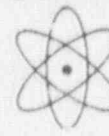


FERRET EXPLORATION COMPANY OF NEBRASKA, INC.

40-8943

P.O. Box 169
Crawford, Nebraska 69339

Office (308) 665-2215
FAX (308) 665-2341

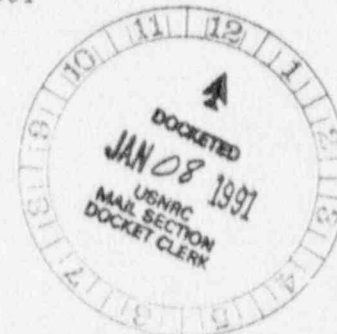


04008943230E

RETURN ORIGINAL TO PDR, HQ.

January 4, 1991

Mr. Ramon Hall
U.S. Nuclear Regulatory Commission
Uranium Recovery Field Office
P.O. Box 25325
Denver, Colorado 80225



RE: Docket No. 40-8943
License No. SUA-1534

Dear Mr. Hall:

Ferret Exploration Company of Nebraska (FEN) is currently planning start-up of its Crow Butte facility during March, 1991. License Condition No. 30 requires FEN to submit particulate and radon sampling locations as well as designated eating areas at least two (2) months prior to beginning uranium recovery operations. License Condition No. 37 requires FEN to propose a surface contamination program two (2) months prior to lixiviation injection. License Condition No. 43 requires FEN submit baseline water quality data for all production units from wells in the mining zone, the mining zone perimeter and the upper aquifer.

Enclosed with this letter please find the following:

- 1) The air particulate and radon sampling locations and designated eating areas. The sampling frequency is also included.
- 2) The Proposed Surface Contamination Program.
- 3) Baseline water quality data for Mine Unit One, the accompanying perimeter monitor wells, and the upper aquifer monitor wells. Seven newly constructed wells and five older wells previously used in pilot plant operations make up the Mine Unit One baseline wells. All the perimeter monitor wells are newly constructed. Two of the upper aquifer monitor wells are newly constructed, the third, SM1-1 (previously PM-6), was used as a upper aquifer monitor for pilot plant operations. A location map of all wells in Mine Unit One is included.

If you have any questions regarding these submittals, please do not hesitate to contact me.

RIV DRMA
RECEIVED

91 JAN -8 AM 10:02

Sincerely,

Ralph Knode

Ralph Knode
Vice President

RF02

91-0173

DESIGNATED ORIGINAL

9101290288 910104
PDR ADOCK 04008943
C PDR

Certified By Mary C. Hood

280108

PROPOSED PARTICULATE AND RADON SAMPLING LOCATIONS

License Condition #30

AIRBORNE PARTICULATES:

Location:	Frequency:
Upper Deck-Precip Tank Area	Monthly
Upper Deck-Belt Filter Feed Room	Monthly
Main Level-Yellowcake Storage Area	Monthly
Dryer Room-During Dryer Operations	Weekly

RADON DAUGHTERS:

Location:	Frequency:
Between Resin Transfer & IX Columns	Monthly
Between Barren Lix Tanks & IX Columns	Monthly
Between Column Drain Tanks & IX Columns	Monthly
Between 2 Sets of IX Column Trains	Monthly
Between Precip Tanks & IX Columns	Monthly
Between Precip Tanks & Eluent Make up Tanks	Monthly
Between Precip Tanks & Raw Water Tank	Monthly
Motor Control Room/Operator Office	Monthly
R.O. Building-near R.O. unit	Monthly
Lab	Monthly
Lunchroom	Monthly
Dryer Room-During Dryer Operations	Weekly

DESIGNATED EATING AREAS:

Lunchroom--Office Area

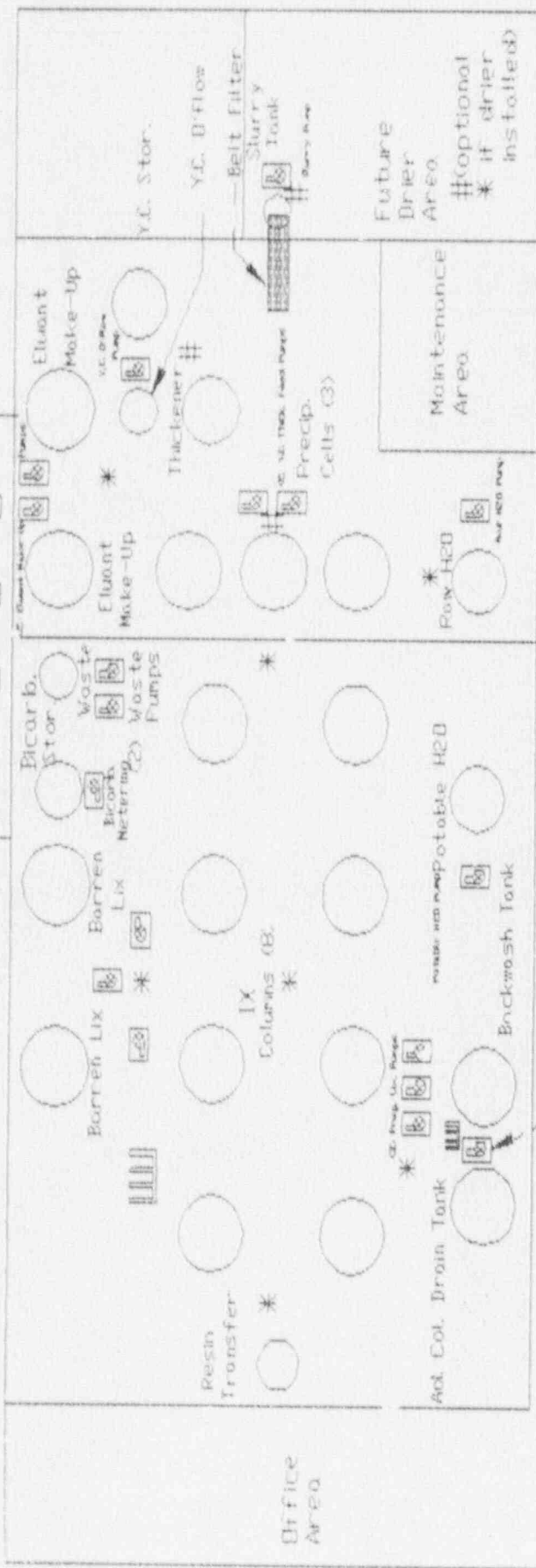
BE

NaCl Trans Pump
Sesqui Bin
Sesqui HCl

Hydroxide
NoCl
Sesqui

H2O2

CO2



CROW BUTTE PROJECT

* Radon Daughters

Airborne Uranium

MDC/Operator Office *

Laboratory *

Ad. Col. Backwash Pump

Lunch Room *

Future Drier Area # (optional if drier installed)

Maintenance Area

Office Area

PROPOSED SURFACE CONTAMINATION PROGRAM

License Condition #37

Contamination surveys will be conducted in both the restricted and unrestricted areas at the Crow Butte Plant. The surface contamination program will consist of instrument surveys for removable and fixed alpha and visual inspections for obvious signs of contamination. Frequency for both fixed and removable alpha surveys will be weekly. Visual inspections will be performed on a daily basis.

The limits for surface contamination in the unrestricted areas are those shown in Table 5.7-4 of the Permit Application for the Commercial Source Materials License and are adopted from the USNRC Reg. Guide 8.30, Health Physics Surveys in Uranium Mills. If contamination above the limits listed in Table 5.7-4 is found in the unrestricted areas, decontamination procedures will begin as soon as feasible. The cause of the contamination will be investigated and procedures to prevent future occurrences will be implemented, as necessary.

In areas such as the lunchroom, action levels of 25% of the values listed in Table 5.7-4 will be used. If these action levels are exceeded the area will be closed until it can be properly cleaned. If the action levels are exceeded an investigation will be conducted in an attempt to determine the cause.

In the restricted area any observable yellowcake contamination or instrument survey results greater than 10^{-3} uCi/cm² will result in prompt cleanup actions. Eating, drinking, and smoking will be prohibited in the restricted area. All surveys will be documented and the records retained at the plant.

All equipment and materials to be released to an unrestricted area will also meet the limits shown in Table 5.7-4. Any yellowcake shipments or equipment or materials released to a restricted area will meet all applicable NRC and DOT limits.

TABLE 5.7-4

SURFACE CONTAMINATION LIMITS
FOR NATURAL URANIUM

Total ^(a)	5000 dpm/100 cm ² average 15000 dpm/100 cm ² maximum
Removable	1000 dpm/100 cm ²

(a) The average value may be averaged over an area not to exceed 1 m².
The maximum is over an area not to exceed 100 cm².

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 1 of 6

Sample Number: ~~PH-6~~ 3MI-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	12-82	01-83	04-83	04-83	07-83	10-83
Laboratory	CORE	NRL	NRL	CORE	CORE	CORE

All values in mg/l unless noted

Calcium	4.3	3.2	2.8	2.5	2.59	2.8
Magnesium	0.23	0.17	0.13	0.14	0.20	0.21
Sodium	100*	98	97	97	97	100*
Potassium	9.5*	9	8.7	8.2	8.3	8.6
Carbonate	11.90	14	19	<1	<1	12
Bicarbonate	205	190	180	202	201	197
Sulfate	40*	38	33	38	44*	40*
Chloride	4.6	8	12*	12.3*	12	8.1
Ammonia-N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite-N	0.01	0.22*	0.01	0.02*	0.01	0.02*
Nitrate-N	1.5	0.77	<0.01*	0.9	1.4	1.1
Fluoride	0.5*	0.5	0.4	0.6*	0.4	0.5
Silica (as SiO2)	67*	63	63	63	66	59
TDS-180°C	306	330	310	342	316	319
Conductivity (umhos)	430	431	456	425	460	480*
Alkalinity (as CaCO3)	195*	180	180	176	175	190
pH (standard units)	8.52	8.7*	8.9*	8.47	8.23	8.59
Ion Balance	N/A	1.01	1.03	N/A	1.00	1.00
TDS Balance	N/A	1.30	1.36	N/A	0.95	0.96
Cond. Balance	N/A	1.05	1.01	N/A	1.03	0.99

All values in ug/l unless noted

Aluminum	N/A	<100	<100	<100	<100	100
Arsenic	10	8	8	<10	<5	7
Barium	<100*	<100*	<100	<100	<100	<100
Boron	320*	800*	<500*	140	110	120
Cadmium	<10*	<1	<1	<10*	<1	<1
Chromium	<10*	5	2*	N/A	<5	14*
Cobalt	N/A	<1	<1	<50*	<5	<5
Copper	<10	4*	4*	<10	20*	<10
Iron	90*	<50	<50	<50	<30	110*
Lead	<10*	5	<5	<10*	<5	6*
Manganese	<10*	<100*	<100*	<10*	<5	<5
Mercury	<0.3*	0.2	<0.1*	<0.3*	<0.2	<0.2
Molybdenum	<100*	3*	2*	<100*	<10	<10
Nickel	<50*	<2*	<2*	<50*	<10	<10
Selenium	<10*	<2	2	<10*	2	1
Vanadium	N/A	7*	7*	<100*	<10	<10
Zinc	700*	120	200	220	60	500*
Uranium (as U)	12*	11*	7	4	<1	<1
Radium-226 (pCi/l)	1.1±0.3	9.1*±0.2	6.2*±0.3	1.6±0.3	1.1±0.2	0.3±0.1

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 2 of 6

Sample Number: ~~FM-6~~ SM1-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	01-84	04-84	04-84	12-85	12-82	07-86
Laboratory	CORE	CORE	TETON	ELI	JORDN	ELI
All values in mg/l unless noted						
Calcium	3.3	3	2.3	4.5	4.4	4.3
Magnesium	0.15	1*	0.2	0.21	0.05*	0.2
Sodium	95	100	97	90.7	10	93.1
Potassium	8.7	9	6.7	8.8	10*	8.0
Carbonate	9	24	7.4	0	11	2.9
Bicarbonate	200	171	201.8	204.2	200	210
Sulfate	34	38	39.3	37.6	38	33.9
Chloride	6.9	12	4.8	5.7	9	3.9
Ammonia-N	0.05*	<0.1*	<0.05	<0.05	0.13*	<0.05
Nitrite-N	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
Nitrate-N	1.1	1.3	1.34	1.40	0.46*	1.61
Fluoride	0.5	0.39	0.50	0.46	0.44	0.49
Silica(as SiO2)	65	64.3	51.2*	64.5	69*	65.3
TDS-180°C	330	276*	317	326	363*	334
Conductivity (µmhos)	460	438	430	428	466	444
Alkalinity(as CaCO3)	193*	180	177.8	167.4	182	177
pH (standard units)	8.61	8.6	8.60	8.20	8.78*	8.47
Ion Balance	0.99	1.00	1.00	1.00	NA	1.00
TDS Balance	1.00	1.02	0.98	1.02	NA	1.05
Cond. Balance	0.98	0.95	0.99	1.02	NA	1.00

All values in µg/l unless noted

Aluminum		110*	<100	NA	NA	<100
Arsenic		11	7	9	9	10
Barium		<100	<100	<100	10*	<100
Boron		140	130	110	<10*	<100
Cadmium		2	4*	<1	<0.1	<1
Chromium		<5	12*	<5	3*	<5
Cobalt		<5	<5	NA	NA	NA
Copper		24*	<10	<10	6*	<10
Iron		100*	70*	90*	<10*	<30
Lead		5	<5	<5	<1*	<5
Manganese		<5	6*	<5	<1*	<5
Mercury		0.3*	<0.02*	<0.2	<0.1*	<0.2
Molybdenum		<10	<10	<10	<10	<10
Nickel		<10	<10	<10	<10	<10
Selenium		<1	<1	<1	<1	<1
Vanadium		8*	<10	<10	<10	<10
Zinc		290	170	160	270	150
Uranium (as U)	8	7	5	10	7	7
Radium-226(pCi/l)	0.8±0.2	1.0±0.4	0.71±1.34	5.4*±0.8	1.0±0.1	0.8±0.4

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 3 of 6

Sample Number: ~~FM-6~~ SMI-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	10-86	01-87	04-87	07-87	10-87	01-88
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI
All values in mg/l unless noted						
Calcium	4.9*	4.6	4.5	4.7	4.6	4.7
Magnesium	0.26*	0.19	0.2	0.20	0.19	0.2
Sodium	95.4	91.5	92.4	93.9	102*	97.0
Potassium	7.5	8.1	8.8	9.3	9.5	9.5
Carbonate	8.6	3.8	2.9	0	2.7	2.9
Bicarbonate	195	203	203	222*	222	219
Sulfate	36.5	33.9	35.4	34.4	36.2	34.8
Chloride	4.1	1.9	3.3	3.2	2.9	3.6
Ammonia-N	<0.05	<0.05	0.05	<0.05	<0.05	<0.05
Nitrite-N	<0.01	0.003	0.008	0.002	0.005	0.006
Nitrate-N	1.61	1.76	1.67	1.73	1.67	1.90*
Fluoride	0.44	0.47	0.42	0.32	0.50	0.42
Silica(as SiO2)	65.1	59.5	66.3*	64.2	59.9	62.1
TDS-180°C	300	326	328	362*	350*	324
Conductivity (umhos)	438	449	444	462	447	461
Alkalinity(as CaCO3)	174	166	171	182	186	185
pH (standard units)	8.50	8.48	8.49	8.26	8.42	8.45
Ion Balance	0.98	0.98	0.98	1.00	1.02	0.99
TDS Balance	0.92	1.04	1.02	1.10	1.01	0.97
Cond. Balance	0.96	1.02	1.01	1.02	0.96	0.97

All values in ug/l unless noted

Aluminum	<100	<100	<100	<100	<100	NA
Arsenic	13*	9	4	10	9	9
Barium	<100	<100	<100	<100	<100	<100
Boron	<100	<100	90	80	70	70
Cadmium	<1	1	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	40	<30	<30	<30	<30
Lead	<5	<5	<5	<5	8*	7*
Manganese	<5	<5	<5	<5	<5	<5
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	<10	<5*	<10	<10	<10	<10
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	3	3	4
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	170	170	120	110	100	100
Uranium (as U)	4	13*	10	2	6.2	9.5
Radium-226(pCi/l)	1.7±0.6	<0.1†	0.9±0.4	0.4±0.3	0.9±0.3	<0.2†

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 4 of 6

Sample Number: ~~FM-6~~ SMI-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	04-88	07-88	10-88	02-89	04-89	07-89
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	4.4	4.5	4.9*	4.7	4.6	4.6
Magnesium	0.17	0.22	0.2	0.20	0.17	0.26
Sodium	97.2	94.6	98.7	94.1	92.6	96.0
Potassium	8.7	9.5	10.1*	9.2	9.3	9.2
Carbonate	2.6	3.8	0	0	4.5	0
Bicarbonate	217	217	229*	215	204	220
Sulfate	34.0	30.9	35.5	36.6	35.0	35.7
Chloride	3.9	4.6	4.1	4.1	3.7	3.7
Ammonia-N	<0.05	0.06*	<0.05	<0.05	0.06*	0.06*
Nitrite-N	0.005	0.007	0.005	0.005	0.006	0.004
Nitrate-N	1.71	1.68	1.79	1.63	1.88*	1.80*
Fluoride	0.42	0.46	0.36	0.42	0.37	0.39
Silica(as SiO ₂)	62.1	53.5*	49.2*	64.2	62.1	62.1
TDS-180°C	320	302	324	306	304	314
Conductivity (µmhos)	463	420	467	453	444	449
Alkalinity(as CaCO ₃)	182	184	188	176	175	180
pH (standard units)	8.42	8.58	8.29	8.10	8.68	8.00
Ion Balance	0.98	1.00	0.99	0.99	0.99	0.98
TDS Balance	0.97	0.95	0.99	0.93	0.94	0.95
Cond. Balance	0.97	0.98	1.02	1.01	1.02	1.05

All values in µg/l unless noted

Aluminum	<100	<100	<100	<100	<100	<100
Arsenic	10	8	8	9	13*	9
Barium	<100	<100	<100	<100	<100	<100
Boron	80	70	80	90	90	90
Cadmium	<1	<1	2	<1	<1	2
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	40	40	40	<30
Lead	<5	<5	<5	<5	<5	<5
Manganese	<5	<5	<5	<5	<5	<5
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	<10	10	<10	10	<10	<10
Nickel	<10	<10	<10	<10	<10	<10
Selenium	3	2	2	<1	3	2
Vanadium	10	10	10	10	<10	<10
Zinc	170	120	110	110	90	140
Uranium (as U)	8.5	9.4	10.4	7.8	7.1	6.9
Radium-226(mCi/l)	1.0±0.5	<0.2±	1.2±2.8	2.1±0.2	0.4±0.3	2.4±1.1

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 5 of 6

Sample Number: ~~PH-5~~ SM1-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	07-87	10-89	01-90	04-90
Laboratory	WAMCO	ELI	ELI	ELI
All values in mg/l unless noted				
Calcium	7*	4.5	4.6	4.0
Magnesium	4*	0.2	0.24	0.23
Sodium	96	100	99	97.1
Potassium	7	9.4	8.4	9.4
Carbonate	24	3.5	5.0	0
Bicarbonate	190	221	221	235*
Sulfate	24*	35.5	34.9	34.0
Chloride	13*	3.5	4.1	3.3
Ammonia-N	<0.05	0.05	<0.05	0.05
Nitrite-N	<.001	0.019*	0.001	0.007
Nitrate-N	1.69	1.52	1.75	1.66
Fluoride	0.57*	0.43	0.50	0.4
Silica(as SiO2)	62	64.2	62.1	59.
TDS-180°C	302	336	330	322
Conductivity (umhos)	540*	483*	461	470
Alkalinity(as CaCO3)	19*	187	190	192
pH (standard units)	8.18	8.54	8.69	8.40
Ion Balance	1.03	0.97	1.00	1.01
TDS Balance	0.91	0.99	0.98	0.96
Cond. Balance	0.96	1.02	1.05	1.01

All values in µg/l unless noted

Aluminum		<100	<100	<100
Arsenic	<5	10	9	8
Barium	<100	<100	<100	<100
Boron	0.41*	90	90	90
Cadmium	<1	<1	<1	<1
Chromium	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA
Copper	<10	<10	<10	<10
Iron	<30	30	40	40
Lead	<5	<5	<5	<5
Manganese	<5	<5	<5	<5
Mercury	<0.2	<0.2	<0.2	<0.2
Molybdenum	<10	<10	<10	<10
Nickel	<10	<10	10	<10
Selenium	5	3	3	3
Vanadium	<10	<10	<10	<10
Zinc	<10	130	100	120
Uranium (as U)	2	8.6	7	7
Radium-226(pCi/l)	1.6±0.4	0.2±0.2	0.2±0.2	0.6±0.9

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 6 of 6

Sample Number: PM-6 SM1-1
Sample Type: MONITOR WELL
Formation: BRULE

Surface Elevation: 3869.5 ft. MSL
Well Depth: 217 ft.
Distance from Wellfield: 0 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
All values in mg/l unless noted				
Calcium	2.3	4.9	3.996	.859
Magnesium	0.13	0.26	.196	.03
Sodium	90.7	100	96.012	2.65
Potassium	6.7	9.5	8.672	.764
Carbonate	<1	24	8.068	6.972
Bicarbonate	171	222	204.36	13.094
Sulfate	30.9	39.3	35.754	1.941
Chloride	1.9	12	5.16	2.683
Ammonia-N	<0.05	<0.05	.05	0
Nitrite-N	<.001	0.01	6E-03	3E-03
Nitrate-N	0.77	1.79	1.491	.286
Fluoride	0.32	0.5	.436	.051
Silica (as SiO2)	59	66	62.818	2.033
TDS @ 20°C	300	342	319.5	11.905
Conductivity (µmhos)	420	470	447.84	14.727
Alkalinity (as CaCO3)	166	192	180.128	6.81
pH (standard units)	8.00	8.69	8.443	.167
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum	<100	<100	100	0
Arsenic	4	11	8.44	1.734
Barium	<100	<100	100	0
Boron	70	140	96.818	20.791
Cadmium	<0.1	2	1.088	.397
Chromium	5	5	5	0
Cobalt	<1	<5	3.667	2.066
Copper	<10	<10	10	0
Iron	<30	<50	35.714	7.464
Lead	5	5	5	0
Manganese	<5	<5	5	0
Mercury	0.2	0.2	.2	0
Molybdenum	<10	<10	10	0
Nickel	<10	<10	10	0
Selenium	1	5	2.08	1.115
Vanadium	<10	<10	10	0
Zinc	<10	290	140.4	60.723
Uranium (as U)	<1	10.4	6.536	2.794
Radium-226 (pCi/l)	<0.1	2.4	.9	.616

**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	SM1-2	SM1-2	SM1-2		
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25989	90-29552	90-29840		Deviation

MAJOR IONS mg/l:

Ca	8.2	5.9	5.3	6.47	± 1.53
Mg	<1.0	<1.0	<1.0	<1.00	± 0.00
Na	140	150	148	146.00	± 5.29
K	14.0	15.0	15.8	14.93	± 0.90
CO ₃	16.2	14.1	8.6	12.97	± 3.92
HCO ₃	259	260	262	260.33	± 1.53
SO ₄	59.2	60	60.0	59.73	± 0.46
Cl	31.0	37.9	41.3	36.73	± 5.25
NH ₄	0.15	<0.05	<0.05	± 0.08	± 0.06
NO ₂	<0.01	<0.01	<0.01	<0.01	± 0.00
NO ₃	0.64	0.45	0.62	0.57	± 0.10
F	0.89	0.93	1.15	0.99	± 0.14
SiO ₂	89.9	94.2	82.7	88.93	± 5.81
TDS @ 180 C	448	496	501	481.67	± 29.26
Cond (umho/cm)	710	739	693	714.00	± 23.26
Dilute Cond (umho/cm)	777	776	770	774.33	± 3.79
Alk - CaCO ₃	240	237	229	235.33	± 5.69
pH (std units)	9.13	9.07	8.85	9.02	± 0.15

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.073	0.078	0.074	0.075	± 0.003
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.13	0.13	0.21	0.16	± 0.05
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	0.05	<0.05	± 0.00
Pb	<0.05	<0.05	0.05	<0.05	± 0.00
Mn	<0.01	<0.01	0.01	<0.01	± 0.00
Hg	<0.001	<0.001	0.001	<0.001	± 0.000
Mo	<0.10	<0.10	0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	0.007	0.007	0.007	0.007	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.09	0.17	0.24	0.17	± 0.08

RADIOMETRIC:

U (mg/l)	0.0027	0.0103	0.0040	0.0057	± 0.0041
Ra226 (pCi/l)	2.6	2.3	0.5	1.80	± 1.14
Ra Prec. ±	0.4	0.4	0.3	0.37	± 0.06

QUALITY ASSURANCE DATA:

Anion meq:	6.99	7.13	7.10		
Cation meq:	6.97	7.31	7.17		
A/C Balance:	1.002	0.975	0.991		
Calc TDS mg/l:	493	511	497		
TDS A/C Bal:	0.908	0.970	1.007		
Calc Dil. Cond.:	738	766	753		
Dil. Cond. Bal:	1.053	1.013	1.023		



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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT

Sample I.D.:	SM1-3	SM1-3	SM1-3	Mean	Standard Deviation
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-25999	90-29553	90-29834		

MAJOR IONS mg/l:

Ca	7.4	5.8	7.9	7.03	± 1.10
Mg	<1.0	<1.0	<1.0	<1.00	± 0.00
Na	142	148	148	146.00	± 3.46
K	19.0	19.0	23.8	20.60	± 2.77
CO3	24.6	19.8	14.7	19.70	± 4.95
HCO3	227	231	225	227.67	± 3.06
SO4	43.0	41.4	42.3	42.23	± 0.80
Cl	55.0	72.3	82.6	69.97	± 13.95
NH4	<0.05	<0.05	<0.05	<0.05	± 0.00
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	1.15	0.84	1.31	1.10	± 0.24
F	0.50	0.51	0.62	0.54	± 0.07
SiO2	77.0	79.2	64.2	73.47	± 8.10
TDS @ 180 C	483	486	501	490.00	± 9.64
Cond (umho/cm)	664	778	783	741.67	± 67.31
Dilute Cond (umho/cm)	801	817	850	822.67	± 24.99
Alk - CaCO3	228	223	210	220.33	± 9.29
pH (std units)	9.37	9.27	9.15	9.20	± 0.11

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.012	0.013	0.013	0.013	± 0.001
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	<0.10	<0.10	0.12	±0.11	± 0.01
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	0.02	0.02	±0.02	± 0.01
Fe	<0.05	0.05	0.06	±0.05	± 0.01
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	0.006	0.006	0.007	0.006	± 0.001
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.30	0.37	0.53	0.40	± 0.12

RADIOMETRIC:

U (mg/l)	0.0055	0.0077	0.0070	0.0067	± 0.0011
Ra226 (pCi/l)	7.8	1.4	2.1	3.77	± 3.51
Ra Prec. ±	0.6	0.3	0.5	0.47	± 0.15

QUALITY ASSURANCE DATA:

Anion meq:	7.10	7.43	7.51		
Cation meq:	7.15	7.33	7.51		
A/C Balance:	0.993	1.014	1.000		
Calc TDS mg/l:	489	507	504		
TDS A/C Bal:	0.988	0.959	0.995		
Calc Dil. Cond.:	777	810	827		
Dil. Cond. Bal:	1.030	1.009	1.028		

**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	CM1-1	CM1-1	CM1-1		
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25991	90-29545	90-29838		Deviation

MAJOR IONS mg/l:

Ca	16.0	17.0	18.3	17.10	± 1.15
Mg	4.2	4.3	4.5	4.33	± 0.15
Na	410	430	414	418.00	± 10.58
K	13.0	13.0	9.7	11.90	± 1.91
CO3	3.4	5.5	4.8	4.57	± 1.07
HCO3	358	337	330	341.67	± 14.57
SO4	375	369	351	365.00	± 12.49
Cl	189	224	234	215.67	± 23.63
NH4	0.29	0.30	0.23	0.27	± 0.04
NO2	<0.01	0.01	<0.01	≤0.01	± 0.00
NO3	0.02	<0.01	<0.01	≤0.01	± 0.01
F	0.57	0.65	0.70	0.64	± 0.07
SiO2	16.7	17.5	15.9	16.70	± 0.80
TDS @ 180 C	1115	1252	1209	1192.00	± 70.06
Cond (umho/cm)	1987	2107	2044	2046.00	± 60.02
Dilute Cond (umho/cm)	2174	2280	2255	2236.33	± 55.41
Alk - CaCO3	299	286	279	288.00	± 10.15
pH (std units)	8.31	8.55	8.50	8.45	± 0.13

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.87	0.89	0.92	0.89	± 0.03
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	0.01	0.01	0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.0034	0.0039	0.0070	0.0048	± 0.0020
Ra226 (pCi/l)	10.2	9.9	10.0	10.03	± 0.15
Ra Prec. ±	0.6	0.7	0.9	0.73	± 0.15

QUALITY ASSURANCE DATA:

Anion meq:	19.15	19.74	19.51		
Cation meq:	19.35	20.27	19.57		
A/C Balance:	0.990	0.974	0.997		
Calc TDS mg/l:	1208	1250	1218		
TDS A/C Bal:	0.923	1.002	0.992		
Calc Dil. Cond.:	2202	2305	2255		
Dil. Cond. Bal:	0.987	0.989	1.000		



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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-2	CM1-2	CM1-2	Mean	Standard Deviation
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-30-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-25990	90-29546	90-29839		

MAJOR IONS mg/l.

Ca	15.0	15.0	17.2	15.74	± 1.28
Mg	4.2	4.3	4.4	4.30	± 0.10
Na	410	410	390	403.33	± 11.55
K	12.0	12.0	9.4	11.13	± 1.50
CO3	0	5.3	5.4	3.57	± 3.09
HCO3	362	351	352	355.00	± 6.08
SO4	345	346	338	343.00	± 4.36
Cl	193	189	179	187.00	± 7.21
NH4	0.29	0.32	0.24	0.28	± 0.04
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.08	<0.01	<0.01	≤0.03	± 0.04
F	0.57	0.60	0.70	0.62	± 0.07
SiO2	16.7	18.0	14.8	16.50	± 1.61
TDS @ 180 C	1149	1170	1145	1154.67	± 13.43
Cond (umho/cm)	1975	1996	1394	1955.00	± 53.86
Dilute Cond (umho/cm)	2161	2160	2066	2135.67	± 43.02
Alk - CaCO3	297	297	298	297.33	± 0.58
pH (std units)	8.29	8.51	8.52	8.44	± 0.13

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.87	0.90	0.96	0.91	± 0.05
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	0.01	0.01	0.02	0.01	± 0.01
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	<0.01	0.02	0.01	≤0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.0261	0.0196	0.0280	0.0246	± 0.0044
Ra226 (pCi/l)	8.5	17.9	4.7	10.37	± 6.80
Ra Prec. ±	0.7	1.8	0.6	1.03	± 0.67

QUALITY ASSURANCE DATA:

Anion meq:	18.59	18.50	18.07		
Cation meq:	19.27	19.28	18.46		
A/C Balance:	0.965	0.959	0.979		
Calc TDS mg/l:	1178	1176	1136		
TDS A/C Bal:	0.975	0.995	1.008		
Calc Dil. Cond.:	2154	2154	2080		
Dil. Cond. Bal:	1.003	1.003	1.003		

FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-3	CM1-3	CM1-3		
Sample Date:	10-15-90	10-31-90	11-15-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25988	90-29550	90-29836		Deviation

MAJOR IONS mg/l:

Ca	16.0	16.0	17.6	16.53	± 0.92
Mg	4.0	3.9	4.3	4.07	± 0.21
Na	400	400	395	398.33	± 2.89
K	11.0	11.0	15.8	12.60	± 2.77
CO3	9.4	5.0	5.3	6.57	± 2.46
HCO3	315	353	356	341.33	± 22.85
SO4	349	364	334	349.00	± 15.00
Cl	189	193	186	189.33	± 3.51
NH4	0.34	0.37	0.36	0.36	± 0.02
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.02	<0.01	0.02	≤0.02	± 0.01
F	0.62	0.62	0.72	0.65	± 0.06
S102	14.6	15.2	12.8	14.20	± 1.25
TDS @ 180 C	1163	1180	1145	1162.67	± 17.50
Cond (umho/cm)	1969	1996	1898	1954.33	± 50.62
Dilute Cond (umho/cm)	2155	2160	2135	2150.00	± 13.23
Alk - CaCO3	274	298	301	291.00	± 14.80
pH (std units)	8.81	8.49	8.51	8.60	± 0.18

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.85	0.87	0.89	0.87	± 0.02
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	0.01	0.01	0.01	0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.03	0.02	0.02	0.02	± 0.01

RADIOMETRIC:

U (mg/l)	<0.0003	0.0009	0.0010	≤0.0007	± 0.0004
Ra226 (pCi/l)	17.9	13.4	9.7	13.67	± 4.11
Ra Prec. ±	1.6	1.6	1.0	1.40	± 0.35

QUALITY ASSURANCE DATA:

A.ion meq:	18.11	19.01	18.25		
Cation meq:	18.85	18.84	18.86		
A/C Balance:	0.961	1.009	0.968		
Calc TDS mg/l:	1152	1186	1150		
TDS A/C Bal:	1.010	0.995	0.995		
Calc Dil. Cond.:	2123	2169	2115		
Dil. Cond. Bal:	1.015	0.996	1.010		

**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	CM1-4	CM1-4	CM1-4	Mean	Standard Deviation
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-25998	90-29544	90-29831		

MAJOR IONS mg/l:

Ca	15.0	16.0	16.4	15.80	± 0.72
Mg	3.5	3.8	4.1	3.80	± 0.30
Na	400	420	399	406.33	± 11.85
K	11.0	12.0	14.4	12.47	± 1.75
CO3	3.9	5.6	5.6	5.03	± 0.98
HCO3	350	348	352	353.00	± 5.57
SO4	360	352	340	350.67	± 10.07
Cl	193	213	220	208.67	± 14.01
NH4	0.27	0.33	0.36	0.32	± 0.05
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.03	<0.01	<0.01	±0.02	± 0.01
F	0.62	0.60	0.70	0.64	± 0.05
SiO2	16.1	16.7	13.2	15.33	± 1.87
TDS @ 180 C	1151	1246	1200	1199.00	± 47.51
Cond (umho/cm)	1781	2063	2059	1967.67	± 161.67
Dilute Cond (umho/cm)	2149	2232	2155	2178.67	± 46.29
Alk - CaCO3	301	295	298	298.00	± 3.00
pH (std units)	8.37	8.54	8.54	8.48	± 0.10

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.87	0.90	0.93	0.90	± 0.03
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	0.01	±0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	0.02	0.02	0.02	± 0.01

RADIOMETRIC:

U (mg/l)	0.0337	0.0275	0.0310	0.0307	± 0.0031
Ra226 (pCi/l)	358	486	351	398.33	± 76.00
Ra Prec. ±	8.3	10.5	7.2	8.67	± 1.68

QUALITY ASSURANCE DATA:

Anion meq:	18.99	19.26	19.28		
Cation meq:	18.75	19.73	18.92		
A/C Balance:	1.013	0.976	1.019		
Calc TDS mg/l:	1183	1214	1190		
TDS A/C Bal:	0.973	1.026	1.008		
Calc Dil. Cond.:	2160	2235	2197		
Dil. Cond. Bal:	0.995	0.999	0.981		



ENERGY LABORATORIES, INC.

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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-5	CM1-5	CM1-5		
Sample Date:	10-15-90	10-31-90	11-15-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25987	90-29551	90-29837		Deviation

MAJOR IONS mg/l:

Ca	9.2	8.7	12.7	10.20	± 2.18
Mg	2.9	3.0	3.9	3.27	± 0.55
Na	500	490	466	485.33	± 17.47
K	19.0	23.0	25.7	22.57	± 3.37
CO3	0	10.9	6.2	5.70	± 5.47
HCO3	375	303	336	338.00	± 36.04
SO4	374	347	351	357.33	± 14.57
Cl	330	361	298	329.67	± 31.50
NH4	0.30	0.26	0.27	0.28	± 0.02
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.02	<0.01	<0.01	<0.01	± 0.01
F	0.52	0.60	0.78	0.63	± 0.13
SiO2	14.3	14.6	13.3	14.07	± 0.68
TDS @ 180 C	1372	1396	1337	1368.33	± 29.67
Cond (umho/cm)	2448	2553	2124	2375.00	± 223.62
Dilute Cond (umho/cm)	2679	2762	2551	2664.00	± 106.30
Alk - CaCO3	307	267	286	286.67	± 20.01
pH (std units)	8.16	8.89	8.60	8.55	± 0.37

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.80	0.83	1.02	0.88	± 0.12
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	<0.01	0.03	0.01	±0.02	± 0.01

RADIOMETRIC:

U (mg/l)	0.0515	0.0446	0.0690	0.0550	± 0.0126
Ra226 (pCi/l)	128	203	213	181.33	± 46.46
Ra Prec. ±	2.5	6.0	4.9	4.47	± 1.79

QUALITY ASSURANCE DATA:

Anion meq:	23.26	22.76	21.46		
Cation meq:	22.97	22.61	21.92		
A/C Balance:	1.013	1.006	0.979		
Calc TDS mg/l:	1438	1411	1346		
TDS A/C Bal:	0.954	0.989	0.993		
Calc Dil. Cond.:	2685	2674	2524		
Dil. Cond. Bal:	0.998	1.033	1.011		



ENERGY LABORATORIES, INC.

P. O. BOX 325A - CASPER, WY 82602 - PHONE (307) 235-0515
 254 NORTH CENTER SUITE 100 - CASPER, WY 82601 - FAX (307) 234-1439

FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-6	CM1-6	CM1-6		
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90	Mean	Standard Deviation
Laboratory I.D. #:	90-26000	90-29543	90-29830		

MAJOR IONS mg/l:

Ca	18.0	18.0	20.9	18.97	± 1.67
Mg	4.7	4.6	5.0	4.77	± 0.21
Na	390	380	380	383.33	± 5.77
K	12.0	11.0	12.0	11.67	± 0.58
CO3	0	5.3	4.6	3.30	± 2.88
HCO3	377	361	364	367.33	± 8.50
SO4	355	345	332	344.00	± 11.53
Cl	186	193	193	190.67	± 4.04
NH4	0.29	0.31	0.33	0.31	± 0.02
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.04	0.01	0.01	0.02	± 0.02
F	0.57	0.57	0.70	0.61	± 0.08
SiO2	15.4	15.2	13.0	14.53	± 1.33
TDS @ 180 C	1129	1193	1150	1157.33	± 32.62
Cond (umho/cm)	1740	1964	1937	1880.33	± 122.28
Dilute Cond (umho/cm)	2100	2125	2110	2111.67	± 12.58
Alk - CaCO3	309	305	306	306.67	± 2.08
pH (std units)	8.28	8.50	8.44	8.41	± 0.11

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.88	0.87	0.90	0.88	± 0.02
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	0.01	≤0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	0.02	0.03	0.02	± 0.01

RADIOMETRIC:

U (mg/l)	0.0055	0.0024	0.0070	0.0050	± 0.0023
Ra226 (pCi/l)	19.4	15.4	12.9	15.90	± 3.28
Ra Prec. ±	0.9	1.8	1.2	1.30	± 0.46

QUALITY ASSURANCE DATA:

Anion meq:	18.85	18.75	18.51		
Cation meq:	18.59	18.12	18.33		
A/C Balance:	1.014	1.035	1.010		
Calc TDS mg/l:	1171	1154	1144		
TDS A/C Bal:	0.964	1.034	1.005		
Calc Dil. Cond.:	2132	2111	2102		
Dil. Cond. Bal:	0.985	1.006	1.004		



ENERGY LABORATORIES, INC.

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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-7	CM1-7	CM1-7		
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90	Mean	Standard Deviation
Laboratory I.D. #:	90-25996	90-29542	90-29833		

MAJOR IONS mg/l:

Ca	16.0	16.0	17.6	16.53	± 0.92
Mg	4.1	4.0	4.6	4.23	± 0.32
Na	400	390	388	392.67	± 6.43
K	13.0	11.0	12.8	12.27	± 1.10
CO3	0	5.6	4.4	3.33	± 2.95
HCO3	370	355	356	360.33	± 8.39
SO4	357	348	329	344.67	± 14.29
Cl	186	186	193	188.33	± 4.04
NH4	0.26	0.37	0.33	0.32	± 0.06
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.03	<0.01	0.03	≤0.02	± 0.01
F	0.64	0.60	0.75	0.66	± 0.08
SiO2	16.9	16.7	14.7	16.10	± 1.22
TDS @ 180 C	1124	1207	1150	1160.33	± 42.45
Cond (umho/cm)	1747	1966	1934	1882.33	± 118.29
Dilute Cond (umho/cm)	2109	2127	2110	2115.33	± 10.12
Alk - CaCO3	303	300	299	300.67	± 2.08
pH (std units)	8.15	8.53	8.43	8.37	± 0.20

TRACE METALS µg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.001	<0.001	<0.001	≤0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.90	0.90	1.01	0.94	± 0.06
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	0.01	≤0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	0.03	0.02	0.02	± 0.01

RADIOMETRIC:

U (mg/l)	0.0302	0.0134	0.0300	0.0245	± 0.0096
Ra226 (pCi/l)	88.5	122	91.9	100.80	± 18.44
Ra Prec. ±	3.5	4.7	3.2	3.80	± 0.79

QUALITY ASSURANCE DATA:

Anion meq:	18.78	18.53	18.32		
Cation meq:	18.90	18.41	18.50		
A/C Balance:	0.994	1.006	0.990		
Calc TDS mg/l:	1179	1156	1144		
TDS A/C Bal:	0.953	1.044	1.006		
Calc Dil. Cond.:	2106	2111	2100		
Dil. Cond. Bal:	0.983	1.007	1.005		

**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	CM1-8	CM1-8	CM1-8		
Sample Date:	10-16-90	10-31-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25995	90-29541	90-29832		Deviation

MAJOR IONS mg/l:

Ca	15.0	10.0	10.1	11.70	± 2.86
Mg	2.5	1.6	2.1	2.07	± 0.45
Na	400	390	397	395.67	± 5.13
K	14.0	13.0	15.2	14.07	± 1.10
CO ₃	7.9	12.6	8.3	9.60	± 2.61
HCO ₃	335	335	291	320.33	± 25.40
SO ₄	361	321	343	341.67	± 20.03
Cl	182	196	186	188.00	± 7.21
NH ₄	0.26	0.24	0.30	0.27	± 0.03
NO ₂	<0.01	<0.01	<0.01	<0.01	± 0.00
NO ₃	0.06	0.01	<0.01	≤0.03	± 0.03
F	0.64	0.70	0.81	0.72	± 0.09
SiO ₂	17.8	18.2	15.0	17.00	± 1.74
TDS @ 180 C	1142	1185	1133	1153.33	± 27.79
Cond (umho/cm)	1748	1923	1889	1853.33	± 92.79
Dilute Cond (umho/cm)	2110	2081	2038	2076.33	± 36.23
Alk - CaCO ₃	288	296	253	279.00	± 22.87
pH (std units)	8.71	8.91	8.79	8.80	± 0.10

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.002	0.002	0.002	0.002	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.88	0.84	1.02	0.91	± 0.09
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	0.01	≤0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	0.01	0.01	0.01	± 0.00

RADIOMETRIC:

U (mg/l)	0.0089	0.0094	0.0090	0.0091	± 0.0003
Ra226 (pCi/l)	~	1.8	9.6	4.97	± 4.10
Ra Prec. ±	0.4	0.4	1.1	0.63	± 0.40

QUALITY ASSURANCE DATA:

Anion meq:	18.44	18.16	17.48
Cation meq:	18.74	17.96	18.37
A/C Balance:	0.984	1.011	0.951
Calc TDS mg/l:	1169	1131	1124
TDS A/C Bal:	0.977	1.048	1.008
Calc Dil. Cond.:	2134	2076	2066
Dil. Cond. Bal:	0.989	1.003	0.987



ENERGY LABORATORIES, INC.

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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-9	CM1-9	CM1-9	Mean	Standard Deviation
Sample Date:	10-16-90	10-31-90	11-16-90		
Report Date:	11-30-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-25993	90-29549	90-29848		

MAJOR IONS mg/l:

Ca	18.0	17.0	18.5	17.83	± 0.76
Mg	4.6	4.4	5.2	4.73	± 0.42
Na	390	400	388	392.67	± 6.43
K	12.0	12.0	11.8	11.93	± 0.12
CO3	0	4.5	5.7	3.40	± 3.00
HCO3	372	353	354	359.67	± 10.69
SO4	365	354	352	357.00	± 7.00
Cl	176	189	186	183.67	± 6.81
NH4	0.31	0.34	0.30	0.32	± 0.02
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.05	<0.01	<0.01	≤0.02	± 0.02
F	0.62	0.60	0.78	0.67	± 0.10
SiO2	17.3	18.4	15.2	16.97	± 1.63
TDS @ 180 C	1160	1183	1145	1162.67	± 19.14
Cond (umho/cm)	1946	1994	2023	1987.67	± 38.89
Dilute Cond (umho/cm)	2129	2158	2135	2140.67	± 15.31
Alk - CaCO3	305	297	300	300.67	± 4.04
pH (std units)	8.14	8.44	8.54	8.37	± 0.21

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.001	0.001	<0.001	≤0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.93	0.92	0.81	0.89	± 0.07
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	0.01	≤0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	0.02	0.01	0.02	± 0.01

RADIO-METRIC:

U (mg/l)	0.0213	0.0249	0.0260	0.0241	± 0.0025
Ra226 (pCi/l)	218	182	196	198.63	± 18.15
Ra Prec. ±	5.5	5.7	4.6	5.27	± 0.59

QUALITY ASSURANCE DATA:

Anion meq:	18.70	18.67	18.61		
Cation meq:	18.59	18.96	18.57		
A/C Balance:	1.006	0.995	1.002		
Calc TDS mg/l:	1170	1177	1161		
TDS A/C Bal:	0.991	1.005	0.986		
Calc Dil. Cond.:	2122	2150	2125		
Dil. Cond. Bal:	1.003	1.004	1.005		



ENERGY LABORATORIES, INC.

P. O. BOX 3258 · CASPER WY 82602 · PHONE (307) 235-0515
254 NORTH CENTER SUITE 100 · CASPER WY 82601 · FAX (307) 234-1639FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-10	CM1-10	CM1-10		
Sample Date:	10-16-90	10-31-90	11-16-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25992	90-29548	90-29845		Deviation

MAJOR IONS mg/l:

Ca	15.0	14.0	16.4	15.13	± 1.21
Mg	3.1	3.0	3.8	3.30	± 0.44
Na	420	480	420	440.00	± 34.64
K	13.0	13.0	12.8	12.93	± 0.12
CO3	6.6	8.4	6.3	7.10	± 1.14
HCO3	357	289	336	327.33	± 34.82
SO4	358	334	340	344.00	± 12.49
Cl	210	324	255	263.00	± 57.42
NH4	0.29	0.35	0.33	0.32	± 0.03
NO2	<0.01	<0.01	0.02	≤0.01	± 0.01
NO3	0.11	<0.01	<0.01	≤0.04	± 0.06
F	0.59	0.57	0.78	0.65	± 0.12
SiO2	17.3	19.3	15.7	17.43	± 1.80
TDS @ 180 C	1167	1329	1225	1240.33	± 82.08
Cond (umho/cm)	2031	2342	2098	2157.00	± 163.68
Dilute Cond (umho/cm)	2222	2534	2227	2327.67	± 178.71
Alk - CaCO3	304	251	286	280.33	± 26.95
pH (std units)	8.60	8.80	8.61	8.67	± 0.11

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.90	0.92	1.00	0.94	± 0.05
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	0.02	<0.01	≤0.01	± 0.01
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	0.04	<0.01	≤0.02	± 0.02

RADIOMETRIC:

U (mg/l)	0.0165	0.0197	0.0260	0.0207	± 0.0048
Ra226 (pCi/..)	28.1	24.6	14.9	22.53	± 6.84
Ra Prec. ±	1.2	2.1	1.1	1.47	± 0.55

QUALITY ASSURANCE DATA:

Anion meq:	19.49	21.13	20.03		
Cation meq:	19.64	22.20	19.77		
A/C Balance:	0.992	0.952	1.013		
Calc TDS mg/l:	1223	1342	1240		
TDS A/C Bal:	0.954	0.991	0.988		
Calc Dil. Cond.:	2244	2532	2303		
Dil. Cond. Bal:	0.990	1.001	0.967		

FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	CM1-11	CM1-11	CM1-11		
Sample Date:	10-16-90	10-31-90	11-16-90		
Report Date:	11-30-90	11-23-90	11-30-90	Mean	Standard Deviation
Laboratory I.D. #:	90-25994	90-29547	90-29844		

MAJOR IONS mg/l:

Ca	15.0	16.0	20.4	17.13	± 2.87
Mg	3.6	4.1	4.6	4.10	± 0.50
Na	390	410	385	395.00	± 13.23
K	12.0	13.0	12.6	12.53	± 0.50
CO3	0	6.1	5.3	3.80	± 3.32
HCO3	338	322	345	335.00	± 11.79
SO4	380	379	360	373.00	± 11.27
Cl	186	189	186	187.00	± 1.73
NH4	0.24	0.28	0.33	0.28	± 0.05
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.02	<0.01	<0.01	±0.01	± 0.01
F	0.64	0.62	0.72	0.66	± 0.05
SiO2	18.0	18.4	14.7	17.03	± 2.03
TDS @ 180 C	1137	1198	1135	1173.33	± 32.13
Cond (umho/cm)	1941	2015	1919	1958.33	± 50.29
Dilute Cond (umho/cm)	2174	2180	2210	2171.33	± 43.65
Alk - CaCO3	277	274	292	281.00	± 9.64
pH (std units)	8.11	8.49	8.52	8.37	± 0.23

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.001	<0.001	<0.001	±0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.91	0.91	0.92	0.91	± 0.01
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	<0.01	0.02	±0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.0343	0.0228	0.0510	0.0360	± 0.0142
Ra226 (pCi/l)	19.0	18.8	15.7	17.83	± 1.85
Ra Prec. ±	0.9	1.0	1.1	1.00	± 0.10

QUALITY ASSURANCE DATA:

Anion meq:	18.73	18.74	18.61		
Cation meq:	18.35	19.34	18.51		
A/C Balance:	1.021	0.969	1.006		
Calc TDS mg/l:	1175	1198	1163		
TDS A/C Bal:	0.968	1.000	1.019		
Calc Dil. Cond.:	2130	2190	2128		
Dil. Cond. Bal:	0.997	0.995	1.039		

WELLS USED TO ESTABLISH RESTORATION PARAMETERS

Well Number	Formation	Dates Sampled	Number of Analyses
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PT-5	Chadron	1985	4
PT-9	Chadron	1982-1984	7
PM-1	Chadron	1982-1990	25
PM-4	Chadron	1982-1990	25
PM-5	Chadron	1985-1990	19
IJ-6	Chadron	1990	3
IJ-13	Chadron	1990	3
IJ-25	Chadron	1990	3
IJ-28	Chadron	1990	3
IJ-45	Chadron	1990	3
PR-15	Chadron	1990	3
PR-19	Chadron	1990	3

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Sample Number: PT-5
Sample Type: INJECTION/RECOVERY WELL
Formation: CHADRON

Surface Elevation: 3862 EST. ft.
Well Depth: 670 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	11-85	11-85	11-85	12-85
Laboratory	ELI	WAMCO	ELI	ELI

All values in mg/l unless noted

Calcium	5.7	7	9.4	10.8
Magnesium	1.4	3	2.38	2.6
Sodium	499	492	445	423
Potassium	14.1	17	15.8	14.8
Carbonate	13.6	24	9.4	22.6
Bicarbonate	293.6	269	334.8	323.7
Sulfate	343	290	341	348
Chloride	371	395	266	234
Ammonia-N	0.38	0.57	0.38	0.22
Nitrite-N	<.001	0.001	<.001	<.001
Nitrate-N	0.03	<0.05	0.07	<0.01
Fluoride	0.64	0.99	0.70	0.66
Silica(as SiO2)	10.1	12.05	12.5	11.0
TDS-180°C	1388	1420	1226	1172
Conductivity (µmhos)	2249	2400	1992	1903
Alkalinity(as CaCO3)	263.4	260	290.1	303.0
pH (standard units)	8.72	8.36	8.52	8.54
on Balance	1.02	1.00	1.00	1.02
TDS Balance	0.99	1.04	0.96	0.95
Cond. Balance	1.01	1.05	0.98	0.96

All values in µg/l unless noted

Aluminum	NA	NA	NA	NA
Arsenic	2	<10	<1	<1
Barium	<100	<100	<100	<100
Boron	720	930	870	1020
Cadmium	<1	1	<1	<1
Chromium	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA
Copper	<10	<10	<10	<10
Iron	<30	<30	<30	<30
Lead	<5	<5	<5	<5
Manganese	<5	<10	8	<5
Mercury	<0.2	<0.2	<0.2	<0.2
Molybdenum	10	<10	10	20
Nickel	<10	<10	<10	<10
Selenium	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10
Zinc	20	83	20	<10
Uranium (as U)	81	88	100	79
Radium-226(pCi/l)	408.2±7.9	260±19	612±9.9	591±11.5

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Sample Number: PT-5
Sample Type: INJECTION/RECOVERY WELL
Formation: CHADRON

Surface Elevation: 3862 EST. ft. M
Well Depth: 670 ft.
Distance from Wellfield: 0 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
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All values in mg/l unless noted

Calcium	5.7	10.8	8.225	2.301
Magnesium	1.4	3	2.345	.68
Sodium	423	499	464.75	36.737
Potassium	14.1	17	15.425	1.261
Carbonate	9.4	24	17.4	7.048
Bicarbonate	268	334.8	305.025	30.203
Sulfate	290	348	330.5	27.16
Chloride	234	395	316.5	78.505
Ammonia-N	0.22	0.57	.388	.143
Nitrite-N	<.001	<.001	1E-03	0
Nitrate-N	<0.01	0.07	.04	.026
Fluoride	0.64	0.99	.748	.164
Silica(as SiO2)	10.1	12.5	11.413	1.077
TDS-180°C	1172	1420	1301.5	121.099
Conductivity (µmhos)	1903	2400	2136	229.122
Alkalinity(as CaCO3)	260	303.0	279.125	20.845
pH (standard units)	8.36	8.72	8.535	.147
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum				
Arsenic	<1	<10	3.5	4.359
Barium	<100	<100	100	0
Boron	720	1020	885	126.095
Cadmium	<1	<1	1	0
Chromium	<5	<5	5	0
Cobalt				
Copper	<10	<10	10	0
Iron	<30	<30	30	0
Lead	<5	<5	5	0
Manganese	<5	<10	7	2.449
Mercury	<0.2	<0.2	.2	0
Molybdenum	10	20	12.5	5
Nickel	<10	<10	10	0
Selenium	<1	<1	1	0
Vanadium	<10	<10	10	0
Zinc	<10	87	33.25	33.3
Uranium (as U)	79	100	87	3.467
Radium-226(ppb/l)	260	312	467.8	166.037

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Sample Number: FI-9
Sample Type: R&D BASELINE WELL
Formation: CHADRON

Surface Elevation: 3866.6 ft. MSL
Well Depth: 680.2 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date	12-82	01-83	04-83	07-83	10-83	01-84
Laboratory	JORDN	NRL	CORE	CORE	CORE	CORE
All values in mg/l unless not'd						
Calcium	17	15	14	12	12	10
Magnesium	2.8	2.5	2	1.57	2.1	1.91
Sodium	408	390	420	400	400	420
Potassium	13	13	12	15	15	13
Carbonate	23	17	<1	<1	16	15
Bicarbonate	353	350	379	365	357	361
Sulfate	355	350	353	367	337	367
Chloride	190	180	184.8	190	184.4	181
Ammonia-N	0.82	0.40	0.45	0.41	0.18	0.26
Nitrite-N	<0.01	<0.01	0.01	<0.01	0.01	<0.01
Nitrate-N	<0.01	<0.01	<0.1	0.1	<0.1	<0.1
Fluoride	0.69	0.7	0.7	0.5	0.6	0.7
Silica (as SiO ₂)	13	14	21	17	15	17
TDS-180°C	1240	1200	1162	1156	1157	1185
Conductivity (µmhos)	1900	1820	1590	1970	1970	1990
Alkalinity (as CaCO ₃)	327	320	323	310	331	336
H (standard units)	8.82	8.8	8.41	8.29	8.56	8.65
on Balance	0.99	1.02	N/A	0.99	1.01	1.00
TDS Balance	1.03	1.11	N/A	0.97	1.00	0.98
Cond. Balance	1.01	1.00	N/A	1.01	1.00	1.04

All values in µg/l unless noted

Aluminum	N/A	100	<100	<100	300	
Arsenic	14	7	<10	<5	<5	
Barium	100	<100	<100	<100	<100	
Boron	990	700	960	860	1000	
Cadmium	<0.1	<1	<10	<1	<1	
Chromium	<1	<1	N/A	<5	<5	
Cobalt	N/A	<1	<50	<5	<5	
Copper	4	5	<10	<10	<10	
Iron	20	<50	<50	<30	90	
Lead	<1	<5	20	<5	<5	
Manganese	8	<100	<10	<5	6	
Mercury	<0.1	<0.1	<0.3	<0.2	<0.2	
Molybdenum	50	75	<100	<10	10	
Nickel	<10	<2	<50	<10	<10	
Selenium	<1	<2	<10	<1	1	
Vanadium	30	25	<100	30	30	
Zinc	8	<5	40	<10	<10	
Uranium (as U)	441	390	305	280	254	229
Uranium-226 (pCi/l)	602±2	207±5.0	491±4.5	369±3.2	543±7	267±4

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Sample Number: PT-9
Sample Type: R&D BASELINE WELL
Formation: CHADRON

Surface Elevation: 3868.6 ft. MSL
Well Depth: 680.2 ft.
Distance from Wellfield: 0 ft.

SAMPLE RESULTS

Sample date 04-84
Laboratory CORE
All values in mg/l unless noted

Calcium	11
Magnesium	2
Sodium	416
Potassium	13
Carbonate	24
Bicarbonate	341
Sulfate	333
Chloride	196
Ammonia-N	0.58
Nitrite-N	<0.01
Nitrate-N	<0.1
Fluoride	0.60
Silica(as SiO2)	16.0
TDS-180°C	1134
Conductivity (µmhos)	1820
Alkalinity(as CaCO3)	320
pH (standard units)	8.7
Ion Balance	1.02
TDS Balance	0.98
Cond. Balance	0.96

All values in µg/l unless noted

Aluminum	130
Arsenic	<1
Barium	<100
Boron	1150
Cadmium	<1
Chromium	<5
Cobalt	<5
Copper	17
Iron	37
Lead	<5
Manganese	<5
Mercury	0.3
Molybdenum	41
Nickel	<10
Selenium	<1
Vanadium	30
Zinc	21
Uranium (as U)	229
Radium-226(pCi/l)	46±7

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Sample Number: PT-9
Sample Type: R&D BASELINE WELL
Formation: CHADRON

Surface Elevation: 3868.6 ft. MSL
Well Depth: 680.2 ft.
Distance from Wellfield: 0 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
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All values in mg/l unless noted

Calcium	10	17	13	2.449
Magnesium	1.57	2.8	2.126	.405
Sodium	390	420	407.714	11.572
Potassium	12	15	13.429	1.134
Carbonate	<1	24	13.857	9.424
Bicarbonate	341	379	358	12.097
Sulfate	333	367	351.714	13.225
Chloride	180	196	186.6	5.693
Ammonia-N	0.18	0.82	.443	.211
Nitrite-N	<0.01	<0.01	.01	0
Nitrate-N	<0.01	<0.1	.074	.044
Fluoride	0.6	0.7	.656	.052
Silica(as SiO ₂)	13	21	16.143	2.61
TDS-180°C	1134	1240	1176.286	35.293
Conductivity (µmhos)	1590	1990	1865.714	140.577
Alkalinity(as CaCO ₃)	310	336	323.857	8.474
pH (standard units)	8.29	8.82	8.604	.198
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum	100	300	146	87.063
Arsenic	<1	14	7	4.517
Barium	100	100	100	0
Boron	700	1150	943.333	151.349
Cadmium	<0.1	<10	2.35	3.765
Chromium	<1	<5	3.4	2.191
Cobalt	<1	<50	13.2	20.645
Copper	4	17	9.333	4.633
Iron	20	90	46.167	24.417
Lead	<1	20	6.833	6.646
Manganese	<5	<100	22.333	38.098
Mercury	<0.1	<0.3	.2	.089
Molybdenum	<10	<100	47.667	35.702
Nickel	<2	<50	15.333	17.282
Selenium	<1	10	2.667	3.615
Vanadium	25	<100	40.833	29.055
Zinc	<5	40	15.667	13.095
Uranium (as U)	229	441	304	82.15
Radium-226(pCi/l)	297	602	420.429	146.263

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Sample Number: PM-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3877.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE RESULTS

Sample date	12-82	01-83	04-83	07-83	10-83	01-84
Laboratory	JORDN	NRL	CORE	CORE	CORE	CORE
All values in mg/l unless noted						
Calcium	17	13	12	14	12	11
Magnesium	2.9	2.2	1.9	2.17	2.5	2.8
Sodium	417	410	440	410	420	420
Potassium	13	16	18	17	18	16
Carbonate	13	12	<1	<1	12	5
Bicarbonate	368	370	376	374	378	387
Sulfate	358	380	361	365	351	363
Chloride	208	210	215.1	199	193.7	188
Ammonia-N	0.48	0.28	0.39	0.25	0.10	0.17
Nitrite-N	0.02	<0.01	0.01	<0.01	<0.01	<0.01
Nitrate-N	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1
Fluoride	0.67	0.6	0.7	0.8	0.5	0.5
Silica(as SiO ₂)	15	14	14	16	14	15
TDS-180°C	1260	1200	1226	1199	1223	1200
Conductivity (µmhos)	1940	1930	1825	1970	2040	2000
Alkalinity(as CaCO ₃)	324	330	320	321	339	342
pH (standard units)	8.61	8.7	8.42	8.25	8.42	8.35
Ion Balance	0.99	1.07	N/A	1.00	1.02	1.00
TDS Balance	1.03	1.19	N/A	0.99	1.01	0.99
Cond. Balance	1.02	1.01	N/A	0.98	0.98	1.04

All values in µg/l unless noted

Aluminum	N/A	<100	<100	<100	<100	
Arsenic	1	<2	<10	<5	<5	
Barium	50	<100	<100	<100	<100	
Boron	990	800	960	850	1060	
Cadmium	<0.1	<1	<10	<1	<1	
Chromium	<1	<1	N/A	<5	<5	
Cobalt	N/A	<1	<50	<5	<5	
Copper	5	5	<10	<10	<10	
Iron	20	<50	<50	<30	<30	
Lead	<1	<5	<10	<5	<5	
Manganese	4	<100	<10	<5	<5	
Mercury	<0.1	<0.1	<0.3	<0.2	<0.2	
Molybdenum	20	24	<100	<10	<10	
Nickel	<10	<2	<50	<10	<10	
Selenium	<1	<2	<10	<1	<1	
Vanadium	<10	6	<100	<10	<10	
Zinc	12	<5	<10	<10	<10	
Uranium (as U)	85	81	54	33	36	34
Sodium-226(pCi/l)	99±1	47.6±1.0	43.4±1.4	50.7±1.5	40±1.0	45±1.0

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Sample Number: PM-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3677.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE RESULTS

Sample date	04-84	12-85	07-86	10-86	01-87	04-87
Laboratory	CORE	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	12	14.8	15.4	15.1	16.6	16.5
Magnesium	3	3.3	4.1	3.3	3.7	4.1
Sodium	419	393	397	387	398	388
Potassium	15	11.7	10.5	9.6	9.8	11.7
Carbonate	12	3.3	0	0	0	4.2
Bicarbonate	378	357.2	371	363	357	339
Sulfate	330	354	363	332	363	368
Chloride	194	180	176	182	187	173
Ammonia-N	0.71	0.20	0.39	0.39	0.42	0.45
Nitrite-N	<0.01	<0.01	<0.01	<0.01	0.002	0.01
Nitrate-N	<0.1	<0.01	0.01	0.03	0.01	0.01
Fluoride	0.48	0.57	0.66	0.62	0.65	0.58
Silica(as SiO2)	16.5	14.2	13.4	13.1	12.1	12.8
TDS-180°C	1168	1154	1186	1134	1178	1146
Conductivity (µmhos)	1830	1853	1844	1881	1886	1881
Alkalinity(as CaCO3)	330	298.3	304	297	292	285
pH (standard units)	8.2	8.38	8.15	8.17	8.22	8.43
Ion Balance	1.03	1.00	1.00	1.00	1.00	1.00
TDS Balance	1.00	1.00	1.02	1.01	1.01	1.00
Cond. Balance	1.03	0.98	1.05	1.00	0.99	0.99

All values in µg/l unless noted

Aluminum	170	NA	<100	<100	<100	<100
Arsenic	<4	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	1040	1030	900	910	920	960
Cadmium	2	<1	<1	<1	<1	<1
Chromium	5	<5	<5	<5	<5	<5
Cobalt	<5	NA	NA	NA	NA	NA
Copper	10	<10	<10	<10	<10	<10
Iron	90	<30	<30	<30	<30	<30
Lead	<5	<5	<5	<5	9	<5
Manganese	<5	7	7	7	8	8
Mercury	0.3	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	20	20	20	10	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	1	<1	<1	<1
Vanadium	7	<10	<10	<10	<10	<10
Zinc	20	<10	110	200	180	180
Uranium (as U)	41	35	51	20	106	32
Radium-226(pCi/l)	62±0	144.2±3.9	144.9±4.4	163.5±4.9	148.7±3.8	152.9±3.6

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Sample Number: PM-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3877.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE RESULTS

Sample date	07-87	10-87	01-88	04-88	07-88	10-88
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI
All values in mg/l unless noted						
Calcium	13.3	13.1	15.4	14.4	15.2	14.7
Magnesium	4.2	3.8	4.1	3.9	3.8	3.2
Sodium	413	406	397	390	398	388
Potassium	11.5	11.8	11.6	11.0	11.6	11.7
Carbonate	0	0	0	4.2	0	0
Bicarbonate	373	380	380	362	376	361
Sulfate	348	357	348	358	363	353
Chloride	203	181	185	175	182	181
Ammonia-N	0.41	0.43	0.44	0.42	0.42	0.35
Nitrite-N	0.003	0.005	0.005	0.006	0.006	0.005
Nitrate-N	0.02	<0.01	0.02	<0.01	0.01	0.01
Fluoride	0.75	0.75	0.79	0.62	0.63	0.56
Silica(as SiO ₂)	12.8	12.4	12.8	12.8	10.7	9.8
TDS-180°C	1176	1180	1124	1128	1136	1102
Conductivity (µmhos)	1847	1795	1883	1921	1927	1936
Alkalinity(as CaCO ₃)	306	312	312	304	308	296
pH (standard units)	8.13	8.17	8.07	8.40	8.32	7.96
Ion Balance	0.99	0.99	1.00	1.01	1.01	1.01
TDS Balance	0.99	1.00	0.97	0.90	0.97	0.96
Cond. Balance	1.01	1.01	1.05	1.00	1.00	0.99

All values in µg/l unless noted

Aluminum	<100	<100	NA	<100	<100	<100
Arsenic	<1	<1	<1	<1	<1	1
Barium	<100	<100	<100	<100	<100	<100
Boron	910	890	910	960	770	870
Cadmium	<1	<1	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	40	<30	<30	<30
Lead	<5	<5	<5	<5	7	<5
Manganese	9	<5	9	7	8	9
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	20	20	20	20	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	150	130	120	110	120	120
Uranium (as U)	33	49.9	52.5	38.4	34.0	52.2
Radium-226(pCi/l)	142.5±3.3	147.0±2.9	171±3.5	167±9.6	185±19.7	179±21.4

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

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Sample Number: PH-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3877.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE RESULTS

Sample date	02-89	04-89	07-89	10-89	01-90	04-90
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	17.0	16.0	16.0	14.7	15.6	16.6
Magnesium	4.3	3.9	4.2	4.3	4.2	4.2
Sodium	390	393	396	404	395	396
Potassium	11.4	11.0	12.5	15.3	11.6	11.5
Carbonate	0	0	0	0	0	0
Bicarbonate	365	363	376	376	383	387
Sulfate	363	358	371	350	344	341
Chloride	180	179	176	183	181	180
Ammonia-N	0.38	0.42	0.43	0.43	0.39	0.49
Nitrite-N	0.006	0.004	0.004	0.065	0.001	0.008
Nitrate-N	0.05	0.01	0.01	0.13	0.01	0.13
Fluoride	0.62	0.56	0.58	0.57	0.80	0.57
Silica (as SiO ₂)	13.1	12.4	12.2	13.1	13.1	12.0
TDS-180°C	1082	1086	1097	1142	1116	1089
Conductivity (µmhos)	1839	1843	1878	1868	1948	1920
Alkalinity (as CaCO ₃)	299	298	308	308	314	317
pH (standard units)	8.00	8.29	7.70	8.16	8.27	7.86
Ion Balance	1.01	1.00	1.01	0.98	1.00	0.99
TDS Balance	0.93	0.94	0.93	0.97	0.96	0.94
Cond. Balance	1.02	1.00	1.05	1.01	1.03	1.00

All values in µg/l unless noted

Aluminum	<100	<100	<100	<100	<100	<100
Arsenic	<1	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	960	950	920	960	930	900
Cadmium	<1	<1	1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	30	<30	<30	<30	<30	<30
Lead	<5	<5	<5	<5	<5	<5
Manganese	10	10	10	10	11	11
Mercury	<0.2	<0.2	0.5	<0.2	<0.2	<0.2
Molybdenum	30	40	30	<10	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	140	130	140	180	150	170
Uranium (as U)	48.2	35.9	57.0	47.5	42	4.4
Radium-226 (pCi/l)	183±2.9	139.3±2.6	162±6.0	17±4.6	154±4.8	148.7±4.5

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CROW BUTTE PROJECT
WATER QUALITY REPORT

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Sample Number: PM-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3877.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE RESULTS

Sample date 07-90
Laboratory ELI
All values in mg/l unless noted

Calcium	15.8
Magnesium	4.2
Sodium	397
Potassium	12.2
Carbonate	0
Bicarbonate	359
Sulfate	351
Chloride	179
Ammonia-N	0.28
Nitrite-N	<0.01
Nitrate-N	<0.10
Fluoride	0.68
Silica(as SiO2)	12.7
TDS-180°C	1166
Conductivity (µmhos)	1950
Alkalinity(as CaCO3)	294
pH (standard units)	7.96
Ion Balance	0.98
TDS Balance	1.01
Cond. Balance	1.04

All values in µg/l unless noted

Aluminum	<100
Arsenic	<1
Barium	<100
Boron	930
Cadmium	<1
Chromium	<5
Cobalt	NA
Copper	<10
Iron	<30
Lead	<5
Manganese	12
Mercury	<0.2
Molybdenum	20
Nickel	<10
Selenium	<1
Vanadium	<10
Zinc	<10
Uranium (as U)	68.4
Radium-226(pCi/l)	116±4.4

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
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Sample Number: PM-1
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3677.1 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 220 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
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All values in mg/l unless noted

Calcium	11	17	14.688	1.725
Magnesium	1.9	4.3	3.531	.753
Sodium	387	440	402.48	13.172
Potassium	9.6	18	12.84	2.492
Carbonate	<1	13	6.77	4.897
Bicarbonate	339	387	370.368	11.046
Sulfate	330	380	355.72	11.466
Chloride	173	215.1	186.832	11.706
Ammonia-N	0.10	0.71	.381	.12
Nitrite-N	<.001	0.065	.01	.012
Nitrate-N	<0.01	0.13	.044	.046
Fluoride	0.48	0.8	.632	.093
Silica (as SiO ₂)	9.8	16.5	13.2	1.47
TDS-180°C	1082	1260	1155.92	47.602
Conductivity (µmhos)	1795	2040	1897.4	59.122
Alkalinity (as CaCO ₃)	285	342	310.332	14.754
pH (standard units)	7.70	8.7	8.224	.226
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum	<100	170	103.333	15.275
Arsenic	1	<10	1.875	2.133
Barium	50	<100	97.917	10.206
Boron	770	1060	928.333	67.481
Cadmium	<0.1	<10	1.379	1.858
Chromium	<1	<5	4.652	1.152
Cobalt	<1	<50	13.2	20.645
Copper	5	<10	9.583	1.412
Iron	20	90	34.167	13.486
Lead	<1	<10	5.292	1.601
Manganese	4	<100	11.958	18.883
Mercury	<0.1	0.5	.212	.074
Molybdenum	<10	<100	23.5	17.597
Nickel	<1	<50	11.333	8.396
Selenium	<1	<10	1.417	1.84
Vanadium	5	<100	13.458	18.46
Zinc	5	200	100.292	68.756
Strontium (as Sr)	4.4	1.6	51.093	20.694
Radium-226 (pCi/l)	40	196	119.103	50.781

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Sample Number: PM-4
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE RESULTS

Sample date	12-82	01-83	04-83	07-83	10-83	01-84
Laboratory	JORDN	NRL	CORE	CORE	CORE	CORE

All values in mg/l unless noted

Calcium	16	14	15	14	14	14
Magnesium	3.5	3.3	3.1	2.85	3	3.4
Sodium	408	390	410	390	400	410
Potassium	11	11	10.2	11	13	14
Carbonate	0	14	<1	<1	<1	<1
Bicarbonate	386	360	379	370	399	385
Sulfate	359	370	358	360	347	362
Chloride	187	170	170.3	186	186.9	187
Ammonia-N	0.49	0.46	0.37	0.30	0.06	0.19
Nitrite-N	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Nitrate-N	0.02	<0.01	<0.1	<0.1	<0.1	<0.1
Fluoride	0.66	0.6	0.7	0.4	0.5	0.6
Silica(as SiO2)	18	14	16	16	16	16
TDS-180°C	1250	1100	1106	1209	1170	1175
Conductivity (µmhos)	1820	1790	1599	1880	1980	1950
Alkalinity(as CaCO3)	316	320	322	317	337	328
pH (standard units)	8.26	8.6	8.05	8.09	6.3	8.24
Ion Balance	1.01	1.04	N/A	0.98	1.00	1.00
TDS Balance	1.04	1.22	N/A	1.04	0.99	0.98
Cond. Balance	1.01	1.01	N/A	0.97	1.02	0.99

All values in µg/l unless noted

Aluminum	N/A	<100	<100	<100	<100	
Arsenic	1	<2	<10	<5	<5	
Barium	30	<100	<100	<100	<100	
Boron	1000	500	1000	870	1010	
Cadmium	<0.1	<1	<10	<1	<1	
Chromium	<1	<1	N/A	<5	<5	
Cobalt	N/A	<1	<50	<5	<5	
Copper	4	4	<10	<10	<10	
Iron	30	<50	<50	30	30	
Lead	<1	<5	<10	<5	<5	
Manganese	14	<100	<10	10	5	
Mercury	<0.1	<0.1	<0.3	<0.2	<0.2	
Molybdenum	20	23	<100	<10	<10	
Nickel	<10	<2	<50	<10	<10	
Selenium	<1	<2	<10	<1	2	
Vanadium	20	3	<100	<10	<10	
Zinc	19	5	<10	<10	10	
Uranium (as U)	36	29	12	19	10	23
Uranium-226(pCi/l)	71±1	51.4±1.1	35.1±1.2	60±1.4	35±1.0	44±1.0

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WATER QUALITY REPORT

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Sample Number: PM-4
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE RESULTS

Sample date	04-84	12-85	07-86	10-86	01-87	04-87
Laboratory	CORE	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	14	16.1	12.1	15.3	16.6	15.9
Magnesium	3	3.3	3.2	3.1	3.7	4.0
Sodium	408	393	404	399	395	392
Potassium	12	11.3	10.2	9.2	9.9	12.0
Carbonate	0	1.4	0	0	0	3.9
Bicarbonate	390	364.9	371	361	358	338
Sulfate	333	360	344	338	360	362
Chloride	196	178	182	186	186	173
Ammonia-N	0.48	0.26	0.43	0.43	0.46	0.47
Nitrite-N	<0.01	<.001	<0.01	<0.01	0.002	0.007
Nitrate-N	<0.1	<0.01	0.01	<0.01	0.01	<0.01
fluoride	0.56	0.68	0.72	0.68	0.70	0.70
Silica(as SiO2)	16.3	11.0	13.3	13.0	11.7	12.8
TDS-180°C	1104	1120	1172	1118	1174	1144
Conductivity (µmhos)	1790	1818	1867	1881	1879	1881
Alkalinity(as CaCO3)	320	301.4	304	296	293	284
pH (standard units)	8.1	8.32	8.09	8.07	8.20	8.40
Ion Balance	1.01	1.01	0.98	0.98	1.00	1.01
TDS Balance	0.95	0.97	1.02	0.98	1.01	1.05
Cond. Balance	0.97	0.96	1.00	0.97	1.03	0.98

All values in µg/l unless noted

Aluminum	120	NA	<100	<100	<100	<100
Arsenic	<4	<1	<1	<1	<1	1
Barium	<100	<100	<100	<100	<100	<100
Boron	1040	1050	910	930	910	990
Cadmium	<1	<1	<1	<1	<1	<1
Chromium	5	<5	<5	<5	<5	<5
Cobalt	<5	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<1	<10
Iron	44	<30	<30	<30	<3	<30
Lead	<5	<5	<5	<5	<5	<5
Manganese	7	<12	10	11	10	11
Mercury	0.3	<0.2	0.3	<0.2	<0.2	<0.2
Molybdenum	21	20	20	20	16	20
Nickel	10	<10	<10	<10	<10	<10
Selenium	<1	<1	4	<1	<1	<1
Vanadium	7	<10	<10	<10	<10	<10
Zinc	52	<10	150	230	230	210
Uranium (as U)	18	25	19	6	23	17
Radium-226 (pCi/l)	5±2	92.6±5.0	70.1±5.0	45.8±5.7	66.3±2.0	70.8 ±2.3

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Sample Number: FM-4
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE RESULTS

Sample date	07-87	10-87	01-88	04-88	07-88	10-88
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	16.9	13.6	15.4	16.8	15.3	14.5
Magnesium	4.4	3.50	3.9	3.5	4.1	3.0
Sodium	395	415	399	383	398	404
Potassium	11.5	11.5	11.2	11.0	11.2	11.9
Carbonate	0	0	0	3.9	0	0
Bicarbonate	376	378	376	363	376	383
Sulfate	360	366	360	346	365	356
Chloride	186	194	196	176	187	186
Ammonia-N	0.43	0.44	0.46	0.46	0.45	0.43
Nitrite-N	0.006	0.002	0.004	0.005	0.006	0.005
Nitrate-N	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Fluoride	0.42	0.70	0.54	0.64	0.69	0.56
Silica(as SiO2)	12.8	12.8	12.8	12.8	10.7	9.8
TDS-180°C	1158	1244	1126	1068	1132	1150
Conductivity (µmhos)	1872	1814	1890	1908	1926	1948
Alkalinity(as CaCO3)	308	310	308	304	308	314
pH (standard units)	8.18	8.08	8.07	8.37	8.30	7.85
Ion Balance	1.01	1.00	1.02	1.01	1.02	1.01
TDS Balance	0.99	1.03	0.95	0.94	0.96	0.98
Cond. Balance	1.03	0.98	1.03	1.04	0.99	0.99

All values in µg/l unless noted

Aluminum	<100	<100	NA	<100	<100	<100
Arsenic	<1	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	950	940	930	980	790	890
Cadmium	<1	<1	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	<30	<30	<30	<30
Lead	<5	<5	<5	7	6	<5
Manganese	11	<5	11	8	9	10
Mercury	<0.2	<0.2	<0.2	<0.2	0.2	<0.2
Molybdenum	20	<10	20	20	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	180	140	110	87	90	90
Uranium (as U)	5	8.1	13.0	7.7	10.2	14.6
Radium-226(pCi/l)	86.5±2.6	74.2±2.2	60.9±2.5	60.3±2.7	83.5±13.0	120±12.5

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WATER QUALITY REPORT

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Sample Number: PM-4
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE RESULTS

Sample date	02-89	04-89	07-89	10-89	01-90	04-90
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI
All values in mg/l unless noted						
Calcium	16.6	16.0	16.5	15.2	14.8	16.6
Magnesium	3.50	3.9	4.0	4.4	3.9	3.6
Sodium	396	392	406	390	402	396
Potassium	11.4	11.0	12.4	15.2	11.5	11.4
Carbonate	0	0	0	0	0	0
Bicarbonate	371	363	373	379	384	387
Sulfate	361	350	371	339	347	331
Chloride	178	171	180	180	183	177
Ammonia-N	0.41	0.43	0.48	0.48	0.42	0.49
Nitrite-N	0.006	0.007	0.004	0.039	0.001	0.004
Nitrate-N	0.03	0.02	0.01	0.01	0.02	0.09
Fluoride	0.66	0.58	0.63	0.60	0.80	0.66
Silica(as SiO ₂)	12.8	12.4	12.6	12.6	12.6	11.8
TDS-180°C	1100	1126	1111	1138	1158	1176
Conductivity (µmhos)	1858	1849	1864	1876	1931	1950
Alkalinity(as CaCO ₃)	304	297	306	310	315	317
pH (standard units)	8.00	8.28	7.80	8.18	8.26	7.90
Ion Balance	1.00	0.98	0.99	0.99	0.99	0.98
TDS Balance	0.94	0.99	0.93	0.99	0.99	1.03
Conc. Balance	1.01	1.04	1.00	1.04	1.01	1.02

All values in µg/l unless noted

Aluminum	<100	<100	<100	<100	<100	<100
Arsenic	<1	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	980	970	970	950	940	980
Cadmium	1	<1	1	1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	<30	<30	<30	<30
Lead	<5	<5	<5	<5	<5	<5
Manganese	11	11	11	11	11	12
Mercury	<0.2	0.2	0.4	<0.2	<0.2	<0.2
Molybdenum	30	20	30	20	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	90	90	90	110	100	100
Uranium (as U)	11.4	23.1	3.0	9.1	9	11
Radium-226(pCi/l)	13.5±2.2	66.5±1.8	70.6±4.7	74.4±3.3	63.4±7.1	57.0±1.7

FERRAT EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

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Sample Number: PM-4
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE RESULTS

Sample date 07-90
Laboratory ELI
All values in mg/l unless noted

Calcium	17.2
Magnesium	4.2
Sodium	391
Potassium	12.8
Carbonate	0
Bicarbonate	362
Sulfate	350
Chloride	179
Ammonia-N	0.30
Nitrite-N	<0.01
Nitrate-N	<0.10
Fluoride	0.70
Silica(as SiO ₂)	12.5
TDS-180°C	1174
Conductivity (µmhos)	1950
Alkalinity(as CaCO ₃)	297
pH (standard units)	8.02
Ion Balance	0.99
TDS Balance	1.02
Cond. Balance	1.04

All values in µg/l unless noted

Aluminum	<100
Arsenic	<1
Barium	<100
Boron	970
Cadmium	<1
Chromium	<5
Cobalt	NA
Copper	10
Iron	<30
Lead	<5
Manganese	12
Mercury	<0.2
Molybdenum	20
Nickel	<10
Selenium	<1
Vanadium	<10
Zinc	<10
Uranium (as U)	15.0
Radium-226(pCi/l)	51.8±5.0

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Sample Number: PM-A
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3862.5 ft. MSL
Well Depth: 674 ft.
Distance from Wellfield: 300 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
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All values in mg/l unless noted

Calcium	12.1	17.2	15.296	1.283
Magnesium	2.85	4.4	3.574	.458
Sodium	383	415	398.64	7.942
Potassium	9.2	15.2	11.552	1.258
Carbonate	<1	14	3.4	4.471
Bicarbonate	338	399	373.316	12.893
Sulfate	331	371	354.2	11.098
Chloride	170	196	182.448	7.371
Ammonia-N	0.06	0.49	.403	.105
Nitrite-N	<.001	0.039	8E-03	7E-03
Nitrate-N	<0.01	<0.1	.037	.04
Fluoride	0.4	0.80	.627	.093
Silica(as SiO2)	9.8	18	13.324	1.983
TDS-180°C	1068	1250	1148.12	44.05
Conductivity (µmhos)	1599	1980	1870.84	76.85
Alkalinity(as CaCO3)	284	337	309.456	11.679
pH (standard units)	7.80	8.6	8.16	.181
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum	<100	120	100.952	4.364
Arsenic	1	<10	1.875	2.133
Barium	30	<100	97.083	14.289
Boron	500	1050	935.417	109.226
Cadmium	<0.1	<10	1.338	1.854
Chromium	<1	<5	4.652	1.152
Cobalt	<1	<50	13.2	20.645
Copper	4	<10	9.5	1.694
Iron	30	<50	32.25	6.166
Lead	<1	<10	5.167	1.404
Manganese	5	<100	13.875	18.463
Mercury	<0.1	0.4	.212	.061
Molybdenum	<10	<100	22.917	17.095
Nickel	<2	<50	11.333	9.396
Selenium	<1	<10	1.593	1.709
Vanadium	5	<100	13.75	19.657
Zinc	5	250	94	72.42
Uranium (as U)	5	10	15.224	7.078
Radium-226 (pCi/l)	35	100	68.944	15.692

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 1 of 5

Sample Number: FM-5
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3860.6 ft. MSL
Well Depth: 695 ft.
Distance from Wellfield: 280 ft.

SAMPLE RESULTS

Sample date	11-85	11-85	11-85	12-85	07-86	10-86
Laboratory	ELI	WAMCO	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	9.8	14	14.1	14.4	13.0	15.2
Magnesium	3.9	5	3.54	3.4	3.4	3.2
Sodium	439	408	416	400	409	396
Potassium	11.5	13	12.7	11.9	10.7	9.5
Carbonate	2.4	19	0	0	0	0
Bicarbonate	351.5	312	374.0	362.5	367	361
Sulfate	355	294	359	348	367	353
Chloride	219	235	205	193	186	182
Ammonia-N	0.64	<0.05	0.62	0.15	0.40	0.40
Nitrite-N	<0.001	0.001	0.002	<0.001	<0.01	<0.01
Nitrate-N	<0.01	<0.05	0.06	<0.01	0.07	<0.01
Fluoride	0.62	0.74	0.71	0.65	0.72	0.64
Silica(as SiO2)	11.1	11.49	10.9	11.0	12.7	12.6
TDS-180°C	1182	1236	1210	1104	1196	1104
Conductivity (µmhos)	1820	1880	1896	1853	1879	1907
Alkalinity(as CaCO3)	292	288	306.5	297.1	301	296
pH (standard units)	8.34	8.26	8.30	8.24	8.05	8.06
on Balance	0.96	1.04	1.00	1.00	1.00	1.00
TDS Balance	0.96	1.08	1.00	0.95	1.01	0.96
Cond. Balance	1.01	1.05	1.01	0.97	1.01	0.96

All values in µg/l unless noted

Aluminum	NA	NA	NA	NA	<100	<100
Arsenic	2	<10	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	890	980	940	1020	880	910
Cadmium	<1	<1	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	80	<30	<30	<30	<30	<30
Lead	<5	<5	9	<5	<5	10
Manganese	5	<10	<5	<5	<5	5
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	20	<10	<10	20	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	<10	115	<10	<10	160	190
Uranium (as U)	53	132	51	37	30	12
adium-226(pCi/l)	301.6±6.4	189±17	285±6.7	299.2±5.7	302.4±6.3	296.2±6.3

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 2 of 5

Sample Number: PM-5
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3858.6 ft. MSL
Well Depth: 695 ft.
Distance from Wellfield: 280 ft.

SAMPLE RESULTS

Sample date	01-87	04-87	07-87	10-87	01-88	04-88
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI
All values in mg/l unless noted						
Calcium	17.0	16.8	17.0	16.0	15.8	17.3
Magnesium	4.0	4.1	4.7	3.8	4.1	3.5
Sodium	395	393	413	394	398	396
Potassium	10.1	12.0	11.8	11.7	11.7	11.4
Carbonate	0	3.8	0	0	0	3.5
Bicarbonate	352	340	376	374	378	367
Sulfate	360	371	400	354	360	346
Chloride	192	175	191	182	180	179
Ammonia-N	0.41	0.43	0.40	0.42	0.42	0.38
Nitrite-N	0.001	0.008	0.005	0.003	0.005	0.004
Nitrate-N	<0.01	0.01	0.01	<0.01	<0.01	<0.01
Fluoride	0.70	0.64	0.40	0.67	0.54	0.60
Silica(as SiO2)	11.6	12.8	12.8	12.8	12.8	12.8
TDS-180°C	1128	1162	1174	1156	1134	1112
Conductivity (µmhos)	1879	1881	1860	1835	1904	1921
Alkalinity(as CaCO3)	288	285	308	307	310	307
pH (standard units)	8.18	8.38	8.07	8.06	8.05	8.32
Ion Balance	1.00	0.99	1.02	1.01	1.00	0.99
TDS Balance	0.97	1.00	0.95	1.00	0.97	0.96
Cond. Balance	1.02	0.98	1.00	0.96	0.97	0.97

All values in µg/l unless noted

Aluminum	<100	<100	<100	<100	NA	<100
Arsenic	<1	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	910	960	920	940	420	980
Cadmium	<1	<1	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	<30	<30	<30	<30
Lead	<5	<5	<5	<5	<5	6
Manganese	6	6	6	6	6	<5
Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	16	20	20	<10	20	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	<1	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	180	180	140	120	90	80
Uranium (as U)	38	27	15	1.7	21.5	22.0
Radium-226(Bq/l)	328.7±4.8	328.7±5.4	323.5±5.0	348.4 ±4.6	477±3.8	352±4.0

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 3 of 5

Sample Number: PM-5
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3866.6 ft. MSL
Well Depth: 695 ft.
Distance from Wellfield: 280 ft.

SAMPLE RESULTS

Sample date	07-88	10-88	02-89	04-89	07-89	10-89
Laboratory	ELI	ELI	ELI	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	17.8	14.7	18.1	15.2	16.2	13.8
Magnesium	4.2	2.9	4.1	3.9	4.2	4.4
Sodium	398	390	395	394	407	390
Potassium	11.4	12.9	11.5	11.3	12.8	15.4
Carbonate	0	0	0	0	0	0
Bicarbonate	378	365	372	359	376	378
Sulfate	371	345	368	354	377	351
Chloride	190	175	173	173	175	180
Ammonia-N	0.42	0.40	0.39	0.40	0.45	0.46
Nitrite-N	0.006	0.005	0.006	0.004	0.005	0.017
Nitrate-N	<0.01	0.11	0.04	0.04	0.01	0.02
Fluoride	0.69	0.58	0.64	0.54	0.60	0.60
Silica(as SiO2)	10.3	9.8	12.4	12.2	12.2	12.2
TDS-180°C	1130	1190	1082	1120	1126	1148
Conductivity (µmhos)	1925	1902	1867	1839	1902	1876
Alkalinity(as CaCO3)	310	299	305	294	308	310
pH (standard units)	8.25	7.96	8.00	8.31	7.88	8.16
Ion Balance	1.02	1.00	1.00	0.98	0.99	1.01
TDS Balance	0.98	1.05	0.93	0.98	0.94	0.99
Cond. Balance	0.98	1.01	1.00	1.02	1.02	1.03

All values in µg/l unless noted

Aluminum	<100	<100	<100	<100	<100	<100
Arsenic	<1	<1	<1	<1	<1	<1
Barium	<100	<100	<100	<100	<100	<100
Boron	770	870	950	930	940	910
Cadmium	<1	3	<1	<1	<1	<1
Chromium	<5	<5	<5	<5	<5	<5
Cobalt	NA	NA	NA	NA	NA	NA
Copper	<10	<10	<10	<10	<10	<10
Iron	<30	<30	<30	<30	<30	<30
Lead	<5	<5	<5	<5	<5	<5
Manganese	<5	5	6	7	7	6
Mercury	<0.2	<0.2	<0.2	0.2	0.3	0.3
Molybdenum	30	30	30	10	30	20
Nickel	<10	<10	<10	<10	<10	<10
Selenium	<1	<1	<1	<1	2	<1
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	80	80	80	90	90	110

Uranium (as U)	24.2	28.0	26.2	33.5	19.5	18.4
Radium-226 (dpm/l)	412±23.6	526±38.6	366±4.9	248±34.1	262±3.3	247±6.9

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 4 of 5

Sample Number: FM-5
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3869.6 ft. MSL
Well Depth: 695 ft.
Distance from Wellfield: 280 ft.

SAMPLE RESULTS

Sample date	01-90	04-90	07-90
Laboratory	ELI	ELI	ELI

All values in mg/l unless noted

Calcium	15.4	17.0	17.1
Magnesium	4.1	4.2	4.3
Sodium	395	393	381
Potassium	11.8	11.7	11.6
Carbonate	3.65	0	0
Bicarbonate	378	387	365
Sulfate	346	341	346
Chloride	178	176	177
Ammonia-N	<0.05	0.45	0.27
Nitrite-N	0.001	0.016	<0.01
Nitrate-N	0.02	0.07	0.10
Iodide	0.60	0.62	0.68
Silica (as SiO ₂)	12.4	12.4	12.7
TDS-180°C	1122	1123	1156
Conductivity (µmhos)	1948	1950	1950
Alkalinity (as CaCO ₃)	316	317	298
pH (standard units)	8.32	7.91	8.04
Ion Balance	1.00	0.99	1.01
TDS Balance	0.98	0.98	1.02
Cond. Balance	1.02	1.01	1.02

All values in µg/l unless noted

Aluminum	<100	<100	<100
Arsenic	<1	<1	<1
Barium	<100	<100	<100
Boron	920	920	970
Cadmium	<1	<1	3
Chromium	<5	<5	<5
Cobalt	NA	NA	NA
Copper	<10	<10	10
Iron	<30	<30	<30
Lead	<5	<5	<5
Manganese	7	7	9
Mercury	<0.2	<0.2	<0.2
Molybdenum	20	20	20
Nickel	<10	<10	<10
Selenium	<1	<1	<1
Vanadium	<10	<10	<10
Zinc	110	90	20
Uranium (as U)	21	21	21.9
Radium-226 (pCi/l)	209±7.2	288.3±5.9	189±5.4

FERRET EXPLORATION CO OF NEBRASKA
CROW BUTTE PROJECT
WATER QUALITY REPORT

Page No. 5 of 5

Sample Number: PM-5
Sample Type: MONITOR WELL
Formation: CHADRON

Surface Elevation: 3868.6 ft. MSL
Well Depth: 695 ft.
Distance from Wellfield: 280 ft.

SAMPLE SUMMARY

PARAMETER	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
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All values in mg/l unless noted

Calcium	9.8	18.1	15.51	1.936
Magnesium	2.9	5	3.95	.497
Sodium	381	439	400	12.219
Potassium	9.5	15.4	11.829	1.176
Carbonate	2.4	19	6.47	7.026
Bicarbonate	312	387	365.381	16.525
Sulfate	294	400	355.524	19.654
Chloride	173	235	186.476	15.924
Ammonia-N	<0.05	0.64	.381	.147
Nitrite-N	<.001	0.017	5E-03	5E-03
Nitrate-N	<0.01	0.11	.033	.032
Fluoride	0.40	0.74	.628	.076
Silica(as SiO2)	9.8	17.8	12	.903
TDS-180°C	1082	1236	1147.381	39.254
Conductivity (µmhos)	1820	1950	1889.23P	37.074
Alkalinity(as CaCO3)	285	317	302.029	9.207
pH (standard units)	7.88	8.38	8.15	.153
Ion Balance				
TDS Balance				
Cond. Balance				

All values in µg/l unless noted

Aluminum	<100	<100	100	0
Arsenic	<1	<10	1.476	1.965
Barium	<100	<100	100	0
Boron	420	1020	901.429	124.255
Cadmium	<1	3	1.19	.602
Chromium	<5	<5	5	0
Cobalt				
Copper	<10	<10	10	0
Iron	<30	80	32.381	10.911
Lead	<5	10	5.476	1.365
Manganese	5	<10	6.143	1.352
Mercury	<0.2	0.3	.21	.03
Molybdenum	<10	30	19.81	6.385
Nickel	<10	<10	10	0
Selenium	<1	2	1.048	.218
Vanadium	<10	<10	10	0
Zinc	<10	190	95.952	57.142
Uranium (as U)	10	100	10.624	28.065
Radium-226(dCi/l)	169	526	337.414	79.246



ENERGY LABORATORIES, INC.

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254 NORTH CENTER SUITE 100 • CASPER, WY 82601 • FAX (307) 234-1639FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	IJ-6	IJ-6	IJ-6	Mean	Standard Deviation
Sample Date:	10-17-90	11-02-90	11-16-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-26004	90-29608	90-29842		

MAJOR IONS mg/l:

Ca	12.0	11.0	15.1	12.70	± 2.14
Mg	2.6	3.0	3.7	3.10	± 0.56
Na	430	430	429	429.67	± 0.58
K	11.0	11.0	11.9	11.30	± 0.52
CO ₃	4.7	6.5	5.7	5.63	± 0.90
HCO ₃	323	336	345	334.67	± 11.06
SO ₄	379	359	358	365.33	± 11.85
Cl	227	203	220	216.67	± 12.34
NH ₄	0.36	0.42	0.45	0.41	± 0.05
NO ₂	<0.01	<0.01	<0.01	<0.01	± 0.00
NO ₃	0.15	<0.01	<0.01	±0.06	± 0.08
F	0.67	0.76	0.78	0.74	± 0.06
SiO ₂	19.0	20.8	16.7	18.83	± 2.06
TDS @ 180 C	1229	1167	1193	1196.33	± 31.13
Cond (umho/cm)	1881	2008	2003	1964.00	± 71.92
Dilute Cond (umho/cm)	2271	2173	2307	2250.33	± 69.35
Alk - CaCO ₃	273	286	292	283.67	± 9.71
pH (std units)	8.50	8.62	8.55	8.56	± 0.06

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.91	0.92	0.89	0.91	± 0.02
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	0.01	0.02	0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.1099	0.1460	0.0690	0.1083	± 0.0385
Ra226 (pCi/l)	161	150	159	156.67	± 5.86
Ra Prec. ±	4.9	4.7	4.2	4.60	± 0.36

QUALITY ASSURANCE DATA:

Anion meq:	19.79	18.96	19.54		
Cation meq:	19.84	19.83	20.07		
A/C Balance:	0.998	0.956	0.974		
Calc TDS mg/l:	1249	1214	1234		
TDS A/C Bal:	0.984	0.961	0.967		
Calc Dil. Cond.:	2291	2222	2274		
Dil. Cond. Bal:	0.991	0.978	1.015		

**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	IJ-13	IJ-13	IJ-13	Mean	Standard
Sample Date:	10-18-90	11-02-90	11-16-90		Deviation
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-29019	90-29607	90-29847		

MAJOR IONS mg/l:

Ca	11.0	7.9	9.5	9.47	± 1.55
Mg	3.0	2.2	3.1	2.77	± 0.49
Na	405	410	390	401.67	± 10.41
K	11.0	11.0	9.7	10.57	± 0.75
CO3	4.1	7.4	5.2	5.57	± 1.68
HCO3	342	286	315	314.67	± 28.50
SO4	368	366	341	358.33	± 15.04
Cl	189	193	189	190.33	± 2.31
NH4	0.37	0.37	0.31	0.35	± 0.03
NO2	<0.01	<0.01	<0.01	≤0.01	± 0.00
NO3	0.05	0.02	<0.01	≤0.03	± 0.02
F	0.59	0.82	0.78	0.73	± 0.12
SiO2	19.7	25.7	20.7	22.03	± 3.21
TDS @ 180 C	1140	1118	1120	1129.00	± 17.35
Cond (umho/cm)	2014	1903	2006	1974.33	± 61.91
Dilute Cond (umho/cm)	2179	2059	2138	2125.33	± 60.99
Alk - CaCO3	288	247	267	267.33	± 20.50
pH (std units)	8.41	8.75	8.55	8.57	± 0.17

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.004	0.005	0.004	0.004	± 0.001
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.92	0.92	0.97	0.94	± 0.03
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	<0.01	0.01	≤0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.1992	0.2833	0.2410	0.2412	± 0.0420
Ra226 (pCi/l)	854	413	432	566.17	± 249.44
Ra Prec. ±	12.0	7.8	7.0	8.93	± 2.69

QUALITY ASSURANCE DATA:

Anion meq:	18.79	18.04	17.81		
Cation meq:	18.74	18.74	17.98		
A/C Balance:	1.003	0.963	0.990		
Calc TDS mg/l:	1184	1168	1127		
TDS A/C Bal:	0.970	0.957	0.993		
Calc Dil. Cond.:	2151	2125	2055		
Dil. Cond. Bal:	1.013	0.969	1.041		



ENERGY LABORATORIES, INC.

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FERRÉT EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	IJ-25	IJ-25	IJ-25	Mean	Standard Deviation
Sample Date:	10-17-90	11-02-90	11-16-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-29018	90-29606	90-29846		

MAJOR IONS mg/l:

Ca	10.0	5.8	10.4	8.73	± 2.55
Mg	2.9	2.0	2.6	2.50	± 0.46
Na	400	410	397	402.33	± 6.81
K	13.0	13.0	12.3	12.77	± 0.40
CO3	4.0	6.0	7.3	5.77	± 1.66
HCO3	321	277	322	306.67	± 25.70
SO4	367	371	343	360.33	± 15.14
Cl	203	213	197	204.33	± 8.08
NH4	0.32	0.55	0.29	0.39	± 0.14
NO2	<0.01	<0.01	0.03	≤0.02	± 0.01
NO3	0.33	0.02	0.05	0.13	± 0.17
F	0.61	0.70	0.78	0.70	± 0.09
SiO2	21.2	25.7	21.9	22.93	± 2.42
TDS @ 180 C	1116	1133	1128	1125.67	± 8.74
Cond (umho/cm)	2016	1961	1933	1970.00	± 42.23
Dilute Cond (umho/cm)	2181	2122	2035	2112.67	± 73.45
Alk - CaCO3	270	237	276	261.00	± 21.00
pH (std units)	8.43	8.67	8.69	8.60	± 0.14

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	0.001	≤0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.90	0.92	0.98	0.93	± 0.04
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.02	<0.01	<0.01	≤0.01	± 0.01

RADIOMETRIC:

U (mg/l)	0.0357	0.0258	0.0430	0.0348	± 0.0086
Ra226 (pCi/l)	228	89.8	127	148.23	± 71.52
Ra Prec. ±	6.0	3.7	3.8	4.50	± 1.30

QUALITY ASSURANCE DATA:

Anion meq:	18.82	18.51	18.26		
Cation meq:	18.51	18.67	18.35		
A/C Balance:	1.017	0.991	0.99		
Calc TDS mg/l:	1184	1187	1154		
TDS A/C Bal:	0.942	0.955	0.977		
Calc Dil. Cond.:	2154	2162	2106		
Dil. Cond. Bal:	1.013	0.981	0.966		



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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT

Sample I.D.:	IJ-28	IJ-28	IJ-28	Mean	Standard Deviation
Sample Date:	10-17-90	11-02-90	11-16-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-29016	90-29604	90-29843		

MAJOR IONS mg/l:

Ca	14.0	14.0	23.8	17.27	± 5.66
Mg	3.9	4.0	5.8	4.57	± 1.07
Na	410	420	402	410.67	± 9.02
K	12.0	12.0	12.3	12.10	± 0.17
CO3	0	6.8	5.7	4.17	± 3.65
HCO3	381	368	366	371.67	± 8.14
SO4	363	371	357	363.67	± 7.02
Cl	189	186	193	189.33	± 3.51
NH4	0.35	0.26	0.35	0.32	± 0.05
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.04	<0.01	<0.01	± 0.02	± 0.02
F	0.54	0.73	0.78	0.68	± 0.13
SiO2	16.3	17.1	20.3	17.90	± 2.12
TDS @ 180 C	1173	1163	1183	1173.00	± 10.00
Cond (umho/cm)	2044	1982	1913	1979.67	± 65.53
Dilute Cond (umho/cm)	2211	2145	2210	2188.67	± 37.82
Alk - CaCO3	312	313	310	311.67	± 1.53
pH (std units)	8.16	8.60	8.53	8.43	± 0.24

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.90	0.90	1.06	0.95	± 0.09
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	0.01	± 0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	0.01	0.02	0.02	0.02	± 0.01

RADIOMETRIC:

U (mg/l)	0.0605	0.0498	0.0680	0.0594	± 0.0091
Ra226 (pCi/l)	110	114	101	108.27	± 6.77
Ra Prec. ±	4.4	4.1	3.1	3.87	± 0.68

QUALITY ASSURANCE DATA:

Anion meq:	19.16	19.27	19.11		
Cation meq:	19.20	19.64	19.51		
A/C Balance:	0.998	0.981	0.979		
Calc TDS mg/l:	1200	1216	1204		
TDS A/C Bal:	0.977	0.956	0.982		
Calc Dil. Cond.:	2183	2220	2204		
Dil. Cond. Bal:	1.013	0.966	1.003		

FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	IJ-45	IJ-45	IJ-45		
Sample Date:	10-16-90	11-01-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90	Mean	Standard
Laboratory I.D. #:	90-25997	90-29602	90-29835		Deviation

MAJOR IONS mg/l:

Ca	6.9	4.5	11.5	7.63	± 3.56
Mg	1.8	1.3	3.5	2.20	± 1.15
Na	420	440	410	423.33	± 15.28
K	13.0	14.0	17.6	14.87	± 2.42
CO3	6.3	9.4	5.7	7.13	± 1.99
HCO3	299	300	345	314.67	± 26.27
SO4	364	367	366	365.67	± 1.53
Cl	241	227	186	218.00	± 28.58
NH4	0.28	0.25	<0.05	≤0.19	± 0.13
NO2	<0.01	0.01	<0.01	<0.01	± 0.00
NO3	0.01	0.03	<0.01	≤0.02	± 0.01
F	0.62	0.79	0.72	0.71	± 0.09
SiO2	18.4	21.4	15.7	18.50	± 2.85
TDS @ 180 C	1187	1203	1201	1197.00	± 8.72
Cond (umho/cm)	1900	2045	1909	1951.33	± 81.24
Dilute Cond (umho/cm)	2293	2212	2159	2221.33	± 67.49
Alk - CaCO3	256	262	292	270.00	± 19.29
pH (std units)	8.66	8.83	8.55	8.68	± 0.14

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.87	0.92	0.97	0.92	± 0.05
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	0.01	≤0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	<0.01	<0.01	<0.01	<0.01	± 0.00

RADIOMETRIC:

U (mg/l)	0.0501	0.0859	0.0820	0.0727	± 0.0196
Ra226 (pCi/l)	92.4	57.0	115	88.13	± 29.23
Ra Rec. ±	3.7	2.9	3.5	3.37	± 0.42

QUALITY ASSURANCE DATA:

Anion meq:	19.52	19.32	18.75
Cation meq:	19.13	19.86	19.16
A/C Balance:	1.021	0.973	0.978
Calc TDS mg/l:	1222	1236	1190
TDS A/C Bal:	0.971	0.973	1.010
Calc Dil. Cond.:	2251	2272	2173
Dil. Cond. Bal:	1.019	0.974	0.993



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FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
BASELINE WATER ANALYSIS REPORT

Sample I.D.:	PR-15	PR-15	PR-15	Mean	Standard Deviation
Sample Date:	10-16-90	11-01-90	11-15-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-26001	90-29603	90-29841		

MAJOR IONS mg/l:

Ca	5.9	16.0	17.8	13.23	± 6.41
Mg	3.0	4.1	4.7	3.93	± 0.86
Na	405	410	381	398.67	± 15.50
K	10.0	11.0	12.3	11.10	± 1.15
CO3	5.0	7.1	5.7	5.93	± 1.07
HCO3	360	361	364	361.67	± 2.08
SO4	357	352	348	352.33	± 4.51
Cl	186	176	179	180.33	± 5.13
NH4	0.32	0.94	0.33	0.53	± 0.36
NO2	<0.01	0.05	0.04	0.03	± 0.02
NO3	0.04	0.09	0.02	0.05	± 0.04
F	0.55	0.76	0.72	0.69	± 0.09
SiO2	15.0	18.2	16.9	16.70	± 1.61
TDS @ 180 C	1139	1130	1143	1137.33	± 6.66
Cond (umho/cm)	1759	1939	1903	1867.00	± 95.25
Dilute Cond (umho/cm)	2123	2098	2110	2110.33	± 12.50
Alk - CaCO3	304	308	308	306.67	± 2.31
pH (std units)	8.48	8.63	8.53	8.55	± 0.08

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	<0.001	<0.001	<0.001	<0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.84	0.89	1.00	0.91	± 0.08
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	0.06	<0.05	0.05	± 0.01
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	0.02	0.01	0.01	0.01	± 0.01
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	<0.01	0.04	0.01	0.02	± 0.02

RADIOMETRIC:

U (mg/l)	0.0343	0.0790	0.0540	0.0558	± 0.0224
Ra226 (pCi/l)	26.7	18.6	10.1	18.47	± 8.30
Ra Prec. ±	1.1	0.9	1.0	1.00	± 0.10

QUALITY ASSURANCE DATA:

Anion meq:	18.78	18.50	18.49		
Cation meq:	18.45	19.34	18.20		
A/C Balance:	1.018	0.957	1.016		
Calc TDS mg/l:	1168	1178	1149		
TDS A/C Bal:	0.975	0.959	0.995		
Calc Dil. Cond.:	2127	2148	2094		
Dil. Cond. Bal:	0.998	0.977	1.008		



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**FERRET EXPLORATION COMPANY OF NEBRASKA, INC. - CROW BUTTE PROJECT
 BASELINE WATER ANALYSIS REPORT**

Sample I.D.:	PR-19	PR-19	PR-19	Mean	Standard Deviation
Sample Date:	10-17-90	11-02-90	11-16-90		
Report Date:	11-23-90	11-23-90	11-30-90		
Laboratory I.D. #:	90-29017	90-29605	90-29849		

MAJOR IONS mg/l:

Ca	14.0	13.0	14.9	13.97	± 0.95
Mg	3.5	3.7	4.2	3.80	± 0.36
Na	410	410	400	406.67	± 5.77
K	13.0	12.0	12.0	12.33	± 0.58
CO3	3.3	6.6	4.8	4.90	± 1.65
HCO3	351	349	346	348.67	± 2.52
SO4	370	362	352	361.33	± 9.02
Cl	191	186	189	188.67	± 2.52
NH4	0.34	0.22	0.28	0.28	± 0.06
NO2	<0.01	<0.01	<0.01	<0.01	± 0.00
NO3	0.02	0.03	0.05	0.03	± 0.02
F	0.59	0.73	0.75	0.69	± 0.09
SiO2	18.2	18.6	14.7	17.17	± 2.15
TDS @ 180 C	1156	1142	1165	1154.33	± 11.59
Cond (umho/cm)	2024	1962	1995	1993.67	± 31.02
Dilute Cond (umho/cm)	2190	2123	2106	2139.67	± 44.41
Alk - CaCO3	293	297	292	294.00	± 2.65
pH (std units)	8.31	8.61	8.48	8.47	± 0.15

TRACE METALS mg/l:

Al	<0.10	<0.10	<0.10	<0.10	± 0.00
As	0.001	<0.001	<0.001	≤0.001	± 0.000
Ba	<0.10	<0.10	<0.10	<0.10	± 0.00
B	0.91	0.92	1.00	0.94	± 0.05
Cd	<0.01	<0.01	<0.01	<0.01	± 0.00
Cr	<0.05	<0.05	<0.05	<0.05	± 0.00
Cu	<0.01	<0.01	<0.01	<0.01	± 0.00
Fe	<0.05	<0.05	<0.05	<0.05	± 0.00
Pb	<0.05	<0.05	<0.05	<0.05	± 0.00
Mn	<0.01	<0.01	<0.01	<0.01	± 0.00
Hg	<0.001	<0.001	<0.001	<0.001	± 0.000
Mo	<0.10	<0.10	<0.10	<0.10	± 0.00
Ni	<0.05	<0.05	<0.05	<0.05	± 0.00
Se	<0.001	<0.001	<0.001	<0.001	± 0.000
V	<0.10	<0.10	<0.10	<0.10	± 0.00
Zn	<0.01	0.01	0.01	≤0.01	± 0.00

RADIOMETRIC:

U (mg/l)	0.0405	0.0318	0.0360	0.0361	± 0.0044
Ra226 (pCi/l)	244	263	245	250.73	± 10.64
Ra Prec. ±	6.7	6.3	6.3	6.43	± 0.23

QUALITY ASSURANCE DATA:

Anion meq:	18.99	18.76	18.53		
Cation meq:	19.19	19.12	18.83		
A/C Balance:	0.989	0.981	0.984		
Calc TDS mg/l:	1200	1188	1166		
TDS A/C Bal:	0.963	0.961	0.999		
Calc Dil. Cond.:	2186	2167	2136		
Dil. Cond. Bal:	1.002	0.980	0.986		