

HMM_Gas

Sub 31-32H-19E

VPR "E" #19
RATON - A & E PODS
NM

Gas, Mct/mo
Qual= LVIEW
Ref= 3/2007
Cum= 201526
Rem= 647203
EUR= 848729
Yrs= 36.416
Qref= 4214.0
De= 7.000000
Dmin= 0.000000
Qab= 300.0

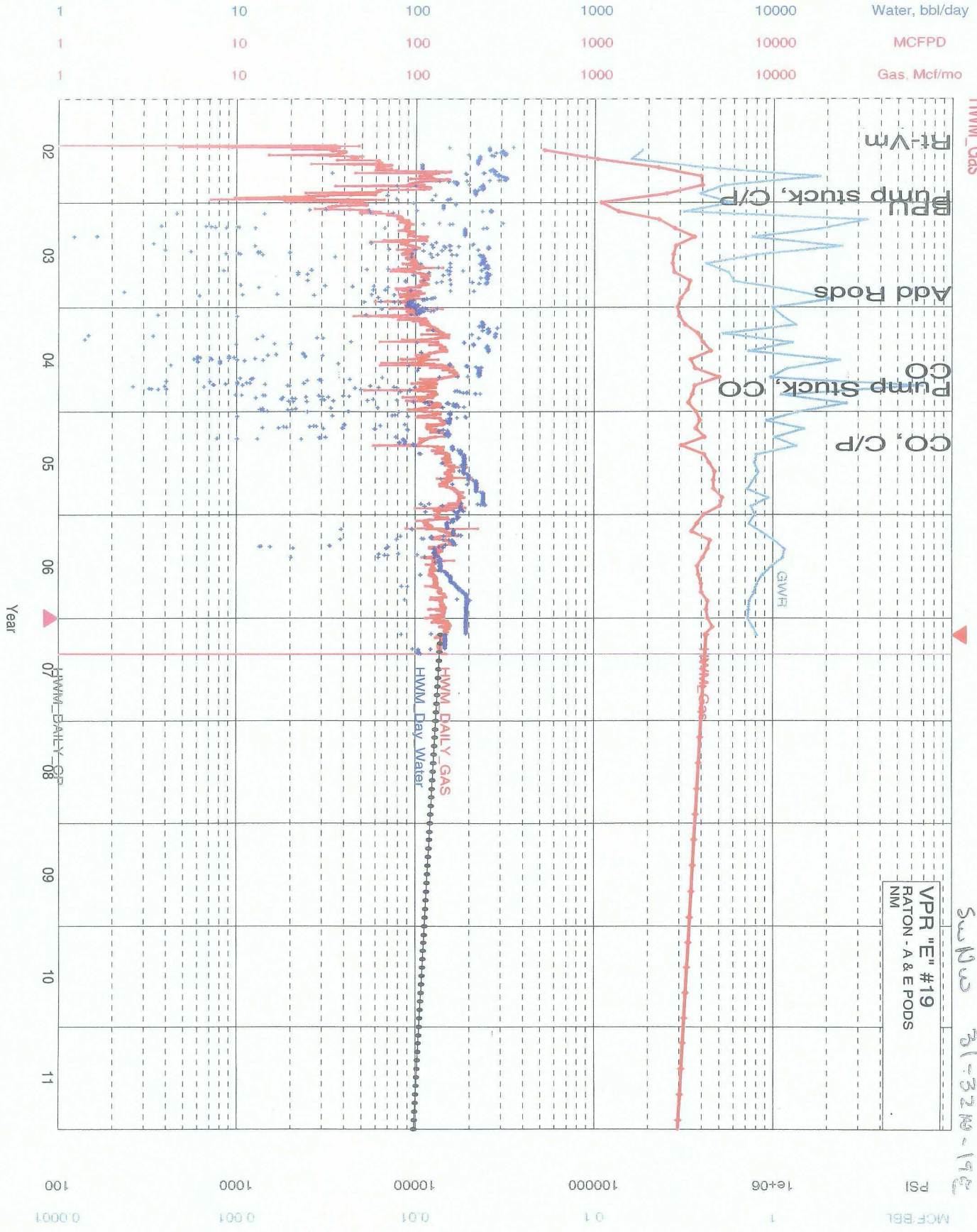
MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 200666
Rem= 648296
EUR= 848962
Yrs= 36.416
Qref= 138.5
De= 7.000000
Dmin= 0.000000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 248786

PSI
Ref= 3/2007
Cum= 46450

MCF/BBL
Ref= 3/2007
Cum= 0

Oil Conservation Division
Case No. 5
Exhibit No. 5



HMM_Gas

Water, bbl/day

MCFPD

Gas, Mcf/mo

Ne S.S. 34-320-10

VPR "A" #30
RATON - A & E PODS
NM

PSI
MCF/BBL

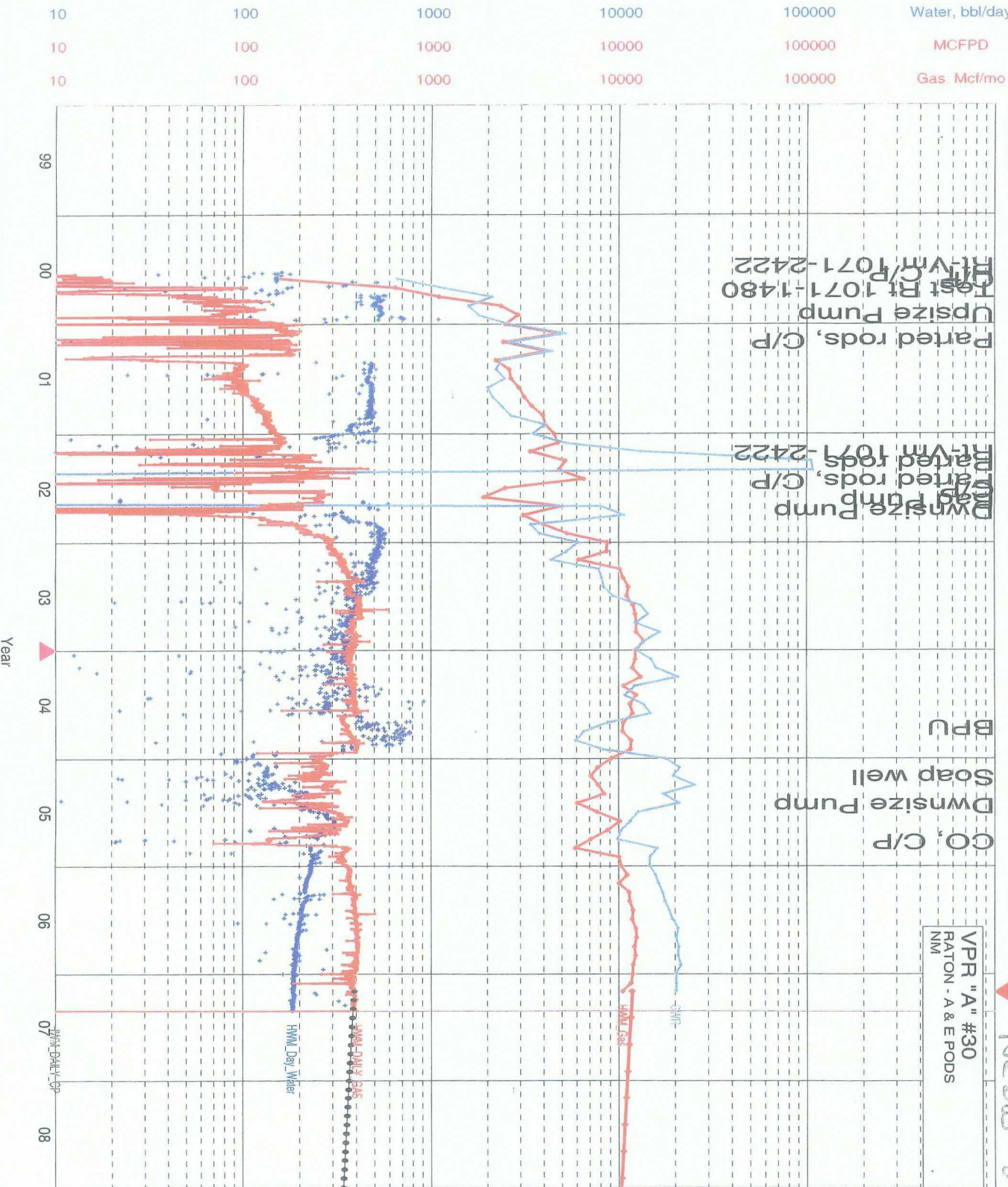
Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 633208
Rem= 1909697
EUR= 2542905
Yrs= 50.668
Qref= 11849.0
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 646746
Rem= 1912753
EUR= 2559499
Yrs= 50.668
Qref= 389.6
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 632968

PSI
Ref= 3/2007
Cum= 54423

MCF/BBL
Ref= 3/2007
Cum= 0



HMM_Gas

Water, bbl/day

MCFPD

Gas, Mcf/mo

VPR "A" #31
RATON - A & E PODS
NM

NoSe 34-320-192

PSI

MCFF/BBL

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 253091
Rem= 415870
EUR= 668961
Yrs= 30.921
Qref= 2815.0
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

MCFFPD
Qual= LVIEW
Ref= 3/2007
Cum= 254527
Rem= 416246
EUR= 670773
Yrs= 30.921
Qref= 92.5
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 125538

PSI
Ref= 3/2007
Cum= 13948

MCFF/BBL
Ref= 3/2007
Cum= 0

10

100

1000

10000

100000

10

100

1000

10000

100000

10

100

1000

10000

100000

99

00

01

02

03

04

05

06

07

08

Year

100

0.00001

1000

0.001

10000

0.01

100000

0.1

1e+06

1

10

100

1000

10000

100000

10

100

1000

10000

100000

10

100

1000

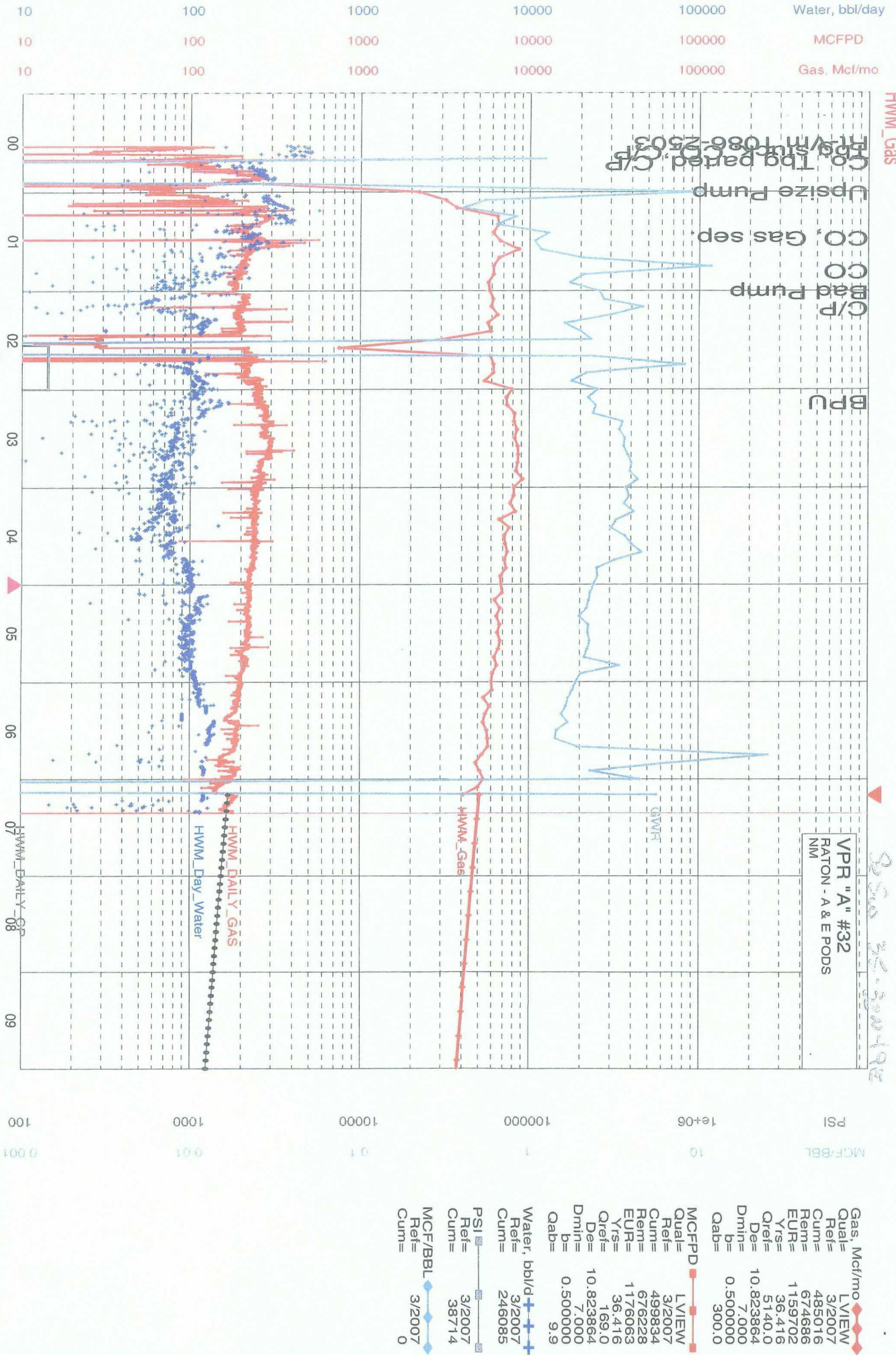
10000

100000

HMM_Gas

250 30-30-192

VRP "A" #32
RATON - A & E PODS
NM



HMM_Gas

NESD 2-310-196

VPR "A" #27
RATON - A & E PODS
NM

Water, bbl/day

MCFPD

Gas, Mct/mo

PSI

MCF/BBL

Gas, Mct/mo
Qual= LVIEW
Ref= 3/2007
Cum= 486324
Rem= 1236821
EUR= 1723145
Yrs= 44.920
Qref= 7596.0
De= 0.000000
Dmin= 0.000
Cab= 0.000000
300.0

Rt-Vm 880-2500

Upsize Pump

C/P

HIT, C/Tbg

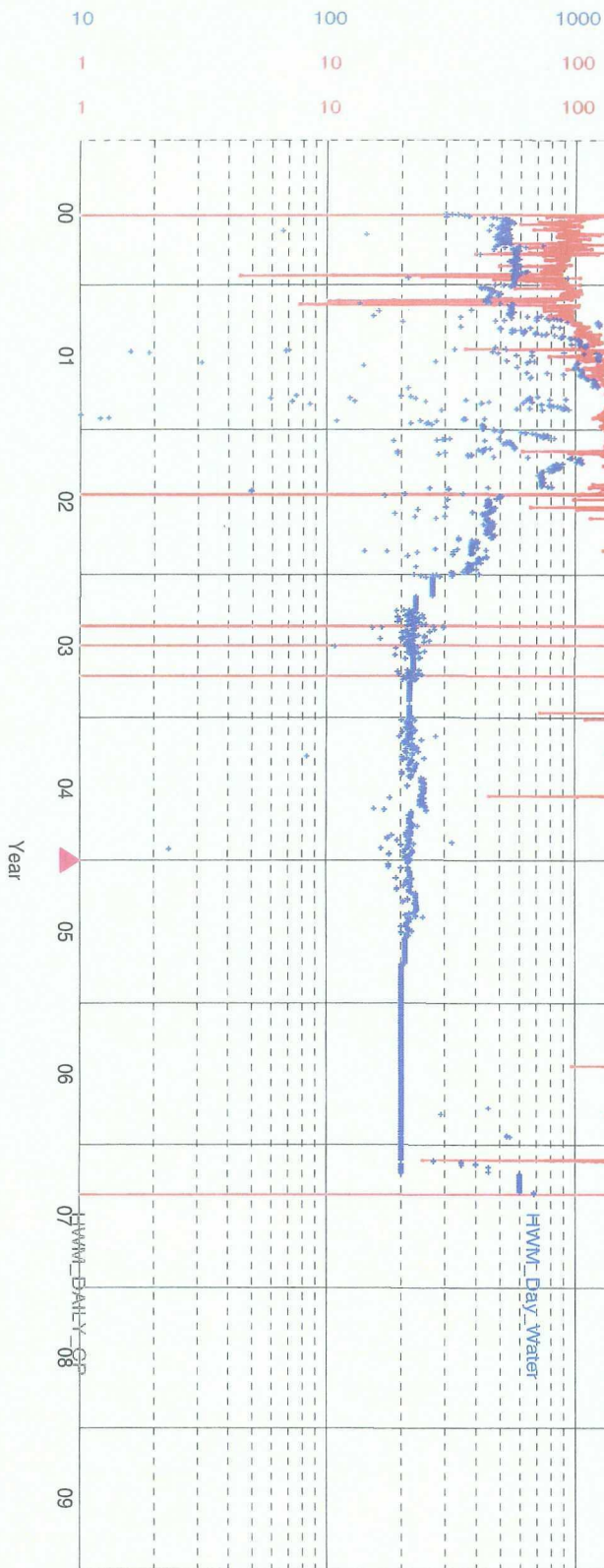
GWR

HMM_Gas

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 477842
Rem= 1239583
EUR= 1717425
Yrs= 44.920
Qref= 249.7
De= 0.000000
Dmin= 0.000
Cab= 0.000000
9.9

Water, bbl/d
Ref= 3/2007
Cum= 822621

MCF/BBL
Ref= 3/2007
Cum= 0



HMM_Gas

Me No 2-319-95

VPR "A" #29
RATON - A & E PODS
NM

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 472494
Rem= 496989
EUR= 969483
Yrs= 32.332
Qref= 4286.0
De= 14.209545
Dmin= 7.000
b= 0.800000
Qab= 300.0

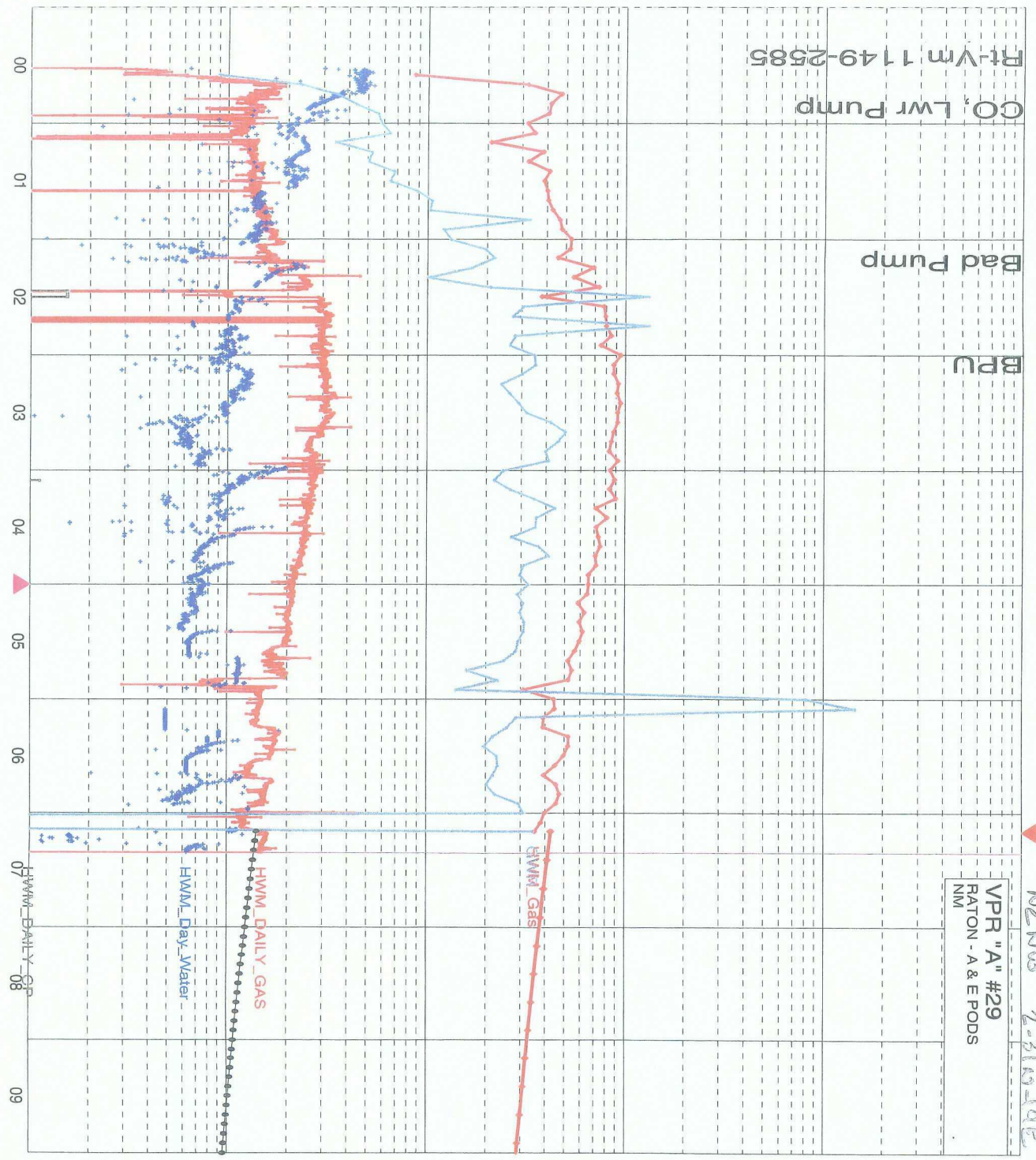
MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 477195
Rem= 498945
EUR= 976140
Yrs= 32.332
Qref= 140.9
De= 14.209545
Dmin= 7.000
b= 0.800000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 261554

PSII
Ref= 3/2007
Cum= 14120
MCF/BBL
Ref= 3/2007
Cum= 0

Water, bbl/day
MCFPD
Gas, Mcf/mo

10 100 1000 10000 100000
10 100 1000 10000 100000
10 100 1000 10000 100000



PSI
MCF/BBL
1e+06
10
10000
1000
0.1
0.01

HWM_Gas

Scale 5 - 310 - 100

VPR "A" #28
RATON - A & E PODS
NM

Gas, Mct/mo
Qual= LVIEW
Ref= 3/2007
Cum= 941891
Rem= 1554274
EUR= 2496165
Yrs= 47.921
Qref= 9900.0
De= 8.498813
Dmin= 7.000
b= 1.600000
Qab= 300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 948567
Rem= 1558715
EUR= 2507282
Yrs= 47.921
Qref= 325.5
De= 8.498813
Dmin= 7.000
b= 1.600000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 244592

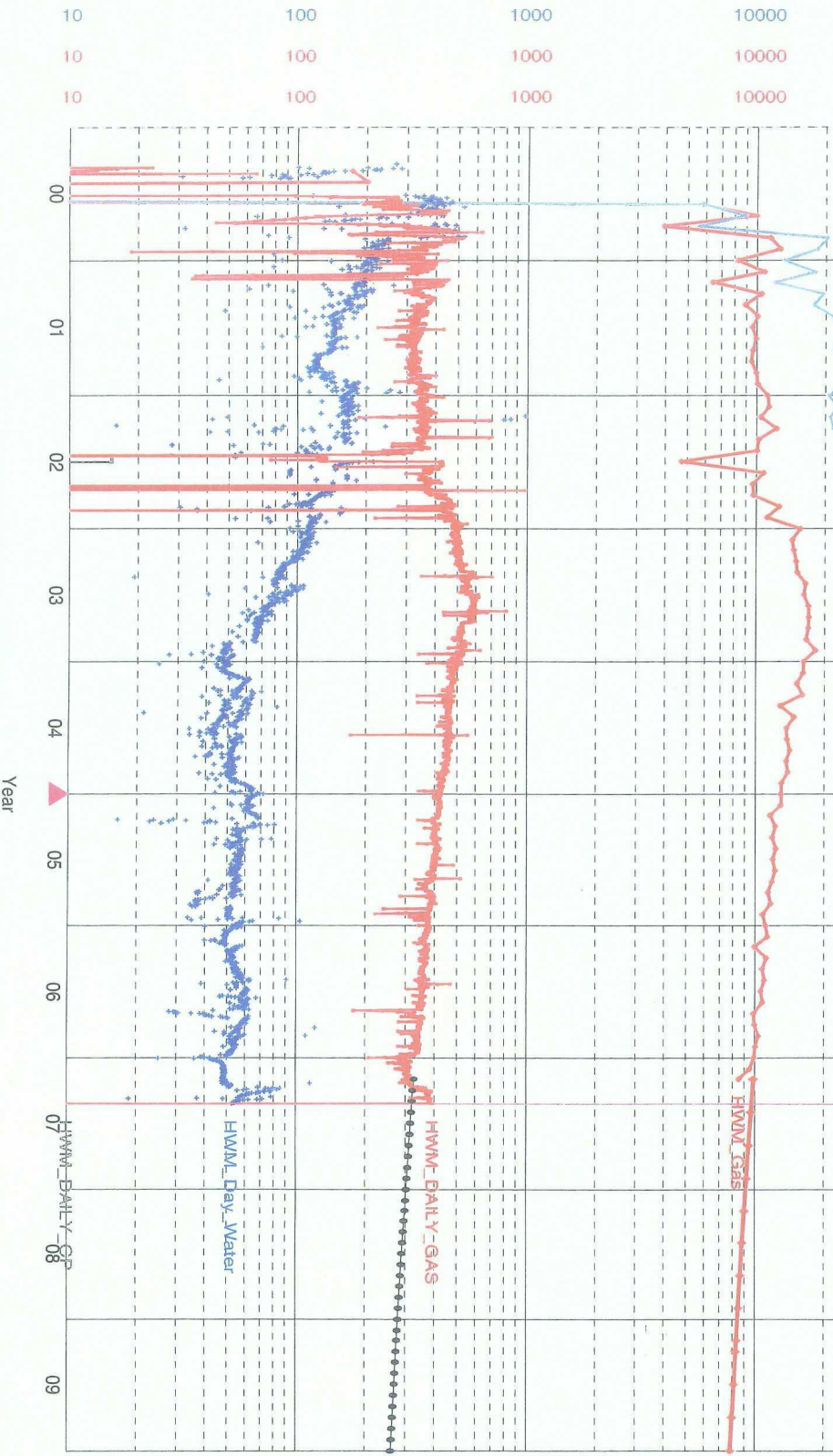
PSI
Ref= 3/2007
Cum= 20643

MCF/BBL
Ref= 3/2007
Cum= 0

Water, bbl/day
MCFPD
Gas, Mct/mo

Test Rt 1076-1519
Rt-Vm 1076-2500
Vm-OH 2512-2600

Battell, CO, C/P
BPU



Year

HWM_Gas

Use 3.30-195

VPR "A" #43
RATON - A & E PODS
NM

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 296831
Rem= 777173
EUR= 1074004
Yrs= 38.836
Qref= 5000.0
De= 7.000000
Dmin= 0.000
Qab= 0.000000
300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 301022
Rem= 778477
EUR= 1079499
Yrs= 38.836
Qref= 164.4
De= 7.000000
Dmin= 0.000
Qab= 0.000000
9.9

Test Rt 1056-1504
Rt-Vm 1056-2429

Rt 618-1504

Consistent bump

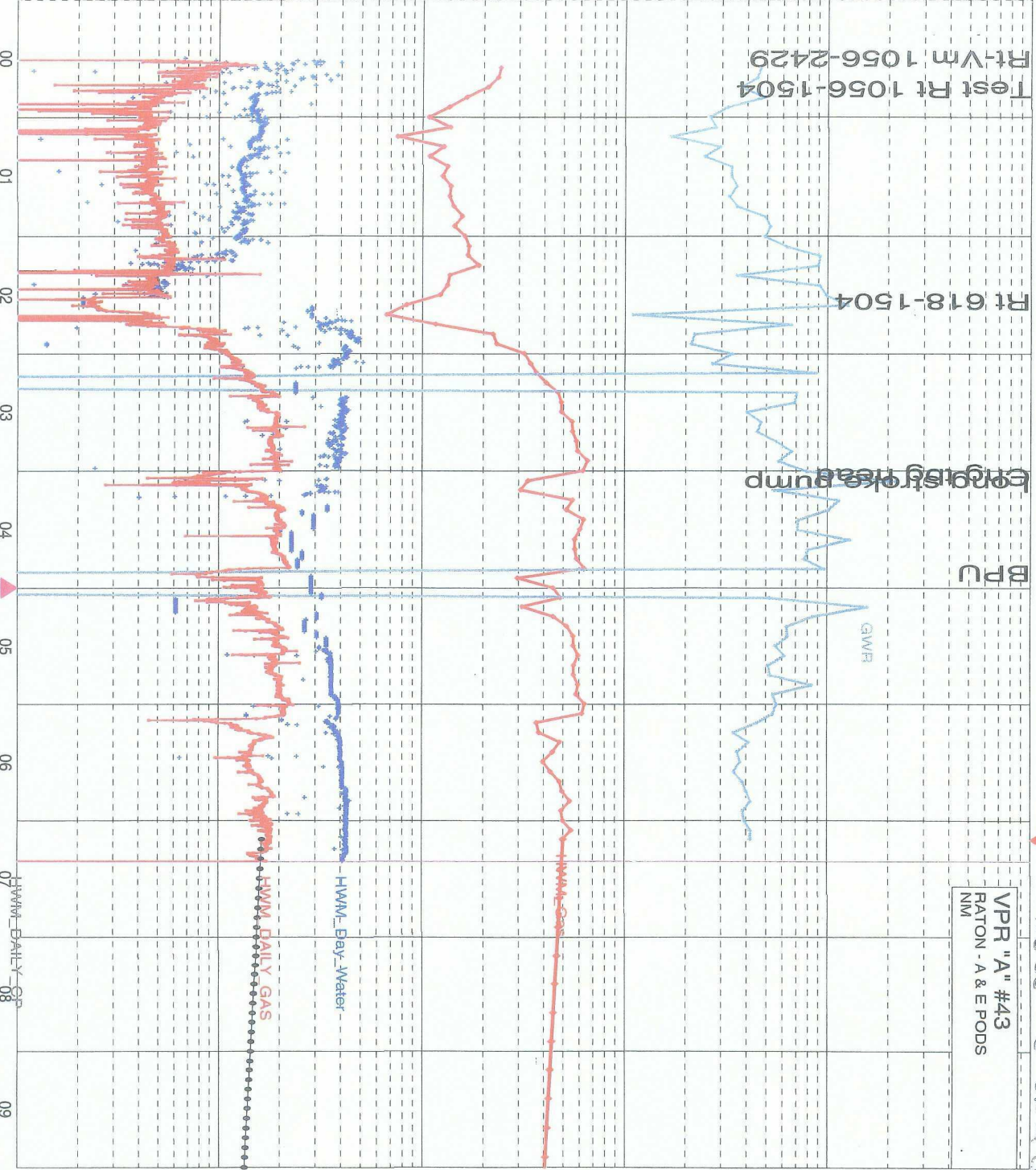
BPU

GWR

HWM_Daily-Water

HWM_DAILY GAS

10 100 1000 10000 100000 Water, bbl/day
10 100 1000 10000 100000 MCFPD
10 100 1000 10000 100000 Gas, Mcf/mo



Water, bbl/d
Ref= 3/2007
Cum= 587758
PSI
Ref= 3/2007
Cum= 22454
MCF/BBL
Ref= 3/2007
Cum= 0

HWM_Gas

100300 3-210-19E

VPR "A" #63
RATON - A & E PODS
NM

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 251333
Rem= 816943
EUR= 1068276
Yrs= 39.501
Qref= 4970.0
De= 0.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

CO₂ C/P

Rt-Vm 1001-2504

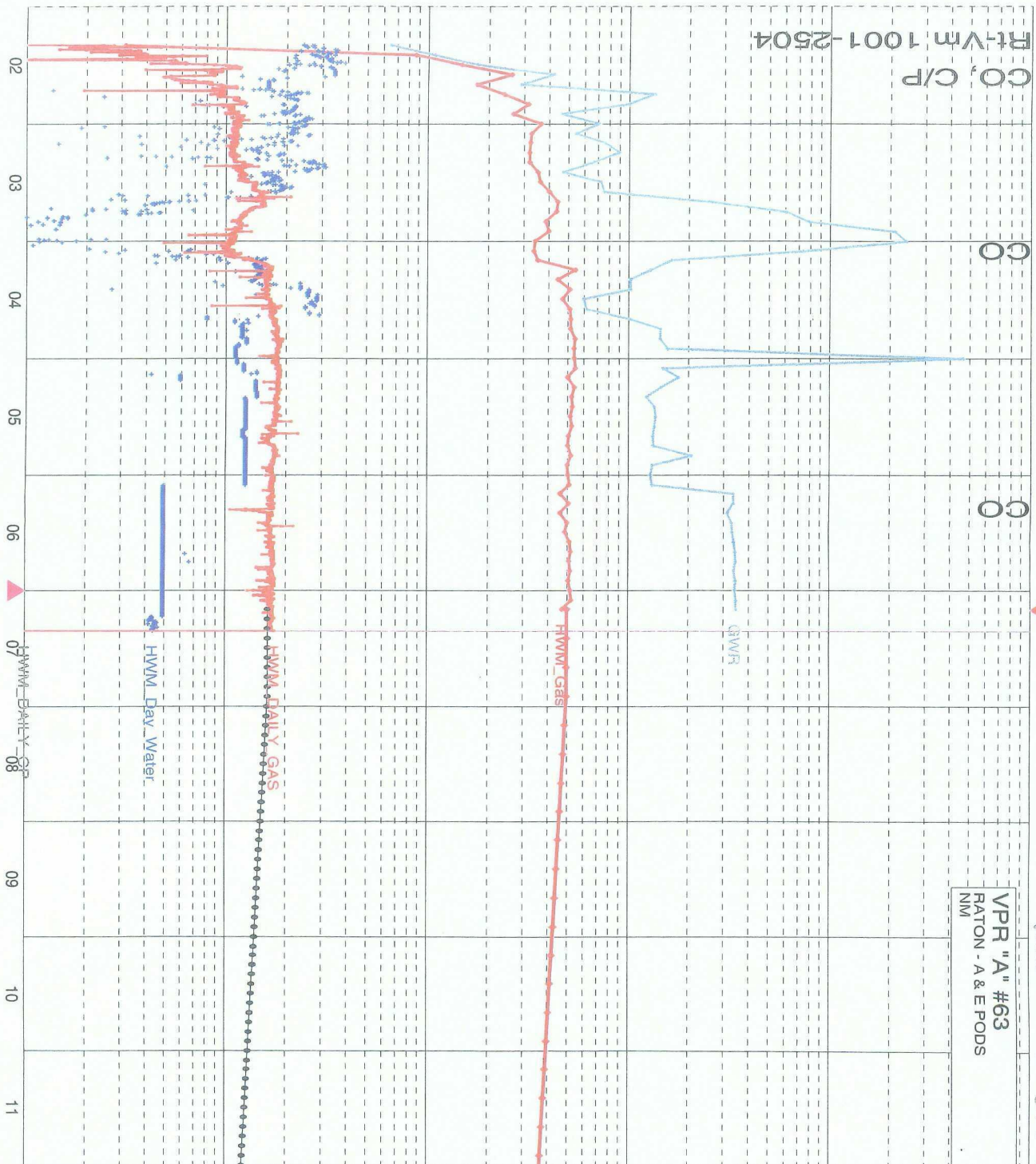
QWFA

HWM_GAS

HWM_DAILY GAS

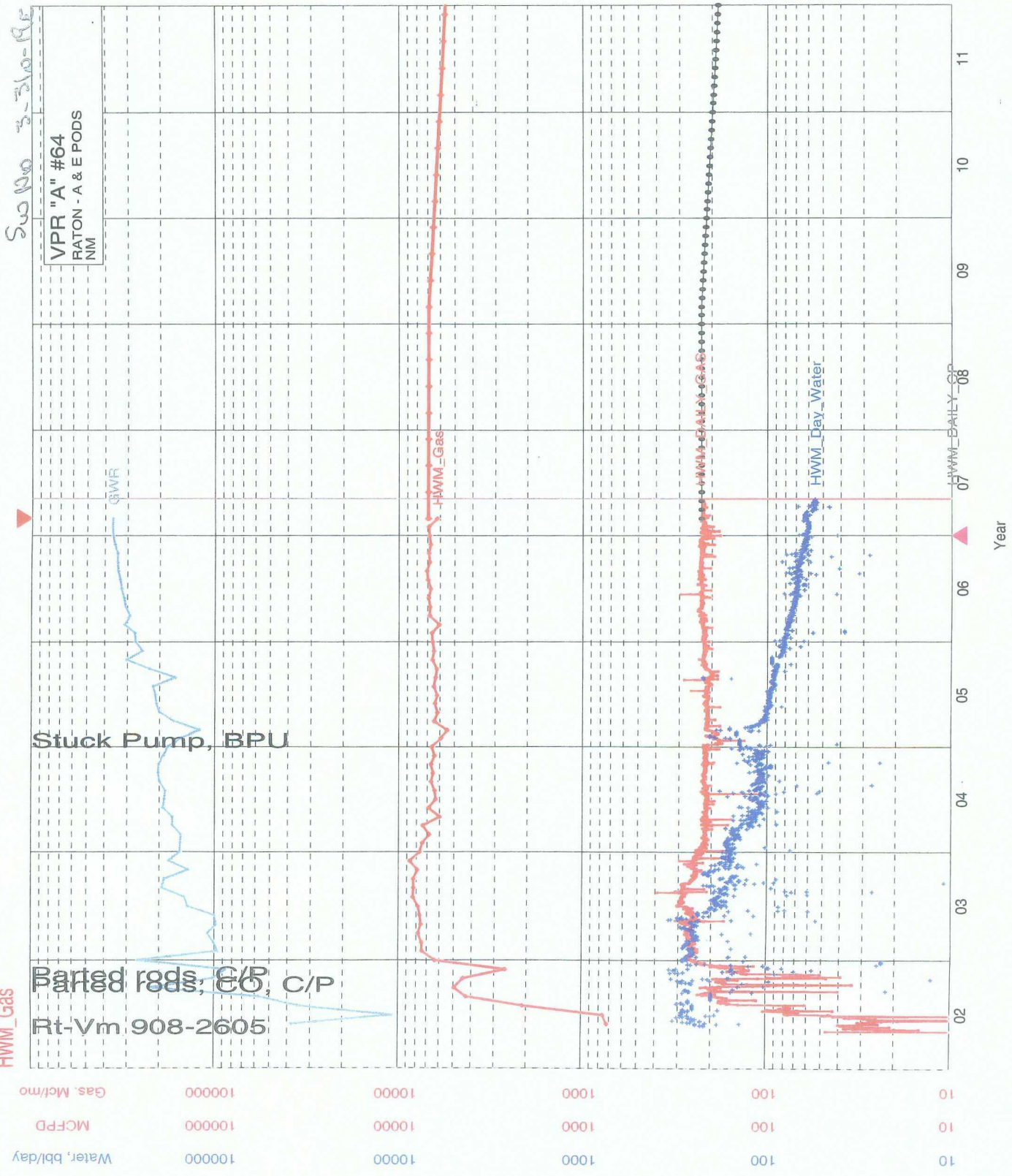
HWM_Day Water

10 100 1000 10000 100000 Water, bbl/day
10 100 1000 10000 100000 MCFPD
10 100 1000 10000 100000 Gas Mcf/mo



PSI 1e+06 10 1 0.1 0.01 0.001
MCF/BBL

Water, bbl/d
Ref= 3/2007
Cum= 211724
PSI
Ref= 3/2007
Cum= 12740
MCF/BBL
Ref= 3/2007
Cum= 0



MCF BBL 1 0.1 0.01 0.001 0.0001

PSI 1e+06 100000 10000 1000 100

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 367637
Rem= 1261115
EUR= 1628752
Yrs= 45.251
Qref= 6922.0
Dmin= 0.000000
b= 0.000000
Qab= 300.0

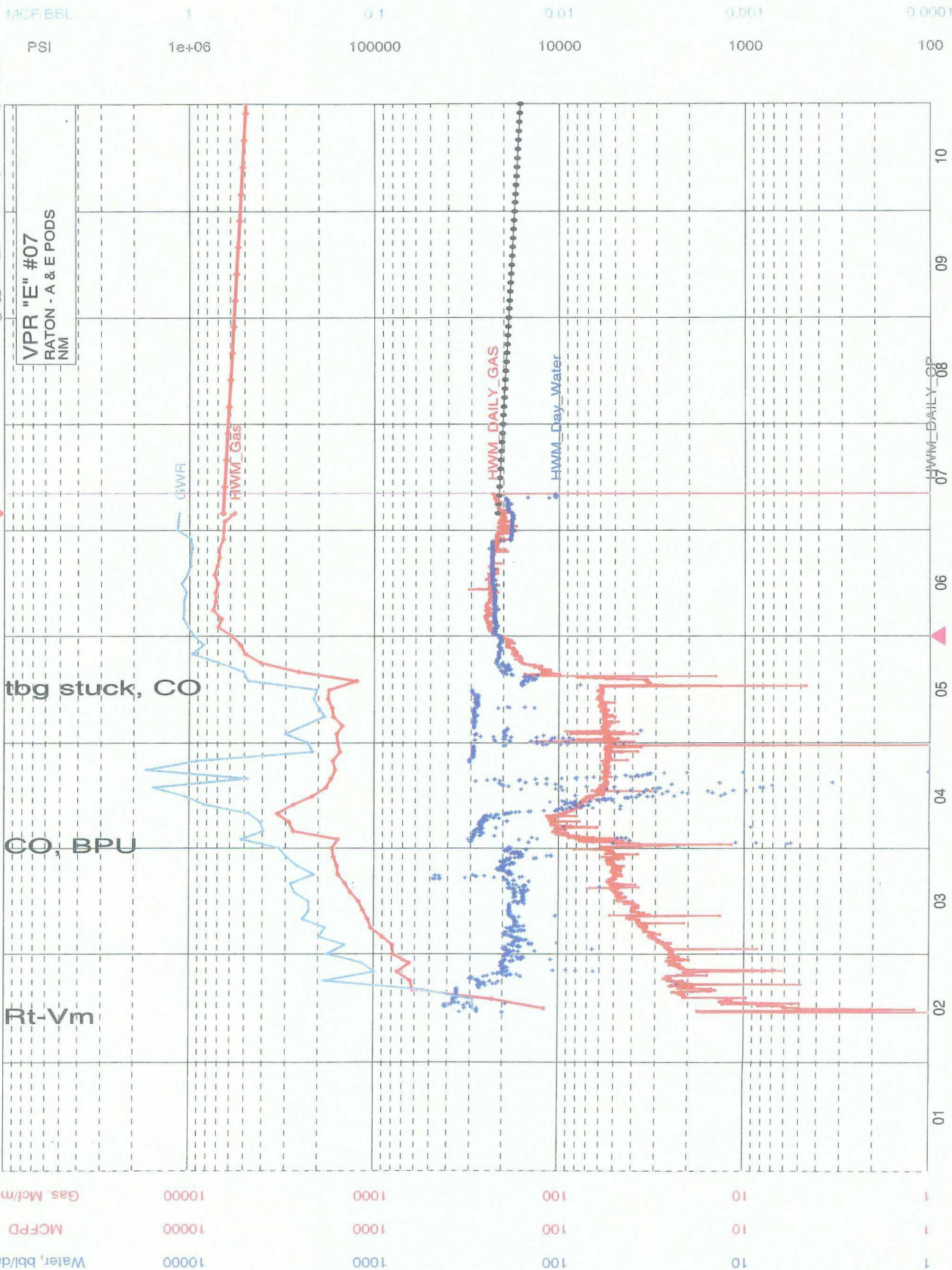
MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 371462
Rem= 1262428
EUR= 1633890
Yrs= 45.251
Qref= 227.6
Dmin= 0.000000
b= 0.000000
Qab= 9.9

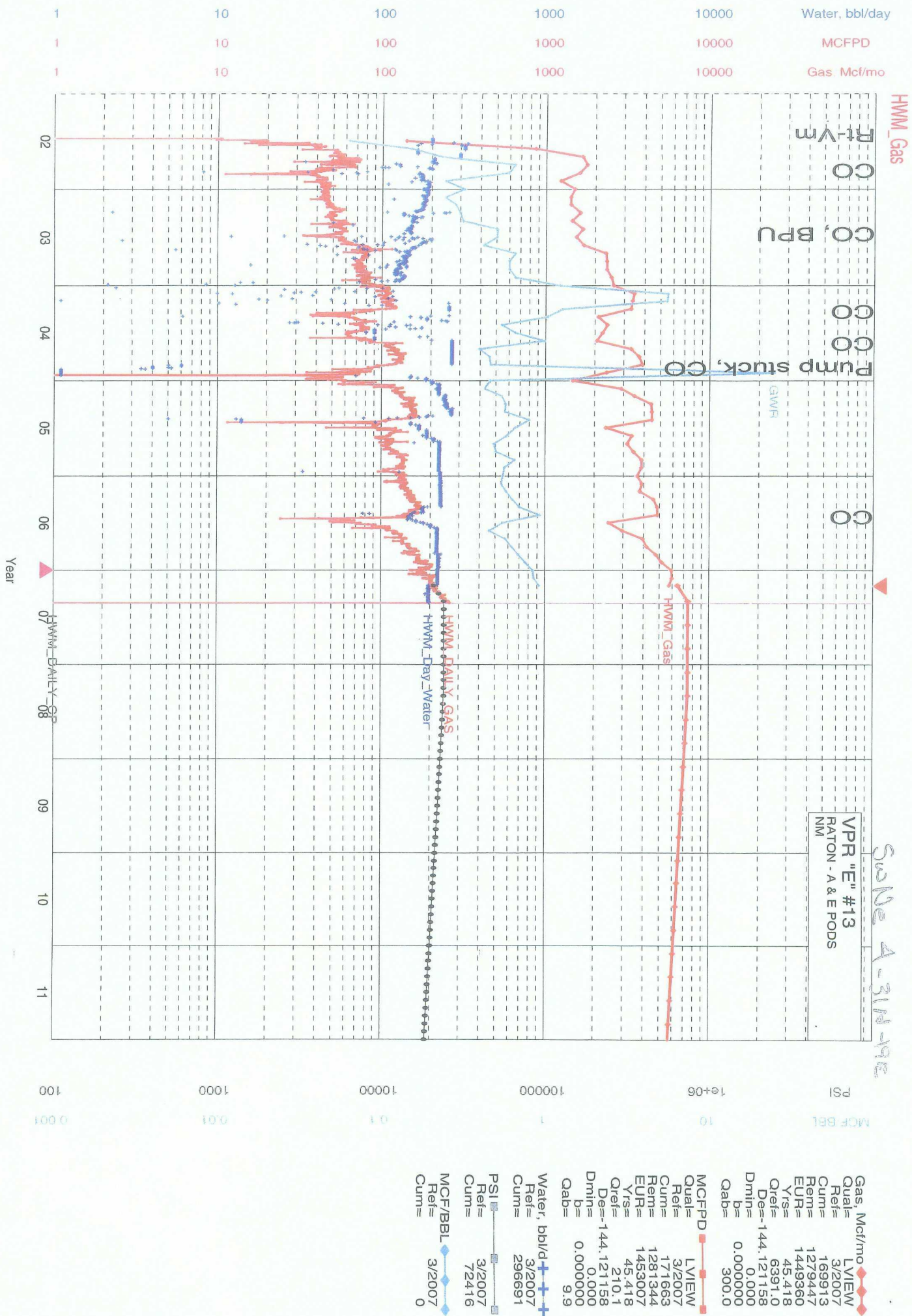
Water, bbl/d
Qual= LVIEW
Ref= 3/2007
Cum= 225166
PSI
Ref= 3/2007
Cum= 12922

MCF/BBL
Ref= 3/2007
Cum= 0

SoSe 4-30-19e

HWM_Gas





HMM_Gas

HeNe 9-3115-19E

VPR "A" #76
RATON - A & E PODS
NM

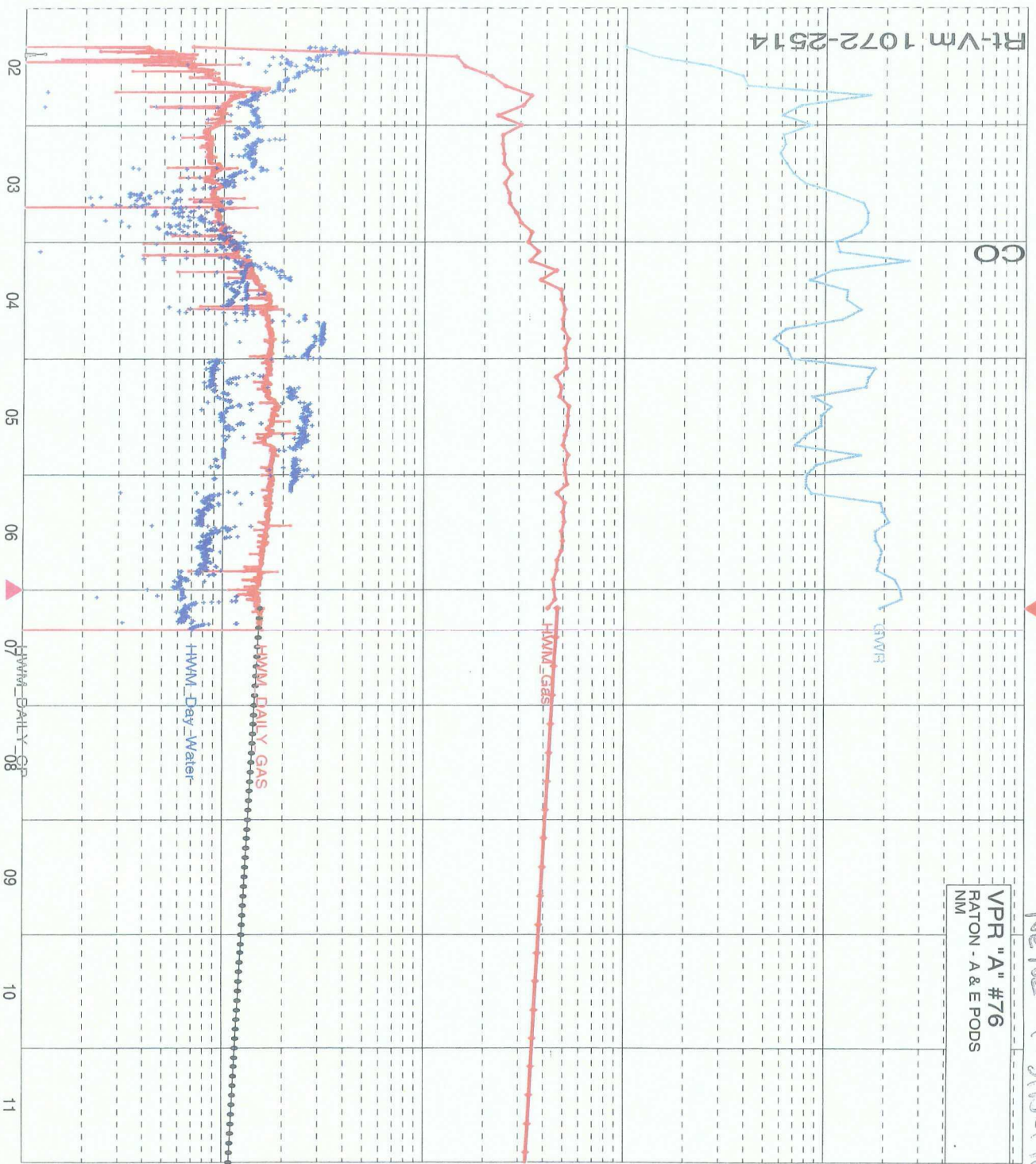
Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 233963
Rem= 724921
EUR= 958884
Yrs= 37.921
Qref= 4684.0
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

GVPR

Rt-Vm 1072-2514

CO

Water, bbl/day 10 100 1000 10000 100000
MCFPD 10 100 1000 10000 100000
Gas, Mcf/mo 10 100 1000 10000 100000



Year

PSI 1e+06 100000 10000 1000 100
MCF/BBL 0.0001 0.001 0.01 0.1 1

Water, bbl/d
Ref= 3/2007
Cum= 244790
PSI
Ref= 3/2007
Cum= 24531
MCF/BBL
Ref= 3/2007
Cum= 0

HMM_Gas

He 500 10-210-19E

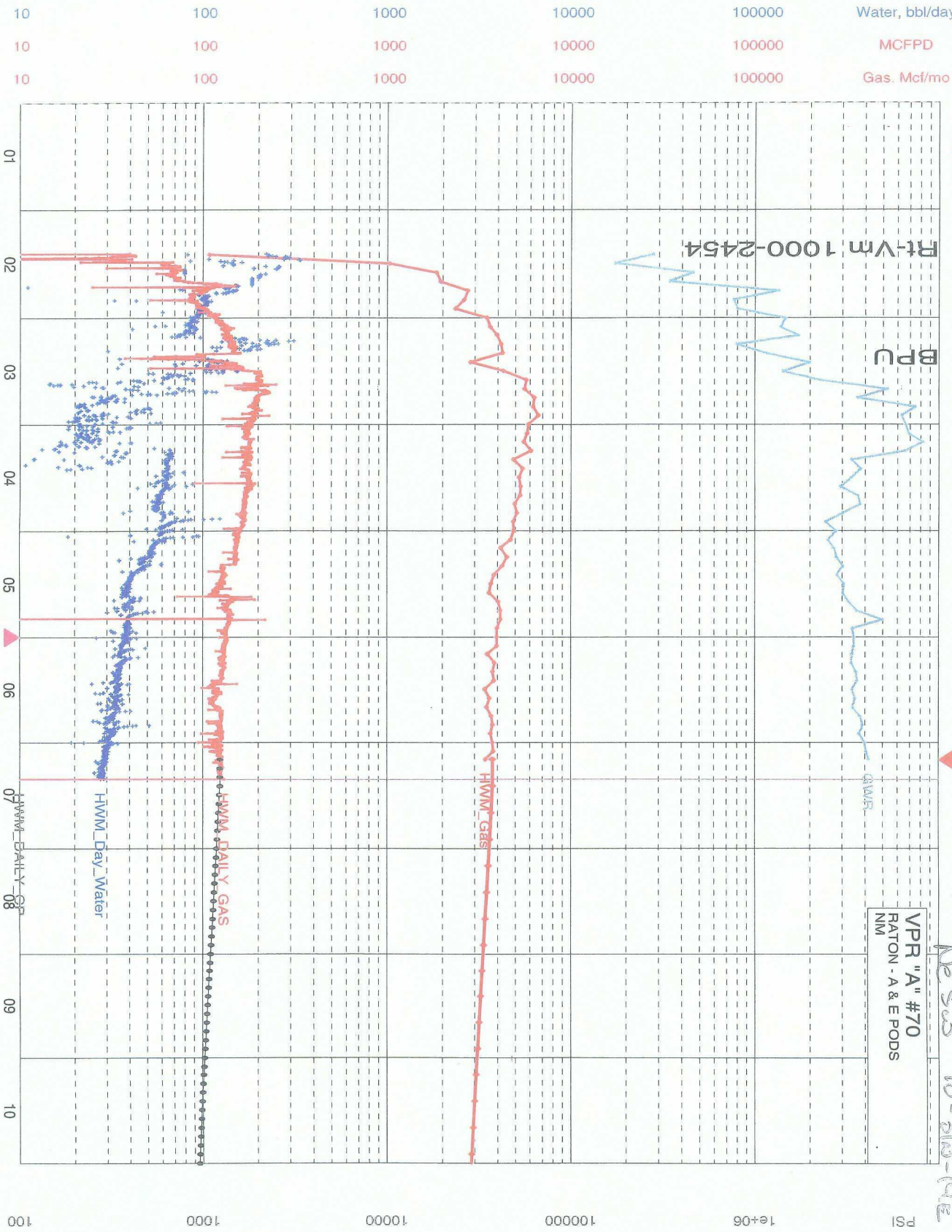
VPR "A" #70
RATON - A & E PODS
NM

Water, bbl/day
MCFPD
Gas, Mcf/mo

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 238466
Rem= 584085
EUR= 822551
Yrs= 35.164
Qref= 3764.0
De= 0.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 240866
Rem= 585007
EUR= 825973
Yrs= 35.164
Qref= 123.7
De= 0.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 103885
PSI
Ref= 11337
Cum= 3/2007
MCF/BBL
Ref= 0
Cum= 0



HWM_DAILY_GAS

Case 10-310-40

VPR "A" #71
RATON - A & E PODS
NM

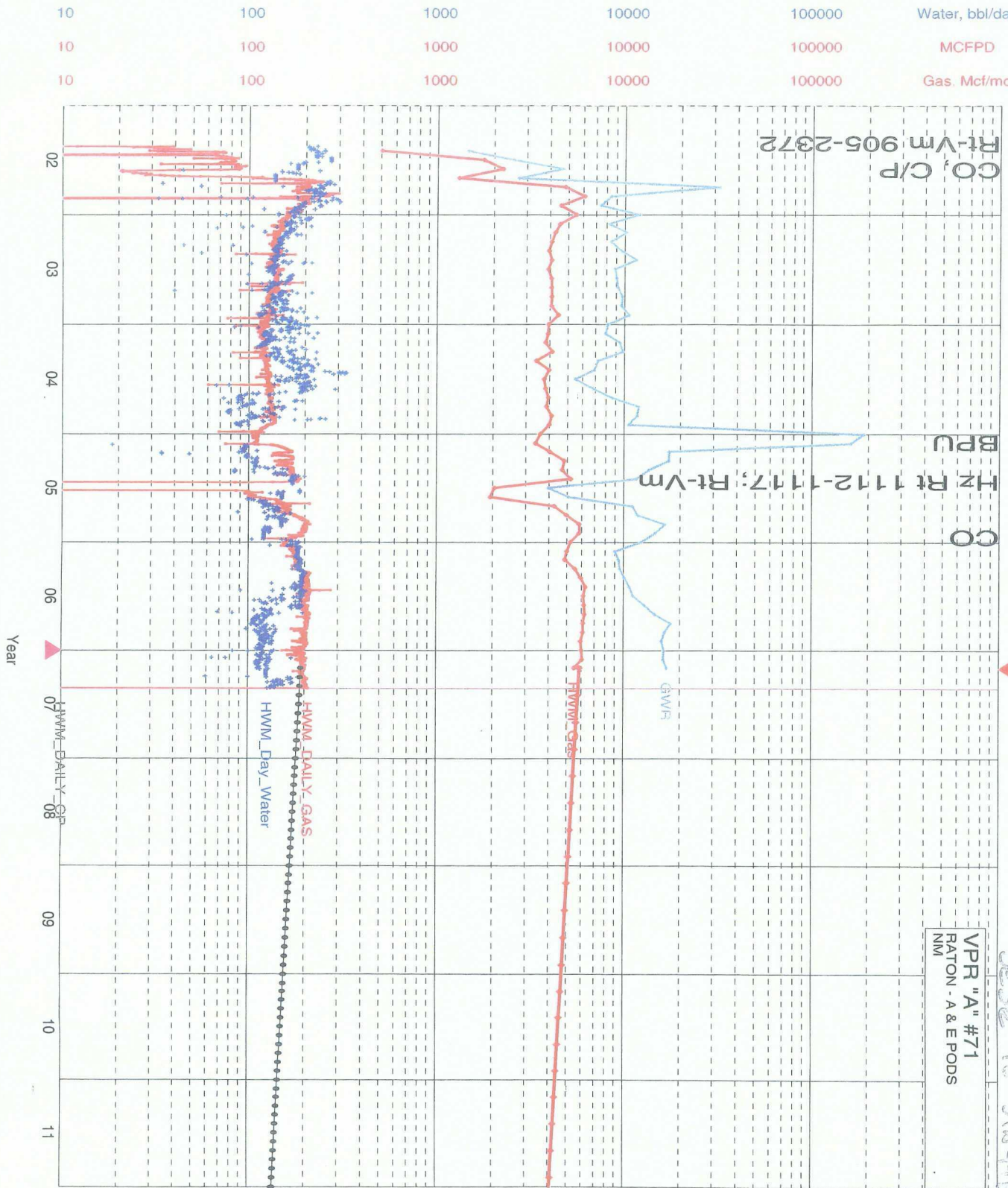
Water, bbl/day
MCFPD
Gas, Mcf/mo

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 254817
Rem= 915742
EUR= 1170559
Yrs= 40.920
Qref= 5838.0
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

CO₂ C/P
Rt-Vm: 905-2372

BPU
Hz Rt 1112-1117: Rt-Vm

GW/R



MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 259200
Rem= 917542
EUR= 1176742
Yrs= 40.920
Qref= 191.9
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

Water, bbl/d
Qual= LVIEW
Ref= 3/2007
Cum= 254271
Rem= 917542
EUR= 1176742
Yrs= 40.920
Qref= 191.9
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

PSI
Qual= LVIEW
Ref= 3/2007
Cum= 17850
Rem= 917542
EUR= 1176742
Yrs= 40.920
Qref= 191.9
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

MCF/BBL
Qual= LVIEW
Ref= 3/2007
Cum= 0
Rem= 917542
EUR= 1176742
Yrs= 40.920
Qref= 191.9
De= 7.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

HMM_Gas

Scale 10-310-195

VPR "A" #77
RATON - A & E PODS
NM

Water, bbl/day

MCFPD

Gas, Mcf/mo

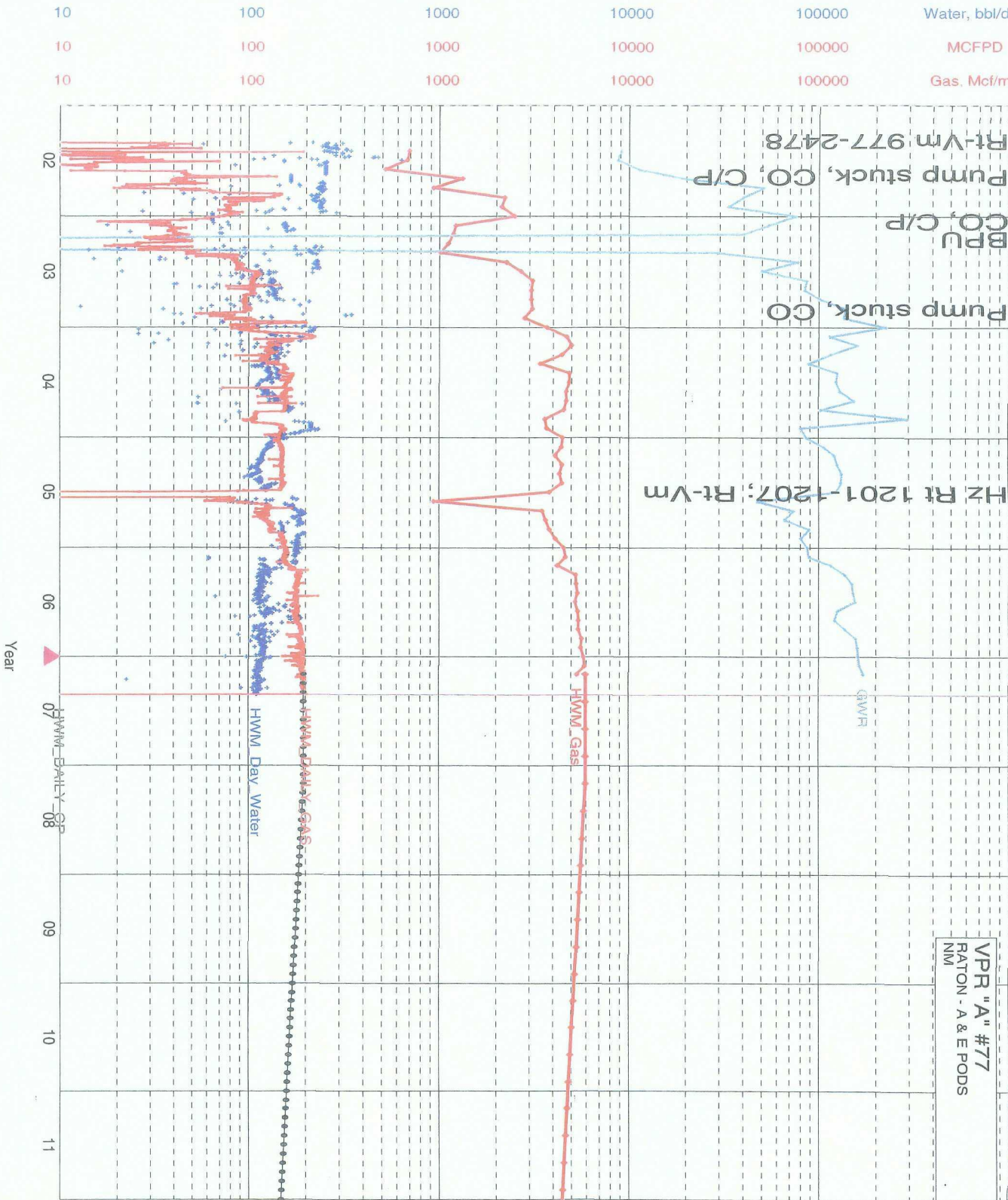
PSI

MCF/BBL

Gas, Mcf/mo
Qual= LVIEW
Ref= 3/2007
Cum= 211800
Rem= 1003888
EUR= 1215688
Yrs= 42.164
Qref= 5940.0
De= 0.000000
Dmin= 0.000
Cab= 0.000000
b= 300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 214804
Rem= 1005190
EUR= 1219994
Yrs= 42.164
Qref= 195.3
De= 0.000000
Dmin= 0.000
Cab= 0.000000
b= 9.9

Water, bbl/d
Ref= 3/2007
Cum= 233495
PSI
Ref= 3/2007
Cum= 30287
MCF/BBL
Ref= 3/2007
Cum= 0



HWM_Gas

Se Sec 11-23110-19E

VPR "A" #72
RATON - A & E PODS
NM

Gas, Mct/mo
Qual= LVIEW
Ref= 3/2007
Cum= 192569
Rem= 837821
EUR= 1030390
Yrs= 39.921
Qref= 4762.0
De= 0.000000
Dmin= 0.000
b= 0.000000
Qab= 300.0

MCFPD
Qual= LVIEW
Ref= 3/2007
Cum= 195842
Rem= 838881
EUR= 1034723
Yrs= 39.921
Qref= 156.6
De= 0.000000
Dmin= 0.000
b= 0.000000
Qab= 9.9

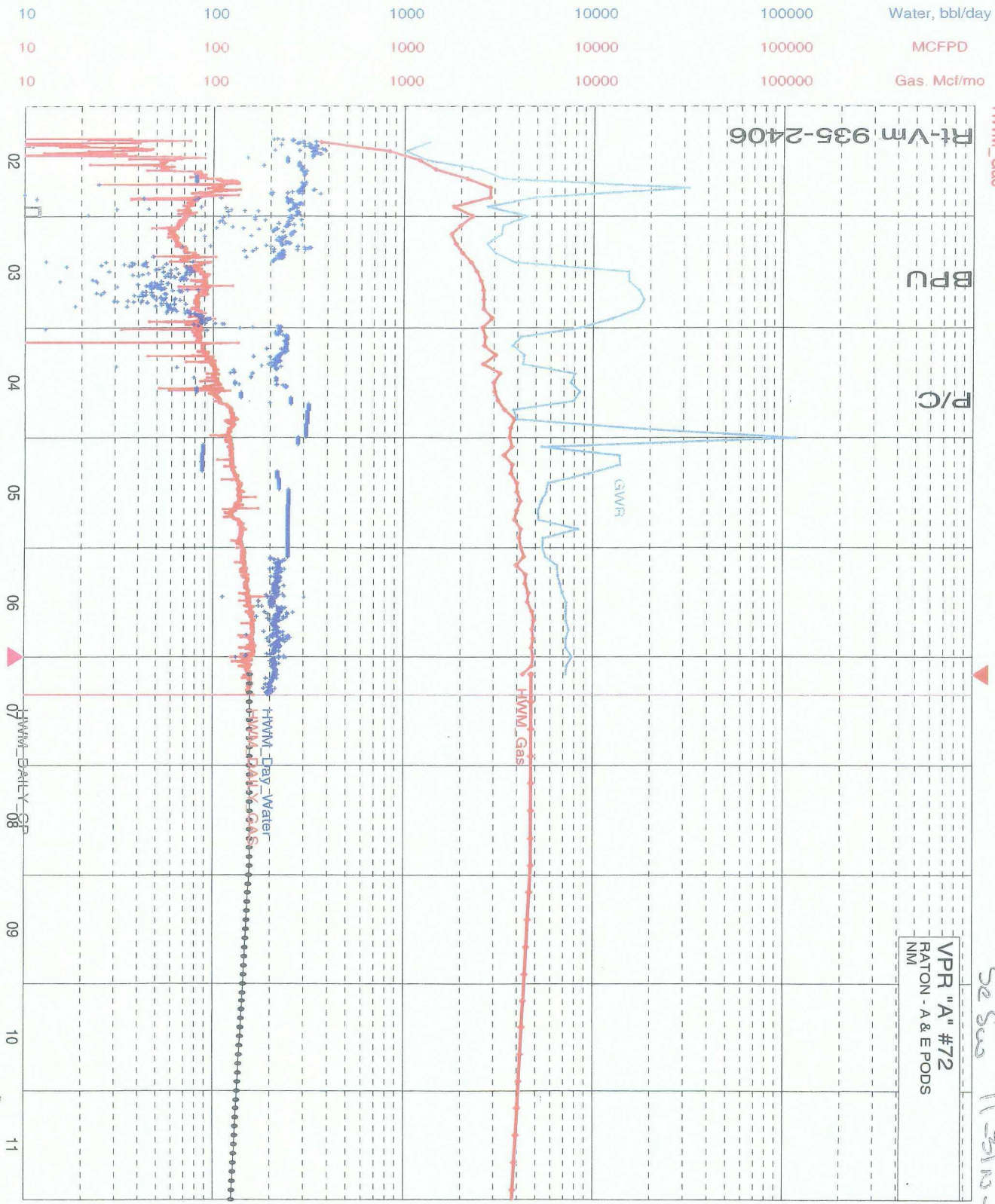
Water, bbl/d
Ref= 3/2007
Cum= 353579

PSI
Ref= 3/2007
Cum= 111595
MCF/BBL
Ref= 3/2007
Cum= 0

BPC

P/C

Rt-Vm 935-2406



HMM_Gas

See N.O. 11-310-19E

VPR "A" #78
RATON - A & E PODS
NM

Gas, Mct/mo
Qual= LVIEW
Ref= 3/2007
Cum= 224884
Rem= 597806
EUR= 822690
Yrs= 19.416
Oref= 9060.0
De= 16.125029
Dmin= 0.000
b= 0.000000
Qab= 300.0

Water, bbl/day

MCFPD

Gas, Mct/mo

Rt-Ym 921-2450

BPU
CO, Upsize Pump

Pump stuck, CO

Stuck Pump, CO, C/P

Sd in Pump, CO

CO, C/P

HMM_Gas

HMM_Day-Water

GWR

PSI

MCF BBL

Water, bbl/d
Qual= LVIEW
Ref= 3/2007
Cum= 361481
Rem= 594764
EUR= 822954
Yrs= 19.416
Oref= 297.9
De= 16.125029
Dmin= 0.000
b= 0.000000
Qab= 9.9

PSI
Ref= 3/2007
Cum= 42676
MCF/BBL
Ref= 3/2007
Cum= 0

10 100 1000 10000 100000
10 100 1000 10000 100000
10 100 1000 10000 100000
Year