MILDOS-AREA
RADIATION DOSES FROM
CAMECO RESOURCES
MARSLAND EXPANSION AREA
IN-SITU URANIUM RECOVERY OPERATION

By
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APPENDIX B

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Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B1	MARMU315	MU 1-5	MEA	315

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REGION: Marsland All Well Field CODE: MILDOS-AREA (02/12) PAGE 2

METSET: DATA: MarMU315.MIL 09/18/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

INDIVIDUAL RECEPTOR LOCATION DATA, 31 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	Alliance	30.00	-45.40	-50.00	54.42	1	17	Residence 2	1.00	0.30	-4.00	1.04	1
2	Berea	21.50	-32.60	-50.00	39.05	1	18	Residence 3	-0.80	-1.90	-16.00	2.06	1
3	Chardon	22.30	35.80	-50.00	42.18	1	19	Residence 4	-0.40	-3.40	-31.00	3.42	1
4	Clinton	75.40	26.50	-50.00	79.92	1	20	Residence 5	1.90	-4.30	-36.00	4.70	1
5	Crawford	-12.10	20.80	-50.00	24.06	1	21	Residence 6	-4.70	1.86	22.00	5.05	1
6	Harrison	-50.50	22.50	-50.00	55.29	1	22	Residence 7	2.40	3.60	76.00	4.33	1
7	Hay Springs	47.10	18.80	-50.00	50.71	1	23	Residence 8	4.70	-4.40	-50.00	6.44	1
8	Hemmingford	14.30	-20.40	36.00	24.91	1	24	Unoccupied 1	-0.90	1.90	15.70	2.10	1
9	Marsland	-3.80	-6.10	-50.00	7.19	1	25	Unoccupied 2	2.00	2.80	69.00	3.44	1
10	Mitchell	-48.50	-60.00	-50.00	77.15	1	26	N Boundary #1	-1.30	5.10	35.00	5.26	1
11	Oelrichs	4.90	75.30	-50.00	75.46	1	27	East Boundary	1.70	0.00	-2.60	1.70	1
12	Rushville	66.00	22.00	-50.00	69.57	1	28	South Boundary	0.00	-0.60	0.50	0.60	1
13	Scottsbluff	-36.30	-68.90	-50.00	77.88	1	29	West Boundary	-0.70	0.00	12.20	0.70	1
14	Van Tassell	-67.50	21.00	49.00	70.69	1	30	Minatare	-22.40	-75.60	-41.40	78.85	1
15	Whitney	1.20	31.40	-50.00	31.42	1	31	N Boundary #2	-0.50	3.30	20.00	3.34	1
16	Residence 1	-0.90	-0.60	3.40	1.08	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0, 0, 0, 0, 0,

JC EQUALS 0, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 5

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	ID	PSIZE SET	M/SEC EXIT VEL	SOURCE NAME
1	-0.56	2.23	27.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E+03	1001	1	0.00E+00	MU-1
2	-0.55	1.65	16.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E+03	1002	1	0.00E+00	MU-2
3	-0.15	0.95	13.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E+03	1003	1	0.00E+00	MU-3
4	0.44	0.13	-4.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E+03	1004	1	0.00E+00	MU-4
5	0.84	-0.45	-15.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E+03	1005	1	0.00E+00	MU-5

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.782E-01	3.063E+00	4.945E-02	2.297E+00	1.105E+00	1.457E+02
GROUND	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02
CLOUD	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00
VEG. ING	1.776E+00	2.052E+01	1.776E+00	6.099E+00	4.967E+00	1.776E+00
MEAT ING	1.235E-01	1.427E+00	1.235E-01	4.242E-01	3.455E-01	1.235E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.546E+00	2.628E+01	3.217E+00	1.009E+01	7.686E+00	1.489E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	3.000E+02	3.467E+03	3.000E+02	1.030E+03	8.393E+02	3.000E+02
MEAT ING	2.474E+00	2.859E+01	2.474E+00	8.497E+00	6.921E+00	2.474E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.025E+02	3.495E+03	3.025E+02	1.039E+03	8.462E+02	3.025E+02

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.782E-01	3.063E+00	4.945E-02	2.297E+00	1.105E+00	1.457E+02
GROUND	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02
CLOUD	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00
VEG. ING	3.018E+02	3.487E+03	3.018E+02	1.036E+03	8.442E+02	3.018E+02
MEAT ING	2.598E+00	3.002E+01	2.598E+00	8.921E+00	7.267E+00	2.598E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.060E+02	3.522E+03	3.057E+02	1.049E+03	8.539E+02	4.514E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=Alliance X= 30.0KM, Y= -45.4KM, Z= -50.0M, DIST= 54.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.66E-01	1.19E-01	5.12E-02	4.36E-01	1.96E-01	5.02E+00
CHILD	TOTALS	3.60E-01	1.72E-01	6.81E-02	2.39E-01	1.32E-01	5.02E+00
TEENAGE	TOTALS	3.64E-01	3.02E-01	7.98E-02	1.53E-01	1.08E-01	5.02E+00
ADULT	TOTALS	3.67E-01	2.96E-01	9.49E-02	1.56E-01	1.14E-01	5.02E+00

NUMBER 2 NAME=Berea X= 21.5KM, Y= -32.6KM, Z= -50.0M, DIST= 39.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.19E-01	1.37E-01	6.82E-02	4.60E-01	2.16E-01	7.29E+00
CHILD	TOTALS	5.13E-01	1.91E-01	8.56E-02	2.59E-01	1.51E-01	7.29E+00
TEENAGE	TOTALS	5.17E-01	3.24E-01	9.76E-02	1.72E-01	1.26E-01	7.29E+00
ADULT	TOTALS	5.19E-01	3.17E-01	1.13E-01	1.75E-01	1.33E-01	7.29E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=Chardon X= 22.3KM, Y= 35.8KM, Z= -50.0M, DIST= 42.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.96E-01	9.45E-02	4.14E-02	3.42E-01	1.55E-01	4.07E+00
CHILD	TOTALS	2.92E-01	1.36E-01	5.48E-02	1.88E-01	1.05E-01	4.07E+00
TEENAGE	TOTALS	2.95E-01	2.38E-01	6.40E-02	1.21E-01	8.58E-02	4.07E+00
ADULT	TOTALS	2.97E-01	2.33E-01	7.58E-02	1.24E-01	9.10E-02	4.07E+00

NUMBER 4 NAME=Clinton X= 75.4KM, Y= 26.5KM, Z= -50.0M, DIST= 79.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.48E-01	6.61E-02	2.26E-02	2.71E-01	1.16E-01	1.93E+00
CHILD	TOTALS	1.44E-01	1.00E-01	3.34E-02	1.44E-01	7.49E-02	1.93E+00
TEENAGE	TOTALS	1.47E-01	1.85E-01	4.09E-02	8.82E-02	5.88E-02	1.93E+00
ADULT	TOTALS	1.48E-01	1.81E-01	5.07E-02	9.01E-02	6.31E-02	1.93E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=Crawford X= -12.1KM, Y= 20.8KM, Z= -50.0M, DIST= 24.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.98E-01	1.24E-01	7.39E-02	3.58E-01	1.81E-01	8.59E+00
CHILD	TOTALS	5.93E-01	1.63E-01	8.67E-02	2.13E-01	1.34E-01	8.59E+00
TEENAGE	TOTALS	5.96E-01	2.60E-01	9.54E-02	1.49E-01	1.16E-01	8.59E+00
ADULT	TOTALS	5.98E-01	2.55E-01	1.07E-01	1.52E-01	1.21E-01	8.59E+00

NUMBER 6 NAME=Harrison X= -50.5KM, Y= 22.5KM, Z= -50.0M, DIST= 55.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.01E-01	7.24E-02	2.91E-02	2.75E-01	1.22E-01	2.71E+00
CHILD	TOTALS	1.97E-01	1.06E-01	3.99E-02	1.49E-01	8.11E-02	2.71E+00
TEENAGE	TOTALS	2.00E-01	1.90E-01	4.74E-02	9.43E-02	6.53E-02	2.71E+00
ADULT	TOTALS	2.01E-01	1.86E-01	5.71E-02	9.62E-02	6.95E-02	2.71E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=Hay Springs X= 47.1KM, Y= 18.8KM, Z= -50.0M, DIST= 50.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.45E-01	8.13E-02	3.46E-02	3.00E-01	1.35E-01	3.34E+00
CHILD	TOTALS	2.41E-01	1.18E-01	4.63E-02	1.64E-01	9.07E-02	3.34E+00
TEENAGE	TOTALS	2.43E-01	2.08E-01	5.44E-02	1.05E-01	7.36E-02	3.34E+00
ADULT	TOTALS	2.45E-01	2.04E-01	6.49E-02	1.07E-01	7.82E-02	3.34E+00

NUMBER 8 NAME=Hemmingford X= 14.3KM, Y= -20.4KM, Z= 36.0M, DIST= 24.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.79E-01	2.13E-01	1.20E-01	6.48E-01	3.19E-01	1.40E+01
CHILD	TOTALS	9.71E-01	2.86E-01	1.43E-01	3.78E-01	2.32E-01	1.40E+01
TEENAGE	TOTALS	9.76E-01	4.65E-01	1.60E-01	2.60E-01	1.98E-01	1.40E+01
ADULT	TOTALS	9.80E-01	4.56E-01	1.80E-01	2.64E-01	2.07E-01	1.40E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=Marsland X= -3.8KM, Y= -6.1KM, Z= -50.0M, DIST= 7.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.18E+00	1.34E-01	1.07E-01	2.58E-01	1.64E-01	1.79E+01
CHILD	TOTALS	1.18E+00	1.55E-01	1.14E-01	1.81E-01	1.39E-01	1.79E+01
TEENAGE	TOTALS	1.18E+00	2.06E-01	1.19E-01	1.47E-01	1.30E-01	1.79E+01
ADULT	TOTALS	1.18E+00	2.03E-01	1.25E-01	1.48E-01	1.32E-01	1.79E+01

NUMBER 10 NAME=Mitchell X= -48.5KM, Y= -60.0KM, Z= -50.0M, DIST= 77.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.08E-01	5.28E-02	1.69E-02	2.22E-01	9.40E-02	1.39E+00
CHILD	TOTALS	1.05E-01	8.11E-02	2.58E-02	1.17E-01	6.00E-02	1.39E+00
TEENAGE	TOTALS	1.07E-01	1.51E-01	3.20E-02	7.10E-02	4.68E-02	1.39E+00
ADULT	TOTALS	1.09E-01	1.47E-01	4.01E-02	7.26E-02	5.03E-02	1.39E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=Oelrichs X= 4.9KM, Y= 75.3KM, Z= -50.0M, DIST= 75.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.75E-01	8.07E-02	2.69E-02	3.34E-01	1.42E-01	2.27E+00
CHILD	TOTALS	1.70E-01	1.23E-01	4.02E-02	1.77E-01	9.15E-02	2.27E+00
TEENAGE	TOTALS	1.73E-01	2.27E-01	4.95E-02	1.08E-01	7.17E-02	2.27E+00
ADULT	TOTALS	1.75E-01	2.22E-01	6.16E-02	1.10E-01	7.70E-02	2.27E+00

NUMBER 12 NAME=Rushville X= 66.0KM, Y= 22.0KM, Z= -50.0M, DIST= 69.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.71E-01	6.96E-02	2.55E-02	2.77E-01	1.20E-01	2.27E+00
CHILD	TOTALS	1.67E-01	1.04E-01	3.65E-02	1.48E-01	7.85E-02	2.27E+00
TEENAGE	TOTALS	1.70E-01	1.90E-01	4.41E-02	9.19E-02	6.23E-02	2.27E+00
ADULT	TOTALS	1.72E-01	1.86E-01	5.40E-02	9.39E-02	6.66E-02	2.27E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=Scottsbluff X= -36.3KM, Y= -68.9KM, Z= -50.0M, DIST= 77.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.21E-01	5.74E-02	1.87E-02	2.40E-01	1.02E-01	1.56E+00
CHILD	TOTALS	1.17E-01	8.79E-02	2.83E-02	1.26E-01	6.52E-02	1.56E+00
TEENAGE	TOTALS	1.20E-01	1.63E-01	3.50E-02	7.70E-02	5.10E-02	1.56E+00
ADULT	TOTALS	1.21E-01	1.59E-01	4.37E-02	7.87E-02	5.48E-02	1.56E+00

NUMBER 14 NAME=Van Tassell X= -67.5KM, Y= 21.0KM, Z= 49.0M, DIST= 70.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.63E-01	7.12E-02	2.47E-02	2.90E-01	1.25E-01	2.14E+00
CHILD	TOTALS	1.59E-01	1.08E-01	3.63E-02	1.54E-01	8.06E-02	2.14E+00
TEENAGE	TOTALS	1.62E-01	1.98E-01	4.43E-02	9.48E-02	6.35E-02	2.14E+00
ADULT	TOTALS	1.63E-01	1.94E-01	5.48E-02	9.69E-02	6.81E-02	2.14E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Whitney X= 1.2KM, Y= 31.4KM, Z= -50.0M, DIST= 31.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.44E-01	1.14E-01	5.80E-02	3.72E-01	1.76E-01	6.26E+00
CHILD	TOTALS	4.39E-01	1.57E-01	7.20E-02	2.12E-01	1.25E-01	6.26E+00
TEENAGE	TOTALS	4.42E-01	2.63E-01	8.16E-02	1.41E-01	1.04E-01	6.26E+00
ADULT	TOTALS	4.44E-01	2.58E-01	9.40E-02	1.44E-01	1.10E-01	6.26E+00

NUMBER 16 NAME=Residence 1 X= -0.9KM, Y= -0.6KM, Z= 3.4M, DIST= 1.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.42E+01	6.23E-01	5.96E-01	7.47E-01	6.53E-01	2.27E+02
CHILD	TOTALS	1.42E+01	6.44E-01	6.03E-01	6.70E-01	6.28E-01	2.27E+02
TEENAGE	TOTALS	1.42E+01	6.95E-01	6.07E-01	6.36E-01	6.18E-01	2.27E+02
ADULT	TOTALS	1.42E+01	6.92E-01	6.13E-01	6.37E-01	6.21E-01	2.27E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=Residence 2 X= 1.0KM, Y= 0.3KM, Z= -4.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.74E+01	6.30E-01	6.17E-01	6.92E-01	6.45E-01	7.81E+02
CHILD	TOTALS	4.74E+01	6.40E-01	6.20E-01	6.54E-01	6.33E-01	7.81E+02
TEENAGE	TOTALS	4.74E+01	6.66E-01	6.22E-01	6.37E-01	6.28E-01	7.81E+02
ADULT	TOTALS	4.74E+01	6.65E-01	6.25E-01	6.37E-01	6.29E-01	7.81E+02

NUMBER 18 NAME=Residence 3 X= -0.8KM, Y= -1.9KM, Z= -16.0M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.31E+00	4.58E-01	4.27E-01	6.05E-01	4.94E-01	1.15E+02
CHILD	TOTALS	7.30E+00	4.83E-01	4.35E-01	5.14E-01	4.65E-01	1.15E+02
TEENAGE	TOTALS	7.30E+00	5.43E-01	4.40E-01	4.74E-01	4.53E-01	1.15E+02
ADULT	TOTALS	7.31E+00	5.40E-01	4.47E-01	4.75E-01	4.56E-01	1.15E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 19 NAME=Residence 4 X= -0.4KM, Y= -3.4KM, Z= -31.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.43E+00	3.46E-01	3.10E-01	5.13E-01	3.87E-01	6.88E+01
CHILD	TOTALS	4.43E+00	3.74E-01	3.20E-01	4.10E-01	3.54E-01	6.88E+01
TEENAGE	TOTALS	4.43E+00	4.43E-01	3.26E-01	3.64E-01	3.41E-01	6.88E+01
ADULT	TOTALS	4.43E+00	4.40E-01	3.34E-01	3.66E-01	3.44E-01	6.88E+01

NUMBER 20 NAME=Residence 5 X= 1.9KM, Y= -4.3KM, Z= -36.0M, DIST= 4.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.16E+00	4.32E-01	3.77E-01	6.88E-01	4.94E-01	7.99E+01
CHILD	TOTALS	5.16E+00	4.75E-01	3.91E-01	5.29E-01	4.43E-01	7.99E+01
TEENAGE	TOTALS	5.16E+00	5.80E-01	4.00E-01	4.60E-01	4.23E-01	7.99E+01
ADULT	TOTALS	5.16E+00	5.75E-01	4.13E-01	4.62E-01	4.28E-01	7.99E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 21 NAME=Residence 6 X= -4.7KM, Y= 1.9KM, Z= 22.0M, DIST= 5.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.68E+00	3.39E-01	2.99E-01	5.28E-01	3.85E-01	5.64E+01
CHILD	TOTALS	3.67E+00	3.71E-01	3.09E-01	4.11E-01	3.48E-01	5.64E+01
TEENAGE	TOTALS	3.68E+00	4.49E-01	3.16E-01	3.60E-01	3.33E-01	5.64E+01
ADULT	TOTALS	3.68E+00	4.45E-01	3.25E-01	3.62E-01	3.37E-01	5.64E+01

NUMBER 22 NAME=Residence 7 X= 2.4KM, Y= 3.6KM, Z= 76.0M, DIST= 4.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.57E+00	5.20E-01	4.73E-01	7.35E-01	5.72E-01	1.02E+02
CHILD	TOTALS	6.57E+00	5.56E-01	4.85E-01	6.01E-01	5.29E-01	1.02E+02
TEENAGE	TOTALS	6.57E+00	6.44E-01	4.93E-01	5.43E-01	5.12E-01	1.02E+02
ADULT	TOTALS	6.57E+00	6.40E-01	5.04E-01	5.45E-01	5.17E-01	1.02E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 23 NAME=Residence 8 X= 4.7KM, Y= -4.4KM, Z= -50.0M, DIST= 6.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.27E+00	1.77E-01	1.50E-01	3.03E-01	2.08E-01	3.54E+01
CHILD	TOTALS	2.27E+00	1.98E-01	1.57E-01	2.25E-01	1.82E-01	3.54E+01
TEENAGE	TOTALS	2.27E+00	2.50E-01	1.61E-01	1.91E-01	1.73E-01	3.54E+01
ADULT	TOTALS	2.27E+00	2.48E-01	1.68E-01	1.92E-01	1.75E-01	3.54E+01

NUMBER 24 NAME=Unoccupied 1 X= -0.9KM, Y= 1.9KM, Z= 15.7M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.18E+01	6.78E-01	6.62E-01	7.52E-01	6.96E-01	1.19E+03
CHILD	TOTALS	7.18E+01	6.90E-01	6.66E-01	7.06E-01	6.81E-01	1.19E+03
TEENAGE	TOTALS	7.18E+01	7.21E-01	6.69E-01	6.86E-01	6.75E-01	1.19E+03
ADULT	TOTALS	7.18E+01	7.19E-01	6.72E-01	6.86E-01	6.77E-01	1.19E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 25 NAME=Unoccupied 2 X= 2.0KM, Y= 2.8KM, Z= 69.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.17E+00	5.88E-01	5.49E-01	7.67E-01	6.31E-01	1.44E+02
CHILD	TOTALS	9.17E+00	6.18E-01	5.59E-01	6.55E-01	5.95E-01	1.44E+02
TEENAGE	TOTALS	9.17E+00	6.91E-01	5.65E-01	6.07E-01	5.81E-01	1.44E+02
ADULT	TOTALS	9.17E+00	6.88E-01	5.74E-01	6.09E-01	5.85E-01	1.44E+02

NUMBER 26 NAME=N Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.55E+00	5.15E-01	4.64E-01	7.51E-01	5.72E-01	1.02E+02
CHILD	TOTALS	6.55E+00	5.55E-01	4.77E-01	6.05E-01	5.25E-01	1.02E+02
TEENAGE	TOTALS	6.55E+00	6.52E-01	4.86E-01	5.41E-01	5.07E-01	1.02E+02
ADULT	TOTALS	6.55E+00	6.47E-01	4.97E-01	5.43E-01	5.12E-01	1.02E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 27 NAME=East Boundary X= 1.7KM, Y= 0.0KM, Z= -2.6M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.99E+01	5.45E-01	5.24E-01	6.41E-01	5.68E-01	3.23E+02
CHILD	TOTALS	1.99E+01	5.61E-01	5.30E-01	5.81E-01	5.49E-01	3.23E+02
TEENAGE	TOTALS	1.99E+01	6.00E-01	5.33E-01	5.55E-01	5.42E-01	3.23E+02
ADULT	TOTALS	1.99E+01	5.99E-01	5.38E-01	5.56E-01	5.44E-01	3.23E+02

NUMBER 28 NAME=South Boundary X= 0.0KM, Y= -0.6KM, Z= 0.5M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.17E+01	8.25E-01	7.96E-01	9.59E-01	8.58E-01	5.16E+02
CHILD	TOTALS	3.17E+01	8.48E-01	8.04E-01	8.76E-01	8.31E-01	5.16E+02
TEENAGE	TOTALS	3.17E+01	9.02E-01	8.09E-01	8.40E-01	8.21E-01	5.16E+02
ADULT	TOTALS	3.17E+01	9.00E-01	8.15E-01	8.41E-01	8.23E-01	5.16E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 29 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 12.2M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.49E+01	7.66E-01	7.43E-01	8.74E-01	7.92E-01	4.03E+02
CHILD	TOTALS	2.49E+01	7.84E-01	7.49E-01	8.07E-01	7.71E-01	4.03E+02
TEENAGE	TOTALS	2.49E+01	8.29E-01	7.53E-01	7.78E-01	7.63E-01	4.03E+02
ADULT	TOTALS	2.49E+01	8.26E-01	7.58E-01	7.79E-01	7.65E-01	4.03E+02

NUMBER 30 NAME=Minatare X= -22.4KM, Y= -75.6KM, Z= -41.4M, DIST= 78.8KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.53E-01	7.19E-02	2.37E-02	3.00E-01	1.27E-01	1.99E+00
CHILD	TOTALS	1.49E-01	1.10E-01	3.57E-02	1.58E-01	8.17E-02	1.99E+00
TEENAGE	TOTALS	1.52E-01	2.04E-01	4.40E-02	9.65E-02	6.39E-02	1.99E+00
ADULT	TOTALS	1.54E-01	1.99E-01	5.49E-02	9.86E-02	6.87E-02	1.99E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 31 NAME=N Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.05E+01	6.97E-01	6.65E-01	8.40E-01	7.32E-01	3.31E+02
CHILD	TOTALS	2.05E+01	7.21E-01	6.73E-01	7.51E-01	7.03E-01	3.31E+02
TEENAGE	TOTALS	2.05E+01	7.80E-01	6.79E-01	7.12E-01	6.92E-01	3.31E+02
ADULT	TOTALS	2.05E+01	7.77E-01	6.86E-01	7.13E-01	6.95E-01	3.31E+02

Program execution time = 0.40 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B2	MARST315	SATELLITE 1-5	MEA	315

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METSET: DATA: MARST315.MIL 09/18/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

INDIVIDUAL RECEPTOR LOCATION DATA, 31 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	Alliance	30.00	-45.40	-50.00	54.42	1	17	Residence 2	1.00	0.30	-4.00	1.04	1
2	Berea	21.50	-32.60	-50.00	39.05	1	18	Residence 3	-0.80	-1.90	-16.00	2.06	1
3	Chardon	22.30	35.80	-50.00	42.18	1	19	Residence 4	-0.40	-3.40	-31.00	3.42	1
4	Clinton	75.40	26.50	-50.00	79.92	1	20	Residence 5	1.90	-4.30	-36.00	4.70	1
5	Crawford	-12.10	20.80	-50.00	24.06	1	21	Residence 6	-4.70	1.86	22.00	5.05	1
6	Harrison	-50.50	22.50	-50.00	55.29	1	22	Residence 7	2.40	3.60	76.00	4.33	1
7	Hay Springs	47.10	18.80	-50.00	50.71	1	23	Residence 8	4.70	-4.40	-50.00	6.44	1
8	Hemmingford	14.30	-20.40	36.00	24.91	1	24	Unoccupied 1	-0.90	1.90	15.70	2.10	1
9	Marsland	-3.80	-6.10	-50.00	7.19	1	25	Unoccupied 2	2.00	2.80	69.00	3.44	1
10	Mitchell	-48.50	-60.00	-50.00	77.15	1	26	N Boundary #1	-1.30	5.10	35.00	5.26	1
11	Oelrichs	4.90	75.30	-50.00	75.46	1	27	East Boundary	1.70	0.00	-2.60	1.70	1
12	Rushville	66.00	22.00	-50.00	69.57	1	28	South Boundary	0.00	-0.60	0.50	0.60	1
13	Scottsbluff	-36.30	-68.90	-50.00	77.88	1	29	West Boundary	-0.70	0.00	12.20	0.70	1
14	Van Tassell	-67.50	21.00	49.00	70.69	1	30	Minatare	-22.40	-75.60	-41.40	78.85	1
15	Whitney	1.20	31.40	-50.00	31.42	1	31	N Boundary #2	-0.50	3.30	20.00	3.34	1
16	Residence 1	-0.90	-0.60	3.40	1.08	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 1

NO.	KM X	KM Y	M Z	KM2 AREA	U-238	Th-230	CI/YEAR Ra-226	Pb-210	Rn-222	ID	PSIZE SET	M/SEC EXIT VEL	SOURCE NAME
1	0.00	0.00	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E+03	1001	1	1.00E+01	Satellite

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.842E-01	3.111E+00	5.016E-02	2.333E+00	1.122E+00	1.496E+02
GROUND	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02
CLOUD	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00
VEG. ING	1.800E+00	2.080E+01	1.800E+00	6.181E+00	5.035E+00	1.800E+00
MEAT ING	1.252E-01	1.446E+00	1.252E-01	4.299E-01	3.502E-01	1.252E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.611E+00	2.666E+01	3.277E+00	1.025E+01	7.808E+00	1.528E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	3.041E+02	3.514E+03	3.041E+02	1.044E+03	8.506E+02	3.041E+02
MEAT ING	2.508E+00	2.898E+01	2.508E+00	8.612E+00	7.015E+00	2.508E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.066E+02	3.543E+03	3.066E+02	1.053E+03	8.576E+02	3.066E+02

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.842E-01	3.111E+00	5.016E-02	2.333E+00	1.122E+00	1.496E+02
GROUND	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02
CLOUD	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00
VEG. ING	3.059E+02	3.534E+03	3.059E+02	1.050E+03	8.557E+02	3.059E+02
MEAT ING	2.633E+00	3.042E+01	2.633E+00	9.042E+00	7.365E+00	2.633E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.102E+02	3.569E+03	3.099E+02	1.063E+03	8.654E+02	4.594E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=Alliance X= 30.0KM, Y= -45.4KM, Z= -50.0M, DIST= 54.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.56E-01	1.10E-01	4.92E-02	3.97E-01	1.80E-01	4.90E+00
CHILD	TOTALS	3.50E-01	1.58E-01	6.45E-02	2.19E-01	1.23E-01	4.90E+00
TEENAGE	TOTALS	3.54E-01	2.76E-01	7.51E-02	1.41E-01	1.00E-01	4.90E+00
ADULT	TOTALS	3.56E-01	2.71E-01	8.88E-02	1.44E-01	1.06E-01	4.90E+00

NUMBER 2 NAME=Berea X= 21.5KM, Y= -32.6KM, Z= -50.0M, DIST= 39.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.00E-01	1.25E-01	6.48E-02	4.08E-01	1.94E-01	7.05E+00
CHILD	TOTALS	4.94E-01	1.73E-01	8.01E-02	2.32E-01	1.37E-01	7.05E+00
TEENAGE	TOTALS	4.98E-01	2.89E-01	9.06E-02	1.56E-01	1.15E-01	7.05E+00
ADULT	TOTALS	5.00E-01	2.83E-01	1.04E-01	1.59E-01	1.21E-01	7.05E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=Chardon X= 22.3KM, Y= 35.8KM, Z= -50.0M, DIST= 42.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.80E-01	8.89E-02	3.91E-02	3.21E-01	1.45E-01	3.84E+00
CHILD	TOTALS	2.76E-01	1.28E-01	5.17E-02	1.77E-01	9.88E-02	3.84E+00
TEENAGE	TOTALS	2.79E-01	2.23E-01	6.02E-02	1.14E-01	8.07E-02	3.84E+00
ADULT	TOTALS	2.80E-01	2.19E-01	7.14E-02	1.16E-01	8.55E-02	3.84E+00

NUMBER 4 NAME=Clinton X= 75.4KM, Y= 26.5KM, Z= -50.0M, DIST= 79.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.43E-01	6.26E-02	2.17E-02	2.55E-01	1.10E-01	1.87E+00
CHILD	TOTALS	1.39E-01	9.49E-02	3.19E-02	1.36E-01	7.09E-02	1.87E+00
TEENAGE	TOTALS	1.42E-01	1.74E-01	3.89E-02	8.34E-02	5.58E-02	1.87E+00
ADULT	TOTALS	1.43E-01	1.70E-01	4.81E-02	8.52E-02	5.98E-02	1.87E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=Crawford X= -12.1KM, Y= 20.8KM, Z= -50.0M, DIST= 24.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.43E-01	1.12E-01	6.71E-02	3.20E-01	1.63E-01	7.80E+00
CHILD	TOTALS	5.39E-01	1.47E-01	7.85E-02	1.91E-01	1.21E-01	7.80E+00
TEENAGE	TOTALS	5.41E-01	2.32E-01	8.62E-02	1.34E-01	1.05E-01	7.80E+00
ADULT	TOTALS	5.43E-01	2.28E-01	9.62E-02	1.36E-01	1.09E-01	7.80E+00

NUMBER 6 NAME=Harrison X= -50.5KM, Y= 22.5KM, Z= -50.0M, DIST= 55.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.91E-01	6.76E-02	2.75E-02	2.55E-01	1.13E-01	2.58E+00
CHILD	TOTALS	1.87E-01	9.91E-02	3.75E-02	1.39E-01	7.56E-02	2.58E+00
TEENAGE	TOTALS	1.89E-01	1.76E-01	4.44E-02	8.78E-02	6.10E-02	2.58E+00
ADULT	TOTALS	1.91E-01	1.73E-01	5.35E-02	8.96E-02	6.49E-02	2.58E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=Hay Springs X= 47.1KM, Y= 18.8KM, Z= -50.0M, DIST= 50.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.34E-01	7.60E-02	3.29E-02	2.78E-01	1.25E-01	3.20E+00
CHILD	TOTALS	2.30E-01	1.10E-01	4.38E-02	1.52E-01	8.46E-02	3.20E+00
TEENAGE	TOTALS	2.32E-01	1.93E-01	5.12E-02	9.77E-02	6.89E-02	3.20E+00
ADULT	TOTALS	2.34E-01	1.89E-01	6.08E-02	9.96E-02	7.31E-02	3.20E+00

NUMBER 8 NAME=Hemmingford X= 14.3KM, Y= -20.4KM, Z= 36.0M, DIST= 24.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.93E-01	2.11E-01	1.20E-01	6.31E-01	3.13E-01	1.43E+01
CHILD	TOTALS	9.85E-01	2.81E-01	1.43E-01	3.70E-01	2.29E-01	1.43E+01
TEENAGE	TOTALS	9.90E-01	4.54E-01	1.59E-01	2.56E-01	1.96E-01	1.43E+01
ADULT	TOTALS	9.93E-01	4.46E-01	1.79E-01	2.60E-01	2.05E-01	1.43E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=Marsland X= -3.8KM, Y= -6.1KM, Z= -50.0M, DIST= 7.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.01E+00	9.08E-02	7.60E-02	1.60E-01	1.08E-01	1.56E+01
CHILD	TOTALS	1.01E+00	1.02E-01	7.97E-02	1.17E-01	9.38E-02	1.56E+01
TEENAGE	TOTALS	1.01E+00	1.31E-01	8.23E-02	9.83E-02	8.84E-02	1.56E+01
ADULT	TOTALS	1.01E+00	1.29E-01	8.56E-02	9.89E-02	8.98E-02	1.56E+01

NUMBER 10 NAME=Mitchell X= -48.5KM, Y= -60.0KM, Z= -50.0M, DIST= 77.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.04E-01	4.92E-02	1.61E-02	2.05E-01	8.72E-02	1.34E+00
CHILD	TOTALS	1.01E-01	7.53E-02	2.43E-02	1.08E-01	5.59E-02	1.34E+00
TEENAGE	TOTALS	1.03E-01	1.39E-01	3.00E-02	6.60E-02	4.37E-02	1.34E+00
ADULT	TOTALS	1.04E-01	1.36E-01	3.74E-02	6.74E-02	4.69E-02	1.34E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=Oelrichs X= 4.9KM, Y= 75.3KM, Z= -50.0M, DIST= 75.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.67E-01	7.63E-02	2.56E-02	3.15E-01	1.35E-01	2.17E+00
CHILD	TOTALS	1.62E-01	1.16E-01	3.82E-02	1.67E-01	8.65E-02	2.17E+00
TEENAGE	TOTALS	1.65E-01	2.15E-01	4.69E-02	1.02E-01	6.79E-02	2.17E+00
ADULT	TOTALS	1.67E-01	2.10E-01	5.83E-02	1.04E-01	7.28E-02	2.17E+00

NUMBER 12 NAME=Rushville X= 66.0KM, Y= 22.0KM, Z= -50.0M, DIST= 69.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.65E-01	6.57E-02	2.45E-02	2.60E-01	1.13E-01	2.20E+00
CHILD	TOTALS	1.61E-01	9.82E-02	3.48E-02	1.39E-01	7.40E-02	2.20E+00
TEENAGE	TOTALS	1.64E-01	1.78E-01	4.18E-02	8.66E-02	5.89E-02	2.20E+00
ADULT	TOTALS	1.65E-01	1.74E-01	5.11E-02	8.84E-02	6.29E-02	2.20E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=Scottsbluff X= -36.3KM, Y= -68.9KM, Z= -50.0M, DIST= 77.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.17E-01	5.39E-02	1.80E-02	2.23E-01	9.52E-02	1.52E+00
CHILD	TOTALS	1.14E-01	8.23E-02	2.69E-02	1.18E-01	6.12E-02	1.52E+00
TEENAGE	TOTALS	1.16E-01	1.52E-01	3.31E-02	7.22E-02	4.80E-02	1.52E+00
ADULT	TOTALS	1.17E-01	1.49E-01	4.12E-02	7.38E-02	5.15E-02	1.52E+00

NUMBER 14 NAME=Van Tassell X= -67.5KM, Y= 21.0KM, Z= 49.0M, DIST= 70.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.63E-01	7.14E-02	2.47E-02	2.91E-01	1.25E-01	2.13E+00
CHILD	TOTALS	1.59E-01	1.08E-01	3.63E-02	1.55E-01	8.09E-02	2.13E+00
TEENAGE	TOTALS	1.61E-01	1.99E-01	4.44E-02	9.52E-02	6.37E-02	2.13E+00
ADULT	TOTALS	1.63E-01	1.94E-01	5.49E-02	9.72E-02	6.83E-02	2.13E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Whitney X= 1.2KM, Y= 31.4KM, Z= -50.0M, DIST= 31.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.04E-01	1.03E-01	5.28E-02	3.34E-01	1.59E-01	5.70E+00
CHILD	TOTALS	4.00E-01	1.41E-01	6.53E-02	1.90E-01	1.12E-01	5.70E+00
TEENAGE	TOTALS	4.03E-01	2.37E-01	7.39E-02	1.28E-01	9.44E-02	5.70E+00
ADULT	TOTALS	4.04E-01	2.32E-01	8.51E-02	1.30E-01	9.92E-02	5.70E+00

NUMBER 16 NAME=Residence 1 X= -0.9KM, Y= -0.6KM, Z= 3.4M, DIST= 1.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.83E+01	3.10E-01	3.06E-01	3.33E-01	3.16E-01	3.00E+02
CHILD	TOTALS	1.83E+01	3.14E-01	3.07E-01	3.19E-01	3.11E-01	3.00E+02
TEENAGE	TOTALS	1.83E+01	3.23E-01	3.08E-01	3.13E-01	3.10E-01	3.00E+02
ADULT	TOTALS	1.83E+01	3.23E-01	3.09E-01	3.13E-01	3.10E-01	3.00E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=Residence 2 X= 1.0KM, Y= 0.3KM, Z= -4.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.14E+01	2.08E-01	2.05E-01	2.20E-01	2.11E-01	3.53E+02
CHILD	TOTALS	2.14E+01	2.10E-01	2.06E-01	2.13E-01	2.09E-01	3.53E+02
TEENAGE	TOTALS	2.14E+01	2.15E-01	2.07E-01	2.09E-01	2.08E-01	3.53E+02
ADULT	TOTALS	2.14E+01	2.15E-01	2.07E-01	2.09E-01	2.08E-01	3.53E+02

NUMBER 18 NAME=Residence 3 X= -0.8KM, Y= -1.9KM, Z= -16.0M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.18E+00	2.04E-01	1.96E-01	2.41E-01	2.13E-01	9.99E+01
CHILD	TOTALS	6.18E+00	2.10E-01	1.98E-01	2.18E-01	2.06E-01	9.99E+01
TEENAGE	TOTALS	6.18E+00	2.26E-01	2.00E-01	2.08E-01	2.03E-01	9.99E+01
ADULT	TOTALS	6.18E+00	2.25E-01	2.01E-01	2.08E-01	2.04E-01	9.99E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 19 NAME=Residence 4 X= -0.4KM, Y= -3.4KM, Z= -31.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.07E+00	2.08E-01	1.93E-01	2.78E-01	2.25E-01	6.48E+01
CHILD	TOTALS	4.07E+00	2.20E-01	1.96E-01	2.35E-01	2.11E-01	6.48E+01
TEENAGE	TOTALS	4.07E+00	2.49E-01	1.99E-01	2.15E-01	2.05E-01	6.48E+01
ADULT	TOTALS	4.07E+00	2.47E-01	2.02E-01	2.16E-01	2.07E-01	6.48E+01

NUMBER 20 NAME=Residence 5 X= 1.9KM, Y= -4.3KM, Z= -36.0M, DIST= 4.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.47E+00	2.74E-01	2.46E-01	4.05E-01	3.06E-01	7.05E+01
CHILD	TOTALS	4.47E+00	2.96E-01	2.53E-01	3.24E-01	2.80E-01	7.05E+01
TEENAGE	TOTALS	4.47E+00	3.50E-01	2.58E-01	2.88E-01	2.70E-01	7.05E+01
ADULT	TOTALS	4.47E+00	3.47E-01	2.64E-01	2.90E-01	2.72E-01	7.05E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 21 NAME=Residence 6 X= -4.7KM, Y= 1.9KM, Z= 22.0M, DIST= 5.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.63E+00	3.52E-01	3.06E-01	5.63E-01	4.03E-01	5.54E+01
CHILD	TOTALS	3.62E+00	3.87E-01	3.18E-01	4.32E-01	3.61E-01	5.54E+01
TEENAGE	TOTALS	3.63E+00	4.74E-01	3.26E-01	3.75E-01	3.44E-01	5.54E+01
ADULT	TOTALS	3.63E+00	4.70E-01	3.36E-01	3.77E-01	3.49E-01	5.54E+01

NUMBER 22 NAME=Residence 7 X= 2.4KM, Y= 3.6KM, Z= 76.0M, DIST= 4.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.17E+00	4.73E-01	4.22E-01	7.09E-01	5.30E-01	7.94E+01
CHILD	TOTALS	5.17E+00	5.12E-01	4.35E-01	5.62E-01	4.83E-01	7.94E+01
TEENAGE	TOTALS	5.17E+00	6.09E-01	4.44E-01	4.98E-01	4.64E-01	7.94E+01
ADULT	TOTALS	5.17E+00	6.05E-01	4.55E-01	5.00E-01	4.69E-01	7.94E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 23 NAME=Residence 8 X= 4.7KM, Y= -4.4KM, Z= -50.0M, DIST= 6.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.94E+00	1.12E-01	9.81E-02	1.77E-01	1.28E-01	3.07E+01
CHILD	TOTALS	1.94E+00	1.23E-01	1.02E-01	1.37E-01	1.15E-01	3.07E+01
TEENAGE	TOTALS	1.94E+00	1.49E-01	1.04E-01	1.19E-01	1.10E-01	3.07E+01
ADULT	TOTALS	1.94E+00	1.48E-01	1.07E-01	1.20E-01	1.11E-01	3.07E+01

NUMBER 24 NAME=Unoccupied 1 X= -0.9KM, Y= 1.9KM, Z= 15.7M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.47E+01	6.43E-01	6.16E-01	7.69E-01	6.74E-01	2.36E+02
CHILD	TOTALS	1.47E+01	6.64E-01	6.23E-01	6.91E-01	6.49E-01	2.36E+02
TEENAGE	TOTALS	1.47E+01	7.16E-01	6.28E-01	6.57E-01	6.39E-01	2.36E+02
ADULT	TOTALS	1.47E+01	7.13E-01	6.34E-01	6.58E-01	6.42E-01	2.36E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 25 NAME=Unoccupied 2 X= 2.0KM, Y= 2.8KM, Z= 69.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.97E+00	5.29E-01	4.87E-01	7.27E-01	5.77E-01	1.08E+02
CHILD	TOTALS	6.96E+00	5.63E-01	4.98E-01	6.04E-01	5.38E-01	1.08E+02
TEENAGE	TOTALS	6.97E+00	6.44E-01	5.05E-01	5.51E-01	5.22E-01	1.08E+02
ADULT	TOTALS	6.97E+00	6.40E-01	5.14E-01	5.53E-01	5.27E-01	1.08E+02

NUMBER 26 NAME=N Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.47E+00	4.46E-01	3.86E-01	7.27E-01	5.14E-01	6.83E+01
CHILD	TOTALS	4.47E+00	4.93E-01	4.01E-01	5.52E-01	4.58E-01	6.83E+01
TEENAGE	TOTALS	4.47E+00	6.08E-01	4.12E-01	4.76E-01	4.36E-01	6.83E+01
ADULT	TOTALS	4.47E+00	6.03E-01	4.25E-01	4.79E-01	4.42E-01	6.83E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 27 NAME=East Boundary X= 1.7KM, Y= 0.0KM, Z= -2.6M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.14E+01	3.11E-01	3.02E-01	3.55E-01	3.22E-01	1.85E+02
CHILD	TOTALS	1.14E+01	3.19E-01	3.04E-01	3.28E-01	3.13E-01	1.85E+02
TEENAGE	TOTALS	1.14E+01	3.37E-01	3.06E-01	3.16E-01	3.10E-01	1.85E+02
ADULT	TOTALS	1.14E+01	3.36E-01	3.08E-01	3.16E-01	3.11E-01	1.85E+02

NUMBER 28 NAME=South Boundary X= 0.0KM, Y= -0.6KM, Z= 0.5M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.13E+01	2.38E-01	2.37E-01	2.43E-01	2.39E-01	1.18E+03
CHILD	TOTALS	7.13E+01	2.39E-01	2.38E-01	2.40E-01	2.39E-01	1.18E+03
TEENAGE	TOTALS	7.13E+01	2.41E-01	2.38E-01	2.39E-01	2.38E-01	1.18E+03
ADULT	TOTALS	7.13E+01	2.41E-01	2.38E-01	2.39E-01	2.38E-01	1.18E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 29 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 12.2M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.11E+01	4.47E-01	4.44E-01	4.62E-01	4.51E-01	8.46E+02
CHILD	TOTALS	5.11E+01	4.50E-01	4.44E-01	4.53E-01	4.48E-01	8.46E+02
TEENAGE	TOTALS	5.11E+01	4.56E-01	4.45E-01	4.49E-01	4.46E-01	8.46E+02
ADULT	TOTALS	5.11E+01	4.56E-01	4.46E-01	4.49E-01	4.47E-01	8.46E+02

NUMBER 30 NAME=Minatare X= -22.4KM, Y= -75.6KM, Z= -41.4M, DIST= 78.8KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.49E-01	6.82E-02	2.29E-02	2.82E-01	1.20E-01	1.94E+00
CHILD	TOTALS	1.45E-01	1.04E-01	3.42E-02	1.49E-01	7.74E-02	1.94E+00
TEENAGE	TOTALS	1.48E-01	1.92E-01	4.19E-02	9.12E-02	6.07E-02	1.94E+00
ADULT	TOTALS	1.50E-01	1.88E-01	5.22E-02	9.32E-02	6.51E-02	1.94E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 31 NAME=N Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.28E+00	6.05E-01	5.58E-01	8.24E-01	6.58E-01	1.29E+02
CHILD	TOTALS	8.27E+00	6.42E-01	5.70E-01	6.88E-01	6.14E-01	1.29E+02
TEENAGE	TOTALS	8.28E+00	7.32E-01	5.78E-01	6.29E-01	5.97E-01	1.29E+02
ADULT	TOTALS	8.28E+00	7.27E-01	5.88E-01	6.31E-01	6.02E-01	1.29E+02

Program execution time = 0.07 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B3	MARISR	NORTH TREND CROW BUTTE RES THREE CROW	MEA	315

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METSET: DATA: Mar3ISR.MIL 09/17/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

INDIVIDUAL RECEPTOR LOCATION DATA, 31 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	Alliance	30.00	-45.40	-50.00	54.42	1	17	Residence 2	1.00	0.30	-4.00	1.04	1
2	Berea	21.50	-32.60	-50.00	39.05	1	18	Residence 3	-0.80	-1.90	-16.00	2.06	1
3	Chardon	22.30	35.80	-50.00	42.18	1	19	Residence 4	-0.40	-3.40	-31.00	3.42	1
4	Clinton	75.40	26.50	-50.00	79.92	1	20	Residence 5	1.90	-4.30	-36.00	4.70	1
5	Crawford	-12.10	20.80	-50.00	24.06	1	21	Residence 6	-4.70	1.86	22.00	5.05	1
6	Harrison	-50.50	22.50	-50.50	55.29	1	22	Residence 7	2.40	3.60	76.00	4.33	1
7	Hay Springs	47.10	18.80	-50.00	50.71	1	23	Residence 8	4.70	-4.40	-50.00	6.44	1
8	Hemmingford	14.30	-20.40	36.00	24.91	1	24	Unoccupied 1	-0.90	1.90	15.70	2.10	1
9	Marsland	-3.80	-6.10	-50.00	7.19	1	25	Unoccupied 2	2.00	2.80	69.00	3.44	1
10	Mitchell	-48.50	-60.00	-50.00	77.15	1	26	North Boundary #1	-1.30	5.10	35.00	5.26	1
11	Oelrichs	4.90	75.30	-50.00	75.46	1	27	East Boundary	1.70	0.00	-2.60	1.70	1
12	Rushville	66.00	22.00	-50.00	69.57	1	28	South Boundary	0.00	-0.60	0.50	0.60	1
13	Scottsbluff	-36.30	-68.90	-50.00	77.88	1	29	West Boundary	-0.70	0.00	12.20	0.70	1
14	Van Tassell	-67.50	21.00	49.00	70.69	1	30	Minatare	-22.40	-75.60	-41.40	78.85	1
15	Whitney	1.20	31.40	-50.00	31.42	1	31	North Boundary #2	-0.50	3.30	20.00	3.34	1
16	Residence 1	-0.90	-0.60	3.40	1.08	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0, 0, 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 3

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	ID	PSIZE SET	M/SEC EXIT VEL	SOURCE NAME
1	-12.30	25.30	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.89E+03	1001	1	0.00E+00	N TREND
2	-7.33	16.21	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.22E+03	1002	1	0.00E+00	Crow Butte Resource
3	-16.52	15.44	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.66E+03	1003	1	0.00E+00	Three Crow

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	1.105E+00	8.942E+00	1.488E-01	6.706E+00	3.226E+00	5.541E+02
GROUND	7.423E-02	7.423E-02	7.423E-02	7.423E-02	7.423E-02	7.423E-02
CLOUD	3.928E+00	3.928E+00	3.928E+00	3.928E+00	3.928E+00	3.928E+00
VEG. ING	5.368E+00	6.203E+01	5.368E+00	1.844E+01	1.502E+01	5.368E+00
MEAT ING	3.734E-01	4.314E+00	3.734E-01	1.282E+00	1.044E+00	3.734E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	1.085E+01	7.929E+01	9.893E+00	3.043E+01	2.329E+01	5.639E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	9.070E+02	1.048E+04	9.070E+02	3.115E+03	2.537E+03	9.070E+02
MEAT ING	7.479E+00	8.643E+01	7.479E+00	2.569E+01	2.092E+01	7.479E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	2.092E+02	2.852E+03	4.754E+01	2.092E+02	2.092E+02	1.331E+03
TOTALS	1.124E+03	1.342E+04	9.620E+02	3.350E+03	2.767E+03	2.246E+03

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	1.105E+00	8.942E+00	1.488E-01	6.706E+00	3.226E+00	5.541E+02
GROUND	7.423E-02	7.423E-02	7.423E-02	7.423E-02	7.423E-02	7.423E-02
CLOUD	3.928E+00	3.928E+00	3.928E+00	3.928E+00	3.928E+00	3.928E+00
VEG. ING	9.123E+02	1.054E+04	9.123E+02	3.133E+03	2.552E+03	9.123E+02
MEAT ING	7.853E+00	9.074E+01	7.853E+00	2.697E+01	2.197E+01	7.853E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	2.092E+02	2.852E+03	4.754E+01	2.092E+02	2.092E+02	1.331E+03
TOTALS	1.134E+03	1.350E+04	9.719E+02	3.380E+03	2.791E+03	2.809E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=Alliance X= 30.0KM, Y= -45.4KM, Z= -50.0M, DIST= 54.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.59E-01	3.10E-01	1.13E-01	1.24E+00	5.36E-01	1.01E+01
CHILD	TOTALS	7.41E-01	4.65E-01	1.62E-01	6.61E-01	3.50E-01	1.01E+01
TEENAGE	TOTALS	7.53E-01	8.46E-01	1.96E-01	4.10E-01	2.77E-01	1.01E+01
ADULT	TOTALS	7.60E-01	8.28E-01	2.40E-01	4.18E-01	2.96E-01	1.01E+01

NUMBER 2 NAME=Berea X= 21.5KM, Y= -32.6KM, Z= -50.0M, DIST= 39.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.66E-01	3.42E-01	1.38E-01	1.30E+00	5.76E-01	1.31E+01
CHILD	TOTALS	9.47E-01	5.03E-01	1.89E-01	7.06E-01	3.83E-01	1.31E+01
TEENAGE	TOTALS	9.60E-01	8.97E-01	2.24E-01	4.46E-01	3.09E-01	1.31E+01
ADULT	TOTALS	9.67E-01	8.78E-01	2.70E-01	4.55E-01	3.29E-01	1.31E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=Chardon X= 22.3KM, Y= 35.8KM, Z= -50.0M, DIST= 42.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.78E-01	2.78E-01	1.33E-01	9.55E-01	4.42E-01	1.36E+01
CHILD	TOTALS	9.65E-01	3.91E-01	1.69E-01	5.34E-01	3.07E-01	1.36E+01
TEENAGE	TOTALS	9.73E-01	6.69E-01	1.94E-01	3.51E-01	2.54E-01	1.36E+01
ADULT	TOTALS	9.79E-01	6.56E-01	2.27E-01	3.57E-01	2.68E-01	1.36E+01

NUMBER 4 NAME=Clinton X= 75.4KM, Y= 26.5KM, Z= -50.0M, DIST= 79.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.47E-01	1.66E-01	5.42E-02	6.96E-01	2.95E-01	4.48E+00
CHILD	TOTALS	3.37E-01	2.55E-01	8.19E-02	3.67E-01	1.89E-01	4.48E+00
TEENAGE	TOTALS	3.44E-01	4.73E-01	1.01E-01	2.23E-01	1.48E-01	4.48E+00
ADULT	TOTALS	3.48E-01	4.63E-01	1.26E-01	2.28E-01	1.59E-01	4.48E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=Crawford X= -12.1KM, Y= 20.8KM, Z= -50.0M, DIST= 24.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.57E+00	6.59E-01	5.66E-01	1.09E+00	7.63E-01	1.17E+02
CHILD	TOTALS	7.56E+00	7.31E-01	5.90E-01	8.22E-01	6.77E-01	1.17E+02
TEENAGE	TOTALS	7.56E+00	9.07E-01	6.06E-01	7.05E-01	6.44E-01	1.17E+02
ADULT	TOTALS	7.57E+00	8.99E-01	6.27E-01	7.09E-01	6.53E-01	1.17E+02

NUMBER 6 NAME=Harrison X= -50.5KM, Y= 22.5KM, Z= -50.5M, DIST= 55.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.54E-01	2.17E-01	1.03E-01	7.45E-01	3.45E-01	1.05E+01
CHILD	TOTALS	7.44E-01	3.05E-01	1.32E-01	4.17E-01	2.39E-01	1.05E+01
TEENAGE	TOTALS	7.51E-01	5.22E-01	1.52E-01	2.74E-01	1.98E-01	1.05E+01
ADULT	TOTALS	7.55E-01	5.12E-01	1.77E-01	2.79E-01	2.09E-01	1.05E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=Hay Springs X= 47.1KM, Y= 18.8KM, Z= -50.0M, DIST= 50.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.22E-01	1.91E-01	7.52E-02	7.36E-01	3.24E-01	7.03E+00
CHILD	TOTALS	5.11E-01	2.83E-01	1.04E-01	3.98E-01	2.15E-01	7.03E+00
TEENAGE	TOTALS	5.18E-01	5.06E-01	1.24E-01	2.50E-01	1.72E-01	7.03E+00
ADULT	TOTALS	5.22E-01	4.96E-01	1.50E-01	2.55E-01	1.83E-01	7.03E+00

NUMBER 8 NAME=Hemmingford X= 14.3KM, Y= -20.4KM, Z= 36.0M, DIST= 24.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.38E+00	4.33E-01	1.90E-01	1.57E+00	7.09E-01	1.91E+01
CHILD	TOTALS	1.36E+00	6.23E-01	2.51E-01	8.63E-01	4.81E-01	1.91E+01
TEENAGE	TOTALS	1.38E+00	1.09E+00	2.93E-01	5.55E-01	3.93E-01	1.91E+01
ADULT	TOTALS	1.39E+00	1.07E+00	3.47E-01	5.66E-01	4.17E-01	1.91E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=Marsland X= -3.8KM, Y= -6.1KM, Z= -50.0M, DIST= 7.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.51E+00	5.51E-01	3.09E-01	1.68E+00	8.24E-01	3.59E+01
CHILD	TOTALS	2.49E+00	7.39E-01	3.70E-01	9.77E-01	5.99E-01	3.59E+01
TEENAGE	TOTALS	2.50E+00	1.20E+00	4.12E-01	6.72E-01	5.11E-01	3.59E+01
ADULT	TOTALS	2.51E+00	1.18E+00	4.66E-01	6.83E-01	5.34E-01	3.59E+01

NUMBER 10 NAME=Mitchell X= -48.5KM, Y= -60.0KM, Z= -50.0M, DIST= 77.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.32E-01	1.71E-01	5.28E-02	7.29E-01	3.07E-01	4.23E+00
CHILD	TOTALS	3.22E-01	2.64E-01	8.20E-02	3.82E-01	1.95E-01	4.23E+00
TEENAGE	TOTALS	3.29E-01	4.94E-01	1.02E-01	2.31E-01	1.51E-01	4.23E+00
ADULT	TOTALS	3.33E-01	4.83E-01	1.29E-01	2.36E-01	1.63E-01	4.23E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=Oelrichs X= 4.9KM, Y= 75.3KM, Z= -50.0M, DIST= 75.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.65E-01	2.74E-01	9.87E-02	1.10E+00	4.74E-01	8.80E+00
CHILD	TOTALS	6.49E-01	4.12E-01	1.43E-01	5.86E-01	3.09E-01	8.80E+00
TEENAGE	TOTALS	6.60E-01	7.50E-01	1.73E-01	3.63E-01	2.45E-01	8.80E+00
ADULT	TOTALS	6.66E-01	7.34E-01	2.12E-01	3.70E-01	2.62E-01	8.80E+00

NUMBER 12 NAME=Rushville X= 66.0KM, Y= 22.0KM, Z= -50.0M, DIST= 69.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.86E-01	1.71E-01	5.87E-02	6.98E-01	2.99E-01	5.05E+00
CHILD	TOTALS	3.76E-01	2.59E-01	8.65E-02	3.71E-01	1.93E-01	5.05E+00
TEENAGE	TOTALS	3.82E-01	4.76E-01	1.06E-01	2.27E-01	1.52E-01	5.05E+00
ADULT	TOTALS	3.86E-01	4.66E-01	1.31E-01	2.32E-01	1.63E-01	5.05E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=Scottsbluff X= -36.3KM, Y= -68.9KM, Z= -50.0M, DIST= 77.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.95E-01	2.03E-01	6.29E-02	8.66E-01	3.65E-01	5.03E+00
CHILD	TOTALS	3.82E-01	3.14E-01	9.75E-02	4.54E-01	2.31E-01	5.03E+00
TEENAGE	TOTALS	3.91E-01	5.87E-01	1.22E-01	2.74E-01	1.80E-01	5.03E+00
ADULT	TOTALS	3.96E-01	5.74E-01	1.53E-01	2.81E-01	1.93E-01	5.03E+00

NUMBER 14 NAME=Van Tassell X= -67.5KM, Y= 21.0KM, Z= 49.0M, DIST= 70.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.31E-01	1.98E-01	7.72E-02	7.64E-01	3.36E-01	7.13E+00
CHILD	TOTALS	5.20E-01	2.93E-01	1.08E-01	4.12E-01	2.22E-01	7.13E+00
TEENAGE	TOTALS	5.27E-01	5.25E-01	1.28E-01	2.59E-01	1.78E-01	7.13E+00
ADULT	TOTALS	5.31E-01	5.14E-01	1.55E-01	2.64E-01	1.90E-01	7.13E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Whitney X= 1.2KM, Y= 31.4KM, Z= -50.0M, DIST= 31.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.14E+00	3.94E-01	2.50E-01	1.06E+00	5.56E-01	3.12E+01
CHILD	TOTALS	2.13E+00	5.06E-01	2.87E-01	6.46E-01	4.22E-01	3.12E+01
TEENAGE	TOTALS	2.14E+00	7.80E-01	3.12E-01	4.66E-01	3.70E-01	3.12E+01
ADULT	TOTALS	2.14E+00	7.67E-01	3.44E-01	4.72E-01	3.84E-01	3.12E+01

NUMBER 16 NAME=Residence 1 X= -0.9KM, Y= -0.6KM, Z= 3.4M, DIST= 1.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.42E+00	7.04E-01	4.10E-01	2.07E+00	1.04E+00	4.93E+01
CHILD	TOTALS	3.39E+00	9.33E-01	4.84E-01	1.22E+00	7.62E-01	4.93E+01
TEENAGE	TOTALS	3.41E+00	1.49E+00	5.35E-01	8.51E-01	6.55E-01	4.93E+01
ADULT	TOTALS	3.42E+00	1.47E+00	6.01E-01	8.64E-01	6.84E-01	4.93E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=Residence 2 X= 1.0KM, Y= 0.3KM, Z= -4.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.25E+00	6.60E-01	3.87E-01	1.93E+00	9.69E-01	4.69E+01
CHILD	TOTALS	3.23E+00	8.73E-01	4.56E-01	1.14E+00	7.14E-01	4.69E+01
TEENAGE	TOTALS	3.24E+00	1.40E+00	5.03E-01	7.97E-01	6.15E-01	4.69E+01
ADULT	TOTALS	3.25E+00	1.37E+00	5.64E-01	8.09E-01	6.42E-01	4.69E+01

NUMBER 18 NAME=Residence 3 X= -0.8KM, Y= -1.9KM, Z= -16.0M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.22E+00	6.83E-01	3.91E-01	2.04E+00	1.01E+00	4.63E+01
CHILD	TOTALS	3.20E+00	9.11E-01	4.65E-01	1.20E+00	7.41E-01	4.63E+01
TEENAGE	TOTALS	3.21E+00	1.47E+00	5.15E-01	8.30E-01	6.35E-01	4.63E+01
ADULT	TOTALS	3.22E+00	1.44E+00	5.81E-01	8.42E-01	6.63E-01	4.63E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 19 NAME=Residence 4 X= -0.4KM, Y= -3.4KM, Z= -31.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.91E+00	6.33E-01	3.57E-01	1.92E+00	9.46E-01	4.18E+01
CHILD	TOTALS	2.89E+00	8.49E-01	4.27E-01	1.12E+00	6.88E-01	4.18E+01
TEENAGE	TOTALS	2.91E+00	1.38E+00	4.74E-01	7.72E-01	5.88E-01	4.18E+01
ADULT	TOTALS	2.92E+00	1.35E+00	5.36E-01	7.84E-01	6.14E-01	4.18E+01

NUMBER 20 NAME=Residence 5 X= 1.9KM, Y= -4.3KM, Z= -36.0M, DIST= 4.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.52E+00	5.61E-01	3.11E-01	1.72E+00	8.43E-01	3.60E+01
CHILD	TOTALS	2.50E+00	7.55E-01	3.74E-01	1.00E+00	6.10E-01	3.60E+01
TEENAGE	TOTALS	2.51E+00	1.23E+00	4.17E-01	6.86E-01	5.20E-01	3.60E+01
ADULT	TOTALS	2.52E+00	1.21E+00	4.73E-01	6.97E-01	5.44E-01	3.60E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 21 NAME=Residence 6 X= -4.7KM, Y= 1.9KM, Z= 22.0M, DIST= 5.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.20E+00	7.80E-01	4.84E-01	2.16E+00	1.11E+00	6.12E+01
CHILD	TOTALS	4.17E+00	1.01E+00	5.59E-01	1.30E+00	8.39E-01	6.12E+01
TEENAGE	TOTALS	4.19E+00	1.58E+00	6.10E-01	9.29E-01	7.32E-01	6.12E+01
ADULT	TOTALS	4.20E+00	1.55E+00	6.76E-01	9.42E-01	7.60E-01	6.12E+01

NUMBER 22 NAME=Residence 7 X= 2.4KM, Y= 3.6KM, Z= 76.0M, DIST= 4.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.13E+00	5.91E-01	3.59E-01	1.67E+00	8.53E-01	4.56E+01
CHILD	TOTALS	3.11E+00	7.72E-01	4.18E-01	1.00E+00	6.37E-01	4.56E+01
TEENAGE	TOTALS	3.13E+00	1.21E+00	4.58E-01	7.07E-01	5.53E-01	4.56E+01
ADULT	TOTALS	3.14E+00	1.19E+00	5.10E-01	7.17E-01	5.76E-01	4.56E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 23 NAME=Residence 8 X= 4.7KM, Y= -4.4KM, Z= -50.0M, DIST= 6.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.09E+00	4.58E-01	2.56E-01	1.40E+00	6.87E-01	3.00E+01
CHILD	TOTALS	2.07E+00	6.16E-01	3.07E-01	8.15E-01	4.99E-01	3.00E+01
TEENAGE	TOTALS	2.09E+00	1.00E+00	3.42E-01	5.60E-01	4.25E-01	3.00E+01
ADULT	TOTALS	2.09E+00	9.84E-01	3.87E-01	5.69E-01	4.45E-01	3.00E+01

NUMBER 24 NAME=Unoccupied 1 X= -0.9KM, Y= 1.9KM, Z= 15.7M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.83E+00	7.36E-01	4.46E-01	2.08E+00	1.06E+00	5.55E+01
CHILD	TOTALS	3.80E+00	9.62E-01	5.20E-01	1.25E+00	7.94E-01	5.55E+01
TEENAGE	TOTALS	3.82E+00	1.51E+00	5.70E-01	8.81E-01	6.89E-01	5.55E+01
ADULT	TOTALS	3.83E+00	1.49E+00	6.35E-01	8.94E-01	7.17E-01	5.55E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 25 NAME=Unoccupied 2 X= 2.0KM, Y= 2.8KM, Z= 69.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.22E+00	6.18E-01	3.73E-01	1.76E+00	8.95E-01	4.68E+01
CHILD	TOTALS	3.20E+00	8.09E-01	4.35E-01	1.05E+00	6.66E-01	4.68E+01
TEENAGE	TOTALS	3.21E+00	1.28E+00	4.77E-01	7.40E-01	5.78E-01	4.68E+01
ADULT	TOTALS	3.22E+00	1.25E+00	5.32E-01	7.51E-01	6.01E-01	4.68E+01

NUMBER 26 NAME=North Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.45E+00	7.70E-01	4.95E-01	2.05E+00	1.08E+00	6.52E+01
CHILD	TOTALS	4.43E+00	9.85E-01	5.65E-01	1.25E+00	8.25E-01	6.52E+01
TEENAGE	TOTALS	4.44E+00	1.51E+00	6.13E-01	9.08E-01	7.25E-01	6.52E+01
ADULT	TOTALS	4.45E+00	1.49E+00	6.74E-01	9.20E-01	7.52E-01	6.52E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 27 NAME=East Boundary X= 1.7KM, Y= 0.0KM, Z= -2.6M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.10E+00	6.37E-01	3.70E-01	1.88E+00	9.39E-01	4.47E+01
CHILD	TOTALS	3.08E+00	8.46E-01	4.38E-01	1.11E+00	6.90E-01	4.47E+01
TEENAGE	TOTALS	3.09E+00	1.36E+00	4.84E-01	7.71E-01	5.94E-01	4.47E+01
ADULT	TOTALS	3.10E+00	1.33E+00	5.44E-01	7.83E-01	6.19E-01	4.47E+01

NUMBER 28 NAME=South Boundary X= 0.0KM, Y= -0.6KM, Z= 0.5M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.32E+00	6.89E-01	3.99E-01	2.03E+00	1.02E+00	4.79E+01
CHILD	TOTALS	3.30E+00	9.14E-01	4.73E-01	1.20E+00	7.46E-01	4.79E+01
TEENAGE	TOTALS	3.32E+00	1.47E+00	5.23E-01	8.34E-01	6.41E-01	4.79E+01
ADULT	TOTALS	3.33E+00	1.44E+00	5.87E-01	8.47E-01	6.69E-01	4.79E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 29 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 12.2M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.56E+00	7.21E-01	4.24E-01	2.10E+00	1.06E+00	5.14E+01
CHILD	TOTALS	3.53E+00	9.52E-01	4.99E-01	1.24E+00	7.80E-01	5.14E+01
TEENAGE	TOTALS	3.55E+00	1.52E+00	5.50E-01	8.69E-01	6.72E-01	5.14E+01
ADULT	TOTALS	3.56E+00	1.49E+00	6.17E-01	8.82E-01	7.01E-01	5.14E+01

NUMBER 30 NAME=Minatare X= -22.4KM, Y= -75.6KM, Z= -41.4M, DIST= 78.8KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.74E-01	2.50E-01	7.61E-02	1.07E+00	4.50E-01	5.99E+00
CHILD	TOTALS	4.57E-01	3.87E-01	1.19E-01	5.61E-01	2.85E-01	5.99E+00
TEENAGE	TOTALS	4.68E-01	7.26E-01	1.49E-01	3.38E-01	2.21E-01	5.99E+00
ADULT	TOTALS	4.74E-01	7.10E-01	1.88E-01	3.46E-01	2.38E-01	5.99E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 31 NAME=North Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.93E+00	7.27E-01	4.50E-01	2.01E+00	1.04E+00	5.73E+01
CHILD	TOTALS	3.91E+00	9.42E-01	5.20E-01	1.21E+00	7.81E-01	5.73E+01
TEENAGE	TOTALS	3.92E+00	1.47E+00	5.68E-01	8.65E-01	6.81E-01	5.73E+01
ADULT	TOTALS	3.93E+00	1.44E+00	6.30E-01	8.77E-01	7.08E-01	5.73E+01

Program execution time = 0.35 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B4	MARMU A-F	MU A-F	MEA	315

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REGION: Marsland All Well Field CODE: MILDOS-AREA (02/12) PAGE 2

METSET: DATA: MarMUA-F.MIL 09/18/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.11872,0.21958,0.27611,0.26217,0.08349,0.04013

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1150	0.0260	0.0770	0.0770	0.0890	0.0770	0.1150	0.1660	0.1400	0.3060	0.1150	0.0770	0.1020	0.0890	0.0640	0.0510	1.6860
5.5	0.2670	0.1510	0.1860	0.1860	0.1860	0.3140	0.1980	0.2670	0.2560	0.3260	0.2560	0.4190	0.1400	0.1160	0.1980	0.2210	3.6870
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3820	0.1770	0.2630	0.2630	0.2750	0.3910	0.3130	0.4330	0.3960	0.6320	0.3710	0.4960	0.2420	0.2050	0.2620	0.2720	5.3730
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.0130	0.0380	0.0380	0.0640	0.0000	0.0000	0.0000	0.0130	0.0000	0.0000	0.1920
5.5	0.0350	0.0230	0.0930	0.0350	0.0580	0.1160	0.1280	0.1280	0.0810	0.1980	0.0930	0.0930	0.0470	0.0470	0.0810	0.0230	1.2790
10.0	0.1860	0.1980	0.1630	0.1400	0.1280	0.1740	0.2440	0.1630	0.2440	0.2210	0.2330	0.2090	0.1160	0.1280	0.2210	0.2330	3.0010
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2210	0.2210	0.2560	0.1750	0.1860	0.3160	0.3850	0.3290	0.3630	0.4830	0.3260	0.3020	0.1630	0.1880	0.3020	0.2560	4.4720
STABILITY CLASS 3																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130	0.0130	0.0130	0.0260	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0650
5.5	0.0120	0.0120	0.0470	0.0230	0.0700	0.0700	0.0700	0.0700	0.0930	0.0470	0.0700	0.0350	0.0470	0.0000	0.0230	0.0120	0.7010
10.0	0.6980	0.3490	0.2090	0.2560	0.2790	0.5230	0.4770	0.4190	0.3840	0.3950	0.4540	0.5120	0.3140	0.3020	0.4300	0.5120	6.5130
15.5	0.3720	0.1630	0.0930	0.1400	0.0930	0.1280	0.0700	0.1050	0.2210	0.1630	0.2330	0.1860	0.1400	0.2090	0.4070	0.3370	3.0600
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.0820	0.5240	0.3490	0.4190	0.4420	0.7210	0.6300	0.6070	0.7110	0.6310	0.7570	0.7330	0.5010	0.5110	0.8600	0.8610	10.3390
STABILITY CLASS 4																	
1.5	0.0260	0.0260	0.0000	0.0000	0.0000	0.0260	0.0130	0.0130	0.0130	0.0130	0.0130	0.0130	0.0000	0.0130	0.0130	0.0260	0.2080
5.5	0.3020	0.1980	0.0810	0.1400	0.3020	0.4190	0.4650	0.3020	0.2210	0.1740	0.1160	0.1860	0.1400	0.0930	0.2790	0.7910	4.2090
10.0	1.2700	0.7440	0.4880	0.5000	0.8020	1.0470	1.3370	1.1860	0.9420	0.6860	0.7790	1.0470	0.7330	0.8260	1.2210	1.8140	15.4220
15.5	2.3400	1.2210	0.7680	0.5470	0.7680	0.5810	0.7680	1.5930	1.6750	0.9190	0.6630	1.3370	1.6860	2.3140	2.8720	3.1050	23.1570
21.5	0.6400	0.3370	0.0580	0.0350	0.0580	0.0810	0.0930	0.3950	0.5580	0.2330	0.1740	0.3950	0.5580	1.0120	2.2100	1.5120	8.3490
28.0	0.3840	0.1160	0.0120	0.0120	0.0000	0.0120	0.0000	0.1860	0.1050	0.0350	0.0350	0.1160	0.3140	0.5230	1.2090	0.9540	4.0130
ALL	4.9620	2.6420	1.4070	1.2340	1.9300	2.1660	2.6760	3.6750	3.5140	2.0600	1.7800	3.0940	3.4310	4.7810	7.8040	8.2020	55.3580
STABILITY CLASS 5																	
1.5	0.1280	0.0640	0.0000	0.0000	0.0260	0.0380	0.0640	0.0640	0.0260	0.0000	0.0380	0.0130	0.0130	0.0260	0.0380	0.0640	0.6020
5.5	0.1510	0.0930	0.0930	0.1160	0.1400	0.2330	0.1630	0.1740	0.1740	0.1050	0.1510	0.1740	0.1280	0.1400	0.2670	0.5810	2.8830
10.0	0.1630	0.0810	0.0930	0.1280	0.1050	0.0930	0.0810	0.1280	0.1280	0.1160	0.1980	0.2330	0.1630	0.1160	0.2560	0.5930	2.6750
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4420	0.2380	0.1860	0.2440	0.2710	0.3640	0.3080	0.3660	0.3280	0.2210	0.3870	0.4200	0.3040	0.2820	0.5610	1.2380	6.1600
STABILITY CLASS 6																	
1.5	0.8160	0.6500	0.5610	0.4850	0.4210	0.4340	0.5610	0.4850	0.6380	0.5740	0.4460	0.5740	0.5230	0.5230	0.4460	0.9820	9.1190
5.5	0.9190	0.3720	0.2330	0.3490	0.4070	0.4300	0.5000	0.6400	0.5120	0.6160	0.5930	0.6630	0.3720	0.6400	0.7090	1.2440	9.1990
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.7350	1.0220	0.7940	0.8340	0.8280	0.8640	1.0610	1.1250	1.1500	1.1900	1.0390	1.2370	0.8950	1.1630	1.1550	2.2260	18.3180
ALL	8.8240	4.8240	3.2550	3.1690	3.9320	4.8220	5.3730	6.5350	6.4620	5.2170	4.6600	6.2820	5.5360	7.1300	10.9440	13.0550	100.0200

INDIVIDUAL RECEPTOR LOCATION DATA, 31 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	Alliance	30.00	-45.40	-50.00	54.42	1	17	Residence 2	1.00	0.30	-4.00	1.04	1
2	Berea	21.50	-32.60	-50.00	39.05	1	18	Residence 3	-0.80	-1.90	-16.00	2.06	1
3	Chardon	22.30	35.80	-50.00	42.18	1	19	Residence 4	-0.40	-3.40	-31.00	3.42	1
4	Clinton	75.40	26.50	-50.00	79.92	1	20	Residence 5	1.90	-4.30	-36.00	4.70	1
5	Crawford	-12.10	20.80	-50.00	24.06	1	21	Residence 6	-4.70	1.86	22.00	5.05	1
6	Harrison	-50.50	22.50	-50.00	55.29	1	22	Residence 7	2.40	3.60	76.00	4.33	1
7	Hay Springs	47.10	18.80	-50.00	50.71	1	23	Residence 8	4.70	-4.40	-50.00	6.44	1
8	Hemmingford	14.30	-20.40	36.00	24.91	1	24	Unoccupied 1	-0.90	1.90	15.70	2.10	1
9	Marsland	-3.80	-6.10	-50.00	7.19	1	25	Unoccupied 2	2.00	2.80	69.00	3.44	1
10	Mitchell	-48.50	-60.00	-50.00	77.15	1	26	North Boundary #1	-1.30	5.10	34.70	5.26	1
11	Oelrichs	4.90	75.30	-50.00	75.46	1	27	East Boundary	1.70	0.00	-2.60	1.70	1
12	Rushville	66.00	22.00	-50.00	69.57	1	28	South Boundary	0.00	-0.60	0.50	0.60	1
13	Scottsbluff	-36.30	-68.90	-50.00	77.88	1	29	West Boundary	-0.70	0.00	12.20	0.70	1
14	Van Tassell	-67.50	21.00	49.00	70.69	1	30	Minatare	-22.40	-75.60	-41.40	78.85	1
15	Whitney	1.20	31.40	-50.00	31.42	1	31	North Boundary #2	-0.50	3.30	19.70	3.34	1
16	Residence 1	-0.80	-0.60	3.40	1.00	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0, 0, 0, 0, 0, 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 6

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	ID	PSIZE SET	M/SEC EXIT VEL	SOURCE NAME
1	-0.86	2.88	30.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E+03	1001	1	0.00E+00	MU-A
2	1.12	-1.02	-15.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E+03	1002	1	0.00E+00	MU-B
3	1.74	-2.33	-20.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E+02	1003	1	0.00E+00	MU-C
4	2.42	-3.56	-20.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E+03	1004	1	0.00E+00	MU-D
5	2.74	-3.98	-20.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E+03	1005	1	0.00E+00	MU-E
6	2.90	-4.30	-20.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E+03	1006	1	0.00E+00	MU-F

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									
6	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									
6	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	2.754E-01	2.230E+00	3.595E-02	1.672E+00	8.041E-01	1.156E+02
GROUND	1.609E-02	1.609E-02	1.609E-02	1.609E-02	1.609E-02	1.609E-02
CLOUD	9.727E-01	9.727E-01	9.727E-01	9.727E-01	9.727E-01	9.727E-01
VEG. ING	1.302E+00	1.504E+01	1.302E+00	4.472E+00	3.642E+00	1.302E+00
MEAT ING	9.056E-02	1.046E+00	9.056E-02	3.110E-01	2.533E-01	9.056E-02
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.657E+00	1.931E+01	2.417E+00	7.444E+00	5.689E+00	1.180E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	2.200E+02	2.542E+03	2.200E+02	7.555E+02	6.154E+02	2.200E+02
MEAT ING	1.814E+00	2.096E+01	1.814E+00	6.231E+00	5.075E+00	1.814E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.218E+02	2.563E+03	2.218E+02	7.617E+02	6.205E+02	2.218E+02

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	2.754E-01	2.230E+00	3.595E-02	1.672E+00	8.041E-01	1.156E+02
GROUND	1.609E-02	1.609E-02	1.609E-02	1.609E-02	1.609E-02	1.609E-02
CLOUD	9.727E-01	9.727E-01	9.727E-01	9.727E-01	9.727E-01	9.727E-01
VEG. ING	2.213E+02	2.557E+03	2.213E+02	7.600E+02	6.190E+02	2.213E+02
MEAT ING	1.905E+00	2.201E+01	1.905E+00	6.542E+00	5.328E+00	1.905E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.245E+02	2.582E+03	2.242E+02	7.692E+02	6.262E+02	3.398E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=Alliance X= 30.0KM, Y= -45.4KM, Z= -50.0M, DIST= 54.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.07E-01	9.02E-02	4.14E-02	3.18E-01	1.46E-01	4.26E+00
CHILD	TOTALS	3.02E-01	1.28E-01	5.37E-02	1.77E-01	1.00E-01	4.26E+00
TEENAGE	TOTALS	3.05E-01	2.22E-01	6.21E-02	1.15E-01	8.22E-02	4.26E+00
ADULT	TOTALS	3.07E-01	2.18E-01	7.30E-02	1.17E-01	8.69E-02	4.26E+00

NUMBER 2 NAME=Berea X= 21.5KM, Y= -32.6KM, Z= -50.0M, DIST= 39.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.54E-01	1.08E-01	5.69E-02	3.44E-01	1.65E-01	6.45E+00
CHILD	TOTALS	4.49E-01	1.47E-01	6.97E-02	1.97E-01	1.18E-01	6.45E+00
TEENAGE	TOTALS	4.52E-01	2.44E-01	7.85E-02	1.33E-01	9.93E-02	6.45E+00
ADULT	TOTALS	4.54E-01	2.40E-01	8.98E-02	1.35E-01	1.04E-01	6.45E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=Chardon X= 22.3KM, Y= 35.8KM, Z= -50.0M, DIST= 42.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.39E-01	7.84E-02	3.34E-02	2.89E-01	1.30E-01	3.28E+00
CHILD	TOTALS	2.35E-01	1.14E-01	4.48E-02	1.58E-01	8.74E-02	3.28E+00
TEENAGE	TOTALS	2.38E-01	2.00E-01	5.25E-02	1.01E-01	7.10E-02	3.28E+00
ADULT	TOTALS	2.40E-01	1.96E-01	6.26E-02	1.03E-01	7.54E-02	3.28E+00

NUMBER 4 NAME=Clinton X= 75.4KM, Y= 26.5KM, Z= -50.0M, DIST= 79.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.21E-01	5.26E-02	1.84E-02	2.14E-01	9.19E-02	1.59E+00
CHILD	TOTALS	1.18E-01	7.96E-02	2.69E-02	1.14E-01	5.95E-02	1.59E+00
TEENAGE	TOTALS	1.20E-01	1.46E-01	3.28E-02	7.00E-02	4.69E-02	1.59E+00
ADULT	TOTALS	1.22E-01	1.43E-01	4.05E-02	7.15E-02	5.03E-02	1.59E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=Crawford X= -12.1KM, Y= 20.8KM, Z= -50.0M, DIST= 24.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.32E-01	9.52E-02	5.34E-02	2.90E-01	1.43E-01	6.18E+00
CHILD	TOTALS	4.28E-01	1.28E-01	6.40E-02	1.69E-01	1.04E-01	6.18E+00
TEENAGE	TOTALS	4.30E-01	2.08E-01	7.12E-02	1.16E-01	8.84E-02	6.18E+00
ADULT	TOTALS	4.32E-01	2.04E-01	8.05E-02	1.18E-01	9.24E-02	6.18E+00

NUMBER 6 NAME=Harrison X= -50.5KM, Y= 22.5KM, Z= -50.0M, DIST= 55.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.53E-01	5.50E-02	2.21E-02	2.09E-01	9.26E-02	2.07E+00
CHILD	TOTALS	1.50E-01	8.09E-02	3.03E-02	1.14E-01	6.16E-02	2.07E+00
TEENAGE	TOTALS	1.52E-01	1.44E-01	3.60E-02	7.17E-02	4.96E-02	2.07E+00
ADULT	TOTALS	1.53E-01	1.41E-01	4.34E-02	7.31E-02	5.28E-02	2.07E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=Hay Springs X= 47.1KM, Y= 18.8KM, Z= -50.0M, DIST= 50.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.97E-01	6.37E-02	2.75E-02	2.33E-01	1.05E-01	2.70E+00
CHILD	TOTALS	1.94E-01	9.20E-02	3.66E-02	1.28E-01	7.09E-02	2.70E+00
TEENAGE	TOTALS	1.96E-01	1.61E-01	4.28E-02	8.19E-02	5.77E-02	2.70E+00
ADULT	TOTALS	1.97E-01	1.58E-01	5.09E-02	8.35E-02	6.12E-02	2.70E+00

NUMBER 8 NAME=Hemmingford X= 14.3KM, Y= -20.4KM, Z= 36.0M, DIST= 24.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.48E-01	1.55E-01	9.52E-02	4.35E-01	2.23E-01	1.24E+01
CHILD	TOTALS	8.43E-01	2.02E-01	1.10E-01	2.61E-01	1.67E-01	1.24E+01
TEENAGE	TOTALS	8.47E-01	3.17E-01	1.21E-01	1.85E-01	1.45E-01	1.24E+01
ADULT	TOTALS	8.49E-01	3.12E-01	1.34E-01	1.88E-01	1.51E-01	1.24E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=Marsland X= -3.8KM, Y= -6.1KM, Z= -50.0M, DIST= 7.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.19E+00	1.37E-01	1.11E-01	2.57E-01	1.66E-01	1.80E+01
CHILD	TOTALS	1.19E+00	1.57E-01	1.17E-01	1.82E-01	1.42E-01	1.80E+01
TEENAGE	TOTALS	1.19E+00	2.06E-01	1.22E-01	1.50E-01	1.33E-01	1.80E+01
ADULT	TOTALS	1.19E+00	2.04E-01	1.28E-01	1.51E-01	1.35E-01	1.80E+01

NUMBER 10 NAME=Mitchell X= -48.5KM, Y= -60.0KM, Z= -50.0M, DIST= 77.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.83E-02	4.39E-02	1.38E-02	1.86E-01	7.85E-02	1.13E+00
CHILD	TOTALS	8.55E-02	6.76E-02	2.13E-02	9.76E-02	5.00E-02	1.13E+00
TEENAGE	TOTALS	8.73E-02	1.26E-01	2.64E-02	5.92E-02	3.89E-02	1.13E+00
ADULT	TOTALS	8.84E-02	1.23E-01	3.32E-02	6.05E-02	4.18E-02	1.13E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=Oelrichs X= 4.9KM, Y= 75.3KM, Z= -50.0M, DIST= 75.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.35E-01	6.19E-02	2.07E-02	2.57E-01	1.09E-01	1.75E+00
CHILD	TOTALS	1.31E-01	9.45E-02	3.09E-02	1.36E-01	7.03E-02	1.75E+00
TEENAGE	TOTALS	1.33E-01	1.74E-01	3.80E-02	8.29E-02	5.51E-02	1.75E+00
ADULT	TOTALS	1.35E-01	1.71E-01	4.73E-02	8.47E-02	5.91E-02	1.75E+00

NUMBER 12 NAME=Rushville X= 66.0KM, Y= 22.0KM, Z= -50.0M, DIST= 69.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.42E-01	5.60E-02	2.09E-02	2.21E-01	9.62E-02	1.89E+00
CHILD	TOTALS	1.38E-01	8.37E-02	2.97E-02	1.19E-01	6.31E-02	1.89E+00
TEENAGE	TOTALS	1.41E-01	1.52E-01	3.57E-02	7.38E-02	5.02E-02	1.89E+00
ADULT	TOTALS	1.42E-01	1.48E-01	4.36E-02	7.53E-02	5.36E-02	1.89E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=Scottsbluff X= -36.3KM, Y= -68.9KM, Z= -50.0M, DIST= 77.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.03E-01	4.96E-02	1.60E-02	2.08E-01	8.83E-02	1.33E+00
CHILD	TOTALS	9.99E-02	7.62E-02	2.43E-02	1.10E-01	5.64E-02	1.33E+00
TEENAGE	TOTALS	1.02E-01	1.41E-01	3.01E-02	6.67E-02	4.40E-02	1.33E+00
ADULT	TOTALS	1.03E-01	1.38E-01	3.77E-02	6.82E-02	4.73E-02	1.33E+00

NUMBER 14 NAME=Van Tassell X= -67.5KM, Y= 21.0KM, Z= 49.0M, DIST= 70.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.21E-01	5.16E-02	1.82E-02	2.09E-01	8.99E-02	1.59E+00
CHILD	TOTALS	1.18E-01	7.79E-02	2.65E-02	1.11E-01	5.83E-02	1.59E+00
TEENAGE	TOTALS	1.20E-01	1.43E-01	3.22E-02	6.85E-02	4.60E-02	1.59E+00
ADULT	TOTALS	1.21E-01	1.39E-01	3.98E-02	7.00E-02	4.93E-02	1.59E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Whitney X= 1.2KM, Y= 31.4KM, Z= -50.0M, DIST= 31.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.40E-01	8.98E-02	4.42E-02	3.03E-01	1.42E-01	4.77E+00
CHILD	TOTALS	3.35E-01	1.25E-01	5.57E-02	1.70E-01	9.89E-02	4.77E+00
TEENAGE	TOTALS	3.38E-01	2.13E-01	6.36E-02	1.13E-01	8.23E-02	4.77E+00
ADULT	TOTALS	3.40E-01	2.09E-01	7.38E-02	1.15E-01	8.67E-02	4.77E+00

NUMBER 16 NAME=Residence 1 X= -0.8KM, Y= -0.6KM, Z= 3.4M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.47E+00	3.73E-01	3.38E-01	5.38E-01	4.13E-01	8.58E+01
CHILD	TOTALS	5.47E+00	4.01E-01	3.47E-01	4.36E-01	3.80E-01	8.58E+01
TEENAGE	TOTALS	5.47E+00	4.68E-01	3.53E-01	3.91E-01	3.68E-01	8.58E+01
ADULT	TOTALS	5.47E+00	4.65E-01	3.61E-01	3.93E-01	3.71E-01	8.58E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=Residence 2 X= 1.0KM, Y= 0.3KM, Z= -4.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.22E+00	3.78E-01	3.49E-01	5.15E-01	4.11E-01	1.31E+02
CHILD	TOTALS	8.22E+00	4.01E-01	3.56E-01	4.30E-01	3.84E-01	1.31E+02
TEENAGE	TOTALS	8.22E+00	4.57E-01	3.61E-01	3.93E-01	3.73E-01	1.31E+02
ADULT	TOTALS	8.22E+00	4.54E-01	3.68E-01	3.94E-01	3.76E-01	1.31E+02

NUMBER 18 NAME=Residence 3 X= -0.8KM, Y= -1.9KM, Z= -16.0M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.73E+00	3.25E-01	2.97E-01	4.57E-01	3.57E-01	7.40E+01
CHILD	TOTALS	4.73E+00	3.47E-01	3.04E-01	3.75E-01	3.31E-01	7.40E+01
TEENAGE	TOTALS	4.73E+00	4.01E-01	3.09E-01	3.39E-01	3.20E-01	7.40E+01
ADULT	TOTALS	4.73E+00	3.99E-01	3.15E-01	3.41E-01	3.23E-01	7.40E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 19 NAME=Residence 4 X= -0.4KM, Y= -3.4KM, Z= -31.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.48E+00	2.92E-01	2.69E-01	3.98E-01	3.18E-01	7.03E+01
CHILD	TOTALS	4.47E+00	3.10E-01	2.75E-01	3.32E-01	2.97E-01	7.03E+01
TEENAGE	TOTALS	4.48E+00	3.53E-01	2.79E-01	3.04E-01	2.88E-01	7.03E+01
ADULT	TOTALS	4.48E+00	3.51E-01	2.84E-01	3.05E-01	2.91E-01	7.03E+01

NUMBER 20 NAME=Residence 5 X= 1.9KM, Y= -4.3KM, Z= -36.0M, DIST= 4.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.33E+01	3.07E-01	2.91E-01	3.80E-01	3.25E-01	2.18E+02
CHILD	TOTALS	1.33E+01	3.19E-01	2.95E-01	3.35E-01	3.10E-01	2.18E+02
TEENAGE	TOTALS	1.33E+01	3.49E-01	2.98E-01	3.15E-01	3.04E-01	2.18E+02
ADULT	TOTALS	1.33E+01	3.48E-01	3.01E-01	3.16E-01	3.06E-01	2.18E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 21 NAME=Residence 6 X= -4.7KM, Y= 1.9KM, Z= 22.0M, DIST= 5.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.09E+00	2.29E-01	1.87E-01	4.25E-01	2.77E-01	3.17E+01
CHILD	TOTALS	2.09E+00	2.62E-01	1.98E-01	3.03E-01	2.37E-01	3.17E+01
TEENAGE	TOTALS	2.09E+00	3.42E-01	2.05E-01	2.50E-01	2.22E-01	3.17E+01
ADULT	TOTALS	2.09E+00	3.39E-01	2.14E-01	2.52E-01	2.26E-01	3.17E+01

NUMBER 22 NAME=Residence 7 X= 2.4KM, Y= 3.6KM, Z= 76.0M, DIST= 4.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.39E+00	3.19E-01	2.71E-01	5.41E-01	3.73E-01	5.20E+01
CHILD	TOTALS	3.38E+00	3.56E-01	2.84E-01	4.03E-01	3.29E-01	5.20E+01
TEENAGE	TOTALS	3.38E+00	4.47E-01	2.92E-01	3.43E-01	3.11E-01	5.20E+01
ADULT	TOTALS	3.39E+00	4.43E-01	3.03E-01	3.45E-01	3.16E-01	5.20E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 23 NAME=Residence 8 X= 4.7KM, Y= -4.4KM, Z= -50.0M, DIST= 6.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.27E+00	1.76E-01	1.63E-01	2.33E-01	1.89E-01	6.85E+01
CHILD	TOTALS	4.27E+00	1.85E-01	1.66E-01	1.97E-01	1.78E-01	6.85E+01
TEENAGE	TOTALS	4.27E+00	2.09E-01	1.68E-01	1.82E-01	1.74E-01	6.85E+01
ADULT	TOTALS	4.27E+00	2.08E-01	1.71E-01	1.82E-01	1.75E-01	6.85E+01

NUMBER 24 NAME=Unoccupied 1 X= -0.9KM, Y= 1.9KM, Z= 15.7M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.12E+01	3.64E-01	3.28E-01	5.30E-01	4.04E-01	1.81E+02
CHILD	TOTALS	1.12E+01	3.92E-01	3.37E-01	4.27E-01	3.71E-01	1.81E+02
TEENAGE	TOTALS	1.12E+01	4.60E-01	3.43E-01	3.82E-01	3.58E-01	1.81E+02
ADULT	TOTALS	1.12E+01	4.57E-01	3.51E-01	3.83E-01	3.62E-01	1.81E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 25 NAME=Unoccupied 2 X= 2.0KM, Y= 2.8KM, Z= 69.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.89E+00	3.37E-01	2.93E-01	5.41E-01	3.87E-01	6.01E+01
CHILD	TOTALS	3.89E+00	3.71E-01	3.05E-01	4.14E-01	3.46E-01	6.01E+01
TEENAGE	TOTALS	3.89E+00	4.55E-01	3.12E-01	3.59E-01	3.30E-01	6.01E+01
ADULT	TOTALS	3.89E+00	4.51E-01	3.22E-01	3.61E-01	3.34E-01	6.01E+01

NUMBER 26 NAME=North Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 34.7M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.92E+00	2.83E-01	2.41E-01	4.79E-01	3.31E-01	6.13E+01
CHILD	TOTALS	3.91E+00	3.16E-01	2.51E-01	3.57E-01	2.91E-01	6.13E+01
TEENAGE	TOTALS	3.91E+00	3.96E-01	2.59E-01	3.04E-01	2.76E-01	6.13E+01
ADULT	TOTALS	3.92E+00	3.93E-01	2.68E-01	3.06E-01	2.80E-01	6.13E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 27 NAME=East Boundary X= 1.7KM, Y= 0.0KM, Z= -2.6M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.82E+00	3.92E-01	3.63E-01	5.26E-01	4.25E-01	1.41E+02
CHILD	TOTALS	8.82E+00	4.15E-01	3.71E-01	4.43E-01	3.98E-01	1.41E+02
TEENAGE	TOTALS	8.82E+00	4.70E-01	3.76E-01	4.07E-01	3.88E-01	1.41E+02
ADULT	TOTALS	8.82E+00	4.67E-01	3.82E-01	4.08E-01	3.90E-01	1.41E+02

NUMBER 28 NAME=South Boundary X= 0.0KM, Y= -0.6KM, Z= 0.5M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.26E+00	4.07E-01	3.75E-01	5.58E-01	4.44E-01	1.32E+02
CHILD	TOTALS	8.26E+00	4.33E-01	3.83E-01	4.65E-01	4.14E-01	1.32E+02
TEENAGE	TOTALS	8.26E+00	4.95E-01	3.89E-01	4.24E-01	4.02E-01	1.32E+02
ADULT	TOTALS	8.26E+00	4.92E-01	3.96E-01	4.25E-01	4.05E-01	1.32E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 29 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 12.2M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.11E+00	4.03E-01	3.66E-01	5.75E-01	4.45E-01	9.59E+01
CHILD	TOTALS	6.11E+00	4.32E-01	3.76E-01	4.68E-01	4.11E-01	9.59E+01
TEENAGE	TOTALS	6.11E+00	5.03E-01	3.82E-01	4.22E-01	3.97E-01	9.59E+01
ADULT	TOTALS	6.11E+00	4.99E-01	3.90E-01	4.23E-01	4.01E-01	9.59E+01

NUMBER 30 NAME=Minatare X= -22.4KM, Y= -75.6KM, Z= -41.4M, DIST= 78.8KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.22E-01	5.76E-02	1.89E-02	2.41E-01	1.02E-01	1.58E+00
CHILD	TOTALS	1.19E-01	8.83E-02	2.85E-02	1.27E-01	6.55E-02	1.58E+00
TEENAGE	TOTALS	1.21E-01	1.63E-01	3.52E-02	7.74E-02	5.12E-02	1.58E+00
ADULT	TOTALS	1.23E-01	1.60E-01	4.39E-02	7.91E-02	5.50E-02	1.58E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 31 NAME=North Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 19.7M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.44E+01	2.72E-01	2.37E-01	4.35E-01	3.12E-01	2.35E+02
CHILD	TOTALS	1.44E+01	3.00E-01	2.46E-01	3.34E-01	2.79E-01	2.35E+02
TEENAGE	TOTALS	1.44E+01	3.66E-01	2.52E-01	2.90E-01	2.67E-01	2.35E+02
ADULT	TOTALS	1.44E+01	3.63E-01	2.60E-01	2.91E-01	2.70E-01	2.35E+02

Program execution time = 0.64 seconds

MILDOS-AREA
RADIATION DOSES FROM
CAMECO RESOURCES
MARSLAND EXPANSION AREA
IN-SITU URANIUM RECOVERY OPERATION

By
Noel Savignac, Ph.D.

September 24, 2013

APPENDIX B

8500 Menaul Blvd., NE, Suite B-335, Albuquerque, NM 87112
Bus: (505) 881-4150 Res: (505) 256-9603 Fax: (505) 296-3289
Email: noelsav@swcp.com

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B5	MARST A-F	SATELLITE A-F	MEA	315

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REGION: Marsland All Well Field CODE: MILDOS-AREA (02/12) PAGE 2

METSET: DATA: MarSTA-F.MIL 09/18/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.11872,0.21958,0.27611,0.26217,0.08349,0.04013

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1150	0.0260	0.0770	0.0770	0.0890	0.0770	0.1150	0.1660	0.1400	0.3060	0.1150	0.0770	0.1020	0.0890	0.0640	0.0510	1.6860
5.5	0.2670	0.1510	0.1860	0.1860	0.1860	0.3140	0.1980	0.2670	0.2560	0.3260	0.2560	0.4190	0.1400	0.1160	0.1980	0.2210	3.6870
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3820	0.1770	0.2630	0.2630	0.2750	0.3910	0.3130	0.4330	0.3960	0.6320	0.3710	0.4960	0.2420	0.2050	0.2620	0.2720	5.3730
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.0130	0.0380	0.0380	0.0640	0.0000	0.0000	0.0000	0.0130	0.0000	0.0000	0.1920
5.5	0.0350	0.0230	0.0930	0.0350	0.0580	0.1160	0.1280	0.1280	0.0810	0.1980	0.0930	0.0930	0.0470	0.0470	0.0810	0.0230	1.2790
10.0	0.1860	0.1980	0.1630	0.1400	0.1280	0.1740	0.2440	0.1630	0.2440	0.2210	0.2330	0.2090	0.1160	0.1280	0.2210	0.2330	3.0010
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2210	0.2210	0.2560	0.1750	0.1860	0.3160	0.3850	0.3290	0.3630	0.4830	0.3260	0.3020	0.1630	0.1880	0.3020	0.2560	4.4720
STABILITY CLASS 3																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130	0.0130	0.0130	0.0260	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0650
5.5	0.0120	0.0120	0.0470	0.0230	0.0700	0.0700	0.0700	0.0700	0.0930	0.0470	0.0700	0.0350	0.0470	0.0000	0.0230	0.0120	0.7010
10.0	0.6980	0.3490	0.2090	0.2560	0.2790	0.5230	0.4770	0.4190	0.3840	0.3950	0.4540	0.5120	0.3140	0.3020	0.4300	0.5120	6.5130
15.5	0.3720	0.1630	0.0930	0.1400	0.0930	0.1280	0.0700	0.1050	0.2210	0.1630	0.2330	0.1860	0.1400	0.2090	0.4070	0.3370	3.0600
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.0820	0.5240	0.3490	0.4190	0.4420	0.7210	0.6300	0.6070	0.7110	0.6310	0.7570	0.7330	0.5010	0.5110	0.8600	0.8610	10.3390
STABILITY CLASS 4																	
1.5	0.0260	0.0260	0.0000	0.0000	0.0000	0.0260	0.0130	0.0130	0.0130	0.0130	0.0130	0.0130	0.0000	0.0130	0.0130	0.0260	0.2080
5.5	0.3020	0.1980	0.0810	0.1400	0.3020	0.4190	0.4650	0.3020	0.2210	0.1740	0.1160	0.1860	0.1400	0.0930	0.2790	0.7910	4.2090
10.0	1.2700	0.7440	0.4880	0.5000	0.8020	1.0470	1.3370	1.1860	0.9420	0.6860	0.7790	1.0470	0.7330	0.8260	1.2210	1.8140	15.4220
15.5	2.3400	1.2210	0.7680	0.5470	0.7680	0.5810	0.7680	1.5930	1.6750	0.9190	0.6630	1.3370	1.6860	2.3140	2.8720	3.1050	23.1570
21.5	0.6400	0.3370	0.0580	0.0350	0.0580	0.0810	0.0930	0.3950	0.5580	0.2330	0.1740	0.3950	0.5580	1.0120	2.2100	1.5120	8.3490
28.0	0.3840	0.1160	0.0120	0.0120	0.0000	0.0120	0.0000	0.1860	0.1050	0.0350	0.0350	0.1160	0.3140	0.5230	1.2090	0.9540	4.0130
ALL	4.9620	2.6420	1.4070	1.2340	1.9300	2.1660	2.6760	3.6750	3.5140	2.0600	1.7800	3.0940	3.4310	4.7810	7.8040	8.2020	55.3580
STABILITY CLASS 5																	
1.5	0.1280	0.0640	0.0000	0.0000	0.0260	0.0380	0.0640	0.0640	0.0260	0.0000	0.0380	0.0130	0.0130	0.0260	0.0380	0.0640	0.6020
5.5	0.1510	0.0930	0.0930	0.1160	0.1400	0.2330	0.1630	0.1740	0.1740	0.1050	0.1510	0.1740	0.1280	0.1400	0.2670	0.5810	2.8830
10.0	0.1630	0.0810	0.0930	0.1280	0.1050	0.0930	0.0810	0.1280	0.1280	0.1160	0.1980	0.2330	0.1630	0.1160	0.2560	0.5930	2.6750
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4420	0.2380	0.1860	0.2440	0.2710	0.3640	0.3080	0.3660	0.3280	0.2210	0.3870	0.4200	0.3040	0.2820	0.5610	1.2380	6.1600
STABILITY CLASS 6																	
1.5	0.8160	0.6500	0.5610	0.4850	0.4210	0.4340	0.5610	0.4850	0.6380	0.5740	0.4460	0.5740	0.5230	0.5230	0.4460	0.9820	9.1190
5.5	0.9190	0.3720	0.2330	0.3490	0.4070	0.4300	0.5000	0.6400	0.5120	0.6160	0.5930	0.6630	0.3720	0.6400	0.7090	1.2440	9.1990
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.7350	1.0220	0.7940	0.8340	0.8280	0.8640	1.0610	1.1250	1.1500	1.1900	1.0390	1.2370	0.8950	1.1630	1.1550	2.2260	18.3180
ALL	8.8240	4.8240	3.2550	3.1690	3.9320	4.8220	5.3730	6.5350	6.4620	5.2170	4.6600	6.2820	5.5360	7.1300	10.9440	13.0550	100.0200

INDIVIDUAL RECEPTOR LOCATION DATA, 31 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	Alliance	30.00	-45.40	-50.00	54.42	1	17	Residence 2	1.00	0.30	-4.00	1.04	1
2	Berea	21.50	-32.60	-50.00	39.05	1	18	Residence 3	-0.80	-1.90	-16.00	2.06	1
3	Chardon	22.30	35.80	-50.00	42.18	1	19	Residence 4	-0.40	-3.40	-31.00	3.42	1
4	Clinton	75.40	26.50	-50.00	79.92	1	20	Residence 5	1.90	-4.30	-36.00	4.70	1
5	Crawford	-12.10	20.80	-50.00	24.06	1	21	Residence 6	-4.70	1.86	22.00	5.05	1
6	Harrison	-50.50	22.50	-50.00	55.29	1	22	Residence 7	2.40	3.60	76.00	4.33	1
7	Hay Springs	47.10	18.80	-50.00	50.71	1	23	Residence 8	4.70	-4.40	-50.00	6.44	1
8	Hemmingford	14.30	-20.40	36.00	24.91	1	24	Unoccupied 1	-0.90	1.90	15.70	2.10	1
9	Marsland	-3.80	-6.10	-50.00	7.19	1	25	Unoccupied 2	2.00	2.80	69.00	3.44	1
10	Mitchell	-48.50	-60.00	-50.00	77.15	1	26	North Boundary #1	-1.30	5.10	34.70	5.26	1
11	Oelrichs	4.90	75.30	-50.00	75.46	1	27	East Boundary	1.70	0.00	-2.60	1.70	1
12	Rushville	66.00	22.00	-50.00	69.57	1	28	South Boundary	0.00	-0.60	0.50	0.60	1
13	Scottsbluff	-36.30	-68.90	-50.00	77.88	1	29	West Boundary	-0.70	0.00	12.20	0.70	1
14	Van Tassell	-67.50	21.00	49.00	70.69	1	30	Minatare	-22.40	-75.60	-41.40	78.85	1
15	Whitney	1.20	31.40	-50.00	31.42	1	31	North Boundary #2	-0.60	3.30	19.70	3.35	1
16	Residence 1	-0.90	-0.60	3.40	1.08	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	8700.00	4000.00	0.00	2.50

IPACT EQUALS 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 1

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	ID	PSIZE SET	M/SEC EXIT VEL	SOURCE NAME
1	0.00	0.00	10.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.69E+03	1001	1	1.00E+01	Satellite

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	2.847E-01	2.306E+00	3.725E-02	1.729E+00	8.315E-01	1.188E+02
GROUND	1.654E-02	1.654E-02	1.654E-02	1.654E-02	1.654E-02	1.654E-02
CLOUD	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00
VEG. ING	1.328E+00	1.535E+01	1.328E+00	4.563E+00	3.716E+00	1.328E+00
MEAT ING	9.240E-02	1.068E+00	9.240E-02	3.173E-01	2.585E-01	9.240E-02
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.725E+00	1.974E+01	2.477E+00	7.628E+00	5.826E+00	1.212E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	2.125E+01	2.455E+02	2.125E+01	7.298E+01	5.945E+01	2.125E+01
MEAT ING	1.851E+00	2.139E+01	1.851E+00	6.357E+00	5.178E+00	1.851E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.310E+01	2.669E+02	2.310E+01	7.934E+01	6.462E+01	2.310E+01

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	2.847E-01	2.306E+00	3.725E-02	1.729E+00	8.315E-01	1.188E+02
GROUND	1.654E-02	1.654E-02	1.654E-02	1.654E-02	1.654E-02	1.654E-02
CLOUD	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00
VEG. ING	2.258E+01	2.609E+02	2.258E+01	7.754E+01	6.316E+01	2.258E+01
MEAT ING	1.943E+00	2.246E+01	1.943E+00	6.675E+00	5.437E+00	1.943E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	2.583E+01	2.867E+02	2.558E+01	8.697E+01	7.045E+01	1.443E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=Alliance X= 30.0KM, Y= -45.4KM, Z= -50.0M, DIST= 54.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.66E-01	7.39E-02	3.56E-02	2.53E-01	1.18E-01	3.71E+00
CHILD	TOTALS	2.62E-01	1.04E-01	4.52E-02	1.42E-01	8.16E-02	3.71E+00
TEENAGE	TOTALS	2.64E-01	1.78E-01	5.18E-02	9.32E-02	6.76E-02	3.71E+00
ADULT	TOTALS	2.66E-01	1.74E-01	6.04E-02	9.49E-02	7.13E-02	3.71E+00

NUMBER 2 NAME=Berea X= 21.5KM, Y= -32.6KM, Z= -50.0M, DIST= 39.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.70E-01	8.29E-02	4.59E-02	2.55E-01	1.25E-01	5.28E+00
CHILD	TOTALS	3.66E-01	1.12E-01	5.53E-02	1.48E-01	9.03E-02	5.28E+00
TEENAGE	TOTALS	3.69E-01	1.83E-01	6.17E-02	1.02E-01	7.69E-02	5.28E+00
ADULT	TOTALS	3.70E-01	1.79E-01	6.99E-02	1.03E-01	8.04E-02	5.28E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=Chardon X= 22.3KM, Y= 35.8KM, Z= -50.0M, DIST= 42.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.14E-01	6.45E-02	2.94E-02	2.28E-01	1.04E-01	2.96E+00
CHILD	TOTALS	2.11E-01	9.19E-02	3.82E-02	1.27E-01	7.15E-02	2.96E+00
TEENAGE	TOTALS	2.13E-01	1.59E-01	4.43E-02	8.21E-02	5.87E-02	2.96E+00
ADULT	TOTALS	2.15E-01	1.56E-01	5.21E-02	8.37E-02	6.21E-02	2.96E+00

NUMBER 4 NAME=Clinton X= 75.4KM, Y= 26.5KM, Z= -50.0M, DIST= 79.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.10E-01	4.48E-02	1.64E-02	1.79E-01	7.75E-02	1.46E+00
CHILD	TOTALS	1.07E-01	6.73E-02	2.35E-02	9.56E-02	5.06E-02	1.46E+00
TEENAGE	TOTALS	1.09E-01	1.22E-01	2.84E-02	5.93E-02	4.01E-02	1.46E+00
ADULT	TOTALS	1.10E-01	1.20E-01	3.48E-02	6.05E-02	4.29E-02	1.46E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=Crawford X= -12.1KM, Y= 20.8KM, Z= -50.0M, DIST= 24.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.05E-01	7.77E-02	4.77E-02	2.17E-01	1.12E-01	5.87E+00
CHILD	TOTALS	4.02E-01	1.01E-01	5.53E-02	1.31E-01	8.37E-02	5.87E+00
TEENAGE	TOTALS	4.04E-01	1.58E-01	6.05E-02	9.27E-02	7.28E-02	5.87E+00
ADULT	TOTALS	4.05E-01	1.56E-01	6.72E-02	9.41E-02	7.57E-02	5.87E+00

NUMBER 6 NAME=Harrison X= -50.5KM, Y= 22.5KM, Z= -50.0M, DIST= 55.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.44E-01	4.75E-02	2.05E-02	1.74E-01	7.84E-02	1.97E+00
CHILD	TOTALS	1.42E-01	6.88E-02	2.73E-02	9.56E-02	5.30E-02	1.97E+00
TEENAGE	TOTALS	1.43E-01	1.21E-01	3.19E-02	6.12E-02	4.31E-02	1.97E+00
ADULT	TOTALS	1.44E-01	1.18E-01	3.80E-02	6.24E-02	4.57E-02	1.97E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=Hay Springs X= 47.1KM, Y= 18.8KM, Z= -50.0M, DIST= 50.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.77E-01	5.34E-02	2.45E-02	1.89E-01	8.64E-02	2.45E+00
CHILD	TOTALS	1.75E-01	7.61E-02	3.17E-02	1.05E-01	5.92E-02	2.45E+00
TEENAGE	TOTALS	1.77E-01	1.32E-01	3.67E-02	6.80E-02	4.86E-02	2.45E+00
ADULT	TOTALS	1.78E-01	1.29E-01	4.32E-02	6.93E-02	5.15E-02	2.45E+00

NUMBER 8 NAME=Hemmingford X= 14.3KM, Y= -20.4KM, Z= 36.0M, DIST= 24.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.65E-01	1.50E-01	8.85E-02	4.34E-01	2.19E-01	1.11E+01
CHILD	TOTALS	7.59E-01	1.97E-01	1.04E-01	2.58E-01	1.62E-01	1.11E+01
TEENAGE	TOTALS	7.63E-01	3.14E-01	1.15E-01	1.80E-01	1.40E-01	1.11E+01
ADULT	TOTALS	7.65E-01	3.09E-01	1.28E-01	1.83E-01	1.46E-01	1.11E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=Marsland X= -3.8KM, Y= -6.1KM, Z= -50.0M, DIST= 7.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	7.05E-01	5.56E-02	4.66E-02	9.72E-02	6.57E-02	1.10E+01
CHILD	TOTALS	7.04E-01	6.25E-02	4.88E-02	7.13E-02	5.73E-02	1.10E+01
TEENAGE	TOTALS	7.04E-01	7.96E-02	5.04E-02	6.00E-02	5.41E-02	1.10E+01
ADULT	TOTALS	7.05E-01	7.88E-02	5.24E-02	6.04E-02	5.49E-02	1.10E+01

NUMBER 10 NAME=Mitchell X= -48.5KM, Y= -60.0KM, Z= -50.0M, DIST= 77.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.22E-02	3.81E-02	1.26E-02	1.58E-01	6.73E-02	1.07E+00
CHILD	TOTALS	7.99E-02	5.82E-02	1.90E-02	8.35E-02	4.32E-02	1.07E+00
TEENAGE	TOTALS	8.14E-02	1.07E-01	2.33E-02	5.10E-02	3.39E-02	1.07E+00
ADULT	TOTALS	8.23E-02	1.05E-01	2.91E-02	5.21E-02	3.63E-02	1.07E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=Oelrichs X= 4.9KM, Y= 75.3KM, Z= -50.0M, DIST= 75.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.31E-01	5.62E-02	1.97E-02	2.28E-01	9.81E-02	1.72E+00
CHILD	TOTALS	1.27E-01	8.50E-02	2.88E-02	1.21E-01	6.36E-02	1.72E+00
TEENAGE	TOTALS	1.30E-01	1.56E-01	3.51E-02	7.47E-02	5.02E-02	1.72E+00
ADULT	TOTALS	1.31E-01	1.52E-01	4.33E-02	7.64E-02	5.37E-02	1.72E+00

NUMBER 12 NAME=Rushville X= 66.0KM, Y= 22.0KM, Z= -50.0M, DIST= 69.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.27E-01	4.70E-02	1.84E-02	1.81E-01	7.97E-02	1.71E+00
CHILD	TOTALS	1.24E-01	6.95E-02	2.56E-02	9.79E-02	5.28E-02	1.71E+00
TEENAGE	TOTALS	1.26E-01	1.25E-01	3.05E-02	6.15E-02	4.23E-02	1.71E+00
ADULT	TOTALS	1.27E-01	1.22E-01	3.69E-02	6.28E-02	4.51E-02	1.71E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=Scottsbluff X= -36.3KM, Y= -68.9KM, Z= -50.0M, DIST= 77.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.30E-02	4.21E-02	1.42E-02	1.74E-01	7.42E-02	1.21E+00
CHILD	TOTALS	9.05E-02	6.42E-02	2.12E-02	9.20E-02	4.78E-02	1.21E+00
TEENAGE	TOTALS	9.21E-02	1.18E-01	2.59E-02	5.63E-02	3.75E-02	1.21E+00
ADULT	TOTALS	9.32E-02	1.16E-01	3.22E-02	5.76E-02	4.02E-02	1.21E+00

NUMBER 14 NAME=Van Tassell X= -67.5KM, Y= 21.0KM, Z= 49.0M, DIST= 70.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.30E-01	5.46E-02	1.95E-02	2.20E-01	9.48E-02	1.72E+00
CHILD	TOTALS	1.27E-01	8.22E-02	2.82E-02	1.17E-01	6.16E-02	1.72E+00
TEENAGE	TOTALS	1.29E-01	1.50E-01	3.43E-02	7.23E-02	4.88E-02	1.72E+00
ADULT	TOTALS	1.30E-01	1.47E-01	4.22E-02	7.39E-02	5.22E-02	1.72E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Whitney X= 1.2KM, Y= 31.4KM, Z= -50.0M, DIST= 31.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.08E-01	7.28E-02	3.88E-02	2.31E-01	1.11E-01	4.38E+00
CHILD	TOTALS	3.05E-01	9.93E-02	4.74E-02	1.33E-01	7.96E-02	4.38E+00
TEENAGE	TOTALS	3.07E-01	1.64E-01	5.33E-02	8.99E-02	6.72E-02	4.38E+00
ADULT	TOTALS	3.08E-01	1.61E-01	6.08E-02	9.14E-02	7.05E-02	4.38E+00

NUMBER 16 NAME=Residence 1 X= -0.9KM, Y= -0.6KM, Z= 3.4M, DIST= 1.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.32E+00	1.03E-01	1.01E-01	1.09E-01	1.04E-01	1.54E+02
CHILD	TOTALS	9.32E+00	1.04E-01	1.02E-01	1.05E-01	1.03E-01	1.54E+02
TEENAGE	TOTALS	9.32E+00	1.07E-01	1.02E-01	1.04E-01	1.03E-01	1.54E+02
ADULT	TOTALS	9.32E+00	1.07E-01	1.02E-01	1.04E-01	1.03E-01	1.54E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=Residence 2 X= 1.0KM, Y= 0.3KM, Z= -4.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.16E+01	6.30E-02	6.24E-02	6.59E-02	6.37E-02	1.93E+02
CHILD	TOTALS	1.16E+01	6.35E-02	6.26E-02	6.41E-02	6.32E-02	1.93E+02
TEENAGE	TOTALS	1.16E+01	6.47E-02	6.27E-02	6.33E-02	6.29E-02	1.93E+02
ADULT	TOTALS	1.16E+01	6.46E-02	6.28E-02	6.34E-02	6.30E-02	1.93E+02

NUMBER 18 NAME=Residence 3 X= -0.8KM, Y= -1.9KM, Z= -16.0M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.63E+00	9.30E-02	8.95E-02	1.09E-01	9.69E-02	5.90E+01
CHILD	TOTALS	3.63E+00	9.57E-02	9.03E-02	9.91E-02	9.37E-02	5.90E+01
TEENAGE	TOTALS	3.63E+00	1.02E-01	9.10E-02	9.47E-02	9.24E-02	5.90E+01
ADULT	TOTALS	3.63E+00	1.02E-01	9.17E-02	9.49E-02	9.27E-02	5.90E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 19 NAME=Residence 4 X= -0.4KM, Y= -3.4KM, Z= -31.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.65E+00	1.08E-01	1.00E-01	1.43E-01	1.16E-01	4.26E+01
CHILD	TOTALS	2.65E+00	1.14E-01	1.02E-01	1.21E-01	1.09E-01	4.26E+01
TEENAGE	TOTALS	2.65E+00	1.28E-01	1.03E-01	1.11E-01	1.06E-01	4.26E+01
ADULT	TOTALS	2.66E+00	1.27E-01	1.05E-01	1.12E-01	1.07E-01	4.26E+01

NUMBER 20 NAME=Residence 5 X= 1.9KM, Y= -4.3KM, Z= -36.0M, DIST= 4.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.96E+00	1.34E-01	1.22E-01	1.91E-01	1.48E-01	4.74E+01
CHILD	TOTALS	2.96E+00	1.44E-01	1.25E-01	1.56E-01	1.37E-01	4.74E+01
TEENAGE	TOTALS	2.96E+00	1.67E-01	1.27E-01	1.41E-01	1.32E-01	4.74E+01
ADULT	TOTALS	2.96E+00	1.66E-01	1.30E-01	1.41E-01	1.34E-01	4.74E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 21 NAME=Residence 6 X= -4.7KM, Y= 1.9KM, Z= 22.0M, DIST= 5.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.89E+00	2.63E-01	2.29E-01	4.18E-01	3.00E-01	4.44E+01
CHILD	TOTALS	2.88E+00	2.89E-01	2.37E-01	3.21E-01	2.69E-01	4.44E+01
TEENAGE	TOTALS	2.88E+00	3.53E-01	2.43E-01	2.79E-01	2.57E-01	4.44E+01
ADULT	TOTALS	2.89E+00	3.49E-01	2.51E-01	2.81E-01	2.60E-01	4.44E+01

NUMBER 22 NAME=Residence 7 X= 2.4KM, Y= 3.6KM, Z= 76.0M, DIST= 4.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.23E+00	3.67E-01	3.28E-01	5.49E-01	4.11E-01	6.52E+01
CHILD	TOTALS	4.23E+00	3.97E-01	3.38E-01	4.36E-01	3.75E-01	6.52E+01
TEENAGE	TOTALS	4.23E+00	4.72E-01	3.45E-01	3.87E-01	3.61E-01	6.52E+01
ADULT	TOTALS	4.23E+00	4.69E-01	3.53E-01	3.88E-01	3.64E-01	6.52E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 23 NAME=Residence 8 X= 4.7KM, Y= -4.4KM, Z= -50.0M, DIST= 6.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.39E+00	6.22E-02	5.53E-02	9.45E-02	7.01E-02	2.22E+01
CHILD	TOTALS	1.39E+00	6.77E-02	5.71E-02	7.45E-02	6.36E-02	2.22E+01
TEENAGE	TOTALS	1.39E+00	8.09E-02	5.83E-02	6.57E-02	6.11E-02	2.22E+01
ADULT	TOTALS	1.39E+00	8.03E-02	5.98E-02	6.60E-02	6.18E-02	2.22E+01

NUMBER 24 NAME=Unoccupied 1 X= -0.9KM, Y= 1.9KM, Z= 15.7M, DIST= 2.1KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.08E+01	4.10E-01	3.94E-01	4.88E-01	4.29E-01	1.73E+02
CHILD	TOTALS	1.08E+01	4.23E-01	3.98E-01	4.40E-01	4.14E-01	1.73E+02
TEENAGE	TOTALS	1.08E+01	4.56E-01	4.01E-01	4.19E-01	4.08E-01	1.73E+02
ADULT	TOTALS	1.08E+01	4.54E-01	4.04E-01	4.20E-01	4.09E-01	1.73E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 25 NAME=Unoccupied 2 X= 2.0KM, Y= 2.8KM, Z= 69.0M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.67E+00	4.07E-01	3.74E-01	5.58E-01	4.44E-01	8.84E+01
CHILD	TOTALS	5.66E+00	4.32E-01	3.83E-01	4.64E-01	4.13E-01	8.84E+01
TEENAGE	TOTALS	5.67E+00	4.94E-01	3.88E-01	4.23E-01	4.02E-01	8.84E+01
ADULT	TOTALS	5.67E+00	4.91E-01	3.96E-01	4.25E-01	4.05E-01	8.84E+01

NUMBER 26 NAME=North Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 34.7M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.64E+00	3.44E-01	2.98E-01	5.57E-01	3.96E-01	5.58E+01
CHILD	TOTALS	3.63E+00	3.80E-01	3.09E-01	4.25E-01	3.53E-01	5.58E+01
TEENAGE	TOTALS	3.64E+00	4.67E-01	3.17E-01	3.67E-01	3.36E-01	5.58E+01
ADULT	TOTALS	3.64E+00	4.63E-01	3.28E-01	3.69E-01	3.41E-01	5.58E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 27 NAME=East Boundary X= 1.7KM, Y= 0.0KM, Z= -2.6M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.96E+00	1.46E-01	1.41E-01	1.65E-01	1.50E-01	1.14E+02
CHILD	TOTALS	6.96E+00	1.49E-01	1.43E-01	1.53E-01	1.46E-01	1.14E+02
TEENAGE	TOTALS	6.96E+00	1.57E-01	1.43E-01	1.48E-01	1.45E-01	1.14E+02
ADULT	TOTALS	6.96E+00	1.57E-01	1.44E-01	1.48E-01	1.45E-01	1.14E+02

NUMBER 28 NAME=South Boundary X= 0.0KM, Y= -0.6KM, Z= 0.5M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.59E+01	6.91E-02	6.89E-02	6.99E-02	6.93E-02	5.97E+02
CHILD	TOTALS	3.59E+01	6.92E-02	6.89E-02	6.94E-02	6.91E-02	5.97E+02
TEENAGE	TOTALS	3.59E+01	6.96E-02	6.90E-02	6.92E-02	6.90E-02	5.97E+02
ADULT	TOTALS	3.59E+01	6.95E-02	6.90E-02	6.92E-02	6.91E-02	5.97E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 29 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 12.2M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.78E+01	1.37E-01	1.36E-01	1.41E-01	1.38E-01	4.61E+02
CHILD	TOTALS	2.78E+01	1.38E-01	1.37E-01	1.39E-01	1.37E-01	4.61E+02
TEENAGE	TOTALS	2.78E+01	1.39E-01	1.37E-01	1.38E-01	1.37E-01	4.61E+02
ADULT	TOTALS	2.78E+01	1.39E-01	1.37E-01	1.38E-01	1.37E-01	4.61E+02

NUMBER 30 NAME=Minatare X= -22.4KM, Y= -75.6KM, Z= -41.4M, DIST= 78.8KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.18E-01	5.26E-02	1.80E-02	2.16E-01	9.24E-02	1.54E+00
CHILD	TOTALS	1.15E-01	8.00E-02	2.66E-02	1.14E-01	5.96E-02	1.54E+00
TEENAGE	TOTALS	1.17E-01	1.47E-01	3.25E-02	7.02E-02	4.69E-02	1.54E+00
ADULT	TOTALS	1.18E-01	1.44E-01	4.03E-02	7.17E-02	5.03E-02	1.54E+00

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 31 NAME=North Boundary #2 X= -0.6KM, Y= 3.3KM, Z= 19.7M, DIST= 3.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.41E+00	4.31E-01	3.98E-01	5.85E-01	4.68E-01	1.00E+02
CHILD	TOTALS	6.41E+00	4.57E-01	4.06E-01	4.89E-01	4.38E-01	1.00E+02
TEENAGE	TOTALS	6.41E+00	5.20E-01	4.12E-01	4.48E-01	4.26E-01	1.00E+02
ADULT	TOTALS	6.41E+00	5.17E-01	4.19E-01	4.49E-01	4.29E-01	1.00E+02

Program execution time = 0.04 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B6	MAROCMU	MU 1-5 OCCUPATIONAL	MEA	315

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REGION: Marsland MU1-5 Occupati CODE: MILDOS-AREA (02/12) PAGE 2
METSET: DATA: MAROCMU.MIL 08/16/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

INDIVIDUAL RECEPTOR LOCATION DATA, 17 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	East Boundary	1.40	0.30	-20.00	1.43	1	10	MU-C	1.84	-2.33	-25.00	2.97	1
2	South Boundary	0.00	-0.50	13.00	0.50	1	11	MU-D	2.52	-3.56	-36.00	4.36	1
3	West Boundary	-0.70	0.00	49.00	0.70	1	12	MU-E	2.84	-3.98	-42.00	4.89	1
4	MU-1	-0.46	2.33	27.00	2.37	1	13	MU-F	3.00	-4.30	-47.00	5.24	1
5	MU-2	-0.45	1.65	16.00	1.71	1	14	MU-4	0.54	0.13	-4.00	0.56	1
6	MU-3	-0.05	0.95	13.00	0.95	1	15	Satellite	0.00	0.00	0.00	0.00	1
7	MU-5	0.94	-0.45	-15.00	1.04	1	16	N Boundary #1	-1.30	5.10	35.00	5.26	1
8	MU-A	-0.76	2.88	45.00	2.98	1	17	N Boundary #2	-0.50	3.30	20.00	3.34	1
9	MU-B	1.22	-1.02	-15.00	1.59	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0, 0, 0, 0, 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
KILOMETERS	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 5

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	PSIZE ID	M/SEC SET	EXIT VEL	SOURCE NAME
1	-0.56	2.23	27.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E+03	1001	1	0.00E+00	MU-1
2	-0.55	1.65	16.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E+03	1002	1	0.00E+00	MU-2
3	-0.15	0.95	13.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E+03	1003	1	0.00E+00	MU-3
4	0.44	0.13	-4.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E+03	1004	1	0.00E+00	MU-4
5	0.84	-0.45	-15.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E+03	1005	1	0.00E+00	MU-5

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									
4	1.000E+00									
5	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAF

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.782E-01	3.063E+00	4.945E-02	2.297E+00	1.105E+00	1.457E+02
GROUND	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02
CLOUD	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00
VEG. ING	1.776E+00	2.052E+01	1.776E+00	6.099E+00	4.967E+00	1.776E+00
MEAT ING	1.235E-01	1.427E+00	1.235E-01	4.242E-01	3.455E-01	1.235E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.546E+00	2.628E+01	3.217E+00	1.009E+01	7.686E+00	1.489E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	3.000E+02	3.467E+03	3.000E+02	1.030E+03	8.393E+02	3.000E+02
MEAT ING	2.474E+00	2.859E+01	2.474E+00	8.497E+00	6.921E+00	2.474E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	7.234E+01	9.864E+02	1.644E+01	7.234E+01	7.234E+01	4.603E+02
TOTALS	3.748E+02	4.482E+03	3.189E+02	1.111E+03	9.185E+02	7.628E+02

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.782E-01	3.063E+00	4.945E-02	2.297E+00	1.105E+00	1.457E+02
GROUND	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02	2.061E-02
CLOUD	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00	1.248E+00
VEG. ING	3.018E+02	3.487E+03	3.018E+02	1.036E+03	8.442E+02	3.018E+02
MEAT ING	2.598E+00	3.002E+01	2.598E+00	8.921E+00	7.267E+00	2.598E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	7.234E+01	9.864E+02	1.644E+01	7.234E+01	7.234E+01	4.603E+02
TOTALS	3.784E+02	4.508E+03	3.221E+02	1.121E+03	9.262E+02	9.117E+02

METSET: DATA: MAROCMU.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=East Boundary X= 1.4KM, Y= 0.3KM, Z= -20.0M, DIST= 1.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.78E+01	3.32E-01	3.24E-01	3.71E-01	3.42E-01	2.91E+02
CHILD	TOTALS	1.78E+01	3.39E-01	3.26E-01	3.47E-01	3.34E-01	2.91E+02
TEENAGE	TOTALS	1.78E+01	3.55E-01	3.27E-01	3.36E-01	3.31E-01	2.91E+02
ADULT	TOTALS	1.78E+01	3.54E-01	3.29E-01	3.37E-01	3.32E-01	2.91E+02

NUMBER 2 NAME=South Boundary X= 0.0KM, Y= -0.5KM, Z= 13.0M, DIST= 0.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.73E+01	9.75E-01	9.40E-01	1.13E+00	1.01E+00	6.07E+02
CHILD	TOTALS	3.73E+01	1.00E+00	9.49E-01	1.04E+00	9.82E-01	6.07E+02
TEENAGE	TOTALS	3.73E+01	1.07E+00	9.55E-01	9.92E-01	9.69E-01	6.07E+02
ADULT	TOTALS	3.73E+01	1.06E+00	9.63E-01	9.94E-01	9.73E-01	6.07E+02

METSET: DATA: MAROCMU.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 49.0M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.56E+01	8.09E-01	7.84E-01	9.26E-01	8.38E-01	4.15E+02
CHILD	TOTALS	2.56E+01	8.29E-01	7.91E-01	8.54E-01	8.14E-01	4.15E+02
TEENAGE	TOTALS	2.56E+01	8.77E-01	7.95E-01	8.22E-01	8.05E-01	4.15E+02
ADULT	TOTALS	2.56E+01	8.75E-01	8.01E-01	8.23E-01	8.08E-01	4.15E+02

NUMBER 4 NAME=MU-1 X= -0.5KM, Y= 2.3KM, Z= 27.0M, DIST= 2.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.98E+02	1.01E+00	9.94E-01	1.09E+00	1.03E+00	6.62E+03
CHILD	TOTALS	3.98E+02	1.02E+00	9.98E-01	1.04E+00	1.01E+00	6.62E+03
TEENAGE	TOTALS	3.98E+02	1.06E+00	1.00E+00	1.02E+00	1.01E+00	6.62E+03
ADULT	TOTALS	3.98E+02	1.06E+00	1.01E+00	1.02E+00	1.01E+00	6.62E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=MU-2 X= -0.4KM, Y= 1.6KM, Z= 16.0M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.69E+02	1.09E+00	1.08E+00	1.15E+00	1.11E+00	1.11E+04
CHILD	TOTALS	6.69E+02	1.10E+00	1.09E+00	1.12E+00	1.10E+00	1.11E+04
TEENAGE	TOTALS	6.69E+02	1.13E+00	1.09E+00	1.10E+00	1.09E+00	1.11E+04
ADULT	TOTALS	6.69E+02	1.13E+00	1.09E+00	1.10E+00	1.09E+00	1.11E+04

NUMBER 6 NAME=MU-3 X= -0.1KM, Y= 0.9KM, Z= 13.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.08E+02	1.16E+00	1.15E+00	1.23E+00	1.18E+00	6.78E+03
CHILD	TOTALS	4.08E+02	1.17E+00	1.15E+00	1.19E+00	1.17E+00	6.78E+03
TEENAGE	TOTALS	4.08E+02	1.20E+00	1.16E+00	1.17E+00	1.16E+00	6.78E+03
ADULT	TOTALS	4.08E+02	1.20E+00	1.16E+00	1.17E+00	1.16E+00	6.78E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=MU-5 X= 0.9KM, Y= -0.4KM, Z= -15.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.96E+02	7.13E-01	6.98E-01	7.83E-01	7.30E-01	6.59E+03
CHILD	TOTALS	3.96E+02	7.25E-01	7.02E-01	7.40E-01	7.16E-01	6.59E+03
TEENAGE	TOTALS	3.96E+02	7.54E-01	7.05E-01	7.21E-01	7.11E-01	6.59E+03
ADULT	TOTALS	3.96E+02	7.52E-01	7.08E-01	7.22E-01	7.12E-01	6.59E+03

NUMBER 8 NAME=MU-A X= -0.8KM, Y= 2.9KM, Z= 45.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.92E+01	7.37E-01	7.12E-01	8.52E-01	7.65E-01	6.43E+02
CHILD	TOTALS	3.92E+01	7.56E-01	7.18E-01	7.81E-01	7.42E-01	6.43E+02
TEENAGE	TOTALS	3.92E+01	8.04E-01	7.22E-01	7.49E-01	7.33E-01	6.43E+02
ADULT	TOTALS	3.92E+01	8.01E-01	7.28E-01	7.50E-01	7.35E-01	6.43E+02

METSET: DATA: MAROCMU.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=MU-B X= 1.2KM, Y= -1.0KM, Z= -15.0M, DIST= 1.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.87E+01	7.14E-01	6.87E-01	8.38E-01	7.44E-01	6.34E+02
CHILD	TOTALS	3.87E+01	7.35E-01	6.94E-01	7.61E-01	7.19E-01	6.34E+02
TEENAGE	TOTALS	3.87E+01	7.86E-01	6.99E-01	7.28E-01	7.10E-01	6.34E+02
ADULT	TOTALS	3.87E+01	7.83E-01	7.05E-01	7.29E-01	7.12E-01	6.34E+02

NUMBER 10 NAME=MU-C X= 1.8KM, Y= -2.3KM, Z= -25.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.01E+01	5.58E-01	5.16E-01	7.53E-01	6.06E-01	1.60E+02
CHILD	TOTALS	1.01E+01	5.91E-01	5.27E-01	6.32E-01	5.67E-01	1.60E+02
TEENAGE	TOTALS	1.01E+01	6.71E-01	5.34E-01	5.79E-01	5.52E-01	1.60E+02
ADULT	TOTALS	1.01E+01	6.67E-01	5.44E-01	5.81E-01	5.56E-01	1.60E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=MU-D X= 2.5KM, Y= -3.6KM, Z= -36.0M, DIST= 4.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.33E+00	3.96E-01	3.51E-01	6.03E-01	4.46E-01	8.31E+01
CHILD	TOTALS	5.32E+00	4.31E-01	3.62E-01	4.74E-01	4.05E-01	8.31E+01
TEENAGE	TOTALS	5.32E+00	5.16E-01	3.70E-01	4.18E-01	3.89E-01	8.31E+01
ADULT	TOTALS	5.33E+00	5.12E-01	3.80E-01	4.20E-01	3.93E-01	8.31E+01

NUMBER 12 NAME=MU-E X= 2.8KM, Y= -4.0KM, Z= -42.0M, DIST= 4.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.27E+00	3.28E-01	2.87E-01	5.17E-01	3.74E-01	6.64E+01
CHILD	TOTALS	4.26E+00	3.60E-01	2.98E-01	4.00E-01	3.36E-01	6.64E+01
TEENAGE	TOTALS	4.27E+00	4.38E-01	3.05E-01	3.48E-01	3.21E-01	6.64E+01
ADULT	TOTALS	4.27E+00	4.34E-01	3.14E-01	3.50E-01	3.25E-01	6.64E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=MU-F X= 3.0KM, Y= -4.3KM, Z= -47.0M, DIST= 5.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.72E+00	2.88E-01	2.51E-01	4.64E-01	3.31E-01	5.78E+01
CHILD	TOTALS	3.71E+00	3.18E-01	2.60E-01	3.55E-01	2.96E-01	5.78E+01
TEENAGE	TOTALS	3.71E+00	3.90E-01	2.67E-01	3.07E-01	2.82E-01	5.78E+01
ADULT	TOTALS	3.72E+00	3.87E-01	2.75E-01	3.09E-01	2.86E-01	5.78E+01

NUMBER 14 NAME=MU-4 X= 0.5KM, Y= 0.1KM, Z= -4.0M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.05E+02	9.25E-01	9.10E-01	9.92E-01	9.41E-01	8.40E+03
CHILD	TOTALS	5.05E+02	9.36E-01	9.14E-01	9.50E-01	9.28E-01	8.40E+03
TEENAGE	TOTALS	5.05E+02	9.63E-01	9.17E-01	9.32E-01	9.22E-01	8.40E+03
ADULT	TOTALS	5.05E+02	9.62E-01	9.20E-01	9.33E-01	9.24E-01	8.40E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Satellite X= 0.0KM, Y= 0.0KM, Z= 0.0M, DIST= 0.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	5.66E+01	8.28E-01	8.09E-01	9.19E-01	8.50E-01	9.30E+02
CHILD	TOTALS	5.66E+01	8.43E-01	8.14E-01	8.63E-01	8.32E-01	9.30E+02
TEENAGE	TOTALS	5.66E+01	8.81E-01	8.17E-01	8.38E-01	8.25E-01	9.30E+02
ADULT	TOTALS	5.66E+01	8.79E-01	8.21E-01	8.39E-01	8.27E-01	9.30E+02

NUMBER 16 NAME=N Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.55E+00	5.15E-01	4.64E-01	7.51E-01	5.72E-01	1.02E+02
CHILD	TOTALS	6.55E+00	5.55E-01	4.77E-01	6.05E-01	5.25E-01	1.02E+02
TEENAGE	TOTALS	6.55E+00	6.52E-01	4.86E-01	5.41E-01	5.07E-01	1.02E+02
ADULT	TOTALS	6.55E+00	6.47E-01	4.97E-01	5.43E-01	5.12E-01	1.02E+02

METSET: DATA: MAROCMU.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=N Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.05E+01	6.97E-01	6.66E-01	8.40E-01	7.32E-01	3.31E+02
CHILD	TOTALS	2.05E+01	7.21E-01	6.73E-01	7.51E-01	7.03E-01	3.31E+02
TEENAGE	TOTALS	2.05E+01	7.80E-01	6.79E-01	7.12E-01	6.92E-01	3.31E+02
ADULT	TOTALS	2.05E+01	7.77E-01	6.86E-01	7.13E-01	6.95E-01	3.31E+02

Program execution time = 0.37 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B7	MAROCST	SATELLITE 1-5 OCCUPATIONAL	MEA	315

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METSET: DATA: MAROCST.MIL 08/16/13

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

INDIVIDUAL RECEPTOR LOCATION DATA, 17 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	East Boundary	1.40	0.30	-20.00	1.43	1	10	MU-C	1.84	-2.33	-25.00	2.97	1
2	South Boundary	0.00	-0.50	13.00	0.50	1	11	MU-D	2.52	-3.56	-36.00	4.36	1
3	West Boundary	-0.70	0.00	49.00	0.70	1	12	MU-E	2.84	-3.98	-42.00	4.89	1
4	MU-1	-0.46	2.33	27.00	2.37	1	13	MU-F	3.00	-4.30	-47.00	5.24	1
5	MU-2	-0.45	1.65	16.00	1.71	1	14	MU-4	0.54	0.13	-4.00	0.56	1
6	MU-3	-0.05	0.95	13.00	0.95	1	15	Satellite	0.00	0.00	0.00	0.00	1
7	MU-5	0.94	-0.45	-15.00	1.04	1	16	N Boundary #1	-1.30	5.10	35.00	5.26	1
8	MU-A	-0.76	2.88	45.00	2.98	1	17	N Boundary #2	-0.50	3.30	20.00	3.34	1
9	MU-B	1.22	-1.02	-15.00	1.59	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1	5.00	1	

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 1

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	PSIZE ID	M/SEC SET	EXIT VEL	SOURCE NAME
1	0.00	0.00	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E+03	1001	1	1.00E+01	Satellite

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAF

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.842E-01	3.111E+00	5.016E-02	2.333E+00	1.122E+00	1.496E+02
GROUND	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02
CLOUD	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00
VEG. ING	1.800E+00	2.080E+01	1.800E+00	6.181E+00	5.035E+00	1.800E+00
MEAT ING	1.252E-01	1.446E+00	1.252E-01	4.299E-01	3.502E-01	1.252E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	3.611E+00	2.666E+01	3.277E+00	1.025E+01	7.808E+00	1.528E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	3.041E+02	3.514E+03	3.041E+02	1.044E+03	8.506E+02	3.041E+02
MEAT ING	2.508E+00	2.898E+01	2.508E+00	8.612E+00	7.015E+00	2.508E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	7.234E+01	9.864E+02	1.644E+01	7.234E+01	7.234E+01	4.603E+02
TOTALS	3.789E+02	4.529E+03	3.230E+02	1.125E+03	9.300E+02	7.669E+02

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	3.842E-01	3.111E+00	5.016E-02	2.333E+00	1.122E+00	1.496E+02
GROUND	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02	2.112E-02
CLOUD	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00	1.280E+00
VEG. ING	3.059E+02	3.534E+03	3.059E+02	1.050E+03	8.557E+02	3.059E+02
MEAT ING	2.633E+00	3.042E+01	2.633E+00	9.042E+00	7.365E+00	2.633E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	7.234E+01	9.864E+02	1.644E+01	7.234E+01	7.234E+01	4.603E+02
TOTALS	3.825E+02	4.556E+03	3.263E+02	1.136E+03	9.378E+02	9.197E+02

METSET: DATA: MAROCST.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=East Boundary X= 1.4KM, Y= 0.3KM, Z= -20.0M, DIST= 1.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.32E+00	9.14E-02	8.97E-02	9.92E-02	9.33E-02	1.37E+02
CHILD	TOTALS	8.32E+00	9.27E-02	9.02E-02	9.44E-02	9.18E-02	1.37E+02
TEENAGE	TOTALS	8.32E+00	9.59E-02	9.05E-02	9.23E-02	9.12E-02	1.37E+02
ADULT	TOTALS	8.32E+00	9.58E-02	9.08E-02	9.23E-02	9.13E-02	1.37E+02

NUMBER 2 NAME=South Boundary X= 0.0KM, Y= -0.5KM, Z= 13.0M, DIST= 0.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.74E+02	9.04E-01	9.00E-01	9.21E-01	9.08E-01	2.89E+03
CHILD	TOTALS	1.74E+02	9.07E-01	9.01E-01	9.10E-01	9.05E-01	2.89E+03
TEENAGE	TOTALS	1.74E+02	9.14E-01	9.02E-01	9.06E-01	9.03E-01	2.89E+03
ADULT	TOTALS	1.74E+02	9.13E-01	9.03E-01	9.06E-01	9.04E-01	2.89E+03

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 49.0M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.50E+01	6.55E-01	6.50E-01	6.79E-01	6.61E-01	1.07E+03
CHILD	TOTALS	6.50E+01	6.59E-01	6.51E-01	6.64E-01	6.56E-01	1.07E+03
TEENAGE	TOTALS	6.50E+01	6.69E-01	6.52E-01	6.57E-01	6.54E-01	1.07E+03
ADULT	TOTALS	6.50E+01	6.68E-01	6.53E-01	6.58E-01	6.54E-01	1.07E+03

NUMBER 4 NAME=MU-1 X= -0.5KM, Y= 2.3KM, Z= 27.0M, DIST= 2.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.35E+01	6.98E-01	6.63E-01	8.57E-01	7.36E-01	2.14E+02
CHILD	TOTALS	1.34E+01	7.24E-01	6.72E-01	7.58E-01	7.04E-01	2.14E+02
TEENAGE	TOTALS	1.34E+01	7.90E-01	6.78E-01	7.15E-01	6.92E-01	2.14E+02
ADULT	TOTALS	1.35E+01	7.87E-01	6.85E-01	7.16E-01	6.95E-01	2.14E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=MU-2 X= -0.4KM, Y= 1.6KM, Z= 16.0M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.10E+01	7.20E-01	6.97E-01	8.23E-01	7.45E-01	3.39E+02
CHILD	TOTALS	2.10E+01	7.37E-01	7.03E-01	7.59E-01	7.24E-01	3.39E+02
TEENAGE	TOTALS	2.10E+01	7.80E-01	7.07E-01	7.31E-01	7.16E-01	3.39E+02
ADULT	TOTALS	2.10E+01	7.78E-01	7.12E-01	7.32E-01	7.18E-01	3.39E+02

NUMBER 6 NAME=MU-3 X= -0.1KM, Y= 0.9KM, Z= 13.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.84E+01	7.49E-01	7.39E-01	7.94E-01	7.60E-01	7.96E+02
CHILD	TOTALS	4.84E+01	7.56E-01	7.41E-01	7.66E-01	7.51E-01	7.96E+02
TEENAGE	TOTALS	4.84E+01	7.75E-01	7.43E-01	7.54E-01	7.47E-01	7.96E+02
ADULT	TOTALS	4.84E+01	7.74E-01	7.45E-01	7.54E-01	7.48E-01	7.96E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=MU-5 X= 0.9KM, Y= -0.4KM, Z= -15.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.49E+01	7.92E-02	7.84E-02	8.28E-02	8.00E-02	2.47E+02
CHILD	TOTALS	1.49E+01	7.98E-02	7.86E-02	8.05E-02	7.93E-02	2.47E+02
TEENAGE	TOTALS	1.49E+01	8.13E-02	7.87E-02	7.95E-02	7.90E-02	2.47E+02
ADULT	TOTALS	1.49E+01	8.12E-02	7.89E-02	7.96E-02	7.91E-02	2.47E+02

NUMBER 8 NAME=MU-A X= -0.8KM, Y= 2.9KM, Z= 45.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	9.58E+00	6.18E-01	5.77E-01	8.10E-01	6.65E-01	1.50E+02
CHILD	TOTALS	9.57E+00	6.50E-01	5.87E-01	6.91E-01	6.26E-01	1.50E+02
TEENAGE	TOTALS	9.58E+00	7.29E-01	5.95E-01	6.39E-01	6.12E-01	1.50E+02
ADULT	TOTALS	9.58E+00	7.25E-01	6.04E-01	6.41E-01	6.16E-01	1.50E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=MU-B X= 1.2KM, Y= -1.0KM, Z= -15.0M, DIST= 1.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.26E+01	1.69E-01	1.65E-01	1.86E-01	1.73E-01	2.08E+02
CHILD	TOTALS	1.26E+01	1.72E-01	1.66E-01	1.75E-01	1.69E-01	2.08E+02
TEENAGE	TOTALS	1.26E+01	1.79E-01	1.66E-01	1.70E-01	1.68E-01	2.08E+02
ADULT	TOTALS	1.26E+01	1.79E-01	1.67E-01	1.71E-01	1.68E-01	2.08E+02

NUMBER 10 NAME=MU-C X= 1.8KM, Y= -2.3KM, Z= -25.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	6.46E+00	2.27E-01	2.14E-01	2.87E-01	2.42E-01	1.04E+02
CHILD	TOTALS	6.45E+00	2.37E-01	2.17E-01	2.50E-01	2.30E-01	1.04E+02
TEENAGE	TOTALS	6.45E+00	2.62E-01	2.20E-01	2.33E-01	2.25E-01	1.04E+02
ADULT	TOTALS	6.46E+00	2.60E-01	2.22E-01	2.34E-01	2.26E-01	1.04E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=MU-D X= 2.5KM, Y= -3.6KM, Z= -36.0M, DIST= 4.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.02E+00	2.02E-01	1.84E-01	2.86E-01	2.22E-01	6.40E+01
CHILD	TOTALS	4.01E+00	2.16E-01	1.89E-01	2.34E-01	2.06E-01	6.40E+01
TEENAGE	TOTALS	4.02E+00	2.50E-01	1.92E-01	2.11E-01	1.99E-01	6.40E+01
ADULT	TOTALS	4.02E+00	2.49E-01	1.96E-01	2.12E-01	2.01E-01	6.40E+01

NUMBER 12 NAME=MU-E X= 2.8KM, Y= -4.0KM, Z= -42.0M, DIST= 4.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.33E+00	1.73E-01	1.56E-01	2.52E-01	1.93E-01	5.30E+01
CHILD	TOTALS	3.33E+00	1.87E-01	1.61E-01	2.03E-01	1.77E-01	5.30E+01
TEENAGE	TOTALS	3.33E+00	2.19E-01	1.64E-01	1.82E-01	1.71E-01	5.30E+01
ADULT	TOTALS	3.33E+00	2.18E-01	1.68E-01	1.83E-01	1.72E-01	5.30E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=MU-F X= 3.0KM, Y= -4.3KM, Z= -47.0M, DIST= 5.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.98E+00	1.57E-01	1.41E-01	2.31E-01	1.75E-01	4.73E+01
CHILD	TOTALS	2.97E+00	1.69E-01	1.45E-01	1.85E-01	1.60E-01	4.73E+01
TEENAGE	TOTALS	2.98E+00	2.00E-01	1.47E-01	1.65E-01	1.54E-01	4.73E+01
ADULT	TOTALS	2.98E+00	1.98E-01	1.51E-01	1.65E-01	1.55E-01	4.73E+01

NUMBER 14 NAME=MU-4 X= 0.5KM, Y= 0.1KM, Z= -4.0M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.24E+01	7.74E-02	7.73E-02	7.81E-02	7.76E-02	7.05E+02
CHILD	TOTALS	4.24E+01	7.75E-02	7.73E-02	7.77E-02	7.74E-02	7.05E+02
TEENAGE	TOTALS	4.24E+01	7.78E-02	7.73E-02	7.75E-02	7.74E-02	7.05E+02
ADULT	TOTALS	4.24E+01	7.78E-02	7.74E-02	7.75E-02	7.74E-02	7.05E+02

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Satellite X= 0.0KM, Y= 0.0KM, Z= 0.0M, DIST= 0.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	1.60E+02	6.26E-03	6.26E-03	6.26E-03	6.26E-03	2.67E+03
CHILD	TOTALS	1.60E+02	6.26E-03	6.26E-03	6.26E-03	6.26E-03	2.67E+03
TEENAGE	TOTALS	1.60E+02	6.26E-03	6.26E-03	6.26E-03	6.26E-03	2.67E+03
ADULT	TOTALS	1.60E+02	6.26E-03	6.26E-03	6.26E-03	6.26E-03	2.67E+03

NUMBER 16 NAME=N Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.47E+00	4.46E-01	3.86E-01	7.27E-01	5.14E-01	6.83E+01
CHILD	TOTALS	4.47E+00	4.93E-01	4.01E-01	5.52E-01	4.58E-01	6.83E+01
TEENAGE	TOTALS	4.47E+00	6.08E-01	4.12E-01	4.76E-01	4.36E-01	6.83E+01
ADULT	TOTALS	4.47E+00	6.03E-01	4.25E-01	4.79E-01	4.42E-01	6.83E+01

METSET: DATA: MAROCST.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=N Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	8.28E+00	6.05E-01	5.58E-01	8.24E-01	6.58E-01	1.29E+02
CHILD	TOTALS	8.27E+00	6.42E-01	5.70E-01	6.88E-01	6.14E-01	1.29E+02
TEENAGE	TOTALS	8.28E+00	7.32E-01	5.78E-01	6.29E-01	5.97E-01	1.29E+02
ADULT	TOTALS	8.28E+00	7.27E-01	5.88E-01	6.31E-01	6.02E-01	1.29E+02

Program execution time = 0.05 seconds

Appendix	Title	Radon Source	Weather Data	Waste Water Flow Rate
B8	MAROCISR	ISR OCCUPATIONAL	MEA	315

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REGION: Marsland MU1-5 Occupati CODE: MILDOS-AREA (02/12) PAGE 2
METSET: DATA: MAROCISR.MIL 08/16/13
JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.14427,0.29579,0.30967,0.17441,0.05798,0.01793

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
STABILITY CLASS 1																	
1.5	0.1410	0.0240	0.0710	0.0820	0.0940	0.1300	0.1060	0.2120	0.1770	0.3540	0.1410	0.0940	0.1180	0.0820	0.0590	0.0590	1.9440
5.5	0.2360	0.1530	0.1890	0.1770	0.1770	0.2590	0.2000	0.2120	0.2120	0.2590	0.2240	0.4010	0.1180	0.1180	0.2000	0.2120	3.3470
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.3770	0.1770	0.2600	0.2590	0.2710	0.3890	0.3060	0.4240	0.3890	0.6130	0.3650	0.4950	0.2360	0.2000	0.2590	0.2710	5.2910
STABILITY CLASS 2																	
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0470	0.0470	0.0940	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.2710
5.5	0.2000	0.2240	0.2470	0.1770	0.1770	0.2470	0.3420	0.2470	0.2360	0.3180	0.3060	0.2590	0.1300	0.1650	0.2360	0.2120	3.7230
10.0	0.0240	0.0000	0.0120	0.0000	0.0120	0.0350	0.0350	0.0240	0.0710	0.0590	0.0000	0.0470	0.0240	0.0120	0.0710	0.0470	0.4730
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.2240	0.2240	0.2590	0.1770	0.1890	0.3170	0.3890	0.3180	0.3540	0.4710	0.3180	0.3060	0.1660	0.1890	0.3070	0.2590	4.4670
STABILITY CLASS 3																	
1.5	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0120	0.0350	0.0240	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.1300
5.5	0.0590	0.0590	0.0590	0.0820	0.1180	0.1770	0.1890	0.1530	0.1530	0.1410	0.1890	0.0820	0.0710	0.0470	0.0590	0.0940	1.7320
10.0	1.0300	0.4710	0.2950	0.3420	0.3300	0.5540	0.4120	0.4360	0.4950	0.4360	0.5660	0.6600	0.4360	0.4710	0.8130	0.7780	8.5250
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.1010	0.5300	0.3540	0.4240	0.4480	0.7310	0.6360	0.6010	0.6830	0.6010	0.7670	0.7420	0.5070	0.5180	0.8720	0.8720	10.3870
STABILITY CLASS 4																	
1.5	0.0240	0.0240	0.0000	0.0000	0.0120	0.0470	0.0240	0.0120	0.0120	0.0120	0.0240	0.0120	0.0000	0.0120	0.0120	0.0710	0.2980
5.5	0.7310	0.4710	0.1890	0.3060	0.5770	0.8840	1.0490	0.7540	0.5190	0.3890	0.4830	0.5070	0.4120	0.3770	0.6840	1.3550	9.6870
10.0	1.9100	1.0720	0.9190	0.7310	1.0370	0.9190	1.2140	1.6500	1.3080	0.8960	0.7900	1.4610	1.2730	1.4850	1.9090	2.3690	20.9430
15.5	1.7800	0.8600	0.3060	0.2000	0.3180	0.3060	0.3890	0.9550	1.3790	0.6720	0.3650	0.8720	1.2610	1.9560	3.0050	2.8170	17.4410
21.5	0.4120	0.2240	0.0120	0.0000	0.0120	0.0240	0.0350	0.3420	0.2830	0.1180	0.1410	0.2470	0.2950	0.7190	1.6970	1.2370	5.7980
28.0	0.1410	0.0120	0.0000	0.0120	0.0000	0.0120	0.0000	0.0120	0.0120	0.0000	0.0000	0.0240	0.2360	0.2950	0.5890	0.4480	1.7930
ALL	4.9980	2.6630	1.4260	1.2490	1.9560	2.1920	2.7110	3.7250	3.5130	2.0870	1.8030	3.1230	3.4770	4.8440	7.8960	8.2970	55.9600
STABILITY CLASS 5																	
1.5	0.1530	0.0710	0.0000	0.0000	0.0590	0.0350	0.0820	0.0710	0.0350	0.0000	0.0350	0.0350	0.0120	0.0710	0.0590	0.0940	0.8120
5.5	0.2360	0.1300	0.1650	0.2000	0.1530	0.3060	0.2000	0.2470	0.2710	0.2000	0.2950	0.2830	0.2000	0.1300	0.3540	0.9660	4.3360
10.0	0.0470	0.0350	0.0240	0.0470	0.0590	0.0240	0.0240	0.0470	0.0240	0.0240	0.0590	0.1060	0.0940	0.0820	0.1410	0.1890	1.0260
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4360	0.2360	0.1890	0.2470	0.2710	0.3650	0.3060	0.3650	0.3300	0.2240	0.3890	0.4240	0.3060	0.2830	0.5540	1.2490	6.1740
STABILITY CLASS 6																	
1.5	0.9780	0.6950	0.6360	0.5420	0.4480	0.5190	0.6720	0.6130	0.7540	0.6600	0.5770	0.7310	0.5660	0.5770	0.6720	1.3320	10.9720
5.5	0.7070	0.2830	0.1180	0.2590	0.3540	0.3180	0.3420	0.4830	0.3420	0.4950	0.4360	0.4710	0.2950	0.5540	0.4600	0.8370	6.7540
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.6850	0.9780	0.7540	0.8010	0.8020	0.8370	1.0140	1.0960	1.0960	1.1550	1.0130	1.2020	0.8610	1.1310	1.1320	2.1690	17.7260
ALL	8.8210	4.8080	3.2420	3.1570	3.9370	4.8310	5.3620	6.5290	6.3650	5.1510	4.6550	6.2920	5.5530	7.1650	11.0200	13.1170	100.0050

----------INDIVIDUAL RECEPTOR LOCATION DATA, 17 LOCATIONS INPUT THIS RUN----------

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE
1	East Boundary	1.40	0.30	-20.00	1.43	1	10	MU-C	1.84	-2.33	-25.00	2.97	1
2	South Boundary	0.00	-0.50	13.00	0.50	1	11	MU-D	2.52	-3.56	-36.00	4.36	1
3	West Boundary	-0.70	0.00	49.00	0.70	1	12	MU-E	2.84	-3.98	-42.00	4.89	1
4	MU-1	-0.46	2.33	27.00	2.37	1	13	MU-F	3.00	-4.30	-47.00	5.24	1
5	MU-2	-0.45	1.65	16.00	1.71	1	14	MU-4	0.54	0.13	-4.00	0.56	1
6	MU-3	-0.05	0.95	13.00	0.95	1	15	Satellite	0.00	0.00	0.00	0.00	1
7	MU-5	0.94	-0.45	-15.00	1.04	1	16	N Boundary #1	-1.30	5.10	35.00	5.26	1
8	MU-A	-0.76	2.88	45.00	2.98	1	17	N Boundary #2	-0.50	3.30	20.00	3.34	1
9	MU-B	1.22	-1.02	-15.00	1.59	1							

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2)	FPR(3)	ACTRAT
100.0	100.0	1.00	0.90	0.10	0.90	0.10	87000.00	4000.00	0.00	2.50

IPACT EQUALS 0, 0, 0,

JC EQUALS 1, 0, 0, 0, 0, 0, 1, 0, 0, 0

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1		5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75.0,

HDP EQUALS 50.0

POPULATION DISTRIBUTION

KILOMETERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WSW 247.5	W 270.0	WNW 292.5	NW 315.0	NNW 337.5
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0- 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0-20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	993	0	0	0	0	0	0	0	0	1107
30.0-40.0	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	0	5634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.0-60.0	0	0	0	652	0	0	0	9859	0	0	0	0	0	279	0	0
60.0-70.0	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
70.0-80.0	145	0	14	30	0	0	0	0	0	15542	1831	0	0	19	0	0
1.0-80.0	232	5634	14	1681	0	0	993	9859	0	15542	1831	0	0	298	0	1107

TOTAL 1-80 KM POPULATION IS 37191 PERSONS

NUMBER OF SOURCES= 3

NO.	KM X	KM Y	M Z	KM2 AREA	CI/YEAR U-238	Th-230	Ra-226	Pb-210	Rn-222	PSIZE ID	M/SEC SET	EXIT VEL	SOURCE NAME
1	-12.30	25.30	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.89E+03	1001	1	1.00E+01	N TREND
2	-16.52	15.44	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.66E+03	1002	1	1.00E+01	Three Crow
3	-7.33	16.10	0.00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.22E+03	1003	1	1.00E+01	Crow Butte Resource

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTRIBUTION

SET	1.5	3.0	7.7	54.0
1	0.000	1.000	0.000	0.000
2	1.000	0.000	0.000	0.000
3	0.000	0.000	0.300	0.700

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE NUMBER	TSTEP 1 5.00YRS	TSTEP 2 5.00YRS	TSTEP 3 5.00YRS	TSTEP 4 5.00YRS	TSTEP 5 5.00YRS	TSTEP 6 5.00YRS	TSTEP 7 5.00YRS	TSTEP 8 5.00YRS	TSTEP 9 5.00YRS	TSTEP10 5.00YRS
1	1.000E+00									
2	1.000E+00									
3	1.000E+00									

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

SUMMARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAF

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	1.074E+00	8.695E+00	1.447E-01	6.522E+00	3.137E+00	5.256E+02
GROUND	7.067E-02	7.067E-02	7.067E-02	7.067E-02	7.067E-02	7.067E-02
CLOUD	3.730E+00	3.730E+00	3.730E+00	3.730E+00	3.730E+00	3.730E+00
VEG. ING	5.192E+00	6.000E+01	5.192E+00	1.783E+01	1.452E+01	5.192E+00
MEAT ING	3.611E-01	4.173E+00	3.611E-01	1.240E+00	1.010E+00	3.611E-01
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTALS	1.043E+01	7.666E+01	9.498E+00	2.939E+01	2.247E+01	5.350E+02

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
VEG. ING	8.772E+02	1.014E+04	8.772E+02	3.013E+03	2.454E+03	8.772E+02
MEAT ING	7.234E+00	8.359E+01	7.234E+00	2.485E+01	2.024E+01	7.234E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	2.092E+02	2.852E+03	4.754E+01	2.092E+02	2.092E+02	1.331E+03
TOTALS	1.094E+03	1.307E+04	9.320E+02	3.247E+03	2.683E+03	2.216E+03

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INHAL.	1.074E+00	8.695E+00	1.447E-01	6.522E+00	3.137E+00	5.256E+02
GROUND	7.067E-02	7.067E-02	7.067E-02	7.067E-02	7.067E-02	7.067E-02
CLOUD	3.730E+00	3.730E+00	3.730E+00	3.730E+00	3.730E+00	3.730E+00
VEG. ING	8.824E+02	1.020E+04	8.824E+02	3.031E+03	2.469E+03	8.824E+02
MEAT ING	7.595E+00	8.777E+01	7.595E+00	2.609E+01	2.125E+01	7.595E+00
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RNPLUS50	2.092E+02	2.852E+03	4.754E+01	2.092E+02	2.092E+02	1.331E+03
TOTALS	1.104E+03	1.315E+04	9.415E+02	3.276E+03	2.706E+03	2.751E+03

METSET: DATA: MAROCISR.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 1 NAME=East Boundary X= 1.4KM, Y= 0.3KM, Z= -20.0M, DIST= 1.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.85E+00	5.54E-01	3.33E-01	1.58E+00	8.03E-01	4.14E+01
CHILD	TOTALS	2.83E+00	7.26E-01	3.89E-01	9.43E-01	5.97E-01	4.14E+01
TEENAGE	TOTALS	2.84E+00	1.15E+00	4.27E-01	6.64E-01	5.17E-01	4.14E+01
ADULT	TOTALS	2.85E+00	1.13E+00	4.76E-01	6.74E-01	5.39E-01	4.14E+01

NUMBER 2 NAME=South Boundary X= 0.0KM, Y= -0.5KM, Z= 13.0M, DIST= 0.5KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.32E+00	6.84E-01	3.98E-01	2.01E+00	1.01E+00	4.79E+01
CHILD	TOTALS	3.30E+00	9.06E-01	4.70E-01	1.19E+00	7.40E-01	4.79E+01
TEENAGE	TOTALS	3.31E+00	1.45E+00	5.20E-01	8.27E-01	6.37E-01	4.79E+01
ADULT	TOTALS	3.32E+00	1.43E+00	5.83E-01	8.39E-01	6.64E-01	4.79E+01

METSET: DATA: MAROCISR.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 3 NAME=West Boundary X= -0.7KM, Y= 0.0KM, Z= 49.0M, DIST= 0.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.58E+00	7.24E-01	4.26E-01	2.11E+00	1.06E+00	5.17E+01
CHILD	TOTALS	3.55E+00	9.56E-01	5.01E-01	1.25E+00	7.83E-01	5.17E+01
TEENAGE	TOTALS	3.57E+00	1.52E+00	5.53E-01	8.73E-01	6.75E-01	5.17E+01
ADULT	TOTALS	3.58E+00	1.50E+00	6.19E-01	8.86E-01	7.04E-01	5.17E+01

NUMBER 4 NAME=MU-1 X= -0.5KM, Y= 2.3KM, Z= 27.0M, DIST= 2.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.80E+00	7.22E-01	4.40E-01	2.03E+00	1.04E+00	5.52E+01
CHILD	TOTALS	3.78E+00	9.41E-01	5.12E-01	1.22E+00	7.78E-01	5.52E+01
TEENAGE	TOTALS	3.79E+00	1.48E+00	5.60E-01	8.63E-01	6.76E-01	5.52E+01
ADULT	TOTALS	3.80E+00	1.45E+00	6.23E-01	8.75E-01	7.03E-01	5.52E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 5 NAME=MU-2 X= -0.4KM, Y= 1.6KM, Z= 16.0M, DIST= 1.7KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.69E+00	7.15E-01	4.32E-01	2.03E+00	1.04E+00	5.36E+01
CHILD	TOTALS	3.67E+00	9.36E-01	5.03E-01	1.21E+00	7.71E-01	5.36E+01
TEENAGE	TOTALS	3.69E+00	1.48E+00	5.52E-01	8.57E-01	6.69E-01	5.36E+01
ADULT	TOTALS	3.70E+00	1.45E+00	6.16E-01	8.69E-01	6.96E-01	5.36E+01

NUMBER 6 NAME=MU-3 X= -0.1KM, Y= 0.9KM, Z= 13.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.51E+00	6.94E-01	4.13E-01	2.00E+00	1.01E+00	5.08E+01
CHILD	TOTALS	3.48E+00	9.12E-01	4.84E-01	1.19E+00	7.49E-01	5.08E+01
TEENAGE	TOTALS	3.50E+00	1.45E+00	5.33E-01	8.34E-01	6.48E-01	5.08E+01
ADULT	TOTALS	3.51E+00	1.42E+00	5.95E-01	8.46E-01	6.75E-01	5.08E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 7 NAME=MU-5 X= 0.9KM, Y= -0.4KM, Z= -15.0M, DIST= 1.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.93E+00	5.85E-01	3.46E-01	1.69E+00	8.55E-01	4.24E+01
CHILD	TOTALS	2.91E+00	7.71E-01	4.07E-01	1.01E+00	6.32E-01	4.24E+01
TEENAGE	TOTALS	2.92E+00	1.23E+00	4.48E-01	7.05E-01	5.46E-01	4.24E+01
ADULT	TOTALS	2.93E+00	1.21E+00	5.01E-01	7.15E-01	5.69E-01	4.24E+01

NUMBER 8 NAME=MU-A X= -0.8KM, Y= 2.9KM, Z= 45.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.95E+00	7.37E-01	4.55E-01	2.05E+00	1.06E+00	5.76E+01
CHILD	TOTALS	3.93E+00	9.57E-01	5.26E-01	1.23E+00	7.93E-01	5.76E+01
TEENAGE	TOTALS	3.94E+00	1.50E+00	5.75E-01	8.78E-01	6.91E-01	5.76E+01
ADULT	TOTALS	3.95E+00	1.47E+00	6.38E-01	8.91E-01	7.18E-01	5.76E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 9 NAME=MU-B X= 1.2KM, Y= -1.0KM, Z= -15.0M, DIST= 1.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.84E+00	5.77E-01	3.38E-01	1.69E+00	8.47E-01	4.11E+01
CHILD	TOTALS	2.82E+00	7.63E-01	3.99E-01	9.98E-01	6.25E-01	4.11E+01
TEENAGE	TOTALS	2.84E+00	1.22E+00	4.40E-01	6.97E-01	5.38E-01	4.11E+01
ADULT	TOTALS	2.85E+00	1.20E+00	4.93E-01	7.07E-01	5.61E-01	4.11E+01

NUMBER 10 NAME=MU-C X= 1.8KM, Y= -2.3KM, Z= -25.0M, DIST= 3.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.54E+00	5.25E-01	3.05E-01	1.55E+00	7.73E-01	3.67E+01
CHILD	TOTALS	2.52E+00	6.96E-01	3.60E-01	9.12E-01	5.68E-01	3.67E+01
TEENAGE	TOTALS	2.54E+00	1.12E+00	3.98E-01	6.35E-01	4.89E-01	3.67E+01
ADULT	TOTALS	2.54E+00	1.10E+00	4.47E-01	6.44E-01	5.10E-01	3.67E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 11 NAME=MU-D X= 2.5KM, Y= -3.6KM, Z= -36.0M, DIST= 4.4KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.28E+00	4.73E-01	2.74E-01	1.40E+00	6.97E-01	3.28E+01
CHILD	TOTALS	2.26E+00	6.28E-01	3.24E-01	8.23E-01	5.12E-01	3.28E+01
TEENAGE	TOTALS	2.27E+00	1.01E+00	3.59E-01	5.72E-01	4.40E-01	3.28E+01
ADULT	TOTALS	2.28E+00	9.89E-01	4.03E-01	5.81E-01	4.59E-01	3.28E+01

NUMBER 12 NAME=MU-E X= 2.8KM, Y= -4.0KM, Z= -42.0M, DIST= 4.9KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.15E+00	4.44E-01	2.58E-01	1.31E+00	6.54E-01	3.10E+01
CHILD	TOTALS	2.13E+00	5.89E-01	3.05E-01	7.71E-01	4.81E-01	3.10E+01
TEENAGE	TOTALS	2.14E+00	9.43E-01	3.37E-01	5.37E-01	4.13E-01	3.10E+01
ADULT	TOTALS	2.15E+00	9.26E-01	3.79E-01	5.45E-01	4.31E-01	3.10E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 13 NAME=MU-F X= 3.0KM, Y= -4.3KM, Z= -47.0M, DIST= 5.2KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	2.05E+00	4.21E-01	2.46E-01	1.23E+00	6.19E-01	2.96E+01
CHILD	TOTALS	2.04E+00	5.57E-01	2.91E-01	7.29E-01	4.56E-01	2.96E+01
TEENAGE	TOTALS	2.05E+00	8.92E-01	3.21E-01	5.09E-01	3.92E-01	2.96E+01
ADULT	TOTALS	2.05E+00	8.76E-01	3.60E-01	5.16E-01	4.09E-01	2.96E+01

NUMBER 14 NAME=MU-4 X= 0.5KM, Y= 0.1KM, Z= -4.0M, DIST= 0.6KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.18E+00	6.35E-01	3.76E-01	1.84E+00	9.28E-01	4.60E+01
CHILD	TOTALS	3.16E+00	8.37E-01	4.42E-01	1.09E+00	6.87E-01	4.60E+01
TEENAGE	TOTALS	3.17E+00	1.33E+00	4.87E-01	7.65E-01	5.93E-01	4.60E+01
ADULT	TOTALS	3.18E+00	1.31E+00	5.44E-01	7.76E-01	6.18E-01	4.60E+01

TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 15 NAME=Satellite X= 0.0KM, Y= 0.0KM, Z= 0.0M, DIST= 0.0KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.30E+00	6.62E-01	3.91E-01	1.92E+00	9.68E-01	4.76E+01
CHILD	TOTALS	3.27E+00	8.73E-01	4.60E-01	1.14E+00	7.16E-01	4.76E+01
TEENAGE	TOTALS	3.29E+00	1.39E+00	5.06E-01	7.98E-01	6.17E-01	4.76E+01
ADULT	TOTALS	3.30E+00	1.37E+00	5.67E-01	8.09E-01	6.44E-01	4.76E+01

NUMBER 16 NAME=N Boundary #1 X= -1.3KM, Y= 5.1KM, Z= 35.0M, DIST= 5.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	4.46E+00	7.71E-01	4.96E-01	2.05E+00	1.08E+00	6.54E+01
CHILD	TOTALS	4.44E+00	9.84E-01	5.65E-01	1.25E+00	8.25E-01	6.54E+01
TEENAGE	TOTALS	4.45E+00	1.51E+00	6.13E-01	9.08E-01	7.26E-01	6.54E+01
ADULT	TOTALS	4.46E+00	1.48E+00	6.74E-01	9.20E-01	7.52E-01	6.54E+01

METSET: DATA: MAROCISR.MIL 08/16/13
TIME STEP NUMBER 1, DURATION IN YRS IS... 5.0

NUMBER 17 NAME=N Boundary #2 X= -0.5KM, Y= 3.3KM, Z= 20.0M, DIST= 3.3KM, IRTYPE= 1

40CFR190 ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHILD	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TEENAGE	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADULT	TOTALS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL ANNUAL DOSE COMMITMENTS COMPUTED FOR THIS LOCATION, MREM/YR

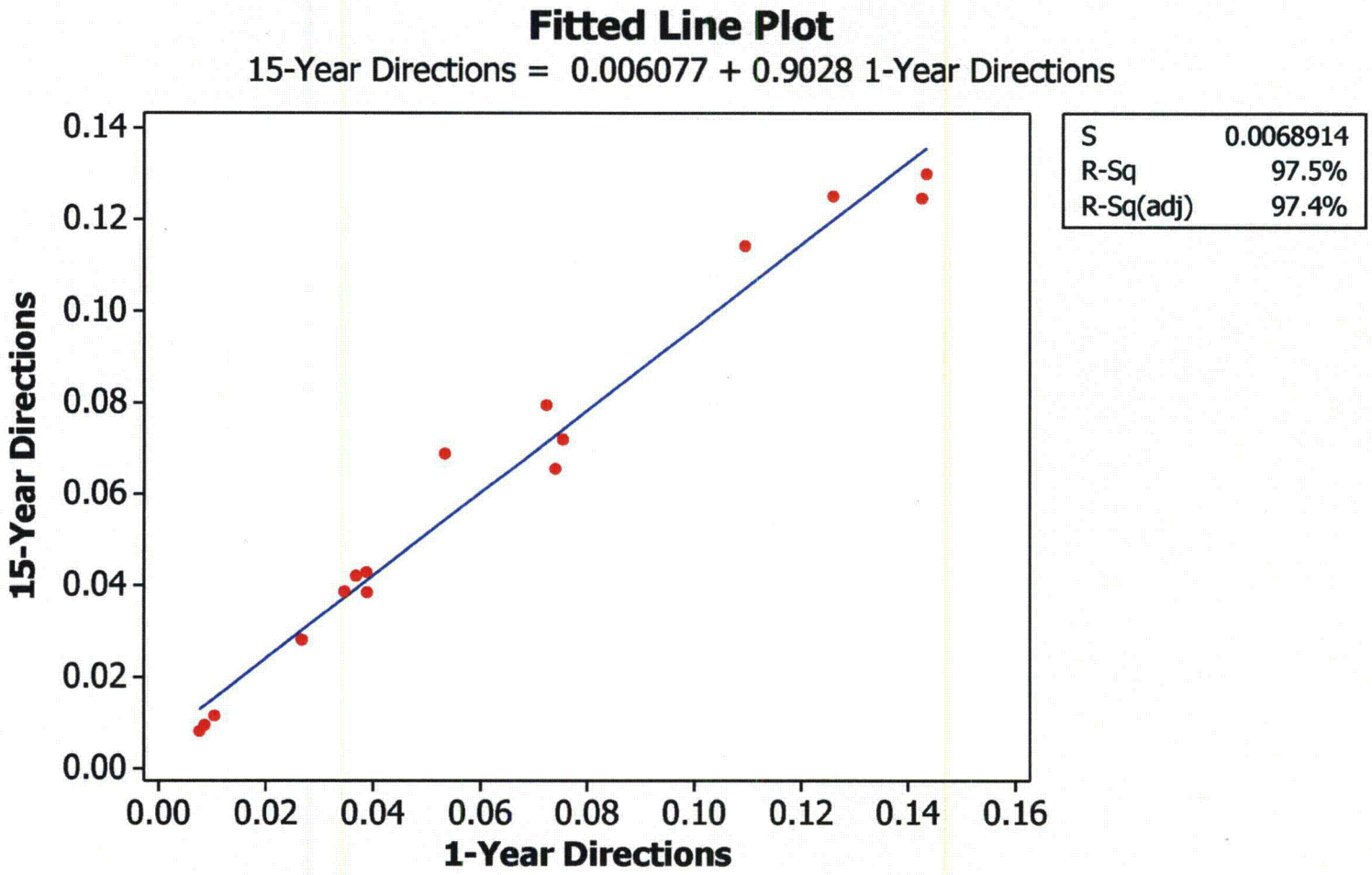
AGE	PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNEY	BRONCHI
INFANT	TOTALS	3.94E+00	7.26E-01	4.50E-01	2.01E+00	1.04E+00	5.74E+01
CHILD	TOTALS	3.92E+00	9.41E-01	5.20E-01	1.21E+00	7.81E-01	5.74E+01
TEENAGE	TOTALS	3.93E+00	1.47E+00	5.68E-01	8.65E-01	6.81E-01	5.74E+01
ADULT	TOTALS	3.94E+00	1.44E+00	6.30E-01	8.77E-01	7.08E-01	5.74E+01

Program execution time = 0.24 seconds

APPENDIX S

Appendix S

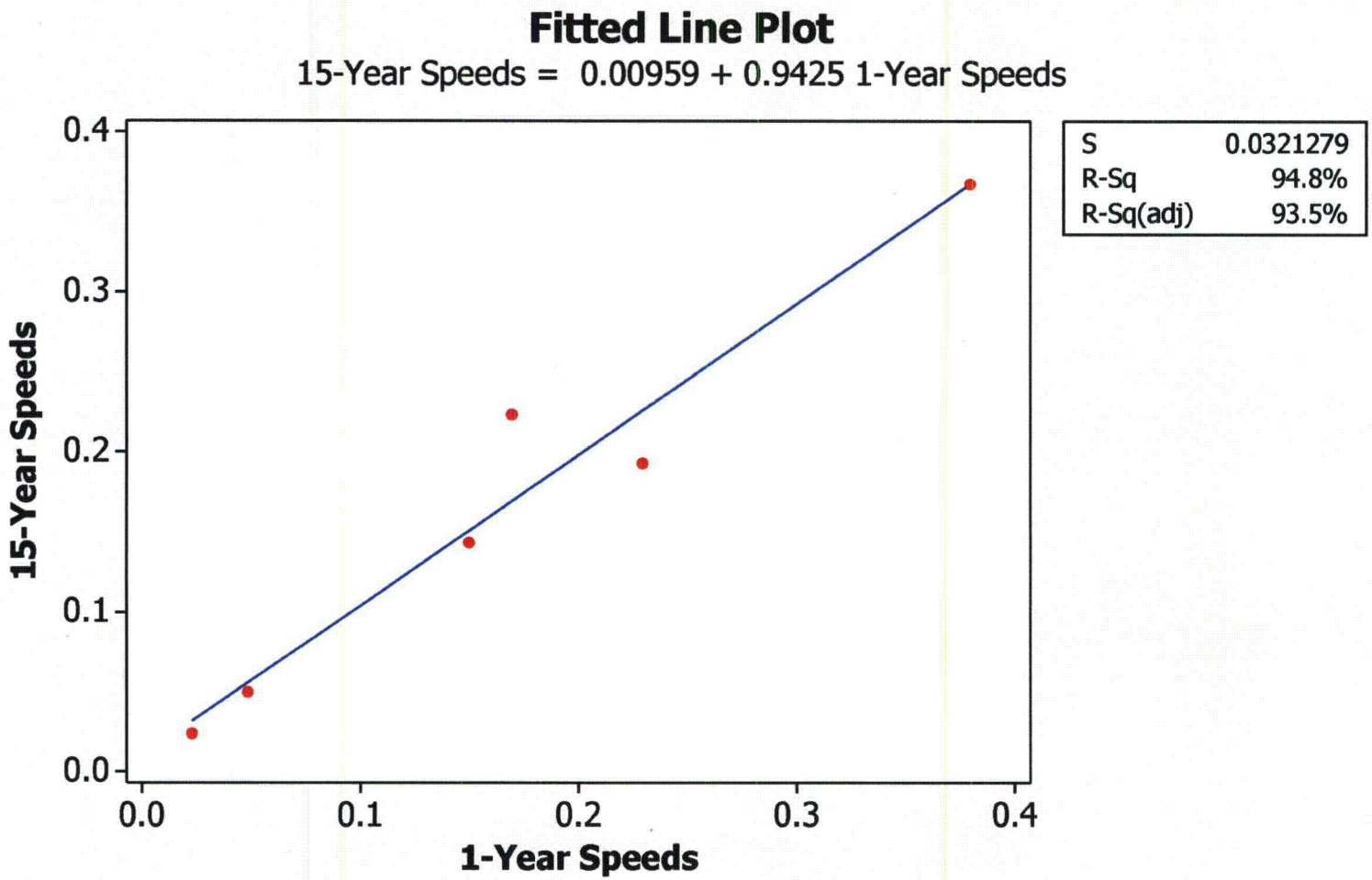
Justification for Use of 15 Years of Scottsbluff Meteorlogical Data



CROW BUTTE RESOURCES, INC.

FIGURE S-1
WIND DIRECTION CORRELATION FOR SCOTTSBLUFF AIRPORT

K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-1.ai @ 08/06/2013

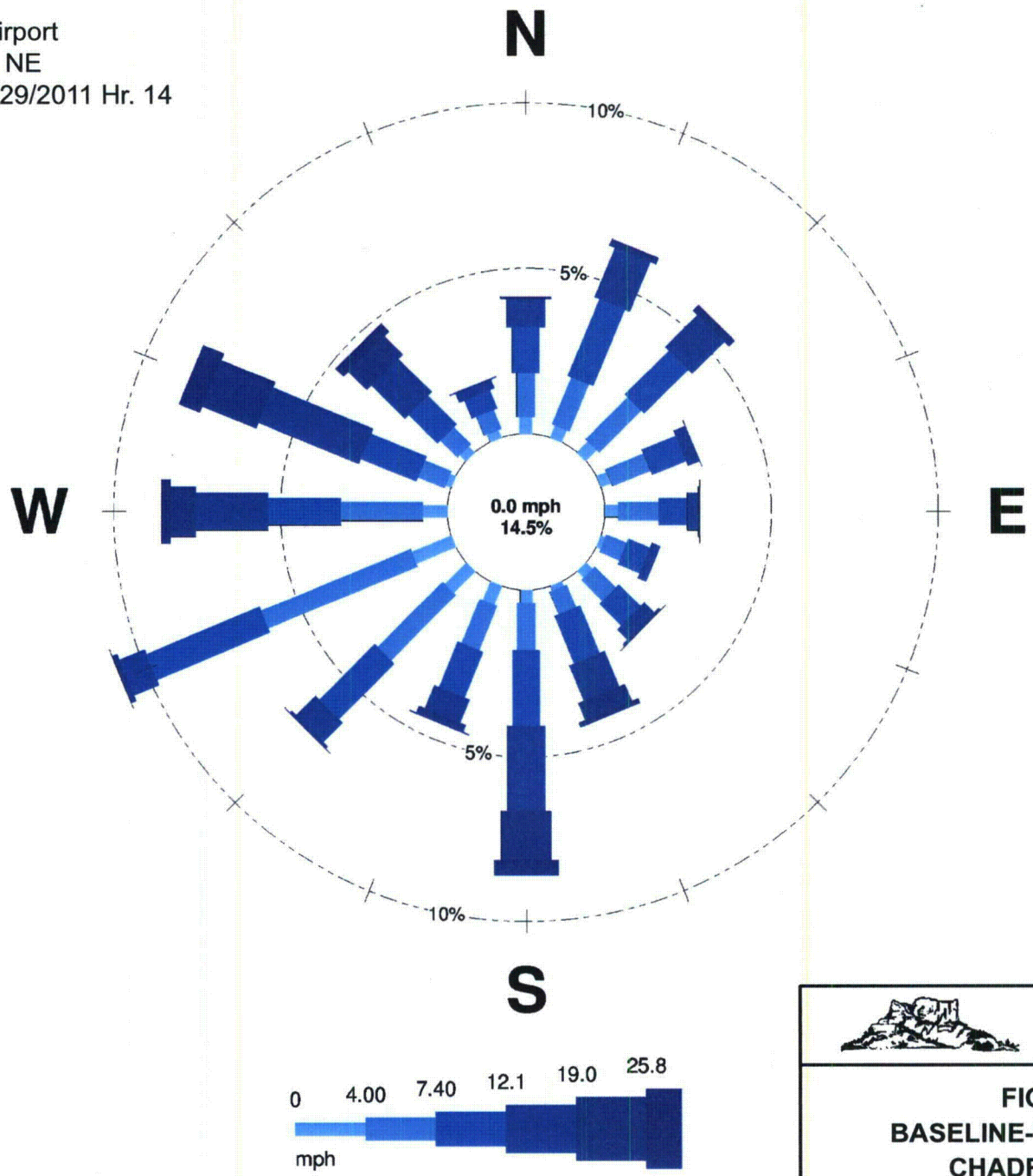


CROW BUTTE RESOURCES, INC.

FIGURE S-2
WIND SPEED CORRELATION
FOR SCOTTSBLUFF AIRPORT

K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-2.ai @ 08/06/2013

Chadron Airport
Chadron, NE
8/24/2010 Hr. 2 to 8/29/2011 Hr. 14

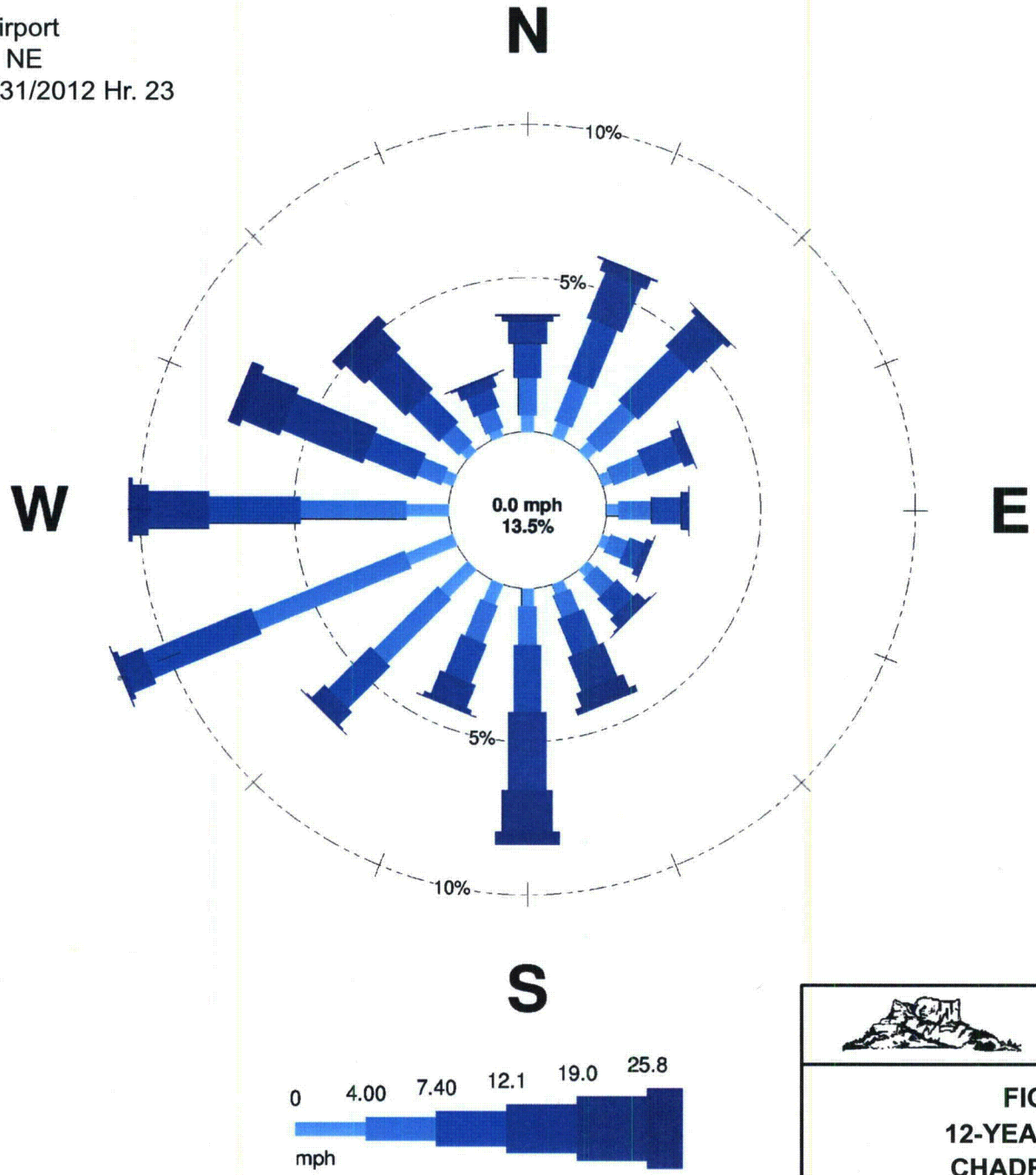


CROW BUTTE RESOURCES, INC.

FIGURE S-3
BASELINE-YEAR WIND ROSE
CHADRON AIRPORT

K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-3.ai @ 03/27/2013

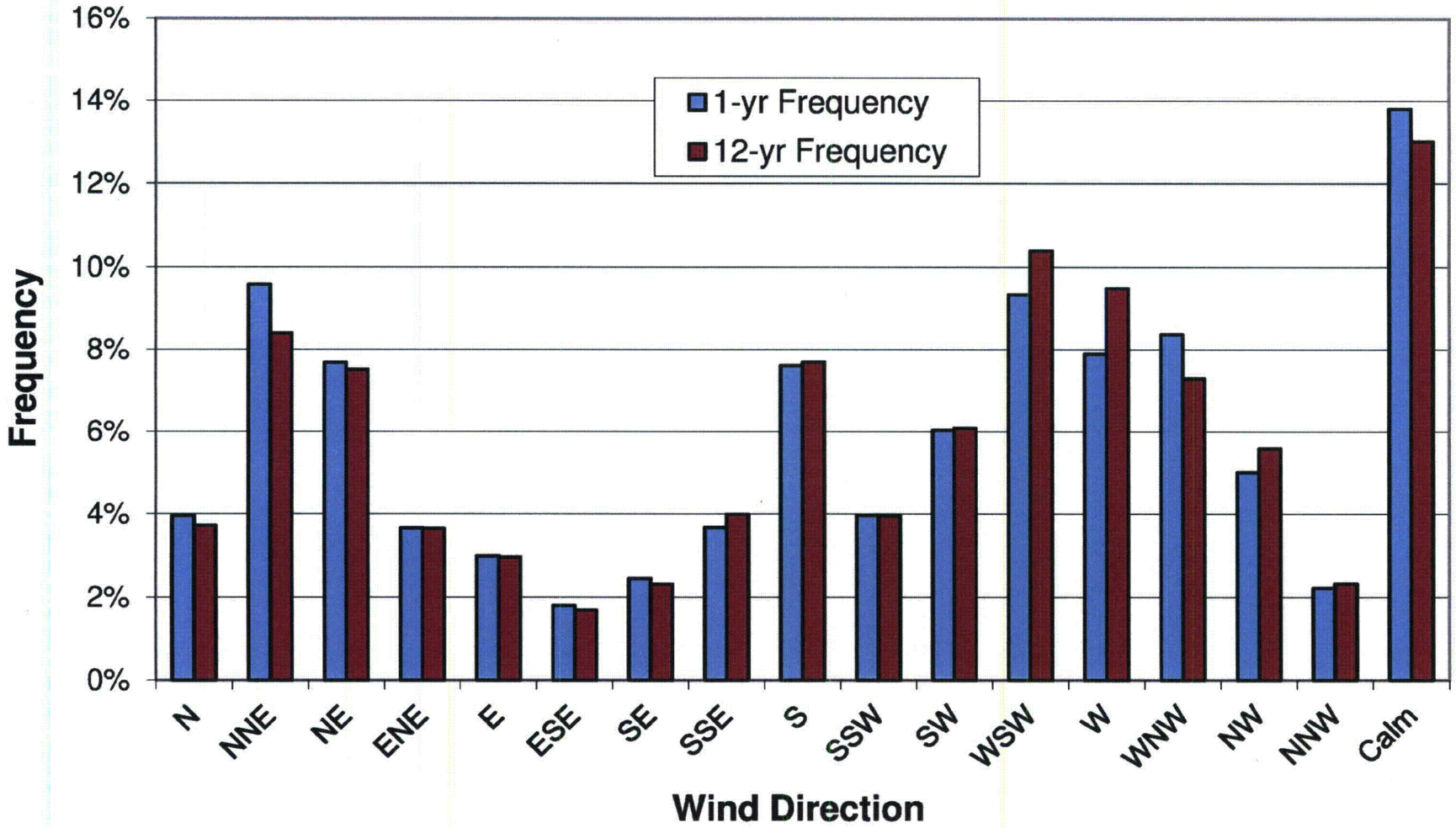
Chadron Airport
Chadron, NE
1/1/2001 Hr. 1 to 12/31/2012 Hr. 23



CROW BUTTE RESOURCES, INC.

FIGURE S-4
12-YEAR WIND ROSE
CHADRON AIRPORT

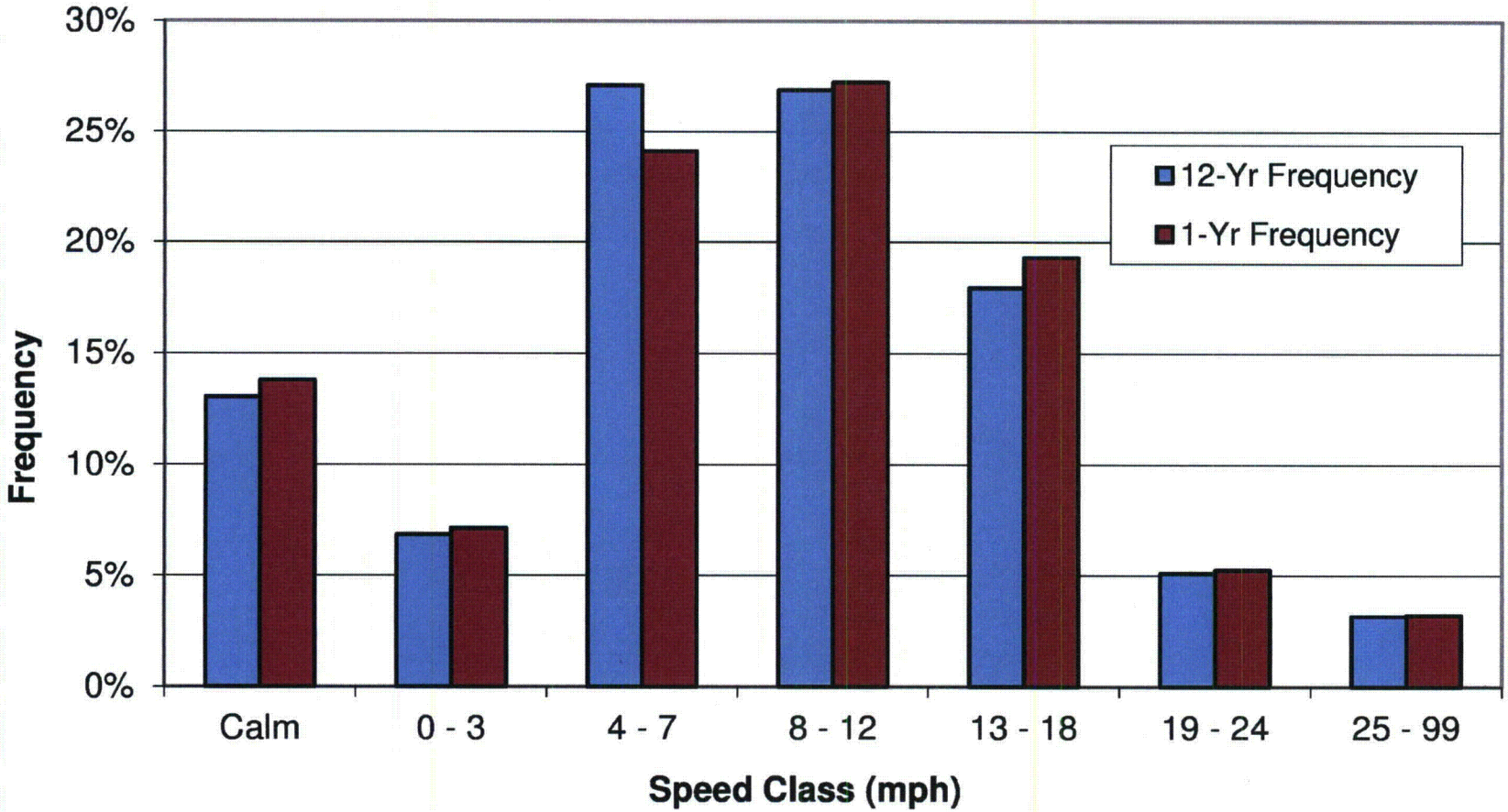
K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-4.ai @ 03/27/2013



CROW BUTTE RESOURCES, INC.

FIGURE S-5
CHADRON AIRPORT
WIND DIRECTION DISTRIBUTION

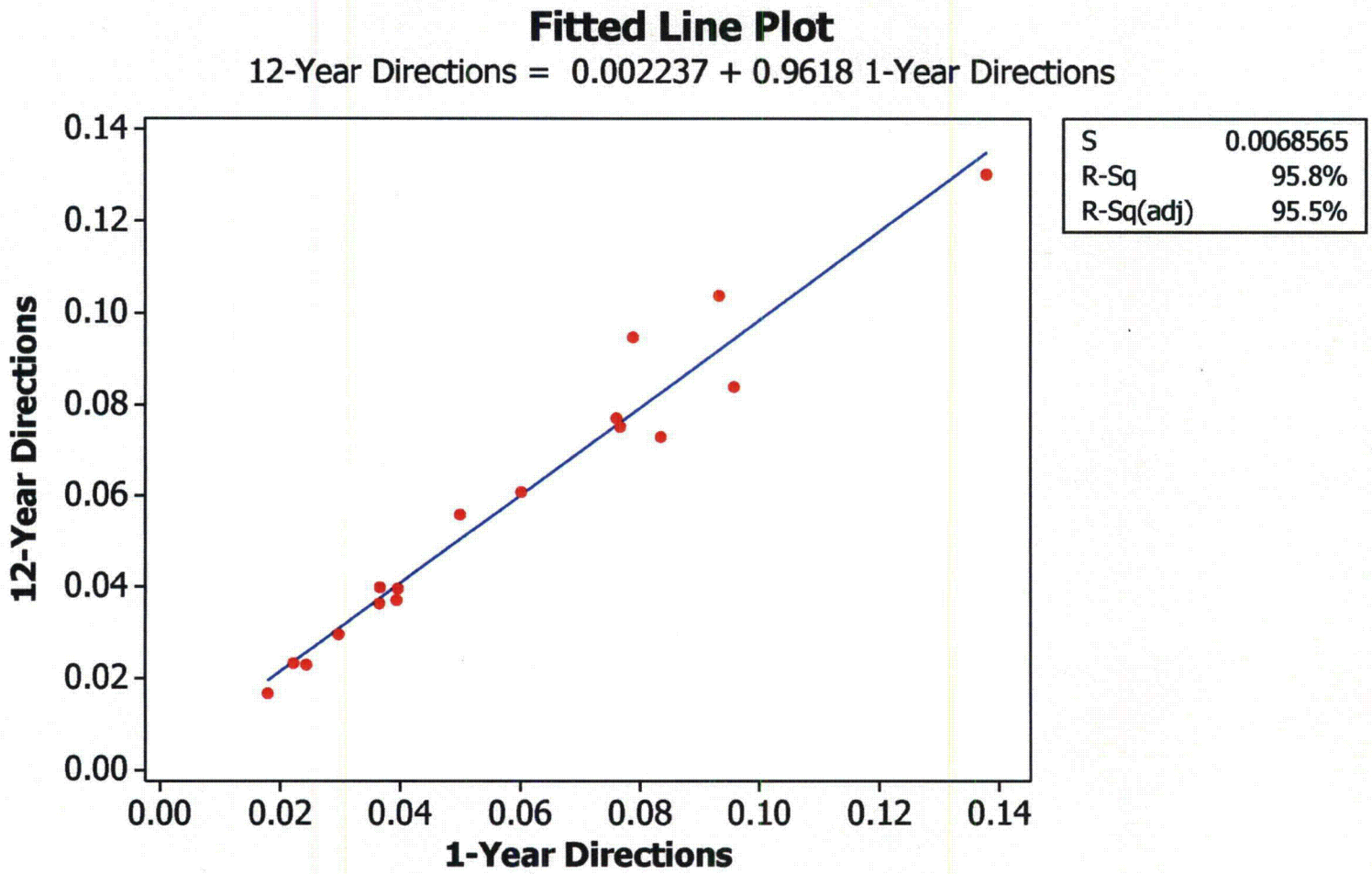
K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-5.ai @ 03/27/2013



CROW BUTTE RESOURCES, INC.

FIGURE S-6
CHADRON AIRPORT
WIND SPEED DISTRIBUTION

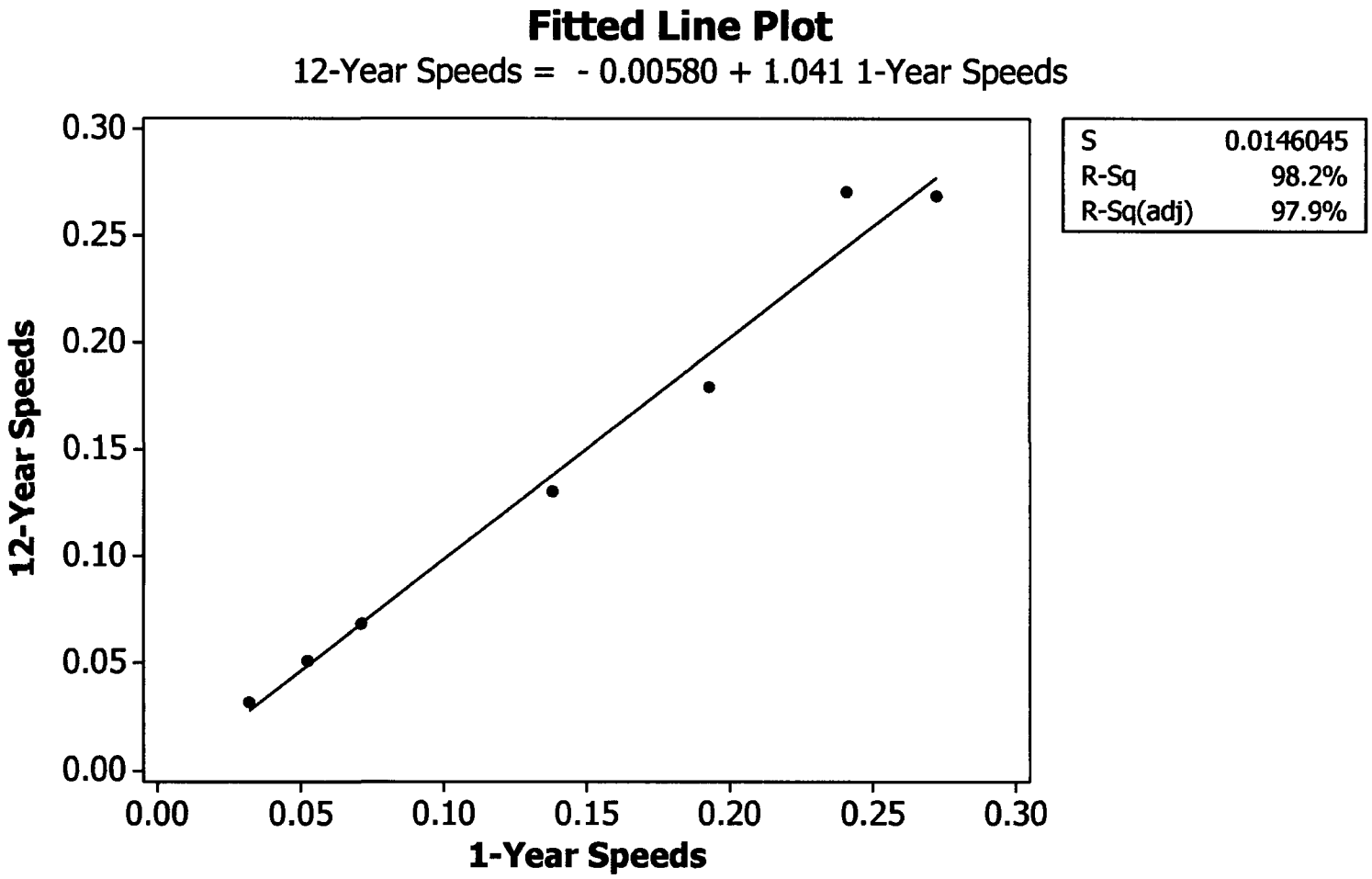
K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-6.ai @ 03/27/2013



CROW BUTTE RESOURCES, INC.

FIGURE S-7
WIND DIRECTION CORRELATION FOR CHADRON AIRPORT

K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-7.ai @ 08/06/2013



CROW BUTTE RESOURCES, INC.

FIGURE S-8
WIND SPEED CORRELATION
FOR CHADRON AIRPORT

K:\CBR_Projects\CO001636_Marsland\3_IMAGES\Illustrator\Appendix S-8.ai @ 08/06/2013

APPENDIX U

Appendix U

Air Particulate Composite
Laboratory Records

Appendix U

Air Particulate Laboratory Records

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-1

Lab ID: S1201090-001
Sampled 10/1/2011-1/4/2012 (2011 4th Qtr) **Sample Air Volume: 3850477 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	72.2	6.4	2E-14	2E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.3		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-2

Lab ID: S1201090-002
Sampled 10/1/2011-1/4/2012 (2011 4th Qtr) **Sample Air Volume: 3851229 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	86.9	6.9	2E-14	2E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.3		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-3

Lab ID: S1201090-003
Sampled 10/1/2011-1/4/2012 (2011 4th Qtr) **Sample Air Volume: 3852794 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	83.0	6.2	2E-14	2E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.4	0.4	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-4

Lab ID: S1201090-004
Sampled 10/1/2011-1/4/2012 (2011 4th Qtr) **Sample Air Volume: 3853046 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	91.2	7.2	2E-14	2E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.3		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-5

Lab ID: S1201090-005
Sampled 10/1/2011-1/4/2012 (2011 4th Qtr) **Sample Air Volume: 3856136 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	70.5	6.0	2E-14	2E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.4	0.4	1E-16	1E-16	1E-16	3 E-14	Year	0.33
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 1/20/2012

CLIENT: Cameco Resources, Crow Butte Operation
Project: Marshland Expansion Area
Lab Order: S1201090

CASE NARRATIVE

Report ID: S1201090001

Samples MA-1, MA-2, MA-3, MA-4, and MA-5 were received on January 9, 2012.

All samples were received and analyzed within the EPA recommended holding times, except those noted in this case narrative. Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600 "Methods for Chemical Analysis of Water and Wastes", 1993
"Standard Methods For The Examination of Water and Wastewater", 20th ed., 1998
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition
Methods indicated with the Monday, March 12, 2007 Federal Register, 40 CFR Part 122, 136 et al.

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/20/2012
Report ID: S1201090001

ProjectName: Marshland Expansion Area
Lab ID: S1201090-001
ClientSample ID: MA-1
COC: WEB

WorkOrder: S1201090
CollectionDate: 1/4/2012
DateReceived: 1/9/2012
FieldSampler: RG
Matrix: Filter

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	3850477	Liters			Field	1/4/2012	
Radionuclides - Filter							
Lead 210	72.2	pCi/Filter		2	OTW01	1/19/2012 12:55:00 PM	SH
Lead 210 Precision (±)	6.4	pCi/Filter			OTW01	1/19/2012 12:55:00 PM	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	2/7/2012 5:07:39 PM	WN
Lead 210 Precision (±)	1.7E-15	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230	ND	pCi/Filter		0.3	ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	2/6/2012 12:15:01 PM	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/20/2012
Report ID: S1201090001

ProjectName: Marshland Expansion Area
Lab ID: S1201090-002
ClientSample ID: MA-2
COC: WEB

WorkOrder: S1201090
CollectionDate: 1/4/2012
DateReceived: 1/9/2012
FieldSampler: RG
Matrix: Filter

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	3851229	Liters			Field	1/4/2012	
Radionuclides - Filter							
Lead 210	86.9	pCi/Filter		2	OTW01	1/19/2012 12:55:00 PM	SH
Lead 210 Precision (±)	6.9	pCi/Filter			OTW01	1/19/2012 12:55:00 PM	SH
Lead 210	2.3E-14	µCi/mL		2.0E-15	Calculation	2/7/2012 5:07:39 PM	WN
Lead 210 Precision (±)	1.8E-15	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230	ND	pCi/Filter		0.3	ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	W[illegible]
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	W[illegible]
Uranium	ND	pCi/Filter		0.3	EPA 200.8	2/6/2012 2:44:12 PM	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/20/2012
Report ID: S1201090001

ProjectName: Marshland Expansion Area
Lab ID: S1201090-003
ClientSample ID: MA-3
COC: WEB

WorkOrder: S1201090
CollectionDate: 1/4/2012
DateReceived: 1/9/2012
FieldSampler: RG
Matrix: Filter

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	3852794	Liters			Field	1/4/2012	
Radionuclides - Filter							
Lead 210	83.0	pCi/Filter		2	OTW01	1/19/2012 12:55:00 PM	SH
Lead 210 Precision (±)	6.2	pCi/Filter			OTW01	1/19/2012 12:55:00 PM	SH
Lead 210	2.2E-14	µCi/mL		2.0E-15	Calculation	2/7/2012 5:07:39 PM	WN
Lead 210 Precision (±)	1.6E-15	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230	0.4	pCi/Filter		0.3	ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230 Precision (±)	0.4	pCi/Filter			ACW10	1/31/2012 1:59:00 PM	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Uranium	0.3	pCi/Filter		0.3	EPA 200.8	2/6/2012 12:28:22 PM	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/20/2012
Report ID: S1201090001

ProjectName: Marshland Expansion Area
Lab ID: S1201090-004
ClientSample ID: MA-4
COC: WEB

WorkOrder: S1201090
CollectionDate: 1/4/2012
DateReceived: 1/9/2012
FieldSampler: RG
Matrix: Filter

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	3853046	Liters			Field	1/4/2012	
Radionuclides - Filter							
Lead 210	91.2	pCi/Filter		2	OTW01	1/19/2012 12:55:00 PM	SH
Lead 210 Precision (±)	7.2	pCi/Filter			OTW01	1/19/2012 12:55:00 PM	SH
Lead 210	2.4E-14	µCi/mL		2.0E-15	Calculation	2/7/2012 5:07:39 PM	WN
Lead 210 Precision (±)	1.9E-15	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230	ND	pCi/Filter		0.3	ACW10	1/31/2012 2:00:00 PM	WL
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	1/31/2012 2:00:00 PM	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	W
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	W
Uranium	ND	pCi/Filter		0.3	EPA 200.8	1/11/2012 10:31:39 AM	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 1/20/2012
Report ID: S1201090001

ProjectName: Marshland Expansion Area
Lab ID: S1201090-005
ClientSample ID: MA-5
COC: WEB

WorkOrder: S1201090
CollectionDate: 1/4/2012
DateReceived: 1/9/2012
FieldSampler: RG
Matrix: Filter

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	3856136	Liters			Field	1/4/2012	
Radionuclides - Filter							
Lead 210	70.5	pCi/Filter		2	OTW01	1/19/2012 12:55:00 PM	SH
Lead 210 Precision (±)	6.0	pCi/Filter			OTW01	1/19/2012 12:55:00 PM	SH
Lead 210	1.8E-14	µCi/mL		2.0E-15	Calculation	2/7/2012 5:07:39 PM	WN
Lead 210 Precision (±)	1.6E-15	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	1/18/2012 11:20:00 AM	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230	0.4	pCi/Filter		0.3	ACW10	1/31/2012 2:00:00 PM	WL
Thorium 230 Precision (±)	0.4	pCi/Filter			ACW10	1/31/2012 2:00:00 PM	WL
Thorium 230	1.0E-16	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN
Thorium 230 Precision (±)	1.0E-16	µCi/mL			Calculation	2/7/2012 5:07:39 PM	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	1/11/2012 10:39:41 AM	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	2/7/2012 5:07:39 PM	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1201090
Project: Marshland Expansion Area

Date: 1/20/2012
Report ID: S1201090001

Uranium, Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 78768	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
BLK	01/11/12 12:17	Uranium	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 78768	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	01/11/12 10:05	Uranium	65.8	0.3	67.7		97.1	85 - 115	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 78768	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1201090-001AS	01/11/12 10:19	Uranium	726	0.3	745	16.6	95.3	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 78768	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1201090-001AMSD	01/11/12 10:21	Uranium	745	0.3	726	2.68		20	

Sample Type **DUP** Units: pCi/Filter

Sample ID	RunNo: 78768	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1201090-001AD	01/11/12 10:16	Uranium	ND	0.3	16.6			20	

Lead 210 in Filters

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 79071	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
AMB12-011	01/19/12 10:44	Lead 210	ND	2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 79071	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	01/19/12 0:00	Lead 210	14	2	12.8		112	70 - 130	

Radium 226 Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 79035	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-011	01/18/12 11:20	Radium 226	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 79035	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-011	01/18/12 11:20	Radium 226	5.0	0.3	5.06		99.5	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 79035	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	01/18/12 13:44	Radium 226	4.8	0.3	5.06	ND	94.1	70 - 130	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1201090
Project: Marshland Expansion Area

Date: 1/20/2012
Report ID: S1201090001

Thorium Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 79103	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-011	01/18/12 13:43	Thorium-230	ND	0.2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 79103	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	01/18/12 0:00	Thorium-230	12.3	0.2	12.5		98.5	70 - 130	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

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Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-1

Lab ID: S1204105-001
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6334637 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	115	7.5	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 5/18/2012
Report ID: S1204105001

ProjectName: Marsland Expansion Area
Lab ID: S1204105-001
ClientSample ID: MA-1
COC:

WorkOrder: S1204105
CollectionDate: 1/18/2012
DateReceived: 4/9/2012 3:51:00 PM
FieldSampler: RG
Matrix: Filter

Comments Sampled 1/4/12 to 4/2/12 (2012 1st Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6334637	Liters			Field	01/18/2012 000	
Radionuclides - Filter							
Lead 210	115	pCi/Filter		2	OTW01	04/26/2012 1154	SH
Lead 210 Precision (±)	7.5	pCi/Filter			OTW01	04/26/2012 1154	SH
Lead 210	1.8E-14	µCi/mL		2.0E-15	Calculation	05/18/2012 1304	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	05/18/2012 1304	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	04/23/2012 1210	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	04/23/2012 1210	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	04/19/2012 1335	WL
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	04/19/2012 1335	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium-229 Tracer (30-120)	81.0	%		0.2	ACW10	04/19/2012 1335	WL
Uranium	1.4	pCi/Filter		0.3	EPA 200.8	04/12/2012 1032	MS
Uranium	2.3E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-2

Lab ID: S1204105-002
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6337547 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	108	7.7	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.8		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 5/18/2012
Report ID: S1204105001

ProjectName: Marsland Expansion Area
Lab ID: S1204105-002
ClientSample ID: MA-2
COC:

WorkOrder: S1204105
CollectionDate: 1/18/2012
DateReceived: 4/9/2012 3:51:00 PM
FieldSampler: RG
Matrix: Filter

Comments Sampled 1/4/12 to 4/2/12 (2012 1st Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6337547	Liters			Field	01/18/2012 000	
Radionuclides - Filter							
Lead 210	108	pCi/Filter		2	OTW01	04/26/2012 1154	SH
Lead 210 Precision (±)	7.7	pCi/Filter			OTW01	04/26/2012 1154	SH
Lead 210	1.7E-14	µCi/mL		2.0E-15	Calculation	05/18/2012 1304	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	05/18/2012 1304	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	04/23/2012 1210	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	04/23/2012 1210	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	04/19/2012 1335	WL
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	04/19/2012 1335	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium-229 Tracer (30-120)	79.8	%		0.2	ACW10	04/19/2012 1335	WL
Uranium	1.8	pCi/Filter		0.3	EPA 200.8	04/12/2012 1051	MS
Uranium	2.8E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-3

Lab ID: S1204105-003
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6322001 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	109	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	1.0	0.4	2E-16	6E-17	1E-16	3 E-14	Year	0.67
Uranium	1.9		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 5/18/2012
Report ID: S1204105001

ProjectName: Marsland Expansion Area
Lab ID: S1204105-003
ClientSample ID: MA-3
COC:

WorkOrder: S1204105
CollectionDate: 1/18/2012
DateReceived: 4/9/2012 3:51:00 PM
FieldSampler: RG
Matrix: Filter

Comments Sampled 1/4/12 to 4/2/12 (2012 1st Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6322001	Liters			Field	01/18/2012 000	
Radionuclides - Filter							
Lead 210	109	pCi/Filter		2	OTW01	04/27/2012 1218	SH
Lead 210 Precision (±)	7.0	pCi/Filter			OTW01	04/27/2012 1218	SH
Lead 210	1.7E-14	µCi/mL		2.0E-15	Calculation	05/18/2012 1304	WN
Lead 210 Precision (±)	1.1E-15	µCi/mL			Calculation	05/18/2012 1304	WN
Radium 226	0.6	pCi/Filter		0.3	SM 7500RAB	04/23/2012 1210	SH
Radium 226 Precision (±)	0.2	pCi/Filter			SM 7500RAB	04/23/2012 1210	SH
Radium 226	1.0E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Radium 226 Precision (±)	3.2E-17	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium 230	1.0	pCi/Filter		0.2	ACW10	04/19/2012 1335	WL
Thorium 230 Precision (±)	0.4	pCi/Filter			ACW10	04/19/2012 1335	WL
Thorium 230	1.5E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Thorium 230 Precision (±)	6.3E-17	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium-229 Tracer (30-120)	79.6	%		0.2	ACW10	04/19/2012 1335	WL
Uranium	1.9	pCi/Filter		0.3	EPA 200.8	04/12/2012 1056	MS
Uranium	2.9E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-4

Lab ID: S1204105-004
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6333500 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	120	7.9	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.3	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.6		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 5/18/2012
Report ID: S1204105001

ProjectName: Marsland Expansion Area
Lab ID: S1204105-004
ClientSample ID: MA-4
COC:

WorkOrder: S1204105
CollectionDate: 1/18/2012
DateReceived: 4/9/2012 3:51:00 PM
FieldSampler: RG
Matrix: Filter

Comments Sampled 1/4/12 to 4/2/12 (2012 1st Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6333500	Liters			Field	01/18/2012 000	
Radionuclides - Filter							
Lead 210	120	pCi/Filter		2	OTW01	04/27/2012 1218	SH
Lead 210 Precision (±)	7.9	pCi/Filter			OTW01	04/27/2012 1218	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	05/18/2012 1304	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	05/18/2012 1304	WN
Radium 226	0.4	pCi/Filter		0.3	SM 7500RAB	04/23/2012 1210	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	04/23/2012 1210	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium 230	0.3	pCi/Filter		0.2	ACW10	04/19/2012 1335	WL
Thorium 230 Precision (±)	0.2	pCi/Filter			ACW10	04/19/2012 1335	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium-229 Tracer (30-120)	80	%		0	ACW10	04/19/2012 1335	WL
Uranium	1.6	pCi/Filter		0.3	EPA 200.8	04/12/2012 1111	MS
Uranium	2.5E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-5

Lab ID: S1204105-005
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6338171 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.2	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.2	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 5/18/2012
Report ID: S1204105001

ProjectName: Marsland Expansion Area
Lab ID: S1204105-005
ClientSample ID: MA-5
COC:

WorkOrder: S1204105
CollectionDate: 1/18/2012
DateReceived: 4/9/2012 3:51:00 PM
FieldSampler: RG
Matrix: Filter

Comments Sampled 1/4/12 to 4/2/12 (2012 1st Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6338171	Liters			Field	01/18/2012 000	
Radionuclides - Filter							
Lead 210	116	pCi/Filter		2	OTW01	04/27/2012 1218	SH
Lead 210 Precision (±)	7.2	pCi/Filter			OTW01	04/27/2012 1218	SH
Lead 210	1.8E-14	µCi/mL		2.0E-15	Calculation	05/18/2012 1304	WN
Lead 210 Precision (±)	1.1E-15	µCi/mL			Calculation	05/18/2012 1304	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	04/23/2012 1210	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	04/23/2012 1210	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium 230	0.2	pCi/Filter		0.2	ACW10	04/19/2012 1335	WL
Thorium 230 Precision (±)	0.2	pCi/Filter			ACW10	04/19/2012 1335	WL
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	05/18/2012 1304	WN
Thorium-229 Tracer (30-120)	86.7	%		0.2	ACW10	04/19/2012 1335	WL
Uranium	1.4	pCi/Filter		0.3	EPA 200.8	04/12/2012 1116	MS
Uranium	2.2E-16	µCi/mL		1.0E-16	Calculation	05/18/2012 1304	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Date: 5/18/2012

CLIENT: Cameco Resources, Crow Butte Operation
Project: Marsland Expansion Area
Lab Order: S1204105

CASE NARRATIVE

Report ID: S1204105001

Samples MA-1, MA-2, MA-3, MA-4, and MA-5 were received on April 9, 2012.

All samples were received and analyzed within the EPA recommended holding times, except those noted in this case narrative. Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600 "Methods for Chemical Analysis of Water and Wastes", 1993
"Standard Methods For The Examination of Water and Wastewater", 20th ed., 1998
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition
Methods indicated with the Monday, March 12, 2007 Federal Register, 40 CFR Part 122, 136 et al.

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1204105
Project: Marsland Expansion Area

Date: 5/18/2012
Report ID: S1204105001

Uranium, Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 81642	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
BLK	04/12/12 10:22	Uranium	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 81642	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	04/12/12 10:18	Uranium	72.0	0.3	67.7		106	85 - 115	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 81642	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1204105-001AS	04/12/12 10:42	Uranium	3980	0.3	3720	1.4	107	70 - 130	

Sample ID	RunNo: 81642	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1204106-006AS	04/12/12 11:56	Uranium	3800	0.3	3720	2.0	102	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 81642	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1204105-001AMSD	04/12/12 10:47	Uranium	3830	0.3	3980	3.66		20	

Sample ID	RunNo: 81642	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1204106-006AMSD	04/12/12 12:11	Uranium	4040	0.3	3800	6.28		20	

Sample Type **DUP** Units: pCi/Filter

Sample ID	RunNo: 81642	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1204105-001AD	04/12/12 10:37	Uranium	1.4	0.3	1.4	6.01		20	

Sample ID	RunNo: 81642	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1204106-006AD	04/12/12 11:51	Uranium	2.0	0.3	2.0	0.269		20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1204105
Project: Marsland Expansion Area

Date: 5/18/2012
Report ID: S1204105001

Lead 210 In Filters

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 82232	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-108	04/27/12 15:51	Lead 210	ND	2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 82232	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-108	04/26/12 11:54	Lead 210	16	2	12.7		123	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 82232	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	04/26/12 11:54	Lead 210	13	2	12.7	ND	93.2	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 82232	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	04/26/12 11:54	Lead 210	14	2	13	9.74		30	

Radium 226 Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 82003	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-107	04/23/12 12:10	Radium 226	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 82003	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-107	04/23/12 12:10	Radium 226	5.6	0.3	5.06		111	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 82003	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	04/23/12 14:14	Radium 226	5.4	0.3	5.06	ND	106	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 82003	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	04/23/12 14:14	Radium 226	5.5	0.3	5.4	1.94		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1204105
Project: Marsland Expansion Area

Date: 5/18/2012
Report ID: S1204105001

Thorium Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 81978	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-107	04/19/12 13:35	Thorium-230	ND	0.2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 81978	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-107	04/19/12 13:35	Thorium-230	11.8	0.2	12.5		94.7	70 - 130	

Sample Type **LCSD** Units: pCi/Filter

Sample ID	RunNo: 81978	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
LCS12-107 DUP	04/19/12 13:35	Thorium-230	14.2	0.2	11.8	ND	113	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

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1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-1

Lab ID: S1207116-001
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6196200 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	68.9	6.1	1E-14	1E-15	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-001
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6334637 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	115	7.5	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 8/14/2012
Report ID: S1207116001

ProjectName: 2nd Quarter Composite Marshland Expansion Area
Lab ID: S1207116-001
ClientSample ID: MA-1
COC:

WorkOrder: S1207116
CollectionDate: 4/18/2012
DateReceived: 7/9/2012 10:49:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6196200	Liters			Field	04/18/2012 000	
Radionuclides - Filter							
Lead 210	68.9	pCi/Filter		2	OTW01	08/07/2012 1700	SH
Lead 210 Precision (±)	6.1	pCi/Filter			OTW01	08/07/2012 1700	SH
Lead 210	1.1E-14	µCi/mL		2.0E-15	Calculation	08/14/2012 1303	WN
Lead 210 Precision (±)	9.8E-16	µCi/mL			Calculation	08/14/2012 1303	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	07/24/2012 1334	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	07/24/2012 1334	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	07/27/2012 828	SH
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	07/27/2012 828	SH
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	07/12/2012 1942	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-2

Lab ID: S1207116-002
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6203400 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	82.7	5.4	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-002
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6337547 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	108	7.7	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.8		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 8/14/2012
Report ID: S1207116001

ProjectName: 2nd Quarter Composite Marshland Expansion Area
Lab ID: S1207116-002
ClientSample ID: MA-2
COC:

WorkOrder: S1207116
CollectionDate: 4/18/2012
DateReceived: 7/9/2012 10:49:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6203400	Liters			Field	04/18/2012 000	
Radionuclides - Filter							
Lead 210	82.7	pCi/Filter		2	OTW01	08/07/2012 1700	SH
Lead 210 Precision (±)	5.4	pCi/Filter			OTW01	08/07/2012 1700	SH
Lead 210	1.3E-14	µCi/mL		2.0E-15	Calculation	08/14/2012 1303	WN
Lead 210 Precision (±)	8.7E-16	µCi/mL			Calculation	08/14/2012 1303	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	07/24/2012 1334	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	07/24/2012 1334	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	07/30/2012 1132	SH
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	07/30/2012 1132	SH
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	07/12/2012 2001	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-3

Lab ID: S1207116-003
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6067000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	75.7	5.1	1E-14	8E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.5	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-003
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6322001 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	109	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	1.0	0.4	2E-16	6E-17	1E-16	3 E-14	Year	0.67
Uranium	1.9		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 8/14/2012
Report ID: S1207116001

ProjectName: 2nd Quarter Composite Marshland Expansion Area
Lab ID: S1207116-003
ClientSample ID: MA-3
COC:

WorkOrder: S1207116
CollectionDate: 4/18/2012
DateReceived: 7/9/2012 10:49:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6067000	Liters			Field	04/18/2012 000	
Radionuclides - Filter							
Lead 210	75.7	pCi/Filter		2	OTW01	08/07/2012 1700	SH
Lead 210 Precision (±)	5.1	pCi/Filter			OTW01	08/07/2012 1700	SH
Lead 210	1.2E-14	µCi/mL		2.0E-15	Calculation	08/14/2012 1303	WN
Lead 210 Precision (±)	8.4E-16	µCi/mL			Calculation	08/14/2012 1303	WN
Radium 226	0.5	pCi/Filter		0.3	SM 7500RAB	07/24/2012 1334	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	07/24/2012 1334	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	07/30/2012 1132	SH
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	07/30/2012 1132	SH
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Uranium	0.3	pCi/Filter		0.3	EPA 200.8	07/12/2012 2006	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-4

Lab ID: S1207116-004
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6049000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	78.2	5.2	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.3	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-004
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6333500 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	120	7.9	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.3	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.6		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 8/14/2012
Report ID: S1207116001

ProjectName: 2nd Quarter Composite Marshland Expansion Area
Lab ID: S1207116-004
ClientSample ID: MA-4
COC:

WorkOrder: S1207116
CollectionDate: 4/18/2012
DateReceived: 7/9/2012 10:49:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6049000	Liters			Field	04/18/2012 000	
Radionuclides - Filter							
Lead 210	78.2	pCi/Filter		2	OTW01	08/07/2012 1700	SH
Lead 210 Precision (±)	5.2	pCi/Filter			OTW01	08/07/2012 1700	SH
Lead 210	1.3E-14	µCi/mL		2.0E-15	Calculation	08/14/2012 1303	WN
Lead 210 Precision (±)	8.6E-16	µCi/mL			Calculation	08/14/2012 1303	WN
Radium 226	0.3	pCi/Filter		0.3	SM 7500RAB	07/24/2012 1334	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	07/24/2012 1334	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	07/30/2012 1132	SH
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	07/30/2012 1132	SH
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Uranium	0.4	pCi/Filter		0.3	EPA 200.8	07/12/2012 2011	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-5

Lab ID: S1207116-005
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume:** 5575200 Liters

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	62.2	4.8	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-005
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume:** 6338171 Liters

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.2	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.2	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 8/14/2012
Report ID: S1207116001

ProjectName: 2nd Quarter Composite Marshland Expansion Area
Lab ID: S1207116-005
ClientSample ID: MA-5
COC:

WorkOrder: S1207116
CollectionDate: 4/18/2012
DateReceived: 7/9/2012 10:49:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	5575200	Liters			Field	04/18/2012 000	
Radionuclides - Filter							
Lead 210	62.2	pCi/Filter		2	OTW01	08/07/2012 1700	SH
Lead 210 Precision (±)	4.8	pCi/Filter			OTW01	08/07/2012 1700	SH
Lead 210	1.1E-14	µCi/mL		2.0E-15	Calculation	08/14/2012 1303	WN
Lead 210 Precision (±)	8.6E-16	µCi/mL			Calculation	08/14/2012 1303	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	07/24/2012 1334	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	07/24/2012 1334	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	07/30/2012 1132	SH
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	07/30/2012 1132	SH
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	08/14/2012 1303	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	07/12/2012 2016	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	08/14/2012 1303	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 8/14/2012

CLIENT: Cameco Resources, Crow Butte Operation
Project: 2nd Quarter Composite Marshland Expansion Area
Lab Order: S1207116

CASE NARRATIVE

Report ID: S1207116001

Samples MA-1, MA-2, MA-3, MA-4, and MA-5 were received on July 9, 2012.

All samples were received and analyzed within the EPA recommended holding times, except those noted in this case narrative. Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600 "Methods for Chemical Analysis of Water and Wastes", 1993
"Standard Methods For The Examination of Water and Wastewater", 20th ed., 1998
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition
Methods indicated with the Monday, March 12, 2007 Federal Register, 40 CFR Part 122, 136 et al.

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

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ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1207116
Project: 2nd Quarter Composite Marshland Expansion Area

Date: 8/14/2012
Report ID: S1207116001

Uranium, Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 84790	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MBLK	07/12/12 12:48	Uranium	ND	0.003					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 84790	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	07/12/12 12:43	Uranium	68.2	0.3	67.7		101	85 - 115	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 84790	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1207116-001BS	07/12/12 19:52	Uranium	726	0.3	745	ND	97.4	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 84790	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1207116-001BMSD	07/12/12 19:56	Uranium	736	0.3	726	1.43	98.8	20	

Sample Type **DUP** Units: pCi/Filter

Sample ID	RunNo: 84790	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1207116-001BD	07/12/12 19:47	Uranium	ND	0.3	ND			20	

Lead 210 in Filters

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 85717	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-207	08/07/12 14:14	Lead 210	ND	2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 85717	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-207	08/07/12 14:14	Lead 210	11	2	12.6		87.1	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 85717	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	08/07/12 17:00	Lead 210	15	2	12.4	ND	111	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 85717	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	08/07/12 17:00	Lead 210	14	2	15	5.45	104	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1207116
Project: 2nd Quarter Composite Marshland Expansion Area

Date: 8/14/2012
Report ID: S1207116001

Radium 226 Air Filter Analysis

Sample Type MBLK Units: pCi/Filter

Sample ID	RunNo: 85444	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-198	07/24/12 13:34	Radium 226	ND	0.3					

Sample Type LCS Units: pCi/Filter

Sample ID	RunNo: 85444	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-198	07/24/12 13:34	Radium 226	5.3	0.3	5.06		104	70 - 130	

Sample Type MS Units: pCi/Filter

Sample ID	RunNo: 85444	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	07/24/12 17:41	Radium 226	5.1	0.3	5.06	ND	101	70 - 130	

Sample Type MSD Units: pCi/Filter

Sample ID	RunNo: 85444	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	07/24/12 17:41	Radium 226	5.0	0.3	5.1	1.89	99.2	30	

Thorium Air Filter Analysis

Sample Type MBLK Units: pCi/Filter

Sample ID	RunNo: 85772	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
AMB12-199	07/27/12 8:28	Thorium-230	ND	0.2					

Sample Type LCS Units: pCi/Filter

Sample ID	RunNo: 85772	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	07/26/12 0:00	Thorium-230	12.4	0.2	12.5		99.3	70 - 130	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

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Your Environmental Monitoring Partner
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Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-1

Lab ID: S1210132-001
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6108764 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-001
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6196200 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	68.9	6.1	1E-14	1E-15	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-001
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6334637 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	115	7.5	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 10/29/2012
Report ID: S1210132001

ProjectName: Marshland Expansion Area
Lab ID: S1210132-001
ClientSample ID: MA-1
COC:

WorkOrder: S1210132
CollectionDate:
DateReceived: 10/8/2012 9:30:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6108764	Liters			Field		
Radionuclides - Filter							
Lead 210	116	pCi/Filter		2	OTW01	10/25/2012 1407	SH
Lead 210 Precision (±)	7.0	pCi/Filter			OTW01	10/25/2012 1407	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	10/29/2012 1517	WN
Lead 210 Precision (±)	1.1E-15	µCi/mL			Calculation	10/29/2012 1517	WN
Radium 226	0.4	pCi/Filter		0.3	SM 7500RAB	10/22/2012 1040	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	10/22/2012 1040	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	10/23/2012 900	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	10/23/2012 900	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium-229 Tracer (30-120)	86.9	%		0.2	ACW10	10/23/2012 900	MB
Uranium	0.3	pCi/Filter		0.3	EPA 200.8	10/09/2012 1554	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-2

Lab ID: S1210132-002
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6002630 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	122	7.4	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	3.0	0.4	5E-16	7E-17	1E-16	9 E-13	Week	0.06
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-002
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6203400 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	82.7	5.4	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-002
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6337547 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	108	7.7	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.8		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 10/29/2012
Report ID: S1210132001

ProjectName: Marshland Expansion Area
Lab ID: S1210132-002
ClientSample ID: MA-2
COC:

WorkOrder: S1210132
CollectionDate:
DateReceived: 10/8/2012 9:30:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6002630	Liters			Field		
Radionuclides - Filter							
Lead 210	122	pCi/Filter		2	OTW01	10/25/2012 1407	SH
Lead 210 Precision (±)	7.4	pCi/Filter			OTW01	10/25/2012 1407	SH
Lead 210	2.0E-14	µCi/mL		2.0E-15	Calculation	10/29/2012 1517	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	10/29/2012 1517	WN
Radium 226	3.0	pCi/Filter		0.3	SM 7500RAB	10/22/2012 1040	SH
Radium 226 Precision (±)	0.4	pCi/Filter			SM 7500RAB	10/22/2012 1040	SH
Radium 226	5.0E-16	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Radium 226 Precision (±)	6.7E-17	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	10/23/2012 900	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	10/23/2012 900	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium-229 Tracer (30-120)	96.8	%		0.2	ACW10	10/23/2012 900	MB
Uranium	ND	pCi/Filter		0.3	EPA 200.8	10/09/2012 1623	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-3

Lab ID: S1210132-003
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6532003 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	129	7.6	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.9	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-003
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6067000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	75.7	5.1	1E-14	8E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.5	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-003
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6322001 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	109	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	1.0	0.4	2E-16	6E-17	1E-16	3 E-14	Year	0.67
Uranium	1.9		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 10/29/2012
Report ID: S1210132001

ProjectName: Marshland Expansion Area
Lab ID: S1210132-003
ClientSample ID: MA-3
COC:

WorkOrder: S1210132
CollectionDate:
DateReceived: 10/8/2012 9:30:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6532003	Liters			Field		
Radionuclides - Filter							
Lead 210	129	pCi/Filter		2	OTW01	10/25/2012 1407	SH
Lead 210 Precision (±)	7.6	pCi/Filter			OTW01	10/25/2012 1407	SH
Lead 210	2.0E-14	µCi/mL		2.0E-15	Calculation	10/29/2012 1517	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	10/29/2012 1517	WN
Radium 226	0.9	pCi/Filter		0.3	SM 7500RAB	10/22/2012 1040	SH
Radium 226 Precision (±)	0.2	pCi/Filter			SM 7500RAB	10/22/2012 1040	SH
Radium 226	1.3E-16	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Radium 226 Precision (±)	3.1E-17	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	10/23/2012 900	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	10/23/2012 900	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium-229 Tracer (30-120)	95.0	%		0.2	ACW10	10/23/2012 900	MB
Uranium	0.4	pCi/Filter		0.3	EPA 200.8	10/09/2012 1628	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-4

Lab ID: S1210132-004
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 5889397 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	103	6.3	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.5		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-004
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6049000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	78.2	5.2	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.3	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-004
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6333500 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	120	7.9	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.3	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.6		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 10/29/2012
Report ID: S1210132001

ProjectName: Marshland Expansion Area
Lab ID: S1210132-004
ClientSample ID: MA-4
COC:

WorkOrder: S1210132
CollectionDate:
DateReceived: 10/8/2012 9:30:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	5889397	Liters			Field		
Radionuclides - Filter							
Lead 210	103	pCi/Filter		2	OTW01	10/25/2012 1407	SH
Lead 210 Precision (±)	6.3	pCi/Filter			OTW01	10/25/2012 1407	SH
Lead 210	1.8E-14	µCi/mL		2.0E-15	Calculation	10/29/2012 1517	WN
Lead 210 Precision (±)	1.1E-15	µCi/mL			Calculation	10/29/2012 1517	WN
Radium 226	0.6	pCi/Filter		0.3	SM 7500RAB	10/22/2012 1040	SH
Radium 226 Precision (±)	0.2	pCi/Filter			SM 7500RAB	10/22/2012 1040	SH
Radium 226	1.0E-16	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Radium 226 Precision (±)	3.4E-17	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	10/23/2012 900	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	10/23/2012 900	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium-229 Tracer (30-120)	89.7	%		0.2	ACW10	10/23/2012 900	MB
Uranium	0.5	pCi/Filter		0.3	EPA 200.8	10/09/2012 1633	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-5

Lab ID: S1210132-005
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 5337479 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	103	6.6	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-005
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 5575200 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	62.2	4.8	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-005
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6338171 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.2	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.2	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 10/29/2012
Report ID: S1210132001

ProjectName: Marshland Expansion Area
Lab ID: S1210132-005
ClientSample ID: MA-5
COC:

WorkOrder: S1210132
CollectionDate:
DateReceived: 10/8/2012 9:30:00 AM
FieldSampler:
Matrix: Filter

Comments Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	5337479	Liters			Field		
Radionuclides - Filter							
Lead 210	103	pCi/Filter		2	OTW01	10/25/2012 1407	SH
Lead 210 Precision (±)	6.6	pCi/Filter			OTW01	10/25/2012 1407	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	10/29/2012 1517	WN
Lead 210 Precision (±)	1.2E-15	µCi/mL			Calculation	10/29/2012 1517	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	10/22/2012 1040	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	10/22/2012 1040	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	10/23/2012 900	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	10/23/2012 900	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	10/29/2012 1517	WN
Thorium-229 Tracer (30-120)	96.5	%		0.2	ACW10	10/23/2012 900	MB
Uranium	ND	pCi/Filter		0.3	EPA 200.8	10/09/2012 1638	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	10/29/2012 1517	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 10/29/2012

CLIENT: Cameco Resources, Crow Butte Operation
Project: Marshland Expansion Area
Lab Order: S1210132

CASE NARRATIVE

Report ID: S1210132001

Samples MA-1, MA-2, MA-3, MA-4, and MA-5 were received on October 8, 2012.

All samples were received and analyzed within the EPA recommended holding times, except those noted in this case narrative. Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600 "Methods for Chemical Analysis of Water and Wastes", 1993
"Standard Methods For The Examination of Water and Wastewater", 20th ed., 1998
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition
Methods indicated with the Monday, March 12, 2007 Federal Register, 40 CFR Part 122, 136 et al.

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1210132
Project: Marshland Expansion Area

Date: 10/29/2012
Report ID: S1210132001

Uranium, Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 88118	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MBLK	10/09/12 12:27	Uranium	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 88118	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	10/09/12 12:23	Uranium	69.7	0.3	67.7		103	85 - 115	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 88118	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1210132-001BS	10/09/12 16:14	Uranium	760	0.3	745	0.3	102	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 88118	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1210132-001BMSD	10/09/12 16:18	Uranium	805	0.3	760	5.89	108	20	

Sample Type **DUP** Units: pCi/Filter

Sample ID	RunNo: 88118	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1210132-001BD	10/09/12 15:59	Uranium	0.3	0.3	0.3	3.67		20	

Lead 210 in Filters

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 88835	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-284	10/25/12 14:07	Lead 210	ND	2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 88835	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-284	10/25/12 14:07	Lead 210	14	2	12.5		108	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 88835	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	10/25/12 14:07	Lead 210	13	2	12.5	ND	98.4	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 88835	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	10/25/12 14:07	Lead 210	13	2	13	3.36	102	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1210132
Project: Marshland Expansion Area

Date: 10/29/2012
Report ID: S1210132001

Radium 226 Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 88678	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12-291	10/22/12 10:40	Radium 226	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 88678	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12-291	10/22/12 10:40	Radium 226	5.2	0.3	5.06		103	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 88678	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	10/22/12 13:56	Radium 226	5.0	0.3	5.06	ND	99.4	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 88678	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	10/22/12 13:56	Radium 226	5.2	0.3	5.0	3.25	103	30	

Thorium Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 88786	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB12- 284	10/23/12 9:00	Thorium-230	ND	0.2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 88786	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS12- 284	10/23/12 9:00	Thorium-230	13.2	0.2	12.5		105	70 - 130	

Sample Type **LCSD** Units: pCi/Filter

Sample ID	RunNo: 88786	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
LCSD12- 284	10/23/12 9:00	Thorium-230	12.5	0.2	13.2	5.11	100	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Inter-Mountain Labs
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1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-1

Lab ID: S1301108-001
Sampled 10/1/2012-1/2/2013 (2012 4th Qtr) **Sample Air Volume: 6682410 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	129	5.8	2E-14	9E-16	2E-15	6 E-13	Day	3.33
Radium 226	0.3	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1210132-001
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6108764 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-001
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6196200 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	68.9	6.1	1E-14	1E-15	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-001
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6334637 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	115	7.5	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

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1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 2/8/2013
Report ID: S1301108001

ProjectName: Marshland Expansion Area
Lab ID: S1301108-001
ClientSample ID: MA-1
COC:

WorkOrder: S1301108
CollectionDate: 1/2/2013
DateReceived: 1/9/2013 10:30:00 AM
FieldSampler: RG
Matrix: Filter

Comments Sampled 10/1/2012-1/2/2013 (2012 4th Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6682410	Liters			Field	01/02/2013 000	
Radionuclides - Filter							
Lead 210	129	pCi/Filter		2	OTW01	01/29/2013 1055	SH
Lead 210 Precision (±)	5.8	pCi/Filter			OTW01	01/29/2013 1055	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	02/08/2013 1100	WN
Lead 210 Precision (±)	8.7E-16	µCi/mL			Calculation	02/08/2013 1100	WN
Radium 226	0.3	pCi/Filter		0.3	SM 7500RAB	01/22/2013 1611	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	01/22/2013 1611	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	01/31/2013 905	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	01/31/2013 905	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Uranium	0.4	pCi/Filter		0.3	EPA 200.8	01/14/2013 1726	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-2

Lab ID: S1301108-002
Sampled 10/1/2012-1/2/2013 (2012 4th Qtr) **Sample Air Volume: 6581476 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	128	6.1	2E-14	9E-16	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.2	.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1210132-002
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6002630 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	122	7.4	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	3.0	0.4	5E-16	7E-17	1E-16	9 E-13	Week	0.06
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-002
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6203400 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	82.7	5.4	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-002
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6337547 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	108	7.7	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.8		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 2/8/2013
Report ID: S1301108001

ProjectName: Marshland Expansion Area
Lab ID: S1301108-002
ClientSample ID: MA-2
COC:

WorkOrder: S1301108
CollectionDate: 1/2/2013
DateReceived: 1/9/2013 10:30:00 AM
FieldSampler: RG
Matrix: Filter

Comments Sampled 10/1/2012-1/2/2013 (2012 4th Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6581476	Liters			Field	01/02/2013 000	
Radionuclides - Filter							
Lead 210	128	pCi/Filter		2	OTW01	01/29/2013 1055	SH
Lead 210 Precision (±)	6.1	pCi/Filter			OTW01	01/29/2013 1055	SH
Lead 210	1.9E-14	µCi/mL		2.0E-15	Calculation	02/08/2013 1100	WN
Lead 210 Precision (±)	9.3E-16	µCi/mL			Calculation	02/08/2013 1100	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	01/22/2013 1611	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	01/22/2013 1611	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Thorium 230	0.2	pCi/Filter		0.2	ACW10	01/31/2013 905	MB
Thorium 230 Precision (±)	0.2	pCi/Filter			ACW10	01/31/2013 905	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	01/14/2013 1731	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
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Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-3

Lab ID: S1301108-003
Sampled 10/1/2012-1/2/2013 (2012 4th Qtr) **Sample Air Volume: 6575697 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	128	5.8	2E-14	9E-16	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1210132-003
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 6532003 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	129	7.6	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.9	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-003
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6067000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	75.7	5.1	1E-14	8E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.5	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-003
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6322001 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	109	7.0	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	1.0	0.4	2E-16	6E-17	1E-16	3 E-14	Year	0.67
Uranium	1.9		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 2/8/2013
Report ID: S1301108001

ProjectName: Marshland Expansion Area
Lab ID: S1301108-003
ClientSample ID: MA-3
COC:

WorkOrder: S1301108
CollectionDate: 1/2/2013
DateReceived: 1/9/2013 10:30:00 AM
FieldSampler: RG
Matrix: Filter

Comments Sampled 10/1/2012-1/2/2013 (2012 4th Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6575697	Liters			Field	01/02/2013 000	
Radionuclides - Filter							
Lead 210	128	pCi/Filter		2	OTW01	01/29/2013 1055	SH
Lead 210 Precision (±)	5.8	pCi/Filter			OTW01	01/29/2013 1055	SH
Lead 210	2.0E-14	µCi/mL		2.0E-15	Calculation	02/08/2013 1100	WN
Lead 210 Precision (±)	8.8E-16	µCi/mL			Calculation	02/08/2013 1100	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	01/22/2013 1611	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	01/22/2013 1611	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	01/31/2013 905	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	01/31/2013 905	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	01/14/2013 1736	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-4

Lab ID: S1301108-004
Sampled 10/1/2012-1/2/2013 (2012 4th Qtr) **Sample Air Volume: 6582882 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	132	5.8	2E-14	9E-16	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1210132-004
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 5869397 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	103	6.3	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.6	0.2	1E-16	3E-17	1E-16	9 E-13	Week	0.01
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.5		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-004
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 6049000 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	78.2	5.2	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	0.3	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	0.4		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-004
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6333500 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	120	7.9	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	0.4	0.1	<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.3	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.6		3E-16		1E-16	9 E-14	Year	0.33

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 2/8/2013
Report ID: S1301108001

ProjectName: Marshland Expansion Area
Lab ID: S1301108-004
ClientSample ID: MA-4
COC:

WorkOrder: S1301108
CollectionDate: 1/2/2013
DateReceived: 1/9/2013 10:30:00 AM
FieldSampler: RG
Matrix: Filter

Comments Sampled 10/1/2012-1/2/2013 (2012 4th Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6582882	Liters			Field	01/02/2013 000	
Radionuclides - Filter							
Lead 210	132	pCi/Filter		2	OTW01	01/29/2013 1055	SH
Lead 210 Precision (±)	5.8	pCi/Filter			OTW01	01/29/2013 1055	SH
Lead 210	2.0E-14	µCi/mL		2.0E-15	Calculation	02/08/2013 1100	WN
Lead 210 Precision (±)	8.8E-16	µCi/mL			Calculation	02/08/2013 1100	WN
Radium 226	0.4	pCi/Filter		0.3	SM 7500RAB	01/23/2013 903	SH
Radium 226 Precision (±)	0.1	pCi/Filter			SM 7500RAB	01/23/2013 903	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	01/31/2013 905	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	01/31/2013 905	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	01/14/2013 1741	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Air Filter Summary Report

Client: Cameco Resources, Crow Butte Operation

Client Sample ID: MA-5

Lab ID: S1301108-005
Sampled 10/1/2012-1/2/2013 (2012 4th Qtr) **Sample Air Volume: 6584474 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	134	6.1	2E-14	9E-16	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1210132-005
Sampled 6/29/2012-10/1/2012 (2012 3rd Qtr) **Sample Air Volume: 5337479 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	103	6.6	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1207116-005
Sampled 4/2/2012-6/29/2012 (2012 2nd Qtr) **Sample Air Volume: 5575200 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	62.2	4.8	1E-14	9E-16	2E-15	6 E-13	Day	1.67
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	<0.2		<1E-16		1E-16	3 E-14	Year	0.00
Uranium	<0.3		<1E-16		1E-16	9 E-14	Year	0.00

Lab ID: S1204105-005
Sampled 1/4/12 to 4/2/12 (2012 1st Qtr) **Sample Air Volume: 6338171 Liters**

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Lead 210	116	7.2	2E-14	1E-15	2E-15	6 E-13	Day	3.33
Radium 226	<0.3		<1E-16		1E-16	9 E-13	Week	0.00
Thorium 230	0.2	0.2	<1E-16		1E-16	3 E-14	Year	0.00
Uranium	1.4		2E-16		1E-16	9 E-14	Year	0.22

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 2/8/2013
Report ID: S1301108001

ProjectName: Marshland Expansion Area
Lab ID: S1301108-005
ClientSample ID: MA-5
COC:

WorkOrder: S1301108
CollectionDate: 1/2/2013
DateReceived: 1/9/2013 10:30:00 AM
FieldSampler: RG
Matrix: Filter

Comments Sampled 10/1/2012-1/2/2013 (2012 4th Qtr)

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	6584474	Liters			Field	01/02/2013 000	
Radionuclides - Filter							
Lead 210	134	pCi/Filter		2	OTW01	01/29/2013 1055	SH
Lead 210 Precision (±)	6.1	pCi/Filter			OTW01	01/29/2013 1055	SH
Lead 210	2.0E-14	µCi/mL		2.0E-15	Calculation	02/08/2013 1100	WN
Lead 210 Precision (±)	9.3E-16	µCi/mL			Calculation	02/08/2013 1100	WN
Radium 226	ND	pCi/Filter		0.3	SM 7500RAB	01/23/2013 903	SH
Radium 226 Precision (±)	NA	pCi/Filter			SM 7500RAB	01/23/2013 903	SH
Radium 226	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Radium 226 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Thorium 230	ND	pCi/Filter		0.2	ACW10	01/31/2013 905	MB
Thorium 230 Precision (±)	NA	pCi/Filter			ACW10	01/31/2013 905	MB
Thorium 230	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN
Thorium 230 Precision (±)	NA	µCi/mL			Calculation	02/08/2013 1100	WN
Uranium	ND	pCi/Filter		0.3	EPA 200.8	01/14/2013 1746	MS
Uranium	ND	µCi/mL		1.0E-16	Calculation	02/08/2013 1100	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Calculated Value	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	M	Value exceeds Monthly Ave or MCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 2/8/2013

CLIENT: Cameco Resources, Crow Butte Operation
Project: Marshland Expansion Area
Lab Order: S1301108

CASE NARRATIVE

Report ID: S1301108001

Samples MA-1, MA-2, MA-3, MA-4, and MA-5 were received on January 9, 2013.

All samples were received and analyzed within the EPA recommended holding times, except those noted in this case narrative. Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600 "Methods for Chemical Analysis of Water and Wastes", 1993
"Standard Methods For The Examination of Water and Wastewater", 20th ed., 1998
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition
Methods indicated with the Monday, March 12, 2007 Federal Register, 40 CFR Part 122, 136 et al.

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1301108
Project: Marshland Expansion Area

Date: 2/8/2013
Report ID: S1301108001

Uranium, Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 91354	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MBLK	01/14/13 13:34	Uranium	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 91354	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS	01/14/13 13:30	Uranium	70.4	0.3	67.7		104	85 - 115	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 91354	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
S1301107-004AS	01/14/13 17:06	Uranium	795	0.3	745	0.6	107	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 91354	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
S1301107-004AMSD	01/14/13 17:21	Uranium	770	0.3	795	3.10	103	20	

Sample Type **DUP** Units: pCi/Filter

Sample ID	RunNo: 91354	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1301107-004AD	01/14/13 17:01	Uranium	0.7	0.3	0.6	8.25		20	

Lead 210 in Filters

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 91970	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB13-017	01/28/13 13:34	Lead 210	ND	2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 91970	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS13-017	01/28/13 13:34	Lead 210	13	2	12.4		103	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 91970	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	01/29/13 10:55	Lead 210	13	2	12.2	ND	108	70 - 130	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: Cameco Resources, Crow Butte Operation
Work Order: S1301108
Project: Marshland Expansion Area

Date: 2/8/2013
Report ID: S1301108001

Radium 226 Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 91591	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB13-016	01/22/13 16:11	Radium 226	ND	0.3					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 91591	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS13-016	01/22/13 16:11	Radium 226	5.0	0.3	5.08		99.2	70 - 130	

Sample Type **MS** Units: pCi/Filter

Sample ID	RunNo: 91591	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
TAP WATER MS	01/23/13 9:03	Radium 226	5.5	0.3	5.08	ND	108	70 - 130	

Sample Type **MSD** Units: pCi/Filter

Sample ID	RunNo: 91591	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
TAP WATER MSD	01/23/13 9:03	Radium 226	5.9	0.3	5.5	7.38	116	30	

Thorium Air Filter Analysis

Sample Type **MBLK** Units: pCi/Filter

Sample ID	RunNo: 91911	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB13-021	01/31/13 9:05	Thorium-230	ND	0.2					

Sample Type **LCS** Units: pCi/Filter

Sample ID	RunNo: 91911	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS13-021	01/31/13 9:05	Thorium-230	12.9	0.2	12.5		103	70 - 130	

Sample Type **LCSD** Units: pCi/Filter

Sample ID	RunNo: 91911	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
LCSD13-021	01/31/13 9:05	Thorium-230	11.7	0.2	12.9	8.64	94.0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Appendix V-1

Air Sampling Pump Calibration Records

Appendix V-1

Air Particulate Pump Calibration Records

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
PO Box 2888
Ocala, Florida 34478-2888
Tel: (352) 680-1177 • (352) 680-1178
Fax: (352) 680-1454
Email: fandj@fjspecialty.com
Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-1

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 2379996
CUSTOMER: INTER-MOUNTAIN LABS
MODEL #: DF-75L-BL-AC
SERIAL #: 11114
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Mar 09, 2011
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Mar 09, 2012

BAROMETRIC P: 29.79 InHg = 756.7 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 72.7 °F = 22.6 °C
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.293	93.24	3.302	93.50	-0.009	-0.26	-0.28	-0.31
2	3.088	87.43	3.087	87.40	0.001	0.03	0.04	0.04
3	2.840	80.42	2.829	80.10	0.011	0.32	0.40	0.38
4	2.496	70.67	2.477	70.13	0.019	0.54	0.76	0.63
5	2.157	61.08	2.134	60.43	0.023	0.65	1.06	0.76
6	1.823	51.61	1.810	51.27	0.012	0.35	0.67	0.41
7	1.378	39.02	1.367	38.70	0.011	0.32	0.82	0.38
8	0.994	28.15	0.989	28.00	0.005	0.15	0.52	0.17
9	0.682	19.30	0.671	19.00	0.011	0.30	1.57	0.36
10	0.400	11.33	0.367	10.40	0.033	0.93	8.18	1.09
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							1.51	0.45

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11114 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: N. Morales

QUALITY ASSURANCE: FRG

CALIBRATION
DF-75L-BL-AC

MAR-1

Network: Marsland/3 Crow

Date: 11/10/2011

Sampler ID: DF-75L-BL-AC

Serviced by: R. Grantham

Serial #: 11114

Notes on instrument as found:

Set Sampler Flow (LPM)	Indicated Flow (LPM)	Actual Flow (LPM)	Deviation (LPM)	Deviation < 3.0 LPM (Y/N)
70	68.80	69.30	0.50	YES
60	58.90	58.80	0.10	YES
50	49.20	48.20	1.00	YES
40	39.70	37.70	2.00	YES
30	29.90	28.20	1.70	YES
20	20	20.8	0.80	YES

Digital Flow Meter Low Volume Series Acceptable Deviation = 4% of Full Scale (3.0 LPM)

Notes, comments:

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-1

MODEL #: DF-75L-BL-AC **SERIAL #:** 1114

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5/31/2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012 cy

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.075	58.78	2.071	58.66	0.004	0.12	0.21	0.16	P
2	2.073	58.72	2.069	58.60	0.004	0.12	0.20	0.16	P
3	1.870	52.98	1.883	53.35	-0.013	-0.37	-0.70	-0.50	P
4	1.733	49.08	1.747	49.50	-0.015	-0.41	-0.84	-0.55	P
5	1.529	43.33	1.535	43.49	-0.006	-0.16	-0.38	-0.22	P
6	1.388	39.31	1.381	39.13	0.006	0.18	0.45	0.23	P
7	1.187	33.63	1.156	32.74	0.032	0.89	2.73	1.19	P
8	1.047	29.66	1.002	28.38	0.045	1.28	4.51	1.71	P
9	0.706	20.01	0.676	19.16	0.030	0.85	4.41	1.13	P
10	0.500	14.18	0.526	14.89	-0.025	-0.71	-4.77	-0.95	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.68

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-1

MODEL #: DF-75L-BL-AC **SERIAL #:** 11114

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_2_2012
RECALIBRATION DATE: ~~08/02/2013~~ 02/02/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.166	61.37	2.181	61.78	-0.014	-0.41	-0.66	-0.55	P
2	2.043	57.87	2.070	58.64	-0.027	-0.77	-1.31	-1.02	P
3	1.938	54.91	1.966	55.70	-0.028	-0.79	-1.41	-1.05	P
4	1.869	52.96	1.903	53.91	-0.034	-0.96	-1.77	-1.27	P
5	1.801	51.03	1.833	51.93	-0.032	-0.91	-1.75	-1.21	P
6	1.737	49.19	1.777	50.35	-0.041	-1.15	-2.29	-1.54	P
7	1.664	47.14	1.698	48.11	-0.034	-0.97	-2.03	-1.30	P
8	1.397	39.58	1.412	39.99	-0.014	-0.41	-1.02	-0.54	P
9	1.056	29.91	1.033	29.26	0.023	0.65	2.22	0.87	P
10	0.715	20.26	0.708	20.07	0.007	0.20	0.98	0.26	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.96

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: INSPECTED BY:

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-1

MODEL #: DF-75L-BL-AC **SERIAL #:** 1114

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10_15_2012
RECALIBRATION DATE: ~~10/15/2013~~ 4/15/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.267	64.22	2.264	64.13	0.003	0.09	0.14	0.12	P
2	2.082	58.98	2.098	59.43	-0.016	-0.46	-0.77	-0.61	P
3	1.936	54.85	1.964	55.64	-0.028	-0.79	-1.41	-1.05	P
4	1.875	53.13	1.904	53.94	-0.029	-0.81	-1.51	-1.09	P
5	1.800	50.99	1.830	51.85	-0.030	-0.86	-1.66	-1.15	P
6	1.734	49.12	1.766	50.04	-0.032	-0.92	-1.83	-1.22	P
7	1.593	45.14	1.622	45.96	-0.029	-0.82	-1.79	-1.10	P
8	1.393	39.46	1.401	39.68	-0.008	-0.22	-0.55	-0.29	P
9	1.047	29.67	1.022	28.95	0.025	0.72	2.47	0.95	P
10	0.704	19.93	0.688	19.50	0.015	0.43	2.22	0.58	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.82

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
PO Box 2888
Ocala, Florida 34478-2888
Tel: (352) 680-1177 • (352) 680-1178
Fax: (352) 680-1454
Email: fandj@fjspecialty.com
Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-1

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 239367
MODEL #: DF-75L-BL-AC
SENSOR RANGE: 0.500 to 3.000 SCFM

CUSTOMER: CROW BUTTE RESOURCES
SERIAL #: 11497
= 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
LOKAL VERSION: V2.18 (B15144)

CALIBRATION DATE: Mar 14, 2012
RECAL DUE DATE: Mar 14, 2013

BAROMETRIC P: 30.08 InHg = 764.0 mmHg
TEMPERATURE: 70.6 °F = 21.4 °C

CORRECTED TO: 29.92 InHg = 760.0 mmHg
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.319	93.98	3.300	93.43	0.019	0.55	0.59	0.65
2	3.078	87.17	3.081	87.23	-0.002	-0.07	-0.07	-0.08
3	2.865	81.14	2.841	80.43	0.025	0.70	0.87	0.83
4	2.483	70.32	2.475	70.10	0.008	0.22	0.31	0.26
5	2.164	61.29	2.168	61.40	-0.004	-0.11	-0.18	-0.13
6	1.842	52.17	1.822	51.60	0.020	0.57	1.09	0.67
7	1.421	40.25	1.384	39.20	0.037	1.05	2.60	1.23
8	1.013	28.68	0.998	28.27	0.014	0.41	1.43	0.48
9	0.673	19.07	0.670	18.97	0.004	0.10	0.52	0.12
10	0.450	12.73	0.374	10.60	0.075	2.14	16.77	2.51
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							2.79	0.70

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11497 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: QUALITY ASSURANCE:

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-1

MODEL #: DF-75L-BL-AC **SERIAL #:** 11497

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_1_2012
RECALIBRATION DATE: ~~08/01/2013~~ 02/01/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.299	65.12	2.278	64.53	0.021	0.59	0.92	0.79	P
2	2.076	58.82	2.102	59.55	-0.026	-0.73	-1.22	-0.97	P
3	1.939	54.93	1.966	55.70	-0.027	-0.77	-1.38	-1.02	P
4	1.874	53.08	1.902	53.89	-0.028	-0.81	-1.49	-1.07	P
5	1.806	51.15	1.833	51.93	-0.028	-0.78	-1.51	-1.05	P
6	1.735	49.14	1.764	49.98	-0.030	-0.84	-1.68	-1.12	P
7	1.665	47.17	1.675	47.46	-0.010	-0.30	-0.62	-0.39	P
8	1.395	39.52	1.367	38.72	0.028	0.80	2.07	1.07	P
9	1.061	30.06	1.022	28.95	0.039	1.11	3.84	1.48	P
10	0.703	19.90	0.703	19.92	-0.001	-0.02	-0.10	-0.03	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.90

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

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3/15/2011

MAR-1

MODEL #: DF-75L-BL-AC **SERIAL #:** /1106

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10/15/2012
RECALIBRATION DATE: ~~10/15/2013~~ 4/15/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.220	62.88	2.232	63.23	-0.012	-0.34	-0.54	-0.46	P
2	2.075	58.78	2.106	59.66	-0.031	-0.88	-1.48	-1.17	P
3	1.940	54.96	1.987	56.29	-0.047	-1.33	-2.37	-1.78	P
4	1.868	52.93	1.914	54.23	-0.046	-1.30	-2.39	-1.73	P
5	1.802	51.04	1.845	52.27	-0.043	-1.23	-2.35	-1.64	P
6	1.731	49.03	1.766	50.04	-0.036	-1.01	-2.02	-1.35	P
7	1.591	45.08	1.606	45.51	-0.015	-0.43	-0.94	-0.57	P
8	1.385	39.24	1.356	38.40	0.030	0.84	2.18	1.12	P
9	1.053	29.83	0.996	28.22	0.057	1.61	5.71	2.15	P
10	0.713	20.21	0.692	19.61	0.021	0.59	3.02	0.79	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.28

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
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Email: fandj@fjspecialty.com
Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-2

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 2379996
CUSTOMER: INTER-MOUNTAIN LABS
MODEL #: DF-75L-BL-AC
SERIAL #: 11110
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Feb 22, 2011
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Feb 22, 2012

BAROMETRIC P: 29.80 InHg = 756.9 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 72.4 °F = 22.4 °C
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.279	92.86	3.270	92.60	0.009	0.26	0.28	0.31
2	3.064	86.77	3.050	86.37	0.014	0.40	0.47	0.48
3	2.842	80.48	2.825	80.00	0.017	0.48	0.59	0.56
4	2.479	70.19	2.457	69.57	0.022	0.62	0.89	0.73
5	2.167	61.37	2.144	60.70	0.024	0.67	1.09	0.79
6	1.809	51.22	1.794	50.80	0.015	0.42	0.81	0.49
7	1.376	38.96	1.374	38.90	0.002	0.06	0.15	0.07
8	0.994	28.16	0.996	28.20	-0.002	-0.05	-0.16	-0.05
9	0.665	18.84	0.658	18.63	0.007	0.21	1.10	0.24
10	0.397	11.24	0.357	10.10	0.040	1.14	10.15	1.34

AVERAGE DEVIATION ACROSS THE RANGE AT READING: 1.69 0.51

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument nodel # DF-75L-BL-AC serial # 11110 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: A. Mowler

QUALITY ASSURANCE: [illegible]

CALIBRATION
DF-75L-BL-AC

MAR-2

Network: Marsland/3 Crow

Date: 11/10/2011

Sampler ID: DF-75L-BL-AC

Serviced by: R. Grantham

Serial #: 11110

Notes on instrument as found:

Set Sampler Flow (LPM)	Indicated Flow (LPM)	Actual Flow (LPM)	Deviation (LPM)	Deviation < 3.0 LPM (Y/N)
70	68.80	68.90	0.10	YES
60	59.10	58.90	0.20	YES
50	49.10	48.20	0.90	YES
40	39.50	37.80	1.70	YES
30	30.00	28.40	1.60	YES
20	19.9	21	1.10	YES

Digital Flow Meter Low Volume Series Acceptable Deviation = 4% of Full Scale (3.0 LPM)

Notes, comments:

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352-680-1454

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3/15/2011

MAR-2

MODEL #: DF-75L-BL-AC **SERIAL #:** 1110

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5_31_2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012 cy

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.003	56.73	2.004	56.76	-0.001	-0.03	-0.05	-0.03	P
2	2.000	56.67	1.998	56.59	0.003	0.08	0.13	0.10	P
3	1.871	53.00	1.882	53.32	-0.012	-0.33	-0.61	-0.44	P
4	1.739	49.25	1.749	49.55	-0.011	-0.30	-0.61	-0.40	P
5	1.528	43.28	1.536	43.52	-0.008	-0.24	-0.55	-0.32	P
6	1.387	39.30	1.382	39.16	0.005	0.14	0.35	0.18	P
7	1.184	33.54	1.160	32.85	0.025	0.70	2.12	0.93	P
8	1.040	29.47	0.995	28.18	0.045	1.29	4.56	1.71	P
9	0.698	19.78	0.670	18.99	0.028	0.79	4.15	1.05	P
10	0.501	14.20	0.523	14.80	-0.021	-0.61	-4.10	-0.81	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.60

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: INSPECTED BY:

CERTIFICATE OF CALIBRATION

MQ003R01

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Email: fandj@fjspecialty.com
Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-2

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 239367
MODEL #: DF-75L-BL-AC
SENSOR RANGE: 0.500 to 3.000 SCFM

CUSTOMER: CROW BUTTE RESOURCES
SERIAL #: 11491
= 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
LOKAL VERSION: V2.18 (B15144)

CALIBRATION DATE: Mar 14, 2012
RECAL DUE DATE: Mar 14, 2013

BAROMETRIC P: 30.17 InHg = 766.3 mmHg
TEMPERATURE: 71.8 °F = 22.1 °C

CORRECTED TO: 29.92 InHg = 760.0 mmHg
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.255	92.16	3.245	91.90	0.009	0.26	0.29	0.31
2	3.028	85.74	3.036	85.97	-0.008	-0.23	-0.27	-0.27
3	2.827	80.05	2.805	79.43	0.022	0.62	0.77	0.73
4	2.451	69.40	2.444	69.20	0.007	0.20	0.29	0.24
5	2.129	60.29	2.134	60.43	-0.005	-0.15	-0.24	-0.17
6	1.814	51.38	1.798	50.90	0.017	0.48	0.93	0.56
7	1.402	39.71	1.367	38.70	0.036	1.01	2.54	1.19
8	0.998	28.25	0.990	28.03	0.008	0.22	0.77	0.26
9	0.652	18.47	0.660	18.70	-0.008	-0.23	-1.24	-0.27
10	0.425	12.04	0.360	10.20	0.065	1.84	15.31	2.17
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							2.55	0.62

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11491 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: _____ QUALITY ASSURANCE: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-2

MODEL #: DF-75L-BL-AC **SERIAL #:** 11491

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_1_2012
RECALIBRATION DATE: ~~08/01/2013~~ 02/01/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.278	64.53	2.249	63.71	0.029	0.83	1.30	1.10	P
2	2.123	60.14	2.125	60.20	-0.002	-0.06	-0.10	-0.08	P
3	1.940	54.96	1.972	55.87	-0.032	-0.91	-1.63	-1.21	P
4	1.884	53.38	1.917	54.31	-0.033	-0.93	-1.71	-1.24	P
5	1.852	52.46	1.884	53.38	-0.032	-0.92	-1.72	-1.22	P
6	1.732	49.06	1.755	49.73	-0.023	-0.66	-1.33	-0.88	P
7	1.662	47.09	1.681	47.63	-0.019	-0.54	-1.13	-0.72	P
8	1.392	39.43	1.359	38.49	0.033	0.94	2.44	1.25	P
9	1.060	30.03	1.021	28.92	0.039	1.10	3.81	1.47	P
10	0.705	19.96	0.707	20.04	-0.003	-0.08	-0.38	-0.10	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.93

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: Casey Hale INSPECTED BY: Casey Hale

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-2

MODEL #: DF-75L-BL-AC **SERIAL #:** 11114

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_2_2012
RECALIBRATION DATE: ~~08/02/2013~~ 08/02/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.166	61.37	2.181	61.78	-0.014	-0.41	-0.66	-0.55	P
2	2.043	57.87	2.070	58.64	-0.027	-0.77	-1.31	-1.02	P
3	1.938	54.91	1.966	55.70	-0.028	-0.79	-1.41	-1.05	P
4	1.869	52.96	1.903	53.91	-0.034	-0.96	-1.77	-1.27	P
5	1.801	51.03	1.833	51.93	-0.032	-0.91	-1.75	-1.21	P
6	1.737	49.19	1.777	50.35	-0.041	-1.15	-2.29	-1.54	P
7	1.664	47.14	1.698	48.11	-0.034	-0.97	-2.03	-1.30	P
8	1.397	39.58	1.412	39.99	-0.014	-0.41	-1.02	-0.54	P
9	1.056	29.91	1.033	29.26	0.023	0.65	2.22	0.87	P
10	0.715	20.26	0.708	20.07	0.007	0.20	0.98	0.26	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.96

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: INSPECTED BY:

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
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3/15/2011

MAR-2

MODEL #: DF-75L-BL-AC **SERIAL #:** 1114

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10_15_2012
RECALIBRATION DATE: ~~10/15/2013~~ 4/15/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.267	64.22	2.264	64.13	0.003	0.09	0.14	0.12	P
2	2.082	58.98	2.098	59.43	-0.016	-0.46	-0.77	-0.61	P
3	1.936	54.85	1.964	55.64	-0.028	-0.79	-1.41	-1.05	P
4	1.875	53.13	1.904	53.94	-0.029	-0.81	-1.51	-1.09	P
5	1.800	50.99	1.830	51.85	-0.030	-0.86	-1.66	-1.15	P
6	1.734	49.12	1.766	50.04	-0.032	-0.92	-1.83	-1.22	P
7	1.593	45.14	1.622	45.96	-0.029	-0.82	-1.79	-1.10	P
8	1.393	39.46	1.401	39.68	-0.008	-0.22	-0.55	-0.29	P
9	1.047	29.67	1.022	28.95	0.025	0.72	2.47	0.95	P
10	0.704	19.93	0.688	19.50	0.015	0.43	2.22	0.58	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.82

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
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Internet: www.fjspecialty.com

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MAR-3

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 2379996
CUSTOMER: INTER-MOUNTAIN LABS
MODEL #: DF-75L-BL-AC
SERIAL #: 11111
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Mar 09, 2011
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Mar 09, 2012

BAROMETRIC P: 29.77 InHg = 756.2 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 72.9 °F = 22.7 °C
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.217	91.10	3.257	92.23	-0.040	-1.14	-1.25	-1.34
2	3.019	85.48	3.042	86.13	-0.023	-0.65	-0.77	-0.77
3	2.797	79.20	2.810	79.57	-0.013	-0.37	-0.46	-0.43
4	2.447	69.30	2.443	69.17	0.005	0.13	0.19	0.16
5	2.122	60.10	2.108	59.70	0.014	0.40	0.66	0.47
6	1.805	51.11	1.794	50.80	0.011	0.31	0.61	0.37
7	1.364	38.62	1.356	38.40	0.008	0.22	0.56	0.25
8	0.971	27.50	0.968	27.40	0.004	0.10	0.38	0.12
9	0.653	18.49	0.660	18.70	-0.007	-0.21	-1.13	-0.25
10	0.332	9.41	0.357	10.10	-0.024	-0.69	-7.34	-0.81
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							1.28	0.50

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11111 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: N. Mowler

QUALITY ASSURANCE: [illegible]

CALIBRATION
DF-75L-BL-AC

MAR-3

Network: Marsland/3 Crow

Date: 11/10/2011

Sampler ID: DF-75L-BL-AC

Serviced by: R. Grantham

Serial #: 11111

Notes on instrument as found:

Set Sampler Flow (LPM)	Indicated Flow (LPM)	Actual Flow (LPM)	Deviation (LPM)	Deviation < 3.0 LPM (Y/N)
70	68.80	69.50	0.70	YES
60	59.00	59.00	0.00	YES
50	49.40	48.00	1.40	YES
40	39.40	37.00	2.40	YES
30	30.00	28.00	2.00	YES
20	20.1	20.8	0.70	YES

Digital Flow Meter Low Volume Series Acceptable Deviation = 4% of Full Scale (3.0 LPM)

Notes, comments:

Very slow to Reach Set Flow

CERTIFICATE OF CALIBRATION

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404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR - 3

MODEL #: DF-75L-BL-AC **SERIAL #:** 1111

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5_31_2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	1.997	56.58	2.006	56.81	-0.008	-0.23	-0.41	-0.31	P
2	1.994	56.50	2.000	56.65	-0.005	-0.15	-0.27	-0.20	P
3	1.872	53.04	1.880	53.27	-0.008	-0.22	-0.42	-0.30	P
4	1.733	49.10	1.736	49.19	-0.003	-0.09	-0.18	-0.12	P
5	1.526	43.24	1.523	43.15	0.003	0.09	0.20	0.12	P
6	1.389	39.34	1.365	38.66	0.024	0.68	1.76	0.91	P
7	1.183	33.51	1.127	31.93	0.056	1.58	4.95	2.11	P
8	1.045	29.59	0.975	27.63	0.069	1.97	7.12	2.62	P
9	0.707	20.02	0.653	18.49	0.054	1.53	8.26	2.04	P
10	0.505	14.32	0.522	14.78	-0.016	-0.46	-3.09	-0.61	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.93

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

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404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

MAR - 3

MODEL #: DF-75L-BL-AC **SERIAL #:** 11111

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10_17_2012
RECALIBRATION DATE: ~~10/17/2013~~ 4/17/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.198	62.27	2.212	62.66	-0.014	-0.39	-0.62	-0.52	P
2	1.943	55.03	1.993	56.46	-0.050	-1.43	-2.53	-1.90	P
3	1.922	54.45	1.976	55.98	-0.054	-1.53	-2.73	-2.04	P
4	1.804	51.09	1.852	52.47	-0.049	-1.38	-2.63	-1.84	P
5	1.735	49.14	1.779	50.40	-0.045	-1.27	-2.51	-1.69	P
6	1.667	47.21	1.697	48.08	-0.031	-0.87	-1.81	-1.16	P
7	1.595	45.19	1.609	45.59	-0.014	-0.41	-0.89	-0.54	P
8	1.386	39.26	1.357	38.43	0.029	0.83	2.16	1.11	P
9	1.041	29.50	0.989	28.02	0.052	1.48	5.28	1.97	P
10	0.709	20.08	0.696	19.73	0.013	0.36	1.81	0.48	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.33

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

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352-680-1177
352-680-1454

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3
3/15/2011

MAR-3

MODEL #: DF-75L-BL-AC **SERIAL #:** 1110

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_31_2012
RECALIBRATION DATE: 08/31/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.572	72.86	2.544	72.06	0.028	0.81	1.12	1.08	P
2	2.313	65.51	2.295	65.01	0.018	0.50	0.78	0.67	P
3	2.083	59.01	2.090	59.21	-0.007	-0.19	-0.32	-0.26	P
4	1.884	53.38	1.907	54.03	-0.023	-0.65	-1.19	-0.86	P
5	1.803	51.07	1.828	51.79	-0.025	-0.72	-1.39	-0.96	P
6	1.745	49.43	1.772	50.21	-0.027	-0.78	-1.55	-1.03	P
7	1.665	47.16	1.694	48.00	-0.030	-0.84	-1.75	-1.12	P
8	1.393	39.47	1.402	39.71	-0.008	-0.24	-0.60	-0.32	P
9	1.051	29.76	1.023	28.98	0.028	0.78	2.69	1.04	P
10	0.705	19.96	0.682	19.33	0.022	0.63	3.26	0.84	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.82

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY:_____ INSPECTED BY:_____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
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MAR-3

MODEL #: DF-75L-BL-AC **SERIAL #:** 1110

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10/16/2012
RECALIBRATION DATE: ~~10/16/2013~~ 4/16/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.364	66.97	2.350	66.57	0.014	0.40	0.60	0.54	P
2	2.085	59.06	2.097	59.40	-0.012	-0.34	-0.58	-0.46	P
3	1.940	54.95	1.966	55.70	-0.026	-0.75	-1.34	-1.00	P
4	1.869	52.94	1.898	53.77	-0.029	-0.83	-1.55	-1.11	P
5	1.800	50.98	1.834	51.96	-0.035	-0.98	-1.89	-1.31	P
6	1.734	49.12	1.763	49.95	-0.029	-0.83	-1.67	-1.11	P
7	1.594	45.16	1.614	45.74	-0.020	-0.58	-1.26	-0.77	P
8	1.398	39.59	1.403	39.74	-0.005	-0.14	-0.36	-0.19	P
9	1.071	30.33	1.045	29.60	0.026	0.72	2.45	0.97	P
10	0.709	20.09	0.704	19.95	0.005	0.14	0.70	0.19	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.76

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

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MAR-3

MODEL #: DF-75L-BL-AC **SERIAL #:** 1112

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5_31_2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012 cy

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	1.909	54.07	1.909	54.08	0.000	-0.01	-0.01	-0.01	P
2	1.905	53.98	1.906	53.99	-0.001	-0.01	-0.03	-0.02	P
3	1.867	52.88	1.869	52.96	-0.003	-0.08	-0.15	-0.10	P
4	1.738	49.22	1.740	49.30	-0.003	-0.08	-0.16	-0.10	P
5	1.527	43.27	1.522	43.13	0.005	0.14	0.33	0.19	P
6	1.386	39.25	1.361	38.55	0.025	0.70	1.83	0.94	P
7	1.183	33.51	1.137	32.21	0.046	1.30	4.04	1.73	P
8	1.046	29.63	0.980	27.76	0.066	1.86	6.72	2.49	P
9	0.710	20.11	0.654	18.52	0.056	1.59	8.60	2.12	P
10	0.502	14.21	0.515	14.58	-0.013	-0.37	-2.56	-0.50	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.82

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

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404 Cypress Road
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352-680-1177
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3/15/2011

MAR-3

MODEL #: DF-75L-BL-AC **SERIAL #:** 1112

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_1_2012
RECALIBRATION DATE: ~~08/01/2013~~ 02/01/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.317	65.63	2.323	65.80	-0.006	-0.17	-0.26	-0.23	P
2	2.083	59.01	2.092	59.26	-0.009	-0.26	-0.44	-0.34	P
3	1.941	54.98	1.956	55.41	-0.015	-0.44	-0.79	-0.58	P
4	1.874	53.08	1.893	53.63	-0.019	-0.55	-1.03	-0.73	P
5	1.803	51.08	1.821	51.59	-0.018	-0.51	-0.99	-0.68	P
6	1.736	49.19	1.760	49.87	-0.024	-0.68	-1.37	-0.91	P
7	1.661	47.06	1.677	47.52	-0.016	-0.46	-0.96	-0.61	P
8	1.387	39.28	1.367	38.72	0.020	0.56	1.46	0.75	P
9	1.041	29.50	0.989	28.02	0.052	1.48	5.28	1.97	P
10	0.703	19.92	0.656	18.59	0.047	1.33	7.15	1.77	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.86

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
PO Box 2888
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Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-4

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 2379996
CUSTOMER: INTER-MOUNTAIN LABS
MODEL #: DF-75L-BL-AC
SERIAL #: 11115
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Mar 09, 2011
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Mar 09, 2012

BAROMETRIC P: 29.80 InHg = 756.9 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 72.2 °F = 22.3 °C
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.244	91.87	3.280	92.87	-0.035	-1.00	-1.08	-1.17
2	3.037	86.00	3.055	86.50	-0.018	-0.50	-0.58	-0.59
3	2.799	79.27	2.802	79.33	-0.002	-0.07	-0.08	-0.08
4	2.458	69.59	2.447	69.30	0.010	0.29	0.42	0.35
5	2.128	60.27	2.112	59.80	0.016	0.47	0.78	0.55
6	1.818	51.47	1.794	50.80	0.024	0.67	1.30	0.79
7	1.383	39.16	1.367	38.70	0.016	0.46	1.18	0.54
8	0.997	28.23	0.989	28.00	0.008	0.23	0.82	0.27
9	0.668	18.92	0.660	18.70	0.008	0.22	1.18	0.26
10	0.363	10.27	0.360	10.20	0.003	0.07	0.69	0.08
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							0.82	0.47

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11115 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: M. Moulder

QUALITY ASSURANCE: [signature]

CALIBRATION
DF-75L-BL-AC

MAR - 4

Network: Marsland/3 Crow

Date: 11/10/2011

Sampler ID: DF-75L-BL-AC

Serviced by: R. Grantham

Serial #: 11115

Notes on instrument as found:

Set Sampler Flow (LPM)	Indicated Flow (LPM)	Actual Flow (LPM)	Deviation (LPM)	Deviation < 3.0 LPM (Y/N)
70	68.80	69.00	0.20	YES
60	58.90	58.50	0.40	YES
50	49.30	47.50	1.80	YES
40	39.40	36.70	2.70	YES
30	29.60	27.60	2.00	YES
20	19.9	20.4	0.50	YES

Digital Flow Meter Low Volume Series Acceptable Deviation = 4% of Full Scale (3.0 LPM)

Notes, comments:

On/Off Switch Not Working at Beginning

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MAR-4

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3/15/2011

MODEL #: DF-75L-BL-AC **SERIAL #:** 1115

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5_31_2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012 cy

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.020	57.22	2.016	57.12	0.004	0.10	0.18	0.13	P
2	2.010	56.94	2.007	56.84	0.003	0.10	0.17	0.13	P
3	1.879	53.23	1.879	53.24	0.000	-0.01	-0.01	-0.01	P
4	1.735	49.16	1.736	49.19	-0.001	-0.03	-0.07	-0.04	P
5	1.526	43.23	1.516	42.96	0.010	0.27	0.64	0.36	P
6	1.385	39.23	1.370	38.80	0.015	0.44	1.12	0.58	P
7	1.181	33.47	1.125	31.87	0.056	1.60	5.01	2.13	P
8	1.045	29.60	0.975	27.63	0.070	1.98	7.16	2.64	P
9	0.712	20.16	0.659	18.66	0.053	1.50	8.04	2.00	P
10	0.502	14.22	0.522	14.78	-0.020	-0.56	-3.79	-0.75	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.88

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

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MAR - 4

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 239367
MODEL #: DF-75L-BL-AC
SENSOR RANGE: 0.500 to 3.000 SCFM

CUSTOMER: CROW BUTTE RESOURCES
SERIAL #: 11498
= 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
LOKAL VERSION: V2.18 (B15144)

CALIBRATION DATE: Mar 14, 2012
RECAL DUE DATE: Mar 14, 2013

BAROMETRIC P: 30.08 InHg = 764.0 mmHg
TEMPERATURE: 70.5 °F = 21.4 °C

CORRECTED TO: 29.92 InHg = 760.0 mmHg
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.267	92.50	3.271	92.63	-0.005	-0.13	-0.14	-0.15
2	3.048	86.32	3.063	86.73	-0.015	-0.41	-0.48	-0.49
3	2.837	80.34	2.822	79.90	0.015	0.44	0.54	0.51
4	2.445	69.24	2.451	69.40	-0.006	-0.16	-0.22	-0.18
5	2.139	60.56	2.154	61.00	-0.015	-0.44	-0.72	-0.52
6	1.820	51.53	1.815	51.40	0.005	0.13	0.25	0.15
7	1.401	39.66	1.384	39.20	0.016	0.46	1.17	0.55
8	0.983	27.84	1.003	28.40	-0.020	-0.56	-1.99	-0.65
9	0.627	17.76	0.671	19.00	-0.044	-1.24	-6.97	-1.46
10	0.384	10.87	0.364	10.30	0.020	0.57	5.21	0.67
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							1.75	0.53

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11498 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: _____ QUALITY ASSURANCE: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-4

MODEL #: DF-75L-BL-AC **SERIAL #:** 11498

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8/1/2012
RECALIBRATION DATE: ~~08/01/2013~~ 02/01/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.378	67.35	2.348	66.51	0.030	0.85	1.27	1.13	P
2	2.075	58.79	2.093	59.29	-0.018	-0.50	-0.85	-0.67	P
3	1.938	54.90	1.969	55.78	-0.031	-0.88	-1.58	-1.17	P
4	1.870	52.99	1.899	53.80	-0.029	-0.81	-1.51	-1.09	P
5	1.800	50.99	1.828	51.79	-0.028	-0.81	-1.55	-1.07	P
6	1.732	49.06	1.751	49.61	-0.019	-0.55	-1.11	-0.73	P
7	1.665	47.18	1.674	47.43	-0.009	-0.26	-0.54	-0.34	P
8	1.392	39.44	1.344	38.07	0.049	1.38	3.61	1.83	P
9	1.052	29.79	0.991	28.08	0.061	1.72	6.11	2.29	P
10	0.707	20.03	0.689	19.53	0.018	0.50	2.56	0.67	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.10

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
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3/15/2011

MAR - 4

MODEL #: DF-75L-BL-AC **SERIAL #:** 11492

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8/2/2012
RECALIBRATION DATE: ~~08/02/2013~~ 02/02/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.291	64.90	2.276	64.47	0.015	0.43	0.67	0.57	P
2	2.084	59.02	2.107	59.69	-0.023	-0.66	-1.11	-0.89	P
3	1.941	54.99	1.982	56.15	-0.041	-1.16	-2.07	-1.55	P
4	1.875	53.13	1.913	54.20	-0.038	-1.07	-1.97	-1.42	P
5	1.808	51.20	1.848	52.36	-0.041	-1.15	-2.20	-1.54	P
6	1.733	49.09	1.757	49.78	-0.024	-0.69	-1.39	-0.92	P
7	1.663	47.12	1.679	47.58	-0.016	-0.46	-0.96	-0.61	P
8	1.389	39.35	1.354	38.35	0.035	1.00	2.60	1.33	P
9	1.052	29.79	1.003	28.42	0.049	1.38	4.84	1.83	P
10	0.704	19.94	0.698	19.78	0.006	0.16	0.80	0.21	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.09

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-4

MODEL #: DF-75L-BL-AC **SERIAL #:** 1492

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10_16_2012
RECALIBRATION DATE: ~~10/16/2013~~ 4/16/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.183	61.83	2.183	61.84	0.000	0.00	-0.01	-0.01	P
2	1.955	55.38	1.987	56.29	-0.032	-0.91	-1.61	-1.21	P
3	1.884	53.36	1.917	54.31	-0.033	-0.95	-1.74	-1.26	P
4	1.803	51.07	1.836	52.02	-0.033	-0.95	-1.82	-1.26	P
5	1.731	49.04	1.760	49.87	-0.029	-0.82	-1.65	-1.10	P
6	1.662	47.07	1.678	47.55	-0.017	-0.47	-1.00	-0.63	P
7	1.597	45.23	1.604	45.45	-0.008	-0.22	-0.48	-0.29	P
8	1.390	39.37	1.363	38.60	0.027	0.76	1.97	1.02	P
9	1.042	29.53	0.987	27.96	0.055	1.56	5.59	2.09	P
10	0.696	19.73	0.682	19.33	0.014	0.40	2.04	0.53	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 0.94

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: Casey Yeck INSPECTED BY: Casey Yeck

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
PO Box 2888
Ocala, Florida 34478-2888
Tel: (352) 680-1177 • (352) 680-1178
Fax: (352) 680-1454
Email: fandj@fjspecialty.com
Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-5

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 2379996
CUSTOMER: INTER-MOUNTAIN LABS
MODEL #: DF-75L-BL-AC
SERIAL #: 11107
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Feb 22, 2011
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Feb 22, 2012

BAROMETRIC P: 29.85 InHg = 758.2 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 72.8 °F = 22.7 °C
CORRECTED TO: 77.0 °F = 25.0 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.344	94.70	3.324	94.13	0.020	0.57	0.60	0.67
2	3.105	87.92	3.107	87.97	-0.002	-0.05	-0.06	-0.06
3	2.867	81.18	2.839	80.40	0.027	0.78	0.96	0.91
4	2.511	71.10	2.499	70.77	0.012	0.34	0.47	0.40
5	2.145	60.73	2.147	60.80	-0.002	-0.07	-0.11	-0.08
6	1.843	52.19	1.823	51.63	0.020	0.56	1.06	0.65
7	1.419	40.17	1.389	39.33	0.030	0.84	2.09	0.99
8	0.996	28.21	1.005	28.47	-0.009	-0.25	-0.90	-0.30
9	0.641	18.15	0.674	19.10	-0.033	-0.95	-5.23	-1.12
10	0.403	11.41	0.374	10.60	0.029	0.81	7.12	0.96
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							1.90	0.61

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument nodel # DF-75L-BL-AC serial # 11107 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: A. Morales

QUALITY ASSURANCE: KPG

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

MAR-5

CAL057
3
3/15/2011

MODEL #: DF-75L-BL-AC SERIAL #: 11107

REFERENCE INSTRUMENT: CD-812V.2-1-O
REFERENCE SERIAL #: 3506
REFERENCE CALIBRATED: 08/02/2011

CALIBRATION DATE: 10/5/2011
RECALIBRATION DATE: 10/05/2012

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[ ] AS RECEIVED [X] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.634	74.62	2.627	74.41	0.007	0.20	0.28	0.24	P
2	2.153	61.00	2.179	61.74	-0.026	-0.74	-1.20	-0.87	P
3	1.604	45.45	1.556	44.07	0.049	1.38	3.12	1.62	P
4	1.051	29.77	1.043	29.54	0.008	0.24	0.80	0.28	P
5	0.772	21.87	0.829	23.49	-0.057	-1.62	-6.89	-1.90	P

AVERAGE DEVIATION ACROSS THE RANGE AT READING: 0.98

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CALIBRATION
DF-75L-BL-AC

MAR-5

Network: Marsland/3 Crow

Date: 11/10/2011

Sampler ID: DF-75L-BL-AC

Serviced by: R. Grantham

Serial #: 11107

Notes on instrument as found:

Set Sampler Flow (LPM)	Indicated Flow (LPM)	Actual Flow (LPM)	Deviation (LPM)	Deviation < 3.0 LPM (Y/N)
70	68.90	69.80	0.90	YES
60	59.10	59.50	0.40	YES
50	49.20	47.80	1.40	YES
40	39.50	37.40	2.10	YES
30	29.50	28.70	0.80	YES
20	20.1	22	1.90	YES

Digital Flow Meter Low Volume Series Acceptable Deviation = 4% of Full Scale (3.0 LPM)

Notes, comments:

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
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3/15/2011

MAR-5

MODEL #: DF-75L-BL-AC **SERIAL #:** 1107

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 5_31_2012
RECALIBRATION DATE: ~~05/31/2013~~ 11/30/2012 CY

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	1.923	54.47	1.952	55.31	-0.030	-0.84	-1.52	-1.12	P
2	1.923	54.49	1.947	55.17	-0.024	-0.68	-1.23	-0.91	P
3	1.872	53.03	1.897	53.74	-0.025	-0.71	-1.32	-0.94	P
4	1.730	49.02	1.747	49.50	-0.017	-0.48	-0.97	-0.64	P
5	1.531	43.37	1.517	42.99	0.013	0.38	0.88	0.50	P
6	1.396	39.55	1.367	38.71	0.030	0.84	2.17	1.12	P
7	1.203	34.07	1.149	32.54	0.054	1.53	4.71	2.04	P
8	1.044	29.56	1.007	28.52	0.037	1.05	3.66	1.39	P
9	0.721	20.41	0.711	20.14	0.010	0.27	1.37	0.37	P
10	0.505	14.32	0.552	15.64	-0.047	-1.32	-8.45	-1.76	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.08

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

MQ003R01

F&J SPECIALTY PRODUCTS, INC.
PO Box 2888
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Internet: www.fjspecialty.com

The Nucleus of Quality Air Monitoring Programs

MAR-5

CALIBRATED INSTRUMENT: **DIGITAL AIR SAMPLER**

P.O. NUMBER: 239408
CUSTOMER: CROW BUTTE RESOURCES
MODEL #: DF-75L-BL-AC
SERIAL #: 11487
SENSOR RANGE: 0.500 to 3.000 SCFM = 14.16 to 84.95 SLPM

REFERENCE SERIAL #: 13277, 0-140 SLPM
CALIBRATION DATE: Mar 14, 2012
LOKAL VERSION: V2.18 (B15144)
RECAL DUE DATE: Mar 14, 2013

BAROMETRIC P: 30.16 InHg = 766.1 mmHg
CORRECTED TO: 29.92 InHg = 760.0 mmHg
TEMPERATURE: 71.8 °F = 22.1 °C
CORRECTED TO: 70.0 °F = 21.1 °C

(X) NEW UNIT ( ) CALIBRATION AS FOUND ( ) RE-CALIBRATION REFERENCE

	DIGITAL INSTUMENT FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READINGS		DEVIATION AT READING	DEVIATION AT READING (FULL SCALE)
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[%]	[%]
1	3.228	91.40	3.216	91.07	0.012	0.33	0.36	0.39
2	2.998	84.89	3.011	85.27	-0.013	-0.38	-0.45	-0.45
3	2.799	79.25	2.785	78.87	0.014	0.39	0.49	0.45
4	2.433	68.90	2.433	68.90	-0.000	-0.01	-0.01	-0.01
5	2.110	59.75	2.128	60.27	-0.018	-0.52	-0.87	-0.61
6	1.791	50.72	1.787	50.60	0.004	0.12	0.25	0.15
7	1.374	38.90	1.353	38.30	0.021	0.60	1.54	0.71
8	0.970	27.47	0.987	27.93	-0.017	-0.47	-1.70	-0.55
9	0.623	17.63	0.660	18.70	-0.038	-1.07	-6.05	-1.26
10	0.362	10.26	0.346	9.80	0.016	0.46	4.47	0.54
AVERAGE DEVIATION ACROSS THE RANGE AT READING:							1.60	0.51

INSTRUMENT ACCURACY: 4.0 % of full scale = 0.120 SCFM = 3.40 SLPM

This is to certify that F&J Specialty Products in Ocala, Florida, has on this date certified Digital Instrument model # DF-75L-BL-AC serial # 11487 to be within the instrument accuracy specified above. The Reference Flow Meter Device bears letters of certification traceable to the National Institute of Standards and Technology.

CALIBRATED BY: _____ QUALITY ASSURANCE: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-5

MODEL #: DF-75L-BL-AC **SERIAL #:** 11487

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 8_1_2012
RECALIBRATION DATE: ~~08/01/2013~~ 02/01/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.290	64.87	2.260	64.02	0.030	0.85	1.33	1.14	P
2	2.080	58.92	2.084	59.05	-0.005	-0.13	-0.22	-0.17	P
3	1.941	54.99	1.968	55.75	-0.027	-0.77	-1.37	-1.02	P
4	1.868	52.93	1.902	53.88	-0.034	-0.95	-1.77	-1.27	P
5	1.811	51.32	1.844	52.23	-0.032	-0.92	-1.75	-1.22	P
6	1.737	49.20	1.764	49.97	-0.027	-0.77	-1.53	-1.02	P
7	1.667	47.22	1.692	47.93	-0.025	-0.71	-1.48	-0.95	P
8	1.391	39.41	1.364	38.63	0.028	0.78	2.02	1.04	P
9	1.050	29.73	0.996	28.21	0.054	1.52	5.39	2.03	P
10	0.695	19.69	0.684	19.39	0.011	0.30	1.56	0.40	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.03

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

CERTIFICATE OF CALIBRATION

F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road
Ocala, FL 34472
352-680-1177
352-680-1454

CAL057
3
3/15/2011

MAR-5

MODEL #: DF-75L-BL-AC **SERIAL #:** 1115

REFERENCE INSTRUMENT: CD-8.12V.2-1-0
REFERENCE SERIAL #: 3551
REFERENCE CALIBRATED: 05/15/2012

CALIBRATION DATE: 10_15_2012
RECALIBRATION DATE: ~~10/15/2013~~ 4/15/2013

INSTRUMENT ACCURACY AT FULL SCALE: +/- 4%

[X] AS RECEIVED [ ] VERIFIED

	DEVICE UNDER TEST FLOW		REFERENCE INSTRUMENT FLOW		DEVIATION AT READING		ACCURACY AS % of		
	[SCFM]	[SLPM]	[SCFM]	[SLPM]	[SCFM]	[SLPM]	RDG. [%]	F.S. [%]	PASS/FAIL
1	2.148	60.85	2.167	61.39	-0.019	-0.54	-0.88	-0.72	P
2	1.940	54.95	1.984	56.21	-0.044	-1.26	-2.24	-1.68	P
3	1.871	53.01	1.918	54.34	-0.047	-1.33	-2.45	-1.78	P
4	1.805	51.14	1.849	52.39	-0.044	-1.25	-2.38	-1.66	P
5	1.735	49.15	1.769	50.12	-0.034	-0.97	-1.94	-1.30	P
6	1.602	45.38	1.614	45.74	-0.012	-0.35	-0.77	-0.47	P
7	1.528	43.30	1.523	43.13	0.006	0.17	0.39	0.22	P
8	1.383	39.18	1.361	38.55	0.022	0.63	1.63	0.84	P
9	1.056	29.91	0.991	28.08	0.065	1.84	6.55	2.45	P
10	0.709	20.08	0.698	19.78	0.011	0.30	1.52	0.40	P

AVERAGE DEVIATIOIN ACROSS THE RANGE AT READING: 1.15

This is to certify that the instrument indicated on this certificate to be within the instrument accuracy specified above. The Reference Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).

CALIBRATED BY: _____ INSPECTED BY: _____

Appendix V-2

Radon (Track Etch Cups)
Laboratory Records

Appendix V-2

Radon (Track Etch Cups) Laboratory Records

Radon Monitoring Report

CROW BUTTE RESOURCES
RHONDA GRANTHAM
PO BOX 169
CRAWFORD, NE 69339

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0400748

PROGRAM NAME: MARSLAND

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	GROSS COUNT	AREA COUNTED (SQ MM)	BACK GRND	LOT NO.
4825223	DRNF	11-NOV-11	04-JAN-12	MA-5 CALIB FACT= 33.8 STD DEV= 7.6 DAYS EXPOSED: 54	35.3 ±2.69	0.7 ±0.05	173	63.8 A	1.66	080908-049
4825224	DRNF	11-NOV-11	04-JAN-12	MA-4 CALIB FACT= 33.8 STD DEV= 7.7 DAYS EXPOSED: 54	32.1 ±2.49	0.6 ±0.05	167	63.8 A	1.66	080908-049
4825225	DRNF	11-NOV-11	04-JAN-12	MA-3 CALIB FACT= 33.7 STD DEV= 8.8 DAYS EXPOSED: 54	12.6 ±1.10	0.2 ±0.02	130	63.8 A	1.66	080908-049
4825226	DRNF	11-NOV-11	04-JAN-12	MA-1 CALIB FACT= 33.7 STD DEV= 8.7 DAYS EXPOSED: 54	13.6 ±1.19	0.3 ±0.02	132	63.8 A	1.66	080908-049
4825227	DRNF	11-NOV-11	04-JAN-12	MA-2 CALIB FACT= 33.7 STD DEV= 8.6 DAYS EXPOSED: 54	15.7 ±1.35	0.3 ±0.03	136	63.8 A	1.66	080908-049
①	②	③	④		⑤	⑥	⑦			⑧

RESULTS RELATED ONLY TO MONITORS
AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22367	12-JAN-12	09-JAN-12

Radon Monitoring Report

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CROW BUTTE RESOURCES
RHONDA GRANTHAM
PO BOX 169
CRAWFORD, NE 69339

Acct. No. 0400748

PROGRAM NAME: MARSLAND

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	GROSS COUNT	AREA COUNTED (SQ MM)	BACK GRND	LOT NO.
4826590	DRNF	04-JAN-12	02-APR-12	MA-5 CALIB FACT= 33.5 STD DEV= 6.3 DAYS EXPOSED: 89	88.3 ±5.57	1.0 ±0.06	251	63.8 A	1.29	080908-052
4826611	DRNF	04-JAN-12	02-APR-12	MA-1 CALIB FACT= 33.4 STD DEV= 9.1 DAYS EXPOSED: 89	64.5 ±5.89	0.7 ±0.07	120	37.2 A	1.29	080908-052
4846895	DRNF	04-JAN-12	02-APR-12	MA-2 CALIB FACT= 33.6 STD DEV= 10.7 DAYS EXPOSED: 89	23.4 ±2.51	0.3 ±0.03	87	37.2 A	1.64	091201-074
4846896	DRNF	04-JAN-12	02-APR-12	* - LESS THAN INDICATED VALUE MA-4 CALIB FACT= N/A DAYS EXPOSED: 89	* 6.0	* 0.07 ±0.01	43	37.2 A	1.64	091201-074
4846897	DRNF	04-JAN-12	02-APR-12	* - LESS THAN INDICATED VALUE MA-3 CALIB FACT= N/A DAYS EXPOSED: 89	* 6.0	* 0.07 ±0.01	47	37.2 A	1.64	091201-074

1 2 3 4 5 6 7 8

RESULTS RELATED ONLY TO MONITORS AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22429	18-APR-12	04-APR-12

Radon Monitoring Report

LANDAUER

CROW BUTTE RESOURCES
RHONDA GRANTHAM
PO BOX 169
CRAWFORD, NE 69339

Acct. No. 0400748

PROGRAM NAME: MARSLAND

*** CORRECTED REPORT ***

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	GROSS COUNT	AREA COUNTED (SQ MM)	BACK GRND	LOT NO.
4826578	DRNF	02-APR-12	29-JUN-12	MA-1 CALIB FACT= 33.4 STD DEV= 6.4 DAYS EXPOSED: 88	73.6 ±4.74	0.8 ±0.05	241	63.8 A	1.58	080908-052
4826579	DRNF	02-APR-12	29-JUN-12	MA-2 CALIB FACT= 33.5 STD DEV= 5.3 DAYS EXPOSED: 88	137.3 ±7.2	1.6 ±0.08	362	63.8 A	1.58	080908-052
4826580	DRNF	02-APR-12	29-JUN-12	MA-3 CALIB FACT= 33.5 STD DEV= 6.1 DAYS EXPOSED: 88	89.3 ±5.43	1.0 ±0.06	271	63.8 A	1.58	080908-052
4826581	DRNF	02-APR-12	29-JUN-12	MA-4 CALIB FACT= 33.4 STD DEV= 6.4 DAYS EXPOSED: 88	75.1 ±4.81	0.9 ±0.05	244	63.8 A	1.58	080908-052
4826582	DRNF	02-APR-12	29-JUN-12	MA-5 CALIB FACT= 33.4 STD DEV= 6.3 DAYS EXPOSED: 88	80.9 ±5.07	0.9 ±0.06	255	63.8 A	1.58	080908-052

1 2 3 4 5 6 7 8

RESULTS RELATED ONLY TO MONITORS AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22484	25-JUL-12	03-JUL-12

Radon Monitoring Report

CROW BUTTE RESOURCES
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PO BOX 169
CRAWFORD, NE 69339

LANDAUER
Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone (800) 528-8327 Facsimile (708) 755-7048

Acct. No. 0400748

PROGRAM NAME: MARSLAND

*** CORRECTED REPORT ***

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	GROSS COUNT	AREA COUNTED (SQ MM)	BACK GRND	LOT NO.
4853219	DRNF	29-JUN-12	01-OCT-12	MA5 CALIB FACT= 33.9 STD DEV= 12.0 DAYS EXPOSED: 94	11.0 ±1.32	0.1 ±0.01	70	37.2 A	1.55	101201-003
4853220	DRNF	29-JUN-12	01-OCT-12	MA4 CALIB FACT= 33.9 STD DEV= 11.3 DAYS EXPOSED: 94	19.2 ±2.16	0.2 ±0.02	79	37.2 A	1.55	101201-003
4853361	DRNF	29-JUN-12	01-OCT-12	MA1 CALIB FACT= 33.9 STD DEV= 11.5 DAYS EXPOSED: 94	16.5 ±1.89	0.2 ±0.02	76	37.2 A	1.55	101201-003
4853363	DRNF	29-JUN-12	01-OCT-12	MA2 CALIB FACT= 33.9 STD DEV= 11.1 DAYS EXPOSED: 94	21.0 ±2.34	0.2 ±0.02	81	37.2 A	1.55	101201-003
4853364	DRNF	29-JUN-12	01-OCT-12	MA3 CALIB FACT= 33.9 STD DEV= 11.4 DAYS EXPOSED: 94	17.4 ±1.98	0.2 ±0.02	77	37.2 A	1.55	101201-003
①	②	③	④		⑤	⑥	⑦			⑧

RESULTS RELATED ONLY TO MONITORS
AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22539	05-NOV-12	04-OCT-12

Radon Monitoring Report

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Acct. No. 0400748

PROGRAM NAME: MARSLAND

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	GROSS COUNT	AREA COUNTED (SQ MM)	BACK GRND	LOT NO.
4847341	DRNF	01-OCT-12	02-JAN-13	MA-1 CALIB FACT= 33.3 STD DEV= 5.9 DAYS EXPOSED: 93	75.1 ±4.41	0.8 ±0.05	290	63.8	A 2.29	091201-075
4847342	DRNF	01-OCT-12	02-JAN-13	MA-2 CALIB FACT= 33.3 STD DEV= 6.3 DAYS EXPOSED: 93	57.3 ±3.58	0.6 ±0.04	256	63.8	A 2.29	091201-075
4847343	DRNF	01-OCT-12	02-JAN-13	MA-3 CALIB FACT= 33.2 STD DEV= 6.8 DAYS EXPOSED: 93	36.4 ±2.48	0.4 ±0.03	216	63.8	A 2.29	091201-075
4847373	DRNF	01-OCT-12	02-JAN-13	MA-4 CALIB FACT= 33.2 STD DEV= 7.1 DAYS EXPOSED: 93	26.0 ±1.86	0.3 ±0.02	196	63.8	A 2.29	091201-075
4847374	DRNF	01-OCT-12	02-JAN-13	MA-5 CALIB FACT= 33.2 STD DEV= 7.0 DAYS EXPOSED: 93	31.2 ±2.18	0.3 ±0.02	206	63.8	A 2.29	091201-075
①	②	③	④		⑤	⑥	⑦			⑧

RESULTS RELATED ONLY TO MONITORS
AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22582	29-JAN-13	10-JAN-13

Appendix V-3

Gamma (OLSs) Laboratory
Records

Appendix V-3

Gamma (OLSs) Laboratory Records

LANDAUER

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ENVIRONMENTAL / LOW LEVEL DOSIMETRY REPORT

ADDRESS	ACCOUNT NO.	SERIES CODE
CROW BUTTE RESOURCES ATTN : RHONDA GRANTHAM P O BOX 169 CRAWFORD, NE 69339	291520	MARSLAND EXPANSION AREA

FOR EXPOSURE PERIOD 10/01/2011

LOCATION ID NUMBER	IDENTIFIER (CLIENT SUPPLIED)	NOTE CODE	EXPOSURE OF DOSIMETER (MILLIREMS AMBIENT DOSE EQUIVALENT) GROSS	NET	NET CUMULATIVE TOTALS (MILLIREMS) CALENDAR QUARTER	YEAR TO DATE	PERMANENT	ADJUST-MENTS	NUMBER OF DOSIMETERS REPORTED	INCEPTION DATE OF PERM. TOTAL
00000	TRANSIT CONTROL		13.9	-1.0						
000X9	DEPLOY CONTROL		15.0	0.0						
00001	MA-1		21.7	6.7	6.7	6.7	6.7		1	/ /
00002	MA-2		21.6	6.7	6.7	6.7	6.7		1	/ /
00003	MA-3		21.4	6.5	6.5	6.5	6.5		1	/ /
00004	MA-4		19.9	5.0	5.0	5.0	5.0		1	/ /
00005	MA-5		20.9	5.9	5.9	5.9	5.9		1	/ /

Q.C. Release	Process No.	Reported Date	Date Processed	Date Received	Minimum Detectable Dose In This Process, Millirems Ambient Dose Equivalent	ONLY PAGE
tm	BD3001	01/17/2012	01/13/2012	01/09/2012	0.10	1

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ENVIRONMENTAL / LOW LEVEL DOSIMETRY REPORT

ADDRESS

CROW BUTTE RESOURCES
ATTN : RHONDA GRANTHAM
P O BOX 169
CRAWFORD, NE 69339

ACCOUNT NO. SERIES CODE

291520

RECEIVED
APR 16 2012
By

FOR EXPOSURE PERIOD 01/01/2012

LOCATION ID NUMBER	IDENTIFIER (CLIENT SUPPLIED)	NOTE CODE	EXPOSURE OF DOSIMETER (MILLIREMS AMBIENT DOSE EQUIVALENT) GROSS	NET	NET CUMULATIVE TOTALS (MILLIREMS) CALENDAR QUARTER	YEAR TO DATE	PERMANENT	ADJUST-MENTS	NUMBER OF DOSIMETERS REPORTED	INCEPTION DATE OF PERM. TOTAL
00000	TRANSIT CONTROL		25.7	-0.6						
000X9	DEPLOY CONTROL		26.3	0.0						
00001	MA-1		32.8	6.5	6.5	6.5	13.2		2	/ /
00002	MA-2		33.8	7.5	7.5	7.5	14.2		2	/ /
00003	MA-3		31.4	5.1	5.1	5.1	11.6		2	/ /
00004	MA-4		40.8	14.5	14.5	14.5	19.5		2	/ /
00005	MA-5		32.5	6.2	6.2	6.2	12.1		2	/ /

Q.C. Release	Process No.	Reported Date	Date Processed	Date Received	Minimum Detectable Dose In This Process, Millirems Ambient Dose Equivalent	ONLY PAGE
tm	BFH010	04/10/2012	04/05/2012	04/04/2012	0.10	1

CROW BUTTE RESOURCES
RHONDA GRANTHAM
P O BOX 169
CRAWFORD, NE 69339

Report Date (YYYY-MM-DD)	2012-07-31
Page	1 of 1
Dosimeter Received	2012-07-24
QC Release	sbankhead
Analytical Work Order	1218510376

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Environmental Dosimetry Report

Account: 291520 **Subaccount:** 1405721 **Series:** X9

Location ID Number	Dosimeter Type	Identifier (Client Supplied)	Exposure (Ambient Dose mrem)		Net Cumulative Totals (mrem)			Inception Date (YYYY-MM)	Serial Number
			Gross	Net	Quarter to Date	Year to Date	Permanent		
Monitoring Period:			2012-04-01 to	2012-06-30	Q2	2012			
00000	V03NH	Deploy Control	30.4					2011-10	
00001	V03NH	MA-1	40.0	9.6	9.6	16.1	22.8	2011-10	EX000224524
00003	V03NH	MA-3	34.9	4.6	4.6	9.7	16.2	2011-10	EX000138600
00004	V03NH	MA-4	40.9	10.5	10.5	25.0	30.0	2011-10	EX00014881V
00005	V03NH	MA-5	38.1	7.7	7.7	13.9	19.8	2011-10	EX00022973Q

CROW BUTTE RESOURCES
RHONDA GRANTHAM
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Report Date (YYYY-MM-DD)	2012-10-12
Page	1 of 1
Dosimeter Received	2012-10-04
QC Release	SBA
Analytical Work Order	1227810151

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Environmental Dosimetry Report

Account : 291520 **Subaccount :** 1405721 **Series:** X9

Location Number	Dosimeter Type	Location Description	Exposure Dose (mRem)		Accumulated Dose (mRem)			Inception Date (YYYY-MM-DD)	Serial Number
			Gross	Net	Quarter To Date	Year To Date	Inception		
Monitoring Period:			2012-07-01 to	2012-09-30	Q3	2012			
00000	V03NH	Deploy Control						2011-10	EX00019812V
	V03NH	Control Dose Used	28.8						
00001	V03NH	MA-1	38.6	9.9	9.9	26.0	32.7	2011-10	EX00009379N
00002	V03NH	MA-2	39.2	10.4	10.4	17.9	24.6	2011-10	EX00008147Z
00003	V03NH	MA-3	37.5	8.7	8.7	18.3	24.8	2011-10	EX000163722
00004	V03NH	MA-4	39.2	10.4	10.4	35.5	40.5	2011-10	EX000248003
00005	V03NH	MA-5	33.3	4.5	4.5	18.4	24.3	2011-10	EX000193208

CROW BUTTE RESOURCES
RHONDA GRANTHAM
P O BOX 169
CRAWFORD, NE 69339

Report Date (YYYY-MM-DD)	2013-01-14
Page	1 of 1
Dosimeter Received	2013-01-09
QC Release	LCA
Analytical Work Order	1300910417

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Environmental Dosimetry Report

Account : 291520 **Subaccount :** 1405721 **Series:** X9

Location ID Number	Dosimeter Type	Identifier (Client Supplied)	Exposure (Ambient Dose mrem)		Net Cumulative Totals (mrem)			Inception Date (YYYY-MM)	Serial Number
			Gross	Net	Quarter to Date	Year to Date	Permanent		
Monitoring Period:			2012-10-01 to	2012-12-31	Q4	2012			
00000	V03NH	Deploy Control						2011-10	EX000620061
	V03NH	Control Dose Used	27.3						
00001	V03NH	MA-1	39.2	11.9	11.9	37.9	44.6	2011-10	EX000633303
00002	V03NH	MA-2	36.8	9.5	9.5	27.4	34.1	2011-10	EX00063623S
00003	V03NH	MA-3	34.5	7.2	7.2	25.6	32.1	2011-10	EX00063795F
00004	V03NH	MA-4	37.3	10.0	10.0	45.5	50.5	2011-10	EX00063627K
00005	V03NH	MA-5	34.0	6.8	6.8	25.2	31.1	2011-10	EX00063675J

APPENDIX W-1

Appendix W-1

Niobrara River Surface Water
Laboratory Records

Appendix W-1

Niobrara River Surface Water Laboratory Records

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream
Lab ID: C11010514-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 03/03/11
Collection Date: 01/14/11
DateReceived: 01/18/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0087	mg/L		0.00030		E200.8	01/19/11 18:20 / sml
Uranium, Activity	5.9E-09	uCi/mL		2.0E-10		E200.8	01/19/11 18:20 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.00030		E200.8	01/31/11 18:42 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	01/31/11 18:42 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	02/04/11 14:27 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/04/11 14:27 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	02/04/11 14:27 / eli-cs
Polonium 210	<0.7	pCi/L	U	0.7		E912.0	02/11/11 08:58 / ep
Polonium 210 precision (±)	0.5	pCi/L				E912.0	02/11/11 08:58 / ep
Polonium 210 MDC	0.7	pCi/L				E912.0	02/11/11 08:58 / ep
Radium 226	1.3	pCi/L		0.16		E903.0	02/01/11 09:36 / trs
Radium 226 precision (±)	0.25	pCi/L				E903.0	02/01/11 09:36 / trs
Radium 226 MDC	0.16	pCi/L				E903.0	02/01/11 09:36 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	02/16/11 15:56 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	02/16/11 15:56 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/16/11 15:56 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<1.0	pCi/L	U	1.0		E909.0	02/24/11 21:36 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/24/11 21:36 / eli-cs
Lead 210 MDC	1.0	pCi/L				E909.0	02/24/11 21:36 / eli-cs
Polonium 210	<0.3	pCi/L	U	0.3		E912.0	02/11/11 08:58 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	02/11/11 08:58 / ep
Polonium 210 MDC	0.3	pCi/L				E912.0	02/11/11 08:58 / ep
Radium 226	<0.18	pCi/L	U	0.18		E903.0	02/08/11 13:54 / trs
Radium 226 precision (±)	0.08	pCi/L				E903.0	02/08/11 13:54 / trs
Radium 226 MDC	0.18	pCi/L				E903.0	02/08/11 13:54 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	02/02/11 15:57 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E908.0	02/02/11 15:57 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/02/11 15:57 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream
Lab ID: C11010514-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 03/03/11
Collection Date: 01/14/11
DateReceived: 01/18/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0076	mg/L		0.00030		E200.8	01/19/11 18:24 / sml
Uranium, Activity	5.1E-09	uCi/mL		2.0E-10		E200.8	01/19/11 18:24 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.00030		E200.8	01/31/11 18:46 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	01/31/11 18:46 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	02/04/11 16:39 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/04/11 16:39 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	02/04/11 16:39 / eli-cs
Polonium 210	<0.7	pCi/L	U	0.7		E912.0	02/11/11 08:58 / ep
Polonium 210 precision (±)	0.4	pCi/L				E912.0	02/11/11 08:58 / ep
Polonium 210 MDC	0.7	pCi/L				E912.0	02/11/11 08:58 / ep
Radium 226	1.3	pCi/L		0.14		E903.0	02/01/11 09:36 / trs
Radium 226 precision (±)	0.24	pCi/L				E903.0	02/01/11 09:36 / trs
Radium 226 MDC	0.14	pCi/L				E903.0	02/01/11 09:36 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	02/16/11 15:56 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/16/11 15:56 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	02/16/11 15:56 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<1.1	pCi/L	U	1.1		E909.0	02/24/11 23:47 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/24/11 23:47 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	02/24/11 23:47 / eli-cs
Polonium 210	<0.3	pCi/L	U	0.3		E912.0	02/11/11 08:58 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	02/11/11 08:58 / ep
Polonium 210 MDC	0.3	pCi/L				E912.0	02/11/11 08:58 / ep
Radium 226	<0.13	pCi/L	U	0.13		E903.0	02/08/11 13:54 / trs
Radium 226 precision (±)	0.07	pCi/L				E903.0	02/08/11 13:54 / trs
Radium 226 MDC	0.13	pCi/L				E903.0	02/08/11 13:54 / trs
Thorium 230	<0.06	pCi/L	U	0.06		E908.0	02/02/11 15:57 / dmf
Thorium 230 precision (±)	0.04	pCi/L				E908.0	02/02/11 15:57 / dmf
Thorium 230 MDC	0.06	pCi/L				E908.0	02/02/11 15:57 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11020424-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 04/22/11
Collection Date: 02/11/11
DateReceived: 02/15/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	230	mg/L		1		A2320 B	02/15/11 19:38 / jba
Carbonate as CO3	5	mg/L		1		A2320 B	02/15/11 19:38 / jba
Bicarbonate as HCO3	271	mg/L		1		A2320 B	02/15/11 19:38 / jba
Calcium	60	mg/L		1		E200.7	02/16/11 15:16 / cp
Chloride	6	mg/L		1		E300.0	02/17/11 02:26 / ijl
Fluoride	0.7	mg/L		0.1		A4500-F C	02/17/11 12:02 / jba
Magnesium	11	mg/L		1		E200.7	02/16/11 15:16 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	02/16/11 15:01 / dc
Nitrogen, Nitrate+Nitrite as N	1.4	mg/L		0.1		E353.2	02/15/11 14:25 / dc
Potassium	8	mg/L		1		E200.7	02/16/11 15:16 / cp
Silica	62.4	mg/L		0.2		E200.7	02/16/11 15:16 / cp
Sodium	22	mg/L		1		E200.7	02/16/11 15:16 / cp
Sulfate	13	mg/L		1		E300.0	02/17/11 02:26 / ijl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	460	umhos/cm		1		A2510 B	02/17/11 08:53 / lr
pH	8.11	s.u.		0.01		A4500-H B	02/17/11 08:53 / lr
Solids, Total Dissolved TDS @ 180 C	315	mg/L		10		A2540 C	02/15/11 16:37 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.7	02/16/11 15:16 / cp
Arsenic	0.006	mg/L		0.001		E200.8	02/22/11 16:13 / sml
Barium	0.1	mg/L		0.1		E200.7	02/16/11 15:16 / cp
Boron	ND	mg/L		0.1		E200.7	02/16/11 15:16 / cp
Cadmium	ND	mg/L		0.005		E200.7	02/16/11 15:16 / cp
Chromium	ND	mg/L		0.05		E200.7	02/16/11 15:16 / cp
Copper	ND	mg/L		0.01		E200.7	02/16/11 15:16 / cp
Iron	ND	mg/L		0.03		E200.7	02/16/11 15:16 / cp
Lead	ND	mg/L		0.001		E200.8	02/22/11 16:13 / sml
Manganese	ND	mg/L		0.01		E200.7	02/16/11 15:16 / cp
Mercury	ND	mg/L		0.001		E200.8	02/24/11 00:50 / sml
Molybdenum	ND	mg/L		0.1		E200.7	02/16/11 15:16 / cp
Nickel	ND	mg/L		0.05		E200.7	02/16/11 15:16 / cp
Selenium	0.003	mg/L		0.001		E200.8	02/22/11 16:13 / sml
Uranium	0.0079	mg/L		0.0003		E200.8	02/22/11 16:13 / sml
Uranium, Activity	5.4E-09	uCi/mL		2.0E-10		E200.8	02/22/11 16:13 / sml
Vanadium	ND	mg/L		0.1		E200.7	02/16/11 15:16 / cp
Zinc	ND	mg/L		0.01		E200.7	02/16/11 15:16 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	03/01/11 22:33 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	03/01/11 22:33 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11020424-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 04/22/11
Collection Date: 02/11/11
DateReceived: 02/15/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1	pCi/L	U	1.2		E909.0	03/01/11 13:47 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	03/01/11 13:47 / eli-cs
Lead 210 MDC	1.2	pCi/L				E909.0	03/01/11 13:47 / eli-cs
Polonium 210	0.8	pCi/L		0.5		E912.0	02/28/11 09:29 / ep
Polonium 210 precision (±)	0.6	pCi/L				E912.0	02/28/11 09:29 / ep
Polonium 210 MDC	0.5	pCi/L				E912.0	02/28/11 09:29 / ep
Radium 226	1.3	pCi/L		0.09		E903.0	03/01/11 16:37 / trs
Radium 226 precision (±)	0.20	pCi/L				E903.0	03/01/11 16:37 / trs
Radium 226 MDC	0.09	pCi/L				E903.0	03/01/11 16:37 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	02/25/11 08:46 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	02/25/11 08:46 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/25/11 08:46 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	1.4	pCi/L		1.0		E909.0	04/20/11 02:00 / jb
Lead 210 precision (±)	0.6	pCi/L				E909.0	04/20/11 02:00 / jb
Lead 210 MDC	1.0	pCi/L				E909.0	04/20/11 02:00 / jb
Polonium 210	<0.5	pCi/L	U	0.5		E912.0	02/25/11 12:57 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	02/25/11 12:57 / ep
Polonium 210 MDC	0.5	pCi/L				E912.0	02/25/11 12:57 / ep
Radium 226	<0.2	pCi/L	U	0.19		E903.0	03/09/11 10:10 / trs
Radium 226 precision (±)	0.13	pCi/L				E903.0	03/09/11 10:10 / trs
Radium 226 MDC	0.19	pCi/L				E903.0	03/09/11 10:10 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	03/09/11 08:43 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	03/09/11 08:43 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	03/09/11 08:43 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.594	%				Calculation	03/16/11 13:08 / kbh
Anions	5.16	meq/L				Calculation	03/16/11 13:08 / kbh
Cations	5.10	meq/L				Calculation	03/16/11 13:08 / kbh
Solids, Total Dissolved Calculated	344	mg/L				Calculation	03/16/11 13:08 / kbh
TDS Balance (0.80 - 1.20)	0.920					Calculation	03/16/11 13:08 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11020424-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 04/22/11
Collection Date: 02/11/11
DateReceived: 02/15/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	223	mg/L		1		A2320 B	02/15/11 20:04 / jba
Carbonate as CO3	5	mg/L		1		A2320 B	02/15/11 20:04 / jba
Bicarbonate as HCO3	262	mg/L		1		A2320 B	02/15/11 20:04 / jba
Calcium	57	mg/L		1		E200.7	02/16/11 15:20 / cp
Chloride	5	mg/L		1		E300.0	02/17/11 02:43 / ijl
Fluoride	0.7	mg/L		0.1		A4500-F C	02/17/11 12:07 / jba
Magnesium	10	mg/L		1		E200.7	02/16/11 15:20 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	02/16/11 15:03 / dc
Nitrogen, Nitrate+Nitrite as N	1.2	mg/L		0.1		E353.2	02/15/11 14:28 / dc
Potassium	7	mg/L		1		E200.7	02/16/11 15:20 / cp
Silica	59.1	mg/L		0.2		E200.7	02/16/11 15:20 / cp
Sodium	20	mg/L		1		E200.7	02/16/11 15:20 / cp
Sulfate	12	mg/L		1		E300.0	02/17/11 02:43 / ijl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	437	umhos/cm		1		A2510 B	02/17/11 08:56 / lr
pH	7.91	s.u.		0.01		A4500-H B	02/17/11 08:56 / lr
Solids, Total Dissolved TDS @ 180 C	302	mg/L		10		A2540 C	02/15/11 16:38 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.7	02/16/11 15:20 / cp
Arsenic	0.005	mg/L		0.001		E200.8	02/22/11 16:23 / sml
Barium	0.1	mg/L		0.1		E200.7	02/16/11 15:20 / cp
Boron	ND	mg/L		0.1		E200.7	02/16/11 15:20 / cp
Cadmium	ND	mg/L		0.005		E200.7	02/16/11 15:20 / cp
Chromium	ND	mg/L		0.05		E200.7	02/16/11 15:20 / cp
Copper	ND	mg/L		0.01		E200.7	02/16/11 15:20 / cp
Iron	0.04	mg/L		0.03		E200.7	02/16/11 15:20 / cp
Lead	ND	mg/L		0.001		E200.8	02/22/11 16:23 / sml
Manganese	0.02	mg/L		0.01		E200.7	02/16/11 15:20 / cp
Mercury	ND	mg/L		0.001		E200.8	02/24/11 00:57 / sml
Molybdenum	ND	mg/L		0.1		E200.7	02/16/11 15:20 / cp
Nickel	ND	mg/L		0.05		E200.7	02/16/11 15:20 / cp
Selenium	0.002	mg/L		0.001		E200.8	02/22/11 16:23 / sml
Uranium	0.0073	mg/L		0.0003		E200.8	02/22/11 16:23 / sml
Uranium, Activity	4.9E-09	uCi/mL		2.0E-10		E200.8	02/22/11 16:23 / sml
Vanadium	ND	mg/L		0.1		E200.7	02/16/11 15:20 / cp
Zinc	ND	mg/L		0.01		E200.7	02/16/11 15:20 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	03/01/11 22:53 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	03/01/11 22:53 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11020424-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 04/22/11
Collection Date: 02/11/11
DateReceived: 02/15/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1	pCi/L	U	1.2		E909.0	03/10/11 19:15 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	03/10/11 19:15 / eli-cs
Lead 210 MDC	1.2	pCi/L				E909.0	03/10/11 19:15 / eli-cs
Polonium 210	<1	pCi/L	U	0.9		E912.0	02/28/11 09:29 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	02/28/11 09:29 / ep
Polonium 210 MDC	0.9	pCi/L				E912.0	02/28/11 09:29 / ep
Radium 226	0.46	pCi/L		0.11		E903.0	03/01/11 16:37 / trs
Radium 226 precision (±)	0.14	pCi/L				E903.0	03/01/11 16:37 / trs
Radium 226 MDC	0.11	pCi/L				E903.0	03/01/11 16:37 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	02/25/11 08:46 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/25/11 08:46 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/25/11 08:46 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<1	pCi/L	U	0.9		E909.0	04/20/11 08:35 / jb
Lead 210 precision (±)	0.5	pCi/L				E909.0	04/20/11 08:35 / jb
Lead 210 MDC	0.9	pCi/L				E909.0	04/20/11 08:35 / jb
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	02/25/11 12:57 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	02/25/11 12:57 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	02/25/11 12:57 / ep
Radium 226	<0.2	pCi/L	U	0.19		E903.0	03/09/11 10:10 / trs
Radium 226 precision (±)	0.08	pCi/L				E903.0	03/09/11 10:10 / trs
Radium 226 MDC	0.19	pCi/L				E903.0	03/09/11 10:10 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	03/09/11 08:43 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	03/09/11 08:43 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	03/09/11 08:43 / dmf
DATA QUALITY							
A/C Balance (± 5)	-2.50	%				Calculation	03/16/11 13:09 / kbh
Anions	4.95	meq/L				Calculation	03/16/11 13:09 / kbh
Cations	4.71	meq/L				Calculation	03/16/11 13:09 / kbh
Solids, Total Dissolved Calculated	325	mg/L				Calculation	03/16/11 13:09 / kbh
TDS Balance (0.80 - 1.20)	0.930					Calculation	03/16/11 13:09 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11030399-001
Client Sample ID: N1 (Niobrara River West Side)

Report Date: 05/05/11
Collection Date: 03/11/11
DateReceived: 03/14/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0074	mg/L		0.0003		E200.8	03/17/11 14:50 / sml
Uranium, Activity	5.0E-09	uCi/mL		2.0E-10		E200.8	03/17/11 14:50 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	03/19/11 02:59 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	03/19/11 02:59 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	03/25/11 23:16 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	03/25/11 23:16 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	03/25/11 23:16 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	03/17/11 13:06 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	03/17/11 13:06 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	03/17/11 13:06 / ep
Radium 226	0.56	pCi/L		0.12		E903.0	03/21/11 20:55 / trs
Radium 226 precision (±)	0.15	pCi/L				E903.0	03/21/11 20:55 / trs
Radium 226 MDC	0.12	pCi/L				E903.0	03/21/11 20:55 / trs
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	03/25/11 09:27 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	03/25/11 09:27 / dmf
Thorium 230 MDC	0.3	pCi/L				E908.0	03/25/11 09:27 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	04/29/11 07:23 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	04/29/11 07:23 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	04/29/11 07:23 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	03/23/11 09:05 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	03/23/11 09:05 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	03/23/11 09:05 / ep
Radium 226	<0.13	pCi/L	U	0.13		E903.0	03/28/11 21:54 / trs
Radium 226 precision (±)	0.06	pCi/L				E903.0	03/28/11 21:54 / trs
Radium 226 MDC	0.13	pCi/L				E903.0	03/28/11 21:54 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	03/30/11 11:20 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	03/30/11 11:20 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	03/30/11 11:20 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11030399-002
Client Sample ID: N2 (Niobrara River East Side)

Report Date: 05/05/11
Collection Date: 03/11/11
DateReceived: 03/14/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0080	mg/L		0.0003		E200.8	03/17/11 14:55 / sml
Uranium, Activity	5.4E-09	uCi/mL		2.0E-10		E200.8	03/17/11 14:55 / sml
METALS - SUSPENDED							
Uranium	0.0005	mg/L		0.0003		E200.8	03/19/11 03:03 / sml
Uranium, Activity	3.4E-10	uCi/mL		2.0E-10		E200.8	03/19/11 03:03 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	03/26/11 01:27 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	03/26/11 01:27 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	03/26/11 01:27 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	03/17/11 13:06 / ep
Polonium 210 precision (±)	0.4	pCi/L				E912.0	03/17/11 13:06 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	03/17/11 13:06 / ep
Radium 226	1.0	pCi/L		0.12		E903.0	03/21/11 20:55 / trs
Radium 226 precision (±)	0.19	pCi/L				E903.0	03/21/11 20:55 / trs
Radium 226 MDC	0.12	pCi/L				E903.0	03/21/11 20:55 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	03/25/11 09:27 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	03/25/11 09:27 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	03/25/11 09:27 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	04/29/11 09:35 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	04/29/11 09:35 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	04/29/11 09:35 / eli-cs
Polonium 210	0.3	pCi/L		0.2		E912.0	03/23/11 09:05 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	03/23/11 09:05 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	03/23/11 09:05 / ep
Radium 226	<0.13	pCi/L	U	0.13		E903.0	03/28/11 21:54 / trs
Radium 226 precision (±)	0.06	pCi/L				E903.0	03/28/11 21:54 / trs
Radium 226 MDC	0.13	pCi/L				E903.0	03/28/11 21:54 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	03/30/11 11:20 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	03/30/11 11:20 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	03/30/11 11:20 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11040429-001
Client Sample ID: N1 (Niobrara River West Side)

Report Date: 06/15/11
Collection Date: 04/08/11
DateReceived: 04/13/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0104	mg/L		0.0003		E200.8	04/14/11 22:28 / sml
Uranium, Activity	7.0E-09	uCi/mL		2.0E-10		E200.8	04/14/11 22:28 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<1.6	pCi/L	U	1.6		E909.0	05/31/11 12:16 / eli-cs
Lead 210 precision (±)	1	pCi/L				E909.0	05/31/11 12:16 / eli-cs
Lead 210 MDC	1.6	pCi/L				E909.0	05/31/11 12:16 / eli-cs
Polonium 210	<0.5	pCi/L	U	0.5		E912.0	05/09/11 09:06 / ep
Polonium 210 precision (±)	0.4	pCi/L				E912.0	05/09/11 09:06 / ep
Polonium 210 MDC	0.5	pCi/L				E912.0	05/09/11 09:06 / ep
Radium 226	0.2	pCi/L		0.1		E903.0	05/02/11 11:18 / trs
Radium 226 precision (±)	0.09	pCi/L				E903.0	05/02/11 11:18 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	05/02/11 11:18 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	05/10/11 08:42 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	05/10/11 08:42 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	05/10/11 08:42 / dmf

- See Case Narrative regarding Pb210 analysis.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11040429-002
Client Sample ID: N2 (Niobrara River East Side)

Report Date: 06/15/11
Collection Date: 04/08/11
DateReceived: 04/13/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0088	mg/L		0.0003		E200.8	04/14/11 22:35 / sml
Uranium, Activity	5.9E-09	uCi/mL		2.0E-10		E200.8	04/14/11 22:35 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	05/31/11 18:50 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	05/31/11 18:50 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	05/31/11 18:50 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	05/09/11 09:06 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	05/09/11 09:06 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	05/09/11 09:06 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	05/02/11 11:18 / trs
Radium 226 precision (±)	0.04	pCi/L				E903.0	05/02/11 11:18 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	05/02/11 11:18 / trs
Thorium 230	<0.8	pCi/L	U	0.8		E908.0	06/01/11 13:22 / dmf
Thorium 230 precision (±)	0.4	pCi/L				E908.0	06/01/11 13:22 / dmf
Thorium 230 MDC	0.8	pCi/L				E908.0	06/01/11 13:22 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11050675-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 06/28/11
Collection Date: 05/16/11
DateReceived: 05/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	261	mg/L		1		A2320 B	05/19/11 22:04 / jba
Carbonate as CO3	10	mg/L		1		A2320 B	05/19/11 22:04 / jba
Bicarbonate as HCO3	297	mg/L		1		A2320 B	05/19/11 22:04 / jba
Calcium	58	mg/L		1		E200.8	05/20/11 23:59 / sml
Chloride	6	mg/L		1		E300.0	05/21/11 19:04 / ijl
Fluoride	0.8	mg/L		0.1		A4500-F C	05/23/11 14:24 / jba
Magnesium	12	mg/L		1		E200.8	05/20/11 23:59 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	05/20/11 15:30 / dc
Nitrogen, Nitrate+Nitrite as N	0.2	mg/L		0.1		E353.2	05/25/11 14:39 / dc
Potassium	10	mg/L		1		E200.8	05/20/11 23:59 / sml
Silica	41.3	mg/L		0.2		E200.7	05/23/11 12:22 / cp
Sodium	38	mg/L		1		E200.8	05/20/11 23:59 / sml
Sulfate	12	mg/L		1		E300.0	05/21/11 19:04 / ijl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	498	umhos/cm		1		A2510 B	05/20/11 09:26 / lmc
pH	8.38	s.u.		0.01		A4500-H B	05/20/11 09:26 / lmc
Solids, Total Dissolved TDS @ 180 C	335	mg/L		10		A2540 C	05/20/11 14:05 / lmc
METALS - DISSOLVED							
Aluminum	0.2	mg/L		0.1		E200.8	05/20/11 23:59 / sml
Arsenic	0.008	mg/L		0.001		E200.8	05/20/11 23:59 / sml
Barium	0.1	mg/L		0.1		E200.8	05/20/11 23:59 / sml
Boron	ND	mg/L		0.1		E200.8	05/20/11 23:59 / sml
Cadmium	ND	mg/L		0.005		E200.8	05/20/11 23:59 / sml
Chromium	ND	mg/L		0.05		E200.8	05/20/11 23:59 / sml
Copper	ND	mg/L		0.01		E200.8	05/20/11 23:59 / sml
Iron	0.20	mg/L		0.03		E200.8	05/20/11 23:59 / sml
Lead	ND	mg/L		0.001		E200.8	05/20/11 23:59 / sml
Manganese	0.02	mg/L		0.01		E200.8	05/20/11 23:59 / sml
Mercury	ND	mg/L		0.001		E200.8	05/20/11 23:59 / sml
Molybdenum	ND	mg/L		0.1		E200.8	05/20/11 23:59 / sml
Nickel	ND	mg/L		0.05		E200.8	05/20/11 23:59 / sml
Selenium	ND	mg/L		0.001		E200.8	05/20/11 23:59 / sml
Uranium	0.0085	mg/L		0.0003		E200.8	05/20/11 23:59 / sml
Uranium, Activity	5.8E-09	uCi/mL		2.0E-10		E200.8	05/20/11 23:59 / sml
Vanadium	ND	mg/L		0.1		E200.8	05/20/11 23:59 / sml
Zinc	0.02	mg/L		0.01		E200.7	05/23/11 12:22 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	05/31/11 18:27 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	05/31/11 18:27 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11050675-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 06/28/11
Collection Date: 05/16/11
DateReceived: 05/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1.2	pCi/L	U	1.2		E909.0	06/23/11 01:24 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	06/23/11 01:24 / eli-cs
Lead 210 MDC	1.2	pCi/L				E909.0	06/23/11 01:24 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	06/15/11 09:15 / ep
Polonium 210 precision (±)	0.4	pCi/L				E912.0	06/15/11 09:15 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	06/15/11 09:15 / ep
Radium 226	0.3	pCi/L		0.1		E903.0	05/31/11 12:05 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	05/31/11 12:05 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	05/31/11 12:05 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	06/15/11 16:14 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	06/15/11 16:14 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	06/15/11 16:14 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<1.1	pCi/L	U	1.1		E909.0	06/24/11 04:57 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	06/24/11 04:57 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	06/24/11 04:57 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	06/22/11 13:16 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	06/22/11 13:16 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	06/22/11 13:16 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	05/31/11 17:25 / trs
Radium 226 precision (±)	0.06	pCi/L				E903.0	05/31/11 17:25 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	05/31/11 17:25 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	06/09/11 11:02 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	06/09/11 11:02 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	06/09/11 11:02 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.10	%				Calculation	05/25/11 09:35 / kbh
Anions	5.69	meq/L				Calculation	05/25/11 09:35 / kbh
Cations	5.82	meq/L				Calculation	05/25/11 09:35 / kbh
Solids, Total Dissolved Calculated	342	mg/L				Calculation	05/25/11 09:35 / kbh
TDS Balance (0.80 - 1.20)	0.980					Calculation	05/25/11 09:35 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11050675-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 06/28/11
Collection Date: 05/16/11
DateReceived: 05/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	253	mg/L		1		A2320 B	05/19/11 22:12 / jba
Carbonate as CO3	9	mg/L		1		A2320 B	05/19/11 22:12 / jba
Bicarbonate as HCO3	290	mg/L		1		A2320 B	05/19/11 22:12 / jba
Calcium	56	mg/L		1		E200.8	05/21/11 00:06 / sml
Chloride	5	mg/L		1		E300.0	05/21/11 19:19 / ijl
Fluoride	0.8	mg/L		0.1		A4500-F C	05/23/11 14:27 / jba
Magnesium	12	mg/L		1		E200.8	05/21/11 00:06 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	05/20/11 15:32 / dc
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	05/25/11 14:42 / dc
Potassium	9	mg/L		1		E200.8	05/21/11 00:06 / sml
Silica	41.6	mg/L		0.2		E200.7	05/23/11 12:34 / cp
Sodium	36	mg/L		1		E200.8	05/21/11 00:06 / sml
Sulfate	12	mg/L		1		E300.0	05/21/11 19:19 / ijl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	478	umhos/cm		1		A2510 B	05/20/11 09:28 / lmc
pH	8.30	s.u.		0.01		A4500-H B	05/20/11 09:28 / lmc
Solids, Total Dissolved TDS @ 180 C	326	mg/L		10		A2540 C	05/20/11 14:05 / lmc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	05/21/11 00:06 / sml
Arsenic	0.006	mg/L		0.001		E200.8	05/21/11 00:06 / sml
Barium	0.1	mg/L		0.1		E200.8	05/21/11 00:06 / sml
Boron	ND	mg/L		0.1		E200.8	05/21/11 00:06 / sml
Cadmium	ND	mg/L		0.005		E200.8	05/21/11 00:06 / sml
Chromium	ND	mg/L		0.05		E200.8	05/21/11 00:06 / sml
Copper	ND	mg/L		0.01		E200.8	05/21/11 00:06 / sml
Iron	0.08	mg/L		0.03		E200.8	05/21/11 00:06 / sml
Lead	ND	mg/L		0.001		E200.8	05/21/11 00:06 / sml
Manganese	ND	mg/L		0.01		E200.8	05/21/11 00:06 / sml
Mercury	ND	mg/L		0.001		E200.8	05/21/11 00:06 / sml
Molybdenum	ND	mg/L		0.1		E200.8	05/21/11 00:06 / sml
Nickel	ND	mg/L		0.05		E200.8	05/21/11 00:06 / sml
Selenium	ND	mg/L		0.001		E200.8	05/21/11 00:06 / sml
Uranium	0.0073	mg/L		0.0003		E200.8	05/21/11 00:06 / sml
Uranium, Activity	5.0E-09	uCi/mL		2.0E-10		E200.8	05/21/11 00:06 / sml
Vanadium	ND	mg/L		0.1		E200.8	05/21/11 00:06 / sml
Zinc	0.02	mg/L		0.01		E200.7	05/23/11 12:34 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	05/31/11 18:20 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	05/31/11 18:20 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11050675-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 06/28/11
Collection Date: 05/16/11
DateReceived: 05/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1.2	pCi/L	U	1.2		E909.0	06/23/11 07:58 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	06/23/11 07:58 / eli-cs
Lead 210 MDC	1.2	pCi/L				E909.0	06/23/11 07:58 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	06/15/11 09:15 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	06/15/11 09:15 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	06/15/11 09:15 / ep
Radium 226	<0.2	pCi/L	U	0.2		E903.0	05/31/11 12:05 / trs
Radium 226 precision (±)	0.08	pCi/L				E903.0	05/31/11 12:05 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	05/31/11 12:05 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	06/16/11 17:22 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	06/16/11 17:22 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	06/16/11 17:22 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	06/24/11 08:16 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	06/24/11 08:16 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	06/24/11 08:16 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	06/22/11 13:16 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	06/22/11 13:16 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	06/22/11 13:16 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	05/31/11 17:25 / trs
Radium 226 precision (±)	0.04	pCi/L				E903.0	05/31/11 17:25 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	05/31/11 17:25 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	06/09/11 11:02 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	06/09/11 11:02 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	06/09/11 11:02 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.802	%				Calculation	05/25/11 09:35 / kbh
Anions	5.50	meq/L				Calculation	05/25/11 09:35 / kbh
Cations	5.58	meq/L				Calculation	05/25/11 09:35 / kbh
Solids, Total Dissolved Calculated	330	mg/L				Calculation	05/25/11 09:35 / kbh
TDS Balance (0.80 - 1.20)	0.990					Calculation	05/25/11 09:35 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11061115-001
Client Sample ID: N1

Report Date: 08/17/11
Collection Date: 06/24/11
DateReceived: 06/28/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	235	mg/L		1		A2320 B	06/30/11 11:17 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	06/30/11 11:17 / jba
Bicarbonate as HCO3	286	mg/L		1		A2320 B	06/30/11 11:17 / jba
Calcium	53	mg/L		1		E200.7	07/01/11 15:04 / cp
Chloride	4	mg/L		1		E300.0	06/30/11 04:18 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	06/29/11 14:25 / jba
Magnesium	11	mg/L		1		E200.7	07/01/11 15:04 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	07/06/11 13:08 / dc
Nitrogen, Nitrate+Nitrite as N	0.4	mg/L		0.1		E353.2	06/30/11 14:41 / dc
Potassium	8	mg/L		1		E200.7	07/01/11 15:04 / cp
Silica	45.2	mg/L		0.2		E200.7	07/01/11 15:04 / cp
Sodium	25	mg/L		1		E200.7	07/01/11 15:04 / cp
Sulfate	10	mg/L		1		E300.0	06/30/11 04:18 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	443	umhos/cm		1		A2510 B	07/05/11 09:09 / wc
pH	8.16	s.u.	H	0.01		A4500-H B	07/05/11 09:09 / wc
Solids, Total Dissolved TDS @ 180 C	313	mg/L		10		A2540 C	06/29/11 16:03 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.7	07/01/11 15:04 / cp
Arsenic	0.006	mg/L		0.001		E200.8	07/01/11 11:22 / sml
Barium	0.1	mg/L		0.1		E200.8	07/01/11 11:22 / sml
Boron	0.1	mg/L		0.1		E200.7	07/01/11 15:04 / cp
Cadmium	ND	mg/L		0.005		E200.8	07/01/11 11:22 / sml
Chromium	ND	mg/L		0.05		E200.7	07/01/11 15:04 / cp
Copper	ND	mg/L		0.01		E200.8	07/01/11 11:22 / sml
Iron	0.07	mg/L		0.03		E200.7	07/01/11 15:04 / cp
Lead	ND	mg/L		0.001		E200.8	07/01/11 11:22 / sml
Manganese	0.01	mg/L		0.01		E200.7	07/01/11 15:04 / cp
Mercury	ND	mg/L		0.001		E200.8	07/06/11 11:40 / sml
Molybdenum	ND	mg/L		0.1		E200.8	07/01/11 11:22 / sml
Nickel	ND	mg/L		0.05		E200.8	07/01/11 11:22 / sml
Selenium	0.001	mg/L		0.001		E200.8	07/01/11 11:22 / sml
Uranium	0.0063	mg/L		0.0003		E200.8	07/01/11 11:22 / sml
Uranium, Activity	1.2E-09	uCi/mL		2.0E-10		E200.8	07/01/11 11:22 / sml
Vanadium	ND	mg/L		0.1		E200.7	07/01/11 15:04 / cp
Zinc	0.01	mg/L		0.01		E200.7	07/01/11 15:04 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	07/07/11 01:36 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	07/07/11 01:36 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11061115-001
Client Sample ID: N1

Report Date: 08/17/11
Collection Date: 06/24/11
DateReceived: 06/28/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1.1	pCi/L	U	1.1		E909.0	07/14/11 22:17 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	07/14/11 22:17 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	07/14/11 22:17 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	07/20/11 13:14 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	07/20/11 13:14 / ep
Polonium 210 MDC	0.4	pCi/L				E912.0	07/20/11 13:14 / ep
Radium 226	0.27	pCi/L		0.15		E903.0	07/14/11 11:16 / trs
Radium 226 precision (±)	0.13	pCi/L				E903.0	07/14/11 11:16 / trs
Radium 226 MDC	0.15	pCi/L				E903.0	07/14/11 11:16 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	07/13/11 08:57 / dmf
Thorium 230 precision (±)	0.04	pCi/L				E908.0	07/13/11 08:57 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	07/13/11 08:57 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<9.0	pCi/L	U	9.0		E909.0	08/05/11 01:45 / eli-cs
Lead 210 precision (±)	5.3	pCi/L				E909.0	08/05/11 01:45 / eli-cs
Lead 210 MDC	9.0	pCi/L				E909.0	08/05/11 01:45 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	07/20/11 15:39 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	07/20/11 15:39 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	07/20/11 15:39 / ep
Radium 226	<0.13	pCi/L	U	0.13		E903.0	07/20/11 17:30 / trs
Radium 226 precision (±)	0.07	pCi/L				E903.0	07/20/11 17:30 / trs
Radium 226 MDC	0.13	pCi/L				E903.0	07/20/11 17:30 / trs
Thorium 230	0.07	pCi/L		0.05		E908.0	07/21/11 14:58 / dmf
Thorium 230 precision (±)	0.04	pCi/L				E908.0	07/21/11 14:58 / dmf
Thorium 230 MDC	0.05	pCi/L				E908.0	07/21/11 14:58 / dmf
- See Case Narrative regarding Pb210 analysis.							
DATA QUALITY							
A/C Balance (± 5)	-2.06	%				Calculation	07/07/11 12:34 / kbh
Anions	5.07	meq/L				Calculation	07/07/11 12:34 / kbh
Cations	4.87	meq/L				Calculation	07/07/11 12:34 / kbh
Solids, Total Dissolved Calculated	312	mg/L				Calculation	07/07/11 12:34 / kbh
TDS Balance (0.80 - 1.20)	1.00					Calculation	07/07/11 12:34 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11061115-002
Client Sample ID: N2

Report Date: 08/17/11
Collection Date: 06/24/11
DateReceived: 06/28/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	253	mg/L		1		A2320 B	06/30/11 11:25 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	06/30/11 11:25 / jba
Bicarbonate as HCO3	308	mg/L		1		A2320 B	06/30/11 11:25 / jba
Calcium	54	mg/L		1		E200.7	07/01/11 15:23 / cp
Chloride	5	mg/L		1		E300.0	06/30/11 04:33 / ljl
Fluoride	0.8	mg/L		0.1		A4500-F C	06/29/11 14:28 / jba
Magnesium	12	mg/L		1		E200.7	07/01/11 15:23 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	07/06/11 13:10 / dc
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	06/30/11 14:43 / dc
Potassium	11	mg/L		1		E200.7	07/01/11 15:23 / cp
Silica	48.4	mg/L		0.2		E200.7	07/01/11 15:23 / cp
Sodium	29	mg/L		1		E200.7	07/01/11 15:23 / cp
Sulfate	9	mg/L		1		E300.0	06/30/11 04:33 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	481	umhos/cm		1		A2510 B	07/05/11 09:12 / wc
pH	7.84	s.u.	H	0.01		A4500-H B	07/05/11 09:12 / wc
Solids, Total Dissolved TDS @ 180 C	334	mg/L		10		A2540 C	06/29/11 16:03 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.7	07/01/11 15:23 / cp
Arsenic	0.006	mg/L		0.001		E200.8	07/01/11 11:37 / sml
Barium	0.2	mg/L		0.1		E200.8	07/01/11 11:37 / sml
Boron	ND	mg/L		0.1		E200.7	07/01/11 15:23 / cp
Cadmium	ND	mg/L		0.005		E200.8	07/01/11 11:37 / sml
Chromium	ND	mg/L		0.05		E200.8	07/01/11 11:37 / sml
Copper	ND	mg/L		0.01		E200.8	07/01/11 11:37 / sml
Iron	0.04	mg/L		0.03		E200.7	07/01/11 15:23 / cp
Lead	ND	mg/L		0.001		E200.8	07/01/11 11:37 / sml
Manganese	0.04	mg/L		0.01		E200.8	07/01/11 11:37 / sml
Mercury	ND	mg/L		0.001		E200.8	07/01/11 11:37 / sml
Molybdenum	ND	mg/L		0.1		E200.8	07/01/11 11:37 / sml
Nickel	ND	mg/L		0.05		E200.8	07/01/11 11:37 / sml
Selenium	0.001	mg/L		0.001		E200.8	07/01/11 11:37 / sml
Uranium	0.0048	mg/L		0.0003		E200.8	07/01/11 11:37 / sml
Uranium, Activity	3.3E-09	uCi/mL		2.0E-10		E200.8	07/01/11 11:37 / sml
Vanadium	ND	mg/L		0.1		E200.8	07/01/11 11:37 / sml
Zinc	0.02	mg/L		0.01		E200.7	07/01/11 15:23 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	07/07/11 01:39 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	07/07/11 01:39 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11061115-002
Client Sample ID: N2

Report Date: 08/17/11
Collection Date: 06/24/11
DateReceived: 06/28/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1.1	pCi/L	U	1.1		E909.0	07/15/11 01:02 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	07/15/11 01:02 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	07/15/11 01:02 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	07/19/11 15:06 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	07/19/11 15:06 / ep
Polonium 210 MDC	0.4	pCi/L				E912.0	07/19/11 15:06 / ep
Radium 226	0.17	pCi/L		0.16		E903.0	07/14/11 11:16 / trs
Radium 226 precision (±)	0.12	pCi/L				E903.0	07/14/11 11:16 / trs
Radium 226 MDC	0.16	pCi/L				E903.0	07/14/11 11:16 / trs
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	07/13/11 08:57 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E908.0	07/13/11 08:57 / dmf
Thorium 230 MDC	0.3	pCi/L				E908.0	07/13/11 08:57 / dmf
- See Case Narrative regarding Th230 analysis.							
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	07/16/11 04:09 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	07/16/11 04:09 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	07/16/11 04:09 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	07/20/11 15:39 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	07/20/11 15:39 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	07/20/11 15:39 / ep
Radium 226	<0.12	pCi/L	U	0.12		E903.0	07/20/11 17:30 / trs
Radium 226 precision (±)	0.06	pCi/L				E903.0	07/20/11 17:30 / trs
Radium 226 MDC	0.12	pCi/L				E903.0	07/20/11 17:30 / trs
Thorium 230	<0.04	pCi/L	U	0.04		E908.0	07/21/11 14:58 / dmf
Thorium 230 precision (±)	0.03	pCi/L				E908.0	07/21/11 14:58 / dmf
Thorium 230 MDC	0.04	pCi/L				E908.0	07/21/11 14:58 / dmf
DATA QUALITY							
A/C Balance (± 5)	-1.79	%				Calculation	07/07/11 12:34 / kbh
Anions	5.42	meq/L				Calculation	07/07/11 12:34 / kbh
Cations	5.23	meq/L				Calculation	07/07/11 12:34 / kbh
Solids, Total Dissolved Calculated	334	mg/L				Calculation	07/07/11 12:34 / kbh
TDS Balance (0.80 - 1.20)	1.00					Calculation	07/07/11 12:34 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11070647-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 08/29/11
Collection Date: 07/15/11
DateReceived: 07/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0071	mg/L		0.0003		E200.8	07/28/11 17:25 / sml
Uranium, Activity	4.8E-09	uCi/mL		2.0E-10		E200.8	07/28/11 17:25 / sml
METALS - SUSPENDED							
Uranium	0.0005	mg/L	B	0.0003		E200.8	07/27/11 20:50 / sml
Uranium, Activity	3.6E-10	uCi/mL		2.0E-10		E200.8	07/27/11 20:50 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	08/11/11 05:46 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	08/11/11 05:46 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	08/11/11 05:46 / eli-cs
Polonium 210	<0.7	pCi/L	U	0.7		E912.0	08/15/11 13:09 / ep
Polonium 210 precision (±)	0.4	pCi/L				E912.0	08/15/11 13:09 / ep
Polonium 210 MDC	0.7	pCi/L				E912.0	08/15/11 13:09 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	07/26/11 22:15 / trs
Radium 226 precision (±)	0.05	pCi/L				E903.0	07/26/11 22:15 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	07/26/11 22:15 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	08/17/11 11:19 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	08/17/11 11:19 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	08/17/11 11:19 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	0.7	pCi/L		0.5		E909.0	08/09/11 15:06 / eli-cs
Lead 210 precision (±)	0.3	pCi/L				E909.0	08/09/11 15:06 / eli-cs
Lead 210 MDC	0.5	pCi/L				E909.0	08/09/11 15:06 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	08/16/11 09:14 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	08/16/11 09:14 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	08/16/11 09:14 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	08/04/11 02:56 / trs
Radium 226 precision (±)	0.06	pCi/L				E903.0	08/04/11 02:56 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	08/04/11 02:56 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	07/29/11 08:47 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	07/29/11 08:47 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	07/29/11 08:47 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11070647-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 08/29/11
Collection Date: 07/15/11
DateReceived: 07/19/11
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0053	mg/L		0.0003		E200.8	07/28/11 17:51 / sml
Uranium, Activity	3.6E-09	uCi/mL		2.0E-10		E200.8	07/28/11 17:51 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	07/27/11 20:52 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	07/27/11 20:52 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	08/11/11 11:15 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	08/11/11 11:15 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	08/11/11 11:15 / eli-cs
Polonium 210	<0.8	pCi/L	U	0.8		E912.0	08/15/11 13:09 / ep
Polonium 210 precision (±)	0.6	pCi/L				E912.0	08/15/11 13:09 / ep
Polonium 210 MDC	0.8	pCi/L				E912.0	08/15/11 13:09 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	07/26/11 22:15 / trs
Radium 226 precision (±)	0.07	pCi/L				E903.0	07/26/11 22:15 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	07/26/11 22:15 / trs
Thorium 230	<0.4	pCi/L	U	0.4		E908.0	08/23/11 17:41 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E908.0	08/23/11 17:41 / dmf
Thorium 230 MDC	0.4	pCi/L				E908.0	08/23/11 17:41 / dmf
- See Case Narrative regarding Th230 analysis.							
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.5	pCi/L	U	0.5		E909.0	08/09/11 17:06 / eli-cs
Lead 210 precision (±)	0.3	pCi/L				E909.0	08/09/11 17:06 / eli-cs
Lead 210 MDC	0.5	pCi/L				E909.0	08/09/11 17:06 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	08/16/11 09:14 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	08/16/11 09:14 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	08/16/11 09:14 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	08/04/11 02:56 / trs
Radium 226 precision (±)	0.09	pCi/L				E903.0	08/04/11 02:56 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	08/04/11 02:56 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	07/29/11 08:47 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	07/29/11 08:47 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	07/29/11 08:47 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11080649-001
Client Sample ID: N1

Report Date: 09/27/11
Collection Date: 08/12/11
DateReceived: 08/16/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	185	mg/L		1		A2320 B	08/16/11 19:16 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/16/11 19:16 / jba
Bicarbonate as HCO3	226	mg/L		1		A2320 B	08/16/11 19:16 / jba
Calcium	46	mg/L		1		E200.8	08/17/11 23:09 / sml
Chloride	5	mg/L		1		E300.0	08/20/11 04:02 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	08/18/11 15:34 / jba
Magnesium	9	mg/L		1		E200.8	08/17/11 23:09 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	08/24/11 12:50 / dc
Nitrogen, Nitrate+Nitrite as N	1.0	mg/L		0.1		E353.2	08/18/11 15:55 / dc
Potassium	6	mg/L		1		E200.8	08/17/11 23:09 / sml
Silica	58.1	mg/L		0.2		E200.7	08/19/11 14:44 / cp
Sodium	24	mg/L		1		E200.8	08/17/11 23:09 / sml
Sulfate	13	mg/L		1		E300.0	08/20/11 04:02 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	388	umhos/cm		1		A2510 B	08/17/11 09:25 / lmc
pH	8.20	s.u.		0.01		A4500-H B	08/17/11 09:25 / lmc
Solids, Total Dissolved TDS @ 180 C	262	mg/L		10		A2540 C	08/17/11 12:02 / lmc
METALS - DISSOLVED							
Aluminum	0.2	mg/L		0.1		E200.8	08/17/11 23:09 / sml
Arsenic	0.007	mg/L		0.001		E200.8	08/17/11 23:09 / sml
Barium	0.1	mg/L		0.1		E200.8	08/17/11 23:09 / sml
Boron	ND	mg/L		0.1		E200.8	08/17/11 23:09 / sml
Cadmium	ND	mg/L		0.005		E200.8	08/17/11 23:09 / sml
Chromium	ND	mg/L		0.05		E200.8	08/17/11 23:09 / sml
Copper	ND	mg/L		0.01		E200.8	08/17/11 23:09 / sml
Iron	0.27	mg/L		0.03		E200.8	08/17/11 23:09 / sml
Lead	ND	mg/L		0.001		E200.8	08/17/11 23:09 / sml
Manganese	0.02	mg/L		0.01		E200.8	08/17/11 23:09 / sml
Mercury	ND	mg/L		0.001		E200.8	08/17/11 23:09 / sml
Molybdenum	ND	mg/L		0.1		E200.8	08/17/11 23:09 / sml
Nickel	ND	mg/L		0.05		E200.8	08/17/11 23:09 / sml
Selenium	0.001	mg/L		0.001		E200.8	08/17/11 23:09 / sml
Uranium	0.0076	mg/L		0.0003		E200.8	08/17/11 23:09 / sml
Uranium, Activity	5.1E-09	uCi/mL		2.0E-10		E200.8	08/17/11 23:09 / sml
Vanadium	ND	mg/L		0.1		E200.8	08/17/11 23:09 / sml
Zinc	0.02	mg/L		0.01		E200.8	08/17/11 23:09 / sml
METALS - SUSPENDED							
Uranium	0.0004	mg/L		0.0003		E200.8	08/24/11 22:46 / sml
Uranium, Activity	2.4E-10	uCi/mL		2.0E-10		E200.8	08/24/11 22:46 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11080649-001
Client Sample ID: N1

Report Date: 09/27/11
Collection Date: 08/12/11
DateReceived: 08/16/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.6	pCi/L	U	0.6		E909.0	09/03/11 17:18 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	09/03/11 17:18 / eli-cs
Lead 210 MDC	0.6	pCi/L				E909.0	09/03/11 17:18 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	09/13/11 08:53 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	09/13/11 08:53 / ep
Polonium 210 MDC	0.4	pCi/L				E912.0	09/13/11 08:53 / ep
Radium 226	0.52	pCi/L		0.15		E903.0	08/29/11 15:37 / trs
Radium 226 precision (±)	0.15	pCi/L				E903.0	08/29/11 15:37 / trs
Radium 226 MDC	0.15	pCi/L				E903.0	08/29/11 15:37 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	09/01/11 09:06 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	09/01/11 09:06 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	09/01/11 09:06 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	09/02/11 22:04 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	09/02/11 22:04 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	09/02/11 22:04 / eli-cs
Polonium 210	0.4	pCi/L		0.2		E912.0	09/12/11 11:23 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	09/12/11 11:23 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	09/12/11 11:23 / ep
Radium 226	0.14	pCi/L		0.08		E903.0	09/19/11 21:53 / js
Radium 226 precision (±)	0.07	pCi/L				E903.0	09/19/11 21:53 / js
Radium 226 MDC	0.08	pCi/L				E903.0	09/19/11 21:53 / js
Thorium 230	0.1	pCi/L		0.05		E908.0	08/30/11 15:55 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E908.0	08/30/11 15:55 / dmf
Thorium 230 MDC	0.05	pCi/L				E908.0	08/30/11 15:55 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.351	%				Calculation	08/23/11 06:41 / kbh
Anions	4.21	meq/L				Calculation	08/23/11 06:41 / kbh
Cations	4.18	meq/L				Calculation	08/23/11 06:41 / kbh
Solids, Total Dissolved Calculated	292	mg/L				Calculation	08/23/11 06:41 / kbh
TDS Balance (0.80 - 1.20)	0.900					Calculation	08/23/11 06:41 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11080649-002
Client Sample ID: N2

Report Date: 09/27/11
Collection Date: 08/12/11
DateReceived: 08/16/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	180	mg/L		1		A2320 B	08/16/11 19:24 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/16/11 19:24 / jba
Bicarbonate as HCO3	219	mg/L		1		A2320 B	08/16/11 19:24 / jba
Calcium	48	mg/L		1		E200.8	08/17/11 23:14 / sml
Chloride	5	mg/L		1		E300.0	08/20/11 04:48 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	08/18/11 15:37 / jba
Magnesium	9	mg/L		1		E200.8	08/17/11 23:14 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	08/24/11 12:52 / dc
Nitrogen, Nitrate+Nitrite as N	0.9	mg/L		0.1		E353.2	08/18/11 15:58 / dc
Potassium	7	mg/L		1		E200.8	08/17/11 23:14 / sml
Silica	64.8	mg/L		0.2		E200.7	08/19/11 14:58 / cp
Sodium	24	mg/L		1		E200.8	08/17/11 23:14 / sml
Sulfate	13	mg/L		1		E300.0	08/20/11 04:48 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	387	umhos/cm		1		A2510 B	08/17/11 09:27 / lmc
pH	8.21	s.u.		0.01		A4500-H B	08/17/11 09:27 / lmc
Solids, Total Dissolved TDS @ 180 C	258	mg/L		10		A2540 C	08/17/11 12:02 / lmc
METALS - DISSOLVED							
Aluminum	0.3	mg/L		0.1		E200.8	08/17/11 23:14 / sml
Arsenic	0.007	mg/L		0.001		E200.8	08/17/11 23:14 / sml
Barium	0.1	mg/L		0.1		E200.8	08/17/11 23:14 / sml
Boron	ND	mg/L		0.1		E200.8	08/17/11 23:14 / sml
Cadmium	ND	mg/L		0.005		E200.8	08/17/11 23:14 / sml
Chromium	ND	mg/L		0.05		E200.8	08/17/11 23:14 / sml
Copper	ND	mg/L		0.01		E200.8	08/17/11 23:14 / sml
Iron	0.30	mg/L		0.03		E200.8	08/17/11 23:14 / sml
Lead	0.001	mg/L		0.001		E200.8	08/17/11 23:14 / sml
Manganese	0.06	mg/L		0.01		E200.8	08/17/11 23:14 / sml
Mercury	ND	mg/L		0.001		E200.8	08/17/11 23:14 / sml
Molybdenum	ND	mg/L		0.1		E200.8	08/17/11 23:14 / sml
Nickel	ND	mg/L		0.05		E200.8	08/17/11 23:14 / sml
Selenium	0.001	mg/L		0.001		E200.8	08/17/11 23:14 / sml
Uranium	0.0077	mg/L		0.0003		E200.8	08/17/11 23:14 / sml
Uranium, Activity	5.2E-09	uCi/mL		2.0E-10		E200.8	08/17/11 23:14 / sml
Vanadium	ND	mg/L		0.1		E200.8	08/17/11 23:14 / sml
Zinc	0.01	mg/L		0.01		E200.8	08/17/11 23:14 / sml
METALS - SUSPENDED							
Uranium	0.0003	mg/L		0.0003		E200.8	08/26/11 17:45 / sml
Uranium, Activity	2.2E-10	uCi/mL		2.0E-10		E200.8	08/26/11 17:45 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11080649-002
Client Sample ID: N2

Report Date: 09/27/11
Collection Date: 08/12/11
DateReceived: 08/16/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.6	pCi/L	U	0.6		E909.0	09/03/11 19:33 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	09/03/11 19:33 / eli-cs
Lead 210 MDC	0.6	pCi/L				E909.0	09/03/11 19:33 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	09/13/11 08:53 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	09/13/11 08:53 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	09/13/11 08:53 / ep
Radium 226	<0.14	pCi/L	U	0.14		E903.0	08/29/11 15:37 / trs
Radium 226 precision (±)	0.10	pCi/L				E903.0	08/29/11 15:37 / trs
Radium 226 MDC	0.14	pCi/L				E903.0	08/29/11 15:37 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	09/01/11 09:06 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	09/01/11 09:06 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	09/01/11 09:06 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.7	pCi/L	U	0.7		E909.0	09/03/11 04:49 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	09/03/11 04:49 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	09/03/11 04:49 / eli-cs
Polonium 210	<0.3	pCi/L	U	0.3		E912.0	09/12/11 11:23 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	09/12/11 11:23 / ep
Polonium 210 MDC	0.3	pCi/L				E912.0	09/12/11 11:23 / ep
Radium 226	<0.08	pCi/L	U	0.08		E903.0	09/19/11 21:53 / js
Radium 226 precision (±)	0.05	pCi/L				E903.0	09/19/11 21:53 / js
Radium 226 MDC	0.08	pCi/L				E903.0	09/19/11 21:53 / js
Thorium 230	0.1	pCi/L		0.07		E908.0	08/30/11 15:55 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E908.0	08/30/11 15:55 / dmf
Thorium 230 MDC	0.07	pCi/L				E908.0	08/30/11 15:55 / dmf
DATA QUALITY							
A/C Balance (± 5)	2.51	%				Calculation	08/23/11 06:41 / kbh
Anions	4.11	meq/L				Calculation	08/23/11 06:41 / kbh
Cations	4.32	meq/L				Calculation	08/23/11 06:41 / kbh
Solids, Total Dissolved Calculated	300	mg/L				Calculation	08/23/11 06:41 / kbh
TDS Balance (0.80 - 1.20)	0.860					Calculation	08/23/11 06:41 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11091005-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 11/09/11
Collection Date: 09/23/11
DateReceived: 09/27/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0073	mg/L		0.0003		E200.8	09/29/11 15:07 / sml
Uranium, Activity	5.0E-09	uCi/mL		2.0E-10		E200.8	09/29/11 15:07 / sml
METALS - SUSPENDED							
Uranium	0.0003	mg/L		0.0003		E200.8	10/01/11 17:31 / sml
Uranium, Activity	2.2E-10	uCi/mL		2.0E-10		E200.8	10/01/11 17:31 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.7	pCi/L	U	0.7		E909.0	10/18/11 12:00 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	10/18/11 12:00 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	10/18/11 12:00 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	10/28/11 09:11 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	10/28/11 09:11 / ep
Polonium 210 MDC	0.4	pCi/L				E912.0	10/28/11 09:11 / ep
Radium 226	0.4	pCi/L		0.2		E903.0	10/10/11 13:49 / js
Radium 226 precision (±)	0.2	pCi/L				E903.0	10/10/11 13:49 / js
Radium 226 MDC	0.2	pCi/L				E903.0	10/10/11 13:49 / js
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	11/04/11 08:39 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	11/04/11 08:39 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	11/04/11 08:39 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.6	pCi/L	U	0.6		E909.0	10/09/11 02:27 / eli-cs
Lead 210 precision (±)	0.3	pCi/L				E909.0	10/09/11 02:27 / eli-cs
Lead 210 MDC	0.6	pCi/L				E909.0	10/09/11 02:27 / eli-cs
Polonium 210	<0.2	pCi/L	U	0.2		E912.0	10/28/11 13:25 / ep
Polonium 210 precision (±)	0.1	pCi/L				E912.0	10/28/11 13:25 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	10/28/11 13:25 / ep
Radium 226	0.1	pCi/L		0.1		E903.0	10/11/11 22:26 / js
Radium 226 precision (±)	0.06	pCi/L				E903.0	10/11/11 22:26 / js
Radium 226 MDC	0.1	pCi/L				E903.0	10/11/11 22:26 / js
Thorium 230	0.2	pCi/L		0.1		E908.0	10/22/11 15:10 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/22/11 15:10 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	10/22/11 15:10 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C11091005-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 11/09/11
Collection Date: 09/23/11
DateReceived: 09/27/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0066	mg/L		0.0003		E200.8	09/29/11 15:08 / sml
Uranium, Activity	4.5E-09	uCi/mL		2.0E-10		E200.8	09/29/11 15:08 / sml
METALS - SUSPENDED							
Uranium	0.0003	mg/L		0.0003		E200.8	10/01/11 17:32 / sml
Uranium, Activity	2.1E-10	uCi/mL		2.0E-10		E200.8	10/01/11 17:32 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.7	pCi/L	U	0.7		E909.0	10/18/11 15:20 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	10/18/11 15:20 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	10/18/11 15:20 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	10/28/11 09:11 / ep
Polonium 210 precision (±)	0.5	pCi/L				E912.0	10/28/11 09:11 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	10/28/11 09:11 / ep
Radium 226	<0.2	pCi/L	U	0.2		E903.0	10/10/11 16:02 / js
Radium 226 precision (±)	0.1	pCi/L				E903.0	10/10/11 16:02 / js
Radium 226 MDC	0.2	pCi/L				E903.0	10/10/11 16:02 / js
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	11/04/11 08:40 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	11/04/11 08:40 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	11/04/11 08:40 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.6	pCi/L	U	0.6		E909.0	10/09/11 04:41 / eli-cs
Lead 210 precision (±)	0.3	pCi/L				E909.0	10/09/11 04:41 / eli-cs
Lead 210 MDC	0.6	pCi/L				E909.0	10/09/11 04:41 / eli-cs
Polonium 210	0.3	pCi/L		0.2		E912.0	10/28/11 16:56 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	10/28/11 16:56 / ep
Polonium 210 MDC	0.2	pCi/L				E912.0	10/28/11 16:56 / ep
Radium 226	0.1	pCi/L		0.1		E903.0	10/11/11 22:26 / js
Radium 226 precision (±)	0.06	pCi/L				E903.0	10/11/11 22:26 / js
Radium 226 MDC	0.1	pCi/L				E903.0	10/11/11 22:26 / js
Thorium 230	0.2	pCi/L		0.1		E908.0	10/22/11 15:10 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	10/22/11 15:10 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	10/22/11 15:10 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Revised Date: 02/07/12
Report Date: 12/20/11
Collection Date: 10/27/11
DateReceived: 11/01/11
Matrix: Aqueous

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11110030-001
Client Sample ID: N1 (Niobrara River West Side)

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0100	mg/L		0.0003		E200.8	11/05/11 22:20 / sml
Uranium, Activity	6.8E-09	uCi/mL		2.0E-10		E200.8	11/05/11 22:20 / sml
METALS - SUSPENDED							
Uranium	0.0003	mg/L	B	0.0003		E200.8	11/16/11 16:07 / sml
Uranium, Activity	2.3E-10	uCi/mL		2.0E-10		E200.8	11/16/11 16:07 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	01/28/12 01:49 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	01/28/12 01:49 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	01/28/12 01:49 / eli-cs
Polonium 210	<0.9	pCi/L	U	0.9		E912.0	11/18/11 08:35 / ep
Polonium 210 precision (±)	0.5	pCi/L				E912.0	11/18/11 08:35 / ep
Polonium 210 MDC	0.9	pCi/L				E912.0	11/18/11 08:35 / ep
Radium 226	1.0	pCi/L		0.1		E903.0	11/17/11 12:20 / js
Radium 226 precision (±)	0.2	pCi/L				E903.0	11/17/11 12:20 / js
Radium 226 MDC	0.1	pCi/L				E903.0	11/17/11 12:20 / js
Thorium 230	<0.3	pCi/L	U	0.3		E908.0	11/10/11 13:49 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	11/10/11 13:49 / dmf
Thorium 230 MDC	0.3	pCi/L				E908.0	11/10/11 13:49 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.5	pCi/L	U	0.5		E909.0	02/02/12 00:24 / eli-cs
Lead 210 precision (±)	0.3	pCi/L				E909.0	02/02/12 00:24 / eli-cs
Lead 210 MDC	0.5	pCi/L				E909.0	02/02/12 00:24 / eli-cs
Polonium 210	0.3	pCi/L		0.3		E912.0	12/14/11 08:55 / ep
Polonium 210 precision (±)	0.2	pCi/L				E912.0	12/14/11 08:55 / ep
Polonium 210 MDC	0.3	pCi/L				E912.0	12/14/11 08:55 / ep
Radium 226	<0.06	pCi/L	U	0.06		E903.0	11/21/11 10:41 / js
Radium 226 precision (±)	0.03	pCi/L				E903.0	11/21/11 10:41 / js
Radium 226 MDC	0.06	pCi/L				E903.0	11/21/11 10:41 / js
Thorium 230	0.2	pCi/L		0.1		E908.0	11/30/11 16:25 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	11/30/11 16:25 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	11/30/11 16:25 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Revised Date: 02/07/12
Report Date: 12/20/11
Collection Date: 10/27/11
DateReceived: 11/01/11
Matrix: Aqueous

Client: Crow Butte Resources
Project: Marsland Baseline Samples
Lab ID: C11110030-002
Client Sample ID: N2 (Niobrara River East Side)

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	0.0090	mg/L		0.0003		E200.8	11/05/11 22:26 / sml
Uranium, Activity	6.1E-09	uCi/mL		2.0E-10		E200.8	11/05/11 22:26 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	11/16/11 16:11 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	11/16/11 16:11 / sml
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	01/28/12 10:05 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	01/28/12 10:05 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	01/28/12 10:05 / eli-cs
Polonium 210	3.2	pCi/L		0.6		E912.0	11/18/11 08:35 / ep
Polonium 210 precision (±)	1.3	pCi/L				E912.0	11/18/11 08:35 / ep
Polonium 210 MDC	0.6	pCi/L				E912.0	11/18/11 08:35 / ep
Radium 226	0.1	pCi/L		0.09		E903.0	11/17/11 12:20 / js
Radium 226 precision (±)	0.07	pCi/L				E903.0	11/17/11 12:20 / js
Radium 226 MDC	0.09	pCi/L				E903.0	11/17/11 12:20 / js
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	11/10/11 13:49 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	11/10/11 13:49 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	11/10/11 13:49 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	12/04/11 14:45 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	12/04/11 14:45 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	12/04/11 14:45 / eli-cs
Polonium 210	0.3	pCi/L		0.3		E912.0	12/14/11 08:55 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	12/14/11 08:55 / ep
Polonium 210 MDC	0.3	pCi/L				E912.0	12/14/11 08:55 / ep
Radium 226	0.08	pCi/L		0.06		E903.0	11/21/11 10:41 / js
Radium 226 precision (±)	0.05	pCi/L				E903.0	11/21/11 10:41 / js
Radium 226 MDC	0.06	pCi/L				E903.0	11/21/11 10:41 / js
Thorium 230	0.2	pCi/L		0.1		E908.0	11/30/11 16:25 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	11/30/11 16:25 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	11/30/11 16:25 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Stream G-8 Samples
Lab ID: C11120015-001
Client Sample ID: N1

Report Date: 01/30/12
Collection Date: 11/28/11
DateReceived: 12/01/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	208	mg/L		1		A2320 B	12/02/11 15:50 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	12/02/11 15:50 / jba
Bicarbonate as HCO3	254	mg/L		1		A2320 B	12/02/11 15:50 / jba
Calcium	53	mg/L		1		E200.8	12/03/11 02:21 / sml
Chloride	5	mg/L		1		E300.0	12/10/11 11:08 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	12/05/11 13:44 / jba
Magnesium	11	mg/L		1		E200.8	12/03/11 02:21 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	12/02/11 15:45 / dc
Nitrogen, Nitrate+Nitrite as N	1.1	mg/L		0.1		E353.2	12/01/11 15:57 / dc
Potassium	8	mg/L		1		E200.8	12/03/11 02:21 / sml
Silica	53.1	mg/L		0.2		E200.7	12/07/11 15:48 / cp
Sodium	23	mg/L		1		E200.8	12/03/11 02:21 / sml
Sulfate	15	mg/L		1		E300.0	12/10/11 11:08 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	440	umhos/cm		1		A2510 B	12/06/11 09:56 / wc
pH	8.05	s.u.		0.01		A4500-H B	12/06/11 09:56 / wc
Solids, Total Dissolved TDS @ 180 C	276	mg/L		10		A2540 C	12/02/11 17:04 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	12/03/11 02:21 / sml
Arsenic	0.006	mg/L		0.001		E200.8	12/03/11 02:21 / sml
Barium	0.1	mg/L		0.1		E200.8	12/03/11 02:21 / sml
Boron	ND	mg/L		0.1		E200.7	12/07/11 15:48 / cp
Cadmium	ND	mg/L		0.005		E200.8	12/03/11 02:21 / sml
Chromium	ND	mg/L		0.05		E200.8	12/03/11 02:21 / sml
Copper	ND	mg/L		0.01		E200.8	12/03/11 02:21 / sml
Iron	0.04	mg/L		0.03		E200.8	12/03/11 02:21 / sml
Lead	ND	mg/L		0.001		E200.8	12/03/11 02:21 / sml
Manganese	ND	mg/L		0.01		E200.8	12/03/11 02:21 / sml
Mercury	ND	mg/L		0.001		E200.8	12/03/11 02:21 / sml
Molybdenum	ND	mg/L		0.1		E200.8	12/03/11 02:21 / sml
Nickel	ND	mg/L		0.05		E200.8	12/03/11 02:21 / sml
Selenium	0.002	mg/L		0.001		E200.8	12/03/11 02:21 / sml
Uranium	0.0090	mg/L		0.0003		E200.8	12/03/11 02:21 / sml
Uranium, Activity	6.1E-09	uCi/mL		2.0E-10		E200.8	12/03/11 02:21 / sml
Vanadium	ND	mg/L		0.1		E200.8	12/03/11 02:21 / sml
Zinc	0.02	mg/L		0.01		E200.8	12/03/11 02:21 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	12/09/11 13:56 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	12/09/11 13:56 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Stream G-8 Samples
Lab ID: C11120015-001
Client Sample ID: N1

Report Date: 01/30/12
Collection Date: 11/28/11
DateReceived: 12/01/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1	pCi/L	U	1		E909.0	12/22/11 17:12 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	12/22/11 17:12 / eli-cs
Lead 210 MDC	1	pCi/L				E909.0	12/22/11 17:12 / eli-cs
Polonium 210	<0.5	pCi/L	U	0.5		E912.0	01/16/12 12:27 / plj
Polonium 210 precision (±)	0.3	pCi/L				E912.0	01/16/12 12:27 / plj
Polonium 210 MDC	0.5	pCi/L				E912.0	01/16/12 12:27 / plj
Radium 226	1.2	pCi/L		0.1		E903.0	12/19/11 22:46 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	12/19/11 22:46 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	12/19/11 22:46 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	12/15/11 16:52 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	12/15/11 16:52 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	12/15/11 16:52 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.6	pCi/L	U	0.6		E909.0	12/20/11 09:22 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	12/20/11 09:22 / eli-cs
Lead 210 MDC	0.6	pCi/L				E909.0	12/20/11 09:22 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	01/03/12 10:31 / plj
Polonium 210 precision (±)	0.2	pCi/L				E912.0	01/03/12 10:31 / plj
Polonium 210 MDC	0.4	pCi/L				E912.0	01/03/12 10:31 / plj
Radium 226	0.1	pCi/L		0.1		E903.0	12/19/11 11:07 / js
Radium 226 precision (±)	0.05	pCi/L				E903.0	12/19/11 11:07 / js
Radium 226 MDC	0.1	pCi/L				E903.0	12/19/11 11:07 / js
Thorium 230	0.1	pCi/L		0.1		E908.0	12/16/11 08:50 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	12/16/11 08:50 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	12/16/11 08:50 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.0267	%				Calculation	12/17/11 11:09 / kbh
Anions	4.73	meq/L				Calculation	12/17/11 11:09 / kbh
Cations	4.72	meq/L				Calculation	12/17/11 11:09 / kbh
Solids, Total Dissolved Calculated	312	mg/L				Calculation	12/17/11 11:09 / kbh
TDS Balance (0.80 - 1.20)	0.880					Calculation	12/17/11 11:09 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Stream G-8 Samples
Lab ID: C11120015-002
Client Sample ID: N2

Report Date: 01/30/12
Collection Date: 11/28/11
DateReceived: 12/01/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	184	mg/L		1		A2320 B	12/02/11 15:58 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	12/02/11 15:58 / jba
Bicarbonate as HCO3	224	mg/L		1		A2320 B	12/02/11 15:58 / jba
Calcium	49	mg/L		1		E200.8	12/03/11 02:26 / sml
Chloride	5	mg/L		1		E300.0	12/10/11 11:22 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	12/05/11 13:47 / jba
Magnesium	9	mg/L		1		E200.8	12/03/11 02:26 / sml
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	12/02/11 15:47 / dc
Nitrogen, Nitrate+Nitrite as N	1.3	mg/L		0.1		E353.2	12/01/11 16:00 / dc
Potassium	7	mg/L		1		E200.8	12/03/11 02:26 / sml
Silica	58.6	mg/L		0.2		E200.7	12/07/11 16:00 / cp
Sodium	23	mg/L		1		E200.8	12/03/11 02:26 / sml
Sulfate	14	mg/L		1		E300.0	12/10/11 11:22 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	406	umhos/cm		1		A2510 B	12/06/11 09:58 / wc
pH	8.16	s.u.		0.01		A4500-H B	12/06/11 09:58 / wc
Solids, Total Dissolved TDS @ 180 C	275	mg/L		10		A2540 C	12/02/11 17:04 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	12/03/11 02:26 / sml
Arsenic	0.006	mg/L		0.001		E200.8	12/03/11 02:26 / sml
Barium	0.1	mg/L		0.1		E200.8	12/03/11 02:26 / sml
Boron	0.1	mg/L		0.1		E200.7	12/07/11 16:00 / cp
Cadmium	ND	mg/L		0.005		E200.8	12/03/11 02:26 / sml
Chromium	ND	mg/L		0.05		E200.8	12/03/11 02:26 / sml
Copper	ND	mg/L		0.01		E200.8	12/03/11 02:26 / sml
Iron	0.03	mg/L		0.03		E200.8	12/03/11 02:26 / sml
Lead	ND	mg/L		0.001		E200.8	12/03/11 02:26 / sml
Manganese	ND	mg/L		0.01		E200.8	12/03/11 02:26 / sml
Mercury	ND	mg/L		0.001		E200.8	12/03/11 02:26 / sml
Molybdenum	ND	mg/L		0.1		E200.8	12/03/11 02:26 / sml
Nickel	ND	mg/L		0.05		E200.8	12/03/11 02:26 / sml
Selenium	0.002	mg/L		0.001		E200.8	12/03/11 02:26 / sml
Uranium	0.0075	mg/L		0.0003		E200.8	12/03/11 02:26 / sml
Uranium, Activity	5.0E-09	uCi/mL		2.0E-10		E200.8	12/03/11 02:26 / sml
Vanadium	ND	mg/L		0.1		E200.8	12/03/11 02:26 / sml
Zinc	ND	mg/L		0.01		E200.8	12/03/11 02:26 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	12/09/11 13:58 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	12/09/11 13:58 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Stream G-8 Samples
Lab ID: C11120015-002
Client Sample ID: N2

Report Date: 01/30/12
Collection Date: 11/28/11
DateReceived: 12/01/11
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<1	pCi/L	U	1		E909.0	12/22/11 19:27 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	12/22/11 19:27 / eli-cs
Lead 210 MDC	1	pCi/L				E909.0	12/22/11 19:27 / eli-cs
Polonium 210	4.6	pCi/L		0.5		E912.0	01/16/12 12:27 / plj
Polonium 210 precision (±)	1.6	pCi/L				E912.0	01/16/12 12:27 / plj
Polonium 210 MDC	0.5	pCi/L				E912.0	01/16/12 12:27 / plj
Radium 226	0.2	pCi/L		0.1		E903.0	12/19/11 22:46 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	12/19/11 22:46 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	12/19/11 22:46 / trs
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	12/15/11 16:52 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	12/15/11 16:52 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	12/15/11 16:52 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.7	pCi/L	U	0.7		E909.0	12/20/11 11:36 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	12/20/11 11:36 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	12/20/11 11:36 / eli-cs
Polonium 210	<0.4	pCi/L	U	0.4		E912.0	01/03/12 11:48 / plj
Polonium 210 precision (±)	0.3	pCi/L				E912.0	01/03/12 11:48 / plj
Polonium 210 MDC	0.4	pCi/L				E912.0	01/03/12 11:48 / plj
Radium 226	0.1	pCi/L		0.1		E903.0	12/19/11 11:07 / js
Radium 226 precision (±)	0.05	pCi/L				E903.0	12/19/11 11:07 / js
Radium 226 MDC	0.1	pCi/L				E903.0	12/19/11 11:07 / js
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	12/16/11 08:50 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	12/16/11 08:50 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	12/16/11 08:50 / dmf
DATA QUALITY							
A/C Balance (± 5)	2.19	%				Calculation	12/17/11 11:09 / kbh
Anions	4.22	meq/L				Calculation	12/17/11 11:09 / kbh
Cations	4.41	meq/L				Calculation	12/17/11 11:09 / kbh
Solids, Total Dissolved Calculated	298	mg/L				Calculation	12/17/11 11:09 / kbh
TDS Balance (0.80 - 1.20)	0.920					Calculation	12/17/11 11:09 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C12010524-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 02/29/12
Collection Date: 01/13/12
DateReceived: 01/18/12
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	187	mg/L		1		A2320 B	01/19/12 15:57 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	01/19/12 15:57 / jba
Bicarbonate as HCO3	229	mg/L		1		A2320 B	01/19/12 15:57 / jba
Calcium	52	mg/L		1		E200.7	01/26/12 15:53 / cp
Chloride	5	mg/L		1		E300.0	01/21/12 02:07 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	01/20/12 11:55 / jba
Magnesium	9	mg/L		1		E200.7	01/26/12 15:53 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/23/12 12:12 / dc
Nitrogen, Nitrate+Nitrite as N	1.5	mg/L		0.1		E353.2	01/20/12 12:53 / dc
Potassium	8	mg/L		1		E200.7	01/26/12 15:53 / cp
Silica	58.1	mg/L		0.2		E200.7	01/26/12 15:53 / cp
Sodium	22	mg/L		1		E200.7	01/26/12 15:53 / cp
Sulfate	13	mg/L		1		E300.0	01/21/12 02:07 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	422	umhos/cm		1		A2510 B	01/18/12 12:14 / ljl
pH	8.13	s.u.	H	0.01		A4500-H B	01/18/12 12:14 / ljl
Solids, Total Dissolved TDS @ 180 C	252	mg/L		10		A2540 C	01/18/12 15:31 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	01/19/12 18:02 / sml
Arsenic	ND	mg/L		0.001		E200.8	01/19/12 18:02 / sml
Barium	ND	mg/L		0.1		E200.8	01/19/12 18:02 / sml
Boron	ND	mg/L		0.1		E200.7	01/26/12 15:53 / cp
Cadmium	ND	mg/L		0.005		E200.8	01/19/12 18:02 / sml
Chromium	ND	mg/L		0.05		E200.8	01/19/12 18:02 / sml
Copper	ND	mg/L		0.01		E200.8	01/19/12 18:02 / sml
Iron	ND	mg/L		0.03		E200.7	01/26/12 15:53 / cp
Lead	ND	mg/L		0.001		E200.8	01/19/12 18:02 / sml
Manganese	ND	mg/L		0.01		E200.8	01/19/12 18:02 / sml
Mercury	ND	mg/L		0.001		E200.8	01/19/12 18:02 / sml
Molybdenum	ND	mg/L		0.1		E200.8	01/19/12 18:02 / sml
Nickel	ND	mg/L		0.05		E200.8	01/19/12 18:02 / sml
Selenium	ND	mg/L		0.001		E200.8	01/19/12 18:02 / sml
Uranium	0.0018	mg/L		0.0003		E200.8	01/19/12 18:02 / sml
Uranium, Activity	1.2E-09	uCi/mL		2.0E-10		E200.8	01/19/12 18:02 / sml
Vanadium	ND	mg/L		0.1		E200.8	01/19/12 18:02 / sml
Zinc	ND	mg/L		0.01		E200.8	01/19/12 18:02 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	01/20/12 16:46 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	01/20/12 16:46 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C12010524-001
Client Sample ID: N1 (Niobrara River West Site)

Report Date: 02/29/12
Collection Date: 01/13/12
DateReceived: 01/18/12
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	02/09/12 15:08 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/09/12 15:08 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	02/09/12 15:08 / eli-cs
Polonium 210	0.8	pCi/L		0.6		E912.0	02/09/12 11:18 / dmf
Polonium 210 precision (±)	0.7	pCi/L				E912.0	02/09/12 11:18 / dmf
Polonium 210 MDC	0.6	pCi/L				E912.0	02/09/12 11:18 / dmf
Radium 226	1.7	pCi/L		0.1		E903.0	02/02/12 11:01 / lbb
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/02/12 11:01 / lbb
Radium 226 MDC	0.1	pCi/L				E903.0	02/02/12 11:01 / lbb
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	02/08/12 09:03 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	02/08/12 09:03 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	02/08/12 09:03 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.7	pCi/L	U	0.7		E909.0	02/12/12 03:36 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	02/12/12 03:36 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	02/12/12 03:36 / eli-cs
Polonium 210	<0.8	pCi/L	U	0.8		E912.0	02/23/12 13:35 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	02/23/12 13:35 / ep
Polonium 210 MDC	0.8	pCi/L				E912.0	02/23/12 13:35 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	01/30/12 23:16 / trs
Radium 226 precision (±)	0.05	pCi/L				E903.0	01/30/12 23:16 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	01/30/12 23:16 / trs
Thorium 230	<0.1	pCi/L	U	0.1		E908.0	01/27/12 11:52 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E908.0	01/27/12 11:52 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	01/27/12 11:52 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.95	%				Calculation	01/31/12 06:45 / kbh
Anions	4.31	meq/L				Calculation	01/31/12 06:45 / kbh
Cations	4.48	meq/L				Calculation	01/31/12 06:45 / kbh
Solids, Total Dissolved Calculated	302	mg/L				Calculation	01/31/12 06:45 / kbh
TDS Balance (0.80 - 1.20)	0.830					Calculation	01/31/12 06:45 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C12010524-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 02/29/12
Collection Date: 01/13/12
DateReceived: 01/18/12
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	211	mg/L		1		A2320 B	01/19/12 16:12 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	01/19/12 16:12 / jba
Bicarbonate as HCO3	257	mg/L		1		A2320 B	01/19/12 16:12 / jba
Calcium	57	mg/L		1		E200.7	01/26/12 15:58 / cp
Chloride	6	mg/L		1		E300.0	01/21/12 02:56 / ljl
Fluoride	0.7	mg/L		0.1		A4500-F C	01/20/12 11:58 / jba
Magnesium	10	mg/L		1		E200.7	01/26/12 15:58 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/23/12 12:18 / dc
Nitrogen, Nitrate+Nitrite as N	1.6	mg/L		0.1		E353.2	01/20/12 13:01 / dc
Potassium	9	mg/L		1		E200.7	01/26/12 15:58 / cp
Silica	63.0	mg/L		0.2		E200.7	01/26/12 15:58 / cp
Sodium	23	mg/L		1		E200.7	01/26/12 15:58 / cp
Sulfate	17	mg/L		1		E300.0	01/21/12 02:56 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	475	umhos/cm		1		A2510 B	01/18/12 12:19 / ljl
pH	7.92	s.u.	H	0.01		A4500-H B	01/18/12 12:19 / ljl
Solids, Total Dissolved TDS @ 180 C	300	mg/L		10		A2540 C	01/18/12 15:32 / wc
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	01/19/12 18:05 / sml
Arsenic	0.006	mg/L		0.001		E200.8	01/19/12 18:05 / sml
Barium	0.1	mg/L		0.1		E200.8	01/19/12 18:05 / sml
Boron	ND	mg/L		0.1		E200.7	01/26/12 15:58 / cp
Cadmium	ND	mg/L		0.005		E200.8	01/19/12 18:05 / sml
Chromium	ND	mg/L		0.05		E200.8	01/19/12 18:05 / sml
Copper	ND	mg/L		0.01		E200.8	01/19/12 18:05 / sml
Iron	0.04	mg/L		0.03		E200.7	01/26/12 15:58 / cp
Lead	ND	mg/L		0.001		E200.8	01/19/12 18:05 / sml
Manganese	ND	mg/L		0.01		E200.8	01/19/12 18:05 / sml
Mercury	ND	mg/L		0.001		E200.8	01/19/12 18:05 / sml
Molybdenum	ND	mg/L		0.1		E200.8	01/19/12 18:05 / sml
Nickel	ND	mg/L		0.05		E200.8	01/19/12 18:05 / sml
Selenium	0.001	mg/L		0.001		E200.8	01/19/12 18:05 / sml
Uranium	0.0073	mg/L		0.0003		E200.8	01/19/12 18:05 / sml
Uranium, Activity	5.0E-09	uCi/mL		2.0E-10		E200.8	01/19/12 18:05 / sml
Vanadium	ND	mg/L		0.1		E200.8	01/19/12 18:05 / sml
Zinc	ND	mg/L		0.01		E200.8	01/19/12 18:05 / sml
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	01/20/12 16:48 / sml
Uranium, Activity	ND	uCi/mL		2.0E-10		E200.8	01/20/12 16:48 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Stream Samples
Lab ID: C12010524-002
Client Sample ID: N2 (Niobrara River East Site)

Report Date: 02/29/12
Collection Date: 01/13/12
DateReceived: 01/18/12
Matrix: Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	<0.9	pCi/L	U	0.9		E909.0	02/09/12 17:23 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/09/12 17:23 / eli-cs
Lead 210 MDC	0.9	pCi/L				E909.0	02/09/12 17:23 / eli-cs
Polonium 210	<0.6	pCi/L	U	0.6		E912.0	02/09/12 11:18 / dmf
Polonium 210 precision (±)	0.4	pCi/L				E912.0	02/09/12 11:18 / dmf
Polonium 210 MDC	0.6	pCi/L				E912.0	02/09/12 11:18 / dmf
Radium 226	0.2	pCi/L		0.1		E903.0	02/02/12 11:01 / lbb
Radium 226 precision (±)	0.1	pCi/L				E903.0	02/02/12 11:01 / lbb
Radium 226 MDC	0.1	pCi/L				E903.0	02/02/12 11:01 / lbb
Thorium 230	<0.2	pCi/L	U	0.2		E908.0	02/08/12 09:03 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	02/08/12 09:03 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/08/12 09:03 / dmf
RADIONUCLIDES - SUSPENDED							
Lead 210	<0.8	pCi/L	U	0.8		E909.0	02/12/12 05:41 / eli-cs
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/12/12 05:41 / eli-cs
Lead 210 MDC	0.8	pCi/L				E909.0	02/12/12 05:41 / eli-cs
Polonium 210	<0.8	pCi/L	U	0.8		E912.0	02/23/12 13:36 / ep
Polonium 210 precision (±)	0.3	pCi/L				E912.0	02/23/12 13:36 / ep
Polonium 210 MDC	0.8	pCi/L				E912.0	02/23/12 13:36 / ep
Radium 226	<0.1	pCi/L	U	0.1		E903.0	01/31/12 00:50 / trs
Radium 226 precision (±)	0.07	pCi/L				E903.0	01/31/12 00:50 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	01/31/12 00:50 / trs
Thorium 230	0.2	pCi/L		0.1		E908.0	01/27/12 11:52 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E908.0	01/27/12 11:52 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	01/27/12 11:52 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.624	%				Calculation	01/31/12 06:46 / kbh
Anions	4.90	meq/L				Calculation	01/31/12 06:46 / kbh
Cations	4.96	meq/L				Calculation	01/31/12 06:46 / kbh
Solids, Total Dissolved Calculated	338	mg/L				Calculation	01/31/12 06:46 / kbh
TDS Balance (0.80 - 1.20)	0.890					Calculation	01/31/12 06:46 / kbh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-001
ClientSample ID: N1
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 2:25:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	190	mg/L		5	SM 2320B	02/27/2012 1959	MZ
Alkalinity, Bicarbonate as HCO3	232	mg/L		5	SM 2320B	02/27/2012 1959	MZ
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	02/27/2012 1959	MZ
Chloride	4	mg/L		1	EPA 300.0	02/24/2012 1623	AMB
Fluoride	0.6	mg/L		0.1	SM 4500FC	02/27/2012 1959	MZ
Nitrogen, Nitrate-Nitrite (as N)	1.0	mg/L		0.1	EPA 353.2	02/24/2012 1529	MEL
Sulfate	11	mg/L		1	EPA 300.0	02/24/2012 1623	AMB
Calcium	50	mg/L		1	EPA 200.7	02/27/2012 1106	DG
Magnesium	9	mg/L		1	EPA 200.7	02/27/2012 1106	DG
Potassium	8	mg/L		1	EPA 200 7	02/27/2012 1106	DG
Sodium	22	mg/L		1	EPA 200.7	02/27/2012 1106	DG
Nitrogen, Ammonia (As N)	ND	mg/L		0.1	EPA 350.1	02/27/2012 1104	MEL
Silica as SiO2	51	mg/L		1	EPA 200.7	02/27/2012 1106	DG
General Parameters							
pH	7 9	s.u.		0.1	SM 4500 H B	02/27/2012 1959	MZ
Electrical Conductivity	420	µmhos/cm		1	SM 2510B	02/27/2012 1959	MZ
Total Dissolved Solids (180)	290	mg/L		10	SM 2540	02/23/2012 1308	ARF
Total Suspended Solids	31	mg/L		5	SM 2540	02/24/2012 835	ARF
Data Quality							
Cation Sum	4.40	meq/L		0.01	SM 1030E	03/27/2012 1502	WN
Anion Sum	4.26	meq/L		0.01	SM 1030E	03/27/2012 1502	WN
Cation-Anion Balance (± 5%)	1.61	%		0.01	SM 1030E	03/27/2012 1502	WN
Solids, Total Dissolved (Calc)	270	mg/L		10	SM 1030E	03/27/2012 1502	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.07	dec %		0.01	Calculation	03/27/2012 1506	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-001
ClientSample ID: N1
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 2:25:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	02/27/2012 1106	DG
Arsenic	0.005	mg/L		0.001	EPA 200.8	02/24/2012 1844	MS
Barium	0.1	mg/L		0.1	EPA 200.8	02/24/2012 1844	MS
Boron	ND	mg/L		0.1	EPA 200.7	02/27/2012 1106	DG
Cadmium	ND	mg/L		0.005	EPA 200.8	02/24/2012 1844	MS
Chromium	ND	mg/L		0.05	EPA 200.7	02/27/2012 1106	DG
Copper	ND	mg/L		0.1	EPA 200.8	02/24/2012 1844	MS
Iron	0.05	mg/L		0.05	EPA 200.7	02/27/2012 1106	DG
Lead	ND	mg/L		0.05	EPA 200.8	02/24/2012 1844	MS
Manganese	0.01	mg/L		0.01	EPA 200.7	02/27/2012 1106	DG
Mercury	ND	mg/L		0.001	EPA 245.1	02/28/2012 823	BK
Molybdenum	ND	mg/L		0.1	EPA 200.8	02/24/2012 1844	MS
Nickel	ND	mg/L		0.05	EPA 200.7	02/27/2012 1106	DG
Selenium	ND	mg/L		0.001	EPA 200.8	02/24/2012 1844	MS
Uranium	0.0064	mg/L		0.0003	EPA 200.8	02/24/2012 1844	MS
Uranium Activity	4.3	pCi/L		0.2	Calculation	03/27/2012 1506	WN
Vanadium	ND	mg/L		0.02	EPA 200.8	02/24/2012 1844	MS
Zinc	ND	mg/L		0.01	EPA 200.7	02/27/2012 1106	DG
Metals - Suspended							
Uranium	ND	mg/L		0.0003	EPA 200.8	03/15/2012 1721	MS
Uranium Activity	ND	pCi/L		0.2	Calculation	03/27/2012 1506	WN
Radionuclides - Dissolved							
Lead 210	ND	pCi/L		1	OTW01	03/09/2012 1232	SH
Lead 210 Precision (±)	NA	pCi/L			OTW01	03/09/2012 1232	SH
Polonium 210	ND	pCi/L		1	OTW01	03/08/2012 1157	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	03/08/2012 1157	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	03/08/2012 1417	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	03/08/2012 1417	SH
Thorium 230	ND	pCi/L		0.2	ACW10	03/08/2012 910	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	03/08/2012 910	WL
Thorium 229 Tracer	72	%		0.2	ACW10	03/08/2012 910	WL

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-001
ClientSample ID: N1
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 2:25:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Suspended							
Lead 210	ND	pCi/L		1	OTW01	03/09/2012 1533	SH
Lead 210 Precision (±)	NA	pCi/L			OTW01	03/09/2012 1533	SH
Polonium 210	ND	pCi/L		1	OTW01	03/09/2012 1059	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	03/09/2012 1059	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	03/08/2012 1634	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	03/08/2012 1634	SH
Thorium 230	ND	pCi/L		0.2	ACW10	03/08/2012 910	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	03/08/2012 910	WL
Thorium 229 Tracer	81	%		0.2	ACW10	03/08/2012 910	WL

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

*	Value exceeds Maximum Contaminant Level
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by a contract laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL
O	Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-002
ClientSample ID: N2
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 1:55:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Anions/Cations							
Alkalinity, Total (As CaCO3)	179	mg/L		5	SM 2320B	02/27/2012 2008	MZ
Alkalinity, Bicarbonate as HCO3	218	mg/L		5	SM 2320B	02/27/2012 2008	MZ
Alkalinity, Carbonate as CO3	ND	mg/L		5	SM 2320B	02/27/2012 2008	MZ
Chloride	4	mg/L		1	EPA 300.0	02/24/2012 1636	AMB
Fluoride	0.6	mg/L		0.1	SM 4500FC	02/27/2012 2008	MZ
Nitrogen, Nitrate-Nitrite (as N)	1.0	mg/L		0.1	EPA 353.2	02/24/2012 1531	MEL
Sulfate	12	mg/L		1	EPA 300.0	02/24/2012 1636	AMB
Calcium	47	mg/L		1	EPA 200.7	02/27/2012 1108	DG
Magnesium	8	mg/L		1	EPA 200.7	02/27/2012 1108	DG
Potassium	7	mg/L		1	EPA 200.7	02/27/2012 1108	DG
Sodium	21	mg/L		1	EPA 200.7	02/27/2012 1108	DG
Nitrogen, Ammonia (As N)	ND	mg/L		0.1	EPA 350.1	02/27/2012 1105	MEL
Silica as SiO2	49	mg/L		1	EPA 200.7	02/27/2012 1108	DG
General Parameters							
pH	7.9	s.u		0.1	SM 4500 H B	02/27/2012 2008	MZ
Electrical Conductivity	398	µmhos/cm		1	SM 2510B	02/27/2012 2008	MZ
Total Dissolved Solids (180)	270	mg/L		10	SM 2540	02/23/2012 1309	ARF
Total Suspended Solids	11	mg/L		5	SM 2540	02/24/2012 836	ARF
Data Quality							
Cation Sum	4.11	meq/L		0.01	SM 1030E	03/27/2012 1502	WN
Anion Sum	4.03	meq/L		0.01	SM 1030E	03/27/2012 1502	WN
Cation-Anion Balance (± 5%)	1 03	%		0 01	SM 1030E	03/27/2012 1502	WN
Solids, Total Dissolved (Calc)	260	mg/L		10	SM 1030E	03/27/2012 1502	WN
Calculated TDS/TDS Ratio (0.80-1.20)	1.04	dec. %		0.01	Calculation	03/27/2012 1506	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-002
ClientSample ID: N2
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 1:55:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Aluminum	ND	mg/L		0.1	EPA 200.7	02/27/2012 1108	DG
Arsenic	0.005	mg/L		0.001	EPA 200.8	02/24/2012 1849	MS
Barium	ND	mg/L		0.1	EPA 200.8	02/24/2012 1849	MS
Boron	ND	mg/L		0.1	EPA 200.7	02/27/2012 1108	DG
Cadmium	ND	mg/L		0.005	EPA 200.8	02/24/2012 1849	MS
Chromium	ND	mg/L		0.05	EPA 200.7	02/27/2012 1108	DG
Copper	ND	mg/L		0.1	EPA 200.8	02/24/2012 1849	MS
Iron	ND	mg/L		0.05	EPA 200.7	02/27/2012 1108	DG
Lead	ND	mg/L		0.05	EPA 200.8	02/24/2012 1849	MS
Manganese	0.01	mg/L		0.01	EPA 200.7	02/27/2012 1108	DG
Mercury	ND	mg/L		0.001	EPA 245.1	02/28/2012 825	BK
Molybdenum	ND	mg/L		0.1	EPA 200.8	02/24/2012 1849	MS
Nickel	ND	mg/L		0.05	EPA 200.7	02/27/2012 1108	DG
Selenium	ND	mg/L		0.001	EPA 200.8	02/24/2012 1849	MS
Uranium	0.0068	mg/L		0.0003	EPA 200.8	02/24/2012 1849	MS
Uranium Activity	4.6	pCi/L		0.2	Calculation	03/27/2012 1506	WN
Vanadium	ND	mg/L		0.02	EPA 200.8	02/24/2012 1849	MS
Zinc	ND	mg/L		0.01	EPA 200.7	02/27/2012 1108	DG
Metals - Suspended							
Uranium	ND	mg/L		0.0003	EPA 200.8	03/15/2012 1741	MS
Uranium Activity	ND	pCi/L		0.2	Calculation	03/27/2012 1506	WN
Radionuclides - Dissolved							
Lead 210	50.0	pCi/L		1	OTW01	03/09/2012 1232	SH
Lead 210 Precision (±)	2.2	pCi/L			OTW01	03/09/2012 1232	SH
Polonium 210	ND	pCi/L		1	OTW01	03/08/2012 1157	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	03/08/2012 1157	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	03/08/2012 1417	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	03/08/2012 1417	SH
Thorium 230	ND	pCi/L		0.2	ACW10	03/08/2012 910	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	03/08/2012 910	WL
Thorium 229 Tracer	75	%		0.2	ACW10	03/08/2012 910	WL

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 3/26/2012
Report ID: S1202325001

ProjectName: Marsland Stream Sampling
Lab ID: S1202325-002
ClientSample ID: N2
COC:

WorkOrder: S1202325
CollectionDate: 2/21/2012 1:55:00 PM
DateReceived: 2/23/2012 12:29:00 PM
FieldSampler: WN
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Suspended							
Lead 210	ND	pCi/L		1	OTW01	03/09/2012 1533	SH
Lead 210 Precision (±)	NA	pCi/L			OTW01	03/09/2012 1533	SH
Polonium 210	ND	pCi/L		1	OTW01	03/09/2012 1059	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	03/09/2012 1059	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	03/08/2012 1634	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	03/08/2012 1634	SH
Thorium 230	ND	pCi/L		0.2	ACW10	03/08/2012 910	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	03/08/2012 910	WL
Thorium 229 Tracer	79	%		0.2	ACW10	03/08/2012 910	WL

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

*	Value exceeds Maximum Contaminant Level
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by a contract laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL
O	Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Appendix W-2

Niobrara River and Ephemeral
Drainages Sediment Laboratory
Records

Inter-Mountain Labs

Your Environmental Monitoring Partner

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 4/20/2012
Report ID: S1203311001

ProjectName: Marsland Stream Sampling
Lab ID: S1203311-001
ClientSample ID: N1
COC:

WorkOrder: S1203311
CollectionDate: 3/19/2012 1:15:00 PM
DateReceived: 3/21/2012 11:20:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Uranium	0.0065	mg/L		0.0003	EPA 200.8	04/20/2012 2014	MS
Uranium Activity	4.4	pCi/L		0.2	Calculation	04/24/2012 850	WN
Metals - Suspended							
Uranium	ND	mg/L		0.0003	EPA 200.8	03/23/2012 1908	MS
Uranium Activity	ND	pCi/L		0.2	Calculation	04/24/2012 850	WN
Radionuclides - Dissolved							
Lead 210	1.7	pCi/L		1	OTW01	04/11/2012 1345	SH
Lead 210 Precision (±)	0.6	pCi/L			OTW01	04/11/2012 1345	SH
Polonium 210	ND	pCi/L		1	OTW01	04/10/2012 1332	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	04/10/2012 1332	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	04/03/2012 1202	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	04/03/2012 1202	SH
Thorium 230	ND	pCi/L		0.2	ACW10	04/04/2012 836	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	04/04/2012 836	WL
Radionuclides - Suspended							
Lead 210	ND	pCi/L		1	OTW01	04/11/2012 1345	SH
Lead 210 Precision (±)	NA	pCi/L			OTW01	04/11/2012 1345	SH
Polonium 210	ND	pCi/L		1	OTW01	04/10/2012 1332	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	04/10/2012 1332	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	04/02/2012 1621	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	04/02/2012 1621	SH
Thorium 230	ND	pCi/L		0.2	ACW10	04/04/2012 836	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	04/04/2012 836	WL

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: Cameco Resources, Crow Butte Operation
PO Box 169
Crawford, NE 69339

Date Reported 4/20/2012
Report ID: S1203311001

ProjectName: Marsland Stream Sampling
Lab ID: S1203311-002
ClientSample ID: N2
COC:

WorkOrder: S1203311
CollectionDate: 3/19/2012
DateReceived: 3/21/2012 11:20:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Metals - Dissolved							
Uranium	0.0072	mg/L		0.0003	EPA 200.8	04/20/2012 2019	MS
Uranium Activity	4.9	pCi/L		0.2	Calculation	04/24/2012 850	WN
Metals - Suspended							
Uranium	ND	mg/L		0.0003	EPA 200.8	03/23/2012 1927	MS
Uranium Activity	ND	pCi/L		0.2	Calculation	04/24/2012 850	WN
Radionuclides - Dissolved							
Lead 210	ND	pCi/L		1	OTW01	04/11/2012 1345	SH
Lead 210 Precision (±)	NA	pCi/L			OTW01	04/11/2012 1345	SH
Polonium 210	ND	pCi/L		1	OTW01	04/10/2012 1332	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	04/10/2012 1332	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	04/03/2012 1422	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	04/03/2012 1422	SH
Thorium 230	ND	pCi/L		0.2	ACW10	04/04/2012 836	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	04/04/2012 836	WL
Radionuclides - Suspended							
Lead 210	2.1	pCi/L		1	OTW01	04/11/2012 1345	SH
Lead 210 Precision (±)	0.5	pCi/L			OTW01	04/11/2012 1345	SH
Polonium 210	ND	pCi/L		1	OTW01	04/10/2012 1332	SH
Polonium 210 Precision (±)	NA	pCi/L			OTW01	04/10/2012 1332	SH
Radium 226	ND	pCi/L		0.2	SM 7500-Ra B	04/02/2012 1621	SH
Radium 226 Precision (±)	NA	pCi/L			SM 7500-Ra B	04/02/2012 1621	SH
Thorium 230	ND	pCi/L		0.2	ACW10	04/05/2012 1427	WL
Thorium 230 Precision (±)	NA	pCi/L			ACW10	04/05/2012 1427	WL

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Appendix W-2

Niobrara River and Ephemeral Drainage Sediment Laboratory Records

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-007
Client Sample ID N1

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.4	mg/kg-dry		0.3		SW6020	05/03/13 12:33 / cp
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	05/03/13 12:33 / cp
RADIONUCLIDES							
Lead 210	0.3	pCi/g-dry		0.2		E909.0	05/05/13 04:53 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 04:53 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/05/13 04:53 / eli-cs
Radium 226	0.4	pCi/g-dry		0.04		E903.0	05/07/13 19:18 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-008
Client Sample ID N2

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.7	mg/kg-dry		0.3		SW6020	05/03/13 12:38 / cp
Uranium, Activity	0.4	pCi/g-dry		0.2		SW6020	05/03/13 12:38 / cp
RADIONUCLIDES							
Lead 210	0.4	pCi/g-dry		0.1		E909.0	05/05/13 06:02 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 06:02 / eli-cs
Lead 210 MDC	0.1	pCi/g-dry				E909.0	05/05/13 06:02 / eli-cs
Radium 226	0.4	pCi/g-dry		0.04		E903.0	05/07/13 19:18 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-005
Client Sample ID: Manning 2 MED-1

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.5	mg/kg-dry		0.3		SW6020	01/03/12 21:52 / sml
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	01/03/12 21:52 / sml
RADIONUCLIDES - TOTAL							
Lead 210	0.2	pCi/g-dry		0.2		E909.0	01/09/12 00:36 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/09/12 00:36 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/09/12 00:36 / eli-cs
Radium 226	0.3	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.04	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	0.4	pCi/g-dry		0.1		E908.0	01/10/12 08:44 / dmf
Thorium 230 precision (±)	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf
Thorium 230 MDC	0.1	pCi/g-dry				E908.0	01/10/12 08:44 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-003
Client Sample ID: Cut Across MED-2

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.5	mg/kg-dry		0.3		SW6020	01/03/12 21:48 / sml
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	01/03/12 21:48 / sml
RADIONUCLIDES - TOTAL							
Lead 210	0.7	pCi/g-dry		0.2		E909.0	01/08/12 20:06 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/08/12 20:06 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/08/12 20:06 / eli-cs
Radium 226	0.4	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.04	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	<0.2	pCi/g-dry	U	0.2		E908.0	01/10/12 08:44 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	01/10/12 08:44 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-004
Client Sample ID: Ferman MED-3

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.5	mg/kg-dry		0.3		SW6020	01/03/12 21:50 / sml
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	01/03/12 21:50 / sml
RADIONUCLIDES - TOTAL							
Lead 210	0.6	pCi/g-dry		0.2		E909.0	01/08/12 22:21 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/08/12 22:21 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/08/12 22:21 / eli-cs
Radium 226	0.4	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.04	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	01/10/12 08:44 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	01/10/12 08:44 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-002
Client Sample ID: Manning MED-4

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	1.0	mg/kg-dry		0.3		SW6020	01/03/12 21:46 / sml
Uranium, Activity	0.7	pCi/g-dry		0.2		SW6020	01/03/12 21:46 / sml
RADIONUCLIDES - TOTAL							
Lead 210	1.3	pCi/g-dry		0.2		E909.0	01/08/12 17:51 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/08/12 17:51 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/08/12 17:51 / eli-cs
Radium 226	0.8	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	0.5	pCi/g-dry		0.2		E908.0	01/10/12 08:44 / dmf
Thorium 230 precision (±)	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-007
Client Sample ID: Walter Winset MED-5

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.9	mg/kg-dry		0.3		SW6020	01/03/12 21:56 / sml
Uranium, Activity	0.6	pCi/g-dry		0.2		SW6020	01/03/12 21:56 / sml
RADIONUCLIDES - TOTAL							
Lead 210	1.5	pCi/g-dry		0.2		E909.0	01/09/12 05:05 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/09/12 05:05 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/09/12 05:05 / eli-cs
Radium 226	0.8	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	0.3	pCi/g-dry		0.2		E908.0	01/10/12 12:53 / dmf
Thorium 230 precision (±)	0.2	pCi/g-dry				E908.0	01/10/12 12:53 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	01/10/12 12:53 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Baseline Sediment
Lab ID: C11120683-001
Client Sample ID: Pattic MED-6

Report Date: 01/20/12
Collection Date: 12/02/11
DateReceived: 12/20/11
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.6	mg/kg-dry		0.3		SW6020	01/03/12 21:45 / sml
Uranium, Activity	0.4	pCi/g-dry		0.2		SW6020	01/03/12 21:45 / sml
RADIONUCLIDES - TOTAL							
Lead 210	1.3	pCi/g-dry		0.2		E909.0	01/08/12 15:36 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	01/08/12 15:36 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	01/08/12 15:36 / eli-cs
Radium 226	0.6	pCi/g-dry		0.02		E903.0	01/04/12 15:17 / trs
Radium 226 precision (±)	0.05	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	01/04/12 15:17 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	01/10/12 08:44 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	01/10/12 08:44 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	01/10/12 08:44 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-001
Client Sample ID MED-1

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg-dry		0.3		SW6020	05/03/13 11:45 / cp
Uranium, Activity	ND	pCi/g-dry		0.2		SW6020	05/03/13 11:45 / cp
RADIONUCLIDES							
Lead 210	<0.2	pCi/g-dry	U	0.2		E909.0	05/04/13 21:57 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/04/13 21:57 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/04/13 21:57 / eli-cs
Radium 226	0.2	pCi/g-dry		0.04		E903.0	05/07/13 17:47 / trs
Radium 226 precision (±)	0.05	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Thorium 230	<0.1	pCi/g-dry	U	0.1		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-002
Client Sample ID MED-2

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.4	mg/kg-dry		0.3		SW6020	05/03/13 11:54 / cp
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	05/03/13 11:54 / cp
RADIONUCLIDES							
Lead 210	0.4	pCi/g-dry		0.2		E909.0	05/04/13 23:07 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/04/13 23:07 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/04/13 23:07 / eli-cs
Radium 226	0.4	pCi/g-dry		0.04		E903.0	05/07/13 17:47 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-003
Client Sample ID MED-3

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg-dry		0.3		SW6020	05/03/13 11:59 / cp
Uranium, Activity	ND	pCi/g-dry		0.2		SW6020	05/03/13 11:59 / cp
RADIONUCLIDES							
Lead 210	0.3	pCi/g-dry		0.2		E909.0	05/05/13 00:16 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 00:16 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/05/13 00:16 / eli-cs
Radium 226	0.3	pCi/g-dry		0.04		E903.0	05/07/13 17:47 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-004
Client Sample ID MED-4

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.7	mg/kg-dry		0.3		SW6020	05/03/13 12:03 / cp
Uranium, Activity	0.5	pCi/g-dry		0.2		SW6020	05/03/13 12:03 / cp
RADIONUCLIDES							
Lead 210	0.9	pCi/g-dry		0.2		E909.0	05/05/13 01:25 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 01:25 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/05/13 01:25 / eli-cs
Radium 226	0.7	pCi/g-dry		0.04		E903.0	05/07/13 17:47 / trs
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Thorium 230	0.3	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-005
Client Sample ID MED-5

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.5	mg/kg-dry		0.3		SW6020	05/03/13 12:25 / cp
Uranium, Activity	0.3	pCi/g-dry		0.2		SW6020	05/03/13 12:25 / cp
RADIONUCLIDES							
Lead 210	0.9	pCi/g-dry		0.2		E909.0	05/05/13 02:34 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 02:34 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/05/13 02:34 / eli-cs
Radium 226	0.5	pCi/g-dry		0.04		E903.0	05/07/13 17:47 / trs
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 17:47 / trs
Thorium 230	0.2	pCi/g-dry		0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.1	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013
Lab ID: C13040835-006
Client Sample ID MED-6

Report Date: 05/10/13
Collection Date: 03/20/13
DateReceived: 04/26/13
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg-dry		0.3		SW6020	05/03/13 12:29 / cp
Uranium, Activity	ND	pCi/g-dry		0.2		SW6020	05/03/13 12:29 / cp
RADIONUCLIDES							
Lead 210	0.4	pCi/g-dry		0.2		E909.0	05/05/13 03:44 / eli-cs
Lead 210 precision (±)	0.1	pCi/g-dry				E909.0	05/05/13 03:44 / eli-cs
Lead 210 MDC	0.2	pCi/g-dry				E909.0	05/05/13 03:44 / eli-cs
Radium 226	0.3	pCi/g-dry		0.04		E903.0	05/07/13 19:18 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Radium 226 MDC	0.04	pCi/g-dry				E903.0	05/07/13 19:18 / trs
Thorium 230	<0.2	pCi/g-dry	U	0.2		E908.0	05/06/13 09:16 / dmf
Thorium 230 precision (±)	0.07	pCi/g-dry				E908.0	05/06/13 09:16 / dmf
Thorium 230 MDC	0.2	pCi/g-dry				E908.0	05/06/13 09:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013

Report Date: 05/10/13
Work Order: C13040835

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: R173294
Sample ID: LCS-37303		Laboratory Control Sample				Run: BERTHOLD 770-2_130501C				05/07/13 17:47
Radium 226		21	pCi/L		100	80	120			
Sample ID: MB-37303	3	Method Blank				Run: BERTHOLD 770-2_130501C				05/07/13 17:47
Radium 226		0.01	pCi/L							U
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.4	pCi/L							
Sample ID: C13040835-008AMS		Sample Matrix Spike				Run: BERTHOLD 770-2_130501C				05/07/13 19:18
Radium 226		2.7	pCi/g-dry		90	70	130			
Sample ID: C13040835-008AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_130501C				05/07/13 19:18
Radium 226		2.8	pCi/g-dry		88	70	130	0.5	21.5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013

Report Date: 05/10/13
Work Order: C13040835

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 37304
Sample ID: C13040835-008AMS		Sample Matrix Spike				Run: ALPHANALYST_130501A				05/06/13 09:16
Thorium 230		11.8	pCi/g-dry		100	70	130			
Sample ID: C13040835-008AMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130501A				05/06/13 09:16
Thorium 230		13.1	pCi/g-dry		107	70	130	9.6	43.6	
Sample ID: LCS-37304		Laboratory Control Sample				Run: ALPHANALYST_130501A				05/06/13 09:16
Thorium 230		5.8	pCi/g-dry		99	80	120			
Sample ID: MB-37304	3	Method Blank				Run: ALPHANALYST_130501A				05/06/13 09:16
Thorium 230		0.02	pCi/g-dry							U
Thorium 230 precision (±)		0.02	pCi/g-dry							
Thorium 230 MDC		0.03	pCi/g-dry							

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013

Report Date: 05/10/13
Work Order: C13040835

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_18543
Sample ID: LCS-18543		Laboratory Control Sample				Run: SUB-T50665				05/04/13 19:39
Lead 210		3.4	pCi/g-dry		95	70	130			
Sample ID: MB-18543	3	Method Blank				Run: SUB-T50665				05/04/13 20:48
Lead 210		0.08	pCi/g-dry							U
Lead 210 precision (±)		0.09	pCi/g-dry							
Lead 210 MDC		0.2	pCi/g-dry							
Sample ID: C13040835-008AMS		Sample Matrix Spike				Run: SUB-T50665				05/05/13 07:12
Lead 210		3.6	pCi/g-dry		96	70	130			
Sample ID: C13040835-008AMSD		Sample Matrix Spike Duplicate				Run: SUB-T50665				05/05/13 08:21
Lead 210		3.6	pCi/g-dry		93	70	130	0.2	20.3	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Crow Butte Resources
Project: Marsland Sediment Samples 2013

Report Date: 05/10/13
Work Order: C13040835

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS4-C_130502A	
Sample ID: ICV		Initial Calibration Verification Standard							05/02/13 13:36	
Uranium		0.0501	mg/L	0.00030	100	90	110			
Sample ID: ICSA		Interference Check Sample A							05/02/13 13:40	
Uranium		7.67E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB							05/02/13 13:45	
Uranium		1.99E-05	mg/L	0.00030						
Method: SW6020									Batch: 37304	
Sample ID: MB-37304		Method Blank				Run: ICPMS4-C_130502A			05/03/13 11:32	
Uranium		0.05	mg/kg	0.001						
Sample ID: LCS2-37304		Laboratory Control Sample				Run: ICPMS4-C_130502A			05/03/13 11:36	
Uranium		0.93	mg/kg	1.0	89	75	125			
Sample ID: C13040835-001ADIL		Serial Dilution				Run: ICPMS4-C_130502A			05/03/13 11:50	
Uranium		0.15	mg/kg-dry	1.0					10	N
Sample ID: C13040835-008AMS		Sample Matrix Spike				Run: ICPMS4-C_130502A			05/03/13 12:42	
Uranium		7.1	mg/kg-dry	1.0	104	75	125			
Sample ID: C13040835-008AMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_130502A			05/03/13 12:46	
Uranium		7.3	mg/kg-dry	1.0	106	75	125	1.7	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Crow Butte Resources C13040835

Login completed by: Kerri Schroeder
Date Received: 4/26/2013
Reviewed by: BL2000\cwagner
Received by: th
Reviewed Date: 4/30/2013
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☐	Not Applicable ☑
Container/Temp Blank temperature:	16.4°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. Marsland Sediment Samples 2013	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: Please report on individual sheets, Please report all values in pCi/g. To be analyzed as per Reg. Guide 4.14

Shipped by: Hand
Cooler ID(s): Various
Receipt Temp 16.4 °C
On Ice: Yes (No)
Custody Seal Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	U, Ra226, Pb210, Th230									SEE ATTACHED	Normal Turnaround (TAT)	RUSH	
1	MED-1	3/20/13		Sediment	X												Please report 10/20/12
2	MED-2	3/20/13		Sediment	X												Please report 10/20/12
3	MED-3	3/20/13		Sediment	x												Please report 10/20/12
4	MED-4	3/20/13		Sediment	X												Please report 10/20/12
5	MED-5	3/20/13		Sediment	x												Please report 10/20/12
6	MED-6	3/20/13		Sediment	X												Please report 10/20/12
7	N1	3/20/13		Sediment	X												Please report 10/20/12
8	N2	3/20/13		Sediment	X												Please report 10/20/12
9		3/20/13															Please report 10/20/12
10																	1304 0835

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Rhonda Pelton	4-26-13 852	Rhonda Pelton			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time: 4-26-13/852	Signature:

Sample Disposal: Return to Client: No Lab Disposal: YES

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.