1069.2	1409.4	73.62	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2110	371.4	575.2	6.83	.0	.00	1804.2	2592.8	121.29	.0	.00
RESERVR UNITS	3.75000	2110	434.5	575.2	.00	.0	.00	2110.9	2592.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 32.6 M3/CALDAY TO REPLACE REQUIRES 1.33 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.8 AVERAGE GAS-OIL RATIO IS 10.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	744	251.3	315.6	11.02	.0	.00	1468.5	1604.6	113.37	.0	.00
0001270012610	.25000	744	72.2	303.6	2.73	.0	.00	583.2	1184.0	62.24	.0	.00
0002270012610	.50000	744	35.5	273.4	1.36	.0	.00	688.1	1055.3	41.16	.0	.00
0003270012610	.50000	744	22.8	201.0	.45	.0	.00	114.7	433.8	10.28	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0010270012610	.50000	668	71.8	250.9	3.67	.0	.00	987.7	1416.1	54.20	.0	.00
0009270012610	.25000	744	49.5	146.8	4.09	.0	.00	541.2	1126.5	46.57	.0	.00
0008270012610	.50000	744	258.1	371.3	10.91	.0	.00	2228.7	2283.6	103.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2566	475.8	976.5	21.72	.0	.00	3751.2	4776.6	247.19	.0	.00
RESERVR UNITS	4.25000	2566	556.7	976.5	9.64	.0	.00	4388.9	4776.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 49.8 M3/CALDAY TO REPLACE REQUIRES 2.83 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 67.2 AVERAGE GAS-OIL RATIO IS 45.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES'M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	735	282.2	29.6	38.91	.0	.00	3271.8	387.7	180.30	.0	.00
0003260012610	.25000	744	67.7	5.4	4.55	.0	.00	1647.1	292.9	44.30	.0	.00
0004260012610	.50000	744	289.3	257.3	39.56	.0	.00	1911.8	1388.5	96.13	.0	.00
0001270012610	.25000	744	72.3	303.6	2.73	.0	.00	583.2	1184.0	62.24	.0	.00
0008270012610	.50000	744	258.1	371.3	10.91	.0	.00	2228.7	2283.6	103.00	.0	.00
0009270012610	.25000	744	49.5	146.8	4.09	.0	.00	541.2	1126.5	46.57	.0	.00
0212260012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011260012610	.25000	744	171.2	101.6	3.68	.0	.00	1508.4	1438.3	28.06	.0	.00
0006260012610	.50000	744	76.1	2.7	8.18	.0	.00	1894.2	227.8	66.16	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2595	684.1	484.6	72.00	.0	.00	7379.1	3348.1	358.24	.0	.00
RESERVR UNITS	4.00000	2595	800.4	484.6	973.04	.0	.00	8633.6	3348.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 72.8 M3/CALDAY TO REPLACE REQUIRES 2.97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 41.5 AVERAGE GAS-OIL RATIO IS 105.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	744	266.5	13.4	57.74	.0	.00	1854.6	231.7	150.22	.0	.00
0009260012610	.50000	744	319.7	24.1	12.73	.0	.00	3401.8	234.0	59.75	.0	.00
0012260012610	.25000	744	274.1	91.1	14.55	.0	.00	2427.3	1680.5	84.47	.0	.00
0002260012610	.50000	744	356.6	24.1	35.01	.0	.00	2581.3	685.1	70.75	.0	.00
0003260012610	.25000	744	67.7	5.4	4.55	.0	.00	1647.1	292.9	44.30	.0	.00
0006260012610	.50000	744	76.1	2.7	8.18	.0	.00	1894.2	227.8	66.16	.0	.00
0011260012610	.25000	744	171.2	10[illegible]	3.68	.0	.00	1588.4	1438.3	28.06	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	2418	768.4	88.4	91.39	.0	.00	7208.9	1658.1	289.76	.0	.00
RESERVR UNITS	3.25000	2418	899.1	88.4	1358.05	.0	.00	8434.5	1658.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 75.4 M3/CALDAY TO REPLACE REQUIRES 3.08 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 10.3 AVERAGE GAS-OIL RATIO IS 118.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	732	.0	.0	.00	3218.4	.00	3762.4	582.7	13.10	7925.6	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0004250012612	.50000	734	419.0	34.4	47.55	.0	.00	1632.0	184.5	96.74	.0	.00
0001260012610	.25000	744	274.1	91.1	14.55	.0	.00	2427.3	1680.5	84.47	.0	.00
0008260012610	.50000	744	314.7	24.1	12.73	.0	.00	3401.8	234.0	59.75	.0	.00
0012250012610	.50000	744	220.8	309.6	19.55	.0	.00	2224.1	1994.9	75.49	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0006250012610	.50000	744	314.7	182.9	8.64	.0	.00	3613.6	731.4	61.66	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2015	931.6	302.2	76.86	3218.4	.00	10993.4	2624.4	256.28	7925.6	.00
RESERVR UNITS	3.75000	2015	1085.4	302.2	483.46	3218.4	.00	12862.2	2624.4	.00	7925.6	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.4 M3/CALDAY TO REPLACE REQUIRES 4.33 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.5 AVERAGE GAS-OIL RATIO IS 91.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 172.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 51.2

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	744	36.9	1.3	2.42	0	.00	366.3	118.3	24.43	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	191.1	8.11	.0	.00
0010250012610	.50000	744	323.6	9.0	44.10	.0	.00	3105.2	275.5	207.26	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0014250012610	.50000	744	5.1	28.1	.00	.0	.00	104.7	104.0	35.77	.0	.00
0016250012610	.50000	724	26.3	2.6	2.06	.0	.00	453.0	180.1	19.82	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2217	226.1	22.6	32.74	.0	.00	3390.1	428.3	102.79	.0	.00
RESERVR UNITS	3.00000	2217	396.5	22.6	439.86	.0	.00	3966.4	428.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.1 M3/CALDAY TO REPLACE REQUIRES 1.07 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 7.1 AVERAGE GAS-OIL RATIO IS 111.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	735	17.6	15.9	1.80	.0	.00	231.5	170.6	20.65	.0	.00
0014250012610	.50000	744	5.1	28.1	.00	.0	.00	104.7	104.0	35.77	0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0012250012610	.50000	744	220.8	309.6	19.55	.0	.00	2224.1	1994.9	75.49	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1665	206.9	185.7	18.02	.0	.00	2154.1	1262.5	101.59	.0	.00
RESERVR UNITS	2.25000	1665	242.1	185.7	185.89	.0	.00	2520.3	1262.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.8 M3/CALDAY TO REPLACE REQUIRES .81 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.3 AVERAGE GAS-OIL RATIO IS 87.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013260012612	1.00000	384	39.0	153.0	3.62	.0	.00	171.2	484.6	18.52	0	.00
0011260012610	.50000	744	171.2	101.6	3.64	.0	.00	1583.4	1438.3	28.06	.0	.00
0212260012610	.50000	0	.0	0	00	.0	.00	.0	0	.00	.0	.00
0009270012610	.25000	744	49.5	146.8	4.09	.0	.00	541.2	1126.5	46.57	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	0	.0	.00	.0	.00
0003350012610	1.00000	0	.0	.0	00	.0	.00	.0	.0	.00	.0	.00
0014260012610	1.00000	480	27.3	383.6	1.37	.0	.00	375.1	2243.0	29.04	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	1422	164.3	623.5	7.85	.0	.00	1435.8	3728.4	65.23	.0	.00
RESERVR UNITS	4.75000	1422	192.2	623.5	49.53	.0	.00	1679.9	3728.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.9 M3/CALDAY TO REPLACE REQUIRES 1.14 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 79.1 AVERAGE GAS-OIL RATIO IS 47.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009270012610	.25000	744	49.5	146.8	4.09	.0	.00	541.2	1126.5	46.57	.0	.00
0010270012610	.50000	668	71.8	250.9	3.67	.0	.00	902.7	1416.1	54.20	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	688	32.9	96.7	.84	.0	.00	350.6	1365.1	18.23	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	864	64.7	210.5	3.29	.0	.00	894.4	1672.2	47.86	.0	.00
RESERVR UNITS	4.50000	864	75.7	210.5	9.64	.0	.00	941.2	1672.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 9.5 M3/CALDAY TO REPLACE REQUIRES .39 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.5 AVERAGE GAS-OIL RATIO IS 50.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] VOIDAGE ALLOCATIONS IN PATTERN NUMBER 27 MONTH 5 OF 1983
[illegible] PRESSURE=4220 kPag [illegible] FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= [illegible] RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=41.4 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	0	.0	.0	.00	0	.00	.0	0	00	0	00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	0	00
0012270012610	.50000	720	104.0	409.8	2.35	0	.00	1069.2	1409.4	73.82	.0	.00
0001330012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	688	32.9	96.7	.84	.0	.00	350.6	1365.1	18.23	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	704	68.4	253.3	1.60	.0	.00	709.7	1367.3	46.82	.0	.00
RESERVR UNITS	3.75000	704	80.1	253.3	.00	.0	.00	830.6	1387.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 10.8 M3/CALDAY TO REPLACE REQUIRES .44 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 78.7 AVERAGE GAS-OIL RATIO IS 23.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003310012510	.25000	724	34.6	30.3	1.33	.0	.00	1399.0	541.9	13.00	.0	.00
0004310012510	.50000	724	9.2	41.7	3.78	.0	.00	976.7	650.9	41.65	.0	.00
0011310012510	.50000	620	39.4	128.3	1.55	.0	.00	673.8	860.8	87.89	.0	.00
0006310012510	.50000	724	96.3	461.7	15.34	.0	.00	1433.3	1426.3	90.67	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	2.75000	1215	81.1	323.4	10.67	.0	.00	1891.7	1604.5	113.36	.0	.00
RESERVR UNITS	2.75000	1215	94.9	323.4	168.26	.0	.00	2213.2	1604.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 18.9 M3/CALDAY TO REPLACE REQUIRES .77 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 80.0 AVERAGE GAS-OIL RATIO IS 131.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.17 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	732	26.9	9.2	4.14	.6	.00	435.2	129.3	30.99	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0010250012610	.50000	744	282.8	9.3	24.83	.0	.00	3686.3	290.7	266.98	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0014250012610	.50000	327	19.2	.0	1.11	.0	.00	125.0	109.0	36.88	.0	.00
0016250012610	.50000	744	21.8	.0	3.09	.0	.00	495.8	180.1	24.06	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1915	251.5	16.9	24.80	.0	.00	3929.1	505.0	244.07	.0	.00
RESERVR UNITS	3.00000	1915	294.3	16.9	292.98	.0	.00	4597.1	505.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.5 M3/CALDAY TO REPLACE REQUIRES .80 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.3 AVERAGE GAS-OIL RATIO IS 99.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	744	16.4	9.3	1.66	.0	.00	261.8	194.1	24.76	.0	.00
0014250012610	.50000	327	19.2	.0	1.11	.0	.00	125.0	109.0	36.88	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0012250012610	.50000	744	186.4	556.5	12.98	.0	.00	2603.6	3097.8	104.39	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1465	177.5	289.9	13.71	.0	.00	2529.7	1844.4	138.65	.0	.00
RESERVR UNITS	2.25000	1465	207.6	289.9	113.94	.0	.00	2959.7	1844.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.7 M3/CALDAY TO REPLACE REQUIRES .81 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.0 AVERAGE GAS-OIL RATIO IS 77.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0013230012610	1.00000	648	160.9	190.4	15.46	.0	.00	211.4	223.9	20.21	.0	.00
0004260012610	.50000	744	83.2	216.9	6.59	.0	.00	2067.3	1747.8	112.16	.0	.00
0001270012610	.50000	744	100.5	285.5	2.52	.0	.00	714.5	1705.6	65.74	.0	.00
0002270012610	.50000	744	37.1	322.7	5.05	.0	.00	742.7	1613.1	50.61	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1764	271.3	602.9	22.54	.0	.00	1973.7	2757.2	134.47	.0	.00
RESERVR UNITS	3.50000	1764	317.4	602.9	244.94	.0	.00	2309.2	2757.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.6 M3/CALDAY TO REPLACE REQUIRES 1.53 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 69.0 AVERAGE GAS-OIL RATIO IS 83.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	665	271.3	196.9	3.95	.0	.00	1125.8	1589.9	48.96	.0	.00
0003270012610	.50000	744	38.2	180.0	.84	.0	.00	196.0	739.5	12.10	.0	.00
0004270012610	1.00000	702	161.8	281.1	1.59	.0	.00	920.2	950.6	44.80	.0	.00
0012270012610	.50000	744	245.7	456.2	20.20	.0	.00	1537.4	2068.4	95.11	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0206270012610	.50000	336	81.9	128.0	7.93	.0	.00	81.9	128.0	7.93	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2280	616.0	860.1	20.03	.0	.00	2953.7	4008.5	151.33	.0	.00
RESERVR UNITS	3.75000	2280	720.7	860.1	139.76	.0	.00	3455.8	4008.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.5 M3/CALDAY TO REPLACE REQUIRES 2.27 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 58.3 AVERAGE GAS-OIL RATIO IS 32.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0013230012610	1.00000	129	50.5	33.5	4.75	.0	.00	50.5	33.5	4.75	.0	.00
0004260012610	.50000	720	72.3	142.4	9.45	.0	.00	1984.1	1530.9	105.58	.0	.00
0001270012610	.50000	714	30.8	236.1	.97	.0	.00	614.0	1420.1	63.21	.0	.00
0002270012610	.50000	720	17.5	235.1	4.40	.0	.00	705.6	1290.4	45.56	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	1206	110.8	340.3	12.16	.0	.00	1702.4	2154.2	111.93	.0	.00
RESERVR UNITS	3.50000	1206	129.6	340.3	166.74	.0	.00	1991.7	2154.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 21.2 M3/CALDAY TO REPLACE REQUIRES .87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.4 AVERAGE GAS-OIL RATIO IS 109.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	708	201.3	211.8	2.62	.0	.00	854.5	1393.0	45.01	.0	.00
0003270012610	.50000	720	43.1	125.7	.98	.0	.00	157.8	559.5	11.26	.0	.00
0004270012610	1.00000	720	199.4	179.5	6.35	.0	.00	758.4	669.5	43.21	.0	.00
0012270012610	.50000	601	222.5	202.8	1.09	.0	.00	1291.7	1612.2	74.91	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2089	533.5	555.5	10.01	.0	.00	2337.7	3148.4	131.31	.0	.00
RESERVR UNITS	3.75000	2089	624.2	555.5	.00	.0	.00	2735.1	3148.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.3 M3/CALDAY TO REPLACE REQUIRES 1.61 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 51.0 AVERAGE GAS-OIL RATIO IS 18.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0000270012610	1.00000	720	78.1	350.0	10.75	.0	.00	1538.6	1954.6	126.43	.0	.00
0001270012610	.25000	714	30.8	236.1	.97	.0	.00	614.8	1420.1	63.21	.0	.00
0002270012610	.50000	720	17.5	235.1	4.40	.0	.00	705.6	1290.4	45.56	.0	.00
0003270012610	.50000	720	43.1	125.7	.98	.0	.00	157.8	559.5	11.26	0	00
0206270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	0	.00
0010270012610	.50000	720	93.3	143.6	9.29	.0	.00	1061.0	1559.7	63.49	.0	.00
0009270012610	.25000	720	63.0	106.5	4.89	.0	.00	604.2	1233.0	51.46	.0	.00
0008270012610	.50000	720	208.3	366.2	8.47	.0	.00	2437.0	2649.8	111.47	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2519	282.7	870.9	23.78	.0	.00	4033.9	5647.6	270.99	.0	.00
RESERVR UNITS	4.25000	2519	330.7	870.9	274.39	.0	.00	4719.6	5647.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 49.2 M3/CALDAY TO REPLACE REQUIRES 2.01 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.5 AVERAGE GAS-OIL RATIO IS 84.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	649	266.4	15.9	8.13	.0	.00	3538.2	403.6	188.43	.0	.00
0003260012610	.25000	720	72.9	2.7	4.40	.0	.00	1720.0	295.6	48.69	.0	.00
0004260012610	.50000	720	72.3	142.4	9.45	.0	.00	1984.1	1530.9	105.58	.0	.00
0001270012610	.25000	714	30.8	236.1	.97	.0	.00	614.8	1420.1	63.21	.0	.00
0008270012610	.50000	720	208.3	366.2	8.47	0	.00	2437.0	2649.8	111.47	.0	.00
0009270012610	.25000	720	63.0	106.5	4.89	.0	.00	604.2	1233.0	51.46	.0	.00
0212260012610	.50000	18	8.5	.1	.90	.0	.00	8.5	.1	.80	.0	.00
0011260012610	.25000	720	189.5	31.4	5.62	.0	.00	1777.9	1469.7	33.68	.0	.00
0006260012610	.50000	720	68.2	.0	6.11	.0	.00	1962.4	227.8	72.27	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2457	534.1	364.4	24.51	.0	.00	7913.2	3712.5	382.75	.0	.00
RESERVR UNITS	4.00000	2457	624.9	364.4	121.67	.0	.00	9258.5	3712.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.0 M3/CALDAY TO REPLACE REQUIRES 1.51 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.6 AVERAGE GAS-OIL RATIO IS 45.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 6 OF 1983
[illegible] AVERAGE FORMATION PRESSURE=[illegible] kPag THE OIL FORMATION VOLUME FACTOR=[illegible] RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= [illegible] RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=[illegible] M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	720	87.1	1.2	4.89	.0	.00	1941.7	232.9	157.11	.0	.00
0008260012610	.50000	720	279.8	39.5	8.80	.0	.00	3681.6	273.5	68.54	.0	.00
0001260012610	.25000	712	257.1	81.6	7.73	.0	.00	2684.4	1762.1	92.20	.0	.00
0002260012610	.50000	720	217.4	33.3	16.37	.0	.00	2798.7	709.4	87.12	.0	.00
0003260012610	.25000	720	72.9	2.7	4.40	.0	.00	1720.0	295.6	48.59	.0	.00
0006260012610	.50000	720	68.2	.0	5.11	.0	.00	1962.4	227.8	72.27	.0	.00
0011260012610	.25000	720	189.5	31.4	5.62	.0	.00	1777.9	1469.7	33.68	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	2338	499.7	61.5	24.97	.0	.00	7700.6	1719.6	314.72	.0	.00
RESERVR UNITS	3.25000	2338	584.6	61.5	111.86	.0	.00	9010.1	1719.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.3 M3/CALDAY TO REPLACE REQUIRES 1.03 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.0 AVERAGE GAS-OIL RATIO IS 50.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	713	.0	.0	.00	3155.2	.00	3762.4	582.7	13.10	11080.8	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0004250012612	.50000	641	519.7	53.3	56.85	.0	.00	2151.7	237.8	153.60	.0	.00
0001260012610	.25000	712	257.1	81.6	7.73	.0	.00	2684.4	1762.1	92.20	.0	.00
0008260012610	.50000	720	279.8	39.5	8.80	.0	.00	3681.6	273.5	68.54	.0	.00
0012250012610	.50000	714	193.1	546.4	15.99	.0	.00	2417.2	2541.3	91.49	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0006250012610	.50000	720	387.9	232.1	15.64	.0	.00	4001.5	963.5	77.30	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1926	977.3	461.6	82.70	3155.2	.00	11970.7	3086.0	328.98	11080.8	.00
RESERVR UNITS	3.75000	1926	1138.7	461.6	556.20	3155.2	.00	14005.7	3086.0	.00	11080.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.9 M3/CALDAY TO REPLACE REQUIRES 5.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.1 AVERAGE GAS-OIL RATIO IS 84.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 146.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 64.8

[illegible] MONTH [illegible]
[illegible] THE OIL FORMATION VOLUME FACTOR=1.0 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	714	32.6	1.2	2.42	.0	.00	298.7	120.1	26.85	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0010250012610	.50000	714	298.3	5.9	34.90	.0	.00	3403.5	281.4	242.16	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0014250012610	.50000	168	1.1	5.0	.00	.0	.00	105.8	109.0	35.77	.0	.00
0016250012610	.50000	720	20.2	.0	1.95	.0	.00	473.2	180.1	20.98	.0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1868	287.5	9.8	36.49	.0	.00	3677.6	488.1	219.28	.0	.00
RESERVR UNITS	3.00000	1868	336.3	9.8	535.15	.0	.00	4302.8	488.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.4 M3/CALDAY TO REPLACE REQUIRES 1.20 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 3.3 AVERAGE GAS-OIL RATIO IS 126.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	714	13.9	14.2	2.42	.0	.00	245.4	184.8	23.07	.0	.00
0014250012610	.50000	168	1.1	5.0	.00	.0	.00	105.8	109.0	35.77	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0012250012610	.50000	714	193.1	546.4	15.99	.0	.00	2417.2	2541.3	91.49	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1334	198.1	292.0	23.34	.0	.00	2352.2	1554.5	124.93	.0	.00
RESERVR UNITS	2.25000	1334	231.8	292.0	324.80	.0	.00	2752.1	1554.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 28.3 M3/CALDAY TO REPLACE REQUIRES 1.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.6 AVERAGE GAS-OIL RATIO IS 117.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	149	61.1	13.9	5.75	.0	.00	61.1	13.9	5.75	.0	.00
0009270012610	.25000	720	63.0	106.5	4.89	.0	.00	604.2	1233.0	51.46	.0	.00
0010270012610	.50000	720	93.3	143.6	9.29	.0	.00	1081.6	1559.7	63.49	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	720	49.7	64.6	1.63	.0	.00	400.3	1429.7	19.86	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	45	9.4	2.0	.88	.0	.00	9.4	2.0	.88	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.50000	1072	153.1	145.6	12.87	.0	.00	957.5	1817.9	60.73	.0	.00
RESERVR UNITS	4.50000	1072	179.1	145.6	135.10	.0	.00	1120.3	1817.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.3 M3/CALDAY TO REPLACE REQUIRES .63 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 48.5 AVERAGE GAS-OIL RATIO IS 84.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	149	61.1	13.9	5.75	.0	.00	61.1	13.9	5.75	.0	.00
0009270012610	.25000	720	63.0	106.5	4.89	.0	.00	604.2	1233.0	51.46	.0	.00
0010270012610	.50000	720	93.3	143.6	9.29	.0	.00	1081.6	1559.7	63.49	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	720	49.7	64.6	1.63	.0	.00	400.3	1429.7	19.86	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	45	9.4	2.0	.88	.0	.00	9.4	2.0	.88	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	1970	247.0	890.1	13.53	.0	.00	1602.8	4610.4	78.75	.0	.00
RESERVR UNITS	4.75000	1970	288.9	890.1	105.77	.0	.00	1968.8	4610.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 92.8 M3/CALDAY TO REPLACE REQUIRES 1.75 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 79.3 AVERAGE GAS-OIL RATIO IS 54.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] PATTERN NUMBER 27 [illegible]
[illegible] PRESSURE [illegible] [illegible] OIL FORMATION VOLUME [illegible] RES.M3/M3
THE OIL FORMATION VOLUME FACTOR= [illegible] RES.M3/M3 THE SOLUTION [illegible] OIL RATIO IS [illegible] M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0012270012610	.50000	601	222.5	202.8	1.09	.0	.00	1291.7	1612.2	74.91	.0	.00
0001330012610	1.00000	0	.0	.0	.00	0	.00	0	0	.00	.0	.00
0003340012610	.50000	720	49.7	64.6	1.63	.0	.00	460.3	1429.7	19.86	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCITON AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	660	136.1	133.7	1.36	.0	.00	846.0	1521.9	47.38	.0	.00
RESERVR UNITS	3.75000	660	159.2	133.7	.00	.0	.00	989.8	1521.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 9.8 M3/CALDAY TO REPLACE REQUIRES .40 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.6 AVERAGE GAS-OIL RATIO IS 10.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=91.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	520	148.8	51.3	14.00	.0	.00	148.8	51.3	14.00	.0	.00
0003310012510	.25000	720	28.0	18.8	.98	.0	.00	1427.0	560.7	13.98	.0	.00
0004310012510	.50000	720	16.3	50.3	1.30	.0	.00	993.0	701.2	42.96	.0	.00
0011310012510	.50000	712	36.1	107.7	7.73	.0	.00	709.9	968.5	95.62	.0	.00
0006310012510	.50000	720	77.0	566.6	4.89	.0	.00	1510.3	1992.9	95.56	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1776	220.5	418.3	21.20	.0	.00	2112.2	2022.8	134.57	.0	.00
RESERVR UNITS	2.75000	1776	258.0	418.3	246.54	.0	.00	2471.2	2022.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 30.8 M3/CALDAY TO REPLACE REQUIRES 1.26 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.5 AVERAGE GAS-OIL RATIO IS 96.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 15 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	744	232.7	80.7	12.06	.0	.00	1770.8	2035.3	139.49	.0	.00
0001270012610	.25000	744	100.5	285.5	2.52	.0	.00	714.5	1705.6	65.74	.0	.00
0002270012610	.50000	744	37.1	322.7	5.05	.0	.00	742.7	1613.1	50.61	.0	.00
0003270012610	.50000	744	38.2	180.0	.84	.0	.00	196.0	739.5	12.10	.0	.00
0206270012610	.50000	338	81.9	128.0	7.93	.0	.00	81.9	128.0	7.93	.0	.00
0211270012610	.25000	0	0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0010270012610	.50000	744	83.0	183.1	11.78	.0	.00	1164.0	1742.8	75.27	.0	.00
0009270012610	.25000	744	55.7	235.8	5.47	.0	.00	659.9	1468.8	56.93	.0	.00
0008270012610	.50000	648	285.8	335.1	8.06	.0	.00	2722.8	2984.9	119.53	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2725	534.2	785.5	30.89	.0	.00	4568.1	6433.0	301.08	.0	.00
RESERVR UNITS	4.25000	2725	625.1	785.5	198.21	.0	.00	5344.7	6433.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.9 M3/CALDAY TO REPLACE REQUIRES 2.12 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.5 AVERAGE GAS-OIL RATIO IS 57.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	744	162.3	6.2	18.79	.0	.00	3700.5	409.8	207.23	.0	.00
0003260012610	.25000	720	59.9	32.0	4.61	.0	.00	1779.9	327.6	53.31	.0	.00
0004260012610	.50000	744	83.2	216.9	6.59	.0	.00	2067.3	1747.8	112.16	.0	.00
0001270012610	.25000	744	100.5	285.5	2.52	.0	.00	714.5	1705.6	65.74	.0	.00
0008270012610	.50000	648	285.8	335.1	8.06	.0	.00	2722.8	2984.9	119.53	.0	.00
0009270012610	.25000	744	55.7	235.8	5.47	.0	.00	659.9	1468.8	56.93	.0	.00
0212260012610	.50000	536	182.4	16.3	10.40	.0	.00	190.9	16.4	11.20	.0	.00
0011260012610	.25000	736	190.8	61.4	8.88	.0	.00	1968.7	1531.1	42.56	.0	.00
0006260012610	.50000	744	59.7	6.2	6.45	.0	.00	2022.1	234.0	78.72	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2816	569.6	447.1	39.91	.0	.00	8482.8	4159.6	422.67	.0	.00
RESERVR UNITS	4.00000	2816	666.4	447.1	366.75	.0	.00	9924.9	4159.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.8 M3/CALDAY TO REPLACE REQUIRES 1.95 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.0 AVERAGE GAS-OIL RATIO IS 70.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 7 OF 1993
THE AVERAGE FORMATION PRESSURE=7571 kPaa THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	641	.0	.0	.00	3521.0	.00	3762.4	582.7	13.10	14601.8	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0004250012612	.50000	575	369.6	45.6	46.50	.0	.00	2521.3	283.4	200.10	.0	.00
0001260012610	.25000	744	247.2	103.0	17.17	.0	.00	2931.6	1865.1	109.37	.0	.00
0008260012610	.50000	744	394.9	88.1	22.72	.0	.00	4076.5	361.6	91.26	.0	.00
0012250012610	.50000	744	186.4	556.5	12.90	.0	.00	2643.6	3097.8	104.39	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0006250012610	.50000	716	395.1	265.8	16.60	.0	.00	4396.6	1229.3	93.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1941	917.7	509.1	71.40	3521.0	.00	12883.4	3595.0	410.38	14601.8	.00
RESERVR UNITS	3.75000	1941	1069.3	509.1	375.75	3521.0	.00	15079.5	3595.0	.00	14601.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 63.0 M3/CALDAY TO REPLACE REQUIRES 4.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.7 AVERAGE GAS-OIL RATIO IS 77.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 180.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 78.2

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 7 OF 1993
THE AVERAGE FORMATION PRESSURE=7571 kPaa THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	744	50.8	7.8	4.42	.0	.00	1991.5	240.7	161.52	.0	.00
0008260012610	.50000	744	394.9	88.1	22.72	.0	.00	4076.5	361.6	91.26	.0	.00
0001260012610	.25000	744	247.2	103.0	17.17	.0	.00	2931.6	1865.1	109.37	.0	.00
0002260012610	.50000	744	193.6	93.1	17.39	.0	.00	2992.3	801.5	104.51	.0	.00
0003260012610	.25000	720	59.9	32.0	4.61	.0	.00	1779.9	327.6	53.21	.0	.00
0006260012610	.50000	744	59.7	6.2	6.45	.0	.00	2022.1	234.0	78.72	.0	.00
0011260012610	.25000	736	190.8	61.4	8.88	.0	.00	1968.7	1531.1	42.56	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.25000	2410	499.4	150.6	35.36	.0	.00	8208.0	1870.2	350.07	.0	.00
RESERVR UNITS	3.25000	2410	584.3	150.6	247.24	.0	.00	9603.4	1870.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.7 M3/CALDAY TO REPLACE REQUIRES 1.09 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 23.2 AVERAGE GAS-OIL RATIO IS 70.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 6 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013360012610	1.00000	536	72.4	213.0	6.96	.0	.00	285.2	993.8	25.15	.0	.00
0011260012610	.50000	736	190.8	61.4	8.88	.0	.00	1968.7	1531.1	42.36	.0	.00
0212260012610	.50000	536	182.4	16.3	10.40	.0	.00	190.9	16.4	11.20	.0	.00
0009270012610	.25000	744	55.7	235.8	5.47	.0	.00	659.9	1468.8	56.93	.0	.00
0216270012610	.50000	683	129.0	436.1	11.17	.0	.00	138.4	438.1	12.06	.0	.00
0003350012610	1.00000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0014260012610	1.00000	620	45.5	724.0	.76	.0	.00	466.5	3517.5	30.72	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2320	382.9	1252.9	24.25	.0	.00	2065.7	5871.3	103.01	.0	.00
RESERVR UNITS	4.75000	2320	448.0	1252.9	165.61	.0	.00	2416.8	5871.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 60.2 M3/CALDAY TO REPLACE REQUIRES 2.46 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.6 AVERAGE GAS-OIL RATIO IS 63.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 7 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	737	248.8	79.9	8.34	.0	.00	309.9	93.8	14.09	.0	.00
0009270012610	.25000	744	55.7	235.8	5.47	.0	.00	659.9	1468.8	56.23	.0	.00
0010270012610	.50000	744	83.0	163.1	11.78	.0	.00	1164.0	1742.8	75.27	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	720	21.1	192.2	1.22	.0	.00	421.4	1621.9	21.08	.0	.00
0002340012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0216270012610	.50000	683	129.0	436.1	11.17	.0	.00	138.4	438.1	12.06	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.50000	1997	379.3	544.5	21.79	.0	.00	1356.8	2362.4	82.53	.0	.00
RESERVR UNITS	4.50000	1997	443.8	544.5	166.43	.0	.00	1564.0	2362.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.2 M3/CALDAY TO REPLACE REQUIRES 1.52 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 58.9 AVERAGE GAS OIL RATIO IS 57.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	404	154.8	123.7	15.01	.0	.00	154.8	123.7	15.01	.0	.00
0211270012610	.25000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
0012270012610	.50000	744	245.7	456.2	20.20	.0	.00	1537.4	2068.4	95.11	.0	.00
0001330012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003340012610	.50000	720	21.1	192.2	1.22	.0	.00	421.4	1621.9	21.09	.0	.00
0214270012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1136	288.2	447.9	25.72	.0	.00	1134.2	1968.9	73.19	.0	.00
RESERVR UNITS	3.75000	1136	337.2	447.9	269.75	.0	.00	1327.0	1968.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.0 M3/CALDAY TO REPLACE REQUIRES 1.39 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.9 AVERAGE GAS-OIL RATIO IS 89.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	504	109.3	2.9	10.50	.0	.00	258.1	54.2	24.51	.0	.00
0003310012510	.25000	744	21.8	33.1	5.89	.0	.00	1448.8	593.8	19.87	.0	.00
0004310012510	.50000	744	20.1	86.9	4.71	.0	.00	1013.1	788.1	47.67	.0	.00
0011310012510	.50000	744	63.3	52.8	10.10	.0	.00	773.2	1021.3	105.72	.0	.00
0006310012510	.50000	744	143.1	76.8	13.68	.0	.00	1653.4	2754.7	109.23	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1806	228.0	461.9	26.22	.0	.00	2340.2	2484.7	160.79	.0	.00
RESERVR UNITS	2.75000	1806	266.8	461.9	357.22	.0	.00	2738.0	2484.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.0 M3/CALDAY TO REPLACE REQUIRES 1.43 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 67.0 AVERAGE GAS-OIL RATIO IS 115.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
0013230012610	1.00000	744	192.6	379.2	23.10	.0	.00	404.8	603.1	43.31	.0	.00
0004260012610	.50000	744	112.1	132.4	3.00	.0	.00	2179.4	1880.2	115.16	.0	.00
0001270012610	.50000	738	77.5	268.0	1.90	.0	.00	792.0	1973.6	67.64	.0	.00
0002270012610	.50000	744	79.7	158.0	4.20	.0	.00	822.4	1771.1	54.81	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1857	327.2	658.4	27.65	.0	.00	2300.9	3415.6	162.12	.0	.00
RESERVR UNITS	3.50000	1857	382.9	658.4	326.73	.0	.00	2692.1	3415.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 44.1 M3/CALDAY TO REPLACE REQUIRES 1.80 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 66.8 AVERAGE GAS-OIL RATIO IS 84.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	736	246.0	296.9	4.50	.0	.00	1371.8	1886.8	53.46	.0	.00
0003270012610	.50000	720	17.9	147.7	1.80	.0	.00	213.9	887.2	13.90	.0	.00
0004270012610	1.00000	740	35.8	926.3	3.00	.0	.00	956.0	1876.9	47.80	.0	.00
0012270012610	.50000	744	364.3	74.0	29.80	.0	.00	1901.7	2142.4	124.91	.0	.00
0211270012610	.25000	738	164.1	240.9	10.40	.0	.00	164.1	240.9	10.40	.0	.00
0206270012610	.50000	690	112.4	415.1	6.00	.0	.00	194.3	543.1	13.93	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2738	570.1	1601.8	28.90	.0	.00	3523.8	5610.3	180.23	.0	.00
RESERVR UNITS	3.75000	2738	667.0	1601.8	192.49	.0	.00	4122.8	5610.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 79.4 M3/CALDAY TO REPLACE REQUIRES 3.24 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.8 AVERAGE GAS-OIL RATIO IS 50.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 15 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaG THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	744	65.9	534.8	4.50	.0	.00	1836.6	2570.1	142.99	.0	.00
0001270012610	.25000	736	77.5	268.0	1.90	.0	.00	792.0	1973.6	67.64	.0	.00
0002270012610	.50000	744	79.7	158.0	4.20	.0	.00	822.4	1771.1	54.81	.0	.00
0003270012610	.50000	720	17.9	147.7	1.80	.0	.00	213.9	887.2	13.90	.0	.00
0206270012610	.50000	690	112.4	415.1	6.00	.0	.00	194.3	543.1	13.93	.0	.00
0211270012610	.25000	738	164.1	240.9	10.40	.0	.00	164.1	240.9	10.40	.0	.00
0010270012610	.50000	744	66.7	212.3	6.80	.0	.00	1238.7	1955.1	82.07	.0	.00
0009270012610	.25000	606	129.1	118.0	4.10	.0	.00	789.0	1586.8	61.03	.0	.00
0008270012610	.50000	744	219.8	585.9	11.50	.0	.00	2942.6	3570.8	131.03	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.25000	3086	486.7	1451.0	23.75	.0	.00	4974.8	7884.1	325.63	.0	.00
RESERVR UNITS	4.25000	3086	475.9	1451.0	101.11	.0	.00	5820.5	7884.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 65.4 M3/CALDAY TO REPLACE REQUIRES 2.67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 14.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 78.1 AVERAGE GAS-OIL RATIO IS 58.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaG THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	686	103.0	8.0	17.70	.0	.00	3803.5	417.8	224.93	.0	.00
0003260012610	.25000	744	71.8	8.3	2.90	.0	.00	1851.7	335.9	56.21	.0	.00
0004260012610	.50000	744	112.1	132.4	3.00	.0	.00	2179.4	1880.2	115.16	.0	.00
0001270012610	.25000	730	77.5	268.0	1.90	.0	.00	792.0	1973.6	67.64	.0	.00
0009270012610	.50000	744	219.8	585.9	11.50	.0	.00	2942.6	3570.8	131.03	.0	.00
0009270012610	.25000	606	129.1	118.0	4.10	.0	.00	789.0	1586.8	61.03	.0	.00
0212260012610	.50000	416	155.1	31.9	4.90	.0	.00	346.0	48.3	16.10	.0	.00
0011260012610	.25000	736	271.6	95.8	20.70	.0	.00	2240.3	1626.9	63.26	.0	.00
0006260012610	.50000	744	56.2	11.6	5.10	.0	.00	2078.3	245.6	83.82	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2716	512.1	511.4	37.35	.0	.00	8924.9	4671.0	460.02	.0	.00
RESERVR UNITS	4.00000	2716	599.2	511.4	377.51	.0	.00	10524.0	4671.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 48.8 M3/CALDAY TO REPLACE REQUIRES 1.96 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 50.0 AVERAGE GAS-OIL RATIO IS 72.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=6300 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 20.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	744	58.0	5.2	10.20	.0	.00	2050.5	245.9	171.72	.0	.00
0008260012610	.50000	744	430.4	46.9	28.20	.0	.00	4506.9	408.5	119.46	.0	.00
0001260012610	.25000	744	318.5	94.2	32.70	.0	.00	3250.1	1959.3	142.07	.0	.00
0002260012610	.50000	744	130.5	62.7	12.20	.0	.00	3122.8	864.2	116.71	.0	.00
0003260012610	.25000	744	71.8	8.3	2.90	.0	.00	1851.7	335.9	56.21	.0	.00
0006260012610	.50000	744	56.2	11.6	5.10	.0	.00	2078.3	245.6	83.82	.0	.00
0011260012610	.25000	736	271.6	95.8	20.70	.0	.00	2240.3	1626.9	63.26	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.25000	2416	532.0	115.4	47.02	.0	.00	8740.0	1985.6	397.10	.0	.00
RESERVR UNITS	3.25000	2416	622.5	115.4	491.31	.0	.00	10225.8	1985.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.7 M3/CALDAY TO REPLACE REQUIRES 1.62 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.8 AVERAGE GAS-OIL RATIO IS 88.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	714	.0	.0	.00	4220.6	.00	3762.4	582.7	13.10	18822.4	.00
0003250012612	.25000	680	477.1	33.8	22.20	.0	.00	3239.3	86.2	349.65	.0	.00
0004250012612	.50000	740	438.2	30.5	54.60	.0	.00	2959.5	313.9	254.70	.0	.00
0001260012610	.25000	744	318.5	94.2	32.70	.0	.00	3250.1	1959.3	142.07	.0	.00
0008260012610	.50000	744	430.4	46.9	28.20	.0	.00	4506.9	408.5	119.46	.0	.00
0012250012610	.50000	602	103.8	347.1	4.70	.0	.00	2707.4	3444.9	109.09	.0	.00
0011250012610	.25000	690	283.7	12.0	22.80	.0	.00	3898.0	199.6	195.82	.0	.00
0006250012610	.50000	744	408.9	250.1	33.50	.0	.00	4805.5	1479.4	127.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1944	960.5	372.3	79.92	4220.6	.00	13848.9	3967.3	490.31	18822.4	.00
RESERVR UNITS	3.75000	1944	1119.1	372.3	452.75	4220.6	.00	16203.2	3967.3	.00	18822.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 62.7 M3/CALDAY TO REPLACE REQUIRES 4.49 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 27.9 AVERAGE GAS-OIL RATIO IS 83.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 217.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 93.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	722	23.0	6.5	2.50	.0	.00	448.6	135.9	33.49	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1787.2	155.8	23.46	.0	.00
0010250012610	.50000	728	234.1	205.5	13.40	.0	.00	3920.4	496.2	280.38	.0	.00
0011250012610	.25000	690	283.7	12.0	22.80	0	.00	3898.0	199.6	195.82	.0	.00
0014250012610	.50000	728	21.9	17.2	1.90	.0	.00	146.9	126.2	38.78	.0	.00
0016250012610	.50000	744	13.5	.0	1.30	.0	.00	508.5	180.1	25.36	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1995	228.7	121.0	16.50	.0	.00	4157.8	626.0	260.57	.0	.00
RESERVR UNITS	3.00000	1995	267.5	121.0	118.30	.0	.00	4864.6	626.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.3 M3/CALDAY TO REPLACE REQUIRES .67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.6 AVERAGE GAS-OIL RATIO IS 72.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	744	17.1	11.5	1.30	.0	.00	278.9	205.6	26.06	.0	.00
0014250012610	.50000	728	21.9	17.2	1.90	.0	.00	146.9	126.2	38.78	.0	.00
0011250012610	.25000	690	283.7	12.0	22.80	.0	.00	3898.0	199.6	195.82	.0	.00
0012250012610	.50000	602	103.8	347.1	4.70	.0	.00	2707.4	3444.9	109.09	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1582	150.9	196.6	10.30	.0	.00	2680.6	2041.1	148.95	.0	.00
RESERVR UNITS	2.25000	1582	176.5	196.6	71.01	.0	.00	3136.2	2041.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 14.3 M3/CALDAY TO REPLACE REQUIRES .58 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.6 AVERAGE GAS-OIL RATIO IS 68.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 25 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013260012610	1.00000	684	56.1	304.2	6.89	.0	.00	341.3	1298.0	31.95	.0	.00
0011260012610	.50000	736	271.6	95.8	20.70	.0	.00	2240.3	1626.9	63.24	.0	.00
0212260012610	.50000	416	155.1	31.9	4.90	.0	.00	346.3	48.3	16.10	.0	.00
0009270012610	.25000	606	129.1	118.0	4.10	.0	.00	789.0	1586.8	61.03	.0	.00
0216270012610	.50000	720	186.7	233.3	2.80	.0	.00	325.1	671.4	14.86	.0	.00
0003350012610	1.00000	524	6.1	8.8	.80	.0	.00	6.1	8.8	.80	.0	.00
0014260012610	1.00000	696	117.9	504.4	2.60	.0	.00	584.4	4031.9	33.32	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2992	519.1	1027.4	25.42	.0	.00	2584.8	6892.7	128.44	.0	.00
RESERVR UNITS	4.75000	2992	607.3	1027.4	192.18	.0	.00	3024.2	6892.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.9 M3/CALDAY TO REPLACE REQUIRES 2.41 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 66.4 AVERAGE GAS-OIL RATIO IS 49.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	696	230.9	74.0	14.10	.0	.00	540.8	167.8	28.19	.0	.00
0009270012610	.25000	606	129.1	118.0	4.10	.0	.00	789.0	1586.8	61.03	.0	.00
0010270012610	.50000	744	66.7	212.3	6.80	.0	.00	1230.7	1955.1	82.07	.0	.00
0211270012610	.25000	738	164.1	240.9	10.40	.0	.00	164.1	240.9	10.40	.0	.00
0214270012610	.50000	342	129.6	108.4	15.50	.0	.00	129.6	108.4	15.50	.0	.00
0003340012610	.50000	744	22.3	174.3	1.70	.0	.00	443.7	1796.2	22.78	.0	.00
0002340012612	1.00000	208	16.7	105.4	1.90	.0	.00	16.7	105.4	1.90	.0	.00
0216270012610	.50000	720	186.7	233.3	2.80	.0	.00	325.1	671.4	14.86	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.50000	2515	523.5	633.3	33.02	.0	.00	1860.3	2995.7	115.55	.0	.00
RESERVR UNITS	4.50000	2515	612.6	633.3	252.10	.0	.00	2176.6	2995.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 48.3 M3/CALDAY TO REPLACE REQUIRES 1.97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.7 AVERAGE GAS-OIL RATIO IS 63.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 27 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	696	211.5	238.0	16.90	.0	.00	366.3	361.7	31.91	.0	.00
0211270012610	.25000	738	164.1	240.9	10.40	.0	.00	164.1	240.9	10.40	.0	.00
0012270012610	.50000	744	364.3	74.0	29.80	.0	.00	1901.7	2142.4	124.91	.0	.00
0001330012610	1.00000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0003340012610	.50000	744	22.3	174.3	1.70	.0	.00	443.7	1796.2	22.78	.0	.00
0214270012610	.50000	342	129.6	108.4	15.50	.0	.00	129.6	108.4	15.50	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1796	510.6	476.6	43.00	.0	.00	1644.8	2445.4	116.11	.0	.00
RESERVR UNITS	3.75000	1796	597.4	476.6	414.97	.0	.00	1924.4	2445.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 48.0 M3/CALDAY TO REPLACE REQUIRES 1.96 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 48.3 AVERAGE GAS-OIL RATIO IS 84.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	588	145.9	38.4	5.60	.0	.00	404.0	92.6	30.11	.0	.00
0003310012510	.25000	696	29.7	24.0	5.10	.0	.00	1478.5	617.8	24.97	.0	.00
0004310012510	.50000	680	25.2	43.4	5.00	.0	.00	1038.3	831.5	52.67	.0	.00
0011310012510	.50000	480	31.3	40.1	4.30	.0	.00	804.5	1061.4	110.02	.0	.00
0006310012510	.50000	696	113.5	647.9	28.40	.0	.00	1766.9	3402.6	137.63	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1694	238.3	410.1	25.73	.0	.00	2578.5	2894.8	186.51	.0	.00
RESERVR UNITS	2.75000	1694	278.8	410.1	377.49	.0	.00	3016.8	2894.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.4 M3/CALDAY TO REPLACE REQUIRES 1.40 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 63.2 AVERAGE GAS-OIL RATIO IS 107.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	0	0	0	.0	.0	.00	0	.0	.00	.0	.00
[illegible]	1.00000	670	59.2	462.9	.90	.0	.00	462.2	1040.0	44.21	.0	.00
0000270012610	.50000	721	133.9	191.3	5.20	0	.00	2313.3	4781.5	121.36	.0	.00
0001270012610	50000	714	25.8	264.9	2.90	.0	.00	817.8	2258.5	70.54	0	.00
0002270012610	.50000	714	42.4	392.0	4.20	.0	.00	864.8	1963.1	59.31	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1764	109.0	725.0	7.00	.0	.00	2460.8	4291.0	165.87	.0	.00
RESERVR UNITS	3.50000	1764	196.7	726.0	48.93	.0	.00	2872.7	6341.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.2 M3/CALDAY TO REPLACE REQUIRES 1.30 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 12.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 82.3 AVERAGE GAS-OIL RATIO IS 42.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WAOKATA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 9 OF 1983
THE AVERAGE FORMATION PRESSURE=9220 kPaG THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=91.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0000270012610	1.00000	709	102.5	517.5	10.40	0	.00	1874.3	2928.2	62.06	.0	.00
0001270012610	.50000	703	7.0	151.3	2.80	.0	.00	220.3	1010.5	14.70	.0	.00
0004270012610	1.00000	708	14.2	793.9	1.10	.0	.00	970.2	2670.6	48.90	.0	.00
0012270012610	.50000	702	215.9	469.4	10.40	.0	.00	2117.6	3620.9	143.31	.0	.00
0014270012610	.25000	720	142.6	532.2	3.10	.0	.00	387.7	777.4	15.95	.0	.00
0015270012610	.50000	706	126.2	177.3	7.90	.0	.00	325.1	1000.4	21.73	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2652	327.3	1978.9	26.77	.0	.00	3851.1	7589.2	207.01	.0	.00
RESERVR UNITS	3.75000	2652	382.9	1978.9	272.61	.0	.00	4505.9	7587.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 87.8 M3/CALDAY TO REPLACE REQUIRES 3.59 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 20.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 85.8 AVERAGE GAS-OIL RATIO IS 81.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMING4S KM3
0005260012610	1.00000	720	94.3	15.7	16.20	.0	.00	3897.0	436.5	291.13	0	.00
0003260012610	.25000	720	39.0	21.2	5.80	0	.00	1941.9	357.1	62.01	.0	.00
0004260012610	.50000	720	135.9	101.3	6.20	0	.00	2313.3	1981.5	121.36	.0	.00
0001270012610	.25000	714	28.8	284.9	2.90	.0	.00	817.9	2258.5	70.54	.0	.00
0002270012610	.50000	720	117.7	752.8	9.30	.0	.00	3068.8	4323.6	140.33	.0	.00
0009270012610	.25000	714	56.9	221.1	5.80	.0	.00	845.9	1807.9	66.83	.0	.00
0212260012610	.50000	696	293.1	94.2	21.70	.0	.00	639.1	142.5	37.00	.0	.00
0011260012610	.25000	716	221.4	320.1	25.80	.0	.00	2461.7	1247.0	89.06	.0	.00
0006260012610	.50000	720	57.3	15.1	6.00	.0	.00	2135.6	260.7	99.82	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & B=1.17

SURFACE UNITS	4.25000	3639	298.2	1579.3	25.50	.0	.00	5263.9	9467.3	351.18	.0	.00
RESERVR UNITS	4.25000	3639	337.2	1579.3	201.52	.0	.00	6157.7	9463.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.0 M3/D EQUIVALENT TO INJECTION REQUIRED 3.36 KM3 DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.0 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.0 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 84.6 AVERAGE GAS-OIL RATIO IS 70.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 9 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 KPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMING4S KM3
0005260012610	1.00000	720	94.3	15.7	16.20	.0	.00	3897.0	436.5	291.13	0	.00
0003260012610	.25000	720	39.0	21.2	5.80	0	.00	1941.9	357.1	62.01	.0	.00
0004260012610	.50000	720	135.9	101.3	6.20	0	.00	2313.3	1981.5	121.36	.0	.00
0001270012610	.25000	714	28.8	284.9	2.90	.0	.00	817.9	2258.5	70.54	.0	.00
0002270012610	.50000	720	117.7	752.8	9.30	.0	.00	3068.8	4323.6	140.33	.0	.00
0009270012610	.25000	714	56.9	221.1	5.80	.0	.00	845.9	1807.9	66.83	.0	.00
0212260012610	.50000	696	293.1	94.2	21.70	.0	.00	639.1	142.5	37.00	.0	.00
0011260012610	.25000	716	221.4	320.1	25.80	.0	.00	2461.7	1247.0	89.06	.0	.00
0006260012610	.50000	720	57.3	15.1	6.00	.0	.00	2135.6	260.7	99.82	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & B=1.17

SURFACE UNITS	4.00000	2864	493.8	412.6	42.87	.0	.00	9409.7	5383.7	507.82	.0	.00
RESERVR UNITS	4.00000	2864	577.1	412.6	333.23	.0	.00	11171.5	5380.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.0 M3 EQUAL TO REPLACE VOIDAGE 3.19 KM3/D GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.1 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.1 AVERAGE GAS-OIL RATIO IS 97.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINGAS KM3
[illegible]	1.00000	716	.0	.0	.00	2559.2	.00	3762.4	502.7	13.10	22381.6	.00
[illegible]	.25000	715	459.0	95.2	24.40	.0	.00	4265.7	503.7	143.36	.0	.00
[illegible]	.25000	715	307.7	147.9	29.10	.0	.00	3553.8	2107.2	171.17	.0	.00
[illegible]	.75000	715	169.4	77.5	11.83	.0	.00	3273.2	941.7	128.51	.0	.00
[illegible]	.25000	720	49.9	21.2	5.80	.0	.00	1061.4	227.1	62.51	.0	.00
[illegible]	.50000	720	57.7	15.1	4.00	.0	.00	2128.8	268.7	89.62	.0	.00
[illegible]	.25000	716	231.9	326.1	25.91	.0	.00	2431.7	1207.0	69.02	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1910	930.6	462.9	85.25	3559.2	.00	14794.5	4430.3	555.56	22381.6	.00
RESERVE UNITS	3.75000	1910	1066.6	462.9	259.95	3559.2	.00	17394.4	4430.3	.00	22381.6	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/DAY/DAY TO REPLACE PRODUCED [illegible] KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.7 M3/DAY/NET WELL AVERAGE TOTAL FLUID RATE IS 17.8 M3/DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 33.2 AVERAGE GAS-OIL RATIO IS [illegible] M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible]

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 9 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINGAS KM3
00/05-25-001-26W1/0	1.00000	716	.0	.0	.00	2559.2	.00	3762.4	502.7	13.10	22381.6	.00
00/03-25-001-26W1/0	.25000	608	490.4	19.2	32.00	.0	.00	3702.7	106.0	382.45	.0	.00
00/04-25-001-26W1/0	.50000	624	360.2	71.8	33.30	.0	.00	3267.7	405.7	280.00	.0	.00
00/12-25-001-26W1/0	.25000	715	306.7	147.9	29.10	.0	.00	3553.8	2107.2	171.17	.0	.00
00/02-26-001-26W1/0	.50000	715	459.0	95.2	24.40	.0	.00	4265.7	503.7	143.36	.0	.00
00/12-25-001-26W1/0	.50000	710	151.9	404.2	9.70	.0	.00	2357.3	3089.1	118.79	.0	.00
00/11-25-001-26W1/0	.25000	710	305.6	63.3	12.30	.0	.00	4293.6	262.9	209.12	.0	.00
00/06-25-001-26W1/0	.50000	712	398.0	179.2	25.50	.0	.00	5283.5	1658.6	152.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1910	930.6	462.9	85.25	3559.2	.00	14794.5	4430.3	555.56	22381.6	.00
RESERVE UNITS	3.75000	1910	1066.6	462.9	259.95	3559.2	.00	17394.4	4430.3	.00	22381.6	.00

AVERAGE RATE OF VOIDAGE CREATION IS 68.3 M3/DAY/DAY TO REPLACE PRODUCED 4.23 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.7 M3/DAY/NET WELL AVERAGE TOTAL FLUID RATE IS 17.8 M3/DAY/NET WELL
AVERAGE PERCENT WATER CUT IS 33.2 AVERAGE GAS-OIL RATIO IS 59.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 174.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 167.9

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
[illegible]	1.00000	744	15.5	.2	2.91	.0	.00	3427.0	174.2	35.[illegible]	.0	.00
[illegible]	.25000	438	7.8	5[illegible]	5.00	.0	.00	1794.1	702.8	28.76	.0	.00
00122500[illegible]	.50000	744	223.9	3.7	28.15	0	.00	4094.3	499.2	300.48	.0	.00
00112500[illegible]	.25000	744	305.6	43.3	13.30	.0	.00	4203.6	262.9	249.12	.0	.00
00142500[illegible]	.50000	744	14.0	1.9	90	.0	.00	160.9	120.1	39.60	.0	.00
00160500[illegible]	.50000	744	33.7	0	3.30	.0	.00	548.2	190.3	28.56	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.00000	1416	265.5	155.1	18.45	0	.00	6933.3	701.1	277.02	.0	.00
RESERVR UNITS	3.00000	1416	316.7	196.1	124.83	.0	.00	5375.2	701.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.0 M3/CADAY IS REPLACE REQUIRES .37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS [illegible] M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS [illegible] M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 36.9 AVERAGE GAS-OIL RATIO IS 69.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .9 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

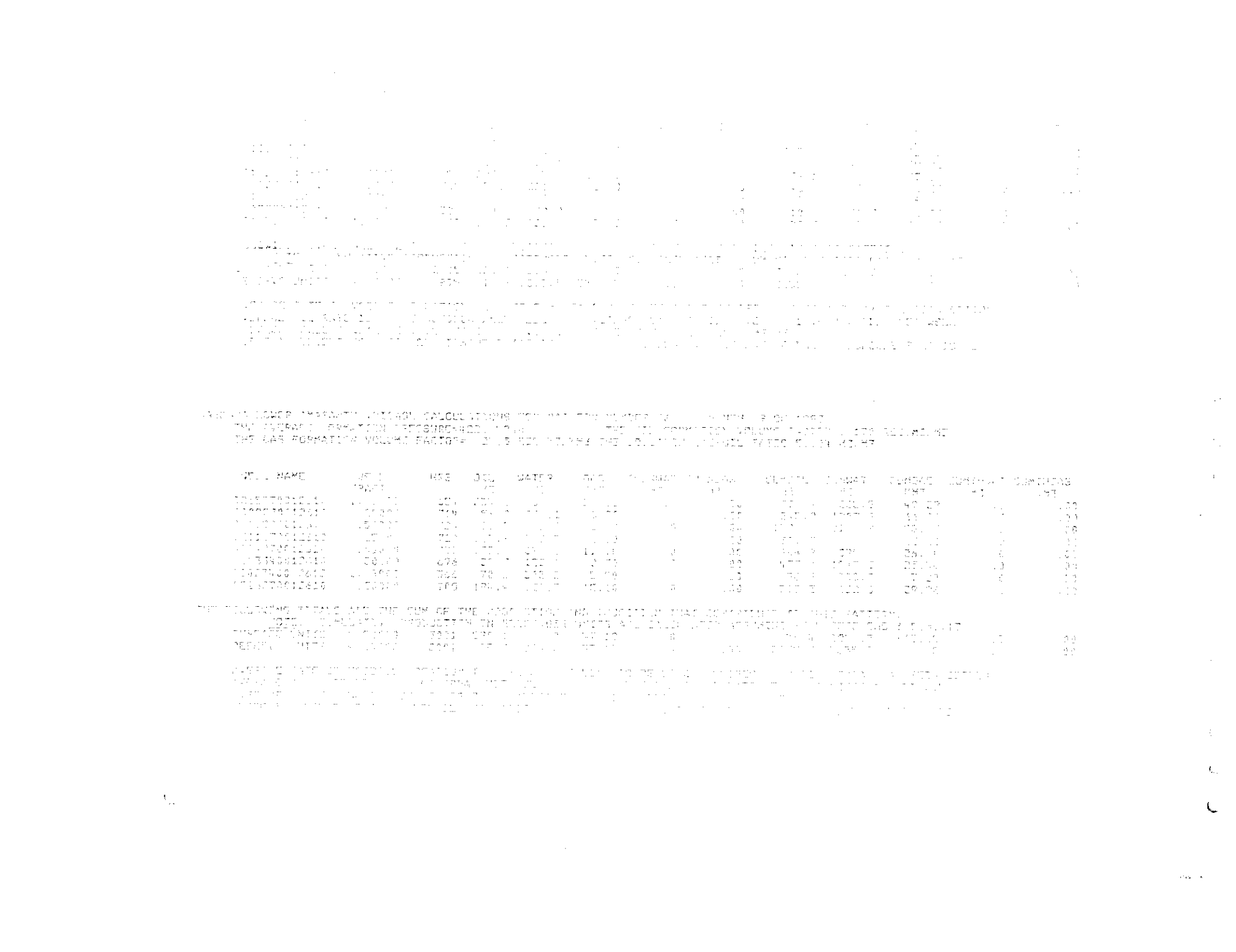
WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 9 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.179 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS OIL RATIO=81.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
00132500[illegible]	1.00000	718	15.4	14.8	.90	.0	.00	298.3	228.1	26.94	.0	.00
00142500[illegible]	.50000	718	14.0	1.9	.90	.0	.00	160.9	120.1	39.60	.0	.00
00112500[illegible]	.25000	718	305.6	43.3	13.30	.0	.00	4207.6	262.9	289.12	.0	.00
00122500[illegible]	.50000	718	151.9	494.2	9.70	.0	.00	2[illegible]	3389.1	118.75	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1610	174.8	253.4	9.52	.0	.00	2405.3	2294.4	138.48	.0	.00
RESERVR UNITS	2.25000	1610	204.5	253.4	28.92	.0	.00	3340.7	2294.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 14.2 M3/CADAY IS REPLACE REQUIRES .64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.2 AVERAGE GAS-OIL RATIO IS 54.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0



[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
[illegible]	1.00000	684	79.0	102.1	0.00	.0	.00	946.1	557.0	39.31	.0	.00
[illegible]	.25000	72[illegible]	103.0	532.5	3.19	.0	.00	3[illegible].7	[illegible].4	13.[illegible]	.0	.00
[illegible]	.50000	782	215.9	460.4	10.40	.0	.00	2117.6	2602.0	143.31	.0	.00
[illegible]	1.00000	.0	.0	.0	.00	.0	.00	.0	.[illegible]	.06	.[illegible]	.00
[illegible]	.50000	696	27.7	152.1	2.75	.0	.00	473.4	1[illegible].[illegible]	.[illegible]5.[illegible]5	.[illegible]	.[illegible]3
[illegible]	.50000	720	175.2	281.3	11.10	0	.00	3[illegible].0	3[illegible].4	26.60	0	.01

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & BAL[illegible].17

SURFACE UNITS	3.75000	1725	329.1	796.9	19.29	.0	.00	1970.[illegible]	[illegible]21.9	135.[illegible]	.0	.00
RESERVR UNITS	3.75000	1725	33[illegible].[illegible]	[illegible]5.[illegible]	.[illegible]1.[illegible]0	.[illegible]	.[illegible]3	2[illegible]6[illegible].[illegible]	3[illegible]1.4	.[illegible]6	.[illegible]	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible]3.0 M3/CALDAY TO REPLACE REQUIRES 1.75 [illegible]M3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF [illegible]3.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.4 AVERAGE GAS-OIL RATIO IS 59.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

JASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 29 MONTH 9 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.9% M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
000531001[illegible]510	1.00000	697	63.4	31.2	9.80	.0	.00	467.4	110.9	39.91	0	.00
000331001[illegible]510	.25000	691	26.3	1.8	2.60	.0	.00	1504.7	635.6	27.97	.0	.00
000421001[illegible]510	.50000	713	12.0	33.8	2.20	.0	.00	1051.7	661.5	54.07	.0	.00
001131001[illegible]510	.50000	702	32.7	31.7	4.20	.0	.00	837.9	1125.9	114.22	.0	.00
000631[illegible]01[illegible]510	.50000	672	185.9	435.5	20.00	.0	.00	1955.0	3039.1	157.67	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & BAL[illegible].17

SURFACE UNITS	2.75000	1913	185.8	295.6	23.65	.0	.00	2764.2	3190.5	210.16	.0	.00
RESERVR UNITS	2.75000	1913	217.3	295.6	347.15	.0	.00	3236.1	3190.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.7 M3/CALDAY TO REPLACE REQUIRES 1.17 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.4 AVERAGE GAS-OIL RATIO IS 127.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=5950 kPag THE OIL FORMATION VOLUME FACTOR=1.167 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 17.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0013230012610	1.00000	732	30.9	605.0	2.10	.0	.00	493.4	1645.0	46.31	.0	.00
0004260012610	.50000	732	90.5	210.0	6.00	.0	.00	2403.8	2191.5	127.36	.0	.00
0001270012610	.50000	744	56.9	255.3	2.80	.0	.00	874.7	2513.8	73.34	.0	.00
0002270012610	.50000	744	38.5	191.9	3.40	.0	.00	903.3	2155.0	62.41	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	1842	123.9	933.6	8.20	.0	.00	2584.3	5075.1	177.87	.0	.00
RESERVR UNITS	3.50000	1842	144.6	933.6	33.74	.0	.00	3023.6	5075.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.9 M3/CALDAY TO REPLACE REQUIRES 2.05 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 88.3 AVERAGE GAS-OIL RATIO IS 66.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	618	80.2	356.1	8.50	.0	.00	1554.5	2760.3	72.36	.0	.00
0003270012610	.50000	732	19.6	166.4	1.70	.0	.00	240.5	1184.9	18.40	.0	.00
0004270012610	1.00000	0	.0	.0	.00	.0	.00	970.2	2670.8	48.90	.0	.00
0012270012610	.50000	688	157.9	527.5	7.90	.0	.00	2275.5	3130.3	151.21	.0	.00
0211270012610	.25000	744	82.6	752.7	6.90	.0	.00	390.3	1526.1	20.40	.0	.00
0206270012610	.50000	732	167.0	568.6	11.30	.0	.00	487.8	1589.0	33.03	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1880	273.1	1175.5	20.67	.0	.00	4124.2	8764.7	227.68	.0	.00
RESERVR UNITS	3.75000	1880	319.5	1175.5	166.98	.0	.00	4825.3	8764.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 53.6 M3/CALDAY TO REPLACE REQUIRES 2.19 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 18.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 81.1 AVERAGE GAS-OIL RATIO IS 75.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 15 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	732	183.6	161.2	8.70	.0	.00	2079.4	3165.9	158.79	.0	.00
0001270012610	.25000	744	56.9	255.3	2.80	.0	.00	874.7	2513.8	73.34	.0	.00
0002270012610	.50000	744	38.5	191.9	3.40	.0	.00	903.3	2155.0	62.41	.0	.00
0003270012610	.50000	732	19.6	166.4	1.70	.0	.00	240.5	1184.9	18.40	.0	.00
0206270012610	.50000	732	167.0	568.6	11.30	.0	.00	487.8	1589.0	33.03	.0	.00
0211270012610	.25000	744	82.6	752.7	6.90	.0	.00	390.3	1526.1	20.40	.0	.00
0010270012610	.50000	732	72.2	171.0	7.50	.0	.00	1354.1	2342.8	96.47	.0	.00
0009270012610	.25000	732	29.7	229.4	6.40	.0	.00	875.6	2037.3	73.23	.0	.00
0008270012610	.50000	728	146.4	673.3	16.30	.0	.00	3206.7	4996.9	156.63	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.25000	3121	447.7	1356.2	32.82	.0	.00	5710.7	10819.5	384.00	.0	.00
RESERVR UNITS	4.25000	3121	523.9	1356.2	261.39	.0	.00	6681.6	10819.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 69.1 M3/CALDAY TO REPLACE REQUIRES 2.82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.2 AVERAGE GAS-OIL RATIO IS 73.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	716	77.6	38.4	14.30	.0	.00	3975.4	474.9	255.43	.0	.00
0003260012610	.25000	744	80.7	32.0	5.80	.0	.00	2022.3	389.1	67.81	.0	.00
0004260012610	.50000	732	90.5	210.0	6.00	.0	.00	2403.8	2191.5	127.36	.0	.00
0001270012610	.25000	744	56.9	255.3	2.80	.0	.00	874.7	2513.8	73.34	.0	.00
0008270012610	.50000	728	146.4	673.3	16.30	.0	.00	3206.7	4996.9	156.63	.0	.00
0009270012610	.25000	732	29.7	229.4	6.40	.0	.00	875.6	2037.3	73.23	.0	.00
0212260012610	.50000	732	289.4	138.0	35.40	.0	.00	928.5	280.5	73.20	.0	.00
0011260012610	.25000	732	137.7	200.2	29.40	.0	.00	2599.4	2147.2	118.46	.0	.00
0006260012610	.50000	732	68.2	25.5	6.20	.0	.00	2203.8	286.2	96.02	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2916	451.1	741.0	57.35	.0	.00	9939.8	6124.3	565.24	.0	.00
RESERVR UNITS	4.00000	2916	527.8	741.0	841.62	.0	.00	11629.6	6124.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 68.1 M3/CALDAY TO REPLACE REQUIRES 2.78 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.2 AVERAGE GAS-OIL RATIO IS 127.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	732	100.4	16.0	9.60	.0	.00	2235.3	273.0	195.32	.0	.00
0008260012610	.50000	720	440.6	73.6	22.20	.0	.00	5406.3	577.3	166.06	.0	.00
0001260012610	.25000	732	238.1	113.7	22.60	.0	.00	3788.9	2220.9	193.77	.0	.00
0002260012610	.50000	732	148.4	90.2	9.80	.0	.00	3420.6	1031.9	138.31	.0	.00
0003260012610	.25000	744	80.7	32.0	5.80	.0	.00	2022.3	389.1	67.81	.0	.00
0006260012610	.50000	732	68.2	25.5	6.20	.0	.00	2203.8	286.2	96.02	.0	.00
0011260012610	.25000	732	137.7	200.2	29.40	.0	.00	2599.4	2147.2	118.46	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.25000	2376	543.1	197.1	43.15	.0	.00	9853.3	2410.0	490.52	.0	.00
RESERVR UNITS	3.25000	2376	635.5	197.1	381.54	.0	.00	11528.4	2410.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.2 M3/CALDAY TO REPLACE REQUIRES 1.60 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 26.6 AVERAGE GAS-OIL RATIO IS 79.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	742	.0	.0	.00	3816.1	.00	3762.4	582.7	13.10	26197.7	.00
0003250012612	.25000	732	559.2	4.1	46.10	.0	.00	4288.9	110.1	428.55	.0	.00
0004250012612	.50000	732	392.6	34.3	27.30	.0	.00	3660.3	440.0	315.30	.0	.00
0001260012610	.25000	732	238.1	113.7	22.60	.0	.00	3788.9	2220.9	193.77	.0	.00
0008260012610	.50000	720	440.6	73.6	22.20	.0	.00	5406.3	577.3	166.06	.0	.00
0012250012610	.50000	735	244.3	287.9	7.90	.0	.00	3103.6	4177.0	126.69	.0	.00
0011250012610	.25000	744	272.6	57.1	7.50	.0	.00	4476.2	320.0	216.62	.0	.00
0006250012610	.50000	732	453.2	211.3	16.80	.0	.00	5656.7	1869.9	169.70	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2012	1032.8	347.3	56.15	3816.1	.00	15814.3	4777.5	611.71	26197.7	.00
RESERVR UNITS	3.75000	2012	1203.4	347.3	151.67	3816.1	.00	18502.8	4777.5	.00	26197.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 54.9 M3/CALDAY TO REPLACE REQUIRES 3.85 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 25.2 AVERAGE GAS-OIL RATIO IS 54.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 224.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 112.5

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=3286 kPag THE OIL FORMATION VOLUME FACTOR=1.161 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 31.7 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=46.55 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	0	.0	.0	.00	.0	.00	467.2	136.2	35.09	.0	.00
0009250012610	.25000	56	.3	51.9	.20	.0	.00	1794.5	753.9	29.16	.0	.00
0010250012610	.50000	744	314.2	2.3	12.80	.0	.00	4518.5	501.5	313.28	.0	.00
0011250012610	.25000	744	272.6	57.1	7.50	.0	.00	4476.2	320.0	216.62	.0	.00
0014250012610	.50000	356	6.8	23.4	.20	.0	.00	167.7	151.5	39.88	.0	.00
0016250012610	.50000	732	36.3	10.8	3.40	.0	.00	584.5	190.9	32.06	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1116	246.9	45.5	10.13	.0	.00	4670.2	826.6	289.14	.0	.00
RESERVR UNITS	3.00000	1116	286.6	45.5	28.54	.0	.00	5464.2	826.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.6 M3/CALDAY TO REPLACE REQUIRES .37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 15.6 AVERAGE GAS-OIL RATIO IS 41.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	408	20.4	5.0	1.70	.0	.00	314.7	225.1	28.66	.0	.00
0014250012610	.50000	356	6.8	23.4	.20	.0	.00	167.7	151.5	39.88	.0	.00
0011250012610	.25000	744	272.6	57.1	7.50	.0	.00	4476.2	320.0	216.62	.0	.00
0012250012610	.50000	735	244.3	287.9	7.90	.0	.00	3103.6	4177.0	126.69	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	2.25000	1140	214.1	174.9	7.62	.0	.00	3069.4	2469.4	166.10	.0	.00
RESERVR UNITS	2.25000	1140	250.5	174.9	16.14	.0	.00	3591.2	2469.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 14.2 M3/CALDAY TO REPLACE REQUIRES .58 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.0 AVERAGE GAS-OIL RATIO IS 35.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 25 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013260012610	1.00000	670	26.9	332.8	2.40	.0	.00	412.5	1952.5	34.55	.0	.00
0011260012610	.50000	732	137.7	200.2	29.40	.0	.00	2599.4	2147.2	118.46	.0	.00
0212260012610	.50000	732	289.4	138.0	35.40	.0	.00	928.5	280.5	73.20	.0	.00
0009270012610	.25000	732	29.7	229.4	6.40	.0	.00	875.6	2037.3	73.23	.0	.00
0216270012610	.50000	732	157.1	501.5	7.70	.0	.00	676.6	1323.8	37.66	.0	.00
0003350012610	1.00000	266	.7	6.4	.00	.0	.00	11.6	38.1	1.20	.0	.00
0014260012610	1.00000	720	29.8	664.5	3.40	.0	.00	718.5	5222.4	39.82	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2937	356.9	1480.9	43.65	.0	.00	3463.8	9598.1	208.54	.0	.00
RESERVR UNITS	4.75000	2937	417.6	1480.9	627.87	.0	.00	4052.6	9598.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 81.5 M3/CALDAY TO REPLACE REQUIRES 3.33 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 80.6 AVERAGE GAS-OIL RATIO IS 122.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	732	385.2	61.8	47.40	.0	.00	1160.6	297.6	96.69	.0	.00
0009270012610	.25000	732	29.7	229.4	6.40	.0	.00	875.6	2037.3	73.23	.0	.00
0010270012610	.50000	732	72.2	171.0	7.50	.0	.00	1354.1	2342.8	96.47	.0	.00
0211270012610	.25000	744	82.6	752.7	6.90	.0	.00	390.3	1526.1	20.40	.0	.00
0214270012610	.50000	744	381.0	236.5	7.70	.0	.00	685.8	625.9	34.30	.0	.00
0003340012610	.50000	696	42.1	126.6	3.60	.0	.00	515.5	2074.9	29.08	.0	.00
0002340012612	1.00000	668	38.0	197.1	12.50	.0	.00	124.8	505.8	20.30	.0	.00
0216270012610	.50000	732	157.1	501.5	7.70	.0	.00	676.6	1323.8	37.66	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	3221	777.5	1022.2	76.47	.0	.00	3217.9	4877.9	239.15	.0	.00
RESERVR UNITS	4.50000	3221	909.6	1022.2	1049.21	.0	.00	3764.9	4877.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 96.2 M3/CALDAY TO REPLACE REQUIRES 3.93 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.8 AVERAGE GAS-OIL RATIO IS 98.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 27 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	744	130.3	434.1	9.90	.0	.00	576.4	991.9	44.21	.0	.00
0211270012610	.25000	744	82.6	752.7	6.90	.0	.00	390.3	1526.1	20.40	.0	.00
0012270012610	.50000	688	157.9	527.5	7.90	.0	.00	2275.5	3130.3	151.21	.0	.00
0001330012610	1.00000	14	6.5	2.7	.50	.0	.00	6.5	2.7	.50	.0	.00
0003340012610	.50000	696	42.1	126.6	3.60	.0	.00	515.5	2074.9	29.08	.0	.00
0214270012610	.50000	744	381.0	236.5	7.70	.0	.00	685.8	625.9	34.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2008	447.9	1070.3	21.72	.0	.00	2418.9	4291.7	157.11	.0	.00
RESERVR UNITS	3.75000	2008	524.1	1070.3	117.95	.0	.00	2830.1	4291.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.2 M3/CALDAY TO REPLACE REQUIRES 2.25 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 18.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.5 AVERAGE GAS-OIL RATIO IS 48.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	732	46.1	45.2	5.60	.0	.00	513.5	164.0	45.51	.0	.00
0003310012510	.25000	744	34.5	12.3	1.30	.0	.00	1539.2	647.9	28.87	.0	.00
0004310012510	.50000	744	16.7	23.3	1.50	.0	.00	1067.8	884.8	56.37	.0	.00
0011310012510	.50000	714	30.5	33.4	1.70	.0	.00	867.9	1159.3	115.92	.0	.00
0006310012510	.50000	732	155.4	606.8	22.20	.0	.00	2108.2	4444.9	179.83	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	2.75000	2013	156.0	380.0	18.62	.0	.00	2920.3	3570.5	228.79	.0	.00
RESERVR UNITS	2.75000	2013	182.5	380.0	264.03	.0	.00	3416.7	3570.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.7 M3/CALDAY TO REPLACE REQUIRES 1.09 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.9 AVERAGE GAS-OIL RATIO IS 119.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 13 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=5950 kPag THE OIL FORMATION VOLUME FACTOR=1.167 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 17.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0013230012610	1.00000	480	24.7	352.2	.70	.0	.00	518.1	1997.2	47.61	.0	.00
0004260012610	.50000	720	168.0	79.7	6.30	.0	.00	2571.9	2271.2	133.66	.0	.00
0001270012610	.50000	712	24.2	132.1	2.70	.0	.00	898.9	2645.9	76.84	.0	.00
0002270012610	.50000	712	36.2	150.8	3.50	.0	.00	939.5	2305.8	65.91	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1552	138.9	533.5	6.95	.0	.00	2733.2	5608.6	184.82	.0	.00
RESERVR UNITS	3.50000	1552	162.1	533.5	27.24	.0	.00	3186.1	5608.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.1 M3/CALDAY TO REPLACE REQUIRES 1.38 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 79.3 AVERAGE GAS-OIL RATIO IS 50.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	712	158.3	315.0	14.00	.0	.00	1712.8	3075.3	96.36	.0	.00
0003270012610	.50000	712	33.5	162.7	3.30	.0	.00	274.0	1347.6	21.70	.0	.00
0004270012610	1.00000	0	.0	.0	.00	.0	.00	970.2	2670.8	48.90	.0	.00
0012270012610	.50000	679	179.4	512.8	8.10	.0	.00	2454.9	3643.1	159.31	.0	.00
0211270012610	.25000	672	56.5	740.3	3.50	.0	.00	446.8	2266.4	23.90	.0	.00
0206270012610	.50000	712	243.5	477.6	12.90	.0	.00	731.3	2066.6	45.93	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1932	400.6	1076.6	27.02	.0	.00	4524.8	9841.3	254.71	.0	.00
RESERVR UNITS	3.75000	1932	468.7	1076.6	174.08	.0	.00	5294.0	9841.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 57.3 M3/CALDAY TO REPLACE REQUIRES 2.34 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 18.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.9 AVERAGE GAS-OIL RATIO IS 67.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	712	99.0	155.1	8.10	.0	.00	2178.4	3321.0	166.89	.0	.00
0001270012610	.25000	712	24.2	132.1	2.70	.0	.00	898.9	2645.9	76.04	.0	.00
0002270012610	.50000	712	36.2	150.8	3.50	.0	.00	939.5	2305.8	65.91	.0	.00
0003270012610	.50000	712	33.5	162.7	3.30	.0	.00	274.0	1347.6	21.70	.0	.00
0206270012610	.50000	712	243.5	477.6	12.90	.0	.00	731.3	2066.6	45.93	.0	.00
0211270012610	.25000	672	56.5	740.3	3.50	.0	.00	446.8	2266.4	23.90	.0	.00
0010270012610	.50000	712	74.8	158.1	7.90	.0	.00	1428.9	2509.9	104.37	.0	.00
0009270012610	.25000	712	56.0	164.8	7.30	.0	.00	931.6	2202.1	80.53	.0	.00
0008270012610	.50000	712	213.6	404.2	21.00	.0	.00	3420.3	5401.1	177.63	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.25000	3016	434.0	1091.1	35.77	.0	.00	6144.7	11910.6	419.78	.0	.00
RESERVR UNITS	4.25000	3016	507.8	1091.1	333.81	.0	.00	7189.3	11910.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 64.4 M3/CALDAY TO REPLACE REQUIRES 2.63 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.5 AVERAGE GAS-OIL RATIO IS 82.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	720	100.0	39.0	13.40	.0	.00	4075.4	513.9	268.83	.0	.00
0003260012610	.25000	720	85.8	23.4	6.60	.0	.00	2108.1	412.5	74.41	.0	.00
0004260012610	.50000	720	168.0	79.7	6.30	.0	.00	2571.8	2271.2	133.66	.0	.00
0001270012610	.25000	712	24.2	132.1	2.70	.0	.00	898.9	2645.9	76.04	.0	.00
0008270012610	.50000	712	213.6	404.2	21.00	.0	.00	3420.3	5401.1	177.63	.0	.00
0009270012610	.25000	712	56.0	164.8	7.30	.0	.00	931.6	2202.1	80.53	.0	.00
0212260012610	.50000	720	323.8	99.9	43.40	.0	.00	1252.3	380.4	116.60	.0	.00
0011260012610	.25000	720	91.6	111.5	11.40	.0	.00	2691.0	2258.7	129.86	.0	.00
0006260012610	.50000	720	70.5	38.7	7.00	.0	.00	2274.3	324.9	103.02	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2872	552.3	458.2	59.25	.0	.00	10492.2	6582.5	624.49	.0	.00
RESERVR UNITS	4.00000	2872	646.2	458.2	788.79	.0	.00	12275.8	6582.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 63.1 M3/CALDAY TO REPLACE REQUIRES 2.58 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.3 AVERAGE GAS-OIL RATIO IS 107.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=8220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 4.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	694	88.4	19.8	9.90	.0	.00	2323.7	292.9	205.22	.0	.00
0008260012610	.50000	720	462.5	88.1	27.80	.0	.00	5868.8	665.4	193.86	.0	.00
0001260012610	.25000	720	219.0	77.7	19.70	.0	.00	4007.9	2298.6	213.47	.0	.00
0002260012610	.50000	720	147.5	41.0	9.70	.0	.00	3568.1	1072.9	148.01	.0	.00
0003260012610	.25000	720	85.8	23.4	6.60	.0	.00	2108.1	412.5	74.41	.0	.00
0006260012610	.50000	720	70.5	38.7	7.00	.0	.00	2274.3	324.9	103.02	.0	.00
0011260012610	.25000	720	91.6	111.5	11.40	.0	.00	2691.0	2258.7	129.86	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.25000	2314	527.7	156.9	41.57	.0	.00	10381.1	2566.9	532.10	.0	.00
RESERVR UNITS	3.25000	2314	617.5	156.9	358.65	.0	.00	12145.8	2566.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.8 M3/CALDAY TO REPLACE REQUIRES 1.54 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 22.9 AVERAGE GAS-OIL RATIO IS 78.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPaa THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	718	.0	.0	.00	2862.7	.00	3762.4	582.7	13.10	29060.4	.00
0003250012612	.25000	696	587.1	4.1	57.30	.0	.00	4876.0	114.2	485.85	.0	.00
0004250012612	.50000	720	416.7	31.1	16.50	.0	.00	4077.0	471.1	331.80	.0	.00
0001260012610	.25000	720	219.0	77.7	19.70	.0	.00	4007.9	2298.6	213.47	.0	.00
0008260012610	.50000	720	462.5	88.1	27.80	.0	.00	5868.8	665.4	193.86	.0	.00
0012250012610	.50000	720	178.6	450.9	4.00	.0	.00	3282.2	4627.9	130.69	.0	.00
0011250012610	.25000	696	289.4	23.5	6.20	.0	.00	4765.6	343.5	222.82	.0	.00
0006250012610	.50000	720	486.9	215.4	18.20	.0	.00	6143.6	2085.3	187.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1968	1046.2	419.1	54.05	2862.7	.00	16860.6	5196.6	665.76	29060.4	.00
RESERVR UNITS	3.75000	1968	1219.0	419.1	157.78	2862.7	.00	19726.9	5196.6	.00	29060.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 59.9 M3/CALDAY TO REPLACE REQUIRES 4.20 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 28.6 AVERAGE GAS-OIL RATIO IS 51.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 159.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 116.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=3504 kPag (3091.7) THE OIL FORMATION VOLUME FACTOR=1.151 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 21.7 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=48.55 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	0	.0	.0	.00	.0	.00	467.2	136.2	35.09	.0	.00
0009250012610	.25000	600	17.5	700.4	2.80	.0	.00	1812.0	1454.3	31.96	.0	.00
0010250012610	.50000	720	331.0	5.5	14.90	.0	.00	4849.5	507.0	328.18	.0	.00
0011250012610	.25000	696	289.4	23.5	6.20	.0	.00	4765.6	343.5	222.82	.0	.00
0014250012610	.50000	720	12.7	13.4	1.10	.0	.00	180.4	164.9	40.98	.0	.00
0016250012610	.50000	20	30.7	4.1	1.30	.0	.00	615.2	195.0	33.36	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1054	263.9	192.5	10.90	.0	.00	4934.1	1019.1	300.04	.0	.00
RESERVR UNITS	3.00000	1054	306.4	192.5	23.76	.0	.00	5773.0	1019.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 17.4 M3/CALDAY TO REPLACE REQUIRES .55 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.2 AVERAGE GAS-OIL RATIO IS 41.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	720	18.7	11.9	1.10	.0	.00	333.4	237.0	29.76	.0	.00
0014250012610	.50000	720	12.7	13.4	1.10	.0	.00	180.4	164.9	40.98	.0	.00
0011250012610	.25000	696	289.4	23.5	6.20	.0	.00	4765.6	343.5	222.82	.0	.00
0012250012610	.50000	720	178.6	450.9	4.00	.0	.00	3282.2	4627.9	130.69	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.25000	1614	186.7	249.9	5.20	.0	.00	3256.1	2719.3	171.30	.0	.00
RESERVR UNITS	2.25000	1614	218.4	249.9	9.10	.0	.00	3809.6	2719.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.9 M3/CALDAY TO REPLACE REQUIRES .65 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 57.2 AVERAGE GAS-OIL RATIO IS 27.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL PRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012619	1.00000	144	6.4	74.1	5.0	.0	.00	410.9	2026.6	25.65	.0	.00
0215260012610	.50000	720	91.6	111.5	11.40	.0	.00	2301.3	2258.7	129.86	.0	.00
0215260012610	.50000	720	325.8	99.9	43.40	.0	.00	1252.3	380.9	116.60	.0	.00
0009270012610	.25000	712	56.0	164.0	7.30	.0	.00	931.6	2202.1	80.53	.0	.00
0216270012610	.50000	712	100.7	602.0	9.40	.0	.00	795.3	1925.8	47.06	.0	.00
0003350012610	1.00000	84	.2	5.2	.10	.0	.00	12.2	43.5	1.30	.0	.00
0215260012610	1.00000	624	58.1	556.6	7.60	0	.00	776.6	5779.0	42.42	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2166	341.1	1083.2	97.12	.0	.00	3804.9	18681.7	245.66	.0	.00
RESERVR UNITS	4.75000	2166	399.1	1083.2	491.91	.0	.00	4451.7	10681.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 65.8 M3 CALDAY TO REPLACE REQUIRES 2.69 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.1 AVERAGE GAS-OIL RATIO IS 108.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=91.04 M3/M3

WELL NAME	WELL PRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012619	1.00000	712	384.2	44.2	46.20	.0	.00	1544.8	341.6	142.89	.0	.00
0009270012610	.25000	712	56.0	164.0	7.30	.0	.00	931.6	2202.1	80.53	.0	.00
0010270012610	.50000	712	74.6	158.1	7.90	.0	.00	1428.9	2500.9	104.37	.0	.00
0211270012610	.25000	672	56.5	749.3	3.50	.0	.00	446.3	2266.4	23.90	.0	.00
0214270012610	.50000	712	292.9	414.6	3.70	.0	.00	976.7	1040.5	38.00	.0	.00
0003340012610	.50000	668	36.2	96.1	3.00	.0	.00	551.7	2171.0	32.08	.0	.00
0002340012612	1.00000	706	39.5	156.7	3.70	.0	.00	164.3	662.5	24.00	.0	.00
0216270012610	.50000	712	100.7	602.0	9.40	.0	.00	795.3	1925.8	47.06	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.50000	3176	708.1	1062.6	64.60	.0	.00	3226.0	5940.5	303.75	.0	.00
RESERVR UNITS	4.50000	3176	836.5	1062.6	835.01	.0	.00	4593.4	5940.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 90.2 M3/CALDAY TO REPLACE REQUIRES 3.71 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.0 AVERAGE GAS-OIL RATIO IS 91.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012510	1.00000	712	311.5	137.5	28.30	.0	.00	897.4	1120.4	72.51	.0	.00
0215270012610	.25000	672	56.5	240.3	3.58	.0	.00	946.8	3266.4	23.90	.0	.00
0012270012610	.50000	679	179.4	512.8	9.10	.0	.00	2454.9	3643.1	159.31	.0	.00
0001330012610	1.00000	720	73.5	319.2	6.90	.0	.00	80.0	321.9	7.40	.0	.00
0003340012610	.50000	688	36.2	96.1	3.00	.0	.00	551.7	2171.0	32.06	.0	.00
0014270012610	.50000	712	292.9	414.6	3.70	.0	.00	970.7	1040.5	38.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2640	653.4	1153.5	93.47	.0	.00	3072.5	5945.2	200.58	.0	.00
RESERVR UNITS	3.75000	2640	764.0	1153.5	398.86	.0	.00	3594.5	5945.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 77.2 M3/CALDAY TO REPLACE REQUIRES 3.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 63.8 AVERAGE GAS-OIL RATIO IS 66.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	672	45.3	28.8	4.80	.0	.00	558.8	192.9	50.31	.0	.00
0003310012510	.25000	720	29.5	21.3	3.30	.0	.00	1568.7	669.2	32.17	.0	.00
0004310012510	.50000	576	32.4	9.3	5.70	.0	.00	1150.3	994.1	62.07	.0	.00
0011310012510	.50000	720	21.3	25.8	1.60	.0	.00	889.1	1184.3	117.52	.0	.00
0006310012510	.50000	646	193.8	438.6	23.20	.0	.00	2302.8	4883.7	203.03	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	2.75000	1823	301.4	270.7	20.87	.0	.00	3121.6	3841.2	249.66	.0	.00
RESERVR UNITS	2.75000	1823	235.6	270.7	259.62	.0	.00	3652.3	3841.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.5 M3/CALDAY TO REPLACE REQUIRES 1.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 57.3 AVERAGE GAS-OIL RATIO IS 103.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4250 kPag THE OIL FORMATION VOLUME FACTOR=1.167 RES.M3 M3
THE GAS FORMATION VOLUME FACTOR= 27.5 RES.M3 M3 KM3 THE SOLUTION GAS-OIL RATIO=41.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016220012610	1.00000	264	.0	.0	.00	1322.8	.00	.0	.0	.00	1322.8	.00
0013230012610	1.00000	288	92.2	132.1	9.60	0	.00	610.3	2129.3	56.61	.0	.00
0004260012610	.50000	744	116.9	117.5	8.40	.0	.00	2688.7	2388.7	142.06	.0	.00
0001270012610	.50000	744	56.2	200.0	4.50	.0	.00	955.1	2845.9	80.54	.0	.00
0002270012610	.50000	744	38.6	168.9	4.80	.0	.00	978.1	2474.7	70.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1404	198.1	375.3	18.45	1322.8	.00	2921.3	5983.9	203.27	1322.8	.00
RESERVR UNITS	3.50000	1404	231.2	375.3	145.79	1322.8	.00	3417.9	5983.9	.00	1322.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.3 M3/CALDAY TO REPLACE REQUIRES 1.39 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.5 AVERAGE GAS-OIL RATIO IS 93.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 175.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 14.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 14 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005270012610	1.00000	744	163.6	287.1	10.00	.0	.00	1876.4	3362.4	96.36	.0	.00
0003270012610	.50000	744	12.5	309.7	1.10	.0	.00	286.5	1657.3	22.80	.0	.00
0004270012610	1.00000	0	.0	.0	.00	.0	.00	970.2	2670.8	48.90	.0	.00
0012270012610	.50000	600	65.5	370.7	6.10	.0	.00	2520.4	4013.8	165.41	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	446.8	2266.4	23.90	.0	.00
0206270012610	.50000	744	221.4	561.1	20.70	.0	.00	952.7	2627.7	66.63	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1788	313.3	907.8	23.95	.0	.00	4838.1	10749.2	278.65	.0	.00
RESERVR UNITS	3.75000	1788	366.6	907.8	195.00	.0	.00	5660.6	10749.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.4 M3/CALDAY TO REPLACE REQUIRES 1.93 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74.3 AVERAGE GAS-OIL RATIO IS 76.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 15 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007270012610	1.00000	744	68.5	241.7	8.20	.0	.00	2246.9	3562.7	175.09	.0	.00
0001270012610	.25000	744	56.2	200.0	4.50	.0	.00	955.1	2845.9	80.54	.0	.00
0002270012610	.50000	744	38.6	168.9	4.80	.0	.00	978.1	2474.7	70.71	.0	.00
0003270012610	.50000	744	12.5	309.7	1.10	.0	.00	286.5	1657.3	22.80	.0	.00
0206270012610	.50000	744	221.4	561.1	20.70	.0	.00	952.7	2627.7	66.63	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	446.8	2266.4	23.90	.0	.00
0010270012610	.50000	744	71.0	97.0	10.20	.0	.00	1499.9	2597.9	114.57	.0	.00
0009270012610	.25000	744	37.7	120.3	8.40	.0	.00	969.3	2322.4	88.93	.0	.00
0008270012610	.50000	744	188.6	341.9	19.80	.0	.00	3608.9	5743.0	197.43	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.25000	2976	358.0	1061.1	39.72	.0	.00	6502.7	12971.7	459.50	.0	.00
RESERVR UNITS	4.25000	2976	418.9	1061.1	525.56	.0	.00	7608.2	12971.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 64.7 M3/CALDAY TO REPLACE REQUIRES 2.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74.8 AVERAGE GAS-OIL RATIO IS 111.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 16 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005260012610	1.00000	744	137.1	19.0	14.80	.0	.00	4212.5	532.9	283.63	.0	.00
0003260012610	.25000	744	89.3	23.7	7.00	.0	.00	2197.4	436.2	81.41	.0	.00
0004260012610	.50000	744	116.9	117.5	8.40	.0	.00	2688.7	2388.7	142.06	.0	.00
0001270012610	.25000	744	56.2	200.0	4.50	.0	.00	955.1	2845.9	80.54	.0	.00
0008270012610	.50000	744	188.6	341.9	19.80	.0	.00	3608.9	5743.0	197.43	.0	.00
0009270012610	.25000	744	37.7	120.3	8.40	.0	.00	969.3	2322.4	88.93	.0	.00
0212260012610	.50000	672	236.1	141.5	47.60	.0	.00	1488.4	521.9	164.20	.0	.00
0011260012610	.25000	744	69.1	41.0	12.30	.0	.00	2760.1	2299.7	142.16	.0	.00
0006260012610	.50000	744	59.5	99.5	10.70	.0	.00	2333.8	424.4	113.72	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2940	500.7	465.4	66.10	.0	.00	10992.9	7047.9	690.59	.0	.00
RESERVR UNITS	4.00000	2940	585.8	465.4	993.30	.0	.00	12861.7	7047.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 66.0 M3/CALDAY TO REPLACE REQUIRES 2.69 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 48.2 AVERAGE GAS-OIL RATIO IS 132.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 17 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=2198 kPag THE OIL FORMATION VOLUME FACTOR=1.149 RES M3 M3
THE GAS FORMATION VOLUME FACTOR= 14.9 RES.M3 KM3 THE SOLUTION GAS-OIL RATIO=40.70 M3 M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007260012610	1.00000	618	122.7	13.3	29.80	.0	.00	2446.4	306.1	235.02	.0	.00
0008260012610	.50000	744	516.1	51.1	43.00	.0	.00	6384.9	716.5	236.86	.0	.00
0001260012610	.25000	744	417.5	80.5	38.00	.0	.00	4425.4	2379.1	251.47	.0	.00
0002260012610	.50000	736	110.3	7.2	8.60	.0	.00	3678.4	1080.1	156.61	.0	.00
0003260012610	.25000	744	89.3	23.7	7.00	.0	.00	2197.4	436.2	81.41	.0	.00
0006260012610	.50000	744	59.5	99.5	10.70	.0	.00	2333.8	424.4	113.72	.0	.00
0011260012610	.25000	744	69.1	41.0	12.30	.0	.00	2760.1	2299.7	142.16	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.25000	2288	609.6	128.5	75.27	.0	.00	10990.7	2695.4	607.37	.0	.00
RESERVR UNITS	3.25000	2288	700.4	128.5	2368.16	.0	.00	12859.1	2695.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 103.1 M3/CALDAY TO REPLACE REQUIRES 2.20 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.4 AVERAGE GAS-OIL RATIO IS 123.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	744	.0	.0	.00	2189.8	.00	3762.4	582.7	13.10	31250.2	.00
0003250012612	.25000	744	618.8	4.3	44.40	.0	.00	5494.8	118.5	530.25	.0	.00
0004250012612	.50000	744	487.6	20.2	38.20	.0	.00	4564.6	491.3	370.00	.0	.00
0001260012610	.25000	744	417.5	80.5	38.00	.0	.00	4425.4	2379.1	251.47	.0	.00
0008260012610	.50000	744	516.1	51.1	43.00	.0	.00	6384.9	716.5	236.86	.0	.00
0012250012610	.50000	604	160.6	355.8	6.20	.0	.00	3442.8	4983.7	136.89	.0	.00
0011250012610	.25000	744	548.7	36.4	9.10	.0	.00	5314.3	379.9	231.92	.0	.00
0006250012610	.50000	744	490.3	227.9	23.40	.0	.00	6633.9	2313.2	211.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1976	1223.6	357.8	78.27	2189.8	.00	18084.1	5554.4	744.03	31250.2	.00
RESERVR UNITS	3.75000	1976	1425.6	357.8	318.99	2189.8	.00	21158.4	5554.4	.00	31250.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 67.8 M3/CALDAY TO REPLACE REQUIRES 4.75 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 14.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 22.6 AVERAGE GAS-OIL RATIO IS 64.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 104.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 117.0

[illegible] AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 12 OF 1983
[illegible] THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
[illegible] THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	744	0	0	00	1628.8	.00	467.2	136.2	35.09	1628.8	.00
0009250012610	.25000	720	10.8	223.3	2.30	.0	00	1822.8	1677.6	34.26	.0	.00
0010250012610	.50000	744	355.6	10.0	27.10	.0	.00	5205.1	517.0	355.28	.0	.00
0011250012610	.25000	744	548.7	36.4	9.10	.0	.00	5314.3	379.9	231.92	.0	.00
0014250012610	.50000	744	14.6	1.4	2.20	.0	.00	195.0	166.3	43.18	.0	.00
0016250012610	.50000	744	28.1	5.5	3.20	.0	.00	643.3	200.5	36.56	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1482	338.8	73.4	19.10	1628.8	.00	5273.0	1092.5	319.14	1628.8	.00
RESERVR UNITS	3.00000	1482	392.7	73.4	256.81	1628.8	.00	6169.4	1092.5	.00	1628.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 23.3 M3/CALDAY TO REPLACE REQUIRES .69 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.8 AVERAGE GAS-OIL RATIO IS 56.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 225.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 22.4

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 24 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013250012610	1.00000	411	10.2	4.8	1.60	442.7	.00	343.6	241.3	31.36	442.7	.00
0014250012610	.50000	744	14.6	1.4	2.20	.0	.00	195.0	166.3	43.18	.0	.00
0011250012610	.25000	744	548.7	36.4	9.10	.0	.00	5314.3	379.9	231.92	.0	.00
0012250012610	.50000	604	160.6	355.8	6.20	.0	.00	3442.8	4983.7	136.89	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	2.25000	1271	235.0	192.5	8.07	442.7	.00	3491.1	2911.8	179.38	442.7	.00
RESERVR UNITS	2.25000	1271	274.9	192.5	44.27	442.7	.00	4084.6	2911.8	.00	442.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.5 M3/CALDAY TO REPLACE REQUIRES .67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.0 AVERAGE GAS-OIL RATIO IS 34.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 86.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 6.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 25 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013260012610	1.00000	643	17.4	617.6	2.70	.0	.00	436.3	2644.2	37.75	.0	.00
0011260012610	.50000	744	69.1	41.0	12.30	.0	.00	2760.1	2299.7	142.16	.0	.00
0212260012610	.50000	672	236.1	141.5	47.60	.0	.00	1488.4	521.9	164.20	.0	.00
0009270012610	.25000	744	37.7	120.3	8.40	.0	.00	969.3	2322.4	88.93	.0	.00
0216270012610	.50000	744	99.6	620.5	10.00	.0	.00	884.9	2546.3	57.06	.0	.00
0003350012610	1.00000	0	.0	.0	.00	.0	.00	12.2	43.3	1.30	.0	.00
0014260012610	1.00000	490	62.4	412.0	1.90	.0	.00	839.0	6191.0	44.32	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2399	291.6	1461.2	41.65	0	.00	4096.5	12143.1	287.31	.0	.00
RESERVR UNITS	4.75000	2399	341.2	1461.2	687.23	.0	.00	4792.9	12143.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 80.3 M3/CALDAY TO REPLACE REQUIRES 3.28 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 83.4 AVERAGE GAS-OIL RATIO IS 142.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 26 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0215270012610	1.00000	744	203.3	28.0	12.00	.0	.00	1748.1	369.8	154.89	.0	.00
0009270012610	.25000	744	37.7	120.3	8.40	.0	.00	969.3	2322.4	88.93	.0	.00
0010270012610	.50000	744	71.0	97.0	10.20	.0	.00	1499.9	2597.9	114.57	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	446.8	2266.4	23.90	.0	.00
0214270012610	.50000	648	231.8	364.5	8.40	.0	.00	1210.5	1405.0	46.40	.0	.00
0003340012610	.50000	744	21.7	104.3	2.00	.0	.00	573.4	2275.3	34.08	.0	.00
0002340012612	1.00000	744	27.3	167.5	2.80	.0	.00	191.6	830.0	26.80	.0	.00
0216270012610	.50000	744	99.6	620.5	10.00	.0	.00	884.9	2546.3	57.06	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	3114	452.1	818.7	32.20	.0	.00	4378.1	6759.2	335.95	.0	.00
RESERVR UNITS	4.50000	3114	528.9	818.7	265.62	.0	.00	5122.3	6759.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 52.0 M3/CALDAY TO REPLACE REQUIRES 2.12 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.4 AVERAGE GAS-OIL RATIO IS 71.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 27 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

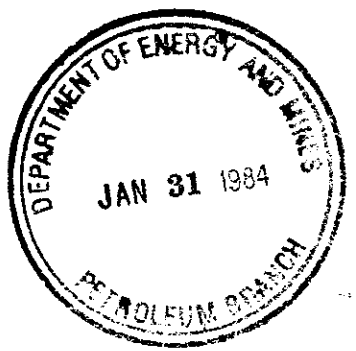
WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213270012610	1.00000	744	389.1	89.8	28.50	.0	.00	1277.0	1219.2	93.01	.0	.00
0211270012610	.25000	0	.0	.0	.00	.0	.00	446.8	2266.4	23.90	.0	.00
0012270012610	.50000	600	65.5	370.7	6.10	.0	.00	2520.4	4013.8	165.41	.0	.00
0001330012610	1.00000	563	58.0	242.7	5.90	.0	.00	138.0	564.6	13.30	.0	.00
0003340012610	.50000	744	21.7	104.3	2.00	.0	.00	573.4	2275.3	34.08	.0	.00
0214270012610	.50000	648	231.8	364.5	8.40	.0	.00	1210.5	1405.0	46.40	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2303	606.6	752.2	34.65	.0	.00	3678.9	6197.4	235.23	.0	.00
RESERVR UNITS	3.75000	2303	709.7	752.2	132.41	.0	.00	4304.3	6197.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.4 M3/CALDAY TO REPLACE REQUIRES 2.10 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.4 AVERAGE GAS-OIL RATIO IS 57.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 28 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005310012510	1.00000	360	17.5	28.3	1.90	.0	.00	576.3	213.1	52.21	.0	.00
0003310012510	.25000	744	22.5	27.2	4.10	.0	.00	1591.2	696.4	36.27	.0	.00
0004310012510	.50000	744	41.5	42.3	3.80	.0	.00	1191.7	936.4	65.87	.0	.00
0011310012510	.50000	740	14.8	35.1	2.30	.0	.00	903.9	1219.4	119.82	.0	.00
0006310012510	.50000	744	156.0	287.3	12.30	.0	.00	2458.0	5171.0	215.33	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	2.75000	1660	129.3	209.4	12.13	.0	.00	3250.9	4050.6	261.77	.0	.00
RESERVR UNITS	2.75000	1660	151.3	209.4	135.41	.0	.00	3803.6	4050.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.0 M3/CALDAY TO REPLACE REQUIRES .65 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.8 AVERAGE GAS-OIL RATIO IS 93.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0



HYDROCARBONS Ltd.
TELEPHONE: (403) 261-0743
630 - 330 FIFTH AVENUE S.W., CALGARY, ALBERTA T2P 0L4

DEPARTMENT OF ENERGY AND MINES
AUG 24 1983
PETROLEUM BRANCH

August 22, 1983

Manitoba Department of Energy and Mines
Petroleum Branch
975 Century Street
Winnipeg, Manitoba
R3H 0W4

Dear Bob:

RE: Waskada Lower Amaranth Unit No. 1
Waterflood Progress Reports

Enclosed is Waterflood Progress Report No. 5 for July, 1983 and the revised progress reports for January through June, 1983. Upon closer examination of the reports I sent on August 2 I noticed that I had included the Mississippian well at 3-25-1-26 WPM not the Lower Amaranth well and that is the reason for the revised reports.

In addition to the computer printout I will regularly include pressure data and other comments within the covering letter as follows:

A. Injection Pressures

1) 13A-24-1-26 WPM Average wellhead pressure 5355 kPag
2) 15-24-1-26 WPM Average wellhead pressure 4761 kPag
3) 5-25-1-26 WPM Average wellhead pressure 5530 kPag
4) 7-25-1-26 WPM Average wellhead pressure 4464 kPag

B. Workovers

9-25-1-26 WPM and 8-25-1-26 WPM were both refracced in July.

C. General

During July pressure leak-off tests were run at all the water injection wells. The report on the analysis has been forwarded under separate cover.

As these figures impact on our application to expand pressure maintenance at Waskada, once again we are forwarding a copy of this

information to the Board.

Yours truly,

OMEGA HYDROCARBONS LTD.

Ed Wyse
Petroleum Engineer

EW/sp

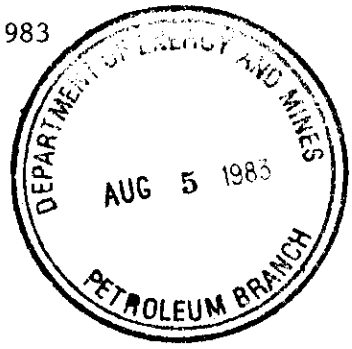
cc: Marc Eliesen
Manitoba Oil & Natural Conservation Board

1 Copy

② Unit File
- Water Injection Reports
- Water injection volumes noted by

HYDROCARBONS Ltd.
TELEPHONE: (403) 261-0743
630 - 330 FIFTH AVENUE S.W., CALGARY, ALBERTA T2P 0L4

August 2, 1983



Petroleum Engineering Division
Department of Mines, Resources and
Environmental Management
975 Century Street
Winnipeg, Manitoba
R3H 0W4

Attention: Mr. Bob Dubreuil

Dear Bob:

RE: Waskada Lower Amaranth Unit No. 1
Waterflood Progress Reports

In response to our earlier telephone conversation on the above progress reports you will find enclosed a proposed revised format that details the voidage calculations on a pattern by pattern basis.

If you find this revised format acceptable we could continue to submit this report in lieu of the progress reports that we have been sending. The computer printout format would allow us a much quicker turn around time and could result in you getting this report up to two weeks sooner each month.

You will notice that I have designed the output format to be compatible with our pressure maintenance expansion plans which accounts for the odd pattern numbers. Gas injection and a greater number of injection patterns are easily facilitated.

Insofar as the voidage calculations presented here impact on our application to expand pressure maintenance at Waskada, I have presented all the data for the waterflood area for the seven months beginning in December, 1982. These figures and the graphical representations are presented in further support of our application.

We view this early data as indications of a successful flood. The only injection pattern that to date has been a disappointment is Pattern No. 10; 15-24-1-26 WPM. To a large measure the pattern's poor performance is a result of the increase in water production at 1A-25-1-26 WPM. You will note

.....2/

RE: Waskada Lower Amaranth Unit No. 1
Waterflood Progress Reports CONT'D

that water production at this well has been reduced since water injection has been reduced at the Mississippian well 6-30-1-25 WPM. While this is not conclusive it does indicate the possibility of a connection. We are speculating that part of this patterns continuing poor performance could be a result of its having a greater percentage of its recoverable oil being produced prior to water injection being initiated possibly causing more permanent effects on producing capability.

Yours truly,

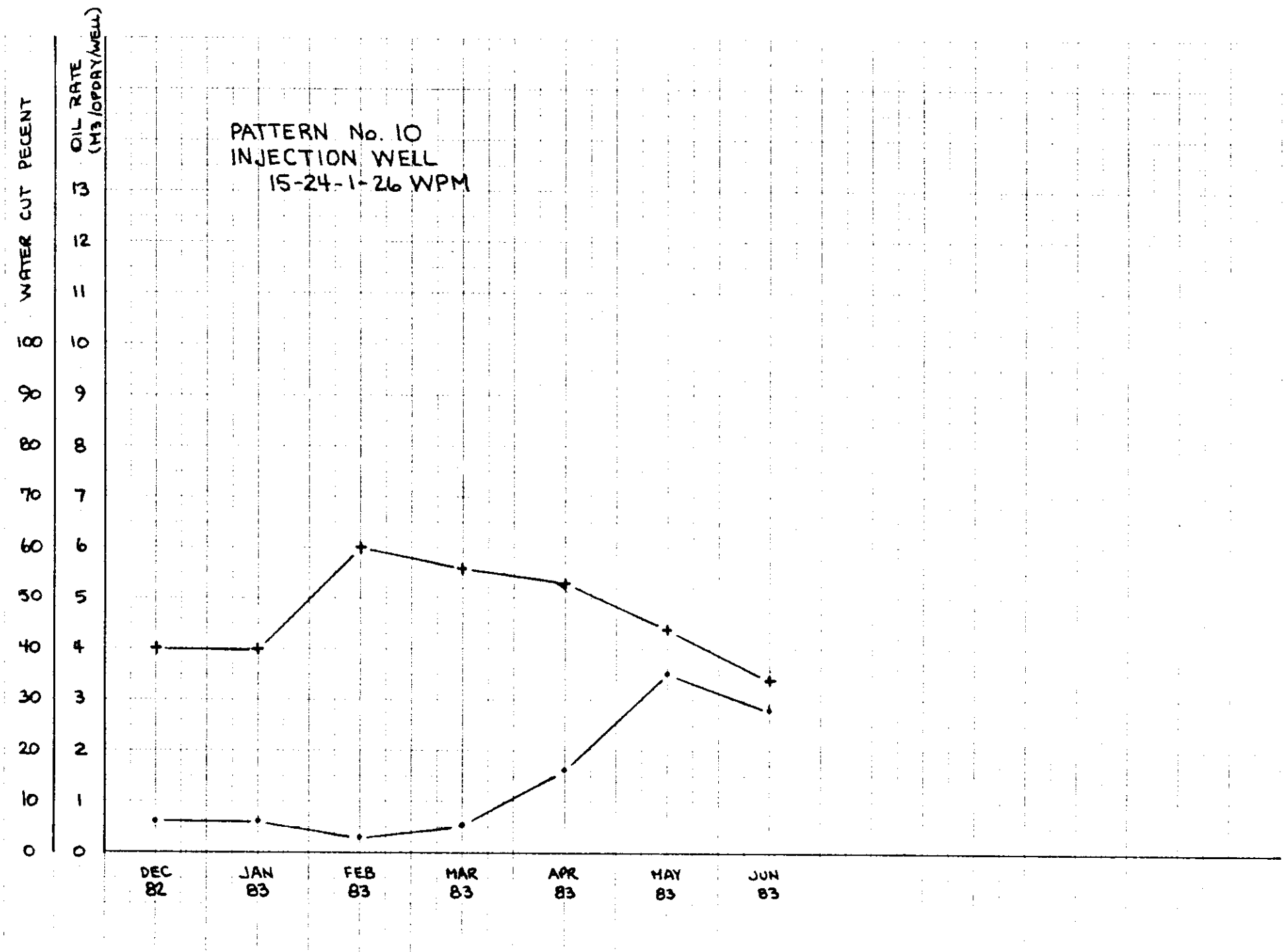
OMEGA HYDROCARBONS LTD.

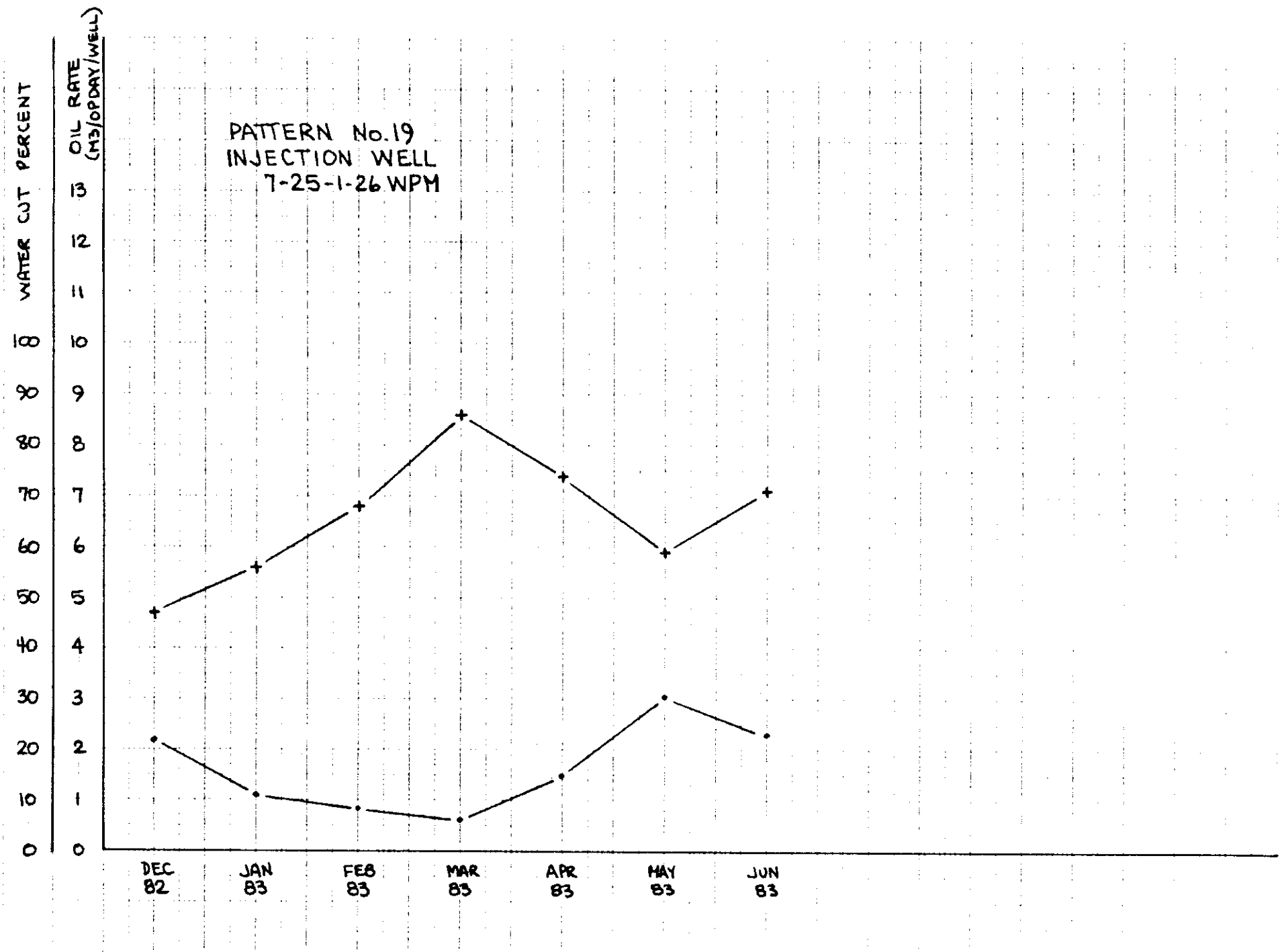
Ed Wyse

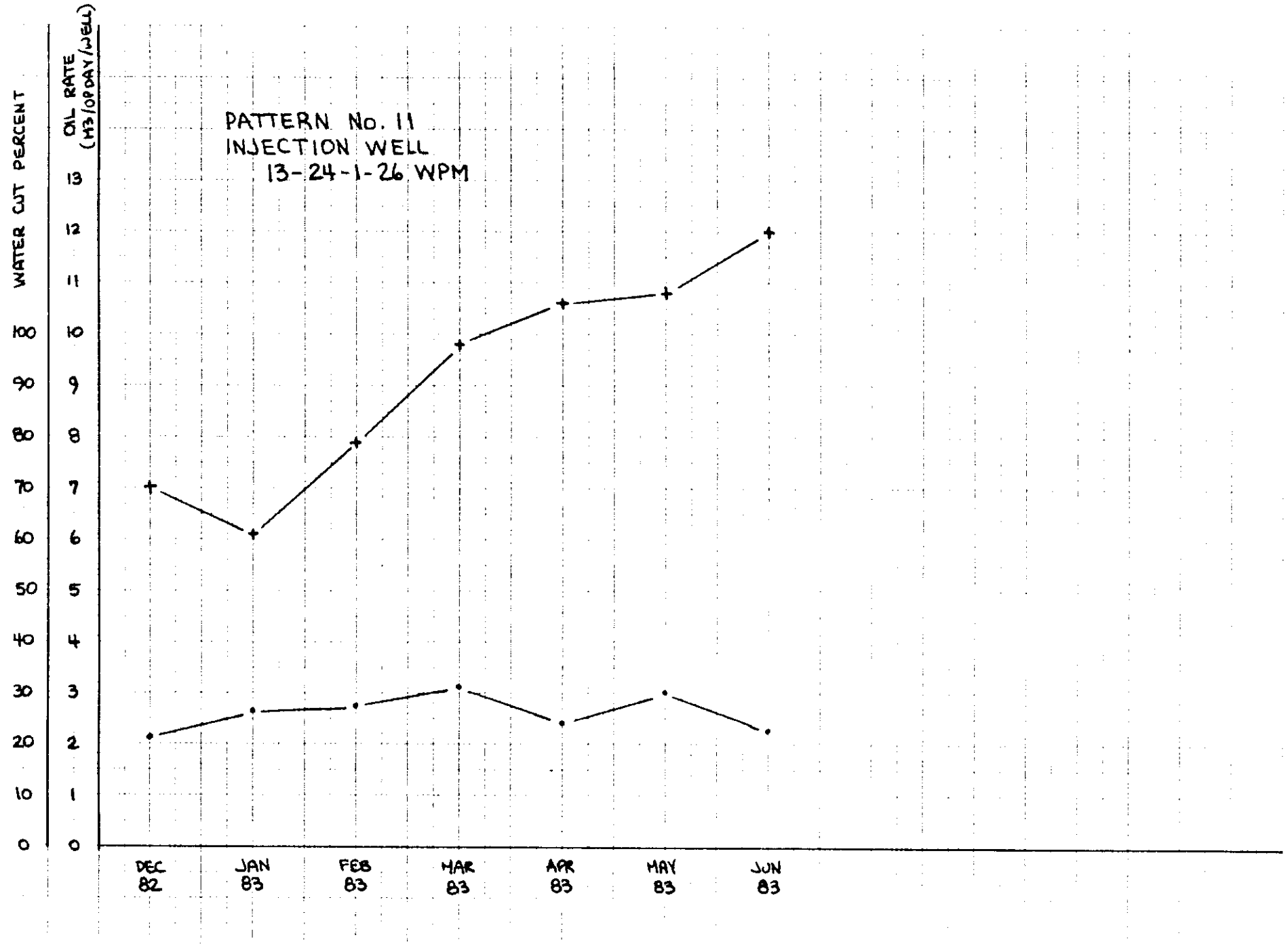
E. Wyse
Production Engineer

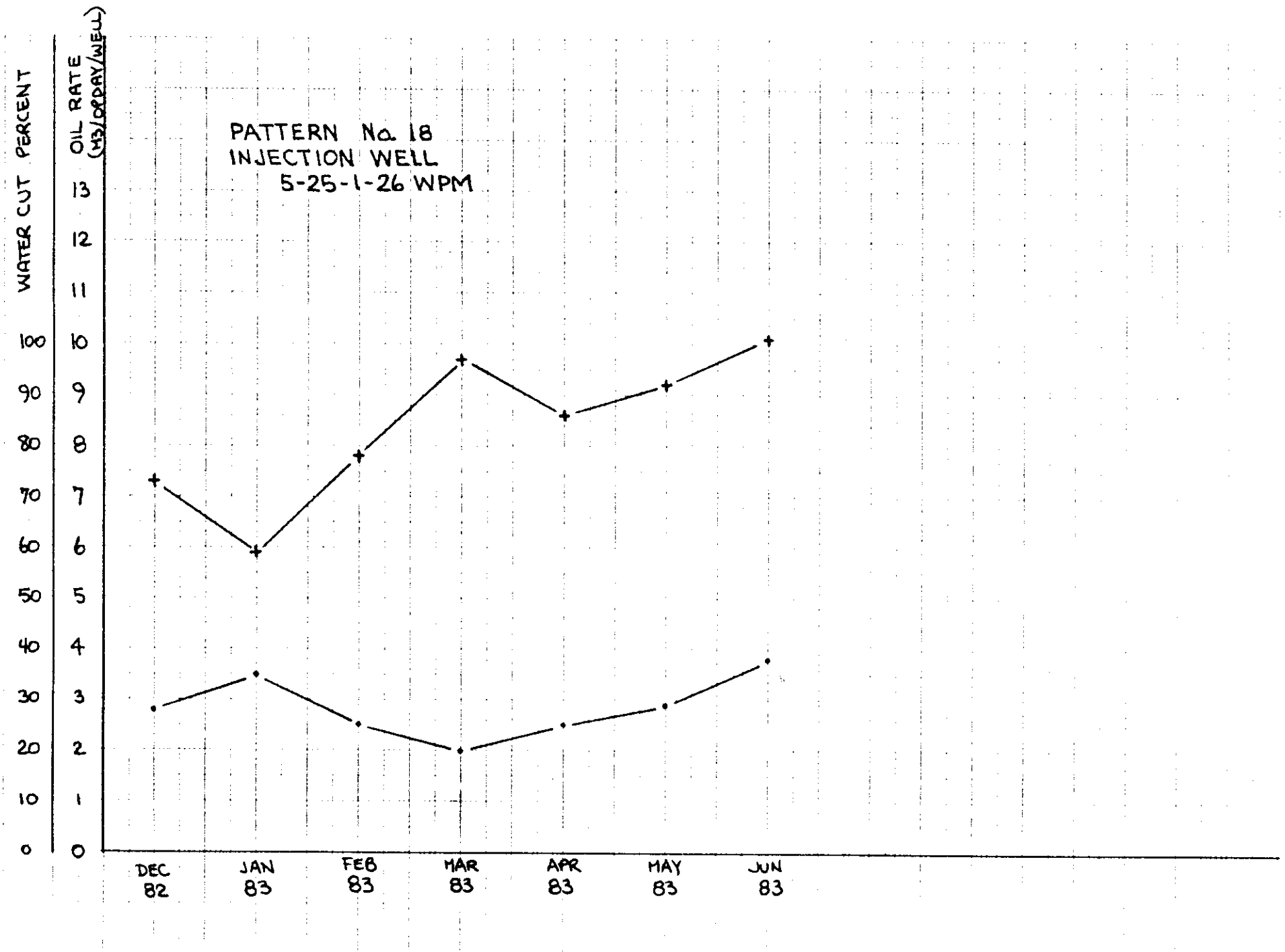
cc: Marc Eliesen
Manitoba Oil & Natural Gas Conservation Board

EW/ms


PATTERN No. 10
INJECTION WELL
15-24-1-26 WPM
WATER CUT PECENT
OIL RATE (M3/DAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
DEC 82
JAN 83
FEB 83
MAR 83
APR 83
MAY 83
JUN 83


PATTERN No.19
INJECTION WELL
7-25-1-26 WPM
WATER CUT PERCENT
OIL RATE (M3/OPDAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
DEC 82
JAN 83
FEB 83
MAR 83
APR 83
MAY 83
JUN 83


PATTERN No. 11
INJECTION WELL
13-24-1-26 WPM
WATER CUT PERCENT
OIL RATE (M3/OPDAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
DEC 82
JAN 83
FEB 83
MAR 83
APR 83
MAY 83
JUN 83


PATTERN No. 18
INJECTION WELL
5-25-1-26 WPM
WATER CUT PERCENT
OIL RATE (M3/DAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
DEC 82
JAN 83
FEB 83
MAR 83
APR 83
MAY 83
JUN 83

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS E3	INJWAT M3	INJGAS E3	CUMOIL M3	CUMWAT M3	CUMGAS E3	CUMINWAT M3	CUMINGAS E3
[illegible]	1.1550	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	.0	[illegible]	[illegible]	[illegible]
[illegible]	1.6550	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	.5000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	.5000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	1.0000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	1.0000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	.5000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	.5000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
[illegible]	.2500	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]
RESERVR UNITS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	[illegible]

AVERAGE OIL RATE IS [illegible] M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS [illegible] M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS [illegible] AVERAGE GAS OIL RATIO IS [illegible] M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible]

VOIDAGE CALCULATIONS FOR DEC80 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS E3	INJWAT M3	INJGAS E3	CUMOIL M3	CUMWAT M3	CUMGAS E3	CUMINWAT M3	CUMINGAS E3
00112400[illegible]	.5000	734	79.1	7.3	3.74	.0	.00	1361.3	65.7	3.74	.0	.00
00122400[illegible]	1.0000	1	2.7	1.5	.19	.0	.00	2.7	1.5	.19	.0	.00
00072300[illegible]	1.0000	720	167.0	65.3	11.83	.0	.00	868.5	370.1	11.83	.0	.00
00162700[illegible]	1.0000	672	323.2	53.2	22.77	.0	.00	2569.9	2850.3	22.77	.0	.00
00132400[illegible]	1.0000	0	.0	.0	.00	0	.00	0	.0	.00	.0	.00
00142400[illegible]	.5000	734	262.0	10.6	10.65	.0	.00	1897.4	113.9	10.65	.0	.00
02032500[illegible]	.2500	24	2.9	.1	.04	.0	.00	2.9	.1	.04	.0	.00
00042500[illegible]	.5000	242	179.7	11.0	3.91	.0	.00	298.4	59.9	3.91	.0	.00
00132400[illegible]	.5000	744	324.6	180.3	18.00	.0	.00	1405.8	1226.0	15.92	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	2867	926.7	324.6	51.65	.0	.00	5887.6	3959.9	51.65	.0	.00
RESERVR UNITS	6.2500	2867	929.9	324.6	.00	.0	.00	6888.9	3959.9	.00	0	.00

AVERAGE OIL RATE IS 7.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 8.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.2 AVERAGE GAS OIL RATIO IS 2.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

[illegible] FOR THE MONTH OF DEC82

[illegible]

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.2500	[illegible]	[illegible]	[illegible]	.04	.0	.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	.5000	742	279.7	[illegible]	3.91	.0	.00	240.2	[illegible]	[illegible]	.0	.00
[illegible]	.5000	[illegible]	[illegible]	[illegible]	15.82	.0	.00	1406.8	1239.0	15.82	.0	.00
[illegible]	1.0000	679	203.0	[illegible]	14.31	.0	.00	2111.9	[illegible]	14.31	.0	.00
[illegible]	1.0000	722	161.6	[illegible]	2.88	.0	.00	3475.1	437.5	2.88	.0	.00
[illegible]	.5000	742	279.7	[illegible]	5.37	.0	.00	2101.8	306.3	5.37	.0	.00
[illegible]	.5000	742	293.9	[illegible]	20.71	.0	.00	1728.5	136.3	20.71	.0	.00
[illegible]	1.0000	742	269.8	250.3	19.01	.0	.00	1284.0	849.3	19.01	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	5.2500	[illegible]	[illegible]	[illegible]	59.11	.0	.00	9610.5	2296.9	59.11	.0	.00
RESERVE UNITS	5.2500	3660	1310.1	433.3	.00	.0	.00	11244.3	2296.9	.00	.0	.00

AVERAGE OIL RATE IS 7.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 27.9 AVERAGE GAS OIL RATIO IS 52.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

VOIDAGE CALCULATIONS FOR DEC82 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.5000	0	.0	.0	.00	.0	.00	.0	.0	.05	.0	[illegible]
[illegible]	.5000	2	[illegible]	.0	.13	.0	.00	1.9	.0	.13	.0	.00
[illegible]	.2500	24	2.0	.1	.04	.0	.00	2.0	.1	.04	.0	.00
[illegible]	.5000	742	270.7	29.4	5.37	.0	.00	2101.8	306.3	5.37	.0	.00
[illegible]	1.0000	742	214.5	137.6	15.11	.0	.00	1558.6	[illegible]	15.11	.0	.00
[illegible]	1.0000	742	196.9	33.0	13.87	.0	.00	1786.1	[illegible]	13.87	.0	.00
[illegible]	1.0000	742	4.9	3.7	.24	.0	.00	1675.3	[illegible]	[illegible]	.0	.00
[illegible]	1.0000	742	[illegible]	[illegible]	47.38	.0	.00	1134.7	[illegible]	[illegible]	.0	.00
[illegible]	.5000	742	293.9	22.7	20.71	.0	.00	1728.5	[illegible]	[illegible]	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN

SURFACE UNITS	6.2500	3717	727.3	204.1	89.71	.0	.00	9774.5	1351.6	89.71	.0	.00
RESERVE UNITS	6.2500	3717	951.0	204.1	.00	.0	.00	10266.2	1351.6	.00	.0	.00

AVERAGE OIL RATE IS 4.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 6.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.9 AVERAGE GAS OIL RATIO IS 123.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.0000	348	7.2	.0	.07	.0	.00	11.7	0	.05	0	.00
[illegible]	1.0000	744	47.6	1.1	7.50	.0	.00	1265.1	47.2	15.22	.0	.00
00117+0012610	.5000	744	32.9	4.1	4.92	.0	.00	1336.2	67.8	8.67	.0	.00
00142+0012610	.5000	744	211.7	8.2	17.69	.0	.00	2109.1	121.1	28.34	.0	.00
00152+0012610	1.0000	744	57.1	4.3	5.62	.0	.00	5708.4	425.7	16.32	.0	.00
00162+0012610	1.0000	744	142.7	4.1	29.05	.0	.00	1637.9	98.7	45.66	.0	.00
00212+0012610	.5000	343	334.8	30.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
00222+0012610	.5000	0	0	.0	.00	.0	.00	1.9	.0	.13	0	.00
00232+0012610	.2500	744	62.8	10.5	4.00	.0	.00	65.6	10.6	4.12	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3477	963.0	38.7	83.15	.0	.00	8565.6	685.6	117.61	.0	.00
RESERVOIR UNITS	6.2500	3477	692.1	30.7	.00	.0	.00	10321.8	685.6	.00	.0	.00

AVERAGE OIL RATE IS 4.0 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 4.2 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.2 AVERAGE GAS OIL RATIO IS 142.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

VOIDAGE CALCULATIONS FOR JAN83 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
00117+0012610	.5000	744	32.9	4.1	4.92	.0	.00	1336.2	67.8	8.67	.0	.00
00123+0012610	1.0000	0	.0	.0	.00	.0	.00	2.7	1.5	.19	.0	.00
00092+0012610	1.0000	744	120.4	104.8	7.54	.0	.00	996.9	475.1	15.27	.0	.00
00142+0012610	1.0000	744	345.0	65.9	40.82	.0	.00	2914.9	291.2	62.75	.0	.00
00132+0012610	1.0000	0	.0	.0	.00	.0	.00	0	0	.00	.0	.00
00142+0012610	.5000	744	211.7	8.2	17.69	.0	.00	2109.1	121.1	28.34	.0	.00
00232+0012610	.2500	744	62.8	10.5	4.00	.0	.00	65.6	10.6	4.12	.0	.00
00202+0012610	.5000	744	144.3	25.1	4.28	.0	.00	486.9	85.0	8.10	.0	.00
00212+0012610	.5000	744	215.3	300.6	24.90	.0	.00	1622.1	1032.6	40.80	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3160	936.2	292.3	74.51	.0	.00	6693.0	4251.2	126.38	.0	.00
RESERVOIR UNITS	6.2500	3160	942.1	294.3	.00	.0	.00	7830.9	4251.2	.00	.0	.00

AVERAGE OIL RATE IS 6.1 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 8.3 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 23.8 AVERAGE GAS OIL RATIO IS 92.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.1250	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	0	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	.00	[illegible]	[illegible]	[illegible]	0	[illegible]
08012/08P12e10	5000	240	215.3	2e.6	24.96	.0	.00	1e02.2	1976.6	46.60	.0	.00
[illegible]	1.0000	744	161.5	17.1	11.82	.0	.00	2234.4	156.7	26.39	0	00
[illegible]	1.0000	696	121.3	8e.5	5.70	.0	.00	2e6e.4	1.26.0	7.55	.0	.00
[illegible]	5000	744	247.4	56.4	9.13	0	.00	2364.2	362.7	14.51	0	.00
[illegible]	.5000	696	13.7	.5	5.00	.0	.00	186e.2	127.7	15.70	.0	.00
[illegible]	1.0000	744	150.6	195.5	6.89	.0	.00	1436.2	1749.8	25.91	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

PATTERN UNITS	5.2500	7342	934.9	441.2	97.10	.0	.00	10435.5	2796.2	106.21	0	.00
RESERVE UNITS	5.2500	3342	968.2	443.2	.00	.0	.00	12209.5	2740.2	.00	.0	.00

AVERAGE OIL RATE IS 5.9 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.1 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.9 AVERAGE GAS OIL RATIO IS 57.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

VOIDAGE CALCULATIONS FOR JAN83 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.5000	744	458.8	26.7	47.72	.0	.00	554.8	33.2	47.72	.0	.00
[illegible]	5000	6	3	.0	.00	.0	.00	1.9	.0	.03	.0	.00
[illegible]	.2500	744	61.3	10.5	4.00	0	.00	65.6	10.6	4.12	.0	.00
08082/0812e10	.5000	744	262.6	66.4	9.13	.0	.00	2364.2	362.7	14.51	.3	.00
[illegible]	1.0000	744	229.5	23.6	14.67	.0	.00	1728.1	577.4	29.78	0	.00
[illegible]	1.0000	744	24.7	6.2	1.94	.0	.00	2e10.8	237.5	35.82	.0	.00
08092/0812e10	1.0000	744	19.5	8.9	1.17	.0	.00	1e88.8	196.1	1.41	0	.00
08162/0812e10	1.0000	720	226.9	2e.2	24.71	.0	.00	1911.6	227.9	72.09	0	.00
[illegible]	.5000	e83	137.7	0	5.00	.0	.00	1066.2	137.7	25.70	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

PATTERN UNITS	6.2500	4025	934.7	112.8	74.43	0	.00	9709.2	1464.4	164.16	0	.00
RESERVE UNITS	6.2500	4025	1043.7	112.8	.00	.0	.00	11359.2	1464.4	.00	.0	.00

AVERAGE OIL RATE IS 5.6 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 6.2 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 10.8 AVERAGE GAS OIL RATIO IS 79.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

[illegible] [illegible] [illegible] [

[illegible] FOR INJECTION PATTERNS FOR THE MONTH OF FEB83

[illegible] USED IN CALCULATIONS FOR PATTERN NUMBER 19

W	NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
[illegible]		1.0000	696	79.5	3.7	1.33	0	.00	116.1	12.7	5.45	.0	.0
[illegible]		1.0000	672	249.4	22.1	6.74	.0	.00	4355.3	137.1	14.72	.0	.0
[illegible]		.5000	504	135.9	18.1	.56	.0	.00	1750.9	185.7	41.36	.0	.0
[illegible]		1.0000	672	227.4	15.5	4.66	.0	.00	2411.8	171.2	33.66	.0	.0
[illegible]		1.0000	672	126.7	30.7	4.45	217.7	.00	3762.4	562.7	13.10	227.7	.0
[illegible]		.5000	648	234.1	42.9	10.46	.0	.00	2598.6	612.5	24.97	0	.0
[illegible]		.5000	648	284.3	30.9	11.20	0	.00	2130.5	150.6	36.90	.0	.0
[illegible]		1.0000	648	122.5	212.1	10.71	6	.00	1611.1	1256.9	36.52	.0	.0

[illegible] TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

[illegible]	5.2500	3177.132	[illegible]	340.5	34.83	227.7	.00	13455.5	3082.7	141.12	227.7	.0
[illegible]	5.2500	3133	1193.4	340.5	.00	227.7	.00	13403.0	3082.7	.00	227.7	.0

[illegible] OIL RATE IS 7.8 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 10.4 M3/DPDAY/NET WELL

[illegible] PERCENT WATER CUT IS 25.1 AVERAGE GAS OIL RATIO IS 34.1 M3/M3

[illegible] PERCENT VOIDAGE REPLACEMENT RATIO IS 14.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.4

VOIDAGE CALCULATIONS FOR FEB83 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINJWAT M3	CUMINJGAS KM3
[illegible]	.5000	696	119.1	12.8	73.74	0	.00	768.9	42.8	121.46	.0	.0
[illegible]	.5000	672	126.9	1.6	4.25	0	.00	1726.7	1.6	6.41	.0	.0
[illegible]	.2500	696	39.5	3.1	1.33	.0	.00	116.1	12.7	5.45	.0	.0
[illegible]	.5000	648	284.6	42.9	10.46	.0	.00	2598.6	612.5	24.97	.0	.0
[illegible]	1.0000	432	122.3	30.3	7.94	39.2	.00	1721.4	668.2	37.70	89.7	.0
[illegible]	1.0000	696	34.9	5.6	3.61	.0	.00	2046.2	253.1	19.42	.0	.0
[illegible]	1.0000	469	17.2	.0	2.14	.0	.00	1706.2	396.8	3.55	.0	.0
[illegible]	1.0000	672	272.7	11.7	16.84	.0	.00	1191.3	241.2	80.92	.0	.0
[illegible]	.5000	648	284.3	26.9	11.20	.0	.00	2130.5	150.6	36.90	.0	.0

[illegible] TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

[illegible]	6.2500	3577	1016.3	90.6	81.70	89.7	.00	10725.6	1555.0	245.33	89.7	.0
[illegible]	6.2500	3577	1194.1	90.6	.00	89.7	.00	12543.9	1555.0	.00	89.7	.0

[illegible] OIL RATE IS 6.8 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 7.4 M3/DPDAY/NET WELL

[illegible] PERCENT WATER CUT IS 8.2 AVERAGE GAS OIL RATIO IS 80.4 M3/M3

[illegible] PERCENT VOIDAGE REPLACEMENT RATIO IS 7.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .6

[illegible] VOIDAGE CALCULATIONS FOR [illegible]

[illegible] VOLUME [illegible] USED OF [illegible] M3/D

VOIDAGE CALCULATIONS FOR MAR83 FOR PATTERN NUMBER 10

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.0000	506	141.6	11.9	[illegible]	.0	.00	184.8	15.3	13.34	.0	.00
[illegible]	1.0000	550	36.0	4.1	[illegible]	.0	.00	1542.4	51.2	91.32	.0	.00
0011240012610	.5000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.67	.0	.00
0014240012610	.5000	632	82.4	2.7	11.98	.0	.00	2364.0	126.0	58.74	.0	.00
[illegible]	1.0000	720	.0	.0	.00	1356.4	.00	3732.9	421.2	16.40	1490.5	.00
0016340012610	1.0000	632	108.3	9.1	6.22	.0	.00	2083.8	164.0	148.46	.0	.00
0201250012610	.5000	594	270.0	.5	37.84	.0	.00	1638.9	46.3	159.30	.0	.00
0202250012612	.5000	632	299.9	35.7	13.92	.0	.00	476.6	37.3	18.39	.0	.00
0203250012610	.2500	540	51.2	2.3	1.65	.0	.00	167.3	12.0	7.10	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3157	736.1	93.0	115.61	1356.4	.00	10867.6	752.3	333.01	1490.5	.00
RESERVR UNITS	6.2500	3157	857.8	93.0	.00	1356.4	.00	11779.1	752.3	.00	1490.5	.00

AVERAGE OIL RATE IS 5.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.5 AVERAGE GAS OIL RATIO IS 157.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 150.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 11.9

VOIDAGE CALCULATIONS FOR MAR83 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0011240012610	.5000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.67	.0	.00
0012240012612	1.0000	600	295.3	12.6	9.34	.0	.00	452.8	34.3	13.38	.0	.00
0600230912610	1.0000	632	258.1	660.1	7.67	.0	.00	1420.7	1147.1	30.69	.0	.00
0014270012610	1.0000	630	476.4	79.5	7.30	.0	.00	3727.4	3129.8	72.82	.0	.00
0213240012610	1.0000	506	.0	.0	.00	1297.7	.00	.0	.0	.00	1213.7	.00
0014240012610	.5000	632	82.4	2.7	11.98	.0	.00	2364.0	126.0	58.74	.0	.00
0203150312610	.2500	544	51.2	2.3	1.65	.0	.00	167.3	12.0	7.10	.0	.00
0006250012612	.5000	632	241.9	24.6	8.37	.0	.00	877.2	123.7	23.28	.0	.00
0001250012610	.5000	632	187.6	59.5	17.75	.0	.00	1945.6	1511.2	59.16	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3270	1329.1	599.9	96.16	1297.7	.00	8960.6	5215.4	198.76	1213.7	.00
RESERVR UNITS	6.2500	3270	1559.8	599.9	.00	1297.7	.00	10514.4	5215.4	.00	1213.7	.00

AVERAGE OIL RATE IS 9.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 14.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.1 AVERAGE GAS OIL RATIO IS 36.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 56.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 7.7

[illegible]

[illegible]

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.5000	594	51.2	2.3	1.65	0	.00	167.3	16.6	7.10	0	.00
[illegible]	.5000	632	261.9	26.4	8.32	0	.00	677.7	132.7	23.26	0	.00
[illegible]	.5000	632	187.6	59.5	17.73	0	.00	1945.6	1516.2	59.10	0	.00
[illegible]	1.0000	632	208.7	9.5	4.79	0	.00	2290.5	181.7	25.85	0	.00
[illegible]	1.0000	696	.8	.0	.00	1860.0	.00	3762.4	585.7	13.10	3693.1	.00
[illegible]	.5000	632	372.0	46.9	11.74	0	.00	2970.6	459.4	36.71	0	.00
[illegible]	.5000	616	294.2	3.4	14.02	0	.00	2424.7	162.0	50.92	0	.00
[illegible]	1.0000	594	197.3	182.7	6.72	0	.00	1008.4	1439.6	43.24	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	5.2500	2615	1056.7	341.6	37.35	1560.4	.00	12512.2	3343.7	178.57	1089.1	.00
RESERVE UNITS	5.2500	2615	1236.3	261.0	.00	1560.4	.00	14639.2	3343.7	.00	2089.1	.00

AVERAGE OIL RATE IS 9.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 12.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 19.8 AVERAGE GAS OIL RATIO IS 35.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 124.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 11.6

VOIDAGE CALCULATIONS FOR MAP33 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	.5000	594	278.0	.5	37.84	0	.00	1038.9	46.3	159.30	0	.00
[illegible]	.5000	632	259.9	35.7	11.99	0	.00	926.6	32.3	38.39	0	.00
[illegible]	.2500	594	51.2	2.3	1.65	0	.00	167.3	16.6	7.10	0	.00
[illegible]	.5000	632	372.0	46.9	11.74	0	.00	2970.6	459.4	36.71	0	.00
[illegible]	1.0000	696	.8	.0	.00	1633.0	.00	1914.4	608.2	37.70	1722.7	.00
[illegible]	1.0000	632	87.4	8.2	2.82	0	.00	2674.2	251.3	22.24	0	.00
[illegible]	1.0000	24	.8	.5	.11	0	.00	1707.5	147.3	3.66	0	.00
[illegible]	1.0000	616	205.0	18.1	24.71	0	.00	2476.3	254.3	113.64	0	.00
[illegible]	.5000	616	294.2	3.4	14.02	0	.00	2424.7	162.0	50.92	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	2565	944.0	62.6	65.84	1633.0	.00	11669.6	1617.6	311.67	1722.7	.00
RESERVE UNITS	6.2500	2565	1104.5	62.6	.00	1633.0	.00	13653.5	1617.6	.00	1722.7	.00

AVERAGE OIL RATE IS 9.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.2 AVERAGE GAS OIL RATIO IS 69.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 139.9 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 11.3

[illegible]

[illegible] CALCULATIONS FOR [illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS M3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]0012612	[illegible]	720	[illegible]	[illegible]	[illegible]	.0	.00	464.8	[illegible]	[illegible]	.0	.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	34.[illegible]	.0	.00
0011240012610	.5000	712	54.8	2.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0014240012610	.5000	712	68.1	3.8	11.84	.0	.00	2432.1	131.8	70.58	.0	.00
0015240012610	1.0000	701	.0	.0	.00	1933.9	.00	3732.5	481.2	16.40	2424.4	.00
0016240012610	1.0000	756	40.5	1.5	32.11	.0	.00	2124.2	107.5	180.57	.0	.00
0201250012610	.5000	612	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0002250012612	.5000	720	469.2	16.4	199.60	.0	.00	945.8	[illegible]	115.99	.0	.00
0203250012610	.5000	682	37.3	2.0	7.38	.0	.00	204.6	18.0	10.48	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3380	752.1	147.8	166.03	1932.9	.00	10819.7	599.3	499.84	2424.4	.00
RESERVR UNITS	6.2500	3380	879.9	147.0	.00	1933.9	.00	12659.0	899.3	.00	2424.4	.00

AVERAGE OIL RATE IS 5.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 16.3 AVERAGE GAS OIL RATIO IS 221.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 188.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 25.3

VOIDAGE CALCULATIONS FOR APR82 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0011240012610	.5000	712	54.8	7.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0012240012612	1.0000	644	358.0	56.0	28.86	.0	.00	810.8	72.3	42.24	.0	.00
0009230012610	1.0000	720	401.3	350.1	12.10	.0	.00	1830.0	1497.2	42.79	.0	.00
0016230012610	1.0000	720	530.5	64.9	10.55	.0	.00	4257.9	3185.7	84.38	.0	.00
0213240012610	1.0000	701	.0	.0	.00	763.0	.00	.0	.0	.00	1976.7	.00
0014240012610	.5000	712	68.1	3.8	11.84	.0	.00	2432.1	131.8	70.58	.0	.00
0203250012610	.5000	682	37.3	2.0	3.38	.0	.00	204.6	18.0	10.48	.0	.00
0004250012612	.5000	720	735.8	16.4	25.91	.0	.00	1213.0	150.1	48.19	.0	.00
0001240012610	.5000	720	297.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3687	1632.3	519.7	80.12	763.0	.00	10618.9	5735.1	278.89	1976.7	.00
RESERVR UNITS	6.2500	3687	1909.8	519.7	.00	763.0	.00	12424.1	5735.1	.00	1976.7	.00

AVERAGE OIL RATE IS 10.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 14.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.1 AVERAGE GAS OIL RATIO IS 49.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 31.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 10.9

[illegible] PRODUCTION VOIDAGE CALCULATIONS FOR [illegible]

[illegible] PRESSURE USED FOR INJECTION GAS = 80 KG/CM**2

[illegible] WELL FRACTIONS IS

[illegible]	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL MZ	CUMWAT MZ	CUMGAS KM3	CUMINWAT M3	CUMINGAS MZ
[illegible]	1.0000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00
[illegible]	1.0000	720	362.8	3.8	24.56	.0	.00	2727.8	165.8	75.47	.0	.00
[illegible]	1.0000	704	196.9	245.7	12.70	.0	.00	2603.3	1685.3	55.94	.0	.00

IF FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

[illegible]	5.2500	3023	1099.1	343.6	63.58	2619.1	.00	13600.3	3709.3	242.47	4707.2	.00
[illegible]	5.2500	3023	1275.0	365.6	.00	2619.1	.00	15912.3	3709.3	.00	4707.2	.00

AVERAGE OIL RATE IS 8.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 11.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 25.2 AVERAGE GAS OIL RATE IS 58.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 159.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 24.0

VOIDAGE CALCULATIONS FOR APR83 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL MZ	CUMWAT MZ	CUMGAS KM3	CUMINWAT M3	CUMINGAS MZ
[illegible]	.5000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00
[illegible]	1.0000	720	362.8	3.8	24.56	.0	.00	2727.8	165.8	75.47	.0	.00
[illegible]	1.0000	704	196.9	245.7	12.70	.0	.00	2603.3	1685.3	55.94	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

[illegible]	2.5000	2120	887.9	338.6	53.57	2619.1	.00	8629.9	2399.6	184.43	4707.2	.00
[illegible]	2.5000	2120	1063.8	361.6	.00	2619.1	.00	11242.9	2399.6	.00	4707.2	.00

AVERAGE OIL RATE IS 7.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 8.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 14.8 AVERAGE GAS OIL RATIO IS 145.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 141.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 21.7

[illegible]

[illegible]

[illegible] MAY83 FOR PATTERN NUMBER 10

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.0000	726	191.5	42.5	40.22	.0	.00	656.0	235.2	1.11	.0	.00
[illegible]	1.0000	744	92.3	4.6	8.79	.0	.00	3435.1	58.2	43.77	.0	.00
0011240012610	.5000	744	45.1	4.0	10.23	.0	.00	1584.9	62.5	34.26	.0	.00
0014240012610	.5000	744	78.7	7.2	12.00	.0	.00	2510.8	139.0	82.50	.0	.00
0015240012610	1.0000	732	.0	.0	.00	1280.3	.00	3732.5	431.7	16.40	4804.7	.00
0016240012610	1.0000	614	133.6	5.0	77.73	.0	.00	2297.3	122.5	254.30	.0	.00
0201250012610	.5000	720	43.0	503.5	5.52	.0	.00	1256.5	781.7	145.39	.0	.00
0202250012612	.5000	716	454.1	40.7	56.10	.0	.00	1401.9	54.4	175.05	.0	.00
0203250012610	.2500	594	38.1	.0	76	.0	.00	242.7	19.0	11.23	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3695	677.3	372.7	164.46	1380.3	.00	11498.9	1273.0	664.30	4804.7	.00
RESERVR UNITS	6.2500	3695	794.8	372.7	.00	1280.3	.00	13453.7	1273.0	.00	4804.7	.00

AVERAGE OIL RATE IS 4.4 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 6.8 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.4 AVERAGE GAS OIL RATIO IS 242.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 119.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 32.6

VOIDAGE CALCULATIONS FOR MAY83 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0011240012610	.5000	744	45.1	4.0	10.23	.0	.00	1584.9	62.5	34.26	.0	.00
0012240012612	1.0000	327	140.9	116.0	14.52	0	.00	751.7	109.3	56.76	.0	.00
0009330012610	1.0000	744	407.6	439.9	13.28	.0	.00	2237.6	1937.1	59.96	.0	.00
0016230012610	1.0000	700	503.7	46.2	12.28	.0	.00	4841.6	7231.9	98.65	.0	.00
0213240012610	1.0000	684	.0	.0	.00	325.8	.00	0	0	.00	2302.5	.00
0014240012610	.5000	744	78.7	7.2	12.00	.0	.00	2510.8	139.0	82.58	.0	.00
0203250012610	.2500	594	38.1	.0	.76	0	.00	242.7	19.0	11.23	.0	.00
0004250012612	.5000	734	419.0	34.4	42.55	.0	.00	1632.0	184.5	96.74	.0	.00
0001240012610	.5000	744	274.1	91.1	14.55	.0	.00	2427.3	1681.5	84.47	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3447	1550.2	670.4	32.43	325.8	.00	12162.2	6405.5	361.30	2302.5	.00
RESERVR UNITS	6.2500	3447	1813.7	670.4	.00	325.8	.00	14237.8	6405.5	.00	2302.5	.00

AVERAGE OIL RATE IS 10.8 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 15.5 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.2 AVERAGE GAS OIL RATIO IS 53.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 13.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 11.7

[illegible] MONTH VOIDAGE CALCULATIONS FOR THE MONTH OF [illegible]
[illegible] FRACTION OF [illegible] [illegible]
[illegible] FORMATION VOLUME FACTOR (FVF) = [illegible] .000 RES M3/M3

[illegible] AND CALCULATIONS FOR JUN83 FOR PATTERN NUMBER 10

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0082340012610	1.0000	729	[illegible]	32.3	77.11	.0	00	825.9	16 .5	125.80	.0	.0
0010240012610	1.0000	525	27.9	1.6	7.27	0	.00	1443.0	60.9	83.20	.0	00
0011240012610	.5000	720	29.5	7.2	4.68	.0	.00	1624.4	90.7	29.00	.0	00
0014240012610	.5000	720	45.8	5.4	6.02	.0	.00	2557.6	144.4	88.60	.0	00
0015240012610	1.0000	689	.0	.0	00	1412.4	00	3732.5	431 .2	14.40	6217.1	00
0016240012610	1.0000	720	76.4	7.2	14.72	.0	.00	2293.7	115 .7	219.00	.0	00
0201250012610	.5000	720	119 .3	297.3	5.51	.0	.00	1366.8	1669.6	291 .90	.0	00
0002250012612	.5000	712	367.0	32.0	93.59	0	.00	1788.9	126 .4	225.70	0	00
0203250012610	.2500	646	51 .1	2.2	4.26	.0	.00	293.8	20 .2	15 .50	.0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3753	638.5	209.6	90.06	1412.4	.00	12037.4	1481.6	754.47	6217.1	.00
RESERVR UNITS	6.2500	3750	620 .0	204.6	.00	1412 .4	00	14083.8	1481.6	.00	6217.1	.00

AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 4.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 28.6 AVERAGE GAS OIL RATIO IS 167.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 168.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 39.9

VOIDAGE CALCULATIONS FOR JUN83 FOR PATTERN NUMBER 11

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0011240012610	.5000	720	39.5	7.2	4.68	.0	.00	1624.4	90.7	29 00	.0	.0
0013240012612	1.0000	720	381 .6	150.6	37 .13	.0	.00	1333.5	346.9	93.30	.0	.0
0009230012610	1.0000	720	477.9	275.6	13 .79	.0	.00	2715.5	2512.7	64 .90	.0	.0
0016230012610	1.0000	720	543 :	41.9	13.09	.0	00	5384.7	3273 .6	109 .70	.0	.0
0213240012610	1.0000	713	.0	.0	.00	1585.6	.00	.0	.0	.00	3888.1	.0
0014240012610	.5000	720	46.8	5.4	6.02	.0	.00	2557.6	144.4	88.60	.0	.0
0203250012610	.2500	646	51.1	2.2	4.26	0	.00	293.8	20 .2	15.50	.0	.0
0004250012612	.5000	641	525 .6	53.3	59.3o	0	.00	3160.6	257 .8	155 .10	.0	.0
0001260012610	.5000	712	261.5	81.7	7.94	.0	.00	2688.8	1762.2	92.40	.0	.0

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	6.2500	3718	1853 .6	344.4	102.53	1585.6	.00	14022.9	6950.0	463.92	3888 .1	.00
RESERVR UNITS	6.2500	3718	2165.9	594.4	.00	1585.6	.00	16406.7	6950.0	.00	3888.1	.00

AVERAGE OIL RATE IS 12.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 15.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 22.7 AVERAGE GAS OIL RATIO IS 55.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 98.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 16.6

[illegible] PRODUCTION VOIDAGE CALCULATIONS FOR THE MONTH OF JUN83

[illegible] VOLUME FACTOR USED ON INJECTED GAS = .968 M3/ 10**3M3

[illegible] FACTOR FOR PATTERN IS .79

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS E3M3	INJWAT M3	INJGAS E3M3	CUMOIL M3	CUMWAT M3	CUMGAS E3M3	CUMINWAT M3	CUMINGAS E3M3
[illegible]	.2500	648	51.1	2.2	4.26	.0	.00	1366.8	1069.0	301.96	.0	.00
[illegible]	.5000	681	525.6	12.7	55.32	.0	.00	2160.6	225.3	355.10	.0	.00
[illegible]	.5000	712	261.5	91.7	7.44	.0	.00	2685.8	1762.2	92.40	.0	.00
[illegible]	1.0000	720	284.6	39.5	9.03	.0	.00	3686.4	273.5	68.70	0	.00
[illegible]	1.0000	713	.0	.0	.00	3255.2	.00	3760.4	582.7	13.10	11080.8	.00
[illegible]	.5000	720	394.5	220.2	16.05	.0	.00	4008.1	963.6	77.80	.0	.00
[illegible]	.5000	714	354.4	8.5	53.07	.0	.00	3387.3	178.3	154.20	.0	.00
[illegible]	1.0000	714	196.4	546.7	16.42	.0	.00	2420.5	2541.5	91.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	5.2500	2989	1963.3	774.6	94.22	3255.2	.00	16065.2	4973.8	417.37	11080.8	.00
RESERVE UNITS	5.2500	2989	1478.0	774.6	.00	3255.2	.00	10796.2	4973.8	.00	11080.8	.00

AVERAGE OIL RATE IS 10.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 16.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.0 AVERAGE GAS OIL RATIO IS 74.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 148.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 46.6

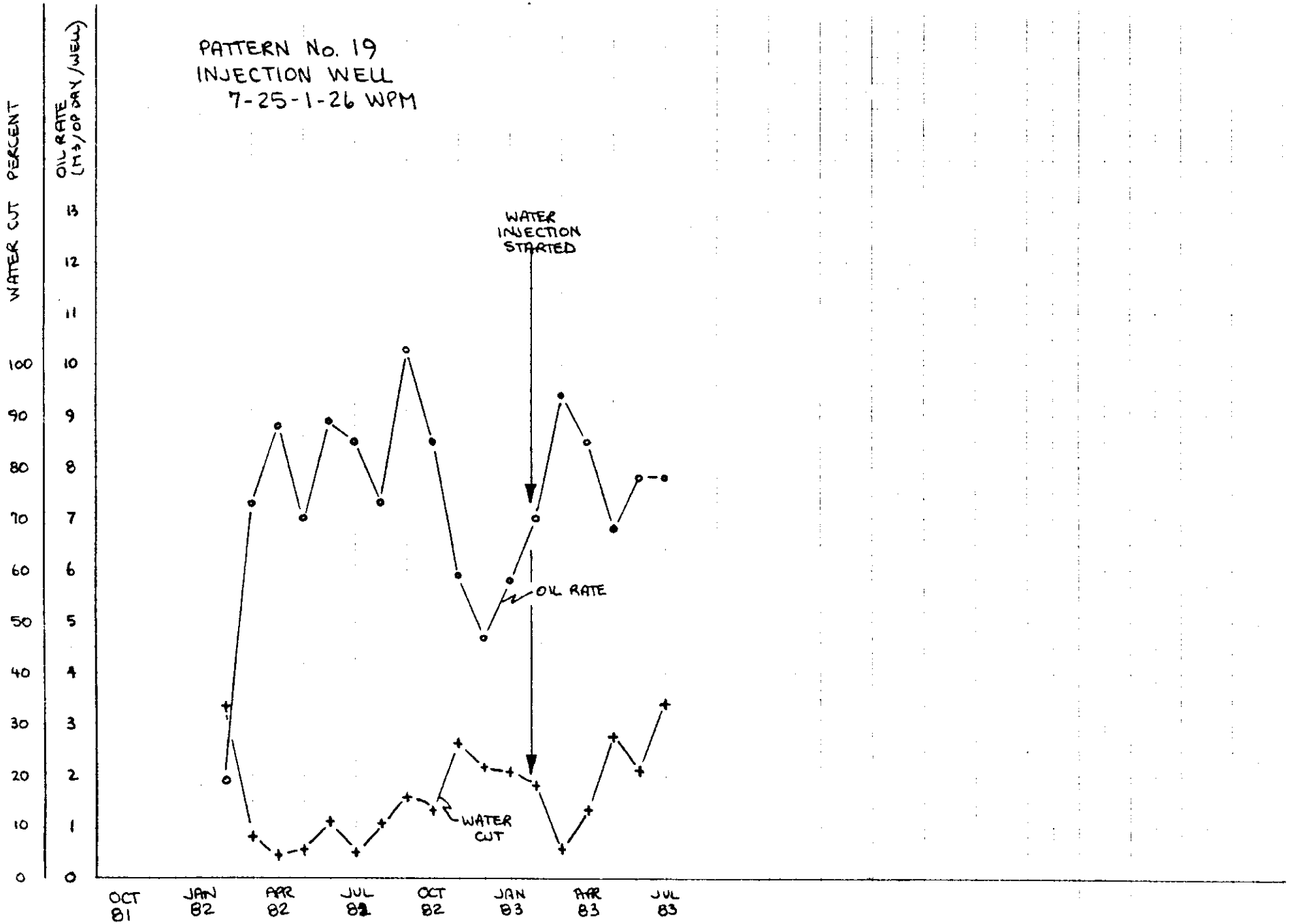
VOIDAGE CALCULATIONS FOR JUN83 FOR PATTERN NUMBER 19

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS E3M3	INJWAT M3	INJGAS E3M3	CUMOIL M3	CUMWAT M3	CUMGAS E3M3	CUMINWAT M3	CUMINGAS E3M3
[illegible]	.5000	720	210.3	297.3	3.51	.0	.00	1366.8	1069.0	301.96	.0	.00
[illegible]	.5000	712	322.0	32.8	53.58	0	.00	1789.9	126.4	229.70	.0	.00
[illegible]	.2500	646	51.1	2.2	4.26	.0	.00	293.8	28.2	15.50	.0	.00
[illegible]	.5000	720	394.5	232.2	16.05	.0	.00	4008.1	963.6	77.80	0	.00
[illegible]	1.0000	689	.0	.0	.00	1634.8	.00	1914.4	606.2	37.70	6536.2	.00
[illegible]	1.0000	336	13.1	5.0	1.87	.0	.00	2132.9	370.6	29.70	.0	.00
[illegible]	1.0000	696	33.2	1.7	11.15	.0	.00	3769.7	152.5	19.30	0	.00
[illegible]	1.0000	714	303.4	5.9	35.82	.0	.00	3408.6	291.4	247.10	.0	.00
[illegible]	.5000	714	354.4	8.5	53.07	.0	.00	3387.3	178.3	154.20	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.

SURFACE UNITS	5.2500	3341	983.6	293.1	113.01	1634.8	.00	14574.6	2494.7	665.02	6536.2	.00
RESERVE UNITS	5.2500	3341	1150.8	293.1	.00	1634.8	.00	17952.3	2494.7	.00	6536.2	.00

AVERAGE OIL RATE IS 7.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 23.0 AVERAGE GAS OIL RATIO IS 114.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 113.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 33.4


PATTERN No. 19
INJECTION WELL
7-25-1-26 WPM
WATER CUT PERCENT
OIL RATE (M³/DAY/WELL)
WATER INJECTION STARTED
OIL RATE
WATER CUT
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
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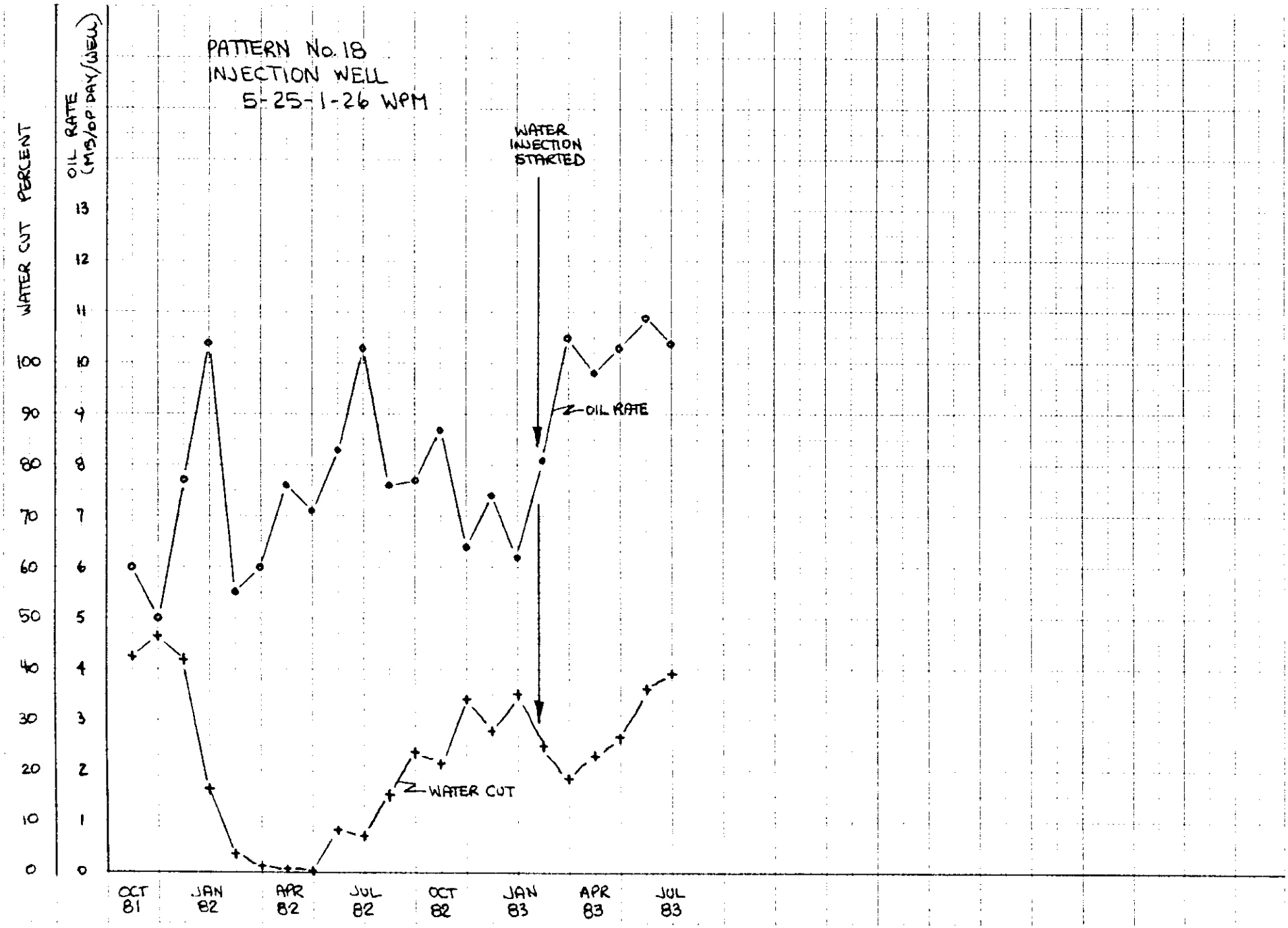
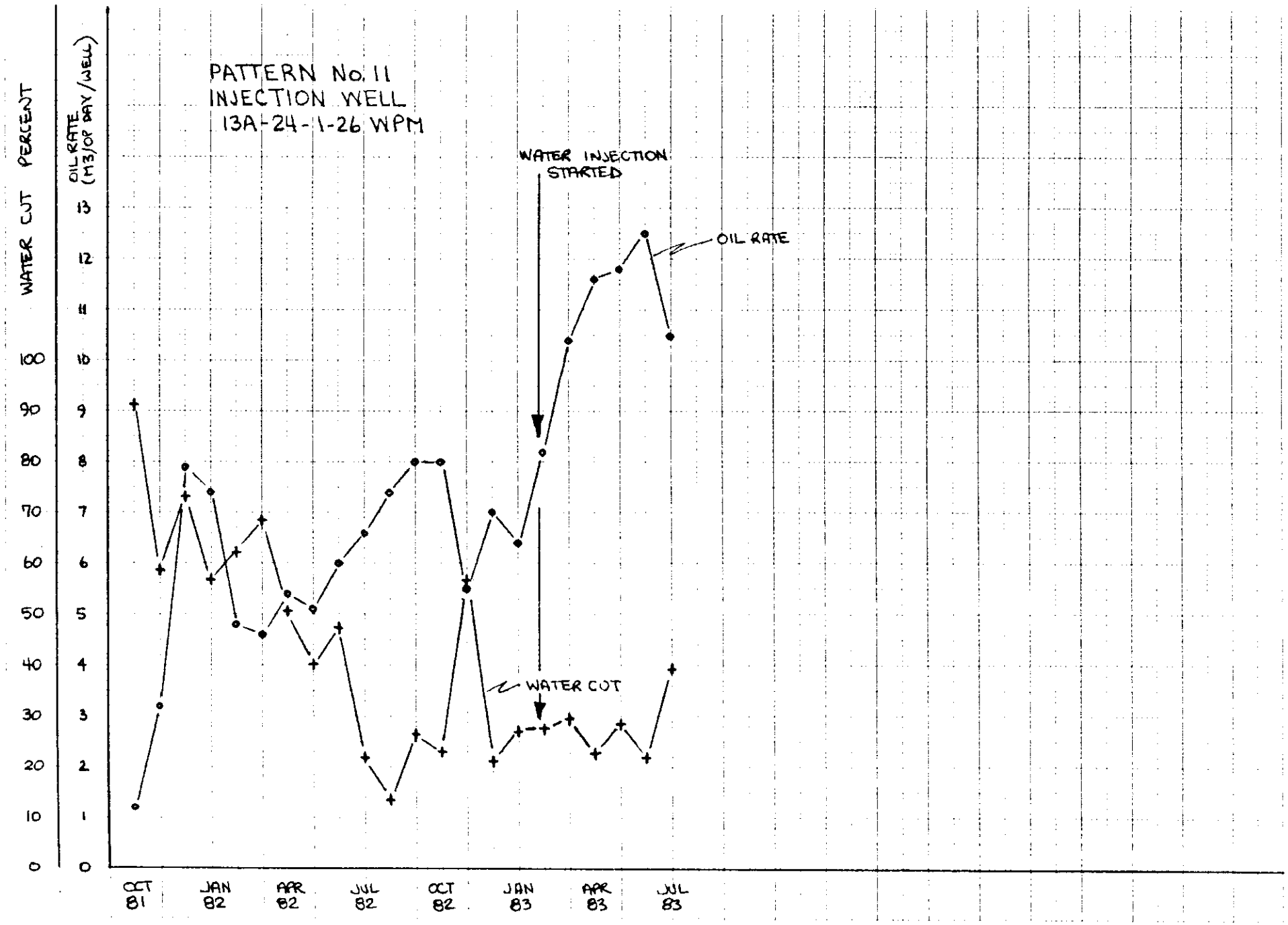
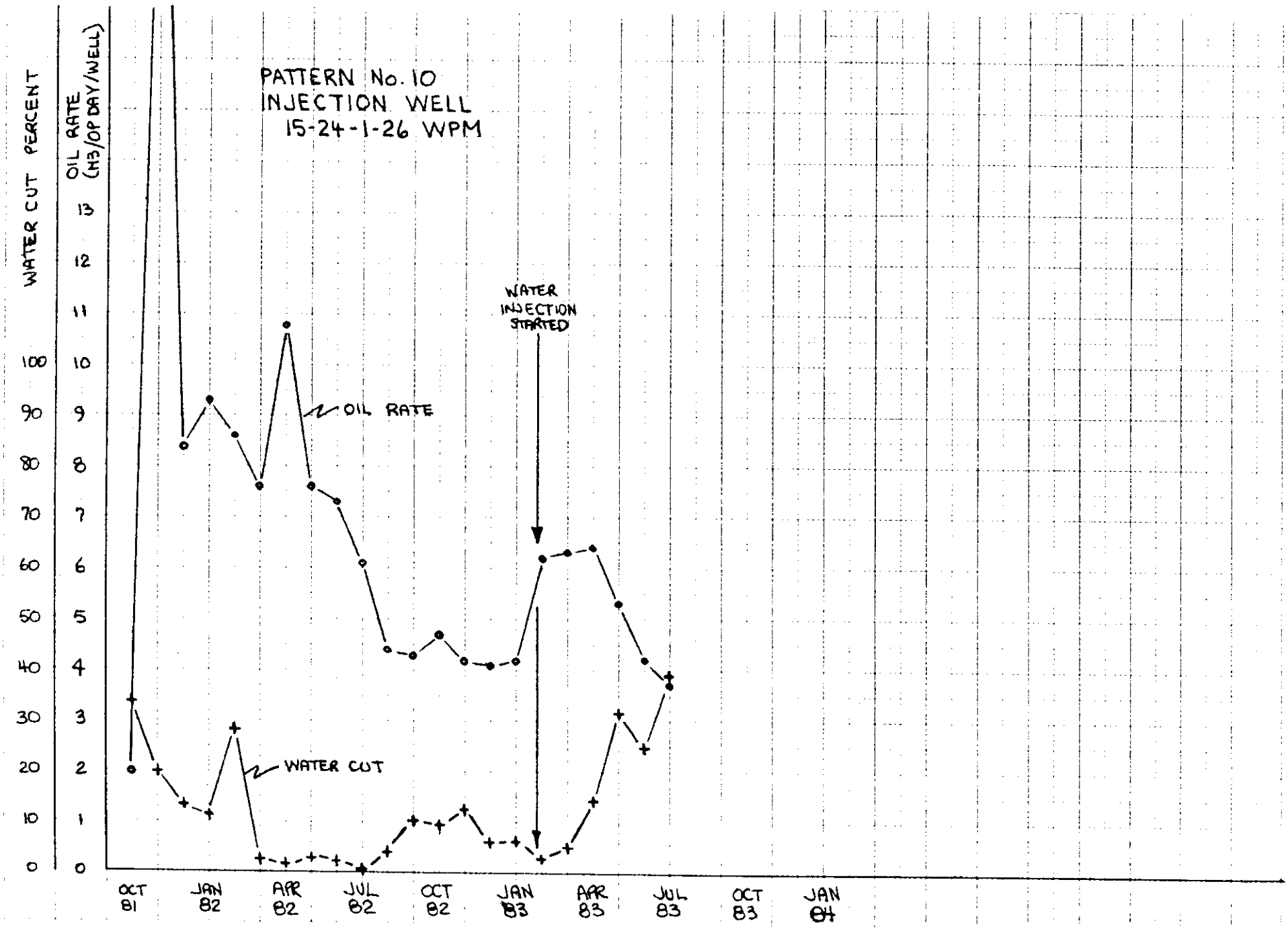
11
12
13
OCT 81
JAN 82
APR 82
JUL 82
OCT 82
JAN 83
APR 83
JUL 83


PATTERN No. 18
INJECTION WELL
5-25-1-26 WPM
WATER INJECTION STARTED
OIL RATE
WATER CUT
WATER CUT PERCENT
OIL RATE (MBBL/DAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
OCT 81
JAN 82
APR 82
JUL 82
OCT 82
JAN 83
APR 83
JUL 83


PATTERN No. 11
INJECTION WELL
13A-24-1-26 WPM
WATER INJECTION STARTED
OIL RATE
WATER CUT
WATER CUT PERCENT
OIL RATE (M3/DP PAY/WELL)
0
10
20
30
40
50
60
70
80
90
100
1
2
3
4
5
6
7
8
9
10
11
12
13
OCT 81
JAN 82
APR 82
JUL 82
OCT 82
JAN 83
APR 83
JUL 83


PATTERN No. 10
INJECTION WELL
15-24-1-26 WPM
WATER CUT PERCENT
OIL RATE (M3/OP DAY/WELL)
WATER INJECTION STARTED
OIL RATE
WATER CUT
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
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7
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11
12
13
OCT 81
JAN 82
APR 82
JUL 82
OCT 82
JAN 83
APR 83
JUL 83
OCT 83
JAN 84

→ BOB

HYDROCARBONS Ltd.
TELEPHONE: (403) 261-0743
630 - 330 FIFTH AVENUE S.W., CALGARY, ALBERTA T2P 0L4

October 15, 1983

DEPARTMENT OF ENERGY AND MINES
OCT 5 1983
PETROLEUM BRANCH

Manitoba Department of Energy and Mines
Mineral Resource Division
989 Century Street
Winnipeg, Manitoba
ROM 2EO

Attention: Mr. Clare Moster

Dear Sir:

RE: Omega Hydrocarbons Ltd.
Pilot Water Flood Performance

Attached for your files is an updated copy of D.R. J. Flores report on the Omega Waskada Waterflood pilot performance. This report is based on the revised expected oil recoveries.

Please call if you have any questions.

Yours truly,

OMEGA HYDROCARBONS LTD.

G. E. Patey
V. P. Production

GP/cw

COMPUTER MODELLING GROUP
3512 - 33 STREET N.W. • CALGARY • ALBERTA • CANADA • T2L 2A6 • PHONE (403) 282-9286 • TELEX 03821545

83-09-26

Mr. G.E. Patey
Vice-President Production
Omega Hydrocarbons Ltd.
630, 330 - 5th Avenue S.W.
Calgary, Alberta T2P 0L4

Dear Sir:

We are enclosing two copies of the revised waterflood pilot performance using the actual oil-in-place assigned to the pilot area. On this basis, the expected recovery (ER) for each pattern applying a 10-year waterflood recovery factor of 20% is as follows:

Pattern	Injector	Expected 10-Year Recovery, kmc	Recovery to July 1983, % ER
10	15-24	73.74	13.15
11	13-24	93.24	9.57
18	5-25	85.81	15.02
19	7-25	89.76	11.68
	Total	342.55	

The reservoir pressure profile has been somewhat modified for patterns 11, 18 and 19 resulting in minor changes of the replacement ratio values. Figures 1 to 4 and Tables 1 to 4 summarize the waterflood pilot performance using the revised expected recoveries.

If you have any questions, please call me and I shall be most pleased to discuss it with you.

Yours very truly,

J. Flores

Jorge Flores, Ph.D.,P.Eng.
Manager - Applications

PATTERN NO. 10 PERFORMANCE (15-24 INJ.)

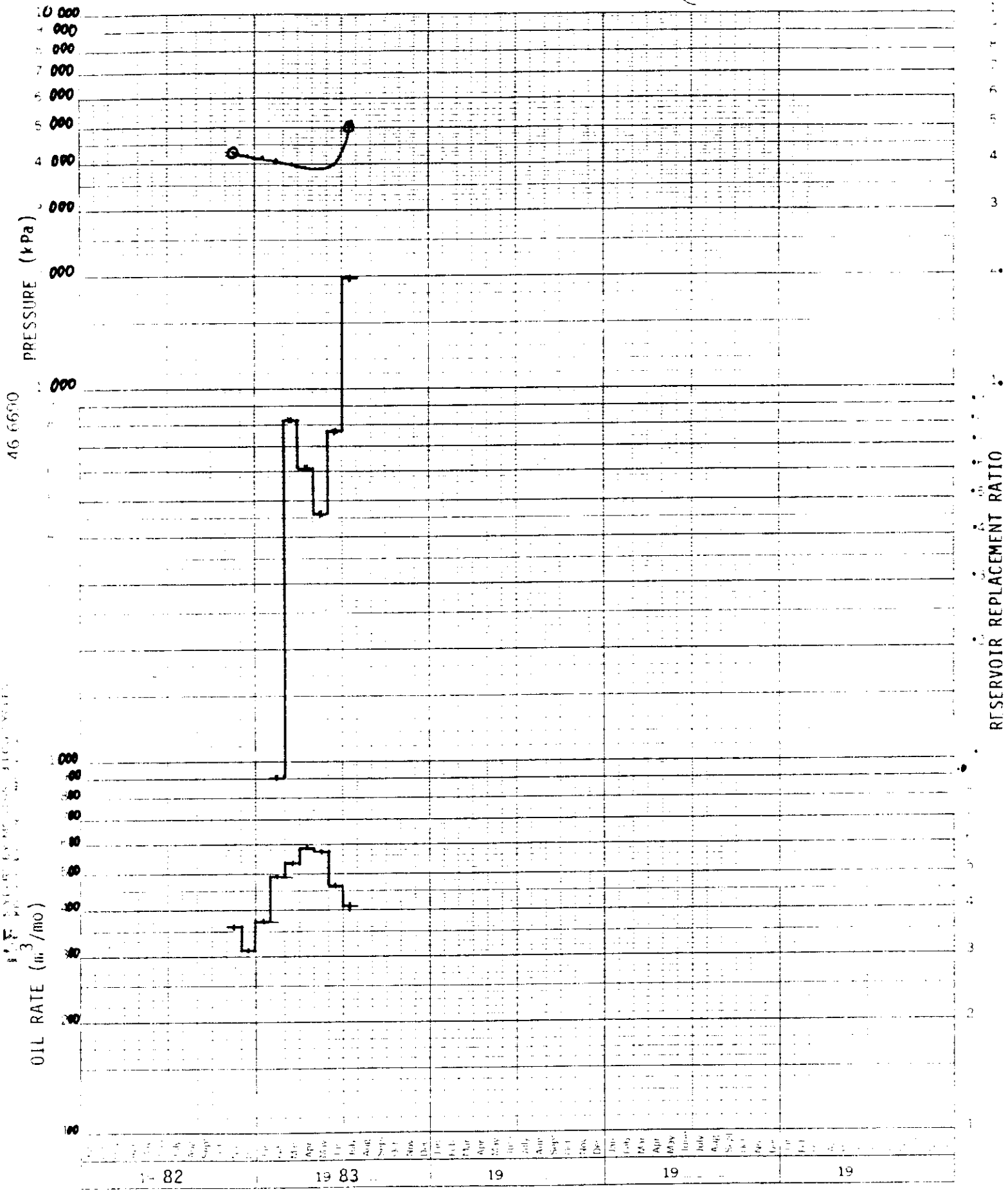

Figure 2

PATTERN NO. 11 PERFORMANCE (13-24 INJ)

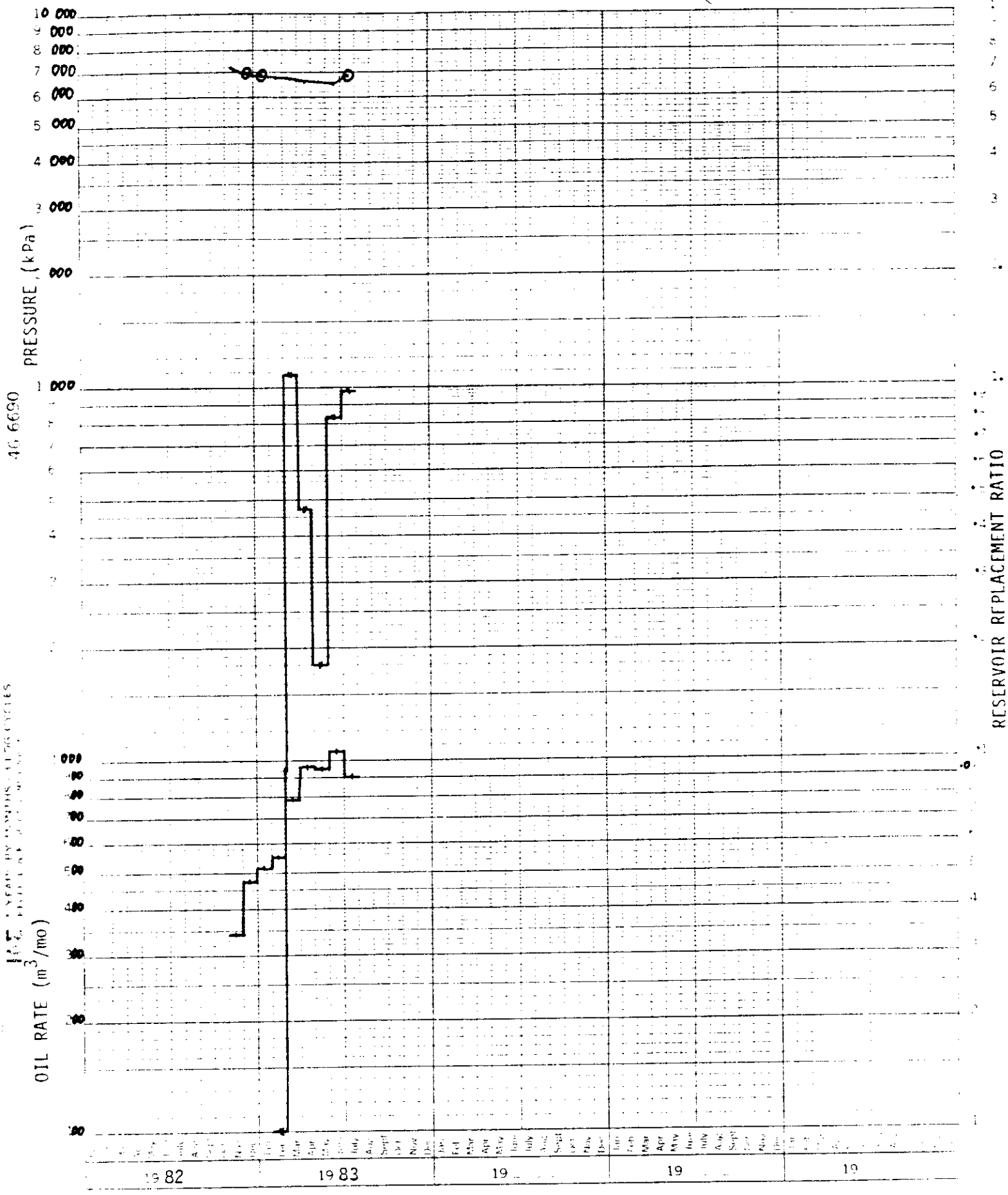

Figure 5

PATTERN NO. 18 PERFORMANCE (5-25 INJ)

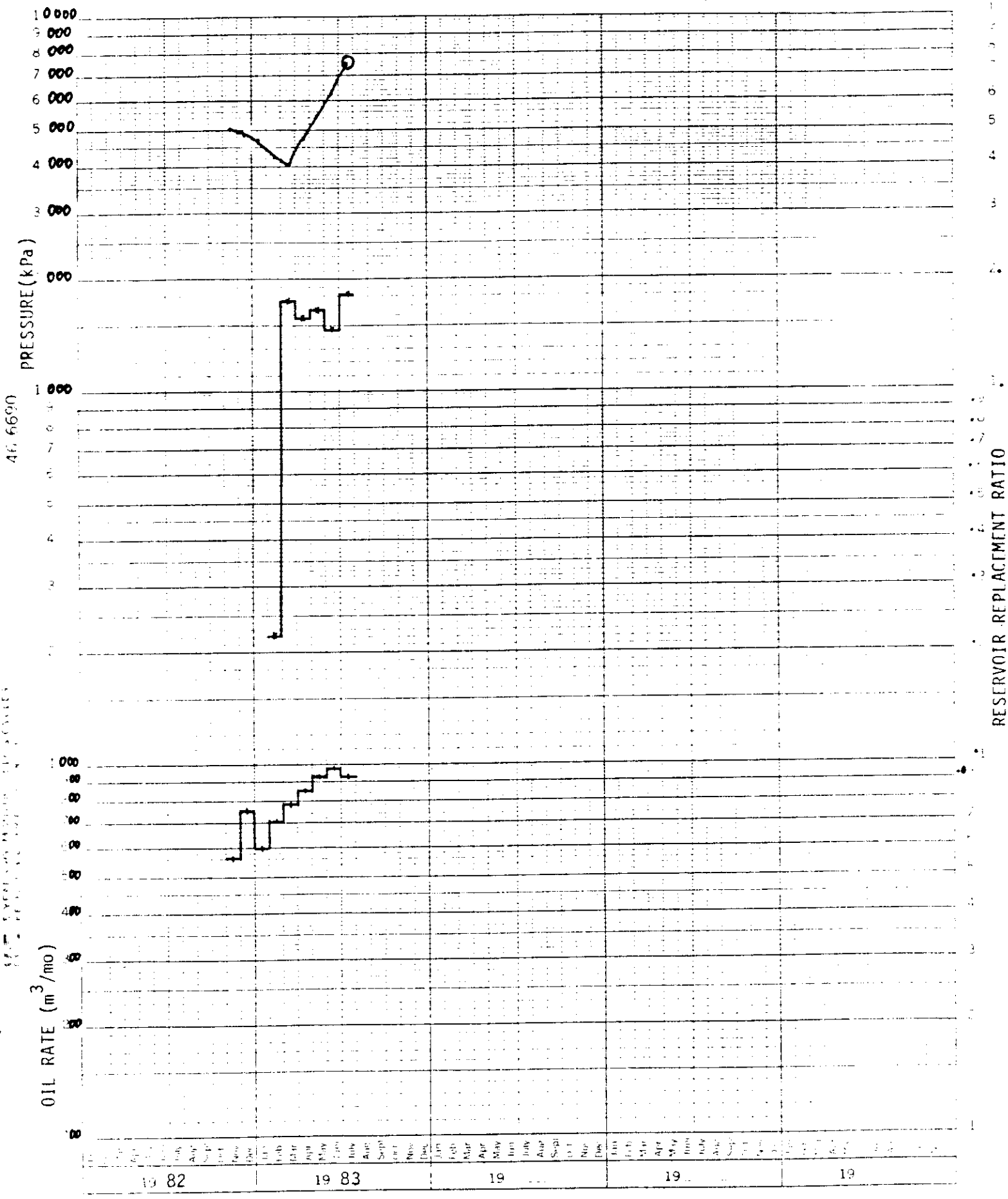

Figure 4

PATTERN NO. 19 PERFORMANCE (7-25 INJ.)

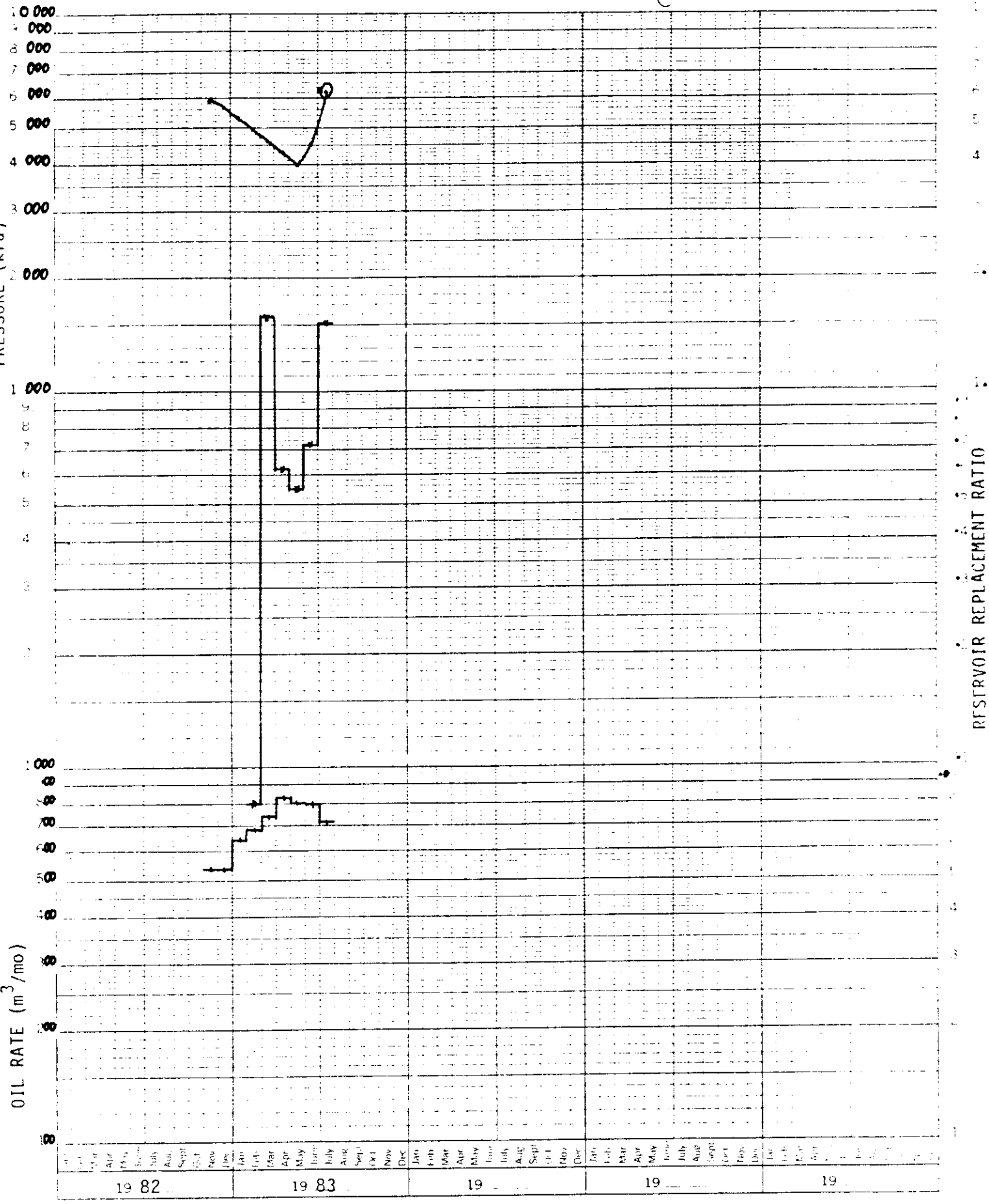

Table 1

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 10

EXPECTED ULTIMATE RECOVERY: 73.740 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	8.10	4300.00	5.98	359.32	420.40	48.55	0.00	0.00	11.90	468.95	0.00	0.0	0.00
DEC 1982	8.53	4200.00	6.29	309.87	362.24	20.17	163.09	71.85	6.11	545.50	0.00	0.0	0.00
JAN 1983	9.03	4150.00	6.66	371.17	433.79	23.25	784.25	134.35	5.89	1241.28	0.00	0.0	0.00
FEB 1983	9.69	4120.00	7.14	487.30	569.41	13.10	847.23	118.92	2.62	1429.74	134.10	0.0	0.09
MAR 1983	10.41	4000.00	7.67	529.20	617.68	28.70	1009.29	123.34	5.14	1655.67	1356.40	0.0	0.82
APR 1983	11.20	3920.00	8.26	582.70	680.01	70.00	2435.19	208.20	10.72	3185.20	1933.90	0.0	0.61
MAY 1983	11.97	3900.00	8.83	572.80	666.74	185.90	2178.48	193.26	24.50	3031.12	1380.30	0.0	0.46
JUN 1983	12.60	4000.00	9.29	459.10	535.86	109.20	1196.39	150.32	19.22	1841.45	1412.40	0.0	0.77
JUL 1983	13.15	5076.00	9.70	407.90	476.67	203.30	891.59	154.20	33.26	1571.57	3114.90	0.0	1.98

Table 2

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 11

EXPECTED ULTIMATE RECOVERY: 93.240 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	2.99	7200.00	2.79	341.67	398.25	405.02	0.00	0.00	54.24	803.27	0.00	0.0	0.00
DEC 1982	3.50	6963.00	3.26	473.12	551.66	101.37	38.96	56.41	17.65	691.99	0.00	0.0	0.00
JAN 1983	3.99	6869.00	3.72	514.15	599.60	128.20	225.89	78.91	19.96	953.69	0.00	0.0	0.00
FEB 1983	4.58	6750.00	4.27	550.90	642.51	135.10	0.00	35.76	19.69	777.61	6.00	0.0	0.01
MAR 1983	5.42	6700.00	5.06	783.60	913.29	192.80	0.00	38.78	19.75	1106.09	1207.70	0.0	1.09
APR 1983	6.45	6650.00	6.02	959.10	1118.69	178.40	310.88	71.11	15.68	1607.97	763.00	0.0	0.47
MAY 1983	7.47	6600.00	6.96	944.90	1102.23	238.60	428.95	78.78	20.16	1769.78	325.80	0.0	0.18
JUN 1983	8.61	6575.00	8.03	1064.80	1242.30	221.10	436.49	76.25	17.19	1899.90	1585.60	0.0	0.83
JUL 1983	9.57	6852.00	8.92	898.50	1047.65	391.70	719.72	101.96	30.36	2159.07	2106.10	0.0	0.98

Table 3

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 18

EXPECTED ULTIMATE RECOVERY: 85.810 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	7.43	5000.00	6.38	567.15	663.00	251.75	0.00	0.00	30.74	914.75	0.00	0.0	0.00
DEC 1982	8.31	4850.00	7.13	754.20	881.81	243.05	0.00	44.29	24.37	1124.86	0.00	0.0	0.00
JAN 1983	9.00	4700.00	7.72	595.30	696.08	285.15	0.00	49.49	32.39	981.23	0.00	0.0	0.00
FEB 1983	9.82	4240.00	8.42	700.50	819.58	218.60	0.00	35.90	23.78	1038.18	227.70	0.0	0.22
MAR 1983	10.73	4030.00	9.21	784.30	915.75	149.50	0.00	35.82	16.01	1065.25	1860.40	0.0	1.75
APR 1983	11.73	4750.00	10.06	852.40	996.63	210.20	460.85	75.13	19.78	1667.68	2619.10	0.0	1.57
MAY 1983	12.81	5450.00	10.99	931.60	1088.39	302.20	560.57	81.64	24.49	1951.16	3218.40	0.0	1.65
JUN 1983	13.95	6260.00	11.97	977.30	1140.51	461.60	563.47	84.62	32.08	2165.58	3155.20	0.0	1.46
JUL 1983	15.02	7571.00	12.89	917.70	1069.12	509.10	367.58	77.80	35.68	1945.80	3521.00	0.0	1.81

Table 4

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 19

EXPECTED ULTIMATE RECOVERY: 89.760 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	5.28	5900.00	4.74	539.78	630.19	197.25	0.00	0.00	26.76	827.44	0.00	0.0	0.00
DEC 1982	5.88	5650.00	5.27	538.70	629.20	177.25	499.37	99.89	24.76	1305.82	0.00	0.0	0.00
JAN 1983	6.59	5300.00	5.91	640.10	747.83	79.97	274.88	72.25	11.11	1102.68	0.00	0.0	0.00
FEB 1983	7.35	4950.00	6.60	681.00	796.09	73.40	322.92	72.95	9.73	1192.40	89.70	0.0	0.08
MAR 1983	8.17	4600.00	7.34	742.30	868.19	52.40	117.16	57.87	6.59	1037.76	1633.00	0.0	1.57
APR 1983	9.10	4300.00	8.17	831.50	972.77	112.30	1911.61	146.89	11.90	2996.68	1871.30	0.0	0.62
MAY 1983	10.00	3980.00	8.97	803.70	937.92	264.90	1189.67	106.53	24.79	2392.49	1307.40	0.0	0.55
JUN 1983	10.88	4500.00	9.77	796.80	932.02	215.20	1120.15	110.42	21.26	2267.36	1634.80	0.0	0.72
JUL 1983	11.68	6241.00	10.49	716.20	835.81	326.80	594.09	99.61	31.33	1756.70	2663.00	0.0	1.52

COMPUTER MODELLING GROUP
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83-09-26

Mr. G.E. Patey
Vice-President Production
Omega Hydrocarbons Ltd.
630, 330 - 5th Avenue S.W.
Calgary, Alberta T2P 0L4

Dear Sir:

We are enclosing two copies of the revised waterflood pilot performance using the actual oil-in-place assigned to the pilot area. On this basis, the expected recovery (ER) for each pattern applying a 10-year waterflood recovery factor of 20% is as follows:

Pattern	Injector	Expected 10-Year Recovery, kmc	Recovery to July 1983, % ER
10	15-24	73.74	13.15
11	13-24	93.24	9.57
18	5-25	85.81	15.02
19	7-25	89.76	11.68
	Total	342.55	

The reservoir pressure profile has been somewhat modified for patterns 11, 18 and 19 resulting in minor changes of the replacement ratio values. Figures 1 to 4 and Tables 1 to 4 summarize the waterflood pilot performance using the revised expected recoveries.

If you have any questions, please call me and I shall be most pleased to discuss it with you.

Yours very truly,

J. Flores

Jorge Flores, Ph.D.,P.Eng.
Manager - Applications

Figure 1

PATTERN NO. 10 PERFORMANCE (15-24 INJ.)

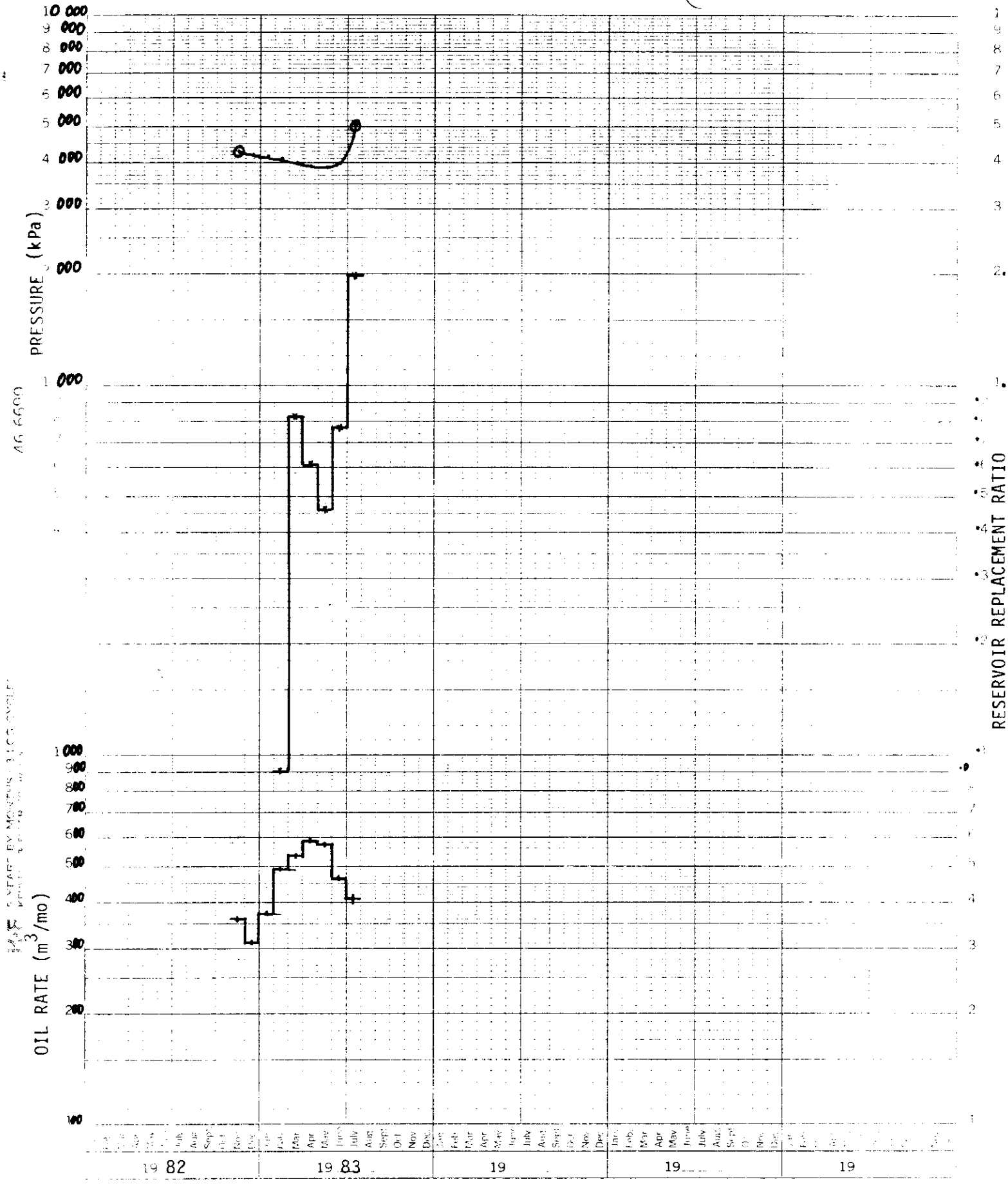


Figure 2

PATTERN NO. 11 PERFORMANCE (13-24 INJ)

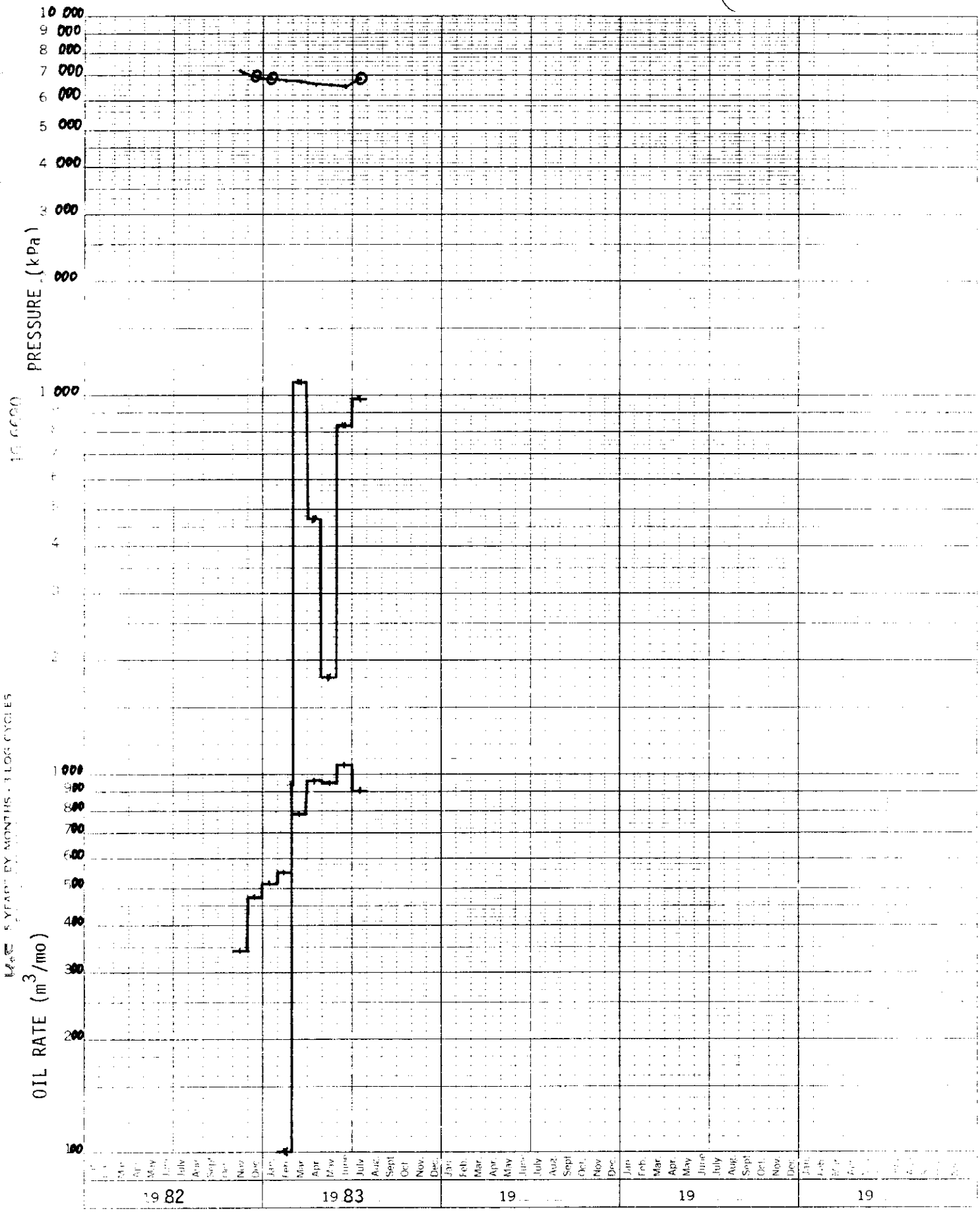


Figure 3

PATTERN NO. 18 PERFORMANCE (5-25 INJ)

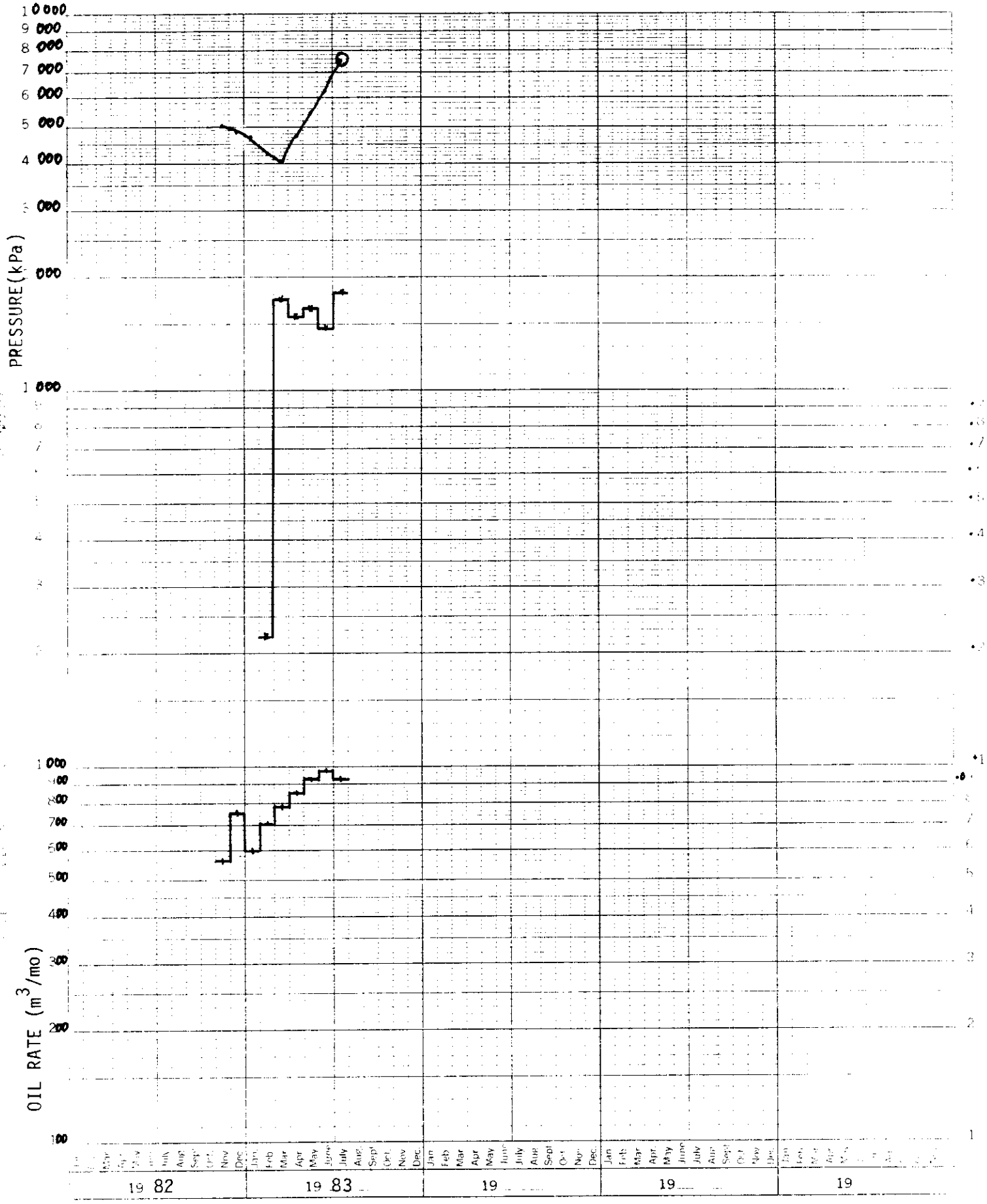


Figure 4

PATTERN NO. 19 PERFORMANCE (7-25 INJ.)

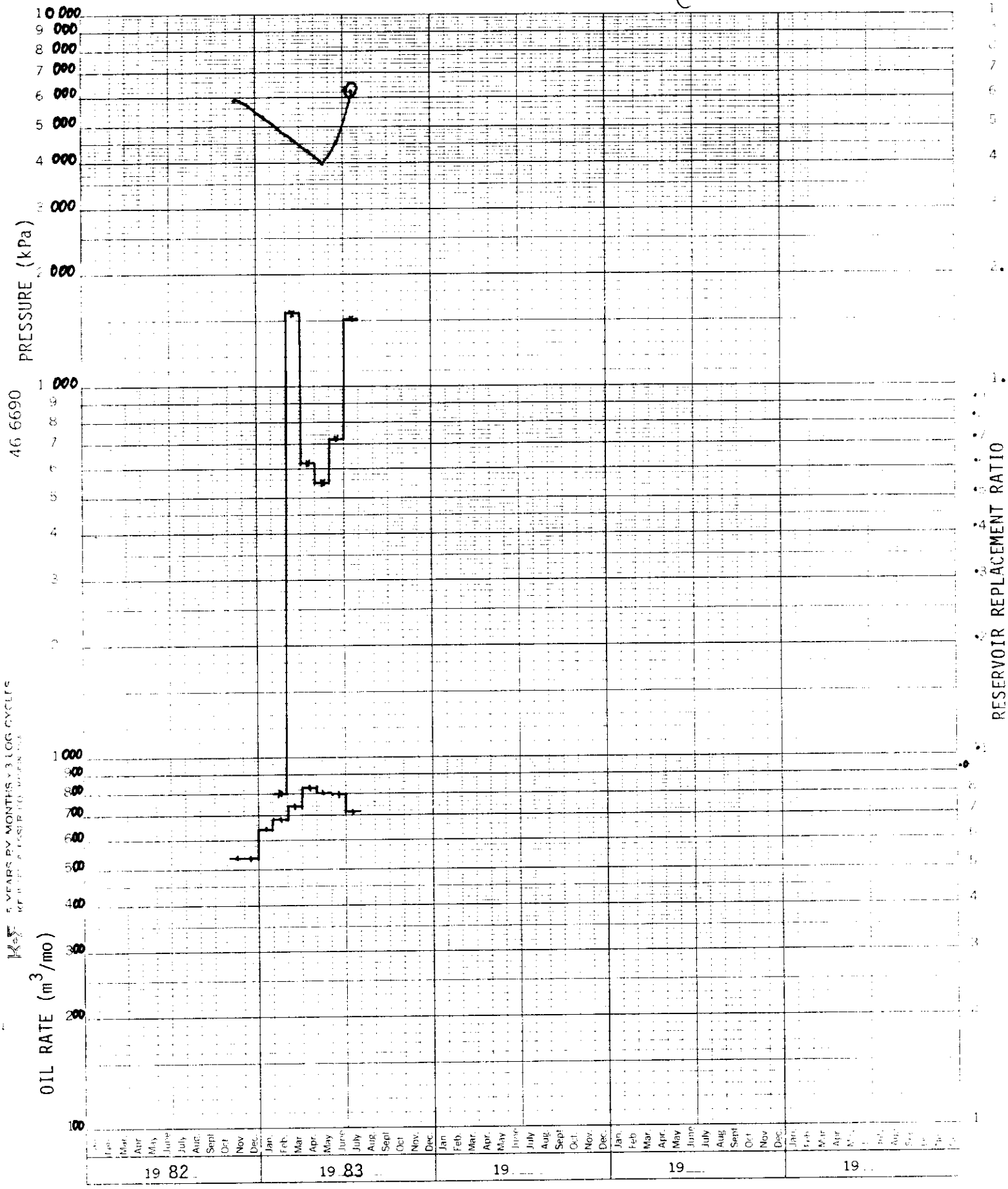


Table 1

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 10

EXPECTED ULTIMATE RECOVERY: 73.740 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	8.10	4300.00	5.98	359.32	420.40	48.55	0.00	0.00	11.90	468.95	0.00	0.0	0.00
DEC 1982	8.53	4200.00	6.29	309.87	362.24	20.17	163.09	71.85	6.11	545.50	0.00	0.0	0.00
JAN 1983	9.03	4150.00	6.66	371.17	433.79	23.25	784.25	134.35	5.89	1241.28	0.00	0.0	0.00
FEB 1983	9.69	4120.00	7.14	487.30	569.41	13.10	847.23	118.92	2.62	1429.74	134.10	0.0	0.09
MAR 1983	10.41	4000.00	7.67	529.20	617.68	28.70	1009.29	123.34	5.14	1655.67	1356.40	0.0	0.82
APR 1983	11.20	3920.00	8.26	582.70	680.01	70.00	2435.19	208.20	10.72	3185.20	1933.90	0.0	0.61
MAY 1983	11.97	3900.00	8.83	572.80	666.74	185.90	2178.48	193.26	24.50	3031.12	1380.30	0.0	0.46
JUN 1983	12.60	4000.00	9.29	459.10	535.86	109.20	1196.39	150.32	19.22	1841.45	1412.40	0.0	0.77
JUL 1983	13.15	5076.00	9.70	407.90	476.67	203.30	891.59	154.20	33.26	1571.57	3114.90	0.0	1.98

Table 2

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 11

EXPECTED ULTIMATE RECOVERY: 93.240 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	2.99	7200.00	2.79	341.67	398.25	405.02	0.00	0.00	54.24	803.27	0.00	0.0	0.00
DEC 1982	3.50	6963.00	3.26	473.12	551.66	101.37	38.96	56.41	17.65	691.99	0.00	0.0	0.00
JAN 1983	3.99	6869.00	3.72	514.15	599.60	128.20	225.89	78.91	19.96	953.69	0.00	0.0	0.00
FEB 1983	4.58	6750.00	4.27	550.90	642.51	135.10	0.00	35.76	19.69	777.61	6.00	0.0	0.01
MAR 1983	5.42	6700.00	5.06	783.60	913.29	192.80	0.00	38.78	19.75	1106.09	1207.70	0.0	1.09
APR 1983	6.45	6650.00	6.02	959.10	1118.69	178.40	310.88	71.11	15.68	1607.97	763.00	0.0	0.47
MAY 1983	7.47	6600.00	6.96	944.90	1102.23	238.60	428.95	78.78	20.16	1769.78	325.80	0.0	0.18
JUN 1983	8.61	6575.00	8.03	1064.80	1242.30	221.10	436.49	76.25	17.19	1899.90	1585.60	0.0	0.83
JUL 1983	9.57	6852.00	8.92	898.50	1047.65	391.70	719.72	101.96	30.36	2159.07	2106.10	0.0	0.98

Table 3

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 18

EXPECTED ULTIMATE RECOVERY: 85.810 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	7.43	5000.00	6.38	567.15	663.00	251.75	0.00	0.00	30.74	914.75	0.00	0.0	0.00
DEC 1982	8.31	4850.00	7.13	754.20	881.81	243.05	0.00	44.29	24.37	1124.86	0.00	0.0	0.00
JAN 1983	9.00	4700.00	7.72	595.30	696.08	285.15	0.00	49.49	32.39	981.23	0.00	0.0	0.00
FEB 1983	9.82	4240.00	8.42	700.50	819.58	218.60	0.00	35.90	23.78	1038.18	227.70	0.0	0.22
MAR 1983	10.73	4030.00	9.21	784.30	915.75	149.50	0.00	35.82	16.01	1065.25	1860.40	0.0	1.75
APR 1983	11.73	4750.00	10.06	852.40	996.63	210.20	460.85	75.13	19.78	1667.68	2619.10	0.0	1.57
MAY 1983	12.81	5450.00	10.99	931.60	1088.39	302.20	560.57	81.64	24.49	1951.16	3218.40	0.0	1.65
JUN 1983	13.95	6260.00	11.97	977.30	1140.51	461.60	563.47	84.62	32.08	2165.58	3155.20	0.0	1.46
JUL 1983	15.02	7571.00	12.89	917.70	1069.12	509.10	367.58	77.80	35.68	1945.80	3521.00	0.0	1.81

Table 4

MONTHLY REPLACEMENT RATIO CALCULATION

PATTERN NO: 19

EXPECTED ULTIMATE RECOVERY: 89.760 kmc

DATE	RECOVERY (%EUR)	AVG.PRES (kPa)	CUM. OIL (kmc)	OIL (m3)	OIL (rm3)	WATER (rm3)	FREE GAS (rm3)	GORI (m3/m3)	WCUT (%)	VOIDAGE (rm3)	WAT. INJ (rm3)	GAS INJ (rm3)	RES.REP. RATIO
NOV 1982	5.28	5900.00	4.74	539.78	630.19	197.25	0.00	0.00	26.76	827.44	0.00	0.0	0.00
DEC 1982	5.88	5650.00	5.27	538.70	629.20	177.25	499.37	99.89	24.76	1305.82	0.00	0.0	0.00
JAN 1983	6.59	5300.00	5.91	640.10	747.83	79.97	274.88	72.25	11.11	1102.68	0.00	0.0	0.00
FEB 1983	7.35	4950.00	6.60	681.00	796.09	73.40	322.92	72.95	9.73	1192.40	89.70	0.0	0.08
MAR 1983	8.17	4600.00	7.34	742.30	868.19	52.40	117.16	57.87	6.59	1037.76	1633.00	0.0	1.57
APR 1983	9.10	4300.00	8.17	831.50	972.77	112.30	1911.61	146.89	11.90	2996.68	1871.30	0.0	0.62
MAY 1983	10.00	3980.00	8.97	803.70	937.92	264.90	1189.67	106.53	24.79	2392.49	1307.40	0.0	0.55
JUN 1983	10.88	4500.00	9.77	796.80	932.02	215.20	1120.15	110.42	21.26	2267.36	1634.80	0.0	0.72
JUL 1983	11.68	6241.00	10.49	716.20	835.81	326.80	594.09	99.61	31.33	1756.70	2663.00	0.0	1.52

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	732	.0	.0	.00	1380.3	.00	3732.5	431.2	16.40	4804.7	.00
0009240012612	.50000	726	191.5	61.5	40.82	.0	.00	656.3	115.2	101.86	.0	.00
0010240012610	.50000	744	33.8	4.0	8.79	.0	.00	1415.1	59.3	43.77	.0	.00
0011240012610	.25000	744	45.1	4.0	10.23	.0	.00	1584.9	83.5	34.26	.0	.00
0014240012610	.50000	744	78.7	7.2	12.00	.0	.00	2510.8	139.0	82.58	.0	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0002250012612	.50000	716	456.1	40.7	56.10	.0	.00	1401.9	94.4	175.09	.0	.00
0201250012610	.25000	720	43.0	552.5	3.52	.0	.00	1256.5	781.7	198.39	.0	.00
0016240012610	1.00000	614	133.0	5.0	73.73	.0	.00	2257.3	112.5	254.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2605	687.2	203.8	157.77	1380.3	.00	10122.4	970.6	580.44	4804.7	.00
RESERVR UNITS	4.75000	2605	804.0	203.8	3006.07	1380.3	.00	11843.2	970.6	.00	4804.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 129.5 M3/CALDAY TO REPLACE REQUIRES 5.28 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 22.9 AVERAGE GAS-OIL RATIO IS 229.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 34.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 37.5

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	684	.0	.0	.00	325.8	.00	.0	.0	.00	2302.5	.00
0011240012610	.25000	744	45.1	4.0	10.23	.0	.00	1584.9	83.5	34.26	.0	.00
0012240012612	.50000	327	140.9	116.0	14.52	.0	.00	951.7	188.3	56.76	.0	.00
0009230012610	.25000	744	407.6	439.9	13.28	.0	.00	2237.6	1937.1	56.06	.0	.00
0016230012610	.50000	744	583.7	46.2	12.28	.0	.00	4841.6	3231.9	96.65	.0	.00
0001260012610	.25000	744	274.1	91.1	14.55	.0	.00	2427.3	1680.5	84.47	.0	.00
0004250012612	.50000	734	419.0	34.4	47.55	.0	.00	1632.0	184.5	96.74	.0	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0014240012610	.50000	744	78.7	7.2	12.00	.0	.00	2510.8	139.0	82.58	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1992	944.9	238.6	74.44	325.8	.00	6960.7	2803.8	259.99	2302.5	.00
RESERVR UNITS	4.00000	1992	1101.9	238.6	556.57	325.8	.00	8144.0	2803.8	.00	2302.5	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.2 M3/CALDAY TO REPLACE REQUIRES 4.05 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 20.2 AVERAGE GAS-OIL RATIO IS 78.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 17.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 21.0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	744	170.7	74.4	8.18	.0	.00	2474.0	621.8	52.02	.0	.00
0009230012610	.25000	744	407.6	439.9	13.28	.0	.00	2237.6	1937.1	56.06	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014230012610	1.00000	744	180.2	172.1	4.36	.0	.00	1274.1	1058.3	33.68	.0	.00
0003260012610	.50000	744	67.7	5.4	4.55	.0	.00	1647.1	292.9	44.30	.0	.00
0002260012610	.50000	744	356.6	24.1	35.01	.0	.00	2581.3	685.1	70.75	.0	.00
0001260012610	.25000	744	274.1	91.1	14.55	.0	.00	2427.3	1680.5	84.47	.0	.00
0016230012610	.50000	744	583.7	46.2	12.28	.0	.00	4841.6	3231.9	96.65	.0	.00
SURFACE UNITS	4.50000	2976	1025.3	417.1	45.42	.0	.00	9449.3	4689.4	226.68	.0	.00
RESERVR UNITS	4.50000	2976	1199.6	417.1	222.75	.0	.00	11055.7	4689.4	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 59.3 M3/CALDAY TO REPLACE REQUIRES 2.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 28.9 AVERAGE GAS-OIL RATIO IS 44.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	732	.0	.0	.00	3218.4	.00	3762.4	582.7	13.10	7925.6	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0004250012612	.50000	734	419.0	34.4	47.55	.0	.00	1632.0	184.5	96.74	.0	.00
0001260012610	.25000	744	274.1	91.1	14.55	.0	.00	2427.3	1680.5	84.47	.0	.00
0008260012610	.50000	744	314.7	24.1	12.73	.0	.00	3401.8	234.0	59.75	.0	.00
0012250012610	.50000	744	220.8	309.6	19.55	..0	.00	2224.1	1994.9	75.49	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0006250012610	.50000	744	314.7	182.9	8.64	.0	.00	3613.6	731.4	61.66	.0	.00
SURFACE UNITS	3.75000	2015	931.6	302.2	76.06	3218.4	.00	10993.4	2624.4	256.28	7925.6	.00
RESERVR UNITS	3.75000	2015	1085.4	302.2	483.46	3218.4	.00	12862.2	2624.4	.00	7925.6	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 60.4 M3/CALDAY TO REPLACE REQUIRES 4.23 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.5 AVERAGE GAS-OIL RATIO IS 81.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 172.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 51.2

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	732	.0	.0	.00	1307.4	.00	1914.4	608.2	37.70	4901.4	.00
0201250012610	.25000	720	43.0	552.5	3.52	.0	.00	1256.5	781.7	198.39	.0	.00
0002250012612	.50000	716	456.1	40.7	56.10	.0	.00	1401.9	94.4	175.09	.0	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0006250012610	.50000	744	314.7	182.9	8.64	.0	.00	3613.6	731.4	61.66	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0010250012610	.50000	744	323.6	9.0	44.10	.0	.00	3105.2	275.5	207.26	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	151.1	8.11	.0	.00
0008250012610	.50000	744	22.8	12.1	2.27	.0	.00	2121.8	273.6	27.76	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2181	803.7	264.9	85.62	1307.4	.00	8972.3	1578.0	400.45	4901.4	.00
RESERVR UNITS	4.00000	2181	936.6	264.9	700.18	1307.4	.00	10497.6	1578.0	.00	4901.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.3 M3/CALDAY TO REPLACE REQUIRES 4.23 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.8 AVERAGE GAS-OIL RATIO IS 106.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 68.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 40.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	744	36.4	1.3	2.42	.0	.00	366.3	118.3	24.43	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	151.1	8.11	.0	.00
0010250012610	.50000	744	323.6	9.0	44.10	.0	.00	3105.2	275.5	207.26	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0014250012610	.50000	744	5.1	28.1	.00	.0	.00	104.7	104.0	35.77	.0	.00
0016250012610	.50000	724	26.3	2.6	2.06	.0	.00	453.0	180.1	19.02	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	2217	296.1	22.6	32.94	.0	.00	3390.1	478.3	182.79	.0	.00
RESERVR UNITS	3.00000	2217	346.5	22.6	439.86	.0	.00	3966.4	478.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.1 M3/CALDAY TO REPLACE REQUIRES 1.07 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 7.1 AVERAGE GAS-OIL RATIO IS 111.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

0001260012610 .25000 720 207.6 73.2WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 4 OF 1983

THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	701	.0	.0	.00	1933.9	.00	3732.5	431.2	16.40	3424.4	.00
0009240012612	.50000	720	280.0	37.8	47.73	.0	.00	464.8	53.7	61.04	.0	.00
0010240012610	.50000	720	38.9	4.1	8.66	.0	.00	1381.3	55.3	34.98	.0	.00
0011240012610	.25000	712	54.8	3.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0014240012610	.50000	712	68.1	3.8	11.84	.0	.00	2432.1	131.8	70.58	.0	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0002250012612	.50000	720	469.2	16.4	100.60	.0	.00	945.8	53.7	118.99	.0	.00
0201250012610	.25000	682	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0016240012610	1.00000	356	40.5	1.5	32.11	.0	.00	2124.3	107.5	180.57	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2283	672.9	80.2	149.31	1933.9	.00	9435.2	766.9	422.67	3424.4	.00
RESERVR UNITS	4.75000	2283	787.3	80.2	2816.55	1933.9	.00	11039.2	766.9	.00	3424.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 122.8 M3/CALDAY TO REPLACE REQUIRES 5.01 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 10.7 AVERAGE GAS-OIL RATIO IS 221.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 52.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 29.0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 4 OF 1983

THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	701	.0	.0	.00	763.0	.00	.0	.0	.00	1976.7	.00
0011240012610	.25000	712	54.8	3.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0012240012612	.50000	644	358.0	56.0	28.86	.0	.00	810.8	72.3	42.24	.0	.00
0009230012610	.25000	720	401.3	350.1	12.10	.0	.00	1830.0	1497.2	42.79	.0	.00
0016230012610	.50000	720	530.5	64.9	10.55	.0	.00	4257.9	3185.7	84.38	.0	.00
0001260012610	.25000	720	207.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00
0004250012612	.50000	720	335.8	16.4	25.91	.0	.00	1213.0	150.1	49.19	.0	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0014240012610	.50000	712	68.1	3.8	11.84	.0	.00	2432.1	131.8	70.58	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2079	959.1	178.4	68.20	763.0	.00	6015.7	2565.2	185.56	1976.7	.00
RESERVR UNITS	4.00000	2079	1118.4	178.4	447.27	763.0	.00	7038.4	2565.2	.00	1976.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.1 M3/CALDAY TO REPLACE REQUIRES 3.85 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 15.7 AVERAGE GAS-OIL RATIO IS 71.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 43.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 20.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	720	205.4	62.6	5.89	.0	.00	2303.3	547.4	43.84	.0	.00
0009230012610	.25000	720	401.3	350.1	12.10	.0	.00	1830.0	1497.2	42.79	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014230012610	1.00000	720	141.5	104.5	3.25	.0	.00	1093.9	886.2	29.31	.0	.00
0003260012610	.50000	720	67.2	6.2	4.35	.0	.00	1579.4	287.5	39.75	.0	.00
0002260012610	.50000	716	250.1	47.0	9.42	.0	.00	2224.7	661.0	35.74	.0	.00
0001260012610	.25000	720	207.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00
0016230012610	.50000	720	530.5	64.9	10.55	.0	.00	4257.9	3185.7	84.38	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	2878	923.0	332.0	27.03	.0	.00	8424.0	4272.3	181.26	.0	.00
RESERVR UNITS	4.50000	2878	1079.9	332.0	12.64	.0	.00	9856.1	4272.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.5 M3/CALDAY TO REPLACE REQUIRES 1.94 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 26.5 AVERAGE GAS-OIL RATIO IS 29.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	701	.0	.0	.00	2619.1	.00	3762.4	582.7	13.10	4707.2	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0004250012612	.50000	720	335.8	16.4	25.91	.0	.00	1213.0	150.1	49.19	.0	.00
0001260012610	.25000	720	207.6	73.2	10.82	.0	.00	2153.2	1589.4	69.92	.0	.00
0008260012610	.50000	720	296.6	28.2	11.16	.0	.00	3087.1	209.9	47.01	.0	.00
0012250012610	.50000	704	194.9	245.7	12.70	.0	.00	2003.3	1685.3	55.94	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0006250012610	.50000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1923	852.4	210.2	64.04	2619.1	.00	10061.8	2322.2	180.21	4707.2	.00
RESERVR UNITS	3.75000	1923	993.1	210.2	324.45	2619.1	.00	11772.3	2322.2	.00	4707.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 50.9 M3/CALDAY TO REPLACE REQUIRES 3.57 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 19.8 AVERAGE GAS-OIL RATIO IS 75.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 171.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 33.4

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	701	.0	.0	.00	1871.3	.00	1914.4	608.2	37.70	3594.0	.00
0201250012610	.25000	682	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0002250012612	.50000	720	469.2	16.4	100.60	.0	.00	945.8	53.7	118.99	.0	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0006250012610	.50000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0010250012610	.50000	720	305.3	12.2	49.52	.0	.00	2781.6	266.5	163.16	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1713.0	149.1	4.13	.0	.00
0008250012610	.50000	720	24.8	10.2	3.25	.0	.00	2099.0	261.5	25.49	.0	.00
SURFACE UNITS	4.00000	1963	831.5	112.3	122.14	1871.3	.00	8168.6	1313.1	314.83	3594.0	.00
RESERVR UNITS	4.00000	1963	969.0	112.3	1158.34	1871.3	.00	9557.3	1313.1	.00	3594.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 74.7 M3/CALDAY TO REPLACE REQUIRES 5.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.9 AVERAGE GAS-OIL RATIO IS 146.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 83.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 33.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	720	44.7	3.1	4.06	.0	.00	329.9	117.0	22.00	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1713.0	149.1	4.13	.0	.00
0010250012610	.50000	720	305.3	12.2	49.52	.0	.00	2781.6	266.5	163.16	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0014250012610	.50000	720	8.4	19.6	1.92	.0	.00	99.6	75.9	35.77	.0	.00
0016250012610	.50000	720	32.3	6.1	3.25	.0	.00	426.7	177.5	16.96	.0	.00
SURFACE UNITS	3.00000	2022	294.8	23.4	37.66	.0	.00	3094.0	455.7	149.85	.0	.00
RESERVR UNITS	3.00000	2022	344.9	23.4	554.12	.0	.00	3620.0	455.7	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 30.7 M3/CALDAY TO REPLACE REQUIRES 1.26 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 7.4 AVERAGE GAS-OIL RATIO IS 127.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	720	.0	.0	.00	1356.4	.00	3732.5	431.2	16.40	1490.5	.00
0009240012612	.50000	506	141.6	11.9	10.74	.0	.00	184.8	15.9	13.31	.0	.00
0010240012610	.50000	638	36.8	4.3	6.97	.0	.00	1342.4	51.2	26.32	.0	.00
0011240012610	.25000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.07	.0	.00
0014240012610	.50000	632	82.4	2.7	11.98	.0	.00	2364.0	128.0	58.74	.0	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0002250012612	.50000	632	299.9	35.7	11.98	.0	.00	476.6	37.3	18.39	.0	.00
0201250012610	.25000	594	270.0	.5	37.84	.0	.00	1038.9	46.3	159.30	.0	.00
0016240012610	1.00000	632	188.3	4.1	64.23	.0	.00	2083.8	106.0	148.46	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2290	658.8	33.7	100.07	1356.4	.00	8762.3	686.6	273.36	1490.5	.00
RESERVR UNITS	4.75000	2290	770.8	33.7	1698.32	1356.4	.00	10251.9	686.6	.00	1490.5	.00

AVERAGE RATE OF VOIDAGE CREATION IS 80.7 M3/CALDAY TO REPLACE REQUIRES 3.30 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 4.9 AVERAGE GAS-OIL RATIO IS 151.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 54.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 13.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	600	.0	.0	.00	1207.7	.00	.0	.0	.00	1213.7	.00
0011240012610	.25000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.07	.0	.00
0012240012612	.50000	608	298.3	12.6	9.34	.0	.00	452.8	16.3	13.38	.0	.00
0009230012610	.25000	632	258.1	460.1	7.67	.0	.00	1428.7	1147.1	30.69	.0	.00
0016230012610	.50000	630	476.4	79.5	7.30	.0	.00	3727.4	3120.8	73.82	.0	.00
0001260012610	.25000	632	187.6	59.5	17.73	.0	.00	1945.6	1516.2	59.10	.0	.00
0004250012612	.50000	632	241.9	26.6	8.37	.0	.00	877.2	133.7	23.28	.0	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0014240012610	.50000	632	82.4	2.7	11.98	.0	.00	2364.0	128.0	58.74	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1872	783.6	192.8	30.39	1207.7	.00	5056.6	2386.9	117.36	1213.7	.00
RESERVR UNITS	4.00000	1872	913.7	192.8	97.00	1207.7	.00	5916.3	2386.9	.00	1213.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.8 M3/CALDAY TO REPLACE REQUIRES 2.57 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 19.7 AVERAGE GAS-OIL RATIO IS 38.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 100.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 14.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	472	187.4	52.6	1.79	.0	.00	2097.9	484.8	37.95	.0	.00
0009230012610	.25000	632	258.1	460.1	7.67	.0	.00	1428.7	1147.1	30.69	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014230012610	1.00000	632	45.4	51.4	.48	.0	.00	952.4	781.7	26.07	.0	.00
0003260012610	.50000	630	115.6	12.7	3.49	.0	.00	1512.2	281.3	35.40	.0	.00
0002260012610	.50000	377	82.8	21.8	9.15	.0	.00	1974.6	614.0	26.32	.0	.00
0001260012610	.25000	632	187.6	59.5	17.73	.0	.00	1945.6	1516.2	59.10	.0	.00
0016230012610	.50000	630	476.4	79.5	7.30	.0	.00	3727.4	3120.8	73.82	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	2239	681.6	290.9	18.59	.0	.00	7501.0	3940.4	154.24	.0	.00
RESERVR UNITS	4.50000	2239	797.5	290.9	110.27	.0	.00	8776.1	3940.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.7 M3/CALDAY TO REPLACE REQUIRES 1.58 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 29.9 AVERAGE GAS-OIL RATIO IS 27.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	696	.0	.0	.00	1860.4	.00	3762.4	582.7	13.10	2088.1	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0004250012612	.50000	632	241.9	26.6	8.37	.0	.00	877.2	133.7	23.28	.0	.00
0001260012610	.25000	632	187.6	59.5	17.73	.0	.00	1945.6	1516.2	59.10	.0	.00
0008260012610	.50000	632	298.7	9.5	4.79	.0	.00	2790.5	181.7	35.85	.0	.00
0012250012610	.50000	591	197.3	182.7	6.72	.0	.00	1808.4	1439.6	43.24	.0	.00
0011250012610	.25000	616	294.2	3.4	14.02	.0	.00	2424.7	162.0	50.92	.0	.00
0006250012610	.50000	632	372.0	46.9	11.74	.0	.00	2970.6	459.4	36.71	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1703	784.3	149.5	28.09	1860.4	.00	9209.4	2112.0	116.18	2088.1	.00
RESERVR UNITS	3.75000	1703	913.8	149.5	29.08	1860.4	.00	10775.0	2112.0	.00	2088.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.2 M3/CALDAY TO REPLACE REQUIRES 2.47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 16.0 AVERAGE GAS-OIL RATIO IS 35.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 170.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 16.2

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	696	.0	.0	.00	1633.0	.00	1914.4	608.2	37.70	1722.7	.00
0201250012610	.25000	594	270.0	.5	37.84	.0	.00	1038.9	46.3	159.30	.0	.00
0002250012612	.50000	632	299.9	35.7	11.98	.0	.00	476.6	37.3	18.39	.0	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0006250012610	.50000	632	372.0	46.9	11.74	.0	.00	2970.6	459.4	36.71	.0	.00
0011250012610	.25000	616	294.2	3.4	14.02	.0	.00	2424.7	162.0	50.92	.0	.00
0010250012610	.50000	616	285.0	10.1	24.71	.0	.00	2476.3	254.3	113.64	.0	.00
0009250012610	.25000	24	.8	.5	.11	.0	.00	1707.5	147.3	3.66	.0	.00
0008250012610	.50000	632	27.4	8.2	2.82	.0	.00	2074.2	251.3	22.24	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1712	742.3	52.4	42.96	1633.0	.00	7337.1	1200.8	192.69	1722.7	.00
RESERVR UNITS	4.00000	1712	865.1	52.4	171.38	1633.0	.00	8584.4	1200.8	.00	1722.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.1 M3/CALDAY TO REPLACE REQUIRES 2.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.6 AVERAGE GAS-OIL RATIO IS 57.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 150.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 17.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	616	41.9	1.6	2.34	.0	.00	285.2	113.9	17.95	.0	.00
0009250012610	.25000	24	.8	.5	.11	.0	.00	1707.5	147.3	3.66	.0	.00
0010250012610	.50000	616	285.0	10.1	24.71	.0	.00	2476.3	254.3	113.64	.0	.00
0011250012610	.25000	616	294.2	3.4	14.02	.0	.00	2424.7	162.0	50.92	.0	.00
0014250012610	.50000	616	10.5	14.5	2.80	.0	.00	91.2	56.3	33.85	.0	.00
0016250012610	.50000	616	29.8	4.2	1.87	.0	.00	394.4	171.4	13.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1700	278.3	17.0	20.56	.0	.00	2799.2	432.2	112.20	.0	.00
RESERVR UNITS	3.00000	1700	325.6	17.0	161.87	.0	.00	3275.1	432.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.3 M3/CALDAY TO REPLACE REQUIRES .66 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.7 AVERAGE GAS-OIL RATIO IS 73.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	294	24.1	1.5	2.13	134.1	.00	3732.5	431.2	16.40	134.1	.00
0009240012612	.50000	176	31.4	3.2	1.62	.0	.00	43.2	4.0	2.56	.0	.00
0010240012610	.50000	648	40.5	4.7	6.13	.0	.00	1305.6	46.9	19.35	.0	.00
0011240012610	.25000	648	43.8	3.3	3.61	.0	.00	1430.0	71.1	12.28	.0	.00
0014240012610	.50000	624	172.5	3.2	18.41	.0	.00	2281.6	125.3	46.76	.0	.00
0003250012612	.25000	254	72.6	1.7	5.52	.0	.00	88.8	6.6	6.73	.0	.00
0002250012612	.50000	450	174.8	1.6	6.28	.0	.00	176.7	1.6	6.41	.0	.00
0201250012610	.25000	646	414.1	12.6	73.74	.0	.00	768.9	45.8	121.46	.0	.00
0016240012610	1.00000	624	257.6	3.2	38.57	.0	.00	1895.5	101.9	84.23	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2254	623.9	15.5	77.64	134.1	.00	8103.5	652.9	173.29	134.1	.00
RESERVR UNITS	4.75000	2254	730.0	15.5	1154.27	134.1	.00	9481.1	652.9	.00	134.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 67.8 M3/CALDAY TO REPLACE REQUIRES 2.77 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 2.4 AVERAGE GAS-OIL RATIO IS 124.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 7.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	36	.0	.0	.00	6.0	.00	.0	.0	.00	6.0	.00
0011240012610	.25000	648	43.8	3.3	3.61	.0	.00	1430.0	71.1	12.28	.0	.00
0012240012612	.50000	432	151.8	2.2	3.85	.0	.00	154.5	3.7	4.04	.0	.00
0009230012610	.25000	504	173.7	211.9	3.65	.0	.00	1170.6	687.0	23.02	.0	.00
0016230012610	.50000	610	336.1	125.1	3.74	.0	.00	3251.0	3041.3	66.53	.0	.00
0001260012610	.25000	504	135.9	18.1	.56	.0	.00	1758.0	1456.7	41.36	.0	.00
0004250012612	.50000	672	228.4	22.1	6.74	.0	.00	635.3	107.1	14.92	.0	.00
0003250012612	.25000	254	72.6	1.7	5.52	.0	.00	88.8	6.6	6.73	.0	.00
0014240012610	.50000	624	172.5	3.2	18.41	.0	.00	2281.6	125.3	46.76	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1647	550.9	135.1	19.70	6.0	.00	4273.0	2194.1	86.97	6.0	.00
RESERVR UNITS	4.00000	1647	642.4	135.1	84.59	6.0	.00	4999.5	2194.1	.00	6.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 30.8 M3/CALDAY TO REPLACE REQUIRES 2.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 19.7 AVERAGE GAS-OIL RATIO IS 35.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	648	140.4	64.8	16.60	.0	.00	1910.5	432.2	36.16	.0	.00
0009230012610	.25000	504	173.7	211.9	3.65	.0	.00	1170.6	687.0	23.02	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014230012610	1.00000	648	163.6	181.1	2.16	.0	.00	907.0	730.3	25.59	.0	.00
0003260012610	.50000	648	31.6	10.0	2.53	.0	.00	1396.6	268.6	31.91	.0	.00
0002260012610	.50000	360	66.9	25.8	6.41	.0	.00	1891.8	592.2	17.17	.0	.00
0001260012610	.25000	504	135.9	18.1	.56	.0	.00	1758.0	1456.7	41.36	.0	.00
0016230012610	.50000	610	336.1	125.1	3.74	.0	.00	3251.0	3041.3	66.53	.0	.00
SURFACE UNITS	4.50000	2357	598.7	383.8	26.15	.0	.00	6819.3	3649.5	135.65	.0	.00
RESERVR UNITS	4.50000	2357	700.5	383.8	279.06	.0	.00	7978.6	3649.5	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 48.7 M3/CALDAY TO REPLACE REQUIRES 1.99 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.1 AVERAGE GAS-OIL RATIO IS 43.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	432	126.0	58.7	4.45	227.7	.00	3762.4	582.7	13.10	227.7	.00
0003250012612	.25000	254	72.6	1.7	5.52	.0	.00	88.8	6.6	6.73	.0	.00
0004250012612	.50000	672	228.4	22.1	6.74	.0	.00	635.3	107.1	14.92	.0	.00
0001260012610	.25000	504	135.9	18.1	.56	.0	.00	1758.0	1456.7	41.36	.0	.00
0008260012610	.50000	672	277.4	15.5	4.86	.0	.00	2491.8	172.2	31.06	.0	.00
0012250012610	.50000	644	172.5	212.1	10.71	.0	.00	1611.1	1256.9	36.52	.0	.00
0011250012610	.25000	648	264.3	20.9	11.20	.0	.00	2130.5	158.6	36.90	.0	.00
0006250012610	.50000	648	234.4	49.8	10.46	.0	.00	2598.6	412.5	24.97	.0	.00
SURFACE UNITS	3.75000	2102	700.5	218.6	25.15	227.7	.00	8425.1	1962.5	88.08	227.7	.00
RESERVR UNITS	3.75000	2102	816.2	218.6	20.06	227.7	.00	9857.4	1962.5	.00	227.7	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 37.7 M3/CALDAY TO REPLACE REQUIRES 2.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 23.8 AVERAGE GAS-OIL RATIO IS 35.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 21.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	432	126.3	30.8	7.94	89.7	.00	1914.4	608.2	37.70	89.7	.00
0201250012610	.25000	646	414.1	12.6	73.74	.0	.00	768.9	45.8	121.46	.0	.00
0002250012612	.50000	450	174.8	1.6	6.28	.0	.00	176.7	1.6	6.41	.0	.00
0003250012612	.25000	254	72.6	1.7	5.52	.0	.00	88.8	6.6	6.73	.0	.00
0006250012610	.50000	648	234.4	49.8	10.46	.0	.00	2598.6	412.5	24.97	.0	.00
0011250012610	.25000	648	264.3	20.9	11.20	.0	.00	2130.5	158.6	36.90	.0	.00
0010250012610	.50000	672	279.7	10.3	16.84	.0	.00	2191.3	244.2	88.93	.0	.00
0009250012610	.25000	480	17.9	.7	2.14	.0	.00	1706.7	146.8	3.55	.0	.00
0008250012610	.50000	648	36.0	5.6	3.61	.0	.00	2046.8	243.1	19.42	.0	.00
SURFACE UNITS	4.00000	2148	681.0	73.4	49.68	89.7	.00	6594.8	1148.4	149.73	89.7	.00
RESERVR UNITS	4.00000	2148	793.6	73.4	254.69	89.7	.00	7715.9	1148.4	.00	89.7	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 40.1 M3/CALDAY TO REPLACE REQUIRES 2.76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 9.7 AVERAGE GAS-OIL RATIO IS 73.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 8.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	648	45.8	4.3	2.89	.0	.00	243.3	112.3	15.61	.0	.00
0009250012610	.25000	480	17.9	.7	2.14	.0	.00	1706.7	146.8	3.55	.0	.00
0010250012610	.50000	672	279.7	10.3	16.84	.0	.00	2191.3	244.2	88.93	.0	.00
0011250012610	.25000	648	264.3	20.9	11.20	.0	.00	2130.5	158.6	36.90	.0	.00
0014250012610	.50000	646	24.2	3.3	23.02	.0	.00	80.7	41.8	31.04	.0	.00
0016250012610	.50000	648	36.5	1.3	1.80	.0	.00	364.6	167.2	11.84	.0	.00
SURFACE UNITS	3.00000	1913	286.5	17.1	27.05	.0	.00	2520.9	415.2	91.63	.0	.00
RESERVR UNITS	3.00000	1913	335.3	17.1	319.32	.0	.00	2949.5	415.2	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 24.0 M3/CALDAY TO REPLACE REQUIRES .98 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.6 AVERAGE GAS-OIL RATIO IS 94.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	744	67.1	4.3	9.62	.0	.00	3708.4	429.7	14.32	.0	.00
0009240012612	.50000	143	7.2	.8	.62	.0	.00	11.8	.8	.95	.0	.00
0010240012610	.50000	744	47.6	4.1	7.58	.0	.00	1265.1	42.2	13.22	.0	.00
0011240012610	.25000	744	38.9	4.1	4.92	.0	.00	1386.2	67.8	8.67	.0	.00
0014240012610	.50000	744	211.7	8.2	17.69	.0	.00	2109.1	122.1	28.34	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0002250012612	.50000	0	.0	.0	.00	.0	.00	1.9	.0	.13	.0	.00
0201250012610	.25000	343	354.8	33.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
0016240012610	1.00000	744	142.7	4.1	29.15	.0	.00	1637.9	98.7	45.66	.0	.00
SURFACE UNITS	4.75000	2578	444.3	25.5	65.09	.0	.00	7479.5	637.4	95.70	.0	.00
RESERVR UNITS	4.75000	2578	519.9	25.5	1039.21	.0	.00	8751.1	637.4	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 51.1 M3/CALDAY TO REPLACE REQUIRES 2.09 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.4 AVERAGE GAS-OIL RATIO IS 146.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 11 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=6852 kPag THE OIL FORMATION VOLUME FACTOR=1.166 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 15.1 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0213240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	744	38.9	4.1	4.92	.0	.00	1386.2	67.8	8.67	.0	.00
0012240012612	.50000	0	.0	.0	.00	.0	.00	2.7	1.5	.19	.0	.00
0009230012610	.25000	744	128.4	104.8	7.54	.0	.00	996.9	475.1	19.37	.0	.00
0016230012610	.50000	744	345.0	65.9	40.02	.0	.00	2914.9	2916.2	62.79	.0	.00
0001260012610	.25000	740	215.3	200.6	24.98	.0	.00	1622.1	1438.6	40.80	.0	.00
0004250012612	.50000	744	166.3	25.1	4.28	.0	.00	406.9	85.0	8.18	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0014240012610	.50000	744	211.7	8.2	17.69	.0	.00	2109.1	122.1	28.34	.0	.00
SURFACE UNITS	4.00000	1676	460.0	128.2	40.57	.0	.00	3722.2	2059.0	67.26	.0	.00
RESERVR UNITS	4.00000	1676	536.4	128.2	290.04	.0	.00	4354.9	2059.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 30.8 M3/CALDAY TO REPLACE REQUIRES 2.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.8 AVERAGE GAS-OIL RATIO IS 88.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 12 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015230012610	1.00000	722	233.2	86.9	8.03	.0	.00	1770.1	367.4	19.57	.0	.00
0009230012610	.25000	744	128.4	104.8	7.54	.0	.00	996.9	475.1	19.37	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014230012610	1.00000	744	201.6	286.1	10.11	.0	.00	743.4	549.2	23.42	.0	.00
0003260012610	.50000	742	204.1	53.4	13.96	.0	.00	1365.0	258.6	29.38	.0	.00
0002260012610	.50000	744	205.8	102.9	5.05	.0	.00	1824.9	566.4	10.76	.0	.00
0001260012610	.25000	740	215.3	200.6	24.98	.0	.00	1622.1	1438.6	40.80	.0	.00
0016230012610	.50000	744	345.0	65.9	40.02	.0	.00	2914.9	2916.2	62.79	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.50000	2952	898.2	560.4	55.78	.0	.00	6220.6	3265.6	109.50	.0	.00
RESERVR UNITS	4.50000	2952	1050.9	560.4	409.67	.0	.00	7278.2	3265.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 65.2 M3/CALDAY TO REPLACE REQUIRES 2.66 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.4 AVERAGE GAS-OIL RATIO IS 62.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 18 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=7571 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005250012610	1.00000	590	161.3	86.5	5.70	.0	.00	3636.4	524.0	8.58	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0004250012612	.50000	744	166.3	25.1	4.28	.0	.00	406.9	85.0	8.18	.0	.00
0001260012610	.25000	740	215.3	200.6	24.98	.0	.00	1622.1	1438.6	40.80	.0	.00
0008260012610	.50000	366	102.5	17.1	11.89	.0	.00	2214.4	156.7	26.19	.0	.00
0012250012610	.50000	744	154.6	195.5	6.80	.0	.00	1438.6	1044.8	25.81	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0006250012610	.50000	744	262.4	56.4	9.13	.0	.00	2364.2	362.7	14.51	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2248	595.3	285.1	29.46	.0	.00	7724.6	1743.9	62.85	.0	.00
RESERVR UNITS	3.75000	2248	693.6	285.1	98.45	.0	.00	9037.8	1743.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.7 M3/CALDAY TO REPLACE REQUIRES 2.44 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.4 AVERAGE GAS-OIL RATIO IS 49.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	744	229.5	23.6	14.67	.0	.00	1788.1	577.4	29.78	.0	.00
0201250012610	.25000	343	354.8	33.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
0002250012612	.50000	0	.0	.0	.00	.0	.00	1.9	.0	.13	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0006250012610	.50000	744	262.4	56.4	9.13	.0	.00	2364.2	362.7	14.51	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0010250012610	.50000	722	276.9	26.2	24.71	.0	.00	1911.6	233.9	72.09	.0	.00
0009250012610	.25000	744	10.5	8.9	1.17	.0	.00	1688.8	146.1	1.41	.0	.00
0008250012610	.50000	744	24.7	6.2	1.94	.0	.00	2010.8	237.5	15.82	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2295	640.1	80.0	46.25	.0	.00	5913.8	1074.9	100.07	.0	.00
RESERVR UNITS	4.00000	2295	746.0	80.0	235.08	.0	.00	6919.2	1074.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.2 M3/CALDAY TO REPLACE REQUIRES 2.36 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.1 AVERAGE GAS-OIL RATIO IS 72.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 23 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015250012610	1.00000	704	47.7	.8	5.88	.0	.00	197.5	108.0	12.72	.0	.00
0009250012610	.25000	744	10.5	8.9	1.17	.0	.00	1688.8	146.1	1.41	.0	.00
0010250012610	.50000	722	276.9	26.2	24.71	.0	.00	1911.6	233.9	72.09	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0014250012610	.50000	710	20.2	18.1	2.60	.0	.00	56.5	38.5	8.02	.0	.00
0016250012610	.50000	744	36.9	4.1	4.66	.0	.00	328.1	165.9	10.04	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	2149	251.8	27.4	23.41	.0	.00	2234.4	398.1	64.57	.0	.00
RESERVR UNITS	3.00000	2149	294.5	27.4	271.10	.0	.00	2614.2	398.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.1 M3/CALDAY TO REPLACE REQUIRES .78 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 9.8 AVERAGE GAS-OIL RATIO IS 93.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

HYDROCARBONS Ltd.
TELEPHONE: (403) 261-0743
630 - 330 FIFTH AVENUE S.W., CALGARY, ALBERTA T2P 0L4

DEPARTMENT OF ENERGY AND MINES
AUG 20 1984
PETROLEUM BRANCH

August 16, 1984

Manitoba Dept. of Energy & Mines
Mineral Resources Division
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L.R. Dubreuil

Dear Sir:

Re: Pressure Maintenance Project Monitoring

In response to your letter dated July 16th, 1984 enclosed are the pattern production summaries that you requested for the following wells.

16-11-1-26	7-23-1-26
5-13-1-26	5-24-1-26 ✓
7-13-1-26	7-24-1-26 * ✓
15-13-1-26	5-30-1-25
13-13-1-26	13-30-1-25 ✓
15-30-1-25 ✓	

* Data from January 1983 to July 1983 only.

Yours truly,

OMEGA HYDROCARBONS LTD.

Ed W Wyse

W.E. Wyse
Petroleum Engineer

Enclo:

WEW/tt

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	618	43.5	301.6	5.48	.0	.00	212.1	975.4	5.48	.0	.00
0014120012610	1.00000	648	8.3	14.3	1.02	.0	.00	131.5	272.4	1.37	.0	.00
0004130012610	.50000	696	77.9	50.1	.36	.0	.00	219.0	238.7	3.18	.0	.00
0008140012610	.50000	518	180.8	69.7	20.28	.0	.00	808.3	426.0	41.16	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1873	181.2	375.8	16.92	.0	.00	857.2	1580.2	29.02	.0	.00
RESERVR UNITS	3.00000	1873	211.9	375.8	229.86	.0	.00	1003.0	1580.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.4 M3/CALDAY TO REPLACE REQUIRES 1.08 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 67.5 AVERAGE GAS-OIL RATIO IS 92.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	744	19.0	12.4	1.55	.0	.00	340.6	294.6	4.47	.0	.00
0003130012610	.50000	0	.0	.0	.00	.0	.00	104.3	261.1	.00	.0	.00
0006130012610	.50000	732	7.0	162.0	.38	.0	.00	82.9	944.4	1.20	.0	.00
0011130012610	.25000	736	84.7	39.4	8.97	.0	.00	535.6	342.7	28.86	.0	.00
0012130012610	.50000	616	63.8	30.7	4.51	.0	.00	470.8	387.1	15.72	.0	.00
0009140012610	.25000	744	195.1	134.4	22.67	.0	.00	538.8	295.1	38.07	.0	.00
0008140012610	.50000	518	180.8	69.7	20.28	.0	.00	808.3	426.0	41.16	.0	.00
0004130012610	.50000	696	77.9	50.1	.36	.0	.00	219.0	238.7	3.18	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2395	253.5	212.1	22.22	.0	.00	1501.9	1582.7	51.83	.0	.00
RESERVR UNITS	4.00000	2395	296.4	212.1	272.06	.0	.00	1757.2	1582.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.2 M3/CALDAY TO REPLACE REQUIRES 1.03 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.6 AVERAGE GAS-OIL RATIO IS 87.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	240.3	12.4	20.99	.0	.00	524.1	168.2	25.83	.0	.00
0001130012610	1.00000	711	172.9	7.9	6.31	.0	.00	1770.8	98.8	10.12	.0	.00
0008130012610	1.00000	708	24.9	3.9	3.70	.0	.00	335.0	113.6	11.69	.0	.00
0010130012610	.50000	736	216.5	16.3	9.61	.0	.00	946.8	423.0	27.59	.0	.00
0011130012610	.25000	736	84.7	39.4	8.97	.0	.00	535.6	342.7	28.86	.0	.00
0006130012610	.50000	732	7.0	162.0	.38	.0	.00	82.9	944.4	1.20	.0	.00
0003130012610	.50000	0	.0	.0	.00	.0	.00	164.3	261.1	.00	.0	.00
0002130012610	1.00000	744	211.7	16.5	12.44	.0	.00	480.8	121.5	16.11	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	3825	782.6	139.7	50.68	.0	.00	3841.6	1402.0	85.36	.0	.00
RESERVR UNITS	5.75000	3825	915.7	139.7	342.07	.0	.00	4494.7	1402.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.1 M3.CALDAY TO REPLACE REQUIRES 1.84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 15.1 AVERAGE GAS-OIL RATIO IS 64.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	30.9	4.1	3.69	.0	.00	3103.0	550.6	6.12	.0	.00
0010130012610	.50000	736	216.5	16.3	9.61	.0	.00	946.8	423.0	27.59	.0	.00
0011130012610	.25000	736	84.7	39.4	8.97	.0	.00	535.6	342.7	28.86	.0	.00
0014130012610	.50000	732	144.0	89.1	3.63	.0	.00	1044.3	763.6	10.39	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	744	173.7	222.3	7.39	.0	.00	269.5	257.7	14.17	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2034	319.2	177.8	16.25	.0	.00	4367.2	1358.4	39.41	.0	.00
RESERVR UNITS	3.50000	2034	373.4	177.8	80.23	.0	.00	5109.6	1358.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.4 M3/CALDAY TO REPLACE REQUIRES .83 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.8 AVERAGE GAS-OIL RATIO IS 58.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	456	143.6	44.2	35.14	.0	.00	277.4	292.8	35.14	.0	.00
0011130012610	.25000	736	84.7	39.4	8.97	.0	.00	535.6	342.7	28.86	.0	.00
0012130012610	.50000	616	63.0	30.7	4.51	.0	.00	470.8	387.1	15.72	.0	.00
0009140012610	.25000	744	195.1	134.4	22.67	.0	.00	538.8	295.1	38.07	.0	.00
0016140012610	.50000	744	89.8	35.6	10.44	.0	.00	1725.4	279.1	18.14	.0	.00
0001230012610	.25000	732	203.6	221.4	16.95	.0	.00	1084.3	808.1	25.18	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	732	144.0	89.1	3.63	.0	.00	1044.3	763.6	10.39	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2055	412.8	220.7	56.58	.0	.00	2437.3	1369.2	80.29	.0	.00
RESERVR UNITS	4.00000	2055	453.0	220.7	915.46	.0	.00	2851.7	1369.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 52.2 M3/CALDAY TO REPLACE REQUIRES 2.13 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.8 AVERAGE GAS-OIL RATIO IS 137.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	0	.0	.0	.00	.0	.00	211.1	132.9	14.22	.0	.00
0009140012610	.50000	744	195.1	134.4	22.67	.0	.00	538.8	295.1	38.07	0	.00
0010140012610	1.00000	0	.0	.0	.00	.0	.00	156.4	135.6	11.10	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	85.7	80.5	6.08	.0	.00
0001230012610	.25000	732	203.6	221.4	16.95	.0	.00	1084.3	808.1	25.18	.0	.00
0016140012610	.50000	744	89.8	35.6	10.44	.0	.00	1725.4	279.1	18.14	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	927	193.4	140.4	20.79	.0	.00	1813.5	797.9	62.76	.0	.00
RESERVR UNITS	3.75000	927	226.2	140.4	267.64	.0	.00	2121.8	797.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.5 M3/CALDAY TO REPLACE REQUIRES .94 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.1 AVERAGE GAS-OIL RATIO IS 107.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	732	203.6	221.4	16.95	.0	.00	1384.3	808.1	25.18	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	85.7	80.5	0.08	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	744	128.4	104.8	7.54	.0	.00	996.9	475.1	19.37	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	369	83.0	81.5	6.12	.0	.00	563.1	361.0	14.18	.0	.00
RESERVR UNITS	3.00000	369	97.1	81.5	46.21	.0	.00	658.9	361.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 7.3 M3/CALDAY TO REPLACE REQUIRES .30 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.6 AVERAGE GAS-OIL RATIO IS 73.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	732	203.6	221.4	16.95	.0	.00	1084.3	808.1	25.18	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0009230012610	.25000	744	128.4	104.8	7.54	.0	.00	996.9	475.1	19.37	.0	.00
0012240012612	.50000	0	.0	.0	.00	.0	.00	2.7	1.5	.19	.0	.00
0011240012610	.25000	744	38.9	4.1	4.92	.0	.00	1386.2	67.8	8.67	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	555	92.7	82.6	7.35	.0	.00	868.2	338.5	13.40	.0	.00
RESERVR UNITS	4.00000	555	108.5	82.6	64.19	.0	.00	1015.8	338.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 9.2 M3/CALDAY TO REPLACE REQUIRES .34 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.1 AVERAGE GAS-OIL RATIO IS 79.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	744	53.9	4.1	5.31	.0	.00	2298.4	197.9	8.72	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	744	173.7	222.3	7.39	.0	.00	269.5	257.7	14.17	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	744	38.9	4.1	4.92	.0	.00	1386.2	67.8	8.67	.0	.00
0010240012610	.50000	744	47.6	4.1	7.58	.0	.00	1265.1	42.2	13.22	.0	.00
0009240012612	.50000	143	7.2	.8	.62	.0	.00	11.8	.8	.95	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	1746	177.9	118.7	14.34	.0	.00	3418.2	365.2	25.06	.0	.00
RESERVR UNITS	5.00000	1746	208.1	118.7	146.86	.0	.00	3999.2	365.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.3 M3/CALDAY TO REPLACE REQUIRES .62 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.0 AVERAGE GAS-OIL RATIO IS 80.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	744	67.1	4.3	9.62	.0	.00	3708.4	429.7	14.32	.0	.00
0009240012612	.50000	143	7.2	.8	.62	.0	.00	11.8	.8	.95	.0	.00
0010240012610	.50000	744	47.6	4.1	7.58	.0	.00	1265.1	42.2	13.22	.0	.00
0011240012610	.25000	744	38.9	4.1	4.92	.0	.00	1386.2	67.8	8.67	.0	.00
0014240012610	.50000	744	211.7	8.2	17.69	.0	.00	2109.1	122.1	28.34	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0002250012612	.50000	0	.0	.0	.00	.0	.00	1.9	.0	.13	.0	.00
0201250012610	.25000	343	354.8	33.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
0016240012610	1.00000	744	142.7	4.1	29.15	.0	.00	1637.9	98.7	45.66	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2578	444.3	25.5	65.09	.0	.00	7479.5	637.4	95.70	.0	.00
RESERVR UNITS	4.75000	2578	519.9	25.5	1039.21	.0	.00	8751.3	637.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.1 M3/CALDAY TO REPLACE REQUIRES 2.09 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 5.4 AVERAGE GAS-OIL RATIO IS 146.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	744	229.5	23.6	14.67	.0	.00	1786.1	577.4	29.78	.0	.00
0201250012610	.25000	343	354.8	33.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
0002250012612	.50000	0	.0	.0	.00	.0	.00	1.9	.0	.13	.0	.00
0003250012612	.25000	12	11.4	4.9	.88	.0	.00	16.2	4.9	1.22	.0	.00
0006250012610	.50000	744	262.4	56.4	9.13	.0	.00	2364.2	362.7	14.51	.0	.00
0011250012610	.25000	683	137.7	.9	5.00	.0	.00	1866.2	137.7	25.70	.0	.00
0010250012610	.50000	722	276.9	26.2	24.71	.0	.00	1911.6	233.9	72.09	.0	.00
0009250012610	.25000	744	10.5	8.9	1.17	.0	.00	1688.8	146.1	1.41	.0	.00
0008250012610	.50000	744	24.7	6.2	1.94	.0	.00	2010.8	237.5	15.82	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2295	640.1	80.0	46.25	.0	.00	5913.8	1074.9	100.07	.0	.00
RESERVR UNITS	4.00000	2295	746.0	80.0	235.08	.0	.00	6919.2	1074.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.2 M3/CALDAY TO REPLACE REQUIRES 2.36 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.1 AVERAGE GAS-OIL RATIO IS 72.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	408	15.1	14.0	.64	.0	.00	392.1	1074.2	.73	.0	.00
0204300012510	1.00000	744	478.1	41.6	2.57	.0	.00	710.2	173.5	18.96	.0	.00
0201250012610	.50000	343	354.8	33.2	47.72	.0	.00	354.8	33.2	47.72	.0	.00
0008250012610	.50000	744	24.7	6.2	1.94	.0	.00	2010.8	237.5	15.82	.0	.00
0009250012610	.25000	744	10.5	8.9	1.17	.0	.00	1688.8	146.1	1.41	.0	.00
0011300012512	.33333	86	4.0	35.2	.22	.0	.00	1070.6	2409.6	.32	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.58333	1910	686.9	89.3	28.41	.0	.00	3064.2	2222.8	51.92	.0	.00
RESERVR UNITS	3.58333	1910	803.7	89.3	375.07	.0	.00	3585.1	2222.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.9 M3/CALDAY TO REPLACE REQUIRES 1.67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.5 AVERAGE GAS-OIL RATIO IS 41.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	696	96.0	219.1	3.52	0	.00	479.0	407.9	9.74	.0	.00
0009300012510	1.00000	720	19.9	6.0	2.07	.0	.00	473.4	450.5	4.68	.0	.00
0011300012512	.33333	86	4.0	35.2	.22	.0	.00	1070.6	2409.8	.32	.0	.00
0014300012510	.50000	744	167.2	226.3	16.97	.0	.00	694.5	662.2	28.46	.0	.00
0003310012510	.25000	744	46.8	80.1	5.89	.0	.00	1272.7	438.7	9 31	.0	.00
0002310012510	.50000	720	214.7	219.0	27.05	.0	.00	868.6	644.7	43.27	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	734	151.2	269.9	6.44	.0	.00	571.7	705.3	15.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.08333	3097	471.1	749.4	35.59	.0	.00	2980.7	3130.1	68.43	.0	.00
RESERVR UNITS	5.08333	3097	551.2	749.4	347.87	.0	.00	3487.4	3136.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 53.2 M3/CALDAY TO REPLACE REQUIRES 2.17 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.4 AVERAGE GAS-OIL RATIO IS 75.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 1 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	744	156.7	112.6	9.13	.0	.00	365.5	1029.8	12.68	.0	.00
0011300012512	.33334	86	4.0	35.2	.22	.0	.00	1070.6	2409 8	.32	.0	.00
0009250012610	.25000	744	10.5	8.9	1.17	.0	.00	1688.8	146.1	1.41	.0	.00
0016250012610	.50000	744	36.9	4.1	4.66	.0	.00	328.1	165 9	10.04	.0	.00
0004310012510	.50000	744	167.0	122.9	21.03	.0	.00	938.1	487 9	33.24	.0	.00
0003310012510	.25000	744	46.8	80.1	5.89	.0	.00	1272.7	438 7	9.31	.0	.00
0014300012510	.50000	744	167.2	226.3	16.97	.0	.00	694.5	662.2	28.46	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.33334	2261	357.9	323.2	32.30	.0	.00	2443.1	2637.3	51.34	.0	.00
RESERVR UNITS	3.33334	2261	418.8	323.2	343.75	.0	.00	2858.4	2637.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.0 M3/CALDAY TO REPLACE REQUIRES 1 43 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3 9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 7.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.5 AVERAGE GAS-OIL RATIO IS 58.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	672	15.3	29.7	0.36	.0	.00	226.4	1222.5	11.84	.0	.00
0015230012610	1.00000	520	7.3	11.7	.45	.0	.00	139.3	284.1	2.32	.0	.00
0004130012610	.50000	624	54.3	24.0	2.43	.0	.00	273.3	262.7	5.61	.0	.00
0003140012610	.50000	556	99.6	226.7	5.88	.0	.00	907.9	652.7	47.04	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1832	103.1	384.1	11.47	.0	.00	960.3	1964.3	40.48	.0	.00
RESERVR UNITS	3.00000	1832	120.6	384.1	156.21 m^3	.0	.00	1123.6	1964.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 23.6 M3/CALDAY TO REPLACE REQUIRES .96 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 79.8 AVERAGE GAS-OIL RATIO IS 111.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	648	26.5	6.6	2.16	.0	.00	387.1	301.2	6.63	.0	.00
0007130012610	.50000	0	0	.0	.00	.0	.00	164.3	261.1	.00	.0	.00
0006130012610	.50000	504	23.2	69.6	2.61	.0	.00	186.1	1014.2	4.01	.0	.00
0011130012610	.25000	648	53.1	3.3	6.13	.0	.00	588.7	346.9	35.00	.0	.00
0012130012610	.50000	504	67.9	7.8	3.37	.0	.00	538.7	394.9	19.08	.0	.00
0009140012610	.25000	648	108.3	202.7	12.63	.0	.00	647.1	497.2	50.70	.0	.00
0008140012610	.50000	556	99.6	226.7	5.88	.0	.00	907.9	652.7	47.04	.0	.00
0004130012610	.50000	624	54.3	24.0	2.43	.0	.00	273.3	262.7	5.61	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2066	189.4	323.3	14.10	.0	.00	1691.2	1805.3	65.92	.0	.00
RESERVR UNITS	4.00000	2066	221.5	323.3	113.90	.0	.00	1978.7	1805.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 19.9 M3/CALDAY TO REPLACE REQUIRES .81 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.8 AVERAGE GAS-OIL RATIO IS 74.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	648	291.2	16.6	22.45	.0	.00	725.3	184.8	49.28	.0	.00
0001130012610	1.00000	504	240.5	6.0	15.85	0	.00	2011.3	104.8	22.17	.0	.00
0008130012610	1.00000	648	39.0	5.0	2.53	.0	.00	373.0	118.6	14.22	.0	00
0013130012610	.50000	648	82.9	5.0	9.74	.0	00	1029.7	426.0	37.33	.0	.00
0011130012610	.25000	648	53.1	3.3	6.13	.0	00	588.7	346.0	35.00	.0	.00
0006130012610	.50000	504	23.2	69.8	2.81	.0	.00	106.1	1014.2	4.01	.0	.00
0003130012610	.50000	0	.0	.0	00	.0	.00	164.3	261.1	.00	.0	.00
0002130012610	1.00000	578	193.3	8.9	15.45	.0	.00	674.1	136.4	31.56	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	3197	739.3	74.7	61.29	.0	00	4580.9	1476.8	146.65	.0	00
RESERVR UNITS	5.75000	3197	865.0	74.7	582.55	0	.00	5359.7	1476.8	.00	.0	00

AVERAGE RATE OF VOIDAGE CREATION IS 54.4 M3/CALDAY TO REPLACE REQUIRES 2.22 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 9.2 AVERAGE GAS-OIL RATIO IS 82.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	648	23.2	3.3	4.69	.0	.00	3126.2	553.9	10.81	.0	.00
0010130012610	.50000	648	82.9	5.0	9.74	.0	.00	1029.7	426.0	37.33	.0	.00
0011130012610	.25000	648	53.1	3.3	6.13	.0	.00	588.7	346.0	35.00	.0	.00
0014130012610	.50000	648	132.7	121.3	15.52	.0	.00	1177.0	884.9	25.90	.0	.00
0007240012610	.25000	0	.0	.0	00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.50000	648	152.6	186.1	17.68	.0	.00	422.1	443.9	31.85	.0	00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1782	220.6	160.3	27.69	0	.00	4587.8	1518.9	67.10	.0	.00
RESERVR UNITS	3.50000	1782	258.1	160.3	402.64	.0	.00	5367.7	1518.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.3 M3/CALDAY TO REPLACE REQUIRES 1.20 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.1 AVERAGE GAS-OIL RATIO IS 135.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	648	227.2	59.6	27.06	.0	.00	589.6	302.6	62.26	0	.00
0011130012610	.25000	648	33.1	3.3	6.13	.0	.00	586.7	346.0	35.00	.0	.00
0012130012610	.50000	504	67.9	7.8	3.37	.0	.00	535.7	396.9	19.08	.0	.00
0009140012610	.25000	648	103.3	202.7	12.63	.0	.00	647.1	497.8	50.70	.0	.00
0016140012610	.50000	648	214.5	63.1	1.08	.0	.00	1939.9	342.2	19.22	.0	.00
0001230012610	.25000	632	184.4	153.1	16.89	.0	.00	1268.7	961.2	42.07	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	648	132.7	121.3	15.52	.0	.00	1177.0	884.9	25.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2030	526.2	245.7	45.96	.0	.00	2963.5	1614.9	126.24	.0	.00
RESERVR UNITS	4.00000	2030	615.7	245.7	590.01	.0	.00	3467.3	1614.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.6 M3/CALDAY TO REPLACE REQUIRES 2.12 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.8 AVERAGE GAS-OIL RATIO IS 87.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	0	.0	.0	.00	.0	.00	211.1	132.9	14.22	.0	.00
0009140012610	.50000	648	103.3	202.7	12.63	.0	.00	647.1	497.8	50.70	.0	.00
0010140012610	1.00000	0	.0	.0	.00	.0	.00	156.4	135.6	11.10	.0	.00
0002230012610	.50000	184	67.4	65.4	82	.0	00	153.1	145.9	6.90	.0	.00
0001230012610	.25000	632	184.4	153.1	16.89	.0	.00	1268.7	961.2	42.07	.0	00
0016140012610	.50000	648	214.5	63.1	1.08	.0	.00	1939.9	342.2	19.22	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	898	241.2	203.9	11.49	.0	.00	2054.7	1001.8	74.25	.0	.00
RESERVR UNITS	3.75000	898	282.2	203.9	132.81	.0	.00	2404.0	1001.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 22.1 M3/CALDAY TO REPLACE REQUIRES .90 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.8 AVERAGE GAS-OIL RATIO IS 47.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 2 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.17@ RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
00072300[illegible]2610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	632	184.4	153.1	16.89	.0	.00	1268.7	961.2	42.07	.0	.00
0002300012610	.50000	184	67.4	65.4	.92	.0	.00	152.1	145.9	6.90	.0	.00
0010230012610	.50000	0	0	.0	.00	.0	.00	0	.0	.00	.0	.00
0009230012610	.25000	504	173.7	211.9	3.65	.0	.00	1170.6	687.8	23.02	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	376	123.2	124.0	5.54	.0	.00	586.4	485.8	19.72	.0	.00
RESERVR UNITS	3.00000	376	144.2	124.0	45.80	.0	.00	803.1	485.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.2 M3/CALDAY TO REPLACE REQUIRES .46 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 50.1 AVERAGE GAS-OIL RATIO IS 45.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 2 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.17@ RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	0	0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	632	184.4	153.1	16.89	.0	.00	1268.7	961.2	42.07	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	504	173.7	211.9	3.65	.0	.00	1170.6	687.8	23.02	.0	.00
0012240012612	.50000	432	151.8	2.2	3.85	.0	.00	154.5	3.7	4.04	.0	.00
0011240012610	.25000	648	43.8	3.3	3.61	.0	.00	1430.0	71.1	12.28	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	662	176.4	93.2	7.96	.0	.00	1044.6	431.7	21.36	.0	.00
RESERVR UNITS	4.00000	662	206.4	93.2	54.22	.0	.00	1222.2	431.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 12.6 M3/CALDAY TO REPLACE REQUIRES .52 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.6 AVERAGE GAS OIL RATIO IS 45.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4225 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	648	35.4	3.3	3.61	.0	.00	2533.8	201.2	10.33	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	648	152.6	186.1	17.68	.0	.00	422.1	443.8	31.85	.0	.00
0003240012610	.25000	0	.0	0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	648	43.8	3.3	3.61	.0	.00	1430.0	71.1	12.28	.0	.00
0010240012610	.50000	648	40.5	4.7	6.13	.0	.00	1305.6	46.9	19.35	.0	.00
0009240012612	.50000	176	31.4	3.2	1.62	.0	.00	43.2	4.0	2.56	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	1546	158.6	101.1	17.23	.0	.00	3576.8	466.3	42.28	.0	.00
RESERVR UNITS	5.00000	1546	185.6	101.1	223.75	.0	.00	4184.8	466.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 18.2 M3/CALDAY TO REPLACE REQUIRES .74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.9 AVERAGE GAS-OIL RATIO IS 108.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	294	24.1	1.5	2.13	134.1	.00	3732.5	431.2	16.40	134.1	.00
0009240012612	.50000	176	31.4	3.2	1.62	.0	.00	43.2	4.0	2.56	.0	.00
0010240012610	.50000	648	40.5	4.7	6.13	.0	.00	1305.6	46.9	19.35	.0	.00
0011240012610	.25000	648	43.8	3.3	3.61	.0	.00	1430.0	71.1	12.28	.0	.00
0014240012610	.50000	624	172.5	3.2	18.41	.0	.00	2281.6	125.3	46.76	.0	.00
0003250012612	.25000	254	72.6	1.7	5.52	.0	.00	90.8	6.6	6.73	.0	.00
0002250012612	.50000	450	174.8	1.6	6.28	.0	.00	176.7	1.6	6.41	.0	.00
0201250012610	.25000	646	414.1	12.6	73.74	.0	.00	768.9	45.8	121.46	.0	.00
0016240012610	1.00000	624	257.6	3.2	38.57	.0	.00	1895.5	101.9	84.23	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2254	623.9	15.5	77.64	134.1	.00	8103.6	622.9	173.29	134.1	.00
RESERVR UNITS	4.75000	2254	730.0	15.5	1154.27	134.1	.00	9481.1	622.9	.00	134.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 57.9 M3/CALDAY TO REPLACE REQUIRES 2.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 8.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 2.4 AVERAGE GAS-OIL RATIO IS 184.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 2.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 2 OF 1993
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL PRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	432	126.3	36.8	7.94	89.7	.00	1934.4	600.2	37.70	89.7	.00
0791250012610	.25000	648	414.1	12.6	73.74	.0	.00	768.9	45.8	121.46	.0	.00
0002250012612	.50000	450	134.8	1.6	6.28	.0	.00	176.7	1.6	6.41	.0	.00
0782250012612	.25000	264	72.6	1.7	5.52	0	.00	80.8	6.6	6.73	.0	.00
0006250012610	.50000	648	234.4	49.8	10.46	.0	.00	2598.6	412.5	24.97	.0	.00
0011250012610	.25000	648	264.3	20.9	11.20	.0	.00	2130.5	158.6	36.90	.0	.00
0010250012610	.50000	672	279.7	10.3	16.84	.0	.00	2191.3	244.2	88.93	.0	.00
0009250012610	.25000	480	17.9	.7	2.14	.0	.00	1706.7	146.8	3.55	.0	.00
0008250012610	.50000	648	36.0	5.6	3.61	.0	.00	2046.8	243.1	19.42	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2148	681.0	73.4	49.68	89.7	.00	6594.8	1148.4	149.73	89.7	.00
RESERVR UNITS	4.00000	2148	793.6	73.4	254.69	89.7	.00	7715.9	1148.4	.00	89.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.1 M3/CALDAY TO REPLACE REQUIRES 2.76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 9.7 AVERAGE GAS-OIL RATIO IS 73.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 8.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 2 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL PRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	504	12.0	7.8	.84	.0	.00	404.1	1082.0	1.57	.0	.00
0204300012510	1.00000	648	179.8	182.4	3.97	.0	.00	990.0	355.9	22.93	.0	.00
0201250012610	.50000	646	414.1	12.6	73.74	.0	.00	768.9	45.8	121.46	.0	.00
0008250012610	.50000	648	36.0	5.6	3.61	.0	.00	2046.8	243.1	19.42	.0	.00
0009250012610	.25000	480	17.9	.7	2.14	.0	.00	1706.7	146.8	3.55	.0	.00
0011300012512	.33333	168	9.4	63.7	.47	.0	.00	1079.0	2473.5	.79	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.58333	1975	424.1	220.7	44.18	.0	.00	3488.3	2443.5	96.09	.0	.00
RESERVR UNITS	3.58333	1975	496.2	220.7	679.54	.0	.00	4001.3	2443.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.9 M3/CALDAY TO REPLACE REQUIRES 2.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.2 AVERAGE GAS-OIL RATIO IS 104.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	672	316.8	65.5	2.25	.0	.00	793.0	473.4	11.98	.0	.00
0009300012510	1.00000	288	8.5	2.2	.88	.0	.00	481.9	482.7	5.56	.0	.00
0011300012512	.33333	168	8.4	63.7	.47	.0	.00	1079.0	2473.5	.79	.0	.00
0014300012510	.50000	504	128.5	60.0	13.75	.0	.00	823.0	722.2	42.21	.0	.00
0003310012510	.25000	336	25.2	26.0	.75	.0	.00	1297.9	464.7	10.05	.0	.00
0002310012510	.50000	672	213.9	189.4	24.78	.0	.00	1082.5	834.1	68.05	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	672	100.0	96.8	10.48	.0	.00	671.7	802.1	26.19	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.08333	2360	606.8	316.9	33.22	.0	.00	3537.5	3447.0	101.64	.0	.00
RESERVR UNITS	5.08333	2360	710.0	316.9	400.09	.0	.00	4197.4	3447.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.0 M3/CALDAY TO REPLACE REQUIRES 2.08 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.3 AVERAGE GAS-OIL RATIO IS 54.7 M3/M3
CUPRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 2 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	648	68.5	94.1	10.82	.0	.00	434.0	1113.9	23.51	.0	.00
0011300012512	.33334	168	8.4	63.7	.47	.0	.00	1079.0	2473.5	.79	.0	.00
0009250012610	.25000	480	17.9	.7	2.14	.0	.00	1706.7	146.8	3.55	.0	.00
0016250012610	.50000	648	36.5	1.3	1.80	.0	.00	364.6	167.2	11.84	.0	.00
0004310012510	.50000	648	18.8	52.2	3.25	.0	.00	956.9	540.1	36.48	.0	.00
0003310012510	.25000	336	25.2	26.0	.75	.0	.00	1297.9	464.7	10.05	.0	.00
0014300012510	.50000	504	128.5	60.0	13.75	.0	.00	823.0	722.2	42.21	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.33334	1808	174.0	168.9	21.10	.0	.00	2617.1	2806.8	72.44	.0	.00
RESERVR UNITS	3.33334	1808	203.6	168.9	303.43	.0	.00	3062.0	2806.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.1 M3/CALDAY TO REPLACE REQUIRES .99 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.2 AVERAGE GAS-OIL RATIO IS 101.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016130012610	1.00000	744	31.1	11.5	3.04	.0	.00	410.2	312.7	9.68	.0	.00
0031300126l0	.50000	626	205.7	28.1	21.84	.0	.00	420.0	385.5	21.84	.0	.00
0006130012610	.50000	511	38.6	186.3	11.96	.0	.00	144.7	1208.8	15.97	.0	.00
0011130012610	.25000	432	16.7	8.1	2.40	0	.00	605.4	254.1	37.39	.0	.00
0012130012610	.50000	632	26.3	29.8	3.83	0	.00	565.0	424.7	22.92	.0	.00
0009140012610	.25000	588	80.9	186.3	12.49	.0	.00	736.0	664.1	63.19	.0	.00
0008140012610	.50000	588	116.7	268.2	8.47	.0	.00	1024.6	852.9	55.51	.0	.00
0004130012610	.50000	608	46.0	29.6	2.77	.0	.00	319.3	291.3	8.38	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1302	100.4	154.3	6.70	.0	.00	1060.7	2118.6	49.17	.0	.00
RESERVR UNITS	3.00000	1302	117.4	154.3	87.66	.0	.00	1241.0	2118.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.6 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.6 AVERAGE GAS-OIL RATIO IS 86.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	632	31.1	11.5	3.04	.0	.00	410.2	312.7	9.68	.0	.00
0003130012610	.50000	626	205.7	28.1	21.84	.0	.00	420.0	385.5	21.84	.0	.00
0006130012610	.50000	511	38.6	186.3	11.96	.0	.00	144.7	1208.8	15.97	.0	.00
0011130012610	.25000	432	16.7	8.1	2.40	0	.00	605.4	254.1	37.39	.0	.00
0012130012610	.50000	632	26.3	29.8	3.83	0	.00	565.0	424.7	22.92	.0	.00
0009140012610	.25000	588	80.9	186.3	12.49	.0	.00	736.0	664.1	63.19	.0	.00
0008140012610	.50000	588	116.7	268.2	8.47	.0	.00	1024.6	852.9	55.51	.0	.00
0004130012610	.50000	608	46.0	29.6	2.77	.0	.00	319.3	291.3	8.38	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2420	299.1	296.6	31.20	.0	.00	1990.4	2101.6	97.13	.0	.00
RESERVR UNITS	4.00000	2420	350.0	296.6	390.26	.0	.00	2328.7	2101.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 33.4 M3/CALDAY TO REPLACE REQUIRES 1.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.8 AVERAGE GAS-OIL RATIO IS 184.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKAIA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaG THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	664	12.1	3.4	1.81	.0	.00	3138.3	557.3	12.63	.0	.00
0010130012610	.50000	644	73.1	8.3	10.74	.0	.00	1102.9	436.3	48.08	.0	.00
0011130012610	.25000	632	16.7	5.1	2.40	.0	.00	605.4	354.1	37.39	.0	.00
0014130012610	.50000	632	219.9	109.3	30.68	.0	.00	1396.9	993.2	56.58	.0	.00
0003249012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002249012610	.50000	640	259.5	169.9	16.99	.0	.00	672.6	613.7	48.84	.0	.00
0201249012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1780	288.0	148.7	31.61	.0	.00	4875.8	1667.4	99.73	.0	.00
RESERVR UNITS	3.50000	1780	337.0	148.7	414.40	.0	.00	5704.7	1667.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.0 M3/CALDAY TO REPLACE REQUIRES 1.19 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3 OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.0 AVERAGE GAS-OIL RATIO IS 100.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKAIA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaG THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0003130012610	.50000	626	255.7	28.1	21.84	.0	.00	420.0	289.2	21.84	.0	.00
0002130012610	1.00000	655	203.1	52.4	24.84	.0	.00	977.2	152.8	56.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	3558	916.0	168.5	89.12	.0	.00	5496.9	1645.2	235.77	.0	.00
RESERVR UNITS	5.75000	3558	1071.7	168.5	1123.59	.0	.00	6431.4	1645.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 76.3 M3/CALDAY TO REPLACE REQUIRES 3.11 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 15.5 AVERAGE GAS-OIL RATIO IS 97.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0010130012e10	1.00000	603	261.8	51.6	14.15	.0	.00	771.4	404.2	76.25	.0	.00
0011130012e10	.25000	632	16.7	6.1	2.40	.0	.00	695.4	354.1	37.39	0	.00
0012130012610	.50000	632	26.3	29.9	3.83	.0	.00	565.0	425.7	22.92	.0	.00
0009140012e10	.25000	588	88.9	179.3	12.49	.0	.00	736.0	684.1	63.19	.0	.00
0016140012610	.50000	632	221.9	51.4	1.44	.0	.00	2171.7	393.6	20.66	.0	.00
0001230012610	.25000	632	292.8	178.6	11.02	.0	.00	1561.5	1139.8	53.10	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	632	219.9	108.3	30.68	.0	.00	1396.9	993.2	56.58	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2013	600.4	239.6	30.60	.0	.00	2563.9	1854.5	164.85	.0	00
RESERVR UNITS	4.00000	2013	702.5	239.6	346.30	.0	.00	4169.0	1954.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 4: 6 M3/CALDAY TO REPLACE REQUIRES 1.70 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.2 M3/OPDAY/NET WELL. AVERAGE TOTAL FLUID RATE IF 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 28.5 AVERAGE GAS-OIL RATIO IS 64.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	24	.0	10.4	.00	.0	.00	211.1	143.3	14.22	.0	.00
0009140012610	.50000	588	88.9	186.3	12.49	.0	.00	736.0	684.1	63.19	.0	.00
0010140012610	1.00000	408	39.3	36.7	5.26	.0	.00	195.7	172.3	16.36	.0	.00
0002230012610	50000	632	106.3	173.2	9.59	.0	.00	259.4	319.1	16.49	.0	00
0001230012610	.25000	632	292.8	178.6	11.02	.0	.00	1561.5	1139.8	53.10	.0	.00
0016140012610	50000	632	231.8	51.4	1.44	.0	00	2171.7	393.6	20.66	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1516	32o.0	297.2	19.77	.0	.00	2380.7	1299.4	94.02	.0	.00
RESERVR UNITS	3.75000	1516	381.4	297.2	228.16	.0	.00	2785.4	1299.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.2 M3/CALDAY TO REPLACE REQUIRES 1.19 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.7 AVERAGE GAS-OIL RATIO IS 60.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 3 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005230012610	.00000	0	.0	.0	.00	0	.00	.0	.0	.00	.0	.00
0003230012610	.25000	632	295.8	178.6	11.02	0	.00	1561.5	1139.8	53.10	.0	.00
0002230012610	.50000	632	184.3	173.2	9.59	.0	.00	959.4	819.1	16.49	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	632	258.1	460.1	7.67	.0	.00	1428.7	1147.1	30.69	.0	.00
0008230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	632	190.9	246.3	9.47	.0	.00	877.2	731.3	29.19	.0	.00
RESERVR UNITS	3.00000	632	223.3	246.3	51.01	.0	.00	1626.4	731.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.6 M3/CALDAY TO REPLACE REQUIRES .69 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.3 AVERAGE GAS-OIL RATIO IS 49.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 3 OF 1993
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	632	292.8	178.6	11.02	.0	.00	1561.5	1139.8	53.10	.0	.00
0008230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	632	258.1	460.1	7.67	.0	.00	1428.7	1147.1	30.69	.0	.00
0012240012610	.50000	468	298.3	12.6	9.34	.0	.00	452.8	16.3	13.38	.0	.00
0011240012610	.25000	632	55.0	5.4	4.79	.0	.00	1485.0	75.5	17.67	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	778	300.6	147.3	10.54	.0	.00	1345.2	599.0	31.90	.0	.00
RESERVR UNITS	4.00000	778	351.7	147.3	12.14	.0	.00	1573.9	599.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 17.1 M3/CALDAY TO REPLACE REQUIRES .70 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 14.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 35.5 AVERAGE GAS-OIL RATIO IS 35.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	IN JNGAS M3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	641	46.8	4.5	4.24	.0	.00	2382.6	205.7	16.56	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	640	250.5	169.9	16.99	.0	.00	675.6	613.7	48.84	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.07	.0	.00
0010240012610	.50000	638	36.8	4.3	6.97	.0	.00	1342.4	51.2	26.32	.0	.00
0009240012612	.50000	506	141.6	11.9	10.74	.0	.00	184.8	15.9	13.31	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	1690	277.0	98.9	22.79	.0	.00	3853.8	565.2	65.06	.0	.00
RESERVR UNITS	5.00000	1690	324.1	98.9	211.91	.0	.00	4508.9	565.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.5 M3/CALDAY TO REPLACE REQUIRES .84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 26.3 AVERAGE GAS-OIL RATIO IS 82.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	720	.0	.0	.00	1356.4	.00	3732.5	431.2	16.40	1490.5	.00
0009240012612	.50000	506	141.6	11.9	10.74	.0	.00	184.8	15.9	13.31	.0	.00
0010240012610	.50000	638	36.8	4.3	6.97	.0	.00	1342.4	51.2	26.32	.0	.00
0011240012610	.25000	632	55.0	5.4	4.79	.0	.00	1485.0	76.5	17.07	.0	.00
0014240012610	.50000	632	82.4	2.7	11.98	.0	.00	2364.0	108.0	58.74	.0	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0002250012612	.50000	632	299.9	35.7	11.98	.0	.00	476.6	37.7	18.39	.0	.00
0201250012610	.25000	594	270.0	.5	37.84	.0	.00	1038.9	46.3	159.38	.0	.00
0016240012610	1.00000	632	188.3	4.1	64.23	.0	.00	2083.8	106.0	149.46	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2290	650.8	33.7	103.07	1356.4	.00	9762.3	896.0	273.35	1490.5	.00
RESERVR UNITS	4.75000	2290	770.9	33.7	1298.32	1356.4	.00	10791.9	896.0	.00	1490.5	.00

AVERAGE RATE OF VOIDAGE CREATION IS 86.7 M3/CALDAY TO REPLACE REQUIRES 3.30 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 4.9 AVERAGE GAS/OIL RATIO IS 191.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 54.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 13.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	696	.0	.0	.00	1633.0	.00	1914.4	608.2	37.70	1722.7	.00
0201250012610	.25000	594	270.0	.5	37.84	.0	.00	1038.9	46.3	159.30	.0	.00
0002250012612	.50000	632	299.9	35.7	1.98	.0	.00	476.6	37.3	16.39	.0	.00
0003250012612	.25000	588	435.6	3.5	17.39	.0	.00	524.4	10.1	24.13	.0	.00
0006250012610	.50000	632	372.8	46.9	11.74	.0	.00	2970.6	459.4	36.71	.0	.00
0011250012610	.25000	616	294.2	3.4	14.02	.0	.00	2424.7	162.0	50.92	.0	.00
0010250012610	.50000	616	285.0	10.1	24.71	.0	.00	2476.3	254.3	113.64	.0	.00
0009250012610	.25000	24	.8	.5	.11	.0	.00	1707.5	147.3	3.66	.0	.00
0008250012610	.50000	632	27.4	8.2	2.82	.0	.00	2074.2	251.3	22.24	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1712	742.3	52.4	42.96	1633.0	.00	7337.1	1200.8	192.69	1722.7	.00
RESERVR UNITS	4.00000	1712	865.1	52.4	171.38	1633.0	.00	8584.4	1200.8	.00	1722.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.1 M3/CALDAY TO REPLACE REQUIRES 2.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 6.6 AVERAGE GAS-OIL RATIO IS 57.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 150.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 17.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	607	12.9	17.9	.46	.0	.00	417.0	1099.9	2.04	.0	.00
0204300012510	1.00000	295	24.5	203.9	3.36	.0	.00	914.5	559.8	26.29	.0	.00
0201250012610	.50000	594	270.0	.5	37.84	.0	.00	1038.9	46.3	159.30	.0	.00
0008250012610	.50000	632	27.4	8.2	2.82	.0	.00	2074.2	251.3	22.24	.0	.00
0009250012610	.25000	24	.8	.5	.11	.0	.00	1707.5	147.3	3.66	.0	.00
0011300012512	.33333	632	104.2	17.3	1.44	.0	.00	1183.2	2490.8	2.22	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.58333	1732	221.0	232.0	24.66	.0	.00	3709.3	2675.6	120.75	.0	.00
RESERVR UNITS	3.58333	1732	258.6	232.0	364.25	.0	.00	4339.9	2675.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 27.6 M3/CALDAY TO REPLACE REQUIRES 1.13 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 51.2 AVERAGE GAS-OIL RATIO IS 111.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	679	137.1	235.2	1.54	.0	.00	934.1	708.6	13.53	.0	.00
0009300012510	1.00000	683	22.7	9.9	3.11	.0	.00	504.6	462.6	8.67	.0	.00
0011300012512	.33333	632	104.2	17.3	1.44	.0	.00	1183.2	2498.8	2.22	.0	.00
0014300012510	.50000	628	108.8	115.9	16.19	.0	.00	931.8	838.1	58.40	.0	.00
0003310012510	.25000	538	29.3	19.4	.40	.0	.00	1327.2	484.1	10.45	.0	.00
0002310012510	.50000	632	38.0	387.3	3.36	.0	.00	1120.5	1221.4	71.40	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	667	87.0	87.4	12.14	.0	.00	758.7	869.5	38.33	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3004	362.3	594.7	27.14	.0	.00	3949.7	4041.7	128.78	.0	.00
RESERVR UNITS	5.08333	3004	423.8	594.7	384.15	.0	.00	4621.2	4041.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.2 M3/CALDAY TO REPLACE REQUIRES 1.85 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.1 AVERAGE GAS-OIL RATIO IS 74.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 3 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	632	90.8	80.7	12.94	.0	.00	524.8	1194.6	36.45	.0	.00
0011300012512	.33334	632	104.2	17.3	1.44	.0	.00	1183.2	2498.8	2.22	.0	.00
0009250012610	.25000	24	.8	.5	.11	.0	.00	1707.5	147.3	3.66	.0	.00
0016250012610	.50000	616	29.8	4.2	1.87	.0	.00	394.4	171.4	13.71	.0	.00
0004310012510	.50000	632	5.3	33.3	.96	.0	.00	962.2	573.4	37.44	.0	.00
0003310012510	.25000	538	29.3	19.4	.40	.0	.00	1327.2	484.1	10.45	.0	.00
0014300012510	.50000	628	108.8	115.9	16.19	.0	.00	931.8	838.1	58.40	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	1921	205.0	168.1	23.06	.0	.00	2822.1	2974.2	95.49	.0	.00
RESERVR UNITS	3.33334	1921	239.9	168.1	346.93	.0	.00	3301.8	2974.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.4 M3/CALDAY TO REPLACE REQUIRES .99 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.1 AVERAGE GAS-OIL RATIO IS 112.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	0	.0	.0	.00	.0	.00	233.3	1252.0	13.07	.0	.00
0014120012610	1.00000	696	12.0	10.8	2.88	.0	.00	167.4	305.3	7.04	.0	.00
0004130012610	.50000	648	39.1	33.0	3.65	.0	.00	358.4	324.3	12.03	.0	.00
0008140012610	.50000	710	137.1	255.9	6.40	.0	.00	1161.7	1108.8	61.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1375	100.1	155.3	7.90	.0	.00	1160.8	2273.9	57.08	.0	.00
RESERVR UNITS	3.00000	1375	117.1	155.3	75.82	.0	.00	1358.1	2273.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.6 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.8 AVERAGE GAS-OIL RATIO IS 79.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	720	24.8	10.7	2.44	.0	.00	443.0	323.4	12.11	.0	.00
0003130012610	.50000	690	256.3	67.2	23.04	.0	.00	676.3	356.4	44.88	.0	.00
0006130012610	.50000	720	136.5	126.7	4.87	.0	.00	281.2	1327.2	20.84	.0	.00
0011130012610	.25000	715	28.3	6.1	5.72	.0	.00	633.7	360.2	43.11	.0	.00
0012130012610	.50000	720	57.9	23.4	5.41	.0	.00	622.9	448.1	28.33	.0	.00
0009140012610	.25000	720	99.3	225.9	4.87	.0	.00	835.3	910.0	68.06	.0	.00
0008140012610	.50000	710	137.1	255.9	6.40	.0	.00	1161.7	1108.8	61.92	.0	.00
0004130012610	.50000	648	39.1	33.0	3.65	.0	.00	358.4	324.3	12.03	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2823	370.1	321.8	26.77	.0	.00	2360.5	2423.4	123.90	.0	.00
RESERVR UNITS	4.00000	2823	433.1	321.8	227.28	.0	.00	2761.8	2423.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 32.7 M3/CALDAY TO REPLACE REQUIRES 1.34 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 46.5 AVERAGE GAS-OIL RATIO IS 72.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	720	115.8	16.3	28.14	.0	.00	1046.5	223.0	106.01	.0	.00
0001130012610	1.00000	462	171.2	2.0	23.44	.0	.00	2430.3	109.2	54.96	.0	.00
0008130012610	1.00000	720	69.5	9.2	5.41	.0	.00	514.3	136.2	23.10	.0	.00
0010130012610	.50000	720	45.5	5.1	10.28	.0	.00	1148.3	441.4	58.36	.0	.00
0011130012610	.25000	715	28.3	6.1	5.72	.0	.00	633.7	360.2	43.11	.0	.00
0006130012610	.50000	720	136.5	126.7	4.87	.0	.00	281.2	1327.2	20.84	.0	.00
0003130012610	.50000	690	256.3	67.2	23.04	.0	.00	676.3	356.4	44.88	.0	.00
0002130012610	1.00000	720	83.6	5.1	10.01	.0	.00	960.8	157.9	66.41	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	3866	666.3	133.6	87.52	.0	.00	6163.2	1778.9	323.30	.0	.00
RESERVR UNITS	5.75000	3866	779.6	133.6	1336.82	.0	.00	7211.0	1778.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 75.0 M3/CALDAY TO REPLACE REQUIRES 3.06 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 16.7 AVERAGE GAS-OIL RATIO IS 131.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	720	20.7	4.8	4.45	.0	.00	3159.0	562.1	17.07	.0	.00
0010130012610	.50000	720	45.5	5.1	10.28	.0	.00	1148.3	441.4	58.36	.0	.00
0011130012610	.25000	715	28.3	6.1	5.72	.0	.00	633.7	360.2	43.11	.0	.00
0014130012610	.50000	720	247.4	94.6	55.74	.0	.00	1644.3	1087.8	112.32	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	552	145.1	214.7	13.23	.0	.00	817.7	828.4	62.06	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	1895	246.8	163.5	45.50	.0	.00	5122.6	1831.0	144.22	.0	.00
RESERVR UNITS	3.50000	1895	288.7	163.5	806.29	.0	.00	5993.4	1831.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 42.0 M3/CALDAY TO REPLACE REQUIRES 1.71 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.9 AVERAGE GAS-OIL RATIO IS 184.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0813130012610	1.00000	720	227.1	91.6	18.67	.0	.00	998.5	495.8	95.03	.0	.00
0611130012610	.25000	715	28.3	6.1	5.72	.0	.00	633.7	360.2	43.11	.0	.00
0012130012610	.50000	720	57.9	23.4	5.41	.0	.00	622.9	448.1	28.33	.0	.00
0809140012610	.25000	720	99.3	225.9	4.87	.0	.00	835.3	910.0	68.06	.0	.00
0016140012610	.50000	720	240.7	58.0	11.37	.0	.00	2412.4	451.6	32.03	.0	.00
0001230012610	.25000	720	333.6	204.1	20.04	.0	.00	1895.1	1343.9	73.14	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	720	247.4	94.6	55.74	.0	.00	1644.3	1087.8	112.32	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2339	615.4	288.6	62.59	.0	.00	4179.3	2143.1	227.45	.0	.00
RESERVR UNITS	4.00000	2339	720.0	288.6	776.28	.0	.00	4889.8	2143.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 59.5 M3/CALDAY TO REPLACE REQUIRES 2.43 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.9 AVERAGE GAS-OIL RATIO IS 101.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	0	.0	.0	.00	.0	.00	211.1	143.3	14.22	.0	.00
0009140012610	.50000	720	99.3	225.9	4.87	.0	.00	835.3	910.0	68.06	.0	.00
0010140012610	1.00000	720	49.6	67.2	11.37	.0	.00	245.3	239.5	27.73	.0	.00
0002230012610	.50000	720	9.9	12.2	22.53	.0	.00	269.3	331.3	39.02	.0	.00
0001230012610	.25000	720	333.6	204.1	20.04	.0	.00	1895.1	1343.9	73.14	.0	.00
0016140012610	.50000	720	240.7	58.0	11.37	.0	.00	2412.4	451.6	32.03	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1980	307.9	266.3	35.76	.0	.00	2688.7	1565.2	129.79	.0	.00
RESERVR UNITS	3.75000	1980	360.3	266.3	504.80	.0	.00	3145.7	1565.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.7 M3/CALDAY TO REPLACE REQUIRES 1.54 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 46.4 AVERAGE GAS-OIL RATIO IS 116.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	720	333.6	204.1	20.04	.0	.00	1895.1	1343.9	73.14	.0	.00
0002230012610	.50000	720	9.9	12.2	22.53	.0	.00	269.3	331.3	39.02	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	720	401.3	350.1	12.10	.0	.00	1830.0	1497.2	42.79	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	720	188.7	144.7	19.30	.0	.00	1065.9	875.9	48.49	.0	.00
RESERVR UNITS	3.00000	720	220.7	144.7	288.26	.0	.00	1247.1	875.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.8 M3/CALDAY TO REPLACE REQUIRES .89 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.4 AVERAGE GAS-OIL RATIO IS 102.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	720	333.6	204.1	20.04	.0	.00	1895.1	1343.9	73.14	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	720	401.3	350.1	12.10	.0	.00	1830.0	1497.2	42.79	.0	.00
0012240012612	.50000	644	358.0	56.0	28.86	.0	.00	810.8	72.3	42.24	0	.00
0011240012610	.25000	712	54.8	3.0	6.96	.0	.00	1539.8	79.5	24.83	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	860	376.4	167.3	24.20	.0	.00	1721.6	766.3	56.11	.0	.00
RESERVR UNITS	4.00000	860	440.4	167.3	173.65	.0	.00	2014.3	766.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 26.0 M3/CALDAY TO REPLACE REQUIRES 1.06 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 30.8 AVERAGE GAS-OIL RATIO IS 64.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	720	39.7	6.9	5.89	.0	.00	2422.3	212.6	22.45	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	552	145.1	214.7	13.23	.0	.00	817.7	828.4	62.06	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	712	54.8	3.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0010240012610	.50000	720	38.9	4.1	8.66	.0	.00	1381.3	55.3	34.98	.0	.00
0009240012612	.50000	720	280.0	37.8	47.73	.0	.00	464.8	53.7	61.04	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	1894	285.4	136.0	42.44	.0	.00	4139.1	701.2	107.50	.0	.00
RESERVR UNITS	5.00000	1894	333.9	136.0	682.89	.0	.00	4842.8	701.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.4 M3/CALDAY TO REPLACE REQUIRES 1.57 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.3 AVERAGE GAS-OIL RATIO IS 148.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	701	.0	.0	.00	1933.9	.00	3732.5	431.2	16.40	3424.4	.00
0009240012612	.50000	720	280.0	37.8	47.73	.0	.00	464.8	53.7	61.04	.0	.00
0010240012610	.50000	720	38.9	4.1	8.66	.0	.00	1381.3	55.3	34.98	.0	.00
0011240012610	.25000	712	54.8	3.0	6.96	.0	.00	1539.8	79.5	24.03	.0	.00
0014240012610	.50000	712	68.1	3.8	11.84	.0	.00	2432.1	131.8	70.58	.0	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0002250012612	.50000	720	469.2	16.4	100.60	.0	.00	945.8	53.7	118.99	.0	.00
0201250012610	.25000	682	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0016240012610	1.00000	356	40.5	1.5	32.11	.0	.00	2124.3	107.5	180.57	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2283	672.9	80.2	149.31	1933.9	.00	9435.2	766.9	423.67	3424.4	.00
RESERVR UNITS	4.75000	2283	787.3	80.2	2816.55	1933.9	.00	11039.2	766.9	.00	3424.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 122.8 M3/CALDAY TO REPLACE REQUIRES 5.01 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 10.7 AVERAGE GAS-OIL RATIO IS 221.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 52.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 29.0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.160 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	701	.0	0	.00	1871.3	.00	1914.4	608.2	37.70	3594.0	.00
0201250012610	.25000	682	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0002250012612	.50000	720	469.2	16.4	100.60	.0	.00	945.8	53.7	118.99	.0	.00
0003250012612	.25000	570	587.9	4.9	88.61	.0	.00	1112.3	15.0	112.73	.0	.00
0006250012610	.50000	696	328.3	89.1	16.31	.0	.00	3298.9	548.5	53.02	.0	.00
0011250012610	.25000	720	302.8	3.8	24.56	.0	.00	2727.5	165.8	75.47	.0	.00
0010250012610	.50000	720	305.3	12.2	49.52	.0	.00	2781.6	266.5	163.16	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1713.0	149.1	4.13	.0	.00
0008250012610	.50000	720	24.8	10.2	3.25	.0	.00	2099.0	261.5	25.49	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1963	831.5	112.3	122.14	1871.3	.00	8168.6	1313.1	314.83	3594.0	.00
RESERVR UNITS	4.00000	1963	969.0	112.3	1158.34	1871.3	.00	9557.3	1313.1	.00	3594.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 74.7 M3/CALDAY TO REPLACE REQUIRES 5.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 11.9 AVERAGE GAS-OIL RATIO IS 146.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 83.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 33.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	720	12.4	14.2	1.62	.0	.00	429.4	1114.1	3.66	.0	.00
0204300012510	1.00000	658	40.8	463.1	1.98	.0	.00	955.3	1022.9	28.27	.0	.00
0201250012610	.50000	682	174.6	182.9	35.56	.0	.00	1213.5	229.2	194.87	.0	.00
0008250012610	.50000	720	24.8	10.2	3.25	.0	.00	2099.0	261.5	25.49	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1713.0	149.1	4.13	.0	.00
0011300012512	.33333	720	61.4	75.5	4.67	.0	.00	1244.6	2566.3	6.89	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.58333	2361	174.7	599.5	24.68	.0	.00	3884.1	3275.0	145.44	.0	.00
RESERVR UNITS	3.58333	2361	204.4	599.5	388.64	.0	.00	4544.4	3275.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.8 M3/CALDAY TO REPLACE REQUIRES 1.62 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 77.4 AVERAGE GAS-OIL RATIO IS 141.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	720	53.2	383.4	4.97	.0	.00	987.3	1092.0	18.50	.0	.00
0009300012510	1.00000	720	26.1	9.9	1.42	.0	.00	530.7	472.5	10.09	.0	.00
0011300012512	.33333	720	61.4	75.5	4.67	.0	.00	1244.6	2566.3	6.89	.0	.00
0014300012510	.50000	720	47.2	40.7	10.55	.0	.00	979.0	878.8	68.95	.0	.00
0003310012510	.25000	720	37.2	27.5	1.22	.0	.00	1364.4	511.6	11.67	.0	.00
0002310012510	.50000	720	53.4	419.7	5.68	.0	.00	1173.9	1641.1	77.09	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	708	94.0	79.5	12.77	.0	.00	852.7	969.0	51.10	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3288	253.4	735.0	29.14	.0	.00	4203.1	4776.8	157.92	.0	.00
RESERVR UNITS	5.08333	3288	296.4	735.0	401.18	.0	.00	4917.6	4776.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.8 M3/CALDAY TO REPLACE REQUIRES 1.95 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74.4 AVERAGE GAS-OIL RATIO IS 115.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 4 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	696	43.2	43.3	2.09	.0	.00	568.0	1237.9	38.54	.0	.00
0011300012512	.33334	720	61.4	75.5	4.67	.0	.00	1244.6	2566.3	6.89	.0	.00
0009250012610	.25000	168	5.5	1.8	.47	.0	.00	1713.0	149.1	4.13	.0	.00
0016250012610	.50000	720	32.3	6.1	3.25	.0	.00	426.7	177.5	16.96	.0	.00
0004310012510	.50000	720	5.3	35.8	.43	.0	.00	967.5	609.2	37.88	.0	.00
0003310012510	.25000	720	37.2	27.5	1.22	.0	.00	1364.4	511.6	11.67	.0	.00
0014300012510	50000	720	47.2	40.7	10.55	.0	.00	979.0	878.8	68.95	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2238	116.7	117.1	11.18	.0	.00	2938.8	3091.3	106.68	.0	.00
RESERVR UNITS	3.33334	2238	136.6	117.1	135.00	.0	.00	3438.4	3091.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 13.0 M3/CALDAY TO REPLACE REQUIRES .53 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 2.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 50.1 AVERAGE GAS-OIL RATIO IS 95.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	0	.0	.0	.00	.0	.00	233.3	1252.0	13.07	.0	.00
0014120012610	1.00000	719	10.6	10.4	2.05	.0	.00	178.0	315.7	9.09	.0	.00
0004130012610	.50000	648	39.8	28.0	3.17	.0	.00	398.2	352.3	15.20	.0	.00
0008140012610	.50000	726	146.9	295.5	16.56	.0	.00	1308.6	1404.3	78.48	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1406	104.0	172.2	11.92	.0	.00	1264.7	2446.0	69.00	.0	.00
RESERVR UNITS	3.00000	1406	121.6	172.2	161.93	.0	.00	1479.7	2446.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 14.7 M3/CALDAY TO REPLACE REQUIRES .60 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.4 AVERAGE GAS-OIL RATIO IS 114.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	744	23.7	6.7	3.03	.0	.00	466.7	330.1	15.15	.0	.00
0003130012610	.50000	744	57.1	13.2	5.28	.0	.00	733.4	369.6	50.16	.0	.00
0006130012610	.50000	744	175.1	132.7	7.27	.0	.00	456.3	1459.9	28.11	.0	.00
0011130012610	.25000	744	32.4	6.2	9.29	.0	.00	666.1	366.4	52.40	.0	.00
0012130012610	.50000	744	81.2	16.1	8.79	.0	.00	704.1	464.2	37.12	.0	.00
0009140012610	.25000	727	155.2	229.4	16.17	.0	.00	990.5	1139.4	84.23	.0	.00
0008140012610	.50000	726	146.9	295.5	16.56	.0	.00	1308.6	1404.3	78.48	.0	.00
0004130012610	.50000	648	39.8	28.0	3.17	.0	.00	398.2	352.3	15.20	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2915	320.6	308.3	29.93	.0	.00	2681.2	2731.7	153.84	.0	.00
RESERVR UNITS	4.00000	2915	375.2	308.3	352.74	.0	.00	3136.9	2731.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 33.4 M3/CALDAY TO REPLACE REQUIRES 1.36 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.0 AVERAGE GAS-OIL RATIO IS 93.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	60.9	4.0	16.37	.0	.00	1107.4	227.0	122.38	.0	.00
0001130012610	1.00000	674	346.0	16.4	85.26	.0	.00	2776.3	125.6	140.22	.0	.00
0008130012610	1.00000	744	64.7	6.0	4.09	.0	.00	579.0	142.2	27.20	.0	.00
0010130012610	.50000	744	26.6	6.0	4.09	.0	.00	1174.9	447.4	62.45	.0	.00
0011130012610	.25000	744	32.4	6.2	9.29	.0	.00	666.1	366.4	52.40	.0	.00
0006130012610	.50000	744	175.1	132.7	7.27	.0	.00	456.3	1459.9	28.11	.0	.00
0003130012610	.50000	744	57.1	13.2	5.28	.0	.00	733.4	369.6	50.16	.0	.00
0002130012610	1.00000	744	64.3	18.8	8.79	.0	.00	1025.1	176.7	75.20	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	4208	673.4	122.7	125.15	.0	.00	6836.6	1901.6	448.46	.0	.00
RESERVR UNITS	5.75000	4208	787.9	122.7	2244.59	.0	.00	7998.9	1901.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 101.8 M3/CALDAY TO REPLACE REQUIRES 4.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 15.4 AVERAGE GAS-OIL RATIO IS 185.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	35.5	4.0	8.49	.0	.00	3194.5	566.1	25.56	.0	.00
0010130012610	.50000	744	26.6	6.0	4.09	.0	.00	1174.9	447.4	62.45	.0	.00
0011130012610	.25000	744	32.4	6.2	9.29	.0	.00	666.1	366.4	52.40	.0	.00
0014130012610	.50000	744	29.2	12.1	14.55	.0	.00	1673.5	1099.9	126.87	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	726	228.8	304.4	35.14	.0	.00	1046.5	1132.8	97.20	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2037	185.9	166.8	37.70	.0	.00	5308.5	1997.8	181.92	.0	.00
RESERVR UNITS	3.50000	2037	217.5	166.8	691.25	.0	.00	6210.9	1997.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.7 M3/CALDAY TO REPLACE REQUIRES 1.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.3 AVERAGE GAS-OIL RATIO IS 202.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	203.7	132.7	15.46	.0	.00	1202.2	628.5	110.48	.0	.00
0011130012610	.25000	744	32.4	6.2	9.29	.0	.00	666.1	366.4	52.40	.0	.00
0012130012610	.50000	744	31.2	16.1	8.79	.0	.00	704.1	464.2	37.12	.0	.00
0009140012610	.25000	727	155.2	229.4	16.17	.0	.00	990.5	1139.4	84.23	.0	.00
0016140012610	.50000	744	219.5	74.4	20.01	.0	.00	2631.9	526.0	52.03	.0	.00
0001230012610	.25000	744	378.2	32.2	18.49	.0	.00	2273.3	1376.1	91.63	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	744	29.2	12.1	14.55	.0	.00	1673.5	1099.9	126.87	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2414	510.1	251.0	48.12	.0	.00	4689.4	2394.0	275.55	.0	.00
RESERVR UNITS	4.00000	2414	596.8	251.0	546.11	.0	.00	5486.6	2394.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.0 M3/CALDAY TO REPLACE REQUIRES 1.84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 33.0 AVERAGE GAS-OIL RATIO IS 94.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	0	.0	.0	.00	.0	.00	211.1	143.3	14.22	.0	.00
0009140012610	.50000	727	155.2	229.4	16.17	.0	.00	990.5	1139.4	84.23	.0	.00
0010140012610	1.00000	698	44.6	69.8	9.17	.0	.00	289.9	309.3	36.90	.0	.00
0002230012610	.50000	24	.2	.1	.76	.0	.00	269.5	331.4	39.78	.0	.00
0001230012610	.25000	744	378.2	32.2	18.49	.0	.00	2273.3	1376.1	91.63	.0	.00
0016140012610	.50000	744	219.5	74.4	20.01	.0	.00	2631.9	526.0	52.03	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1632	326.6	229.8	32.26	.0	.00	3015.3	1795.0	162.05	.0	.00
RESERVR UNITS	3.75000	1632	382.1	229.8	387.01	.0	.00	3527.9	1795.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 32.2 M3/CALDAY TO REPLACE REQUIRES 1.32 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 41.3 AVERAGE GAS-OIL RATIO IS 98.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	744	378.2	32.2	18.49	.0	.00	2273.3	1376.1	91.63	.0	.00
0002230012610	.50000	24	.2	.1	.76	.0	.00	269.5	331.4	39.78	.0	.00
0210230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	744	407.6	439.9	13.28	.0	.00	2237.6	1937.1	56.06	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	384	196.6	118.1	8.32	.0	.00	1262.5	994.0	56.81	.0	.00
RESERVR UNITS	3.00000	384	230.0	118.1	9.18	.0	.00	1477.1	994.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.5 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 37.5 AVERAGE GAS-OIL RATIO IS 42.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	744	378.2	32.2	18.49	.0	.00	2273.3	1376.1	91.63	.0	.00
0208230012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0009230012610	.25000	744	407.6	439.9	13.28	.0	.00	2237.6	1937.1	56.06	.0	.00
0012240012612	.50000	327	140.9	116.0	14.52	.0	.00	951.7	188.3	56.76	.0	.00
0011240012610	.25000	744	45.1	4.0	10.23	.0	.00	1584.9	83.5	34.26	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	721	278.2	177.0	17.76	.0	.00	1999.8	943.3	73.87	.0	.00
RESERVR UNITS	4.00000	721	325.5	177.0	138.33	.0	.00	2339.8	943.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.7 M3/CALDAY TO REPLACE REQUIRES .84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.9 AVERAGE GAS-OIL RATIO IS 63.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	744	44.0	4.0	7.27	.0	.00	2466.3	216.6	29.72	.0	.00
0201240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	726	228.8	304.4	35.14	.0	.00	1046.5	1132.8	97.20	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	744	45.1	4.0	10.23	.0	.00	1584.9	83.5	34.26	.0	.00
0010240012610	.50000	744	33.8	4.0	8.79	.0	.00	1415.1	59.3	43.77	.0	.00
0009240012612	.50000	726	191.5	61.5	40.82	.0	.00	656.3	115.2	101.86	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	2028	282.3	190.0	52.20	.0	.00	4421.5	891.1	159.70	.0	.00
RESERVR UNITS	5.00000	2028	330.3	190.0	925.92	.0	.00	5173.1	891.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 46.7 M3/CALDAY TO REPLACE REQUIRES 1.90 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.2 AVERAGE GAS-OIL RATIO IS 184.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	732	.0	.0	.00	1380.3	.00	3732.5	431.2	16.40	4804.7	.00
0009240012612	.50000	726	191.5	61.5	40.82	.0	.00	656.3	115.2	101.86	.0	.00
0010240012610	.50000	744	33.8	4.0	8.79	.0	.00	1415.1	59.3	43.77	.0	.00
0011240012610	.25000	744	45.1	4.0	10.23	.0	.00	1584.9	83.5	34.26	.0	.00
0014240012610	.50000	744	78.7	7.2	12.00	.0	.00	2510.8	139.0	82.58	.0	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0002250012612	.50000	716	456.1	40.7	56.10	.0	.00	1401.9	94.4	175.09	.0	.00
0201250012610	.25000	720	43.0	552.5	3.52	.0	.00	1256.5	781.7	198.39	.0	.00
0016240012610	1.00000	614	133.0	5.0	73.73	.0	.00	2257.3	112.5	254.30	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2605	687.3	203.8	157.77	1380.3	.00	10122.4	970.6	580.44	4804.7	.00
RESERVR UNITS	4.75000	2605	804.0	203.8	3006.07	1380.3	.00	11843.2	970.6	.00	4804.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 129.5 M3/CALDAY TO REPLACE REQUIRES 5.29 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 22.9 AVERAGE GAS-OIL RATIO IS 229.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 34.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 37.5

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	732	.0	.0	.00	1307.4	.00	1914.4	608.2	37.70	4901.4	.00
0201250012610	.25000	720	43.0	552.5	3.52	.0	.00	1256.5	781.7	198.39	.0	.00
0002250012612	.50000	716	456.1	40.7	56.10	.0	.00	1401.9	94.4	175.09	.0	.00
0003250012612	.25000	638	608.4	11.7	86.99	.0	.00	1720.7	26.7	199.72	.0	.00
0006250012610	.50000	744	314.7	182.9	8.64	.0	.00	3613.6	731.4	61.66	.0	.00
0011250012610	.25000	744	305.4	4.0	25.77	.0	.00	3032.9	169.8	101.24	.0	.00
0010250012610	.50000	744	323.6	9.0	44.10	.0	.00	3105.2	275.5	207.26	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	151.1	8.11	.0	.00
0008250012610	.50000	744	22.8	12.1	2.27	.0	.00	2121.8	273.6	27.76	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2181	803.7	264.9	85.62	1307.4	.00	8972.3	1578.0	400.45	4901.4	.00
RESERVR UNITS	4.00000	2181	936.6	264.9	700.18	1307.4	.00	10497.6	1578.0	.00	4901.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.3 M3/CALDAY TO REPLACE REQUIRES 4.23 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.8 AVERAGE GAS-OIL RATIO IS 106.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 68.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 40.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	11.0	12.1	1.82	.0	.00	440.4	1126.2	5.48	.0	.00
0204300012510	1.00000	714	95.8	802.5	2.33	.0	.00	1051.1	1825.4	30.59	.0	.00
0201250012610	.50000	720	43.0	552.5	3.52	.0	.00	1256.5	781.7	198.39	.0	.00
0008250012610	.50000	744	22.8	12.1	2.27	.0	.00	2121.8	273.6	27.76	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	151.1	8.11	.0	.00
0011300012512	.33333	744	46.5	96.5	6.37	.0	.00	1291.1	2662.8	13.26	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.58333	2619	161.1	1129.6	10.16	.0	.00	4045.1	4404.6	155.59	.0	.00
RESERVR UNITS	3.58333	2619	188.5	1129.6	110.29	.0	.00	4732.8	4404.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 46.1 M3/CALDAY TO REPLACE REQUIRES 1.88 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 87.5 AVERAGE GAS-OIL RATIO IS 63.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	738	54.0	519.3	6.45	.0	.00	1041.3	1611.3	24.95	.0	.00
0009300012510	1.00000	744	23.7	8.0	.91	.0	.00	554.4	480.5	11.00	.0	.00
0011300012512	.33333	744	46.5	96.5	6.37	.0	.00	1291.1	2662.8	13.26	.0	.00
0014300012510	.50000	724	47.5	21.5	5.53	.0	.00	1026.5	900.3	74.48	.0	.00
0003310012510	.25000	724	34.6	30.3	1.33	.0	.00	1399.0	541.9	13.00	.0	.00
0002310012510	.50000	724	51.9	529.3	1.77	.0	.00	1225.8	2170.4	78.86	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	744	71.1	72.4	12.43	.0	.00	923.8	1041.4	63.53	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3379	222.6	914.8	25.90	.0	.00	4425.8	5691.6	183.82	.0	.00
RESERVR UNITS	5.08333	3379	260.5	914.8	376.81	.0	.00	5178.1	5691.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 50.1 M3/CALDAY TO REPLACE REQUIRES 2.04 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 80.4 AVERAGE GAS-OIL RATIO IS 116.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 5 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	724	28.4	31.3	.88	.0	.00	596.4	1269.2	39.43	.0	.00
0011300012512	.33334	744	46.5	96.5	6.37	.0	.00	1291.1	2662.8	13.26	.0	.00
0009250012610	.25000	724	23.5	2.0	3.98	.0	.00	1736.5	151.1	8.11	.0	.00
0016250012610	.50000	724	26.3	2.6	2.06	.0	.00	453.0	180.1	19.82	.0	.00
0004310012510	.50000	724	9.2	41.7	3.78	.0	.00	976.7	650.9	41.65	.0	.00
0003310012510	.25000	724	34.6	30.3	1.33	.0	.00	1399.0	541.9	13.00	.0	.00
0014300012510	.50000	724	47.5	21.5	5.53	.0	.00	1026.5	900.3	74.48	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2420	99.9	104.4	10.02	.0	.00	3038.8	3195.7	116.70	.0	.00
RESERVR UNITS	3.33334	2420	116.9	104.4	137.06	.0	.00	3555.3	3195.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.6 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 2.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 51.1 AVERAGE GAS-OIL RATIO IS 100.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	0	.0	.0	.00	.0	.00	233.3	1252.0	13.07	.0	.00
0014120012610	1.00000	672	11.6	3.4	.61	.0	.00	189.6	319.1	9.70	.0	.00
0004130012610	.50000	672	45.7	10.1	4.56	.0	.00	443.9	362.4	19.76	.0	.00
0008140012610	.50000	675	125.2	172.5	33.22	.0	.00	1433.8	1576.8	111.70	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1346	97.0	94.7	19.50	.0	.00	1361.8	2540.7	88.50	.0	.00
RESERVR UNITS	3.00000	1346	113.5	94.7	356.39	.0	.00	1593.2	2540.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 18.8 M3/CALDAY TO REPLACE REQUIRES .77 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.4 AVERAGE GAS-OIL RATIO IS 200.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	691	23.9	8.0	3.44	.0	.00	490.6	338.1	18.59	.0	.00
0003130012610	.50000	720	40.8	19.7	5.86	.0	.00	774.2	389.3	56.03	.0	.00
0006130012610	.50000	691	75.3	112.5	3.75	.0	.00	531.6	1572.4	31.87	.0	.00
0011130012610	.25000	720	24.9	3.6	8.15	.0	.00	691.0	370.0	60.55	.0	.00
0012130012610	.50000	720	70.0	14.4	8.15	.0	.00	774.1	478.6	45.27	.0	.00
0009140012610	.25000	616	169.3	81.2	21.62	.0	.00	1159.8	1220.6	105.85	.0	.00
0008140012610	.50000	675	125.2	172.5	33.22	.0	.00	1433.8	1576.8	111.70	.0	.00
0004130012610	.50000	672	45.7	10.1	4.56	.0	.00	443.9	362.4	19.76	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2764	251.0	193.8	38.65	.0	.00	2932.1	2925.5	192.51	.0	.00
RESERVR UNITS	4.00000	2764	293.6	193.8	634.32	.0	.00	3430.6	2925.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 37.4 M3/CALDAY TO REPLACE REQUIRES 1.53 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.6 AVERAGE GAS-OIL RATIO IS 154.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	720	27.2	7.2	5.86	.0	.00	1134.6	234.2	128.25	.0	.00
0001130012610	1.00000	720	340.5	21.5	102.64	.0	.00	3116.8	147.1	242.85	.0	.00
0008130012610	1.00000	508	55.1	5.1	1.03	.0	.00	634.1	147.3	28.23	.0	.00
0010130012610	.50000	720	19.8	4.5	4.15	.0	.00	1194.7	451.9	66.61	.0	.00
0011130012610	.25000	720	24.9	3.6	8.15	.0	.00	691.0	370.0	60.55	.0	.00
0006130012610	.50000	691	75.3	112.5	3.75	.0	.00	531.6	1572.4	31.87	.0	.00
0003130012610	.50000	720	40.8	19.7	5.86	.0	.00	774.2	389.3	56.03	.0	.00
0002130012610	1.00000	720	59.1	10.8	8.80	.0	.00	1084.2	187.5	84.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	3914	556.1	113.9	127.25	.0	.00	7392.7	2015.4	575.72	.0	.00
RESERVR UNITS	5.75000	3914	650.6	113.9	2467.01	.0	.00	8649.5	2015.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 107.7 M3/CALDAY TO REPLACE REQUIRES 4.40 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.0 AVERAGE GAS-OIL RATIO IS 228.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	720	36.1	3.6	7.82	.0	.00	3230.6	569.7	33.38	.0	.00
0010130012610	.50000	720	19.8	4.5	4.15	.0	.00	1194.7	451.9	66.61	.0	.00
0011130012610	.25000	720	24.9	3.6	8.15	.0	.00	691.0	370.0	60.55	.0	.00
0014130012610	.50000	616	37.9	10.2	7.53	.0	.00	1711.4	1110.1	134.40	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0002240012610	.50000	720	225.6	270.1	62.07	.0	.00	1272.1	1402.9	159.27	.0	.00
0201240012610	.50000	376	429.4	39.9	74.24	.0	.00	429.4	39.9	74.24	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2116	398.7	166.9	83.85	.0	.00	5707.1	2164.6	265.78	.0	.00
RESERVR UNITS	3.50000	2116	466.4	166.9	1555.85	.0	.00	6677.4	2164.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 73.0 M3/CALDAY TO REPLACE REQUIRES 2.98 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 29.5 AVERAGE GAS-OIL RATIO IS 210.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	720	204.8	113.1	37.14	.0	.00	1406.2	741.6	147.63	.0	.00
0011130012610	.25000	720	24.9	3.6	8.15	.0	.00	691.0	370.0	60.55	.0	.00
0012130012610	.50000	720	70.0	14.4	8.15	.0	.00	774.1	478.6	45.27	.0	.00
0009140012610	.25000	616	169.3	81.2	21.62	.0	.00	1159.8	1220.6	105.85	.0	.00
0016140012610	.50000	456	66.2	49.1	20.68	.0	.00	2698.1	575.1	72.71	.0	.00
0001230012610	.25000	720	290.7	244.1	8.80	.0	.00	2564.0	1620.2	100.42	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0014130012610	.50000	616	37.9	10.2	7.53	.0	.00	1711.4	1110.1	134.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2130	412.3	232.2	64.96	.0	.00	5101.7	2626.2	340.52	.0	.00
RESERVR UNITS	4.00000	2130	482.4	232.2	1113.02	.0	.00	5969.0	2626.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 60.9 M3/CALDAY TO REPLACE REQUIRES 2.49 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 36.0 AVERAGE GAS-OIL RATIO IS 157.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	48	5.4	23.0	.20	.0	.00	216.5	166.3	14.42	.0	.00
0009140012610	.50000	616	169.3	81.2	21.62	.0	.00	1159.8	1220.6	105.85	.0	.00
0010140012610	1.00000	720	18.7	29.6	10.02	.0	.00	308.6	338.9	46.92	.0	.00
0002230012610	.50000	480	114.6	179.8	4.00	.0	.00	384.1	511.2	43.78	.0	.00
0001230012610	.25000	720	290.7	244.1	8.80	.0	.00	2564.0	1620.2	100.42	.0	.00
0016140012610	.50000	456	66.2	49.1	20.68	.0	.00	2698.1	575.1	72.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	1724	271.8	268.7	35.57	.0	.00	3287.1	2063.7	197.62	.0	.00
RESERVR UNITS	3.75000	1724	318.0	268.7	593.04	.0	.00	3845.9	2063.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.3 M3/CALDAY TO REPLACE REQUIRES 1.61 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 49.7 AVERAGE GAS-OIL RATIO IS 130.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	720	290.7	244.1	8.80	.0	.00	2564.0	1620.2	100.42	.0	.00
0002230012610	.50000	480	114.6	179.8	4.00	.0	.00	384.1	511.2	43.78	.0	.00
0210230012610	.50000	268	119.2	16.9	25.05	.0	.00	119.2	16.9	25.05	.0	.00
0009230012610	.25000	720	469.9	275.5	12.46	.0	.00	2707.5	2212.6	68.53	.0	.00
0208230012610	.50000	380	240.8	86.2	37.71	.0	.00	240.8	86.2	37.71	.0	.00
SURFACE UNITS	3.00000	924	427.4	271.3	38.69	.0	.00	1689.9	1265.4	95.51	.0	.00
RESERVR UNITS	3.00000	924	500.1	271.3	543.72	.0	.00	1977.2	1265.4	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 43.8 M3/CALDAY TO REPLACE REQUIRES 1.79 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 18.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.8 AVERAGE GAS-OIL RATIO IS 90.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0004240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	720	290.7	244.1	8.80	.0	.00	2564.0	1620.2	100.42	.0	.00
0208230012610	.50000	380	240.8	86.2	37.71	.0	.00	240.8	86.2	37.71	.0	.00
0009230012610	.25000	720	469.9	275.5	12.46	.0	.00	2707.5	2212.6	68.53	.0	.00
0012240012612	.50000	720	375.4	152.6	36.17	.0	.00	1327.1	340.9	92.93	.0	.00
0011240012610	.25000	720	38.9	7.2	4.56	.0	.00	1623.8	90.7	38.82	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
SURFACE UNITS	4.00000	1090	508.0	251.1	43.39	.0	.00	2507.8	1194.4	117.26	.0	.00
RESERVR UNITS	4.00000	1090	594.3	251.1	535.53	.0	.00	2934.1	1194.4	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 46.0 M3/CALDAY TO REPLACE REQUIRES 1.88 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 11.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 33.1 AVERAGE GAS-OIL RATIO IS 85.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	672	39.2	3.4	3.88	.0	.00	2505.5	220.0	33.60	.0	.00
0201240012610	.50000	376	429.4	39.9	74.24	.0	.00	429.4	39.9	74.24	.0	.00
0002240012610	.50000	720	225.6	270.1	62.07	.0	.00	1272.1	1402.9	159.27	.0	.00
0003240012610	.25000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0006240012610	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0011240012610	.25000	720	38.9	7.2	4.56	.0	.00	1623.8	90.7	38.82	.0	.00
0010240012610	.50000	720	27.4	3.6	7.09	.0	.00	1442.5	62.9	50.86	.0	.00
0009240012612	.50000	720	166.7	32.3	32.26	.0	.00	823.0	147.5	134.12	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.00000	2120	473.5	178.1	92.85	.0	.00	4894.9	1069.3	252.55	.0	.00
RESERVR UNITS	5.00000	2120	554.0	178.1	1692.75	.0	.00	5727.1	1069.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 80.5 M3/CALDAY TO REPLACE REQUIRES 3.29 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 27.3 AVERAGE GAS-OIL RATIO IS 196.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	689	.0	.0	.00	1412.4	.00	3732.5	431.2	16.40	6217.1	.00
0009240012612	.50000	720	166.7	32.3	32.26	.0	.00	823.0	147.5	134.12	.0	.00
0010240012610	.50000	720	27.4	3.6	7.09	.0	.00	1442.5	62.9	50.86	.0	.00
0011240012610	.25000	720	38.9	7.2	4.56	.0	.00	1623.8	90.7	38.82	.0	.00
0014240012610	.50000	720	46.1	5.4	5.86	.0	.00	2556.9	144.4	88.45	.0	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0002250012612	.50000	712	380.5	31.9	52.20	.0	.00	1782.4	126.3	227.29	.0	.00
0201250012610	.25000	720	108.4	287.2	3.42	.0	.00	1364.9	1068.9	201.81	.0	.00
0016240012610	1.00000	720	35.8	7.2	14.34	.0	.00	2293.1	119.7	268.64	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.75000	2688	518.6	120.8	84.25	1412.4	.00	10641.0	1091.5	664.69	6217.1	.00
RESERVR UNITS	4.75000	2688	606.8	120.8	1428.44	1412.4	.00	12450.0	1091.5	.00	6217.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.9 M3/CALDAY TO REPLACE REQUIRES 2.93 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 18.9 AVERAGE GAS-OIL RATIO IS 162.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 65.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 45.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	689	.0	.0	.00	1634.8	.00	1914.4	608.2	37.70	6536.2	.00
0201250012610	.25000	720	108.4	287.2	3.42	.0	00	1364.9	1068.9	201.81	.0	.00
0602250012612	.50000	712	380.5	31.9	52.20	.0	.00	1782.4	126.3	227.29	.0	.00
0003250012612	.25000	686	542.7	13.7	76.83	.0	.00	2263.4	40.4	276.55	.0	.00
0006250012610	.50000	720	387.9	232.1	15.64	.0	.00	4001.5	963.5	77.30	.0	.00
0011250012610	.25000	714	348.4	8.5	51.70	.0	.00	3381.3	178.3	152.93	.0	.00
0010250012610	.50000	714	298.3	5.9	34.90	.0	.00	3403.5	281.4	242.16	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0008250012610	.50000	336	10.9	5.0	1.82	.0	.00	2132.7	278.6	29.59	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1945	796.8	215.2	87.98	1634.8	.00	9769.1	1793.2	488.44	6536.2	.00
RESERVR UNITS	4.00000	1945	928.6	215.2	723.51	1634.8	.00	11429.9	1793.2	.00	6536.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 62.2 M3/CALDAY TO REPLACE REQUIRES 4.29 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.3 AVERAGE GAS-OIL RATIO IS 110.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 87.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 49.4

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	720	9.3	21.5	.00	.0	.00	449.7	1147.7	5.48	.0	.00
0204300012510	1.00000	510	71.8	546.7	1.73	.0	.00	1122.9	2372.1	32.33	.0	.00
0201250012610	.50000	720	108.4	287.2	3.42	.0	.00	1364.9	1068.9	201.81	.0	.00
0008250012610	.50000	336	10.9	5.0	1.82	.0	.00	2132.7	278.6	29.59	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0011300012512	.33333	408	24.2	45.4	3.88	.0	.00	1315.3	2708.2	17.13	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.58333	2068	157.8	729.9	8.36	.0	.00	4202.1	5134.5	163.96	.0	.00
RESERVR UNITS	3.58333	2068	183.7	729.9	93.44	.0	.00	4916.5	5134.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 33.6 M3/CALDAY TO REPLACE REQUIRES 1.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 82.3 AVERAGE GAS-OIL RATIO IS 53.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	680	36.0	490.5	8.31	.0	.00	1077.3	2101.8	33.26	.0	.00
0009300012510	1.00000	720	19.8	8.1	1.71	.0	.00	574.2	488.6	12.71	.0	.00
0011300012512	.33333	408	24.2	45.4	3.88	.0	.00	1315.3	2708.2	17.13	.0	.00
0014300012510	.50000	720	42.0	21.5	7.49	.0	.00	1068.5	921.8	81.98	.0	.00
0003310012510	.25000	720	28.8	18.8	.98	.0	.00	1427.0	560.7	13.98	.0	.00
0002310012510	.50000	375	17.6	345.9	.51	.0	.00	1243.4	2516.3	79.36	.0	.00
0001310012510	.50000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0016300012510	1.00000	720	50.1	21.5	8.31	.0	.00	973.9	1062.9	71.84	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	2983	150.8	723.6	23.87	.0	.00	4576.5	6415.2	207.68	.0	.00
RESERVR UNITS	5.08333	2983	176.4	723.6	403.75	.0	.00	5354.5	6415.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 43.5 M3/CALDAY TO REPLACE REQUIRES 1.77 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 82.8 AVERAGE GAS-OIL RATIO IS 158.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 6 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	715	20.8	9.5	3.56	.0	.00	617.2	1278.7	42.98	.0	.00
0011300012512	.33334	408	24.2	45.4	3.88	.0	.00	1315.3	2708.2	17.13	.0	.00
0009250012610	.25000	696	32.7	1.7	10.87	.0	.00	1769.2	152.8	18.98	.0	.00
0016250012610	.50000	720	20.2	.0	1.95	.0	.00	473.2	180.1	20.98	.0	.00
0004310012510	.50000	720	16.3	50.3	1.30	.0	.00	993.0	701.2	42.96	.0	.00
0003310012510	.25000	720	28.8	18.8	.98	.0	.00	1427.0	560.7	13.98	.0	.00
0014300012510	.50000	720	42.0	21.5	7.49	.0	.00	1068.5	921.8	81.98	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2285	83.3	65.7	13.19	.0	.00	3122.0	3261.4	129.89	.0	.00
RESERVR UNITS	3.33334	2285	97.5	65.7	221.65	.0	.00	3652.8	3261.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 12.8 M3/CALDAY TO REPLACE REQUIRES .52 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS .9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 1.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.1 AVERAGE GAS-OIL RATIO IS 158.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	96	.5	74.1	.73	.0	.00	233.8	1326.1	13.81	.0	.00
0014120012610	1.00000	720	6.3	6.0	.54	.0	.00	195.9	325.1	10.24	.0	.00
0004130012610	.50000	538	44.2	9.0	2.43	.0	.00	488.1	371.4	22.20	.0	.00
0008140012610	.50000	744	128.9	297.9	28.61	.0	.00	1562.7	1874.7	140.31	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1457	93.3	233.6	16.79	.0	.00	1455.1	2774.3	105.31	.0	.00
RESERVR UNITS	3.00000	1457	109.2	233.6	294.62	.0	.00	1702.5	2774.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.6 M3/CALDAY TO REPLACE REQUIRES .84 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.4 AVERAGE GAS-OIL RATIO IS 179.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	576	7.9	4.8	3.69	.0	.00	498.5	342.9	22.28	.0	.00
0003130012610	.50000	744	39.3	9.3	5.89	.0	.00	813.5	398.6	61.92	.0	.00
0006130012610	.50000	528	26.3	510.9	2.99	.0	.00	557.9	2083.3	34.85	.0	.00
0011130012610	.25000	744	18.6	9.3	6.31	.0	.00	709.6	379.3	66.86	.0	.00
0012130012610	.50000	744	59.0	18.6	10.10	.0	.00	833.1	497.2	55.37	.0	.00
0009140012610	.25000	744	163.8	222.2	35.18	.0	.00	1323.6	1442.8	141.03	.0	.00
0008140012610	.50000	744	128.9	297.9	28.61	.0	.00	1562.7	1874.7	140.31	.0	.00
0004130012610	.50000	538	44.2	9.0	2.43	.0	.00	488.1	371.4	22.20	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2597	202.4	485.5	39.07	.0	.00	3134.5	3411.0	231.58	.0	.00
RESERVR UNITS	4.00000	2597	236.7	485.5	704.24	.0	.00	3667.3	3411.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 46.0 M3/CALDAY TO REPLACE REQUIRES 1.88 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.6 AVERAGE GAS-OIL RATIO IS 193.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	27.3	9.3	5.05	.0	.00	1161.9	243.5	133.30	.0	.00
0001130012610	1.00000	744	284.8	24.8	81.97	.0	.00	3401.6	171.9	324.82	.0	.00
0008130012610	1.00000	744	45.9	10.3	6.17	.0	.00	680.0	157.6	34.40	.0	.00
0010130012610	.50000	744	18.6	9.3	8.84	.0	.00	1213.3	461.2	75.44	.0	.00
0011130012610	.25000	744	18.6	9.3	6.31	.0	.00	709.6	379.3	66.86	.0	.00
0006130012610	.50000	528	26.3	510.9	2.99	.0	.00	557.9	2083.3	34.85	.0	.00
0003130012610	.50000	744	39.3	9.3	5.89	.0	.00	813.5	398.6	61.92	.0	.00
0002130012610	1.00000	744	39.3	7.4	10.44	.0	.00	1123.5	194.9	94.43	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	4170	444.0	318.9	114.07	.0	.00	7836.7	2334.3	689.77	.0	.00
RESERVR UNITS	5.75000	4170	519.5	318.9	2239.38	.0	.00	9169.0	2334.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 99.3 M3/CALDAY TO REPLACE REQUIRES 4.05 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 41.8 AVERAGE GAS-OIL RATIO IS 256.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	33.9	6.2	7.15	.0	.00	3264.5	575.9	40.53	.0	.00
0010130012610	.50000	744	18.6	9.3	8.84	.0	.00	1213.3	461.2	75.44	.0	.00
0011130012610	.25000	744	18.6	9.3	6.31	.0	.00	709.6	379.3	66.86	.0	.00
0014130012610	.50000	744	51.3	24.8	11.78	.0	.00	1762.7	1134.9	146.18	.0	.00
0003240012610	.25000	408	216.2	54.8	20.78	.0	.00	216.2	54.8	20.78	.0	.00
0002240012610	.50000	734	196.1	416.3	45.66	.0	.00	1468.2	1819.2	204.93	.0	.00
0201240012610	.50000	695	250.9	17.4	56.99	.0	.00	680.3	57.3	131.23	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2491	351.0	256.1	75.56	.0	.00	6058.2	2420.7	341.33	.0	.00
RESERVR UNITS	3.50000	2491	410.7	256.1	1412.18	.0	.00	7088.1	2420.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 67.1 M3/CALDAY TO REPLACE REQUIRES 2.74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.2 AVERAGE GAS-OIL RATIO IS 215.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	620	193.8	162.9	34.36	.0	.00	1600.0	904.5	181.99	.0	.00
0011130012610	.25000	744	18.6	9.3	6.31	.0	.00	709.6	379.3	66.86	.0	.00
0012130012610	.50000	744	59.0	18.6	10.10	.0	.00	833.1	497.2	55.37	.0	.00
0009140012610	.25000	744	163.8	222.2	35.18	.0	.00	1323.6	1442.8	141.03	.0	.00
0016140012610	.50000	744	101.9	76.5	49.51	.0	.00	2800.0	651.6	122.22	.0	.00
0001230012610	.25000	744	294.1	378.6	24.69	.0	.00	2858.1	1998.8	125.11	.0	.00
0004240012610	.50000	396	163.8	84.3	15.74	.0	.00	163.8	84.3	15.74	.0	.00
0003240012610	.25000	408	216.2	54.8	20.78	.0	.00	216.2	54.8	20.78	.0	.00
0014130012610	.50000	744	51.3	24.8	11.78	.0	.00	1762.7	1134.9	146.18	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2594	555.0	431.2	99.66	.0	.00	5656.7	3057.4	440.19	.0	.00
RESERVR UNITS	4.00000	2594	649.3	431.2	1747.81	.0	.00	6618.3	3057.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 91.2 M3/CALDAY TO REPLACE REQUIRES 3.72 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.7 AVERAGE GAS-OIL RATIO IS 179.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	744	43.4	502.7	4.33	.0	.00	259.9	669.0	18.74	.0	.00
0009140012610	.50000	744	163.8	222.2	35.18	.0	.00	1323.6	1442.8	141.03	.0	.00
0010140012610	1.00000	744	15.3	55.9	8.98	.0	.00	323.9	394.8	55.90	.0	.00
0002230012610	.50000	365	98.6	253.7	1.38	.0	.00	482.7	764.9	45.16	.0	.00
0001230012610	.25000	744	294.1	378.6	24.69	.0	.00	2858.1	1998.8	125.11	.0	.00
0016140012610	.50000	744	101.9	76.5	49.51	.0	.00	2800.0	651.6	122.22	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2601	314.4	929.4	62.52	.0	.00	3601.5	2993.2	260.12	.0	.00
RESERVR UNITS	3.75000	2601	367.8	929.4	1183.30	.0	.00	4213.7	2993.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 80.0 M3/CALDAY TO REPLACE REQUIRES 3.27 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74.7 AVERAGE GAS-OIL RATIO IS 198.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	744	294.1	378.6	24.69	.0	.00	2858.1	1998.8	125.11	.0	.00
0002230012610	.50000	365	98.6	253.7	1.38	.0	.00	482.7	764.9	45.16	.0	.00
0210230012610	.50000	693	368.8	67.7	16.01	.0	.00	488.0	84.6	41.06	.0	.00
0009230012610	.25000	772	395.3	629.5	11.88	.0	.00	3102.8	2842.1	80.41	.0	.00
0208230012610	.50000	629	429.3	112.9	13.66	.0	.00	670.1	199.1	51.37	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1223	620.7	469.2	24.67	.0	.00	2310.6	1734.5	120.18	.0	.00
RESERVR UNITS	3.00000	1223	726.2	469.2	59.28	.0	.00	2703.4	1734.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.5 M3/CALDAY TO REPLACE REQUIRES 1.65 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 21.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.0 AVERAGE GAS-OIL RATIO IS 39.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	408	178.4	91.4	17.14	.0	.00	178.4	91.4	17.14	.0	.00
0003240012610	.25000	408	216.2	54.8	20.78	.0	.00	216.2	54.8	20.78	.0	.00
0004240012610	.50000	396	163.8	84.3	15.74	.0	.00	163.8	84.3	15.74	.0	.00
0001230012610	.25000	744	294.1	378.6	24.69	.0	.00	2858.1	1998.8	125.11	.0	.00
0208230012610	.50000	629	429.3	112.9	13.66	.0	.00	670.1	199.1	51.37	.0	.00
0009230012610	.25000	772	395.3	629.5	11.88	.0	.00	3102.8	2842.1	80.41	.0	.00
0012240012612	.50000	720	307.9	330.3	62.98	.0	.00	1635.0	671.2	155.91	.0	.00
0011240012610	.25000	744	32.8	9.3	2.52	.0	.00	1656.6	100.0	41.34	.0	.00
0006240012610	.50000	414	199.9	16.0	19.21	.0	.00	199.9	16.0	19.21	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2155	963.4	631.2	87.90	.0	.00	3471.2	1825.6	205.17	.0	.00
RESERVR UNITS	4.00000	2155	1127.2	631.2	1100.73	.0	.00	4061.3	1825.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 92.2 M3/CALDAY TO REPLACE REQUIRES 3.76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.6 AVERAGE GAS-OIL RATIO IS 91.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007240012610	1.00000	744	36.0	6.2	4.21	.0	.00	2541.5	226.2	37.61	.0	.00
0201240012610	.50000	695	250.9	17.4	56.99	.0	.00	680.3	57.3	131.23	.0	.00
0002240012610	.50000	734	196.1	416.3	45.66	.0	.00	1468.2	1819.2	204.93	.0	.00
0003240012610	.25000	408	216.2	54.8	20.78	.0	.00	216.2	54.8	20.78	.0	.00
0006240012610	.50000	414	199.9	16.0	19.21	.0	.00	199.9	16.0	19.21	.0	.00
0011240012610	.25000	744	32.8	9.3	2.52	.0	.00	1656.6	180.0	41.34	.0	.00
0010240012610	.50000	744	30.6	6.2	6.73	.0	.00	1473.1	69.1	57.59	.0	.00
0009240012612	.50000	744	157.2	9.3	33.66	.0	.00	980.2	156.8	167.78	.0	.00
0208240012610	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.00000	2698	515.6	254.8	91.16	.0	.00	5410.5	1324.1	343.71	.0	.00
RESERVR UNITS	5.00000	2698	603.3	254.8	1588.67	.0	.00	6330.3	1324.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 78.9 M3/CALDAY TO REPLACE REQUIRES 3.22 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 33.1 AVERAGE GAS-OIL RATIO IS 176.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 10 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015240012610	1.00000	661	.0	.0	.00	3114.9	.00	3732.5	431.2	16.40	9332.0	.00
0009240012612	.50000	744	157.2	9.3	33.66	.0	.00	980.2	156.8	167.78	.0	.00
0010240012610	.50000	744	30.6	6.2	6.73	.0	.00	1473.1	69.1	57.59	.0	.00
0011240012610	.25000	744	32.8	9.3	2.52	.0	.00	1656.6	180.0	41.34	.0	.00
0014240012610	.50000	744	43.7	12.4	2.95	.0	.00	2600.6	156.8	91.39	.0	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0002250012612	.50000	692	294.5	34.6	57.14	.0	.00	2076.9	168.9	284.43	.0	.00
0201250012610	.25000	720	142.7	663.7	7.33	.0	.00	1507.6	1732.6	209.14	.0	.00
0016240012610	1.00000	744	31.3	6.2	11.78	.0	.00	2324.4	125.9	280.42	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.75000	2752	462.9	208.7	77.21	3114.9	.00	11103.9	1300.2	741.90	9332.0	.00
RESERVR UNITS	4.75000	2752	541.6	209.7	1312.77	3114.9	.00	12991.6	1300.2	.00	9332.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 66.5 M3/CALDAY TO REPLACE REQUIRES 2.72 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.1 AVERAGE GAS-OIL RATIO IS 166.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 151.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 65.3

JASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	661	.0	.0	.00	2663.0	.00	1914.4	608.2	37.70	9199.2	.00
0201250012610	.25000	720	142.7	663.7	7.33	.0	.00	1507.6	1732.6	209.14	.0	.00
0002250012612	.50000	692	294.5	34.6	57.14	.0	.00	2076.9	160.9	284.43	.0	.00
0003250012612	.25000	720	498.8	12.0	50.90	.0	.00	2762.2	52.4	327.45	.0	.00
0006250012610	.50000	716	395.1	265.8	16.60	.0	.00	4396.6	1229.3	93.90	.0	.00
0011250012610	.25000	740	233.0	9.3	20.09	.0	.00	3614.3	187.6	173.02	.0	.00
0010250012610	.50000	744	282.8	9.3	24.83	.0	.00	3686.3	290.7	266.98	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0008250012610	.50000	288	13.7	.0	2.72	.0	.00	2146.4	278.6	32.31	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1855	716.2	326.8	71.34	2663.0	.00	10485.3	2120.1	559.78	9199.2	.00
RESERVR UNITS	4.00000	1855	834.6	326.8	530.08	2663.0	.00	12267.8	2120.1	.00	9199.2	.00

AVERAGE RATE OF VOIDAGE CREATION IS 54.6 M3/CALDAY TO REPLACE REQUIRES 3.76 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.3 AVERAGE GAS-OIL RATIO IS 99.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 157.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 63.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	14.7	10.9	1.26	.0	.00	464.4	1158.6	6.74	.0	.00
0204300012510	1.00000	744	69.9	1176.0	2.10	.0	.00	1192.8	3548.1	34.43	.0	.00
0201250012610	.50000	720	142.7	663.7	7.33	.0	.00	1507.6	1732.6	209.14	.0	.00
0008250012610	.50000	288	13.7	.0	2.72	.0	.00	2146.4	278.6	32.31	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0011300012512	.33333	236	6.2	112.2	1.74	.0	.00	1321.5	2820.4	18.87	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.58333	2161	169.4	1556.9	10.08	.0	.00	4371.5	6691.4	174.05	.0	.00
RESERVR UNITS	3.58333	2161	198.2	1556.9	71.25	.0	.00	5114.6	6691.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.9 M3/CALDAY TO REPLACE REQUIRES 2.40 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 90.2 AVERAGE GAS-OIL RATIO IS 59.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	552	26.7	653.8	5.93	.0	.00	1104.0	2755.6	39.19	.0	.00
0009300012510	1.00000	744	20.7	9.3	2.95	.0	.00	594.9	497.9	15.65	.0	.00
0011300012512	.33333	236	6.2	112.2	1.74	.0	.00	1321.5	2820.4	18.87	.0	.00
0014300012510	.50000	744	28.4	22.8	7.29	.0	.00	1096.9	944.6	89.27	.0	.00
0003310012510	.25000	744	21.8	33.1	5.89	.0	.00	1448.8	593.8	19.87	.0	.00
0002310012510	.50000	744	216.8	542.3	12.94	.0	.00	1460.2	3058.6	92.30	.0	.00
0001310012510	.50000	676	207.5	93.2	19.94	.0	.00	207.5	93.2	19.94	.0	.00
0016300012510	1.00000	744	43.7	37.2	6.52	.0	.00	1017.6	1100.1	78.36	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3387	325.0	1075.1	37.54	.0	.00	4901.5	7490.4	245.21	.0	.00
RESERVR UNITS	5.08333	3387	380.2	1075.1	513.30	.0	.00	5734.7	7490.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 63.5 M3/CALDAY TO REPLACE REQUIRES 2.59 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.8 AVERAGE GAS-OIL RATIO IS 115.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	744	21.8	9.3	7.99	.0	.00	639.0	1288.0	50.98	.0	.00
0011300012512	.33334	236	6.2	112.2	1.74	.0	.00	1321.5	2820.4	18.87	.0	.00
0009250012610	.25000	360	18.0	3.0	4.48	.0	.00	1787.2	155.8	23.46	.0	.00
0016250012610	.50000	744	21.8	.0	3.09	.0	.00	495.0	180.1	24.06	.0	.00
0004310012510	.50000	744	20.1	86.9	4.71	.0	.00	1013.1	788.1	47.67	.0	.00
0003310012510	.25000	744	21.8	33.1	5.89	.0	.00	1448.8	593.8	19.87	.0	.00
0014300012510	.50000	744	28.4	22.8	7.29	.0	.00	1096.9	944.6	89.27	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2215	69.0	110.6	18.71	.0	.00	3191.0	3372.0	148.60	.0	.00
RESERVR UNITS	3.33334	2215	80.7	110.6	372.09	.0	.00	3733.5	3372.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 18.2 M3/CALDAY TO REPLACE REQUIRES .74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS .7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 1.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.6 AVERAGE GAS-OIL RATIO IS 271.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATION. FOR PATTERN NUMBER 1 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=81.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	0	.0	0	.00	.0	.00	523.8	1226.1	13.81	.0	.00
0014120012610	1.00000	688	9.0	17.0	.60	.0	.00	204.9	302.1	10.84	.0	.00
0004130011610	.50000	384	12.6	2.6	1.10	.0	.00	500.7	374.0	23.30	.0	.00
0008140012610	.50000	732	198.6	327.0	37.80	.0	.00	1761.3	2201.7	175.11	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1246	114.6	181.8	26.05	.0	.00	1569.7	2956.1	125.36	.0	.00
RESERVR UNITS	3.00000	1246	134.1	181.8	347.92	.0	.00	1836.5	2956.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 21.4 M3/CALDAY TO REPLACE REQUIRES .87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.3 AVERAGE GAS-OIL RATIO IS 175.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=81.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	408	26.4	7.7	1.70	.0	.00	524.9	358.6	22.99	.0	.00
0003130012610	.50000	744	84.2	14.5	3.50	.0	.00	857.7	413.1	65.42	0	.00
0006130012610	.50000	0	.0	.0	.00	.0	.00	557.9	2083.3	34.85	.0	.00
0011130012610	.25000	744	36.5	6.7	4.90	.0	.00	738.1	386.0	71.76	.0	.00
0012130012610	.50000	744	64.5	10.5	5.10	.0	.00	897.6	502.7	60.47	0	.00
0009140012610	.25000	744	118.1	812.0	13.20	.0	.00	1441.7	1968.8	154.23	.0	.00
0008140012610	.50000	732	198.6	327.0	37.80	.0	.00	1761.3	2201.7	178.11	.0	.00
0004130012610	.50000	384	12.6	2.6	1.10	.0	.00	500.7	374.0	23.30	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2882	223.0	291.2	29.97	.0	.00	3357.5	3702.2	261.55	0	.00
RESERVR UNITS	4.00000	2882	260.9	291.2	455.53	.0	.00	3928.2	3702.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 32.5 M3/CALDAY TO REPLACE REQUIRES 1.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 56.6 AVERAGE GAS-OIL RATIO IS 134.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	31.7	6.7	4.30	.0	.00	1193.6	247.0	132.60	.0	.00
0001130012610	1.00000	677	210.7	6.8	49.70	.0	.00	3612.3	178.7	373.52	.0	.00
0006130012610	1.00000	744	44.9	5.3	5.40	.0	.00	724.5	162.5	37.80	.0	.00
0010130012610	.50000	744	24.0	5.5	5.70	.0	.00	1237.3	466.7	81.14	.0	.00
0011130012610	.25000	744	28.5	6.7	4.90	.0	.00	738.1	386.0	71.76	.0	.00
0006130012610	.50000	0	.0	.0	.00	.0	.00	557.9	2083.3	34.85	.0	.00
0003130012610	.50000	744	44.2	14.5	3.50	.0	.00	857.7	413.1	65.42	.0	.00
0002130012610	1.00000	744	66.3	5.3	6.00	.0	.00	1189.8	200.2	100.43	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	3839	394.8	35.4	68.22	.0	.00	8231.6	2369.7	757.99	.0	.00
RESERVR UNITS	5.75000	3839	461.9	35.4	1177.79	.0	.00	9630.9	2369.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 54.0 M3/CALDAY TO REPLACE REQUIRES 2.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 2.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 8.2 AVERAGE GAS-OIL RATIO IS 172.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	51.4	8.7	6.40	.0	.00	3315.9	584.6	46.93	.0	.00
0010130012610	.50000	744	24.0	5.5	5.70	.0	.00	1237.3	466.7	81.14	.0	.00
0011130012610	.25000	744	28.5	6.7	4.90	.0	.00	738.1	386.0	71.76	.0	.00
0014130012610	.50000	744	41.1	5.3	7.70	.0	.00	1803.8	1140.2	153.88	.0	.00
0003240012610	.25000	743	258.0	151.9	13.00	.0	.00	474.2	236.7	33.75	.0	.00
0002240012610	.50000	714	110.1	76.4	25.40	.0	.00	1578.3	1895.6	220.33	.0	.00
0201240012610	.50000	720	364.3	52.1	75.00	.0	.00	1044.6	109.4	206.23	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2577	392.8	125.5	67.77	.0	.00	6451.0	2546.2	409.10	.0	.00
RESERVR UNITS	3.50000	2577	459.5	125.5	1170.36	.0	.00	7547.6	2546.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 56.6 M3/CALDAY TO REPLACE REQUIRES 2.31 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.2 AVERAGE GAS-OIL RATIO IS 172.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

UASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.0% M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	220.5	121.3	35.00	.0	.00	1938.5	1025.9	216.99	.0	.00
0011130012610	.25000	744	28.5	6.7	4.90	.0	.00	738.1	386.0	71.76	.0	.00
0012170012610	.50000	744	64.5	10.5	5.10	.0	.00	897.6	567.7	68.47	.0	.00
0009140012610	.25000	744	118.1	418.0	13.20	.0	.00	1441.7	1860.8	154.23	.0	.00
0016140012610	.50000	744	123.4	70.9	13.60	.0	.00	2923.4	722.5	135.82	.0	.00
0001230012610	.25000	736	223.5	215.7	20.90	.0	.00	3081.6	2214.5	146.01	.0	.00
0004240012610	.50000	721	207.5	242.9	9.50	.0	.00	371.3	327.2	25.24	.0	.00
0003240012610	.25000	743	258.0	181.9	13.00	.0	.00	474.2	236.7	33.78	.0	.00
0014130012610	.50000	744	41.1	5.3	7.70	.0	.00	1803.8	1140.2	153.88	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2962	613.8	491.7	65.95	.0	.00	6270.4	3549.1	506.14	.0	.00
RESERVR UNITS	4.00000	2962	718.1	491.7	862.65	.0	.00	7336.4	3549.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 66.9 M3/CALDAY TO REPLACE REQUIRES 2.73 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.5 AVERAGE GAS OIL RATIO IS 107.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

UASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.0% M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	744	18.4	660.3	1.70	.0	.00	278.3	1329.3	20.44	.0	.00
0009140012610	.50000	744	118.1	418.0	13.20	.0	.00	1441.7	1861.8	154.23	.0	.00
0010140012610	1.00000	744	15.1	39.9	2.20	.0	.00	339.0	434.7	58.10	.0	.00
0002230012610	.50000	672	10.1	1068.8	1.10	.0	.00	422.8	1833.7	46.26	.0	.00
0001230012610	.25000	736	223.5	215.7	20.90	.0	.00	3081.6	2214.5	146.01	.0	.00
0016140012610	.50000	744	123.4	70.9	13.60	.0	.00	2923.4	722.5	135.82	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2752	215.2	1533.0	23.87	.0	.00	3816.7	4524.1	293.20	.0	.00
RESERVR UNITS	3.75000	2752	251.8	1533.0	296.27	.0	.00	4485.5	4526.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 67.1 M3/CALDAY TO REPLACE REQUIRES 2.74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 87.7 AVERAGE GAS-OIL RATIO IS 187.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 7 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	0	.00	.0	.00
0001230012610	.25000	736	223.5	215.7	20.90	.0	.00	3081.6	2214.5	146.61	.0	.00
0002230012610	.50000	672	10.1	1068.8	1.10	.0	.00	422.8	1833.7	46.26	.0	.00
0102230012610	.50000	720	286.8	50.8	11.10	.0	.00	774.8	1354	52.16	.0	.00
0009230012610	.25000	659	179.9	602.9	7.10	.0	.00	3282.7	3445 0	87.51	.0	.00
0208230012610	.50000	608	363.3	157.5	11.10	.0	.00	1033.4	356.6	62.47	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1349	430.9	843.2	18.65	.0	.00	2741.6	2577.7	138.83	.0	.00
RESERVR UNITS	3.00000	1349	504.2	843.2	65.30	.0	.00	3207.6	2577.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.6 M3/CALDAY TO REPLACE REQUIRES 1.86 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 22.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 66.2 AVERAGE GAS-OIL RATIO IS 43.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	733	218.5	318.1	10.10	.0	.00	396.9	409.5	27.24	.0	.00
0003240012610	.25000	743	258.0	181.9	13.00	.0	.00	474.2	236.7	33.78	.0	.00
0004240012610	.50000	721	207.5	242.9	9.50	.0	.00	371.3	327.2	25.24	.0	.00
0001230012610	.25000	736	223.5	215.7	20.90	.0	.00	3081.6	2214.5	146.61	.0	.00
0208230012610	.50000	608	363.3	157.5	11.10	.0	.00	1033.4	356.6	62.47	.0	.00
0009230012610	.25000	659	179.9	602.9	7.10	.0	.00	3282.7	3445 0	87.51	.0	.00
0012240012612	.50000	744	353.8	225.0	40.20	.0	.00	1998.8	896.2	196.11	.0	.00
0011240012610	.25000	744	40.7	5 3	3.70	.0	.00	1697.3	105.7	45.99	.0	.00
0006240012610	.50000	727	319.4	61.9	17.00	.0	.00	519.3	77.9	36.21	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2854	1016.0	913.2	60.17	.0	.00	4487.2	2738.8	265.34	.0	.00
RESERVR UNITS	4.00000	2854	1188.7	913.2	347.87	.0	.00	5250.1	2738.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 79.2 M3/CALDAY TO REPLACE REQUIRES 3.22 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.3 AVERAGE GAS-OIL RATIO IS 59.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 KPa THE OIL FORMATION VOLUME FACTOR=1.175 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	739	.0	.0	00	4325.9	.00	1914.4	608.2	37.70	12525.1	.00
0241250012610	.25000	744	42.4	913.9	3.60	.0	.00	1550.0	2648.5	212.74	.0	.00
0002250012612	.50000	744	321.8	28.4	41.20	0	.00	2408.7	189.3	325.63	.0	.00
0003250012612	.25000	680	477.1	33.8	22.20	.0	.00	3239.3	86.2	349.65	.0	.00
0006250012610	.50000	744	408.9	250.1	33.50	.0	.00	4805.5	1479.4	127.40	.0	.00
0011250012610	.25000	690	283.7	12.0	22.80	.0	.00	3898.0	1149.6	195.82	.0	.00
0010250012610	.50000	728	234.1	205.5	13.40	.0	.00	3920.4	496.2	280.38	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1787.2	155.8	23.46	.0	.00
0008250012610	.50000	696	153.9	41.7	12.60	.0	.00	2300.3	328.3	44.91	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1985	765.1	502.8	62.50	4325.9	.00	11250.5	2622.8	622.28	13525.1	.00
RESERVR UNITS	4.00000	1985	891.7	502.9	387.61	4325.9	.00	13163.1	2622.8	.00	13525.1	.00

AVERAGE RATE OF VOIDAGE CREATION IS 56.2 M3/CALDAY TO REPLACE REQUIRES 3.88 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 39.7 AVERAGE GAS-OIL RATIO IS 81.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 248.3 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 85.7

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 KPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	738	8.1	2.4	1.50	.0	.00	472.5	1161.0	8.24	.0	.00
0204300012510	1.00000	658	104.1	527.1	.90	.0	.00	1296.9	4075.2	35.33	.0	.00
0201250012610	.50000	744	42.4	913.9	3.60	.0	.00	1550.0	2648.5	212.74	.0	.00
0008250012610	.50000	696	153.9	41.7	12.60	.0	.00	2300.3	328.3	44.91	.0	.00
0009250012610	.25000	0	0	.0	.00	.0	.00	1787.2	155.8	23.46	.0	.00
0011300012512	.33333	570	16.7	150.1	3.00	.0	.00	1338.2	2971.5	21.97	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.58333	2306	215.9	1057.3	11.50	.0	.00	4587.4	7748.7	185.55	.0	.00
RESERVR UNITS	3.58333	2306	252.6	1057.3	119.88	.0	.00	5367.3	7748.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.1 M3/CALDAY TO REPLACE REQUIRES 1.89 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 83.8 AVERAGE GAS-OIL RATIO IS 53.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

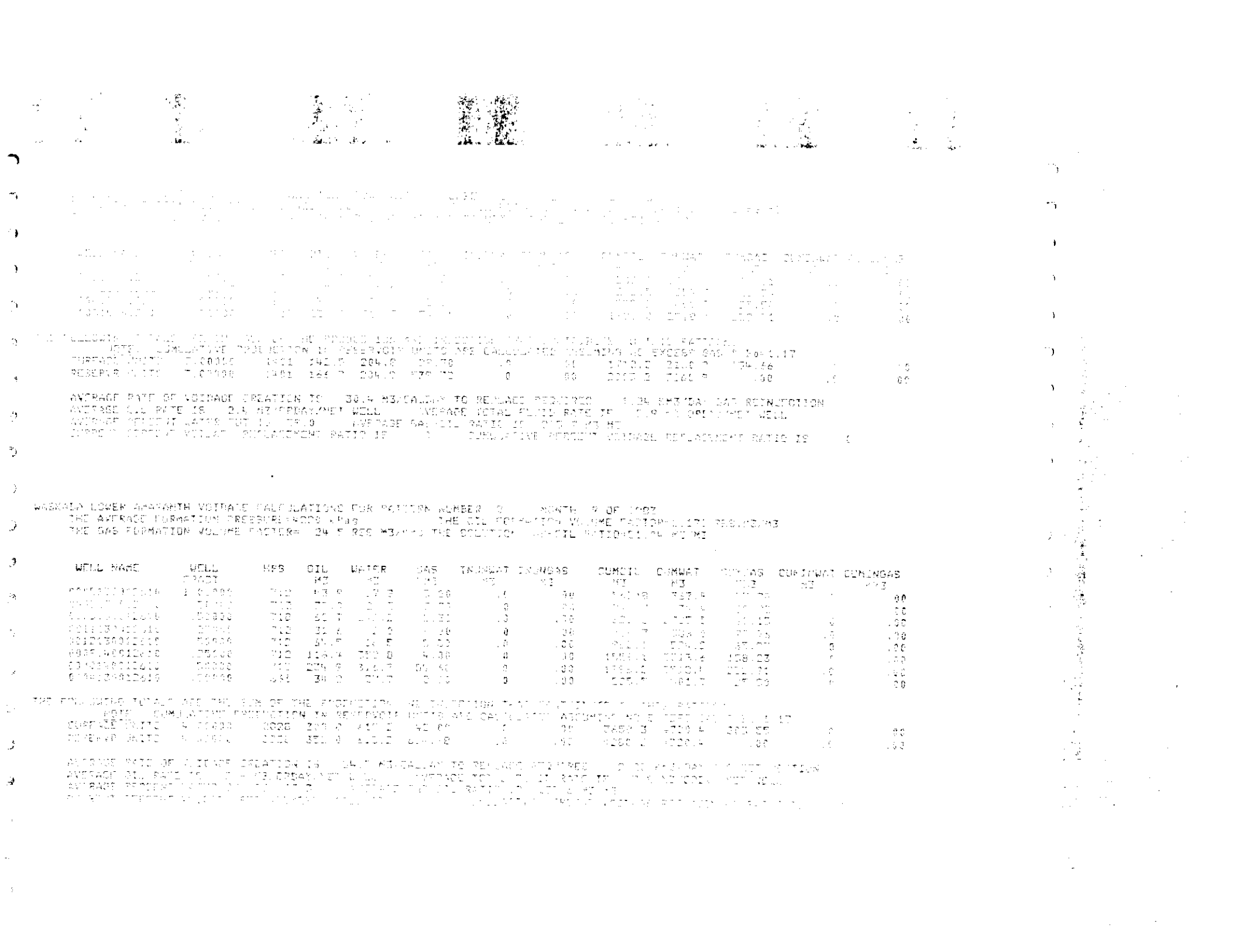
WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	718	41.9	664.7	4.30	.0	.00	1145.8	3821.2	43.49	.0	.00
0009300012510	1.00000	730	21.6	5.3	1.10	.0	.00	516.5	543.2	16.75	.0	.00
0011300012512	.33333	570	16.7	150.1	3.00	.0	.00	1338.2	2973.5	21.87	.0	.00
0014300012510	.50000	738	20.6	42.3	4.70	.0	.00	1117.5	986.9	93.97	.0	.00
0003310012510	.25000	696	29.7	24.0	5.10	.0	.00	1478.5	617.8	24.97	.0	.00
0002310012510	.50000	696	180.4	496.7	7.60	.0	.00	1640.6	3555.3	99.90	.0	.00
0001310012510	.50000	744	163.6	192.7	6.30	.0	.00	371.1	285.9	26.24	.0	.00
0016300012510	1.00000	738	42.6	16.5	3.80	.0	.00	1060.2	1116.6	82.16	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3647	300.5	1108.3	28.77	.0	.00	5202.0	8598.7	265.99	.0	.00
RESERVR UNITS	5.08333	3647	351.6	1108.3	178.10	.0	.00	6086.3	8598.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 52.8 M3/CALDAY TO REPLACE REQUIRES 2.16 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 78.7 AVERAGE GAS-OIL RATIO IS 69.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 8 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51 04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0017300012510	1.00000	738	14.5	15.6	2.40	.0	.00	653.5	1303.6	53.38	.0	.00
0011300012512	.33334	570	16.7	150.1	3.00	.0	.00	1338.2	2973.5	21.87	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1787.2	155.8	23.46	.0	.00
0016250012610	.50000	744	13.5	.0	1.30	.0	.00	508.5	198.1	25.36	.0	.00
0004310012510	.50000	688	25.2	43.4	5.00	.0	.00	1038.3	831.5	52.67	.0	.00
0003310012510	.25000	696	29.7	24.0	5.10	.0	.00	1478.5	617.8	24.97	.0	.00
0014300012510	.50000	738	20.6	42.3	4.70	.0	.00	1117.5	986.9	93.97	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2187	57.1	114.5	10.18	.0	.00	3248.2	3486.4	158.78	.0	.00
RESERVR UNITS	3.33334	2187	66.9	114.5	177.83	.0	.00	3860.3	3486.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.6 M3/CALDAY TO REPLACE REQUIRES .47 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 1.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 86.7 AVERAGE GAS-OIL RATIO IS 175.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0



THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS (Bo= 1.17

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS (Bo= 1.17

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.63660	1677	655.0	527.3	24.07	.0	.00	3624.8	3145.1	100.00	.0	00		
RESERVR UNITS	3.88800	1777	333 ?	557.3	225.62	.0	00	3541.N	3165.1	.00	0	00		

AVERAGE RATE OF VOIDAGE REPLACEMENT IS 70.6 M3/DAY(AT STD TEMP & PRES) 1.97 MMSCFD GAS REINJECTION
ACTUAL TO TOTAL INJECTION VOID RATIO IS 1.0 ; AVERAGE TOTAL VOID RATE IS 10.4 M3/DAY; NET VOID
AVERAGE PERCENT WATER CUT IS 6.7 AVERAGE GAS OIL RATIO IS 1.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 1 ULTIMATE VOIDAGE REPLACEMENT RATIO IS 1

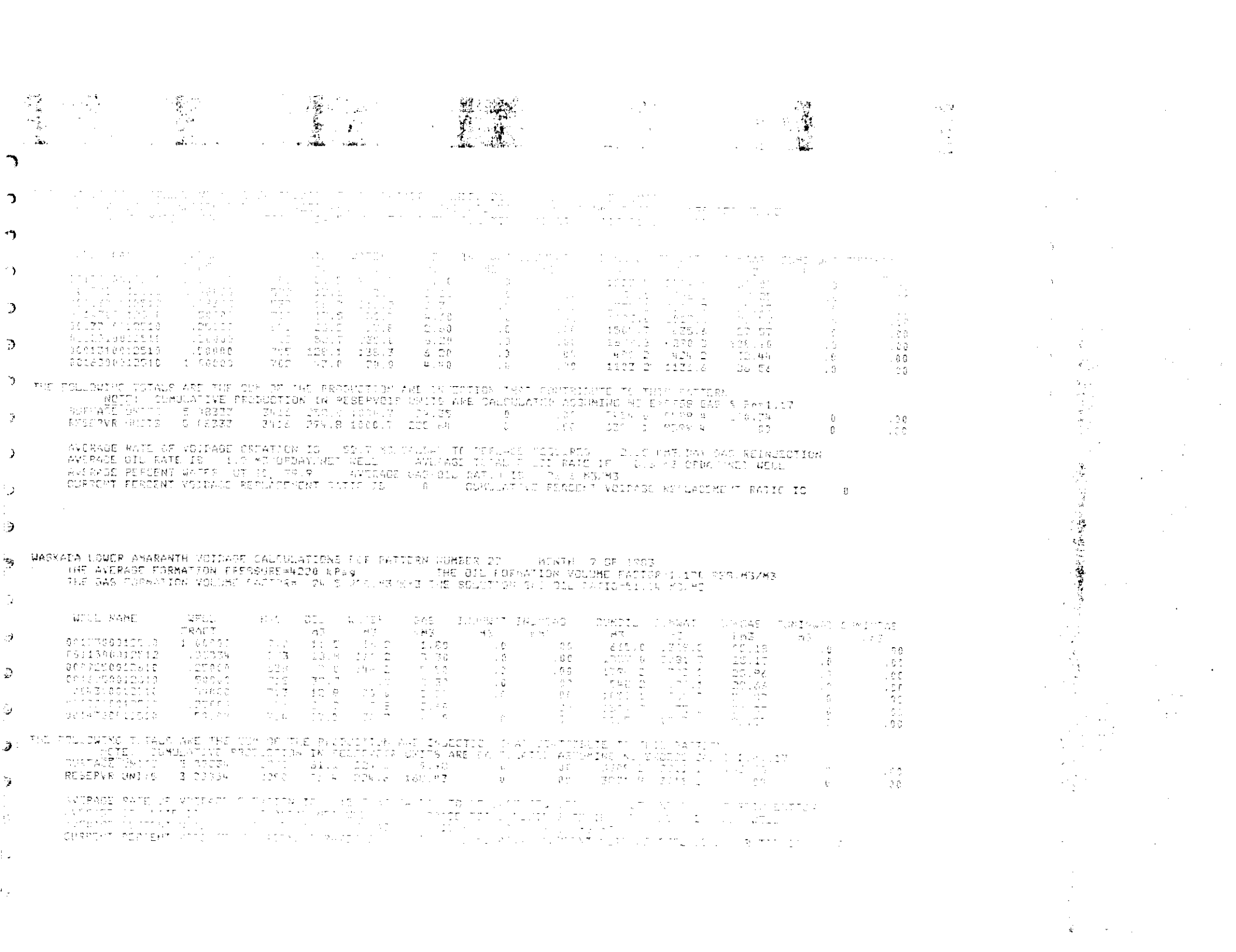
WASKADA LOWER AMAPANTI VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 FROM 5 OF 2102
THE AVERAGE FORMATION PRESSURE=4220 LPS THE OIL FORMATION VOLUME FACTOR= 1.170 RES.M3/STM3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KMT THE SOLUTION GAS OIL RATIO=70 84 M3/M3

WELL NAME	WELL FRACT	HRS	OIL BPD	WATER BPD	GAS MCFD	INJGAS INJ GAS	INJWAT INJ WAT	CUMOIL CUM OIL MBBL	CUMWAT CUM WAT MBBL	CUMGAS CUM GAS MMCF	INJGAS CUM INJ GAS MMCF	INJWAT CUM INJ WAT MBBL
0101Z040132610	1.00000	720	372.6	264.3	17.00	.0	.0	770.5	410.8	54.15	0	.00
0203Z040132610	.85000	710	289.5	219.1	35.40	.0	.00	597.3	373.8	80.10	0	.00
0104Z040132610	.50000	715	349.5	174.8	10.70	.0	.0	755.0	347.1	44.80	0	.00
0301Z040132610	.35000	696	207.0	72.4	17.90	.0	.00	2229.8	1274.1	143.31	0	.00
0205Z040132610	.50000	670	265.0	866.0	15.60	0	.00	2036.0	1134.7	81.05	0	.00
0302Z040132610	.35000	695	66.9	630.8	7.00	.0	.00	2240.6	1407.1	87.31	0	.00
0201Z040132610	.50000	702	391.0	241.0	36.00	.0	.00	2241.0	1300.1	277.01	0	.00
0101Z040132610	.37000	710	51.3	.0	1.40	.0	.00	1712.0	1000.1	111.01	0	.00
0202Z040132610	.50000	710	298.1	21.2	11.00	.0	.00	2127.0	1249.1	12.01	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2802	1151.2	829.5	81.40	.0	00	5446.5	2420 ?	702.74	0	.00		
RESERVR UNITS	4.00000	2802	1352.0	827.3	726.40	.0	.00	6098.9	3.47 ?	.00	.0	.00		

AVERAGE RATE OF VOIDAGE REPLACEMENT IS [illegible] (AT STD TEMP & PRES) [illegible] MMSCFD GAS REINJECTION
AVERAGE TO TOTAL INJECTION VOID RATIO IS [illegible] ; AVERAGE TOTAL VOID RATE IS [illegible] M3/DAY; NET VOID
AVERAGE PERCENT WATER CUT IS [illegible] AVERAGE GAS OIL RATIO IS [illegible] M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS [illegible] ULTIMATE VOIDAGE REPLACEMENT RATIO IS [illegible]



WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	0	.0	.0	.00	.0	.00	233.8	1340.9	14.01	.0	.00
0014120012610	1.00000	694	5.2	17.0	.70	.0	.00	317.7	376.9	12.24	.0	.00
0004130012610	.50000	694	41.6	30.8	3.00	.0	.00	577.1	432.5	28.50	.0	.00
0008140012610	.50000	742	256.2	318.5	54.90	.0	.00	2252.4	2836.9	287.61	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1412	154.1	191.7	29.65	.0	.00	1866.3	3352.5	184.30	.0	.00
RESERVR UNITS	3.00000	1412	180.3	191.7	533.73	.0	.00	2183.5	3352.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.2 M3/CALDAY TO REPLACE REQUIRES 1.19 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.4 AVERAGE GAS-OIL RATIO IS 192.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	742	44.0	10.9	5.10	.0	.00	612.8	378.8	32.88	.0	.00
0003130012610	.50000	744	34.9	14.9	3.80	.0	.00	929.6	449.3	73.02	.0	.00
0006130012610	.50000	742	105.9	636.5	3.70	.0	.00	732.5	3362.0	43.85	.0	.00
0011130012610	.25000	742	36.6	2.9	6.60	.0	.00	806.3	390.9	84.36	.0	.00
0012130012610	.50000	742	60.1	21.2	5.50	.0	.00	1022.2	545.4	71.47	.0	.00
0009140012610	.25000	742	126.9	355.0	4.10	.0	.00	1685.0	2568.0	162.33	.0	.00
0008140012610	.50000	742	256.2	318.5	54.90	.0	.00	2252.4	2836.9	287.61	.0	.00
0004130012610	.50000	694	41.6	30.8	3.00	.0	.00	577.1	432.5	28.50	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2945	334.2	611.3	43.22	.0	.00	3992.5	4931.7	346.78	.0	.00
RESERVR UNITS	4.00000	2945	391.0	611.3	676.52	.0	.00	4671.3	4931.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 54.2 M3/CALDAY TO REPLACE REQUIRES 2.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.7 AVERAGE GAS-OIL RATIO IS 129.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	742	63.6	4.6	8.80	.0	.00	3430.3	596.2	63.93	.0	.00
0010130012610	.50000	742	34.0	25.1	3.80	.0	.00	1299.2	512.7	88.04	.0	.00
0011130012610	.25000	742	36.6	2.9	6.60	.0	.00	806.3	390.9	84.36	.0	.00
0014130012610	.50000	742	84.5	14.5	10.00	.0	.00	1956.3	1168.1	173.88	.0	.00
0003240012610	.25000	742	275.8	487.1	37.60	.0	.00	1039.5	942.9	99.78	.0	.00
0002240012610	.50000	698	254.8	209.9	19.00	.0	.00	1992.8	2376.2	270.63	.0	.00
0201240012610	.50000	664	453.3	77.2	36.50	.0	.00	1890.4	238.8	291.53	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2536	555.0	290.4	54.50	.0	.00	7461.1	3077.6	522.00	.0	.00
RESERVR UNITS	3.50000	2536	649.3	290.4	641.23	.0	.00	8729.5	3077.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.0 M3/CALDAY TO REPLACE REQUIRES 2.00 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.4 AVERAGE GAS-OIL RATIO IS 98.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	742	90.8	8.7	5.60	.0	.00	1293.8	263.1	148.20	.0	.00
0001130012610	1.00000	638	159.6	3.9	41.00	.0	.00	4112.5	187.2	471.72	.0	.00
0008130012610	1.00000	742	52.0	8.4	5.10	.0	.00	828.8	175.9	46.40	.0	.00
0010130012610	.50000	742	34.0	25.1	3.80	.0	.00	1299.2	512.7	88.04	.0	.00
0011130012610	.25000	742	36.6	2.9	6.60	.0	.00	806.3	390.9	84.36	.0	.00
0006130012610	.50000	742	105.9	636.5	3.70	.0	.00	732.5	3362.0	43.85	.0	.00
0003130012610	.50000	744	34.9	14.9	3.80	.0	.00	929.6	449.3	73.02	.0	.00
0002130012610	1.00000	742	73.2	4.9	8.50	.0	.00	1330.9	213.7	116.23	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	4164	432.3	364.9	67.70	.0	.00	9238.2	3099.6	906.59	.0	.00
RESERVR UNITS	5.75000	4164	505.8	364.9	1138.89	.0	.00	10808.7	3099.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 64.8 M3/CALDAY TO REPLACE REQUIRES 2.65 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 45.8 AVERAGE GAS-OIL RATIO IS 156.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	99.9	136.0	14.90	.0	.00	2867.6	1223.1	250.09	.0	.00
0011130012610	.25000	742	36.6	2.9	6.60	0	.00	806.3	390.9	84.36	.0	.00
0012130012610	.50000	742	60.1	21.2	5.50	.0	.00	1022.2	545.4	71.47	.0	.00
0009140012610	.25000	742	126.9	355.0	4.10	.0	.00	1685.0	2568.6	162.33	.0	.00
0016140012610	.50000	742	136.6	63.8	11.90	.0	.00	3185.3	849.6	158.12	.0	.00
0001230012610	.25000	732	193.7	175.8	29.20	.0	.00	3483.1	2469.9	193.11	.0	.00
0004240012610	.50000	742	127.3	759.4	17.00	.0	.00	848.1	1260.6	60.94	.0	.00
0003240012610	.25000	742	275.8	487.1	37.60	.0	.00	1039.5	942.9	99.78	.0	.00
0014130012610	.50000	742	84.5	14.5	10.00	.0	.00	1956.3	1168.1	173.88	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2968	462.4	820.6	56.47	.0	.00	7327.0	4728.0	617.19	.0	.00
RESERVR UNITS	4.00000	2968	541.0	820.6	819.97	.0	.00	8572.6	4728.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 78.4 M3/CALDAY TO REPLACE REQUIRES 2.87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.0 AVERAGE GAS-OIL RATIO IS 122.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	622	14.3	488.3	1.00	.0	.00	308.3	2396.6	22.74	.0	.00
0009140012610	.50000	742	126.9	355.0	4.10	.0	.00	1685.0	2568.6	162.33	.0	.00
0010140012610	1.00000	742	17.0	31.8	1.30	.0	.00	371.7	498.2	60.70	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	496.6	2100.0	50.26	.0	.00
0001230012610	.25000	732	193.7	175.8	29.20	.0	.00	3483.1	2469.9	193.11	.0	.00
0016140012610	.50000	742	136.6	63.8	11.90	.0	.00	3185.3	849.6	158.12	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2289	211.5	773.4	17.60	.0	.00	4234.2	6271.4	317.07	.0	.00
RESERVR UNITS	3.75000	2289	247.4	773.4	195.87	.0	.00	4954.0	6271.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.2 M3/CALDAY TO REPLACE REQUIRES 1.60 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 78.5 AVERAGE GAS-OIL RATIO IS 83.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	732	193.7	175.8	29.20	.0	.00	3483.1	2469.9	193.11	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	496.6	2100.0	50.26	.0	.00
0210230012610	.50000	556	234.8	93.1	14.90	.0	.00	1236.1	306.9	79.96	.0	.00
0009230012610	.25000	738	172.3	458.5	7.60	.0	.00	3521.9	4563.5	102.91	.0	.00
0208230012610	.50000	732	178.5	693.5	29.70	.0	.00	1414.7	1510.3	110.77	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1012	298.1	551.9	31.50	.0	.00	3325.0	3717.0	194.50	.0	.00
RESERVR UNITS	3.00000	1012	348.8	551.9	406.23	.0	.00	3890.2	3717.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 42.2 M3/CALDAY TO REPLACE REQUIRES 1.72 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 20.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.9 AVERAGE GAS-OIL RATIO IS 105.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	742	264.4	408.6	14.10	.0	.00	1033.9	1022.4	58.34	.0	.00
0003240012610	.25000	742	275.8	487.1	37.60	.0	.00	1039.5	942.9	99.78	.0	.00
0004240012610	.50000	742	127.3	759.4	17.00	.0	.00	848.1	1260.6	60.94	.0	.00
0001230012610	.25000	732	193.7	175.8	29.20	.0	.00	3483.1	2469.9	193.11	.0	.00
0208230012610	.50000	732	178.5	693.5	29.70	.0	.00	1414.7	1510.3	110.77	.0	.00
0009230012610	.25000	738	172.3	458.5	7.60	.0	.00	3521.9	4563.5	102.91	.0	.00
0012240012612	.50000	732	361.2	238.6	40.80	.0	.00	2671.0	1402.7	273.81	.0	.00
0011240012610	.25000	742	62.3	4.6	6.40	.0	.00	1811.1	114.5	57.84	.0	.00
0006240012610	.50000	742	431.9	84.3	77.10	.0	.00	1349.3	228.4	149.71	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2955	989.9	1578.0	116.60	.0	.00	6639.3	5246.1	469.36	.0	.00
RESERVR UNITS	4.00000	2955	1158.2	1578.0	1626.20	.0	.00	7768.0	5246.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 140.7 M3/CALDAY TO REPLACE REQUIRES 5.74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 20.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.5 AVERAGE GAS-OIL RATIO IS 117.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=7361 kPag THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	719	.8	.0	.00	3611.0	.00	1914.4	608.2	37.70	20968.5	.00
0201250012610	.25000	44	3.8	48.6	.50	.0	.00	1580.1	3486.8	218.84	.0	.00
0002250012612	.50000	732	347.1	28.9	30.60	.0	.00	3073.0	241.2	387.23	.0	.00
0003250012612	.25000	732	559.2	4.1	46.10	.0	.00	4288.9	110.1	428.55	.0	.00
0006250012610	.50000	732	453.2	211.3	16.80	.0	.00	5656.7	1869.9	169.70	.0	.00
0011250012610	.25000	744	272.6	57.1	7.50	.0	.00	4476.2	320.0	216.62	.0	.00
0010250012610	.50000	744	314.2	2.3	12.80	.0	.00	4518.5	501.5	313.28	.0	.00
0009250012610	.25000	56	.3	51.9	.20	.0	.00	1794.5	753.9	29.16	.0	.00
0008250012610	.50000	36	74.5	10.7	4.40	.0	.00	2423.1	360.3	53.71	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1516	803.0	167.0	45.87	3611.0	.00	12785.0	3262.4	722.95	20968.5	.00
RESERVR UNITS	4.00000	1516	935.8	167.0	163.46	3611.0	.00	14958.4	3262.4	.00	20968.5	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.8 M3/CALDAY TO REPLACE REQUIRES 2.82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 12.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 17.2 AVERAGE GAS-OIL RATIO IS 57.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 285.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 115.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	742	7.1	22.8	1.30	.0	.00	488.1	1197.5	10.64	.0	.00
0204300012510	1.00000	0	.0	.0	.00	.0	.00	1374.2	4641.4	36.93	.0	.00
0201250012610	.50000	44	1.8	48.6	.50	.0	.00	1580.1	3486.8	218.84	.0	.00
0008250012610	.50000	36	74.5	10.7	4.40	.0	.00	2423.1	360.3	53.71	.0	.00
0009250012610	.25000	56	.3	51.9	.20	.0	.00	1794.5	753.9	29.16	.0	.00
0011300012512	.33333	742	7.7	72.2	2.20	.0	.00	1364.7	3153.9	27.37	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.58333	1043	47.9	89.5	4.53	.0	.00	4767.4	9002.2	200.26	.0	.00
RESERVR UNITS	3.58333	1043	56.8	89.5	51.18	.0	.00	5577.9	9002.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 6.3 M3/CALDAY TO REPLACE REQUIRES .26 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.1 AVERAGE GAS-OIL RATIO IS 94.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	0	.0	.0	.00	.0	.00	1225.5	3904.0	51.09	.0	.00
0009300012510	1.00000	615	9.2	10.6	1.10	.0	.00	639.2	517.2	18.95	.0	.00
0011300012512	.33333	742	7.7	72.2	2.20	.0	.00	1364.7	3153.9	27.37	.0	.00
0014300012510	.50000	732	17.2	11.1	3.60	.0	.00	1152.2	1028.7	102.17	.0	.00
0003310012510	.25000	744	34.5	12.3	1.30	.0	.00	1539.2	647.9	28.87	.0	.00
0002310012510	.50000	716	122.4	736.1	10.70	.0	.00	1821.7	5026.4	118.80	.0	.00
0001310012510	.50000	732	111.6	354.0	5.70	.0	.00	610.8	778.2	38.14	.0	.00
0016300012510	1.00000	732	44.5	19.1	4.70	.0	.00	1147.7	1155.7	91.26	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	2870	190.5	607.4	16.86	.0	.00	5644.4	10206.8	307.20	.0	.00
RESERVR UNITS	5.08333	2870	222.9	607.4	177.65	.0	.00	6604.0	10206.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 32.5 M3/CALDAY TO REPLACE REQUIRES 1.33 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.1 AVERAGE GAS-OIL RATIO IS 88.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 10 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	732	13.8	2.7	1.70	.0	.00	678.8	1322.5	56.88	.0	.00
0011300012512	.33334	742	7.7	72.2	2.20	.0	.00	1364.7	3153.9	27.37	.0	.00
0009250012610	.25000	56	.3	51.9	.20	.0	.00	1794.5	753.9	29.16	.0	.00
0016250012610	.50000	732	36.3	10.8	3.40	.0	.00	584.5	190.9	32.06	.0	.00
0004310012510	.50000	744	16.7	23.3	1.50	.0	.00	1067.8	884.8	56.37	.0	.00
0003310012510	.25000	744	34.5	12.3	1.30	.0	.00	1539.2	647.9	28.87	.0	.00
0014300012510	.50000	732	17.2	11.1	3.60	.0	.00	1152.2	1028.7	102.17	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.33334	2283	60.2	65.4	7.06	.0	.00	3369.4	3776.5	175.81	.0	.00
RESERVR UNITS	3.33334	2283	70.4	65.4	100.52	.0	.00	3942.2	3776.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 7.6 M3/CALDAY TO REPLACE REQUIRES .31 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS .6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 1.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 52.1 AVERAGE GAS-OIL RATIO IS 117.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	[illegible]	[illegible]	[illegible]	.00	.00	.00	235.3	1340.7	14.31	0	.00
[illegible]	1.00000	688	5.1	15.0	1.50	.0	.00	122.0	849.1	13.74	.0	.00
0004130812610	.50000	688	19.5	24.5	3.50	.0	.00	616.6	457.0	32.00	.0	.00
0008140812610	.50000	664	195.0	255.1	35.90	.0	.00	2447.4	3092.0	323.51	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1364	222.4	152.8	21.20	.0	.00	1908.6	4501.3	205.11	.0	.00
RESERVR UNITS	3.00000	1364	193.1	152.8	266.40	0	.00	2376.7	3505.3	.00	0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 22.1 M3/CALDAY TO REPLACE REQUIRES 90 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.5 AVERAGE GAS-OIL RATIO IS 173.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

SASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4,720 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130812610	1.00000	688	43.7	5.3	4.30	.0	.00	656.5	384.1	37.18	.0	.00
0003130812610	.50000	712	33.4	20.8	3.00	.0	.00	963.0	470.1	76.82	0	.00
0006130812610	.50000	712	37.0	772.9	4.40	.0	.00	759.5	9133.9	48.25	.0	.00
0011130812610	.25000	712	35.1	17.1	6.60	0	.00	841.4	483.0	90.96	.0	.00
0012130812610	.50000	712	64.5	6.1	5.70	0	.00	1086.7	551.5	77.17	.0	.00
0007140812610	.25000	688	112.6	242.6	6.80	.0	.00	1884.6	2810.6	169.17	.0	.00
0008140812610	.50000	664	195.0	255.1	35.90	.0	.00	2447.4	3092.0	323.51	.0	.00
0004130812610	.50000	688	39.5	24.5	3.50	.0	.00	616.6	457.0	32.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2762	262.1	611.8	34.30	.0	.00	4254.6	5543.5	381.08	.0	.00
RESERVR UNITS	4.00000	2762	306.6	611.8	512.63	.0	.00	4977.9	5543.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.7 M3/CALDAY TO REPLACE REQUIRES 1.95 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.0 AVERAGE GAS-OIL RATIO IS 151.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	[illegible]	712	[illegible]	[illegible]	[illegible]	0	.00	[illegible]	[illegible]	[illegible]	0	.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	.00	[illegible]	[illegible]	[illegible]	.0	.00
0008130012610	1.00000	712	52.5	9.2	4.60	0	.00	881.2	161.1	51.90	.0	.00
0010130012610	.50000	712	48.5	1.9	5.00	.0	.00	1347.7	518.6	93.04	.0	.00
0011130012610	.25000	712	35.1	17.1	6.60	0	.00	841.4	408.0	90.96	0	.00
0004130012610	.50000	712	27.0	776.9	4.40	.0	.00	759.5	4133.2	48.25	0	.00
0002130012610	.50000	712	33.4	20.8	3.90	.0	.00	953.0	479.1	76.32	.0	.00
0002130012610	1.00000	704	30.8	4.6	8.30	.0	.00	1410.9	218.3	124.53	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	4030	369.8	827.6	52.95	.0	.00	9600.8	3527.2	959.54	.0	.00
RESERVR UNITS	5.75000	4030	432.7	827.6	834.82	.0	.00	11241.1	3527.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 56.5 M3/CALDAY TO REPLACE REQUIRES 2.41 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 52.0 AVERAGE GAS OIL RATIO IS 143.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

UNKANA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	712	70.2	4.6	8.10	.0	.00	3500.5	600.9	72.03	.0	.00
0010130012610	.50000	712	48.5	9.9	5.00	.0	.00	1347.7	515.6	93.04	.0	.00
0011130012610	.25000	712	35.1	17.1	6.60	0	.00	841.4	408.0	90.96	.0	.00
0014130012610	.50000	712	75.6	15.1	9.90	.0	.00	2031.9	1163.2	183.78	.0	.00
0003240012610	.25000	712	351.4	257.6	28.00	0	.00	1390.9	1200.5	127.70	.0	.00
0002240012610	.50000	712	149.3	461.4	19.50	0	.00	2142.1	2837.6	290.13	.0	.00
0201240012610	.50000	496	268.0	29.2	59.60	.0	.00	2158.4	268.0	351.13	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2384	437.5	329.1	63.75	.0	.00	7898.6	3406.6	585.77	.0	.00
RESERVR UNITS	3.50000	2384	511.9	329.1	1014.76	.0	.00	9241.9	3406.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.9 M3/CALDAY TO REPLACE REQUIRES 2.52 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.9 AVERAGE GAS OIL RATIO IS 145.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	712	[illegible]	[illegible]	[illegible]	0	.00	[illegible]	[illegible]	[illegible]	0	00
[illegible]	.50000	1.	[illegible]	[illegible]	[illegible]	0	00	[illegible]	[illegible]	[illegible]	0	00
0012130812610	.00000	712	64.5	0.1	5.70	0	.00	1086.7	251.5	77.17	.0	.00
0009140812610	.25000	608	119.0	242.0	6.80	0	.00	1304.6	2810.6	169.13	.0	.00
0016140812610	.50000	664	109.0	95.6	11.20	0	.00	3294.3	895.2	169.32	.0	00
0001230812610	.25000	720	234.6	272.4	34.80	0	.00	3717.7	2742.3	227.91	.0	.00
0004240812610	.50000	712	194.5	196.0	19.60	0	.00	908.5	2057.7	79.54	.0	00
0003240812610	.25000	712	151.4	357.6	28.00	0	.00	1390.9	1200.5	127.28	0	00
0014130812610	.50000	712	75.6	15.1	9.90	0	.00	2041.9	1183.7	183.78	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2800	479.6	733.6	53.75	.0	.00	7806.8	5461.5	670.94	.0	00
RESERVR UNITS	4.68000	2800	561.2	733.5	717.11	.0	.00	9133.3	5461.5	.00	.0	00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3 CALDAY TO REPLACE REQUIRES 2.74 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.1 M3/DPDAY NET WELL AVERAGE TOTAL FLUID RATE IF 18.4 M3/DPDAY NET WELL
AVERAGE PERCENT WATER CUT IS 50.0 AVERAGE GAS OIL RATIO IS 1[illegible] M3 M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 KPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140812610	1.00000	664	79.2	496.5	3.70	.0	.00	333.5	2037.1	26.44	.0	.00
0009140812610	.50000	608	119.0	242.0	6.80	0	.00	1804.6	2810.6	169.13	.0	.00
0010140812610	1.00000	664	15.2	25.9	1.80	.0	.00	386.9	524.1	62.50	.0	.00
0002230812610	.50000	168	1.7	57.1	.20	.0	00	498.3	2157.1	50.96	.0	.00
0001230812610	.25000	720	234.6	272.4	34.80	.0	.00	3717.7	2742.3	227.91	.0	.00
0016140812610	.50000	664	109.0	95.6	11.20	.0	.00	3294.3	895.2	169.32	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.75000	2328	314.2	756.0	33.30	0	.00	4448.4	7028.2	340.37	.0	.00
RESERVR UNITS	3.75000	2328	259.3	756.0	303.00	.0	.00	5204.7	7028.2	00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS [illegible] M3/CALDAY TO REPLACE REQUIRES 1.70 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS [illegible] M3/DPLAYNET WELL AVERAGE TOTAL FLUID RATE IF 11.5 M3/DPDAY NET WELL
AVERAGE PERCENT WATER CUT IS [illegible] AVERAGE GAS-OIL RATIO IS 100.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	[illegible]	[illegible]	[illegible]	[illegible]	.0	.00	[illegible]	[illegible]	[illegible]	.0	.00
[illegible]	.25000	720	334.6	42.4	[illegible]	.0	.00	3717.7	3742.6	227.91	.0	.00
0009230012610	.50000	168	57.1	.20	.0	.0	.00	499.3	2157.1	50.46	.0	.00
0.1[illegible]	.50000	720	376.6	35.6	37.30	.0	.00	1636.7	397.5	117.26	.0	.00
0009230012610	.25000	720	177.2	461.7	8.30	.0	.00	3699.1	5025.2	111.21	.0	.00
0008230012610	.50000	528	214.8	195.6	21.20	0	.00	1629.5	1705.9	131.97	0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1065	372.5	352.7	48.12	.0	.00	3721.5	4069.6	234.63	.0	.00
RESERVR UNITS	3.00000	1065	463.9	352.7	491.31	.0	.00	4354.1	4069.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 43.6 M3/CALDAY TO REPLACE REQUIRES 1.78 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.3 M3/OPDAY NET WELL
AVERAGE PERCENT WATER CUT IS 47.1 AVERAGE GAS-OIL RATIO IS 101.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

JASKAUA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 34.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	664	338.4	142.4	12.10	.0	.00	1372.3	1164.8	70.44	.0	.00
0003240012610	.25000	712	351.4	257.6	28.00	.0	.00	1390.9	1200.5	127.78	.0	.00
0004240012610	.50000	712	140.3	796.0	18.60	.0	.00	988.9	2057.4	79.54	.0	.00
0001230012610	.25000	720	334.6	272.4	34.80	.0	.00	3717.7	3742.6	227.91	.0	.00
0208230012610	.50000	528	214.8	195.6	21.20	.0	.00	1629.5	1705.9	131.97	.0	.00
0009230012610	.25000	720	177.2	461.7	8.30	.0	.00	3699.1	5025.2	111.21	.0	.00
0012240012612	.50000	712	481.8	80.4	51.40	.0	.00	3152.8	1483.1	325.21	.0	.00
0011240012610	.25000	712	63.9	4.5	7.40	.0	.00	1875.0	119.0	65.24	.0	.00
0006240012610	.50000	712	259.9	51.2	64.60	.0	.00	1609.2	279.6	214.31	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2712	1093.4	953.4	102.63	.0	.00	7732.3	6199.5	578.99	.0	.00
RESERVR UNITS	4.00000	2712	1279.3	953.4	1449.78	.0	.00	9047.3	6199.5	.00	.0	00

AVERAGE RATE OF VOIDAGE CREATION IS 122.8 M3/CALDAY TO REPLACE REQUIRES 5.01 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.1 AVERAGE GAS-OIL RATIO IS 100.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10302500125 12	.50000	720	314.1	19.5	17.50	0	.00	3617.1	260.1	404.73	0	.00
00802500125 12	.25000	696	37.1	4.1	7.30	.6	.30	4706.0	114.2	485.45	0	.00
00605500125 10	.50000	720	486.9	215.4	18.20	.0	.00	3193.1	2045.3	157.90	.0	.00
00112500125 10	.25000	504	99.4	73.5	6.30	0	.00	4715.6	343.5	222.12	0	.00
00102500125 10	.50000	720	331.0	5.5	14.90	.0	.00	4844.5	507.0	338.16	.0	.00
00802500125 10	.25000	600	17.7	700.4	2.80	0	.00	1812.0	1454.3	31.96	0	.00
00302500125 10	.50000	504	45.8	5.9	4.20	0	.00	2498.9	366.2	57.91	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1872	822.4	319.5	54.87	2842.3	.00	13907.4	3588.4	767.63	32731.3	.00
RESERVE UNITS	4.00000	1872	959.1	319.5	173.75	2842.3	.00	18921.0	7580.1	.00	32731.3	.00

AVERAGE RATE OF VOIDAGE CREATION IS 34.1 M3 CM/DAY TO REPLACE REQUIRES 1.22 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 16.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 14.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS [illegible] AV PAGE GAS-OIL RATIO IS 28.6 M3 M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 207.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 167.8

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPaa THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
00403000125 12	1.00000	720	12.1	.0	1.30	.0	.00	708.2	1206.5	11.94	0	00
00403000125 10	1.00000	672	14.3	460.6	1.50	.0	.00	1388.8	5042.0	38.43	.0	.00
02012500125 10	.50000	48	2.1	54.8	.40	.0	.00	1587.2	3541.6	219.24	.0	00
00802500125 10	.50000	564	45.8	5.9	4.20	.0	.00	2498.9	366.2	57.91	.0	00
00092500125 10	.25000	600	17.5	700.4	2.80	.0	.00	1812.0	1454.3	31.96	.0	00
00113000125 12	.33333	720	7.6	82.9	3.20	.0	.00	1372.3	3236.8	30.67	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.58333	1810	67.6	642.7	6.87	.0	.00	4835.0	9644.9	307.12	.0	.00
RESERVE UNITS	3.58333	1818	79.8	642.7	83.75	.0	.00	5663.9	9644.9	.00	.0	00

AVERAGE RATE OF VOIDAGE CREATION IS 26.3 M3/CMDAY TO REPLACE REQUIRES 1.10 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS [illegible] M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS [illegible] AVERAGE GAS-OIL RATIO IS 191.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0011120+0125+0	.37331	720	[illegible]	62.7	3.25	0	.00	1372.7	3236.8	30.97	.0	.00
00143+0012510	1.0000	24	12.3	8.6	2.90	.0	.00	1168.5	1037.3	105.07	.0	.00
0008310012510	.25000	720	29.5	21.3	3.30	0	00	1568.7	669.2	32.17	0	.00
0007100125+0	.50000	720	201.9	985.4	12.80	.0	.00	2053.6	5512.0	130.00	0	00
0001310012510	.50000	576	131.4	175.5	3.15	.0	.00	792.2	953.7	41.24	0	.00
0016300012510	1.00000	720	36.6	13.0	4.40	0	.00	1104.3	1168.7	95.66	.0	00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.08333	3276	378.3	1099.1	18.99	.0	.00	5915.3	10985.9	326.19	.0	.00
RESERVR UNITS	5.08333	3276	316.8	699.1	170.84	.0	.00	6920.8	10985.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.6 M3/CALDAY TO REPLACE REQUIRES 1.61 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3 OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 7.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.1 AVERAGE GAS-OIL RATIO IS 70.1 M3 M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 11 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	720	13.6	1.6	2.40	.0	.00	692.4	1324.1	59.38	.0	.00
0011300012512	.33334	720	7.6	32.9	3.20	.0	.00	1370.3	3236.8	30.97	.0	.00
0009250012610	.25000	600	17.5	700.4	2.80	.0	.00	1017.0	1454.3	31.96	.0	.00
0016250012610	.50000	20	30.7	4.1	1.30	.0	.00	615.2	195.0	33.36	.0	.00
0004310012510	.50000	576	82.4	9.3	5.70	.0	.00	1150.2	894.1	62.07	.0	.00
0003310012510	.25000	720	29.5	21.3	3.30	.0	.00	1568.7	669.2	32.17	.0	.00
0014300012510	.50000	720	13.3	8.6	2.90	.0	.00	1165.5	1037.3	105.07	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.33334	1948	91.1	220.7	9.94	.0	.00	3468.5	3997.1	185.75	.0	.00
RESERVR UNITS	3.33334	1948	106.6	220.7	132.94	.0	.00	4048.7	3997.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.3 M3/CALDAY TO REPLACE REQUIRES .63 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 3.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.9 AVERAGE GAS-OIL RATIO IS 109.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	0	.0	.0	.00	.0	.00	233.8	1340.9	14.01	.0	.00
0014120012610	1.00000	704	12.8	4.5	2.30	.0	.00	235.6	394.4	16.04	.0	.00
0004130012610	.50000	668	36.2	15.6	2.30	.0	.00	652.8	472.6	34.30	.0	.00
0008140012610	.50000	744	140.6	159.1	14.40	.0	.00	2588.0	3251.1	337.91	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1410	101.2	91.8	10.65	.0	.00	2089.8	3597.2	216.16	.0	.00
RESERVR UNITS	3.00000	1410	118.4	91.8	134.38	.0	.00	2445.1	3597.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.1 M3/CALDAY TO REPLACE REQUIRES .45 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.6 AVERAGE GAS-OIL RATIO IS 105.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	744	25.5	6.3	5.30	.0	.00	682.0	390.4	42.48	.0	.00
0003130012610	.50000	744	22.2	18.8	4.60	.0	.00	985.2	488.9	81.42	.0	.00
0006130012610	.50000	744	55.0	765.0	5.10	.0	.00	814.5	4903.9	53.35	.0	.00
0011130012610	.25000	744	28.6	12.1	8.40	.0	.00	870.0	420.1	99.36	.0	.00
0012130012610	.50000	744	74.3	5.5	6.80	.0	.00	1161.0	557.0	83.97	.0	.00
0009140012610	.25000	720	130.1	237.7	12.70	.0	.00	1934.7	3048.3	181.83	.0	.00
0008140012610	.50000	744	140.6	159.1	14.40	.0	.00	2588.0	3251.1	337.91	.0	.00
0004130012610	.50000	668	36.2	15.6	2.30	.0	.00	652.8	472.6	34.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2932	229.3	550.7	27.17	.0	.00	4483.9	6094.2	408.25	.0	.00
RESERVR UNITS	4.00000	2932	268.3	550.7	379.02	.0	.00	5246.2	6094.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.6 M3/CALDAY TO REPLACE REQUIRES 1.58 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.6 AVERAGE GAS-OIL RATIO IS 118.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	58.3	13.0	9.80	.0	.00	1414.4	283.7	166.80	.0	.00
0001130012610	1.00000	458	38.2	2.9	24.30	.0	.00	4244.2	194.2	519.52	.0	.00
0008130012610	1.00000	744	47.4	5.6	4.10	.0	.00	929.0	186.7	55.10	.0	.00
0010130012610	.50000	744	34.1	4.7	5.90	.0	.00	1381.8	523.3	98.94	.0	.00
0011130012610	.25000	744	28.6	12.1	8.40	.0	.00	870.0	420.1	99.36	.0	.00
0006130012610	.50000	744	55.0	765.0	5.10	.0	.00	814.5	4903.9	53.35	.0	.00
0003130012610	.50000	744	22.2	18.8	4.60	.0	.00	985.2	488.9	81.42	.0	.00
0002130012610	1.00000	744	42.0	24.1	9.80	.0	.00	1460.9	242.4	134.33	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	3992	248.7	442.9	57.90	.0	.00	9856.7	3970.1	1017.45	.0	.00
RESERVR UNITS	5.75000	3992	291.0	442.9	1107.56	.0	.00	11532.4	3970.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 59.4 M3/CALDAY TO REPLACE REQUIRES 2.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.0 AVERAGE GAS-OIL RATIO IS 232.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	49.4	4.8	7.30	.0	.00	3549.9	605.6	79.33	.0	.00
0010130012610	.50000	744	34.1	4.7	5.90	.0	.00	1381.8	523.3	98.94	.0	.00
0011130012610	.25000	744	28.6	12.1	8.40	.0	.00	870.0	420.1	99.36	.0	.00
0014130012610	.50000	744	56.3	13.7	12.00	.0	.00	2088.2	1196.9	195.78	.0	.00
0003240012610	.25000	458	225.6	300.8	47.80	.0	.00	1616.5	1501.3	175.58	.0	.00
0002240012610	.50000	720	225.3	325.6	25.90	.0	.00	2367.4	3163.2	316.03	.0	.00
0201240012610	.50000	692	120.1	18.7	40.90	.0	.00	2278.5	286.7	392.03	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2495	330.8	264.4	63.70	.0	.00	8229.5	3671.0	649.45	.0	.00
RESERVR UNITS	3.50000	2495	387.1	264.4	1146.93	.0	.00	9628.5	3671.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.0 M3/CALDAY TO REPLACE REQUIRES 2.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.4 AVERAGE GAS-OIL RATIO IS 192.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3 M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	72.2	151.3	16.60	0	.00	2239.3	1478.9	278.69	.0	.00
0011130012610	.25000	744	28.6	12.1	8.40	.0	.00	870.0	420.1	99.36	.0	.00
0012130012610	.50000	744	74.3	5.5	6.80	.0	.00	1161.0	557.0	83.97	.0	.00
0009140012610	.25000	720	130.1	237.7	12.70	.0	.00	1934.7	3048.3	181.83	.0	.00
0016140012610	.50000	744	38.3	10.7	7.00	.0	.00	3332.6	905.9	176.32	.0	.00
0001230012610	.25000	696	237.3	301.2	44.80	.0	.00	3955.0	3043.5	272.71	.0	.00
0004240012610	.50000	514	153.8	418.7	16.40	.0	.00	1142.7	2476.1	95.94	.0	.00
0003240012610	.25000	458	225.6	300.8	47.80	.0	.00	1616.5	1501.3	175.58	.0	.00
0014130012610	.50000	744	56.3	13.7	12.00	.0	.00	2088.2	1196.9	195.78	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2772	388.9	588.5	66.12	.0	.00	8195.6	6050.1	737.06	.0	.00
RESERVR UNITS	4.00000	2772	455.1	588.5	1133.69	.0	.00	9588.9	6050.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 70.2 M3/CALDAY TO REPLACE REQUIRES 2.87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.2 AVERAGE GAS-OIL RATIO IS 170.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	360	15.3	254.2	2.90	.0	.00	348.8	3141.3	29.34	.0	.00
0009140012610	.50000	720	130.1	237.7	12.70	.0	.00	1934.7	3048.3	181.83	.0	.00
0010140012610	1.00000	744	11.2	17.5	9.60	.0	.00	398.1	541.6	72.10	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0001230012610	.25000	696	237.3	301.2	44.80	.0	.00	3955.0	3043.5	272.71	.0	.00
0016140012610	.50000	744	38.3	10.7	7.00	.0	.00	3332.6	905.9	176.32	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2010	170.0	471.2	33.55	.0	.00	4618.4	7499.4	373.92	.0	.00
RESERVR UNITS	3.75000	2010	198.9	471.2	609.36	.0	.00	5403.6	7499.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 41.3 M3/CALDAY TO REPLACE REQUIRES 1.68 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.5 AVERAGE GAS-OIL RATIO IS 197.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	0	0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	696	237.3	301.2	44.80	.0	.00	3955.0	3043.5	272.71	.0	.00
0002230012610	.50000	0	0	0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0210230012610	.50000	744	201.0	198.2	14.80	.0	.00	1807.7	590.7	132.06	.0	.00
0009230012610	.25000	744	176.6	723.8	10.50	.0	.00	3875.7	5749.0	121.71	.0	.00
0208230012610	.50000	744	206.3	587.2	28.20	.0	.00	1835.8	2293.1	160.17	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1104	307.1	648.9	35.32	.0	.00	4028.6	4718.6	269.95	.0	.00
RESERVR UNITS	3.00000	1104	359.3	648.9	481.41	.0	.00	4713.4	4718.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 48.1 M3/CALDAY TO REPLACE REQUIRES 1.96 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 6.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 20.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 67.9 AVERAGE GAS-OIL RATIO IS 115.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	308	182.6	93.7	7.20	.0	.00	1554.9	1258.5	77.64	.0	.00
0003240012610	.25000	458	225.6	300.8	47.80	.0	.00	1616.5	1501.3	175.58	.0	.00
0004240012610	.50000	514	153.8	418.7	16.40	.0	.00	1142.7	2476.1	95.94	.0	.00
0001230012610	.25000	696	237.3	301.2	44.80	.0	.00	3955.0	3043.5	272.71	.0	.00
0208230012610	.50000	744	206.3	587.2	28.20	.0	.00	1835.8	2293.1	160.17	.0	.00
0009230012610	.25000	744	176.6	723.8	10.50	.0	.00	3875.7	5749.0	121.71	.0	.00
0012240012612	.50000	744	432.2	183.9	57.10	.0	.00	3584.2	1667.0	382.31	.0	.00
0011240012610	.25000	744	42.6	4.7	6.40	.0	.00	1917.6	123.7	71.64	.0	.00
0006240012610	.50000	744	203.5	26.3	69.00	.0	.00	1812.7	305.9	283.31	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2342	851.0	1034.4	119.93	.0	.00	8583.8	7233.9	698.91	.0	.00
RESERVR UNITS	4.00000	2342	995.7	1034.4	1925.91	.0	.00	10043.0	7233.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 127.6 M3/CALDAY TO REPLACE REQUIRES 5.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.9 AVERAGE GAS-OIL RATIO IS 140.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	744	[illegible]	[illegible]	[illegible]	1811.0	.00	1714.4	668.2	37.16	25622.6	.00
0261250012610	.50000	744	31.5	853.0	4.48	.0	.00	1614.7	4394.6	225.64	.0	.00
0062250012612	.50000	744	447.2	28.5	18.59	.0	.00	3834.5	280.6	423.27	0	.00
0063250012612	.25000	744	613.6	4.3	44.40	.0	.00	5494.0	118.5	530.25	.0	.00
0006250012610	.50000	744	490.7	227.9	23.40	.0	.00	6643.9	2313.2	211.70	0	.00
0011250012610	.25000	744	548.1	36.4	9.10	.0	.00	9314.3	379.9	231.92	.0	.00
0010250012610	.50000	744	355.6	10.0	27.10	.0	.00	5205.1	517.0	355.23	.0	.00
0009250012610	.25000	720	10.0	223.3	2.30	.0	.00	1822.0	1677.6	34.26	.0	.00
0008250012610	.50000	744	65.6	26.1	4.60	.0	.00	2554.5	392.3	62.51	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.30000	2226	981.8	425.5	52.35	1811.0	.00	14589.8	4806.4	319.38	25622.6	.00
RESERVR UNITS	4.00000	2226	1144.2	425.5	144.03	1811.8	.00	17070.0	4806.4	.00	25622.6	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.3 M3/CALDAY TO REPLACE REQUIRES 3.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.4 M3/DPDAY/NET WELL. AVERAGE TOTAL FLUID RATE IF 15.3 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 74. AVERAGE GAS-OIL RATIO IS 53.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 105.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 121.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES M3/KM3 THE SOLUTION GAS-OIL RATIO=51.84 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	13.7	11.4	1.30	.0	.00	513.9	1217.9	13.24	.0	.00
0284300012510	1.00000	720	26.6	717.3	3.00	.0	.00	1415.4	5759.2	41.43	0	.00
0201250012610	.50000	744	32.5	853.0	6.40	.0	.00	1614.7	4394.6	225.64	0	.00
0008250012610	.50000	744	65.6	26.1	4.60	.0	.00	2554.5	392.3	62.51	.0	.00
0009250012610	.25000	720	10.0	223.3	2.30	.0	.00	1822.0	1677.6	34.26	.0	.00
0011300012512	.33333	744	11.5	106.7	3.40	.0	.00	1383.8	3343.5	33.97	.0	.00
0212300012510	.50000	285	87.0	22.4	8.90	.0	.00	87.0	22.4	8.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.08333	2778	139.2	1270.7	15.96	.0	.00	4974.2	10915.6	223.08	.0	.00
RESERVR UNITS	4.08333	2778	162.8	1270.7	216.93	.0	.00	5819.8	10915.6	.00	0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 53.2 M3/CALDAY TO REPLACE REQUIRES 3.17 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.2 M3/DPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.3 M3/DPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 90.1 AVERAGE GAS-OIL RATIO IS 114.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	138	7.2	103.1	.70	0	.00	1134.6	6513.6	54.19	.0	.00
0005300012510	1.00000	720	34.6	13.2	1.60	.0	.00	4967.1	941.2	21.45	.0	.00
0011300012510	.33333	744	11.5	106.7	3.40	.0	.00	1383.0	3343.5	33.97	.0	.00
0014300012510	.50000	744	28.1	12.5	6.20	.0	.00	1193.6	1049.8	111.27	.0	.00
0003310012510	.25000	744	22.5	27.2	4.10	.0	.00	1591.2	696.4	36.27	.0	.00
0003310012510	.50000	744	125.7	609.1	7.70	.0	.00	2179.3	6171.1	139.50	.0	.00
0001310012510	.50000	744	388.2	286.4	7.20	.0	.00	1130.4	1246.1	46.44	.0	.00
0016300012510	1.00000	744	34.3	40.8	4.10	.0	.00	1218.6	1209.5	99.76	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.08333	3152	336.6	653.5	19.11	.0	.00	6251.8	11559.4	345.30	.0	.00
RESERVR UNITS	5.08333	3152	393.8	653.5	201.81	.0	.00	7314.6	11559.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 40.3 M3/CALDAY TO REPLACE REQUIRES 1.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 86.0 AVERAGE GAS-OIL RATIO IS 58.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 32 MONTH 12 OF 1983
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	744	11.7	4.7	3.40	.0	.00	704.1	1328.8	62.68	.0	.00
0011300012510	.33334	744	11.5	106.7	3.40	0	.00	1383.0	3343.5	33.97	.0	.00
0009250012610	.25000	720	10.0	223.3	2.30	.0	.00	1823.0	1677.6	34.26	.0	.00
0016250012610	.50000	744	28.1	5.5	3.20	.0	.00	643.3	200.5	36.56	.0	.00
0004310012510	.50000	744	41.5	42.3	3.80	.0	.00	1191.7	936.4	65.87	.0	.00
0003310012510	.25000	744	22.5	27.2	4.10	.0	.00	1591.2	696.4	36.27	.0	.00
0014300012510	.50000	744	28.1	12.5	6.20	.0	.00	1193.6	1049.8	111.27	.0	.00
0212300012510	.50000	285	87.0	22.4	8.90	.0	.00	87.0	22.4	8.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.83334	2617	116.0	144.2	17.18	.0	.00	3576.5	4141.4	202.94	.0	.00
RESERVR UNITS	3.83334	2617	135.7	144.2	275.93	.0	.00	4184.5	4141.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 17.9 M3/CALDAY TO REPLACE REQUIRES 73 .M3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.4 AVERAGE GAS-OIL RATIO IS 188.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	16	.0	9.7	.20	.0	.00	233.8	1350.6	14.21	.0	.00
0014120012610	1.00000	720	16.9	8.6	1.80	.0	.00	252.5	403.0	17.84	.0	.00
0004130012610	.50000	704	38.7	13.4	3.60	.0	.00	691.5	486.0	37.90	.0	.00
0008140012610	.50000	744	110.5	212.8	10.20	.0	.00	2698.5	3463.9	348.11	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1460	91.5	131.4	8.90	.0	.00	2181.3	3728.6	225.05	.0	.00
RESERVR UNITS	3.00000	1460	107.1	131.4	103.63	.0	.00	2552.1	3728.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 11.0 M3/CALDAY TO REPLACE REQUIRES .45 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.0 AVERAGE GAS-OIL RATIO IS 97.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	744	26.3	8.0	4.20	.0	.00	708.3	398.4	46.68	.0	.00
0003130012610	.50000	744	34.0	8.2	2.40	.0	.00	1019.2	497.1	83.82	.0	.00
0006130012610	.50000	359	19.2	299.3	3.20	.0	.00	833.7	5203.2	56.55	.0	.00
0011130012610	.25000	744	30.2	8.0	8.40	.0	.00	900.2	428.1	107.76	.0	.00
0012130012610	.50000	744	72.5	15.1	7.40	.0	.00	1233.5	572.1	91.37	.0	.00
0009140012610	.25000	456	55.4	89.6	4.50	.0	.00	1990.1	3137.9	186.33	.0	.00
0008140012610	.50000	744	110.5	212.8	10.20	.0	.00	2698.5	3463.9	348.11	.0	.00
0004130012610	.50000	704	38.7	13.4	3.60	.0	.00	691.5	486.0	37.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2692	185.2	306.8	20.82	.0	.00	4669.1	6401.0	429.08	.0	.00
RESERVR UNITS	4.00000	2692	216.6	306.8	278.69	.0	.00	5462.8	6401.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.9 M3/CALDAY TO REPLACE REQUIRES 1.06 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 62.4 AVERAGE GAS-OIL RATIO IS 112.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA UPPER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	744	56.8	36.2	8.40	.0	.00	1471.2	319.9	175.20	.0	.00
0001130012610	1.00000	720	85.9	13.1	31.30	.0	.00	4330.1	207.3	550.82	.0	.00
0008130012610	1.00000	744	47.4	15.8	5.20	.0	.00	976.4	202.5	60.30	.0	.00
0010130012610	.50000	744	28.7	4.7	9.20	.0	.00	1410.5	528.0	108.14	.0	.00
0011130012610	.25000	744	30.2	8.0	8.40	.0	.00	900.2	428.1	107.76	.0	.00
0006130012610	.50000	359	19.2	299.3	3.20	.0	.00	833.7	5203.2	56.55	.0	.00
0003130012610	.50000	744	34.0	8.2	2.40	.0	.00	1019.2	497.1	83.82	.0	.00
0002130012610	1.00000	744	46.3	19.5	7.20	.0	.00	1507.2	261.9	141.53	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	4062	284.9	242.7	61.60	.0	.00	10141.7	4212.8	1079.05	.0	.00
RESERVR UNITS	5.75000	4062	333.3	242.7	1152.94	.0	.00	11865.7	4212.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.8 M3/CALDAY TO REPLACE REQUIRES 2.28 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 46.0 AVERAGE GAS-OIL RATIO IS 216.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	28.7	6.4	4.60	.0	.00	3578.6	612.0	83.93	.0	.00
0010130012610	.50000	744	28.7	4.7	9.20	.0	.00	1410.5	528.0	108.14	.0	.00
0011130012610	.25000	744	30.2	8.0	8.40	.0	.00	900.2	428.1	107.76	.0	.00
0014130012610	.50000	744	50.1	11.6	11.80	.0	.00	2138.3	1208.5	207.58	.0	.00
0003240012610	.25000	379	197.0	246.7	30.50	.0	.00	1813.5	1748.0	206.08	.0	.00
0002240012610	.50000	732	221.1	292.5	40.10	.0	.00	2588.5	3455.7	356.13	.0	.00
0201240012610	.50000	642	98.3	4.1	9.60	.0	.00	2376.8	290.8	401.63	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2456	284.6	226.5	49.67	.0	.00	8514.1	3897.5	699.13	.0	.00
RESERVR UNITS	3.50000	2456	333.0	226.5	861.15	.0	.00	9961.5	3897.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.8 M3/CALDAY TO REPLACE REQUIRES 1.87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.3 AVERAGE GAS-OIL RATIO IS 174.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	112.8	96.2	12.20	.0	.00	2351.3	1575.1	290.89	.0	.00
0011130012610	.25000	744	30.2	8.0	8.40	.0	.00	900.2	428.1	107.76	.0	.00
0012130012610	.50000	744	72.5	15.1	7.40	.0	.00	1233.5	572.1	91.37	.0	.00
0009140012610	.25000	456	55.4	89.6	4.50	.0	.00	1990.1	3137.9	186.33	.0	.00
0016140012610	.50000	744	42.7	21.1	5.40	.0	.00	3375.3	927.0	181.72	.0	.00
0001230012610	.25000	408	186.1	88.4	41.50	.0	.00	4141.1	3131.9	314.21	.0	.00
0004240012610	.50000	744	256.2	610.4	29.40	.0	.00	1398.9	3086.5	125.34	.0	.00
0003240012610	.25000	379	197.8	246.7	30.50	.0	.00	1813.5	1748.0	206.08	.0	.00
0014130012610	.50000	744	50.1	11.6	11.80	.0	.00	2138.3	1208.5	207.58	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2729	439.9	533.5	60.42	.0	.00	8635.5	6583.6	797.49	.0	.00
RESERVR UNITS	4.00000	2729	514.7	533.5	930.30	.0	.00	10103.6	6583.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 63.8 M3/CALDAY TO REPLACE REQUIRES 2.60 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.8 AVERAGE GAS-OIL RATIO IS 137.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	211	3.3	112.9	2.00	.0	.00	352.1	3254.2	31.34	.0	.00
0009140012610	.50000	456	55.4	89.6	4.50	.0	.00	1990.1	3137.9	186.33	.0	.00
0010140012610	1.00000	744	17.4	31.0	8.20	.0	.00	415.5	572.6	80.30	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0001230012610	.25000	408	186.1	88.4	41.50	.0	.00	4141.1	3131.9	314.21	.0	.00
0016140012610	.50000	744	42.7	21.1	5.40	.0	.00	3375.3	927.0	181.72	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1657	116.3	221.4	25.53	.0	.00	4734.7	7720.8	399.45	.0	.00
RESERVR UNITS	3.75000	1657	136.0	221.4	479.96	.0	.00	5539.6	7720.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 27.0 M3/CALDAY TO REPLACE REQUIRES 1.10 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.6 AVERAGE GAS-OIL RATIO IS 219.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	408	186.1	88.4	41.50	.0	.00	4141.1	3131.9	314.21	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0210230012610	.50000	744	312.5	187.2	17.20	.0	.00	2120.2	777.9	149.26	.0	.00
0009230012610	.25000	744	193.1	728.2	15.00	.0	.00	4068.8	6477.2	136.71	.0	.00
0208230012610	.50000	336	77.8	338.8	7.60	.0	.00	1913.6	2631.9	167.77	.0	.00
SURFACE UNITS	3.00000	828	290.0	467.1	26.52	.0	.00	4318.5	5185.7	296.47	.0	.00
RESERVR UNITS	3.00000	828	339.2	467.1	287.29	.0	.00	5052.7	5185.7	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 35.3 M3/CALDAY TO REPLACE REQUIRES 1.44 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 8.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 21.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.7 AVERAGE GAS-OIL RATIO IS 91.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	408	259.2	172.7	13.70	.0	.00	1814.1	1431.2	91.34	.0	.00
0003240012610	.25000	379	197.0	246.7	30.50	.0	.00	1813.5	1748.0	206.08	.0	.00
0004240012610	.50000	744	256.2	610.4	29.40	.0	.00	1398.9	3086.5	125.34	.0	.00
0001230012610	.25000	408	186.1	88.4	41.50	.0	.00	4141.1	3131.9	314.21	.0	.00
0208230012610	.50000	336	77.8	338.8	7.60	.0	.00	1913.6	2631.9	167.77	.0	.00
0009230012610	.25000	744	193.1	728.2	15.00	.0	.00	4068.8	6477.2	136.71	.0	.00
0012240012612	.50000	744	425.8	270.1	49.90	.0	.00	4010.0	1937.1	432.21	.0	.00
0011240012610	.25000	744	23.3	4.8	3.80	.0	.00	1940.9	128.5	75.44	.0	.00
0006240012610	.50000	680	143.4	72.0	47.10	.0	.00	1956.1	377.9	330.41	.0	.00
SURFACE UNITS	4.00000	2229	860.7	1085.4	103.40	.0	.00	9444.5	8319.3	802.31	.0	.00
RESERVR UNITS	4.00000	2229	1007.0	1085.4	1457.04	.0	.00	11050.0	8319.3	.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

AVERAGE RATE OF VOIDAGE CREATION IS 114.5 M3/CALDAY TO REPLACE REQUIRES 4.67 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 21.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.8 AVERAGE GAS-OIL RATIO IS 120.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	744	[illegible]	[illegible]	[illegible]	[illegible]	.00	1514.4	[illegible]	37.70	[illegible]	.00
0701250012610	.25000	390	23..	[illegible]	3.00	0	.00	1638.5	4829.0	228.64	0	.00
0003250012612	.50000	648	181.-	12.2	2.60	0	.00	4216.2	701.4	498.63	.0	.00
0003250012612	.25000	744	621.4	9.8	60.40	.0	.00	6116.1	135.3	590.65	.0	.00
0006250012610	.50000	744	531.7	139.3	28.70	.0	.00	7165.6	2550.5	240.80	.0	.00
0011250012610	.25000	744	644.3	63.1	10.70	0	.00	5758.6	943.0	242.62	.0	.00
0010250012610	.50000	744	367.8	11.9	17.10	.0	.00	5572.9	928.7	372.38	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1822.0	1677.6	34.26	.0	.00
0008250012610	.50000	648	87.2	12.4	5.20	.0	.00	2641.7	404.7	67.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION GAS CONTRIBUTE TO THIS PATTERN.
NOTE. CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1862	954.7	265.0	56.80	1361.4	.00	15546.4	4271.4	376.20	26984.0	.00
RESERVR UNITS	4.00000	1862	1114.9	265.0	171.41	1361.4	.00	19189.3	4271.4	.00	26984.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 50.0 M3/CALDAY TO REPLACE REQUIRES 3.45 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 37.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 15.0 M3.OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.2 AVER. GAS OIL RATIO IS 73.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 87.0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 120.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	8.9	22.3	.30	.0	.00	522.8	1249.2	14.84	.0	.00
0204300012510	1.00000	712	53.5	684.0	4.30	.0	.00	1468.9	6363.2	45.73	.0	.00
0201250012610	.50000	390	23.8	434.4	3.00	.0	.00	1638.5	4829.0	228.64	.0	.00
0003250012610	.50000	648	87.2	12.4	5.20	.0	.00	2641.7	404.7	67.71	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1822.0	1677.6	34.26	.0	.00
0011300012512	.33333	0	.0	.0	.00	.0	.00	1383.8	3343.5	33.27	.0	.00
0212300012510	.50000	736	368.2	166.8	25.10	.0	.00	455.2	109.2	34.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE. CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00333	2343	303.0	933.1	31.75	.0	.00	5276.2	11948.7	244.83	.0	.00
RESERVR UNITS	4.00333	2343	353.5	933.1	156.23	.0	.00	6172.1	11948.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 44.5 M3/CALDAY TO REPLACE REQUIRES 1.90 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.1 M3/OPDAY NET WELL AVERAGE TOTAL FLUID RATE IF 12.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.5 AVERAGE GAS-OIL RATIO IS 72.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=[illegible] THE OIL FORMATION VOLUME FACTOR=[illegible] RES.M3/M3
THE GAS FORMATION VOLUME FACTOR=[illegible] RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=[illegible] M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0015230012510	1.00000	744	154.8	266.1	9.50	.0	.00	5489.2	5877.9	63.69	.0	.00
0089300012513	1.00000	715	7.5	12.9	2.00	.0	.00	675.2	956.1	23.35	.0	.00
0011300012512	.33333	0	.0	.0	.00	.0	.00	1383.8	3343.5	33.97	.0	.00
0014300012510	.50000	744	13.1	9.0	2.20	.0	.00	1206.7	1058.8	113.47	.0	.00
0043310012510	.25000	744	32.5	18.0	3.40	.0	.00	1623.7	714.4	39.67	.0	.00
0060710012510	.50000	744	143.9	596.5	22.20	.0	.00	2322.2	6712.6	160.70	.0	.00
0001310012510	.50000	336	104.1	63.6	16.70	.0	.00	1324.5	1303.7	65.14	.0	.00
0014300012510	1.00000	744	35.7	37.2	2.80	.0	.00	1254.3	1246.7	102.56	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.08333	3304	380.8	950.4	35.70	.0	.00	6632.6	12509.8	381.00	.0	.00
RESERVR UNITS	5.08333	3304	445.5	750.4	398.50	.0	.00	7760.1	12509.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 57.2 M3/CALDAY TO REPLACE REQUIRES 2.36 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.4 AVERAGE GAS-OIL RATIO IS [illegible] M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 1 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	744	14.4	3.2	1.00	.0	.00	718.5	1332.0	63.68	.0	.00
0011300012512	.33334	0	.0	.0	.00	.0	.00	1383.8	3343.5	33.97	.0	.00
0009250012610	.25000	0	.0	.0	.00	.0	.00	1822.9	1677.6	34.26	.0	.00
0016250012610	.50000	552	6.6	2.9	.20	.0	.00	649.9	203.4	36.76	.0	.00
0004310012510	.50000	744	18.5	46.6	2.40	.0	.00	1210.2	983.0	68.27	.0	.00
0003310012510	.25000	744	32.5	18.0	3.40	.0	.00	1623.7	714.4	39.67	.0	.00
0014300012510	.50000	744	13.1	9.0	2.20	.0	.00	1206.7	1058.8	113.47	.0	.00
0212300012510	.50000	736	368.2	166.3	25.10	.0	.00	455.2	189.2	34.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.83334	2318	225.7	120.4	16.30	0	.00	3802.2	4261.7	219.74	.0	.00
RESERVR UNITS	3.83334	2318	264.1	120.4	131.01	.0	.00	4448.6	4261.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 16.4 M3/CALDAY TO REPLACE REQUIRES .68 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.8 AVERAGE GAS-OIL RATIO IS 74.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	696	24.2	287.5	9.80	.0	.00	258.0	1636.1	24.01	.0	.00
0014120012610	1.00000	667	13.0	8.5	1.30	.0	.00	265.5	411.5	19.14	.0	.00
0004130012610	.50000	651	34.0	16.4	2.80	.0	.00	725.5	502.4	40.70	.0	.00
0008140012610	.50000	691	78.9	169.3	8.80	.0	.00	2777.4	3633.2	356.91	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	2034	93.6	388.8	16.90	.0	.00	2275.0	4117.4	241.95	.0	.00
RESERVR UNITS	3.00000	2034	109.6	388.8	296.94	.0	.00	2661.7	4117.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 28.4 M3/CALDAY TO REPLACE REQUIRES 1.16 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 80.6 AVERAGE GAS-OIL RATIO IS 180.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	691	20.4	4.4	3.40	.0	.00	728.7	402.8	50.08	.0	.00
0003130012610	.50000	691	24.1	8.7	1.90	.0	.00	1043.3	505.8	85.72	.0	.00
0006130012610	.50000	691	67.0	693.1	3.40	.0	.00	900.7	5896.3	59.95	.0	.00
0011130012610	.25000	691	34.6	10.1	8.50	.0	.00	934.8	438.2	116.26	.0	.00
0012130012610	.50000	691	54.9	14.7	5.90	.0	.00	1288.4	586.8	97.27	.0	.00
0009140012610	.25000	637	75.2	123.9	6.40	.0	.00	2065.3	3261.8	192.73	.0	.00
0008140012610	.50000	691	78.9	169.3	8.80	.0	.00	2777.4	3633.2	356.91	.0	.00
0004130012610	.50000	651	34.0	16.4	2.80	.0	.00	725.5	502.4	40.70	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2731	177.3	489.0	18.52	.0	.00	4846.4	6890.0	447.60	.0	.00
RESERVR UNITS	4.00000	2731	207.4	489.0	232.39	.0	.00	5670.3	6890.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 33.2 M3/CALDAY TO REPLACE REQUIRES 1.35 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.4 AVERAGE GAS-OIL RATIO IS 104.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	691	38.8	5.3	7.40	.0	.00	1510.0	325.2	182.60	.0	.00
0001130012610	1.00000	675	58.2	9.4	24.90	.0	.00	4388.3	216.2	575.72	.0	.00
0009130012610	1.00000	691	42.0	13.3	2.70	.0	.00	1018.4	215.8	63.00	.0	.00
0010130012610	.50000	691	26.6	4.4	7.70	.0	.00	1437.1	532.4	115.84	.0	.00
0011130012610	.25000	691	34.6	10.1	8.50	.0	.00	934.8	438.2	116.26	.0	.00
0006130012610	.50000	691	67.0	693.1	3.40	.0	.00	900.7	5896.3	59.95	.0	.00
0003130012610	.50000	691	24.1	8.7	1.90	.0	.00	1043.3	505.8	85.72	.0	.00
0002130012610	1.00000	691	50.6	8.8	5.90	.0	.00	1557.8	270.7	147.43	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	3957	257.1	392.4	49.52	.0	.00	10398.7	4605.2	1128.57	.0	.00
RESERVR UNITS	5.75000	3957	300.9	392.4	892.11	.0	.00	12166.5	4605.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 56.6 M3/CALDAY TO REPLACE REQUIRES 2.31 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 60.4 AVERAGE GAS-OIL RATIO IS 192.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	691	22.9	6.4	4.10	.0	.00	3601.5	618.4	88.03	.0	.00
0010130012610	.50000	691	26.6	4.4	7.70	.0	.00	1437.1	532.4	115.84	.0	.00
0011130012610	.25000	691	34.6	10.1	8.50	.0	.00	934.8	438.2	116.26	.0	.00
0014130012610	.50000	515	43.6	11.3	8.70	.0	.00	2181.9	1219.8	216.28	.0	.00
0003240012610	.25000	336	166.4	182.7	13.90	.0	.00	1979.9	1930.7	219.98	.0	.00
0002240012610	.50000	691	287.9	233.1	32.00	.0	.00	2876.4	3688.8	388.13	.0	.00
0201240012610	.50000	464	75.8	3.3	8.80	.0	.00	2452.6	294.1	410.43	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	2128	290.1	180.7	38.30	.0	.00	8804.2	4078.2	737.43	.0	.00
RESERVR UNITS	3.50000	2128	339.4	180.7	575.59	.0	.00	10300.9	4078.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.1 M3/CALDAY TO REPLACE REQUIRES 1.60 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 38.4 AVERAGE GAS-OIL RATIO IS 132.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	691	101.5	103.7	13.20	.0	.00	2452.8	1678.8	304.09	.0	.00
0011130012610	.25000	691	34.6	10.1	8.50	.0	.00	934.8	438.2	116.26	.0	.00
0012130012610	.50000	691	54.9	14.7	5.90	.0	.00	1288.4	586.8	97.27	.0	.00
0009140012610	.25000	637	75.2	123.9	6.40	.0	.00	2065.3	3261.8	192.73	.0	.00
0016140012610	.50000	696	42.9	10.2	3.80	.0	.00	3418.2	937.2	185.52	.0	.00
0001230012610	.25000	384	167.6	100.7	36.40	.0	.00	4308.7	3232.6	350.61	.0	.00
0004240012610	.50000	643	232.8	495.8	22.10	.0	.00	1631.7	3581.5	147.44	.0	.00
0003240012610	.25000	336	166.4	182.7	13.90	.0	.00	1979.9	1930.7	219.98	.0	.00
0014130012610	.50000	515	43.6	11.3	8.70	.0	.00	2181.9	1219.8	216.28	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2476	399.5	473.6	49.75	.0	.00	9035.1	7057.3	847.24	.0	.00
RESERVR UNITS	4.00000	2476	467.5	473.6	719.25	.0	.00	10571.0	7057.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 59.3 M3/CALDAY TO REPLACE REQUIRES 2.42 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 8.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.2 AVERAGE GAS-OIL RATIO IS 124.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	696	78.6	367.0	4.90	.0	.00	430.7	3621.2	36.24	.0	.00
0009140012610	.50000	637	75.2	123.9	6.40	.0	.00	2065.3	3261.8	192.73	.0	.00
0010140012610	1.00000	696	4.8	37.9	4.90	.0	.00	420.3	610.5	85.20	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0001230012610	.25000	384	167.6	100.7	36.40	.0	.00	4308.7	3232.6	350.61	.0	.00
0016140012610	.50000	696	42.9	10.2	3.80	.0	.00	3418.2	937.2	185.52	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2155	184.4	497.1	24.00	.0	.00	4919.1	8217.9	423.45	.0	.00
RESERVR UNITS	3.75000	2155	215.7	497.1	357.47	.0	.00	5755.3	8217.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.2 M3/CALDAY TO REPLACE REQUIRES 1.56 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.9 AVERAGE GAS-OIL RATIO IS 130.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	0	.0	.00	.0	.00	.0	0	.00	.0	.00
0001230012610	.25000	384	167.6	100.7	36.40	.0	.00	4308.7	3232.6	350.61	.0	.00
0002230012610	.50000	0	.0	.0	.00	.0	.00	498.3	2157.1	50.46	.0	.00
0210230012610	.50000	696	306.4	143.8	11.70	.0	.00	2426.6	921.7	160.96	.0	.00
0009230012610	.25000	696	218.0	539.4	14.90	.0	.00	4286.8	7016.6	151.61	.0	.00
0208230012610	.50000	696	322.3	383.5	29.20	.0	.00	2235.9	3015.4	196.97	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	966	410.7	423.7	33.27	.0	.00	4729.3	5609.4	329.75	.0	.00
RESERVR UNITS	3.00000	966	480.6	423.7	349.85	.0	.00	5533.3	5609.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 44.8 M3/CALDAY TO REPLACE REQUIRES 1.83 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 20.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 50.8 AVERAGE GAS-OIL RATIO IS 81.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	333	185.0	297.6	18.60	.0	.00	1999.1	1728.8	109.94	.0	.00
0003240012610	.25000	336	166.4	182.7	13.90	.0	.00	1979.9	1930.7	219.98	.0	.00
0004240012610	.50000	643	232.8	495.0	22.10	.0	.00	1631.7	3581.5	147.44	.0	.00
0001230012610	.25000	384	167.6	100.7	36.40	.0	.00	4308.7	3232.6	350.61	.0	.00
0208230012610	.50000	696	322.3	383.5	29.20	.0	.00	2235.9	3015.4	196.97	.0	.00
0009230012610	.25000	696	218.0	539.4	14.90	.0	.00	4286.8	7016.6	151.61	.0	.00
0012240012612	.50000	691	386.5	222.7	64.20	.0	.00	4396.5	2159.8	496.41	.0	.00
0011240012610	.25000	691	22.2	2.7	4.70	.0	.00	1963.1	131.2	80.14	.0	.00
0006240012610	.50000	691	131.0	30.2	38.80	.0	.00	2087.1	408.1	369.21	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2220	864.8	1069.7	113.23	.0	.00	10309.3	9389.0	915.54	.0	.00
RESERVR UNITS	4.00000	2220	1011.9	1069.7	1692.53	.0	.00	12061.9	9389.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 134.8 M3/CALDAY TO REPLACE REQUIRES 5.50 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 20.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 55.3 AVERAGE GAS-OIL RATIO IS 130.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=3161 kPag (S692) THE OIL FORMATION VOLUME FACTOR=1.165 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 14.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	696	.0	.0	.00	1170.3	.00	1914.4	608.2	37.70	28154.3	.00
0201250012610	.25000	538	22.4	210.6	3.40	.0	.00	1660.9	5039.6	232.04	.0	.00
0002250012612	.50000	696	403.1	11.9	19.80	.0	.00	4619.3	313.3	468.63	.0	.00
0003250012612	.25000	696	604.1	10.2	66.70	.0	.00	6720.3	138.5	657.35	.0	.00
0006250012610	.50000	696	476.7	202.7	12.10	.0	.00	7642.3	2755.2	252.10	.0	.00
0011250012610	.25000	696	353.2	95.8	9.60	.0	.00	6111.8	538.8	252.22	.0	.00
0010250012610	.50000	696	336.9	5.0	16.00	.0	.00	5909.8	533.9	388.38	.0	.00
0009250012610	.25000	440	112.8	185.5	3.20	.0	.00	1934.8	1863.1	37.46	.0	.00
0008250012610	.50000	696	45.5	10.8	3.70	.0	.00	2687.2	415.5	71.41	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	1985	904.2	240.7	46.52	1170.3	.00	16450.7	4512.1	922.73	28154.3	.00
RESERVR UNITS	4.00000	1985	1053.8	240.7	148.12	1170.3	.00	19247.3	4512.1	.00	28154.3	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.5 M3/CALDAY TO REPLACE REQUIRES 3.55 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.0 AVERAGE GAS-OIL RATIO IS 51.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 81.1 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 118.5

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	696	11.5	10.3	1.10	.0	.00	534.3	1250.5	15.14	.0	.00
0204300012510	1.00000	632	76.3	475.4	2.90	.0	.00	1545.2	6838.6	48.63	.0	.00
0201250012610	.50000	538	22.4	210.6	3.40	.0	.00	1660.9	5039.6	232.04	.0	.00
0008250012610	.50000	696	45.5	10.8	3.70	.0	.00	2687.2	415.5	71.41	.0	.00
0009250012610	.25000	440	112.8	185.5	3.20	.0	.00	1934.8	1863.1	37.46	.0	.00
0011300012512	.33333	60	3.3	93.7	.40	.0	.00	1387.1	3437.2	34.37	.0	.00
0212300012510	.50000	648	412.4	35.6	40.90	.0	.00	867.6	224.8	74.90	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.08333	2399	357.2	691.8	28.93	.0	.00	5633.4	12540.5	273.77	.0	.00
RESERVR UNITS	4.08333	2399	418.0	691.8	302.16	.0	.00	6591.1	12540.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 50.4 M3/CALDAY TO REPLACE REQUIRES 2.06 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 65.9 AVERAGE GAS-OIL RATIO IS 81.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	696	74.6	638.5	7.10	.0	.00	1483.8	5512.4	70.79	.0	.00
0009300012510	1.00000	696	6.2	29.0	.60	.0	.00	681.4	585.1	24.45	.0	.00
0011300012512	.33333	60	3.3	93.7	.40	.0	.00	1387.1	3437.2	34.37	.0	.00
0014300012510	.50000	696	18.8	8.9	4.20	.0	.00	1225.5	1067.7	117.67	.0	.00
0003310012510	.25000	696	29.3	19.0	3.00	.0	.00	1653.0	733.4	42.67	.0	.00
0002310012510	.50000	696	100.8	637.3	21.10	.0	.00	2423.0	7354.9	181.80	.0	.00
0001310012510	.50000	696	154.7	181.2	8.30	.0	.00	1479.2	1484.9	73.44	.0	.00
0016300012510	1.00000	696	65.9	39.8	6.20	.0	.00	1320.2	1286.5	108.76	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3326	292.3	1157.0	31.58	.0	.00	6924.9	13666.8	412.58	.0	.00
RESERVR UNITS	5.08333	3326	342.0	1157.0	408.31	.0	.00	8102.1	13666.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 68.1 M3/CALDAY TO REPLACE REQUIRES 2.78 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 79.8 AVERAGE GAS-OIL RATIO IS 108.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 2 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	696	14.7	2.2	3.00	.0	.00	733.2	1334.2	66.68	.0	.00
0011300012512	.33334	60	3.3	93.7	.40	.0	.00	1387.1	3437.2	34.37	.0	.00
0009250012610	.25000	440	112.8	185.5	3.20	.0	.00	1934.8	1863.1	37.46	.0	.00
0016250012610	.50000	616	16.5	3.8	1.30	.0	.00	666.4	207.2	38.06	.0	.00
0004310012510	.50000	696	19.9	43.0	1.90	.0	.00	1230.1	1026.0	70.17	.0	.00
0003310012510	.25000	696	29.3	19.0	3.00	.0	.00	1653.0	733.4	42.67	.0	.00
0014300012510	.50000	696	18.8	8.9	4.20	.0	.00	1225.5	1067.7	117.67	.0	.00
0212300012510	.50000	648	412.4	35.6	40.90	.0	.00	867.6	224.8	74.90	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.83334	2328	285.1	130.2	28.83	.0	00	4087.3	4391.9	248.57	.0	.00
RESERVR UNITS	3.83334	2328	333.6	130.2	365.54	.0	.00	4782.2	4391.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 29.6 M3/CALDAY TO REPLACE REQUIRES 1.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.4 AVERAGE GAS-OIL RATIO IS 101.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0001130012610	1.00000	744	[illegible]	[illegible]	[illegible]	0	.00	[illegible]	[illegible]	[illegible]	0	.00
0014130012610	1.00000	720	9.9	2.3	1.40	0	.00	225.4	420.3	20.54	.0	.00
0004130012610	.50000	696	34.2	11.7	3.30	0	.00	759.7	514.1	44.00	.0	.00
0008140012610	.50000	744	77.7	164.0	8.80	0	.00	2855.1	3797.2	365.71	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2184	76.8	367.1	11.15	.0	.00	2351.8	4484.5	253.11	.0	.00
RESERVR UNITS	3.00000	2184	89.9	367.1	177.08	.0	.00	2751.6	4484.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.5 M3/CALDAY TO REPLACE REQUIRES .83 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS .8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 82.7 AVERAGE GAS-OIL RATIO IS 145.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	744	26.4	4.6	3.50	.0	.00	755.1	407.4	53.58	.0	.00
0003130012610	.50000	744	29.7	8.3	3.70	.0	.00	1073.0	514.1	89.42	.0	.00
0006130012610	.50000	744	90.0	711.1	4.40	.0	.00	990.7	6607.4	64.35	.0	.00
0011130012610	.25000	744	26.0	12.5	8.60	.0	.00	960.8	450.7	124.86	.0	.00
0012130012610	.50000	744	56.9	17.9	5.30	.0	.00	1345.3	604.7	102.57	.0	.00
0009140012610	.25000	744	75.4	117.8	7.00	.0	.00	2148.7	3379.6	199.73	.0	.00
0008140012610	.50000	744	77.7	164.0	8.80	.0	.00	2855.1	3797.2	365.71	.0	.00
0004130012610	.50000	696	34.2	11.7	3.30	.0	.00	759.7	514.1	44.00	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2952	196.0	493.7	20.15	.0	.00	5042.4	7383.7	467.75	.0	.00
RESERVR UNITS	4.00000	2952	229.3	493.7	250.95	.0	.00	5899.6	7383.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.4 M3/CALDAY TO REPLACE REQUIRES 1.28 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.6 AVERAGE GAS-OIL RATIO IS 102.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
[illegible]	1.00000	744	[illegible]	[illegible]	[illegible]	[illegible]	.00	[illegible]	[illegible]	[illegible]	.0	.00
0001130012610	1.00000	588	29.0	2.7	14.70	.0	.00	9417.3	219.4	590.42	.0	.00
0003130012610	1.00000	744	44.7	4.6	3.50	.0	.00	1065.1	220.4	66.50	.0	.00
0010130012610	.50000	744	34.4	4.6	7.70	.0	.00	1471.5	537.0	123.54	.0	.00
0011130012610	.25000	744	26.0	12.5	8.60	.0	.00	960.8	450.7	124.86	.0	.00
0006130012610	.50000	744	90.0	711.1	4.40	.0	.00	990.7	6607.4	64.35	.0	.00
0003130012610	.50000	744	29.7	8.3	3.70	.0	.00	1073.0	514.1	89.42	.0	.00
0002130012610	1.00000	744	46.8	14.2	6.30	.0	.00	1604.6	284.9	153.73	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	4122	342.9	392.8	42.25	.0	.00	10441.6	4998.0	1170.82	.0	.00
RESERVR UNITS	5.75000	4122	284.1	392.8	733.82	.0	.00	12450.7	4998.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 49.5 M3/CALDAY TO REPLACE REQUIRES 1.96 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 61.9 AVERAGE GAS-OIL RATIO IS 174.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	744	26.7	3.1	5.80	.0	.00	3628.2	621.5	93.83	.0	.00
0010130012610	.50000	744	34.4	4.6	7.70	.0	.00	1471.5	537.0	123.54	.0	.00
0011130012610	.25000	744	26.0	12.5	8.60	.0	.00	960.8	450.7	124.86	.0	.00
0014130012610	.50000	744	49.8	21.1	12.40	.0	.00	2231.7	1240.9	228.68	.0	.00
0003240012610	.25000	336	219.5	84.1	19.60	.0	.00	2199.4	2014.8	239.58	.0	.00
0002240012610	.50000	744	299.5	256.1	47.30	.0	.00	3175.9	3944.9	435.43	.0	.00
0201240012610	.50000	326	115.3	12.1	30.10	.0	.00	2567.9	306.2	440.53	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2293	337.6	174.2	61.60	.0	.00	9141.7	4252.4	799.03	.0	.00
RESERVR UNITS	3.50000	2293	395.0	174.2	1087.07	.0	.00	10695.8	4252.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 53.9 M3/CALDAY TO REPLACE REQUIRES 2.18 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 34.0 AVERAGE GAS-OIL RATIO IS 182.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	744	10.1	10.5	12.50	0	.00	2551.0	1701.3	320.59	0	.00
0011130012610	.25000	744	26.0	12.5	8.60	0	.00	949.8	450.7	124.96	.0	.00
0012130012610	.50000	744	56.9	17.9	5.30	0	.00	1345.3	404.7	102.57	.0	.00
0009140012610	.25000	744	75.4	117.8	7.00	.0	.00	2140.7	3379.6	199.73	.0	.00
0016140012610	.50000	744	41.3	9.5	4.40	.0	.00	3459.5	946.7	189.92	0	00
0001230012610	.25000	426	188.6	139.1	31.50	.0	.00	4497.3	3371.7	382.11	.0	.00
0004240012610	.50000	528	178.5	395.1	20.10	.0	.00	1810.3	3976.6	167.54	.0	.00
0003240012610	.25000	336	219.5	84.1	19.60	.0	.00	2199.4	2014.8	239.58	.0	.00
0014130012610	.50000	744	49.8	21.1	12.40	.0	.00	2231.7	1240.9	228.68	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2687	392.8	412.7	94.27	.0	.00	9427.8	7449.9	901.51	.0	.00
RESERVR UNITS	4.00000	2687	459.5	412.7	838.58	.0	.00	11030.6	7469.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.2 M3/CALDAY TO REPLACE REQUIRES 2.25 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 51.2 AVERAGE GAS-OIL RATIO IS 138.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	744	29.1	453.1	4.20	.0	.00	459.8	4074.3	40.44	.0	.00
0009140012610	.50000	744	75.4	117.8	7.00	.0	.00	2140.7	3379.6	199.73	.0	.00
0010140012610	1.00000	744	2.3	90.0	3.90	.0	.00	422.6	700.5	89.10	.0	.00
0002230012610	.50000	576	16.5	461.9	1.90	.0	.00	514.8	2619.0	52.36	.0	.00
0001230012610	.25000	426	188.6	139.1	31.50	.0	.00	4497.3	3371.7	382.11	.0	.00
0016140012610	.50000	744	41.3	9.5	4.40	.0	.00	3459.5	946.7	189.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2627	145.2	872.5	22.62	.0	.00	5064.2	9090.4	446.07	.0	.00
RESERVR UNITS	3.75000	2627	169.8	872.5	372.81	.0	.00	5925.1	9090.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 45.6 M3/CALDAY TO REPLACE REQUIRES 1.86 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 85.7 AVERAGE GAS-OIL RATIO IS 155.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] THE GAS FORMATION VOLUME FACTOR [illegible] THE SOLUTION GAS-OIL RATIO 1.170 RES.M3/M3
[illegible] THE GAS FORMATION VOLUME FACTOR [illegible] THE SOLUTION GAS-OIL RATIO [illegible] M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0002230012610	1.00000	0	0	0	.00	0	.00	0	0	.00	0	.00
0001230012610	.25000	426	188.6	139.1	31.50	.0	.00	4497.3	3371.7	382.11	.0	.00
0002230012610	.50000	576	16.5	461.9	1.90	.0	.00	514.8	2619.0	52.36	.0	.00
0210230012610	.50000	744	723.4	368.9	29.20	.0	.00	2750.0	1290.5	190.16	.0	.00
0009230012610	.25000	744	240.5	600.8	18.00	.0	.00	4527.3	7617.4	169.61	.0	.00
0208230012610	.50000	432	216.3	191.1	20.70	.0	.00	2452.2	3206.5	217.67	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1169	385.4	695.9	38.27	.0	.00	5114.6	6305.3	368.02	.0	.00
RESERVR UNITS	3.00000	1169	450.9	695.9	455.83	.0	.00	5984.1	6305.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 51.7 M3/CALDAY TO REPLACE REQUIRES 2.11 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 22.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 64.4 AVERAGE GAS-OIL RATIO IS 99.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 9 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	336	162.6	178.2	11.50	.0	.00	2161.7	1907.0	121.44	.0	.00
0003240012610	.25000	336	219.5	84.1	19.60	.0	.00	2199.4	2014.8	239.58	.0	.00
0004240012610	.50000	528	178.6	395.1	20.10	.0	.00	1810.3	3976.6	167.54	.0	.00
0001230012610	.25000	426	188.6	139.1	31.50	.0	.00	4497.3	3371.7	382.11	.0	.00
0208230012610	.50000	432	216.3	191.1	20.70	.0	.00	2452.2	3206.5	217.67	.0	.00
0009230012610	.25000	744	240.5	600.8	18.00	.0	.00	4527.3	7617.4	169.61	.0	.00
0012240012612	.50000	744	432.5	115.4	71.90	.0	.00	4829.0	2275.2	568.31	.0	.00
0011240012610	.25000	744	26.5	3.2	4.90	.0	.00	1989.6	134.4	85.04	.0	.00
0006240012610	.50000	744	117.7	12.4	35.70	.0	.00	2204.8	420.5	404.91	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2123	803.9	742.0	104.20	.0	.00	11113.3	10131.0	1019.74	.0	.00
RESERVR UNITS	4.00000	2123	940.6	742.0	1547.61	.0	.00	13002.5	10131.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 104.2 M3/CALDAY TO REPLACE REQUIRES 4.25 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 17.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 48.0 AVERAGE GAS-OIL RATIO IS 129.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible]
THE GAS FORMATION VOLUME FACTOR= [illegible] THE [illegible] 53.82

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	597	0	0	.00	1148.1	.00	1914.4	4798.7	33.20	29302.4	.00
0201250012610	.25000	630	102.7	466.8	10.00	.0	.00	1763.6	5506.4	242.04	0	.00
0002250012612	.50000	744	259.2	19.6	33.00	.0	.00	4969.6	823.3	501.63	.0	.00
0003250012612	.25000	663	522.8	8.8	79.80	0	.00	7247.3	147.3	737.15	.0	.00
0006250012610	.50000	744	513.6	169.3	26.90	.0	.00	8155.9	2924.5	279.00	.0	.00
0011250012610	.25000	744	322.0	75.3	9.60	.0	.00	6433.8	614.1	261.82	.0	.00
0010250012610	.50000	744	351.7	12.0	23.30	.0	.00	6261.5	545.9	411.68	.0	.00
0009250012610	.25000	744	73.8	202.0	4.90	.0	.00	2008.6	2065.1	42.36	.0	.00
0008250012610	.50000	744	67.0	7.5	5.60	.0	.00	2754.2	423.0	77.01	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Po=1.17

SURFACE UNITS	4.00000	2184	897.7	287.6	70.47	1148.1	.00	17348.3	4799.8	993.20	29302.4	.00
RESERVR UNITS	4.00000	2184	1048.3	287.6	481.54	1148.1	.00	20297.5	4799.9	.00	29302.4	.00

AVERAGE RATE OF VOIDAGE CREATION IS 58.6 M3/CALDAY TO REPLACE REQUIRES 3.21 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 24.3 AVERAGE GAS-OIL RATIO IS 78.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 63.2 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 116.8

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	14.1	13.9	1.20	.0	.00	548.4	1264.4	16.34	.0	.00
0204300012510	1.00000	720	93.4	543.1	5.40	.0	.00	1628.6	7381.7	54.03	.0	.00
0201250012610	.50000	632	102.7	466.8	10.00	.0	.00	1763.6	5506.4	242.04	.0	.00
0008250012610	.50000	744	67.0	7.5	5.60	.0	.00	2754.2	423.0	77.01	.0	.00
0009250012610	.25000	744	73.8	202.0	4.90	.0	.00	2008.6	2065.1	42.36	.0	.00
0011300012512	.33333	744	93.4	330.5	8.90	.0	.00	1480.5	3767.7	43.27	.0	.00
0212300012510	.50000	732	430.2	29.3	49.70	.0	.00	1297.8	254.1	124.60	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.08333	2952	447.0	969.5	43.44	.0	.00	6080.4	13510.0	317.21	.0	.00
RESERVR UNITS	4.08333	2952	523.0	969.5	505.31	.0	.00	7114.1	13510.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 64.4 M3/CALDAY TO REPLACE REQUIRES 2.63 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 68.4 AVERAGE GAS-OIL RATIO IS 97.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] PATTERN NUMBER 22 [illegible] 1984

[illegible] THE GAS FORMATION VOLUME FACTOR [illegible] THE [illegible] 51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	744	15.3	498.2	25.90	.0	.00	1550.6	4210.5	94.10	.0	.00
0009230012510	1.00000	744	.4	22.5	1.20	.0	.00	689.8	603.6	29.65	.0	.00
0011300012512	.33333	744	93.8	330.5	8.90	.0	.00	1480.5	3767.7	43.27	.0	.00
0014300012510	.50000	744	20.5	19.7	2.10	.0	.00	1246.0	1087.4	119.77	.0	.00
0003310012510	.25000	437	18.3	13.3	1.70	.0	.00	1671.3	746.7	44.37	.0	.00
0002310012510	.50000	744	41.1	721.0	23.10	.0	.00	2464.1	8075.9	204.90	.0	.00
0001310012510	.50000	744	242.4	542.5	14.40	.0	.00	1721.6	2027.4	87.84	.0	.00
0016300012510	1.00000	744	59.2	35.9	5.40	.0	.00	1378.4	1322.4	114.16	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	3705	330.1	1507.7	59.69	.0	.00	7255.0	15174.5	472.27	.0	.00
RESERVR UNITS	5.08333	3705	386.2	1507.7	1049.65	.0	.00	8488.3	15174.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 95.0 M3/CALDAY TO REPLACE REQUIRES 3.88 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 11.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 82.0 AVERAGE GAS-OIL RATIO IS 180.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 3 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	744	19.6	9.8	4.40	.0	.00	752.8	1344.0	71.08	.0	.00
0011300012512	.33334	744	93.4	330.5	8.90	.0	.00	1480.5	3767.7	43.27	.0	.00
0009250012610	.25000	744	73.8	202.0	4.90	.0	.00	2008.6	2065.1	42.36	.0	.00
0016250012610	.50000	744	20.2	6.0	2.80	.0	.00	686.6	213.2	40.86	.0	.00
0004310012510	.50000	744	24.1	49.1	2.80	.0	.00	1254.2	1075.1	72.97	.0	.00
0003310012510	.25000	437	18.3	13.3	1.70	.0	.00	1671.3	746.7	44.37	.0	.00
0014300012510	.50000	744	20.5	19.7	2.10	.0	.00	1246.0	1087.4	119.77	.0	.00
0212300012510	.50000	732	430.2	29.3	49.70	.0	.00	1297.8	254.1	124.60	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.83334	2769	321.3	225.8	37.72	.0	.00	4408.6	4617.8	286.29	.0	.00
RESERVR UNITS	3.83334	2769	375.9	225.8	522.33	.0	.00	5158.0	4617.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 36.3 M3/CALDAY TO REPLACE REQUIRES 1.48 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 41.3 AVERAGE GAS-OIL RATIO IS 117.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	720	40.0	145.9	1.90	0	0	389.0	2054.4	30.61	0	0
0014120012610	1.00000	680	9.5	4.3	1.40	0	0	194.9	428.6	21.94	0	0
0004130012610	.50000	672	30.7	12.8	2.70	0	.00	790.4	526.9	46.70	0	.00
0008140012610	.50000	720	72.8	161.2	7.90	0	.00	2927.9	3958.4	373.61	0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2096	101.3	241.1	9.60	0	.00	2453.1	4725.6	262.70	0	.00
RESERVR UNITS	3.00000	2096	118.5	241.1	108.59	0	.00	2870.1	4725.6	.00	0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.6 M3/CALDAY TO REPLACE REQUIRES .64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.9 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 70.4 AVERAGE GAS-OIL RATIO IS 94.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	716	25.6	4.4	3.40	.0	.00	780.7	411.8	56.98	.0	.00
0003130012610	.50000	690	24.3	8.0	2.70	.0	.00	1097.2	522.1	92.12	0	.00
0006130012610	.50000	720	257.5	416.8	4.20	.0	.00	1228.2	7034.2	68.55	0	.00
0011130012610	.25000	720	19.3	16.5	5.20	.0	.00	980.1	467.2	130.06	.0	.00
0012130012610	.50000	720	58.8	18.7	5.40	.0	.00	1404.1	623.4	107.97	.0	.00
0009140012610	.25000	720	47.7	107.1	7.20	.0	.00	2188.4	3486.7	206.93	.0	.00
0008140012610	.50000	720	72.9	161.2	7.90	.0	.00	2927.9	3958.4	373.61	.0	.00
0004130012610	.50000	672	30.7	12.8	2.70	.0	.00	790.4	526.9	46.70	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2837	254.4	344.0	17.95	.0	.00	5296.7	7727.8	485.70	.0	.00
RESERVR UNITS	4.00000	2837	297.6	344.0	218.76	.0	.00	6197.2	7727.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.7 M3/CALDAY TO REPLACE REQUIRES 1.17 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 57.5 AVERAGE GAS-OIL RATIO IS 70.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	720	29.3	2.6	5.10	.0	.00	3657.5	624.1	98.93	.0	.00
0010130012610	.50000	720	21.6	1.3	4.70	.0	.00	1493.1	538.3	128.24	.0	.00
0011130012610	.25000	720	19.3	16.5	5.20	.0	.00	980.1	467.2	130.06	.0	.00
0014130012610	.50000	430	15.3	9.3	5.80	.0	.00	2247.0	1250.2	234.48	.0	.00
0003240012610	.25000	384	223.9	30.9	16.00	.0	.00	2423.3	2045.7	255.58	.0	.00
0002240012610	.50000	720	301.2	262.0	33.70	.0	.00	3477.1	4206.9	469.13	.0	.00
0201240012610	.50000	360	201.7	48.3	39.30	.0	.00	2769.6	354.5	479.83	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	2111	360.0	174.9	52.15	.0	.00	9501.7	4427.3	851.18	.0	.00
RESERVR UNITS	3.50000	2111	421.2	174.9	827.50	.0	.00	11117.0	4427.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 47.5 M3/CALDAY TO REPLACE REQUIRES 1.94 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 32.7 AVERAGE GAS-OIL RATIO IS 134.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	720	118.0	76.1	12.60	.0	.00	2672.9	1857.4	333.19	.0	.00
0011130012610	.75000	720	12.3	16.5	5.20	.0	.00	980.1	467.2	130.06	.0	.00
0012130012610	.50000	720	58.8	18.7	5.40	.0	.00	1404.1	623.4	107.97	.0	.00
0009140012610	.25000	720	47.7	107.1	7.20	.0	.00	2188.4	3486.7	206.93	.0	.00
0016140012610	.50000	720	39.0	15.7	4.00	.0	.00	3498.5	962.4	193.92	0	.00
0001230012610	.25000	408	191.3	142.4	28.40	.0	.00	4688.6	3514.1	410.51	.0	.00
0004240012610	.50000	720	391.1	331.1	25.20	.0	.00	2201.4	4307.7	192.74	0	.00
0003240012610	.25000	384	223.9	30.9	16.00	.0	.00	2423.3	2045.7	255.58	.0	.00
0014130012610	.50000	430	15.3	9.3	5.80	.0	.00	2247.0	1250.2	234.48	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2573	490.6	337.7	47.00	.0	.00	9918.5	7807.7	948.51	.0	.00
RESERVR UNITS	4.00000	2573	574.1	337.7	537.95	.0	.00	11604.6	7807.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 48.7 M3/CALDAY TO REPLACE REQUIRES 1.97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 7.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 40.8 AVERAGE GAS-OIL RATIO IS 95.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	720	88.7	389.1	4.80	.0	.00	548.5	4463.4	45.24	.0	.00
0009140012610	.50000	720	47.7	107.1	7.20	.0	.00	2188.4	3486.7	206.93	.0	.00
0010140012610	1.00000	720	11.3	31.7	3.80	.0	.00	433.9	732.2	92.90	.0	.00
0002230012610	.50000	720	16.1	601.7	1.60	.0	.00	530.9	3220.7	53.96	.0	.00
0001230012610	.25000	408	191.3	142.4	28.40	.0	.00	4688.6	3514.1	410.51	.0	.00
0016140012610	.50000	720	39.0	15.7	4.00	.0	.00	3498.5	962.4	193.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2622	199.2	818.6	22.10	.0	.00	5263.4	9909.0	468.17	.0	.00
RESERVR UNITS	3.75000	2622	233.1	818.6	292.32	.0	.00	6158.2	9909.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 44.8 M3/CALDAY TO REPLACE REQUIRES 1.83 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY NET WELL AVERAGE TOTAL FLUID RATE IF 9.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 80.4 AVERAGE GAS-OIL RATIO IS 118.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	0	0	00	.0	.00	0	0	00	0	.00
0001230012610	.25000	408	191.3	142.4	28.40	.0	.00	4688.6	3514.1	410.51	.0	.00
0002230012610	.50000	720	16 1	501 7	1.60	0	.00	530.7	3220 7	53.94	.0	.00
0210230012610	.50000	720	198.6	153.0	21.90	.0	.00	2948.6	1544.3	212.06	.0	.00
0009230012610	.25000	720	297.7	494.8	26.10	.0	.00	4825.0	8112.2	195.71	.0	.00
0008230012610	.50000	720	159.0	363.8	17.50	.0	.00	2611.2	3570.3	235.17	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1362	309 1	768.9	34 12	.0	.00	5423.7	7074 2	402.15	.0	.00
RESERVR UNITS	3.00000	1362	361.6	768.9	449.54	.0	.00	6349.8	7074.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 52.7 M3/CALDAY TO REPLACE REQUIRES 2.15 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 19.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.3 AVERAGE GAS-OIL RATIO IS 110.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	288	189.8	99.8	9.20	.0	.00	2351.5	1996.8	130.64	.0	.00
0003240012610	.25000	384	223.9	30.9	16.00	.0	.00	2423.3	2045.7	255.58	.0	.00
0004240012610	.50000	720	391.1	331.1	25.20	.0	.00	2201.4	4307.7	192.74	.0	.00
0001230012610	.25000	408	191.3	142.4	28.40	.0	.00	4688.6	3514.1	410.51	.0	.00
0208230012610	.50000	720	159.0	363.8	17.50	.0	.00	2611.2	3570 3	235.17	.0	.00
0009230012610	.25000	720	297.7	494.8	26.10	.0	.00	4825.0	8112.2	195.71	.0	.00
0012240012612	.50000	720	329.6	136.1	51.30	.0	.00	5158.6	2411.3	619.61	.0	.00
0011240012610	.25000	720	24.4	3.4	5.20	.0	.00	2014.0	137.9	90.24	.0	.00
0006240012610	.50000	720	86.7	19.0	27.90	.0	.00	2291.5	439.5	432.81	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2286	857 3	682.7	89.07	.0	.00	11970.6	10813.7	1108.82	.0	.00
RESERVR UNITS	4.00000	2286	1003.1	682.7	1122.21	.0	.00	14005.6	10813.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 93.6 M3/CALDAY TO REPLACE REQUIRES 3.82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 44.3 AVERAGE GAS-OIL RATIO IS 103.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

[illegible] AMARANTH VOIDAGE [illegible] PATTERN NUMBER 20 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.179 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	720	13.7	12.5	3.40	.0	.00	562.1	1276.9	19.74	.0	.00
0204300012510	1.00000	680	99.3	507.0	9.80	.0	.00	1727.9	7888.7	63.03	.0	.00
0201250012610	.50000	648	18.2	182.8	3.60	.0	.00	1781.8	5689.2	245.64	.0	.00
0008250012610	.50000	720	71.8	4.1	4.70	.0	.00	2826.0	427.1	81.71	.0	.00
0009250012610	.25000	720	34.6	198.1	3.80	.0	.00	2043.2	2263.2	46.16	.0	.00
0011300012512	.33333	720	136.4	213.6	12.40	.0	.00	1616.9	3981.3	55.67	.0	.00
0212300012510	.50000	336	192.2	44.1	19.80	.0	.00	1490.0	298.2	144.40	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.08333	2672	308.2	755.7	31.53	.0	.00	6380.7	14265.7	348.74	.0	.00
RESERVR UNITS	4.08333	2672	360.6	758.7	387.15	.0	.00	7474.7	14265.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.1 M3/CALDAY TO REPLACE REQUIRES 2.65 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 9.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.0 AVERAGE GAS-OIL RATIO IS 102.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.179 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	720	13.7	12.5	3.40	.0	.00	562.1	1276.9	19.74	.0	.00
0204300012510	1.00000	680	99.3	507.0	9.80	.0	.00	1727.9	7888.7	63.03	.0	.00
0201250012610	.50000	648	18.2	182.8	3.60	.0	.00	1781.8	5689.2	245.64	.0	.00
0008250012610	.50000	720	71.8	4.1	4.70	.0	.00	2826.0	427.1	81.71	.0	.00
0009250012610	.25000	720	34.6	198.1	3.80	.0	.00	2043.2	2263.2	46.16	.0	.00
0011300012512	.33333	720	136.4	213.6	12.40	.0	.00	1616.9	3981.3	55.67	.0	.00
0212300012510	.50000	336	192.2	44.1	19.80	.0	.00	1490.0	298.2	144.40	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.08333	2672	308.2	755.7	31.53	.0	.00	6380.7	14265.7	348.74	.0	.00
RESERVR UNITS	4.08333	2672	360.6	758.7	387.15	.0	.00	7474.7	14265.7	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.1 M3/CALDAY TO REPLACE REQUIRES 3.14 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 10.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 12.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.4 AVERAGE GAS-OIL RATIO IS 77.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 96.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 117.3

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	720	14.5	3.7	3.60	.0	.00	767.3	1347.7	74.68	.0	.00
0011300012512	.33334	720	136.4	213.6	12.40	.0	.00	1616.9	3981.3	55.67	.0	.00
0009250012610	.25000	720	34.6	198.1	3.80	.0	.00	2043.2	2263.2	46.16	.0	.00
0016250012610	.50000	720	24.7	3.9	2.70	.0	.00	711.3	217.1	43.56	.0	.00
0004310012510	.50000	720	23.9	39.8	2.70	.0	.00	1278.1	1114.1	75.67	.0	.00
0003310012510	.25000	720	30.2	19.5	1.80	.0	.00	1701.5	766.2	46.17	.0	.00
0014300012510	.50000	720	10.0	11.3	1.40	.0	.00	1256.0	1098.7	121.17	.0	.00
0212300012510	.50000	336	192.2	44.1	19.80	.0	.00	1490.0	298.2	144.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.83334	2568	201.6	170.5	22.43	.0	.00	4610.2	4796.2	308.72	.0	.00
RESERVR UNITS	3.83334	2568	235.8	178.5	297.56	.0	.00	5393.9	4796.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 23.7 M3/CALDAY TO REPLACE REQUIRES .97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 3.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.0 AVERAGE GAS-OIL RATIO IS 111.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 4 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	720	14.5	3.7	3.60	.0	.00	767.3	1347.7	74.68	.0	.00
0011300012512	.33334	720	136.4	213.6	12.40	.0	.00	1616.9	3981.3	55.67	.0	.00
0009250012610	.25000	720	34.6	198.1	3.80	.0	.00	2043.2	2263.2	46.16	.0	.00
0016250012610	.50000	720	24.7	3.9	2.70	.0	.00	711.3	217.1	43.56	.0	.00
0004310012510	.50000	720	23.9	39.8	2.70	.0	.00	1278.1	1114.1	75.67	.0	.00
0003310012510	.25000	720	30.2	19.5	1.80	.0	.00	1701.5	766.2	46.17	.0	.00
0014300012510	.50000	720	10.0	11.3	1.40	.0	.00	1256.0	1098.7	121.17	.0	.00
0212300012510	.50000	336	192.2	44.1	19.80	.0	.00	1490.0	298.2	144.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.83334	2568	201.6	170.5	22.43	.0	.00	4610.2	4796.2	308.72	.0	.00
RESERVR UNITS	3.83334	2568	235.8	178.5	297.56	.0	.00	5393.9	4796.2	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 23.7 M3/CALDAY TO REPLACE REQUIRES .97 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IS 3.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 47.0 AVERAGE GAS-OIL RATIO IS 111.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	744	46.1	150.7	4.80	.0	.00	355.1	2205.1	35.41	.0	.00
0014120012610	1.00000	700	7.2	8.1	1.20	.0	.00	292.1	436.7	23.14	.0	.00
0004130012610	.50000	699	27.5	17.9	2.10	.0	.00	817.9	544.8	48.80	.0	.00
0008140012610	.50000	744	65.2	197.4	6.40	.0	.00	2993.1	4155.8	380.01	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	2166	99.6	266.5	10.25	.0	.00	2552.7	4992.1	272.95	.0	.00
RESERVR UNITS	3.00000	2166	116.9	266.5	97.39	.0	.00	2986.7	4992.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 15.5 M3/CALDAY TO REPLACE REQUIRES .82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.1 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.8 AVERAGE GAS-OIL RATIO IS 102.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	461	11.0	2.9	1.90	.0	.00	791.7	414.7	58.88	.0	.00
0003130012610	.50000	740	21.7	7.8	2.50	.0	.00	1118.9	529.9	94.62	.0	.00
0006130012610	.50000	740	123.3	630.8	4.60	.0	.00	1351.5	7655.0	73.15	.0	.00
0011130012610	.25000	740	20.3	3.7	5.70	.0	.00	1008.4	470.9	135.76	.0	.00
0012130012610	.50000	740	49.2	14.6	4.60	.0	.00	1453.3	638.0	112.57	.0	.00
0009140012610	.25000	744	40.6	127.9	5.80	.0	.00	2229.0	3614.6	212.73	.0	.00
0008140012610	.50000	744	65.2	197.4	6.40	.0	.00	2993.1	4155.8	380.01	.0	.00
0004130012610	.50000	699	27.5	17.9	2.10	.0	.00	817.9	544.8	48.80	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2664	169.7	470.0	14.88	.0	.00	5466.4	8197.8	500.58	.0	.00
RESERVR UNITS	4.00000	2664	198.2	470.0	133.18	.0	.00	6395.7	8197.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 25.8 M3/CALDAY TO REPLACE REQUIRES 1.37 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.9 AVERAGE GAS-OIL RATIO IS 87.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.160 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	740	36.6	4.1	6.10	.0	.00	1619.7	340.8	202.70	0	.00
0001130012610	1.00000	700	30.0	.3	8.60	.0	.00	4474.4	223.7	612.22	.0	.00
0008130012610	1.00000	740	41.4	2.3	4.00	.0	.00	1147.3	229.1	73.60	.0	.00
0010130012610	.50000	740	18.7	.0	2.80	.0	.00	1511.8	538.3	131.04	.0	.00
0011130012610	.25000	740	20.3	3.7	5.70	.0	.00	1000.4	470.9	135.76	.0	.00
0006130012610	.50000	740	123.3	630.8	4.60	.0	.00	1351.5	7655.0	73.15	.0	.00
0003130012610	.50000	740	21.7	7.8	2.50	.0	.00	1110.9	529.9	94.62	.0	.00
0002130012610	1.00000	740	49.1	16.8	5.40	.0	.00	1708.7	311.0	166.53	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	5.75000	4215	244.0	343.7	30.47	.0	.00	11191.3	5583.9	1238.40	.0	.00
RESERVR UNITS	5.75000	4215	285.0	343.7	355.82	.0	.00	13093.0	5583.9	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 31.8 M3/CALDAY TO REPLACE REQUIRES 1.68 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 58.5 AVERAGE GAS-OIL RATIO IS 124.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	462	13.4	8.8	2.90	.0	.00	3670.9	632.9	101.83	.0	.00
0010130012610	.50000	740	18.7	.0	2.80	.0	.00	1511.8	538.3	131.04	.0	.00
0011130012610	.25000	740	20.3	3.7	5.70	.0	.00	1000.4	470.9	135.76	.0	.00
0014130012610	.50000	740	23.9	11.9	9.00	.0	.00	2270.9	1262.1	243.48	.0	.00
0003240012610	.25000	444	224.6	31.5	13.80	.0	.00	2647.9	2077.2	269.38	.0	.00
0002240012610	.50000	428	167.6	142.0	16.10	.0	.00	3644.7	4348.9	485.23	.0	.00
0201240012610	.50000	355	82.1	16.0	20.70	.0	.00	2851.7	370.5	500.53	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.50000	1890	220.8	102.6	32.07	.0	.00	9722.5	4529.8	883.25	.0	.00
RESERVR UNITS	3.50000	1890	257.9	102.6	392.42	.0	.00	11375.4	4529.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 24.3 M3/CALDAY TO REPLACE REQUIRES 1.29 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.7 AVERAGE GAS OIL RATIO IS 143.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 5 OF 1994
THE AVERAGE FORMATION PRESSURE=5500 kPa.g THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	620	81.0	48.0	13.00	.0	.00	2753.9	1905.4	346.39	.0	.00
0011130012610	.25000	740	20.3	3.7	5.70	.0	.00	1000.4	470.9	135.76	.0	.00
0012130012610	.50000	740	49.2	14.6	4.60	.0	.00	1453.3	638.0	112.57	.0	.00
0009140012610	.25000	744	40.6	127.9	5.80	.0	.00	2229.0	3614.6	212.73	.0	.00
0016140012610	.50000	744	37.4	20.0	4.00	.0	.00	3535.9	982.4	197.92	.0	.00
0001230012610	.25000	404	223.9	7.8	23.70	.0	.00	4912.5	3521.9	434.21	.0	.00
0004240012610	.50000	476	234.3	210.8	16.00	.0	.00	2435.7	4518.5	208.74	.0	.00
0003240012610	.25000	444	224.6	31.5	13.80	.0	.00	2647.9	2077.2	269.36	.0	.00
0014130012610	.50000	740	23.9	11.9	9.00	.0	.00	2270.9	1262.1	243.48	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2553	380.7	219.4	42.05	.0	.00	10299.3	8027.0	990.56	.0	.00
RESERVR UNITS	4.00000	2553	444.7	219.4	426.55	.0	.00	12050.1	8027.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 35.2 M3/CALDAY TO REPLACE REQUIRES 1.87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.6 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 36.6 AVERAGE GAS-OIL RATIO IS 110.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 5 OF 1994
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	468	63.9	326.2	4.80	.0	.00	612.4	4789.6	50.04	.0	.00
0009140012610	.50000	744	40.6	127.9	5.80	.0	.00	2229.0	3614.6	212.73	.0	.00
0010140012610	1.00000	744	5.4	25.9	7.10	.0	.00	439.3	758.1	100.00	.0	.00
0002230012610	.50000	740	6.7	644.8	.70	.0	.00	537.6	3865.5	54.66	.0	.00
0001230012610	.25000	404	223.9	7.8	23.70	.0	.00	4912.5	3521.9	434.21	.0	.00
0016140012610	.50000	744	37.4	20.0	4.00	.0	.00	3535.9	982.4	197.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	2427	167.6	750.4	23.08	.0	.00	5431.1	10659.4	491.25	.0	.00
RESERVR UNITS	3.75000	2427	195.8	750.4	273.84	.0	.00	6354.4	10659.4	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 39.4 M3/CALDAY TO REPLACE REQUIRES 2.09 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 81.7 AVERAGE GAS-OIL RATIO IS 137.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	404	223.5	7.3	23.70	0	.00	4912.5	3521.9	434.21	.0	.00
0002230012610	.50000	740	6.7	644.8	.70	.0	.00	537.6	3865.5	54.66	.0	.00
0210230012610	.50000	740	130.2	127.4	9.20	.0	.00	3079.8	1671.7	221.26	.0	.00
0009230012610	.25000	740	311.7	483.6	25.20	.0	.00	5136.7	8595.8	220.91	.0	.00
0208230012610	.50000	740	123.0	336.7	14.20	.0	.00	2734.2	3907.0	249.37	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	3.00000	1396	263.8	677.3	24.27	.0	.00	5687.6	7751.5	426.42	.0	.00
RESERVR UNITS	3.00000	1396	308.2	677.3	203.84	.0	.00	6654.5	7751.5	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 36.4 M3/CALDAY TO REPLACE REQUIRES 2.03 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.0 AVERAGE GAS-OIL RATIO IS 92.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	332	241.8	30.6	8.80	.0	.00	2593.3	2027.4	139.44	.0	.00
0003240012610	.25000	444	224.6	31.5	13.80	.0	.00	2647.9	2077.2	269.38	.0	.00
0004240012610	.50000	476	234.3	210.8	16.00	.0	.00	2435.7	4518.5	208.74	.0	.00
0001230012610	.25000	404	223.9	7.8	23.70	.0	.00	4912.5	3521.9	434.21	.0	.00
0208230012610	.50000	740	123.0	336.7	14.20	.0	.00	2734.2	3907.0	249.37	.0	.00
0009230012610	.25000	740	311.7	483.6	25.20	.0	.00	5136.7	8595.8	220.91	.0	.00
0012240012612	.50000	740	175.8	208.0	30.20	.0	.00	5334.4	2619.3	649.81	.0	.00
0011240012610	.25000	740	19.4	4.1	5.00	.0	.00	2033.4	141.9	95.24	.0	.00
0006240012610	.50000	740	67.1	14.4	21.80	.0	.00	2358.6	453.9	454.61	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2262	736.8	547.3	66.82	.0	.00	12707.4	11361.0	1175.64	.0	.00
RESERVR UNITS	4.00000	2262	860.6	547.3	617.87	.0	.00	14867.6	11361.0	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 65.3 M3/CALDAY TO REPLACE REQUIRES 3.46 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 7.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 13.6 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 42.6 AVERAGE GAS-OIL RATIO IS 80.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=[illegible] kPag THE OIL FORMATION VOLUME FACTOR=1.169 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	744	0	0	.00	1502.9	.00	1914.4	608.2	37.70	32461.7	.00
0001250012610	.25000	626	6.1	99.6	3.40	0	.00	1787.9	5788.2	249.04	.0	.00
0002250012617	.50000	739	358.7	7.2	22.20	.0	.00	5714.9	351.0	551.53	.0	.00
0003250012612	.25000	739	506.7	19.9	67.00	.0	.00	8300.5	175.4	870.05	.0	.00
0006250012610	.50000	739	523.6	128.2	26.00	.0	.00	9210.0	3239.0	332.50	.0	.00
0011250012610	.25000	739	272.3	266.8	7.50	.0	.00	6999.4	999.8	285.72	.0	.00
0010250012610	.50000	737	330.6	5.8	24.10	.0	.00	6948.0	575.7	469.28	.0	.00
0009250012610	.25000	739	49.2	242.5	3.10	.0	.00	2092.4	2505.7	49.26	.0	.00
0008250012610	.50000	601	52.7	6.3	3.40	.0	.00	2878.7	433.4	85.11	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.00000	2119	841.4	230.8	58.10	1502.9	.00	19085.3	5275.0	1120.43	32461.7	.00
RESERVR UNITS	4.00000	2119	982.5	230.8	312.64	1502.9	.00	22329.7	5275.0	.00	32461.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 89.2 M3/CALDAY TO REPLACE REQUIRES 2.70 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IT 13.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 21.5 AVERAGE GAS-OIL RATIO IS 69.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 98.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 117.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	744	6.3	17.6	1.60	.0	.00	566.4	1294.5	21.34	.0	.00
0204300012510	1.00000	507	82.4	339.3	6.50	.0	.00	1810.3	8228.9	69.53	.0	.00
0201250012610	.50000	626	6.1	99.0	3.40	.0	.00	1787.9	5788.2	249.04	.0	.00
0008250012610	.50000	601	52.7	6.3	3.40	.0	.00	2878.7	433.4	85.11	.0	.00
0009250012610	.25000	739	49.2	242.5	3.10	.0	.00	2092.4	2505.7	49.26	.0	.00
0011300012512	.33333	744	111.6	220.9	6.70	.0	.00	1728.5	4202.2	62.37	.0	.00
0212300012510	.50000	308	128.4	95.2	21.00	.0	.00	1618.4	393.4	165.40	.0	.00

THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17

SURFACE UNITS	4.08333	2451	231.8	591.4	25.01	.0	.00	6620.5	14857.1	373.75	.0	.00
RESERVR UNITS	4.08333	2451	271.2	591.4	322.84	.0	.00	7745.9	14857.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 38.2 M3/CALDAY TO REPLACE REQUIRES 1.56 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IT 9.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 71.8 AVERAGE GAS-OIL RATIO IS 107.9 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012519	1.00000	668	110.7	558.7	16.40	.0	.00	1773.3	7389.7	143.29	.0	.00
0007300012510	1.00000	648	8.7	14.8	.60	.0	.00	707.8	643.1	39.75	.0	.00
0011300012512	.33333	744	111.6	220.9	6.70	.0	.00	1728.5	4202.2	62.37	.0	.00
0014300012510	.50000	740	7.9	6.6	.80	.0	.00	1263.9	1105.3	121.97	.0	.00
0003310012510	.25000	740	22.7	19.6	1.50	.0	.00	1724.2	785.8	47.67	.0	.00
0002310012510	.50000	739	115.2	295.4	17.40	.0	.00	2648.6	8882.0	242.10	.0	.00
0001310012510	.50000	740	86.7	791.0	22.00	.0	.00	2002.8	3415.5	130.54	.0	.00
0016300012510	1.00000	740	4.7	32.7	.80	.0	.00	1399.6	1379.7	116.96	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE. CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.00333	3598	271.9	1231.2	40.51	.0	.00	7845.6	17711.1	580.01	.0	.00
RESERVR UNITS	5.00333	3598	318.1	1231.2	652.48	.0	.00	9179.3	17711.1	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 71.0 M3/CALDAY TO REPLACE REQUIRES 2.90 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.8 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 81.9 AVERAGE GAS-OIL RATIO IS 149.0 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 5 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	404	4.2	3.8	.90	.0	.00	771.5	1351.5	75.58	.0	.00
0011300012513	.33334	744	111.6	220.9	6.70	.0	.00	1728.5	4202.2	62.37	.0	.00
0009250012610	.25000	739	49.2	242.5	3.10	.0	.00	2092.4	2505.7	49.26	.0	.00
0016250012610	.50000	740	15.2	4.0	1.60	.0	.00	726.5	221.1	45.16	.0	.00
0004310012510	.50000	741	18.8	38.5	2.50	.0	.00	1296.9	1152.6	78.17	.0	.00
0003310012510	.25000	740	22.7	19.6	1.50	.0	.00	1724.2	785.8	47.67	.0	.00
0014300012510	.50000	740	7.9	6.6	.80	.0	.00	1263.9	1105.3	121.97	.0	.00
0212300012510	.50000	308	128.4	95.2	21.00	.0	.00	1618.4	393.4	165.40	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.83334	2286	144.5	215.1	17.23	.0	.00	4754.7	5011.3	325.95	.0	.00
RESERVR UNITS	3.83334	2286	169.1	215.1	241.49	.0	.00	5563.0	5011.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 20.2 M3/CALDAY TO REPLACE REQUIRES .82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 59.8 AVERAGE GAS-OIL RATIO IS 119.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 1 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0016110012610	1.00000	720	37.5	78.8	7.40	0	.00	392.6	2283.9	42.81	.0	.00
0014120012610	1.00000	680	6.6	4.0	2.90	.0	.00	298.7	440.7	26.04	.0	.00
0004130012610	.50000	675	33.3	5.2	4.50	.0	.00	851.2	550.0	53.30	.0	.00
0008140012610	.50000	720	45.1	204.2	9.60	.0	.00	3038.2	4360.0	389.61	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	2098	83.3	187.5	17.35	.0	.00	2636.0	5179.6	290.30	.0	.00
RESERVR UNITS	3.00000	2098	97.3	187.5	247.04	.0	.00	3084.1	5179.6	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 17.7 M3/CALDAY TO REPLACE REQUIRES .94 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.0 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 69.2 AVERAGE GAS-OIL RATIO IS 208.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 2 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag (2939) THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005130012610	1.00000	236	.0	.0	.00	.0	22.18	791.7	414.7	58.88	.0	22.18
0003130012610	.50000	720	23.0	2.4	3.20	.0	.00	1141.9	532.3	97.82	.0	.00
0006130012610	.50000	720	156.1	514.6	3.40	.0	.00	1507.6	8169.6	76.55	.0	.00
0011130012610	.25000	720	22.3	.0	9.40	.0	.00	1022.7	470.9	145.16	.0	.00
0012130012610	.50000	720	52.5	1.8	6.80	.0	.00	1505.8	639.8	119.37	.0	.00
0009140012610	.25000	696	42.2	102.4	7.70	.0	.00	2271.2	3717.0	220.43	.0	.00
0008140012610	.50000	720	45.1	204.2	9.60	.0	.00	3038.2	4360.0	389.61	.0	.00
0004130012610	.50000	675	33.3	5.2	4.50	.0	.00	851.2	550.0	53.30	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2132	171.1	389.7	18.03	.0	22.18	5637.5	8587.5	518.60	.0	22.18
RESERVR UNITS	4.00000	2132	199.9	389.7	218.30	.0	418.32	6595.9	8587.5	.00	.0	418.32

AVERAGE RATE OF VOIDAGE CREATION IS 26.9 M3/CALDAY TO REPLACE REQUIRES 1.43 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 69.5 AVERAGE GAS-OIL RATIO IS 105.3 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 51.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 2.8

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 3 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007130012610	1.00000	720	26.3	4.0	7.10	.0	.00	1645.0	344.8	209.80	.0	.00
0001130012610	1.00000	656	24.8	.0	12.20	.0	.00	4499.2	223.7	624.42	.0	.00
0008130012610	1.00000	720	40.0	4.2	3.50	.0	.00	1187.3	233.3	77.10	.0	.00
0010130012610	.50000	720	12.1	12.7	6.30	.0	.00	1523.9	551.0	137.34	.0	.00
0011130012610	.25000	720	22.3	.0	9.40	.0	.00	1022.7	470.9	145.16	.0	.00
0006130012610	.50000	720	156.1	514.6	3.40	.0	.00	1507.6	8169.6	76.55	.0	.00
0003130012610	.50000	720	23.0	2.4	3.20	.0	.00	1141.9	532.3	97.82	.0	.00
0002130012610	1.00000	720	48.8	10.3	6.20	.0	.00	1757.5	321.3	172.73	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.75000	4076	241.1	283.3	37.80	.0	.00	11432.4	5867.3	1276.20	.0	.00
RESERVR UNITS	5.75000	4076	281.6	283.3	523.92	.0	.00	13375.9	5867.3	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 36.3 M3/CALDAY TO REPLACE REQUIRES 1.92 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 3.1 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 54.0 AVERAGE GAS-OIL RATIO IS 156.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 4 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag (3351 THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015130012610	1.00000	350	.0	.0	.00	.0	36.33	3670.9	632.9	101.83	.0	36.33
0010130012610	.50000	720	12.1	12.7	6.30	.0	.00	1523.9	551.0	137.34	.0	.00
0011130012610	.25000	720	22.3	.0	9.40	.0	.00	1022.7	470.9	145.16	.0	.00
0014130012610	.50000	720	32.4	4.2	18.10	.0	.00	2303.3	1266.3	261.58	.0	.00
0003240012610	.25000	470	232.4	21.1	17.00	.0	.00	2880.3	2098.3	286.38	.0	.00
0002240012610	.50000	552	224.5	143.0	27.50	.0	.00	3869.2	4491.9	512.73	.0	.00
0201240012610	.50000	423	137.2	28.0	40.60	.0	.00	2988.9	398.5	541.13	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.50000	1505	266.8	99.2	52.85	.0	36.33	9989.3	4629.0	936.10	.0	36.33
RESERVR UNITS	3.50000	1505	311.6	99.2	739.96	.0	685.19	11687.5	4629.0	.00	.0	685.19

AVERAGE RATE OF VOIDAGE CREATION IS 38.4 M3/CALDAY TO REPLACE REQUIRES 2.03 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.3 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 27.1 AVERAGE GAS-OIL RATIO IS 198.1 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 59.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 4.2

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 5 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013130012610	1.00000	280	0	.0	.00	.0	30.86	2753.9	1905.4	346.19	.0	30.86
0011130012610	.25000	720	22.3	.0	9.40	.0	.00	1022.7	470.9	145.16	.0	.00
0012130012610	.50000	720	52.5	1.8	6.80	.0	.00	1505.8	639.8	119.37	.0	.00
0009140012610	.25000	696	42.2	102.4	7.70	.0	.00	2271.2	3717.0	220.43	.0	.00
0016140012610	.50000	720	29.7	21.5	6.00	.0	.00	3565.6	1003.9	203.92	.0	.00
0001230012610	.25000	593	279.3	117.9	52.90	.0	.00	5191.8	3639.8	487.11	.0	.00
0004240012610	.50000	328	174.0	119.0	16.00	.0	.00	2609.7	4637.5	224.74	.0	.00
0003240012610	.25000	470	232.4	21.1	17.00	.0	.00	2880.3	2098.3	286.38	.0	.00
0014130012610	.50000	720	32.4	4.2	18.10	.0	.00	2303.3	1266.3	261.58	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1864	288.3	133.6	45.20	.0	30.86	10587.6	8160.6	1035.77	.0	30.86
RESERVR UNITS	4.00000	1864	336.8	133.6	574.91	.0	582.03	12387.5	8160.6	.00	.0	582.03

AVERAGE RATE OF VOIDAGE CREATION IS 34.8 M3/CALDAY TO REPLACE REQUIRES 1.85 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 3.7 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 31.7 AVERAGE GAS-OIL RATIO IS 156.8 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 55.7 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 2.8

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 6 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag (8413) THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015140012610	1.00000	277	.0	.0	.00	.0	10.59	612.4	4789.6	50.04	.0	10.59
0009140012610	.50000	696	42.2	102.4	7.70	.0	.00	2271.2	3717.0	220.43	.0	.00
0010140012610	1.00000	720	5.2	17.3	8.50	.0	.00	444.5	775.4	108.50	.0	.00
0002230012610	.50000	713	2.8	488.5	1.20	.0	.00	540.4	4354.0	55.86	.0	.00
0001230012610	.25000	593	279.3	117.9	52.90	.0	.00	5191.8	3639.8	487.11	.0	.00
0016140012610	.50000	720	29.7	21.5	6.00	.0	.00	3565.6	1003.9	203.92	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.75000	1933	112.4	353.0	29.17	.0	10.59	5543.4	11012.4	520.42	.0	10.59
RESERVR UNITS	3.75000	1933	131.3	353.0	442.07	.0	199.73	6485.8	11012.4	.00	.0	199.73

AVERAGE RATE OF VOIDAGE CREATION IS 30.9 M3/CALDAY TO REPLACE REQUIRES 1.64 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 5.8 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 75.9 AVERAGE GAS-OIL RATIO IS 259.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 21.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 1.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 7 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007230012612	1.00000	0	.0	.0	.00	.0	.00	.0	.0	.00	.0	.00
0001230012610	.25000	593	279.3	117.9	52.90	.0	.00	5191.8	3639.8	487.11	.0	.00
0002230012610	.50000	713	2.8	488.5	1.20	.0	.00	540.4	4354.0	55.86	.0	.00
0210230012610	.50000	713	85.5	100.8	11.40	.0	.00	3164.3	1772.5	232.66	.0	.00
0009230012610	.25000	713	302.8	425.8	29.50	.0	.00	5439.5	9021.6	250.41	.0	.00
0208230012610	.50000	713	144.5	523.4	61.70	.0	.00	2878.7	4430.4	311.07	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.00000	1396	261.9	692.3	57.75	.0	.00	5949.5	8443.8	484.17	.0	.00
RESERVR UNITS	3.00000	1396	305.9	692.3	837.05	.0	.00	6960.9	8443.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 61.2 M3/CALDAY TO REPLACE REQUIRES 3.24 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 4.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 16.4 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 72.6 AVERAGE GAS-OIL RATIO IS 220.5 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 8 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5500 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.9 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005240012610	1.00000	322	.0	.0	.00	.0	59.34	2593.3	2027.4	139.44	.0	59.34
0003240012610	.25000	470	232.4	21.1	17.00	.0	.00	2880.3	2098.3	286.38	.0	.00
0004240012610	.50000	328	174.0	119.0	16.00	.0	.00	2609.7	4637.5	224.74	.0	.00
0001230012610	.25000	593	279.3	117.9	52.90	.0	.00	5191.8	3639.8	487.11	.0	.00
0208230012610	.50000	713	144.5	523.4	61.70	.0	.00	2878.7	4430.4	311.07	.0	.00
0009230012610	.25000	713	302.8	425.8	29.50	.0	.00	5439.5	9021.6	250.41	.0	.00
0012240012612	.50000	710	121.1	117.2	39.80	.0	.00	5455.5	2736.5	689.61	.0	.00
0011240012610	.25000	710	21.9	.0	8.20	.0	.00	2055.3	141.9	103.44	.0	.00
0006240012610	.50000	710	52.0	5.0	29.50	.0	.00	2410.6	458.9	484.11	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	1852	454.9	523.5	100.40	.0	59.34	13162.3	11884.5	1276.04	.0	59.34
RESERVR UNITS	4.00000	1852	531.3	523.5	1455.67	.0	1119.17	15399.9	11884.5	.00	.0	1119.17

AVERAGE RATE OF VOIDAGE CREATION IS 83.7 M3/CALDAY TO REPLACE REQUIRES 4.44 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 5.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.7 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 53.5 AVERAGE GAS-OIL RATIO IS 220.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 44.6 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 4.1

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 19 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=5692 kPag THE OIL FORMATION VOLUME FACTOR=1.168 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 18.3 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0007250012610	1.00000	713	0	0	.00	1482.6	.00	1914.4	608.2	37.70	33944.3	.00
0201250012610	.25000	574	33.8	248.8	6.90	.0	.00	1821.7	6037.0	255.94	.0	.00
0002250012612	.50000	713	322.0	6.5	34.20	.0	.00	6036.9	357.5	585.73	.0	.00
0003250012612	.25000	713	469.3	14.0	123.40	.0	.00	8769.8	189.4	993.45	.0	.00
0006250012610	.50000	713	502.3	121.4	31.30	.0	.00	9712.3	3360.4	363.80	.0	.00
0011250012610	.25000	713	259.7	288.6	13.70	.0	.00	7259.1	1288.4	299.42	.0	.00
0010250012610	.50000	713	323.0	4.2	25.60	.0	.00	7271.0	579.9	494.88	.0	.00
0009250012610	.25000	704	9.7	150.0	3.40	.0	.00	2102.1	2655.7	52.66	.0	.00
0008250012610	.50000	713	84.6	8.3	16.70	.0	.00	2963.3	441.7	101.81	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.00000	2102	809.1	245.6	90.75	1482.6	.00	19894.3	5520.6	1211.18	33944.3	.00
RESERVR UNITS	4.00000	2102	944.8	245.6	903.22	1482.6	.00	23276.4	5520.6	.00	33944.3	.00

AVERAGE RATE OF VOIDAGE CREATION IS 69.8 M3/CALDAY TO REPLACE REQUIRES 3.82 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 9.2 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 12.0 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 23.3 AVERAGE GAS-OIL RATIO IS 112.2 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 70.8 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 117.9

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 20 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJWAT M3	INJGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0005300012512	1.00000	408	2.1	10.3	.90	.0	.00	570.5	1304.8	22.24	.0	.00
0204300012510	1.00000	700	77.1	508.6	9.90	.0	.00	1887.4	8736.6	79.43	.0	.00
0201250012610	.50000	574	33.8	248.8	6.90	.0	.00	1821.7	6037.0	255.94	.0	.00
0008250012610	.50000	713	84.6	8.3	16.70	.0	.00	2963.3	441.7	101.81	.0	.00
0009250012610	.25000	704	9.7	150.0	3.40	.0	.00	2102.1	2655.7	52.66	.0	.00
0011300012512	.33333	713	179.4	67.4	10.20	.0	.00	1907.9	4269.6	72.57	.0	.00
0212300012510	.50000	328	152.2	78.4	23.60	.0	.00	1770.6	471.8	189.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN. NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	4.08333	2329	276.7	746.6	38.65	.0	.00	6897.2	15603.8	412.40	.0	.00
RESERVR UNITS	4.08333	2329	323.8	746.6	600.89	.0	.00	8069.7	15603.8	.00	.0	.00

AVERAGE RATE OF VOIDAGE CREATION IS 55.7 M3/CALDAY TO REPLACE REQUIRES 2.27 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.9 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 10.5 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 73.0 AVERAGE GAS-OIL RATIO IS 139.7 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS .0 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS .0

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 21 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0015300012510	1.00000	545	.0	0	.00	4030.8	.00	1773.3	7389.7	143.29	4030.8	.00
0009300012510	1.00000	676	10.4	36.7	17.30	.0	.00	718.2	679.8	57.05	.0	.00
0011300012512	.33333	713	179.4	67.4	10.20	.0	.00	1907.9	4269.6	72.57	.0	.00
0014300012510	.50000	322	4.0	4.6	1.40	.0	.00	1267.9	1109.9	123.37	.0	.00
0003310012510	.25000	713	21.5	11.8	3.70	.0	.00	1745.7	797.6	51.37	.0	.00
0002310012510	.50000	713	20.7	325.8	19.90	.0	.00	2669.3	9207.8	262.00	.0	.00
0001310012510	.50000	713	92.1	599.9	25.60	.0	.00	2094.9	4015.4	156.14	.0	.00
0016300012510	1.00000	713	34.2	7.4	7.30	.0	.00	1433.8	1387.1	124.26	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	5.08333	2679	168.2	534.7	52.37	4030.8	.00	8013.7	18245.7	632.39	4030.8	.00
RESERVR UNITS	5.08333	2679	196.8	534.7	1072.89	4030.8	.00	9376.1	18245.7	.00	4030.8	.00

AVERAGE RATE OF VOIDAGE CREATION IS 60.1 M3/CALDAY TO REPLACE REQUIRES 2.45 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 1.5 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 6.3 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 76.1 AVERAGE GAS-OIL RATIO IS 311.4 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 223.4 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 14.6

WASKADA LOWER AMARANTH VOIDAGE CALCULATIONS FOR PATTERN NUMBER 22 MONTH 6 OF 1984
THE AVERAGE FORMATION PRESSURE=4220 kPag (2589) THE OIL FORMATION VOLUME FACTOR=1.170 RES.M3/M3
THE GAS FORMATION VOLUME FACTOR= 24.5 RES.M3/KM3 THE SOLUTION GAS-OIL RATIO=51.04 M3/M3

WELL NAME	WELL FRACT	HRS	OIL M3	WATER M3	GAS KM3	INJNWAT M3	INJNGAS KM3	CUMOIL M3	CUMWAT M3	CUMGAS KM3	CUMINWAT M3	CUMINGAS KM3
0013300012510	1.00000	545	.0	.0	.00	1088.7	.00	771.5	1351.5	75.58	1088.7	.00
0011300012512	.33334	713	179.4	67.4	10.20	.0	.00	1907.9	4269.6	72.57	.0	.00
0009250012610	.25000	704	9.7	150.0	3.40	.0	.00	2102.1	2655.7	52.66	.0	.00
0016250012610	.50000	713	15.4	5.0	3.70	.0	.00	741.9	226.1	48.86	.0	.00
0004310012510	.50000	713	16.7	30.1	4.50	.0	.00	1313.6	1182.7	82.67	.0	.00
0003310012510	.25000	713	21.5	11.8	3.70	.0	.00	1745.7	797.6	51.37	.0	.00
0014300012510	.50000	322	4.0	4.6	1.40	.0	.00	1267.9	1109.9	123.37	.0	.00
0212300012510	.50000	328	152.2	78.4	23.60	.0	.00	1770.6	471.8	189.00	.0	.00
THE FOLLOWING TOTALS ARE THE SUM OF THE PRODUCTION AND INJECTION THAT CONTRIBUTE TO THIS PATTERN.												
NOTE: CUMULATIVE PRODUCTION IN RESERVOIR UNITS ARE CALCULATED ASSUMING NO EXCESS GAS & Bo=1.17												
SURFACE UNITS	3.83334	1630	161.8	122.0	21.78	1088.7	.00	4916.4	5133.3	347.73	1088.7	.00
RESERVR UNITS	3.83334	1630	189.2	122.0	331.22	1088.7	.00	5752.2	5133.3	.00	1088.7	.00

AVERAGE RATE OF VOIDAGE CREATION IS 21.4 M3/CALDAY TO REPLACE REQUIRES .87 KM3/DAY GAS REINJECTION
AVERAGE OIL RATE IS 2.4 M3/OPDAY/NET WELL AVERAGE TOTAL FLUID RATE IF 4.2 M3/OPDAY/NET WELL
AVERAGE PERCENT WATER CUT IS 43.0 AVERAGE GAS-OIL RATIO IS 134.6 M3/M3
CURRENT PERCENT VOIDAGE REPLACEMENT RATIO IS 169.5 CUMULATIVE PERCENT VOIDAGE REPLACEMENT RATIO IS 10.0