

Well: Pueblo Valley Federal 52-22A
 Sample Date: 12/6/93 Sample Time: 12:00
 Laboratory: University of Utah Research Institute

ANADARKO
 PETROLEUM CORPORATION
PROPRIETARY DATA

WATER CHEMISTRY

MICHELS / EDMISTON
 9314

ID #: A:10941061.DM
 DATE: 01-05-94

SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
Na	407.52	1	.51	.177E-01
K	29.97	1	.64	.766E-03
Ca	7.86	1	.19	.196E-03
Mg	.52	1	.17	.214E-04
Fe	.31	1	.03	.559E-05
Al	N.D.	1	.64	< .237E-04
SiO2	197.73	1	.55	.329E-02
B	13.81	1	.05	.128E-02
Li	.65	1	.04	.936E-04
Sr	.38	1	.01	.432E-05
Zn	N.D.	1	.06	< .978E-06
Ag	N.D.	1	.05	< .474E-06
As	.63	1	.51	.835E-05
Au	N.D.	1	.10	< .519E-06
Ba	N.D.	1	.32	< .233E-05
Be	N.D.	1	.00	< .142E-06
Bi	N.D.	1	2.56	< .122E-04
Cd	N.D.	1	.05	< .455E-06
Ce	N.D.	1	.26	< .183E-05
Co	N.D.	1	.03	< .434E-06
Cr	N.D.	1	.13	< .246E-05
Cu	N.D.	1	.06	< .101E-05
La	N.D.	1	.13	< .921E-06
Mn	N.D.	1	.26	< .466E-05
Mo	N.D.	1	.64	< .667E-05
Ni	N.D.	1	.13	< .218E-05
Pb	N.D.	1	.26	< .123E-05
Sn	N.D.	1	.13	< .108E-05
Sb	N.D.	1	.51	< .420E-05
Te	N.D.	1	1.28	< .100E-04
Th	N.D.	1	2.56	< .110E-04
Ti	N.D.	1	.13	< .267E-05
U	N.D.	1	6.40	< .269E-04
V	N.D.	1	1.28	< .251E-04
W	N.D.	1	.13	< .696E-06
Zr	N.D.	1	.13	< .140E-05
NH4	N.A.	5	.12	< .665E-05
Cs	N.A.	10	.50	< .376E-05
Rb	N.A.	10	.30	< .351E-05

MICHELS / EDMISTON
9314

ID #: A:10941061.DM
DATE: 01-05-94

SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
TOTAL ALKALINITY AS				
HCO3	271.00	2	1.00	.444E-02
CO3	15.00	2	1.00	.250E-03
Cl	251.00	2	1.00	.708E-02
F	7.15	5	.05	.376E-03
SO4	322.00	11	1.00	.335E-02
Br	1.50	2	.50	.188E-04
I	N.A.	2	.10	< .788E-06
NO3	N.A.	9	.10	< .161E-05
S	N.A.	2	.20	< .624E-05
PO4	N.D.	1	1.93	< .203E-04

TOTAL DISSOLVED SOLIDS

MEASURED	NOT MEAS.	4	4.00
CALCULATED	1389.27	6	
pH	9.06	7	

ADDITIONAL ANALYSIS:

EC 1850 u mhos/cm

ANADARKO
PETROLEUM CORPORATION
PROPRIETARY DATA

ANALYTICAL METHODS:

1. INDUCTIVELY COUPLED PLASMA SPECTROMETER
2. TITRATION (LABORATORY)
3. TITRATION (FIELD)
4. GRAVIMETRIC
5. SPECIFIC ION ELECTRODE
6. METHOD OF HEM (1970, USGS Water Supply Paper 1473)
7. pH METER (LABORATORY)
8. pH METER (FIELD)
9. COLORIMETRIC
10. ATOMIC ABSORPTION
11. TURBIDIMETRIC

N.D. - NOT DETECTED
N.A. - NOT ANALYZED

Well: Pueblo Valley Federal 52-22A
 Sample Date: 12/6/93 Sample Time: 13:25
 Laboratory: University of Utah Research Institute

ANADARKO
 PETROLEUM CORPORATION
PROPRIETARY DATA

MICHELS / EDMISTON
 9325

ID #: A:10941063.DM
 DATE: 01-05-94

SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
Na	419.21	1	.51	.182E-01
K	31.83	1	.64	.814E-03
Ca	5.38	1	.19	.134E-03
Mg	.65	1	.17	.267E-04
Fe	.32	1	.03	.573E-05
Al	N.D.	1	.64	< .237E-04
SiO2	228.62	1	.55	.380E-02
B	14.70	1	.05	.136E-02
Li	.63	1	.04	.908E-04
Sr	.35	1	.01	.399E-05
Zn	N.D.	1	.06	< .979E-06
Ag	N.D.	1	.05	< .475E-06
As	2.49	1	.51	.332E-04
Au	N.D.	1	.10	< .520E-06
Ba	N.D.	1	.32	< .233E-05
Be	N.D.	1	.00	< .142E-06
Bi	N.D.	1	2.56	< .122E-04
Cd	N.D.	1	.05	< .455E-06
Ce	N.D.	1	.26	< .183E-05
Co	N.D.	1	.03	< .434E-06
Cr	N.D.	1	.13	< .246E-05
Cu	N.D.	1	.06	< .101E-05
La	N.D.	1	.13	< .922E-06
Mn	N.D.	1	.26	< .466E-05
Mo	N.D.	1	.64	< .667E-05
Ni	N.D.	1	.13	< .218E-05
Pb	N.D.	1	.26	< .124E-05
Sn	N.D.	1	.13	< .108E-05
Sb	N.D.	1	.51	< .421E-05
Te	N.D.	1	1.28	< .100E-04
Th	N.D.	1	2.56	< .110E-04
Ti	N.D.	1	.13	< .267E-05
U	N.D.	1	6.40	< .269E-04
V	N.D.	1	1.28	< .251E-04
W	N.D.	1	.13	< .696E-06
Zr	N.D.	1	.13	< .140E-05
NH4	N.A.	5	.12	< .665E-05
Cs	N.A.	10	.50	< .376E-05
Rb	N.A.	10	.30	< .351E-05

MICHELS / EDMISTON
9325

ID #: A:10941063.DM
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SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
TOTAL ALKALINITY AS				
HCO3	258.00	2	1.00	.423E-02
CO3	17.00	2	1.00	.283E-03
Cl	248.00	2	1.00	.700E-02
F	6.75	5	.05	.355E-03
SO4	327.00	4	1.00	.340E-02
Br	1.60	2	.50	.200E-04
I	N.A.	2	.10	< .788E-06
NO3	N.A.	9	.10	< .161E-05
S	N.A.	2	.20	< .624E-05
PO4	N.D.	1	1.93	< .204E-04

TOTAL DISSOLVED SOLIDS

MEASURED	NOT MEAS.	4	4.00
CALCULATED	1431.39	6	
pH	8.81	7	

ADDITIONAL ANALYSIS:

EC 1850 u mhos/cm

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ANALYTICAL METHODS:

1. INDUCTIVELY COUPLED PLASMA SPECTROMETER
2. TITRATION (LABORATORY)
3. TITRATION (FIELD)
4. GRAVIMETRIC
5. SPECIFIC ION ELECTRODE
6. METHOD OF HEM (1970, USGS Water Supply Paper 1473)
7. pH METER (LABORATORY)
8. pH METER (FIELD)
9. COLORIMETRIC
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11. TURBIDIMETRIC

N.D. - NOT DETECTED
N.A. - NOT ANALYZED

Well: Pueblo Valley Federal 52-22A
 Sample Date: 12/6/93 Sample Time: 14:04
 Laboratory: University of Utah Research Institute

ANADARKO
 PETROLEUM CORPORATION
PROPRIETARY DATA

MICHELS / EDMISTON
 9313

ID #: A:10941060.DM
 DATE: 01-05-94

SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
Na	431.17	1	.51	.188E-01
K	34.90	1	.64	.893E-03
Ca	5.34	1	.19	.133E-03
Mg	N.D.	1	.17	< .686E-05
Fe	.74	1	.03	.132E-04
Al	N.D.	1	.64	< .238E-04
SiO2	218.08	1	.55	.363E-02
B	15.14	1	.05	.140E-02
Li	.65	1	.04	.938E-04
Sr	.36	1	.01	.408E-05
Zn	N.D.	1	.06	< .980E-06
Ag	N.D.	1	.05	< .475E-06
As	2.46	1	.51	.328E-04
Au	N.D.	1	.10	< .521E-06
Ba	N.D.	1	.32	< .233E-05
Be	N.D.	1	.00	< .142E-06
Bi	N.D.	1	2.56	< .123E-04
Cd	N.D.	1	.05	< .456E-06
Ce	N.D.	1	.26	< .183E-05
Co	N.D.	1	.03	< .435E-06
Cr	N.D.	1	.13	< .247E-05
Cu	N.D.	1	.06	< .101E-05
La	N.D.	1	.13	< .923E-06
Mn	N.D.	1	.26	< .467E-05
Mo	N.D.	1	.64	< .668E-05
Ni	N.D.	1	.13	< .218E-05
Pb	N.D.	1	.26	< .124E-05
Sn	N.D.	1	.13	< .108E-05
Sb	N.D.	1	.51	< .421E-05
Te	N.D.	1	1.28	< .100E-04
Th	N.D.	1	2.56	< .110E-04
Ti	N.D.	1	.13	< .268E-05
U	N.D.	1	6.41	< .269E-04
V	N.D.	1	1.28	< .252E-04
W	N.D.	1	.13	< .697E-06
Zr	N.D.	1	.13	< .141E-05
NH4	N.A.	5	.12	< .665E-05
Cs	N.A.	10	.50	< .376E-05
Rb	N.A.	10	.30	< .351E-05

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SPECIES	CONCENTRATION (ppm)	ANALYTICAL METHOD	DETECTION LIMITS	CONCENTRATION (MOL/L)
TOTAL ALKALINITY AS				
HCO3	264.00	2	1.00	.433E-02
CO3	16.00	2	1.00	.267E-03
Cl	249.00	2	1.00	.702E-02
F	7.90	5	.05	.416E-03
SO4	320.00	11	1.00	.333E-02
Br	1.60	2	.50	.200E-04
I	N.A.	2	.10	< .788E-06
NO3	N.A.	9	.10	< .161E-05
S	N.A.	2	.20	< .624E-05
PO4	N.D.	1	1.94	< .204E-04

TOTAL DISSOLVED SOLIDS

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