APPENDIX 4.14-C

RADIUM BENCHMARK DOSE ASSESSMENT

POWERTECH (USA) INC.

Radium Benchmark Dose Assessment

For

Dewey-Burdock Uranium In-situ Recovery Facility

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Radium Benchmark Dose Assessment

1.0 Introduction

On April 12, 1999, the U.S. Nuclear Regulatory Commission (NRC) issued a Final Rule (64 FR 17506) that requires the use of the existing soil radium standard to derive a dose criterion for the cleanup of byproduct material. The amendment to Criterion 6(6) of 10 CFR Part 40, Appendix A was effective on June 11, 1999. This "benchmark approach" requires that NRC licensees model the site-specific dose from the existing radium standard and then use that dose to determine the allowable quantity of other radionuclides that would result in a similar dose to the average member of the critical group. These determinations must then be submitted to NRC with the site reclamation plan or included in license applications. This report documents the modeling and assumptions made by Powertech USA (Powertech) to derive a standard for U-nat in soil for the proposed Dewey Burdock in-situ uranium recovery (DBISR) facility.

Concurrent with publication of the Final Rule, NRC published draft guidance (64 FR 17690) for performing the benchmark dose modeling required to implement the final rule. Final guidance (NRC, 2003) was published as Appendix E to the Standard Review Plan for In Situ Leach License Applications (NUREG-1569). This guidance discusses acceptable models and input parameters. This guidance, guidance from the RESRAD Users Manual (ANL, 2001), the Data Collection Handbook (ANL, 1993) and site-specific parameters were used in the modeling as discussed in the following sections.

2.0 Determination of Radium Benchmark Dose

RESRAD Version 6.4 computer code (RESRAD) was used to model the DBISR site and calculate the maximum annual dose rate from the current radium cleanup standard.

The following supporting documentation for determination of the radium benchmark dose and the natural uranium soil standard (explained in Section 3.0) is attached:

- The RESRAD Data Input Basis (Attachment 1) provides a summary of the modeling performed with RESRAD and the values that were used for the input parameters. A sensitivity analysis was performed for parameters which are important to the major component dose pathways and for which no site specific data was available.
- Selected graphs produced with RESRAD that present the results of the sensitivity analysis performed on the input parameters are attached (Attachment 2).
- A full printout of the final RESRAD modeling results for the resident farmer scenario with the chosen input values is attached (Attachments 3.0 and 3.1). The printout provides the modeled maximum annual dose for calculated times for the 1,000-year time span and provides a breakdown of the fraction of dose due to each pathway.
- Graphs produced with RESRAD that present the modeling results for the maximum dose during the 1,000 year time span for radium-226, natural uranium, and the land application. A series of graphs depicting the summed dose for all pathways and the component pathways that contributes to the total dose are attached (Attachments 4.0 and 4.1).

The maximum dose from Ra-226 contaminated soil at the 5 pCi/g above background cleanup standard, as determined by RESRAD, for the residential farmer scenario was 38.1 mrem/yr. This dose was based upon the 5 pCi/g surface (0 to 6-inch) Ra-226 standard and was noted at time, t = 0 years. The two major dose pathways were external exposure and plant ingestion (water independent). For these two pathways, a sensitivity analysis was performed for important parameters for which no site specific information was available. The 38.1 mrem/yr dose from radium is the level at which the natural uranium radiological end point soil standard will be based as described in the following section.

3.0 Determination of Natural Uranium Soil Standard

RESRAD was used to determine the concentration of natural uranium (U-nat) in soil distinguishable from background that would result in a maximum dose of 38.1mrem/yr. The method involved modeling the dose from a set concentration of U-nat in soil. This dose was then compared to the radium benchmark dose and scaled to arrive at the maximum allowable U-nat concentration in soil.

For ease of calculations, a preset concentration of 100 pCi/g U-nat was used for modeling the dose. The fractions used were 49.2 percent (or pCi/g) U-234, 48.6 percent (or pCi/g) U-238 and 2.2 percent (or pCi/g) U-235. The distribution coefficients that were selected for each radionuclide were RESRAD default values. A sensitivity analysis was performed using a range of distribution coefficients to evaluate potential effects of not using site specific data. All other input parameters were the same as those used in the Ra-226 benchmark modeling.

Using a U-nat concentration in soil of 100 pCi/g, RESRAD determined a maximum dose of 7.1 mrem/yr. at time, t = 0 years. The printout of the RESRAD data summary is provided in Attachment 3.1 and the dose figures generated with RESRAD are provided in Attachment 4.1.

To determine the uranium soil standard, the following formula was used:

$$\text{Uranium Limit} = \left(\frac{100 \text{ pCi/g U - nat}}{7.1 \text{ mrem/yr U - nat dose}} \right) \text{x } 38.1 \text{ mrem/yr radium benchmark dose}$$

$$\text{Uranium Limit} = 537 \text{ pCi/g U - nat}$$

The U-nat limit is applied to soil cleanup with the Ra-226 limit using the unity rule. To determine whether an area exceeds the cleanup standards, the standards are applied according to the following formula:

$$\left(\frac{\text{Soil Uranium Concentration}}{\text{Soil Uranium Limit}}\right)+\left(\frac{\text{Soil Radium Concentration}}{\text{Soil Radium Limit}}\right)<1$$

This approach will be used at the DBISR site to determine the radiological impact on the environment from releases of source and byproduct materials.

3.1 Uranium Chemical Toxicity Assessment

The chemical toxicity effects from uranium exposure are evaluated by assuming the same exposure scenario as that used for the radiation dose assessment. In the benchmark dose assessment for the resident farmer scenario, it was assumed that the diet consisted of 25 percent of the meat, fruits, and vegetables grown at the site. No intake of contaminated food through the aquatic or milk pathways was considered probable since it is unlikely the Dewey-Burdock area could support this activity with local vegetation. Also, the model showed that the contamination would not affect the groundwater quality. Therefore, the same model will be used in assessing the chemical toxicity. The intake from eating meat was shown to be negligible compared to the plant pathway and therefore is not shown here. This is confirmed by the results of the RESRAD calculations shown in Attachment 3.1 and the figures generated with RESRAD shown in Attachment 4.1.

The method and parameters for estimating the human intake of uranium from ingestion are taken from NUREG/CR-5512 Vol. 1 (NRC, 1992). The uptake of uranium in food is a product of the uranium concentration in soil and the soil-to-plant conversion factor. The annual intake in humans is then calculated by multiplying the annual consumption by the uranium concentration in the food. Since the soil-plant conversion factor is based on a dry weight, the annual consumption must be adjusted to a dry-weight basis by multiplying by the dry-weight to wet-weight ratio. Parameters for these calculations are given in Section 6.5.9 of the NUREG/CR-5512 Vol. 1 (NRC, 1992). Table 3-1 provides the parameters used in these calculation and results for leafy vegetables, other vegetables, and fruit. Annual intakes of 14 kg/year and 97 kg/year were assumed for leafy vegetables

and other vegetables and fruit, respectively. Consistent with Attachment 3.1 dose calculations, it was assumed that 25 percent of the food was grown on the site. It was also assumed that the uranium concentration in the garden or orchard was 537 pCi/g. This corresponds to the uranium Benchmark Concentration for surface soils. Using a conversion factor for U-nat of 1 mg = 677 pCi, then 537 pCi/g is equivalent to 793 mg/kg. The human intake shown in the first column of Table 3-1 is equal to the product of the parameters given in the subsequent columns. Table 3-1 shows that the total annual uranium intake from all food sources from the site is 46 mg/yr.

The two-compartment model of uranium toxicity in the kidney from oral ingestion was used (ICRP, 1995) to predict the burden of uranium in the kidney following chronic uranium ingestion. This model allows for the distribution of the two forms of uranium in the blood, and consists of a kidney with two compartments, as well as several other compartments for uranium distribution, storage and elimination including the skeleton, liver, red blood cells (macrophages) and other soft tissues.

Table 3-1 Annual Intake of Uranium from Ingestion

Human Intake (mg/yr)	Soil Concentration (mg/kg)	Soil to Plant Ratio (mg/kg plant to mg/kg soil)	Annual Consumption (kg)	Dry Weight Wet Weight Ratio	Food Source
9.4	793	1.7E-2	3.5	0.2	Leafy Vegetables
36.1	793	1.4E-2	13	0.25	Other Vegetables
6.9	793	4.0E-3	12	0.18	Fruit
52.4					Total

The total burden to the kidney is the sum of the two compartments. The mathematical representation for the kidney burden of uranium at steady state can be derived as follows (ICRP, 1995):

$$Q_P = \frac{IR \times f_1}{\lambda_P \left(1 - f_{ps} - f_{pr} - f_{pl} - f_{pk} - f_{pk1}\right)}$$

Where:

Q_P = uranium burden in the plasma, μg

IR = dietary consumption rate, mg U/d

f_1 = fractional transfer of uranium from GI tract to blood, unit less

f_{ps} = fractional transfer of uranium from plasma to skeleton, unit less

f_{pr} = fractional transfer of uranium from plasma to red blood cells, unit less

f_{pl} = fractional transfer of uranium from plasma to liver, unit less

f_{pt} = fractional transfer of uranium from plasma to soft tissue, unit less

f_{pk1} = fractional transfer of uranium from plasma to kidney, compartment 1, unit less

λ_p = biological retention constant in the plasma, d^{-1}

The burden in kidney compartment 1 is:

$$Q_{k1} = \lambda_P \times Q_P \times \frac{f_{pk1}}{\lambda_{k1}}$$

Where:

Q_{k1} = uranium burden in kidney compartment 1, mg

λ_{k1} = biological retention constant of uranium in kidney compartment 1, d^{-1}

Similarly, for compartment 2 in the kidney, the burden is:

$$Q_{k2} = \lambda_P \times Q_P \times \frac{f_{pk2}}{\lambda_{k2}}$$

Where:

Q_{k2} = uranium burden in kidney compartment 2, μg;

λ_{k2} = biological retention constant of uranium in kidney compartment 2, d^{-1};

f_{pk2} = fractional transfer of uranium from plasma to kidney compartment 2, unit less.

The total burden to the kidney is then the sum of the two compartments is:

$$Q_{k1} + Q_{k2} = \frac{IR \times f_1}{\left(1 - f_{ps} - f_{pr} - f_{pl} - f_{pt} - f_{pk1}\right)} \times \left(\frac{f_{pk1}}{\lambda_{k1}} + \frac{f_{pk2}}{\lambda_{k2}}\right)$$

The parameter input values for the two-compartment kidney model include the daily intake of uranium estimated for residents at this site, and the ICRP69 values recommended by the ICRP as listed below (ICRP, 1995). The daily uranium intake rate was estimated to be 0.14 mg/day (52.4 mg/year) from ingestion while residing at this site.

IR = 0.14 mg/day
f_1 = 0.02
f_{ps} = 0.105
f_{pr} = 0.007
f_{pl} = 0.0105
f_{pt} = 0.347
f_{pk1} = 0.00035
f_{pk2} = 0.084
λ_{k1} = ln(2)/(5 yrs*365 days/yr)
λ_{k2} = ln(2)/7 days
where ln(2) = 0.693…

Given a daily uranium intake of 0.14 mg/day at this site and the above equation, the calculated uranium in the kidneys is 0.0093 mg U, or a concentration of 0.032 μg U/g kidney. This is 3.2 percent of the 1.0 μg U/g value that has generally been understood to protect the kidney from the toxic effects of uranium. Some researchers have suggested that mild effects may be observable at levels as low as 0.1 μg U/g of kidney tissue.

Using 0.1 μg U/g as a criterion, then the intake is 32 percent of the level where mild effects may be observable.

The EPA evaluated the chemical toxicity data and found that mild proteinuria has been observed at drinking water levels between 20 and 100 μg/liter. Assuming water intake of 2 liters/day, this corresponds to an intake of 0.04 to 0.2 mg/day. Using animal data and a conservative factor of 100, the EPA arrived at a 30 μg/liter limit for use as a National Primary Drinking Water Standard (Federal Register/Vol.65, No.236/ December 7, 2000). This is equivalent to an intake of 0.06 mg/day for the average individual. Naturally, since large diverse populations are potentially exposed to drinking water sources regulated using these standards, the EPA is very conservative in developing limits.

This analysis indicates that a soil limit of 537 pCi/g of U-nat would result in an intake of approximately 0.14 mg/day. Using the most conservative daily limit corresponding to the National Primary Drinking Water standard, a soil limit of 230 pCi/g corresponds to the EPA intake limit from drinking water with a uranium concentration of 0.06 mg/day. Therefore exposure to soils containing 230 pCi/g of natural uranium should not result in chemical toxicity effects. Since the roots of a fruit tree would penetrate to a considerable depth, limiting subsurface uranium concentrations to 230 pCi/g will be considered appropriate as well.

4.0 References

ANL, 1993, "Data Collection Handbook to Support Modeling the Impacts of Radioactive Material in Soil", Environmental Assessment Division, Argonne National Laboratory, ANL/EAIS-8, Argonne, Illinois.

ICRP, 1995, *ICRP Publication 69 - Age-dependent Doses to Members of the Public from Intake of Radionuclides: Part 3 Ingestion Dose Coefficients*, International Commission on Radiation Protection, Tarrytown, New York.

NRC, 1992, *"Residual Radioactive Contamination from Decommissioning,"* U.S. Nuclear Regulatory Commission, NUREG/CRR-5512 (PNL-7994) Vol. 1, Washington, DC.

NRC, 2003, "Standard Review Plan for In situ Leach Uranium Extraction License Applications", Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U. S. Nuclear Regulatory Commission, NUREG-1569, Washington, DC.

NRCS, 2007, "2003 Annual National Resources Inventory", Natural Resources Conservation Service, U.S. Department of Agriculture, Washington, DC.

TVA, *Environmental Impact Statement – Edgemont Uranium Mine*, Tennessee Valley Authority, Knoxville, Tennessee.

USGS, 2004, *Estimated Use of Water in the United States in 2000*, U.S. Geological Survey, U.S. Department of the Interior, USGS Circular 1268, Reston, Virginia.

Attachment 1

RESRAD Data Input Basis Parameters

RESRAD Data Input Basis

Parameters

This document summarizes the data input and modeling scenario that was used to determine the radium benchmark dose for the DBISR Project. The modeling was performed using RESRAD for Windows Version 6.4 developed by the Environmental Assessment Division at Argonne National Laboratory.

The resident farmer scenario was used since this is the most likely land use near the site. The following sections describe the data parameters that were used to model site-specific conditions.

The data input was based upon four principal sources:

1. The Data Collection Handbook to Support Modeling Impacts of Radioactive Material in Soil (Data Collection Handbook) (ANL, 1993)

2. The NUREG-1569 (NRC, 2003)

3. Site specific information to be included in the DBISR license application

4. The Natural Resources Conservation Service (NRCS) 2003 Annual Natural Resources Inventory, State Report (NRCS, 2007)

5. The Tennessee Valley Authority (TVA) Environmental Impact Statement – Edgemont Uranium Mine (EIS)

6. The US Geological Survey (USGS) Circular 1268 (USGS, 2004)

Soil Concentration

1. Lead-210: Used 5.0 pCi/g per the NUREG-1569 (NRC, 2003).

No sensitivity analysis on this parameter was performed based on the guidance.

2. Radium-226: Used 5.0 pCi/g regulatory limit as basis for determining benchmark.

No sensitivity analysis on this parameter was performed based on the regulatory limit.

Distribution Coefficient (K_d)

All values found in the Data Collection Handbook (ANL, 1993).

1. Lead-210: Used the value for sand, 270 cm^3/g, for the contaminated zone and the saturated zone. Used the value for clay, 550 cm^3/g, for the unsaturated zone. The Data Collection Handbook specifies the following values (ANL, 1993):

    - Sand = 270
    - Loam = 16,000

Sensitivity analyses were performed on the external and plant (water independent) pathways with a multiple of 100 on the value for the contaminated zone (i.e. 2.7, 270, 27,000). No appreciable impacts on maximum dose were found for both the external and plant (water independent) pathways when using the higher or lower K_d. The range of values covers the range of potential values at the site based upon sandy and loamy soil types. Graphs attached.

2. Radium 226: Used the value for sand, 500 cm^3/g, for the contaminated zone and the saturated zone. Used the value for clay, 9,100 cm^3/g, for the unsaturated zone. The Data Collection Handbook specifies the following values (ANL, 1993):

- Sand = 500
- Loam = 36,000

Sensitivity analyses were performed on the external and plant (water independent) pathways with a multiple of 100 on the value for the contaminated zone (i.e. 5, 500, 50,000). No appreciable impacts on maximum dose were found for both the external and plant (water independent) pathways when using the higher or lower K_d. The range of values covers the range of potential values at the site based upon sandy and loamy soil types. Graphs attached.

Contaminated Zone

1. Area: Used the default value of 10,000 square meters.

Sensitivity analysis was performed on the external pathway with a multiple of 2 (i.e. 5,000, 10,000, and 20,000). There was no impact on maximum dose rate for the external dose pathway when using the larger value. There was a small decrease in maximum dose rate for the external dose pathway when using the smaller value. Therefore the use of the mid-range value for the area is conservative. Graph attached.

2. Thickness: Used 0.15 m (6 inches) based on regulatory requirement.

No sensitivity analysis on this parameter was performed based on the guidance.

3. Length parallel to aquifer flow: Used the default value of 100 meters, based on the square root of a 10,000 square meter contaminated zone.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

Cover and Contaminated Zone

The topsoil of the area (the contaminated zone) is described as alluvial sand, gravel, and clay in the EIS (TVA,).

1. Cover depth: Used 0 meters in accordance with NUREG-1569 (NRC, 2003).

No sensitivity analysis on this parameter was performed based on the guidance.

2. Density of contaminated zone: Used the average density of the contaminated zone, 1.26 g/cm^3, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

3. Contaminated zone erosion rate: Used the erosion rates for South Dakota listed in the NRCS 2003 National Resources Inventory, State Report (NCRS, 2007) to calculate the erosion rate. The erosion rates listed for South Dakota are 1.8 tons/acre-year from water erosion and 2.0 tons/acre-year from wind erosion (3.8 tons/acre-year total). Using the contaminated zone soil density (1.26 g/cm^3), the total erosion rate was calculated as shown below and used in RESRAD.

$$\text{Erosion Rate (m/yr)} = \frac{3.8\ \text{ton}}{\text{acre - yr}} \times \frac{9.07 \times 10^5\ \text{g}}{\text{ton}} \times \frac{\text{acre}}{4.047 \times 10^7\ \text{cm}^2} \times \frac{\text{cm}^3}{1.26\ \text{g}} \times \frac{\text{m}}{100\ \text{cm}} = 0.0007$$

Sensitivity analyses of the external and plant (water independent) pathways were performed with a multiple of 2 (i.e. 0.0014, 0.0007, and 0.00035). The maximum dose rate from the external pathway did not change when the value was changed. The maximum dose rate from the plant (water independent) pathway decreased slightly when using the smaller value. Also, the mid-range value is based on information specific to South Dakota. Therefore the mid-range value is both adequate for the model and conservative. Graph attached.

4. Contaminated zone total porosity: Used the average porosity of the contaminated zone, 0.5384, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

5. Contaminated zone field capacity: Used the minimum field capacity value for the contaminated zone, 1×10^{-34}, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

6. Contaminated zone hydraulic conductivity: Used the representative hydraulic conductivity value for sandy clay loam listed in the Data Collection Handbook, 1.99×10^{2} m/yr (ANL, 1993).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

7. Contaminated zone b parameter: Used the b parameter value for sandy clay loam listed in the Data Collection Handbook, 7.12 (ANL, 1993).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

8. Evapotranspiration Coefficient: Used the maximum evapotranspiration coefficient, 0.999, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

9. Wind Speed: Used the average wind speed, 3 m/s, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

10. Precipitation: Used the precipitation rate, 0.32 m/yr, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

11. Irrigation Rate: Used the average irrigation rate for South Dakota listed in the USGS Circular 1268, 0.360 m/yr (1.18 ft/yr) (USGS, 2004).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

12. Runoff Coefficient: From the Data Collection Handbook, the equation for runoff coefficient for an agricultural environment is shown below (ANL, 1993).

$$\text{Runoff Coefficient} = 1 - c_1 - c_2 - c_3$$

The values of c_1, c_2, and c_3 used were 0.2 (rolling land), 0.2 (intermediate combinations of clay and loam), and 0.1 (cultivated lands), respectively. The resulting runoff coefficient used is 0.5.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

13. Watershed Area for Nearby Stream or Pond: Used the watershed area, 1.3×10^6 m^2 (0.5 square miles), based on site specific data.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

14. Accuracy: Used the default value of 0.001.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

Saturated Zone

1. Density of saturated zone: Used the average density of the saturated zone, 2.64 g/cm^3, based on site specific data.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

2. Saturated zone total porosity: Used the value of 0.34, which is the mean total porosity for sandstone (medium) listed in the Data Collection Handbook (ANL, 1993).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

3. Saturated zone effective porosity: Used the average porosity of the saturated zone, 0.2974, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

4. Saturated zone field capacity: Used the value obtained from subtracting the effective porosity of the saturated zone from the total porosity of the saturated zone, 0.0426.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

5. Saturated zone hydraulic conductivity: Used the hydraulic conductivity of the saturated zone, 703 m/yr (2.23×10^{-3} cm/s), based on site specific data.

No sensitivity analysis was performed because the value is site specific.

6. Saturated zone hydraulic gradient: Used the hydraulic gradient of the saturated zone, 0.01, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

6. Saturated zone b parameter: Used the b parameter value for sand listed in the Data Collection Handbook, 4.05.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

7. Water Table Drop Rate: Used the default value of 0.001 m/yr.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

8. Well Pump Intake Depth: Used the default value of 10 m.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

10. Model for Water Transport Parameters: Used non-dispersion per NUREG-1569 (NRC, 2003).

No sensitivity analysis on this parameter was performed based on the guidance.

11. Well Pumping Rate: The UGSG Circular 1268 lists the uses of ground water in South Dakota (in million gallons per day) as public supply (54.2), domestic (9.52), irrigation (137), livestock (16.9), industrial (3.16), and thermoelectric power (1.23) (USGS, 2004). Since the aquifer containing the ore will be not used for drinking water, the public supply and domestic uses were ignored. Since the site is located in a rural area, the industrial and thermoelectric power uses were ignored as well. The Circular lists the rate of groundwater used for livestock in South Dakota as 18.9×10^3 acre-feet/yr (USGS, 2004). The Circular also lists the total rate of water (both groundwater and surface water) used for irrigation in South Dakota as 1.18 feet/yr and the fraction from groundwater as 153 thousand acre-feet per year (from ground water) / 418 thousand acre-feet per year (total) = 0.366. The 2003 Natural Resources Inventory by the NRCS lists the amount of land used in South Dakota for livestock is 1985×10^3 acres (for pasture) + 22054×10^3 acres (for range) = 2.40×10^7 acres (NRCS, 2007). Since the area of the contaminated zone is 10,000 m^2 (2.47 acres), the rate of well pumping used in RESRAD was calculated as shown below.

$$\text{Rate (m/yr)} = 2.47 \text{ ac} \times \left(\frac{18.9 \times 10^3 \text{ ac - ft/yr}}{2.40 \times 10^7 \text{ ac}} + 1.18 \text{ ft/yr} \times 0.366 \right) \times \frac{1233 \text{ m}^3}{\text{ac - ft}} = 1322$$

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

Unsaturated Zone

1. Unsaturated zone thickness: Used the conservative thickness of the Skull Creek shale formation, 15.2 meters (50 ft), based on site specific data.

No sensitivity analysis was performed because the value is site specific.

2. Density of unsaturated zone: Used the average density for the Skull Creek shale formation, 2.61 g/cm^3, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

3. Unsaturated zone total porosity: Used the representative total porosity value for clay, 0.42, listed in the Data Collection Handbook (ANL, 2003).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

4. Unsaturated zone effective porosity: Used the average porosity for the Skull Creek shale formation, 0.092, based on site specific data.

No sensitivity analysis was performed because the value is site specific.

5. Unsaturated zone field capacity: Used the value obtained by subtracting the effective porosity of the unsaturated zone from the total porosity of the unsaturated zone, 0.328.

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

6. Unsaturated zone hydraulic conductivity: Used the average hydraulic conductivity for the Skull Creek shale formation, 3.27 x 10^{-8} cm/s (0.0103 m/yr), based on site specific data.

No sensitivity analysis was performed because the value is site specific.

7. Unsaturated zone b parameter: Used the b parameter value for clay, 11.4, listed in the Data Collection Handbook (ANL, 1993).

No sensitivity analysis was performed since water dependent pathways were not significant contributors to dose.

Occupancy

1. Inhalation Rate: Used the default value of 8,400 m^3/yr.

No sensitivity analysis was performed since inhalation pathways were not significant contributors to dose.

2. Mass Loading for Inhalation: Used the default value of 0.0001 g/m^3.

No sensitivity analysis was performed since inhalation pathways were not significant contributors to dose.

3. Exposure Duration: Used the default value of 30 years.

4. Indoor dust filtration factor: Used the default value of 0.4.

No sensitivity analysis was performed since inhalation pathways were not significant contributors to dose.

5. External gamma shielding factor: Used the value of 0.55. The NUREG-1569 requires that a value between 0.33 and 0.55 be used.

Sensitivity analysis of the external pathway was performed using a multiple of 1.5 (i.e., 0.367, 0.55 and 0.825). Using the lower value resulted in a decrease in the maximum dose rate for the external exposure pathway. Using the higher value resulted in an

increase in the maximum dose rate for the external exposure pathway. The value 0.55 is the most conservative value in the range specified by the NUREG-1569. Graph attached.

6. Indoor/Outdoor Fractions: Used the defaults of 0.5 indoors and 0.25 outdoors for farmer scenario in the NUREG-1569 (NRC, 2003).

No sensitivity analyses on these parameters were performed based on the guidance.

7. Shape of contaminated zone: A circular shape was used.

Ingestion: Dietary

1. Consumption Rates:

A. Fruit, vegetable and grain: Used the default value of 160 kg/yr. This value was used based upon EPA estimated consumption. NRC Reg. Guide 1.109 has an estimated consumption for an adult of 190 kg/yr. RESRAD adjusts for contaminated and uncontaminated fractions based upon the size of the contaminated area (ANL, 1993).

B. Leafy vegetable: Used the default value of 14 kg/yr. NRC Reg. Guide 1.109 has an estimated consumption for an adult of 64 kg/yr, while NRC estimates for dose from nuclear power plants uses a consumption rate of 30 kg/yr. RESRAD adjusts for contaminated and uncontaminated fractions based upon the size of the contaminated area (ANL, 1993).

C. Milk: Used the default value of 92 L/yr.

D. Meat and poultry: Used the default value of 63 kg/yr.

E. Fish/Seafood: Used the default values of 5.4 kg/yr for fish and 0.9 kg/yr for other seafood.

F. Soil ingestion: Used the default value of 36.5 g/yr.

G. Drinking water intake: Used the default value of 510 L/yr (1.4 L/d).

2. Contaminated Fractions:

NUREG-1569 states that for sites with over 25 acres (approximately 10,000 square meters) of contamination, the fraction of diet from contaminated area should be assumed to be 25% (0.25) (NRC, 2003).

No sensitivity analyses on these parameters were not performed based on the guidance.

A. Water: Used the default value of 1 (i.e., 100% of consumption is from contaminated well water). All current water use in rural areas around the site is from private wells and will likely continue to be in the foreseeable future.

B. Livestock Water: Used default value of 1 (i.e., 100% is from contaminated water). All current water use in rural areas around the site is from private wells and will likely continue to be in the foreseeable future.

C. Irrigation Water: Used the default value of 1 (i.e., 100% is from contaminated water). All current water use in rural areas around the site is from private wells and will likely continue to be in the foreseeable future.

D. Plant food: Used 0.25 as percentage of plant food that is contaminated.

E. Meat: Used 0.25 as percentage of meat that is contaminated.

F. Aquatic food: Used the value of 0 due to the semiarid environment of the site.

G. Milk: Used the value of 0 due to no consumption of locally produced and consumed milk per NUREG-1569 (NRC, 2003).

Ingestion: Nondietary

1. Consumption Rates:

A. Livestock fodder intake for meat: Used the default value of 68 kg/day.

B. Livestock water intake for meat: Used the default value of 50 L/day. According to NRC Regulatory Guide 1.109 (NRC, 1977), the water ingestion rate for beef cattle is 50 L/d.

C. Livestock intake of soil for meat: Used the default value of 0.5 g/day.

D. Mass loading for foliar deposition: Used the default value of 0.0001 g/m^3.

Sensitivity analysis on the plant (water independent) pathway was run with a multiple of 100 (i.e., 0.000001, 0.0001, and 0.01 g/m^3). Using the higher value resulted in a small increase in the maximum dose rate. Using the lower value did not result in a change in the maximum dose rate. According to the Data Collection Handbook, the mid-range value has been used by the EPA for screening calculations. Therefore the mid-range value is justified for use in the model. Graph attached.

E. Depth of soil mixing layer: Used the default value of 0.15 meters.

F. Depth of roots: Used 0.3 meters as a screening level based upon NUREG-1569. The root depth varies for different plants. For some plants, such as beets, carrots,

lettuce, and so forth, it does not extend below about 0.3 m, which is the basis of the NRC guidance. For others, such as fruit trees, the roots may extend 2 or 3 m below the surface. Tap roots for some crops (e.g., alfalfa) can extend to 5 m. Most of the plant roots from which nutrients are obtained, however, usually extend to less than 1 m below the surface.

Sensitivity analysis on the plant (water independent) pathway was run with a multiple of 2 (i.e., 0.15, 0.3, and 0.6). There was a significant impact on the maximum dose. Assumption of a shallow root system increased the dose significantly. The NRC guidance is based on the shallow-rooted plants used for consumption. Therefore, the use of the root depth recommended in the NUREG-1569 in the model is conservative. Graph attached.

G. Groundwater fractional usage:

- Drinking water: Used the value of 0 due to the aquifer being exempt from being used for drinking water.
- Livestock water: Used the value of 0.401. In the USGS Circular 1268, the fraction of irrigation water used in South Dakota is 18.9 thousand acre-feet/yr (from ground water) / 47.1 thousand acre-feet/yr (total) = 0.401.
- Irrigation water: Used the value of 0.366 described previously in the well pumping rate parameter.

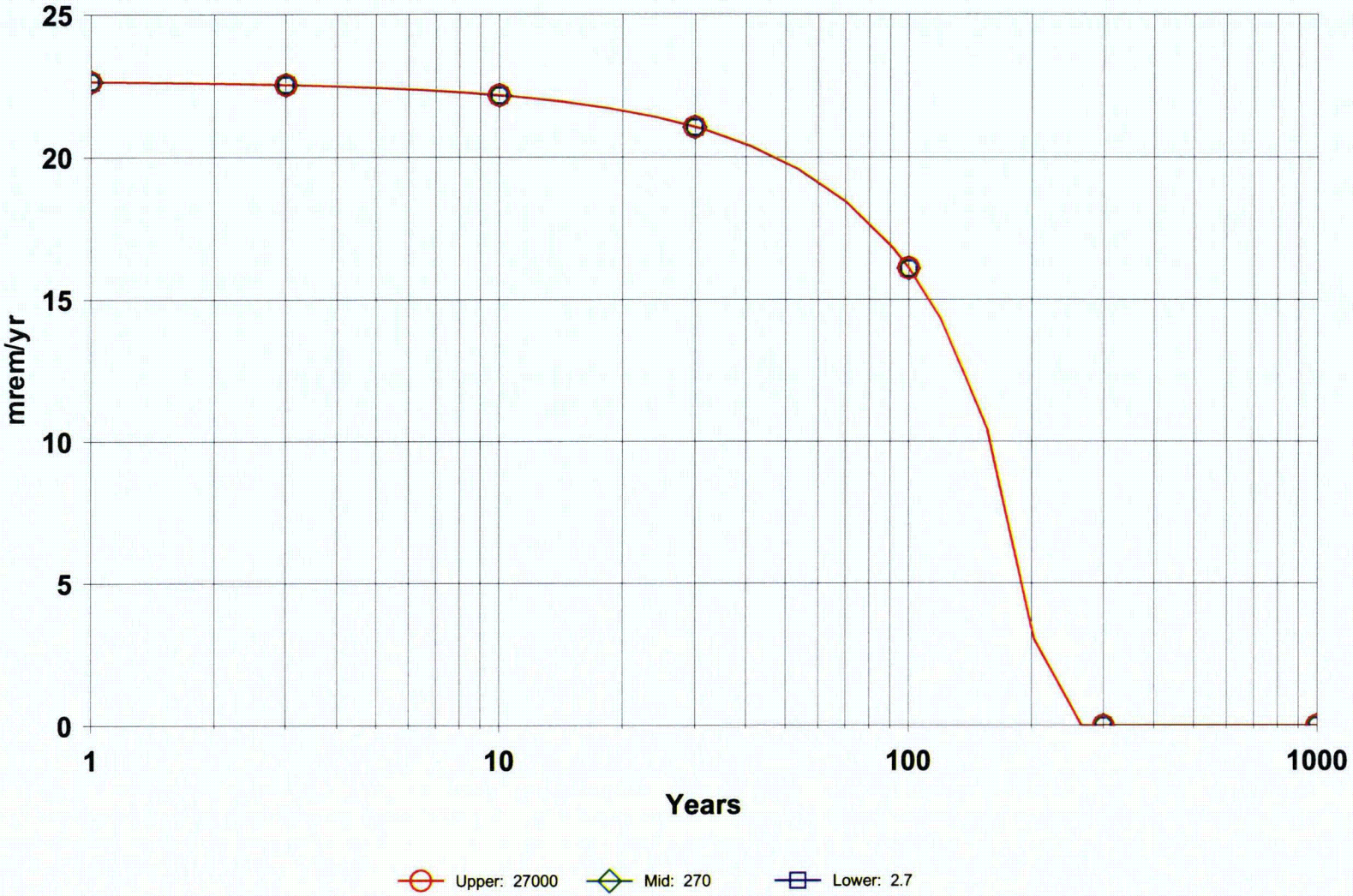
Storage Times

Used the default values for all storage times (vegetables, meats, fodder, etc.).

Attachment 2

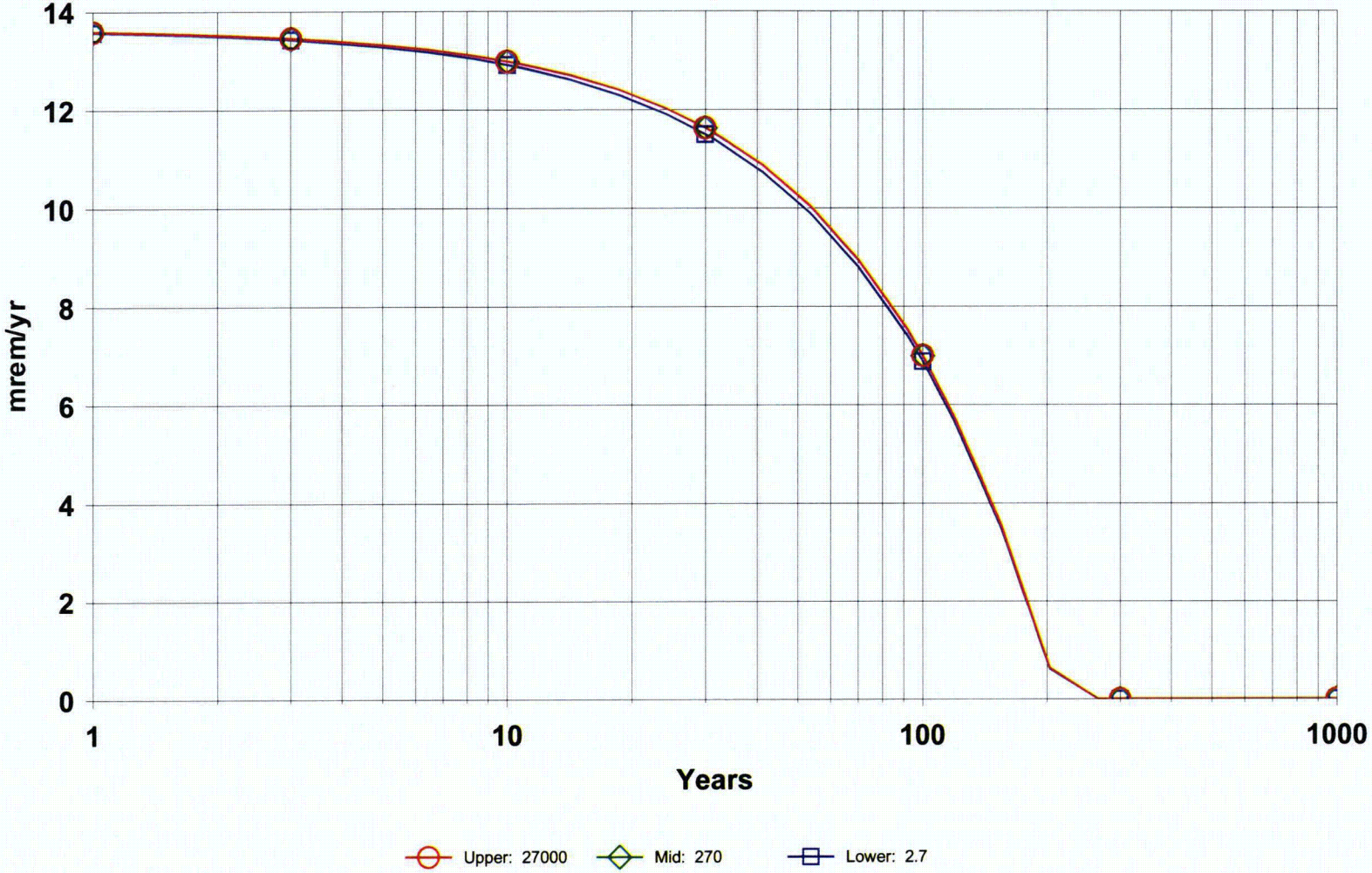
RESRAD Input Parameter
Sensitivity Analysis

DOSE: All Nuclides Summed, External With SA on Pb-210 Contaminated Zone Distribution Coefficient



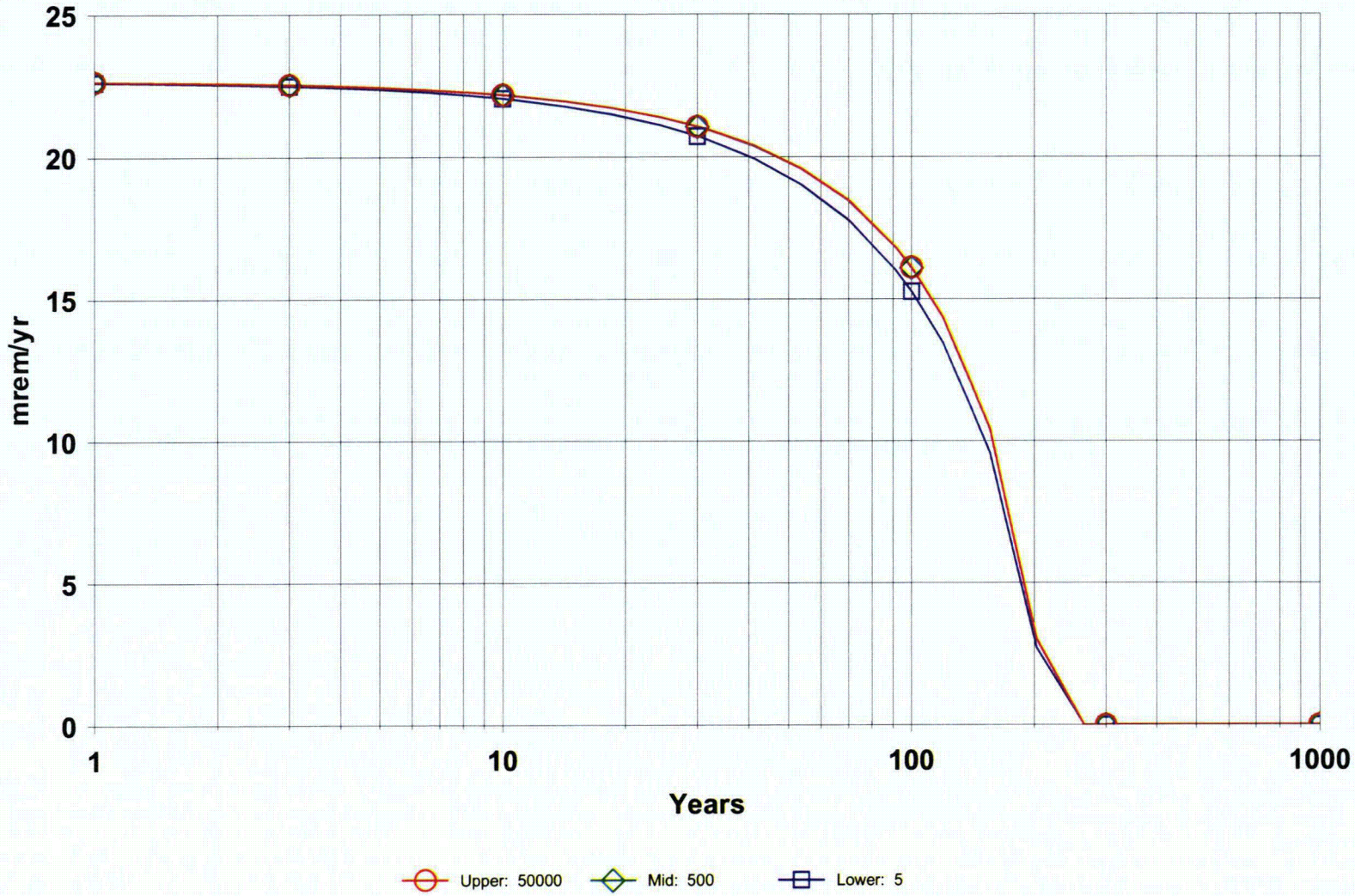
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: External

DOSE: All Nuclides Summed, Plant (Water Independent) With SA on Pb-210 Contaminated Zone Distribution Coefficient



C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: Plant (Water Independent)

DOSE: All Nuclides Summed, External With SA on Ra-226 Contaminated Zone Distribution Coefficient



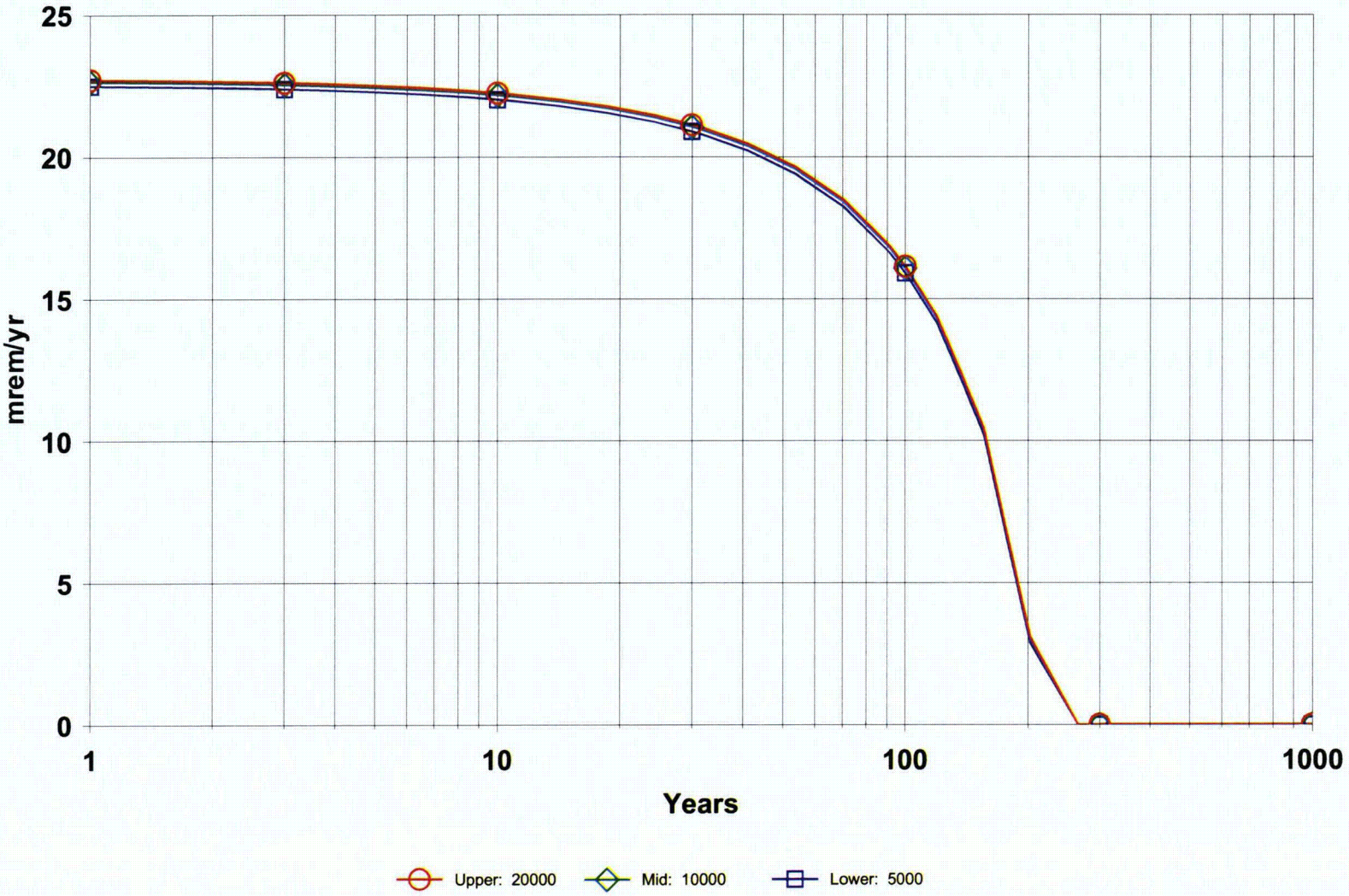
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: External

DOSE: All Nuclides Summed, Plant (Water Independent) With SA on Ra-226 Contaminated Zone Distribution Coefficient



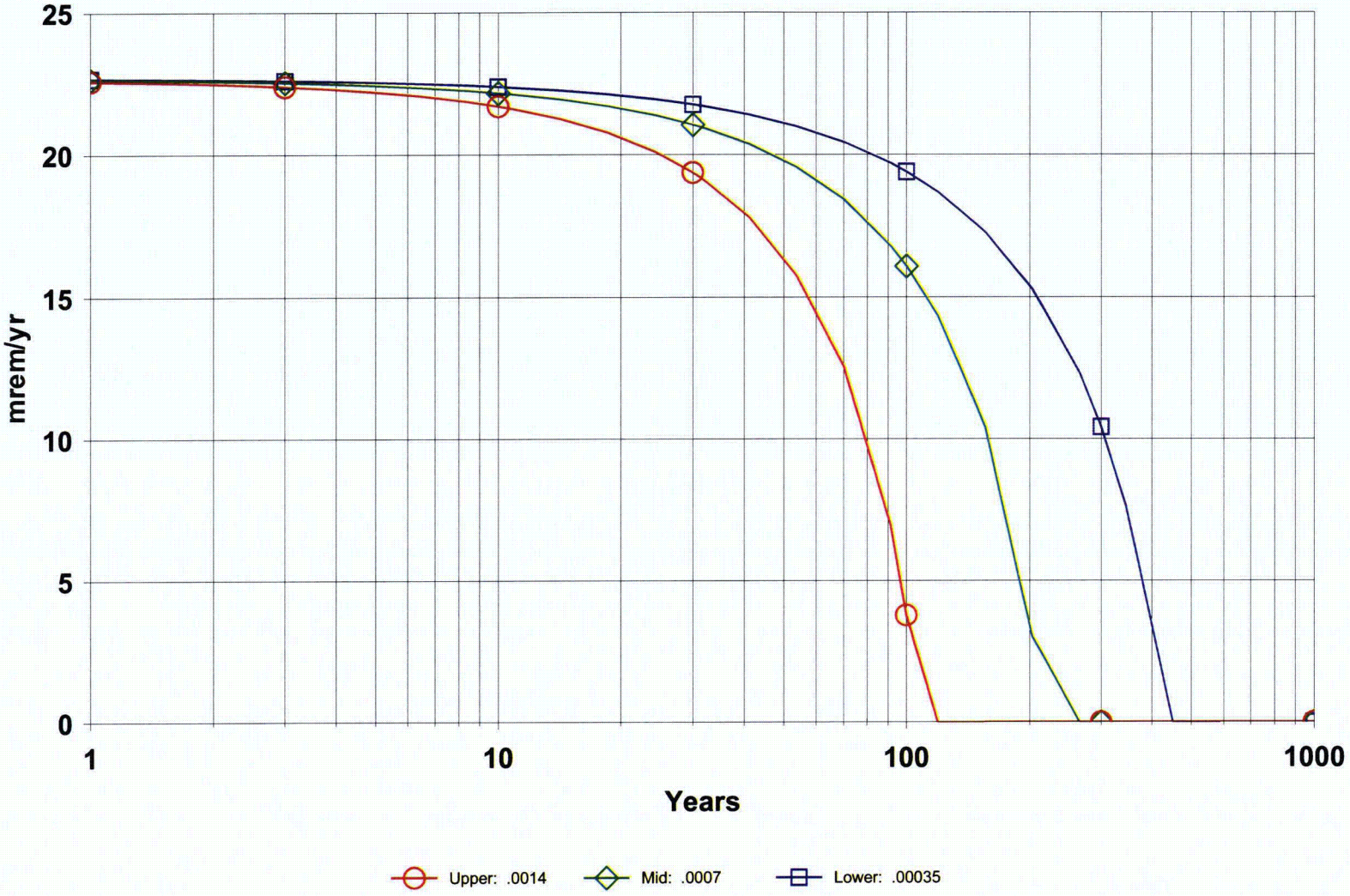
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: Plant (Water Independent)

DOSE: All Nuclides Summed, External With SA on Area of contaminated zone



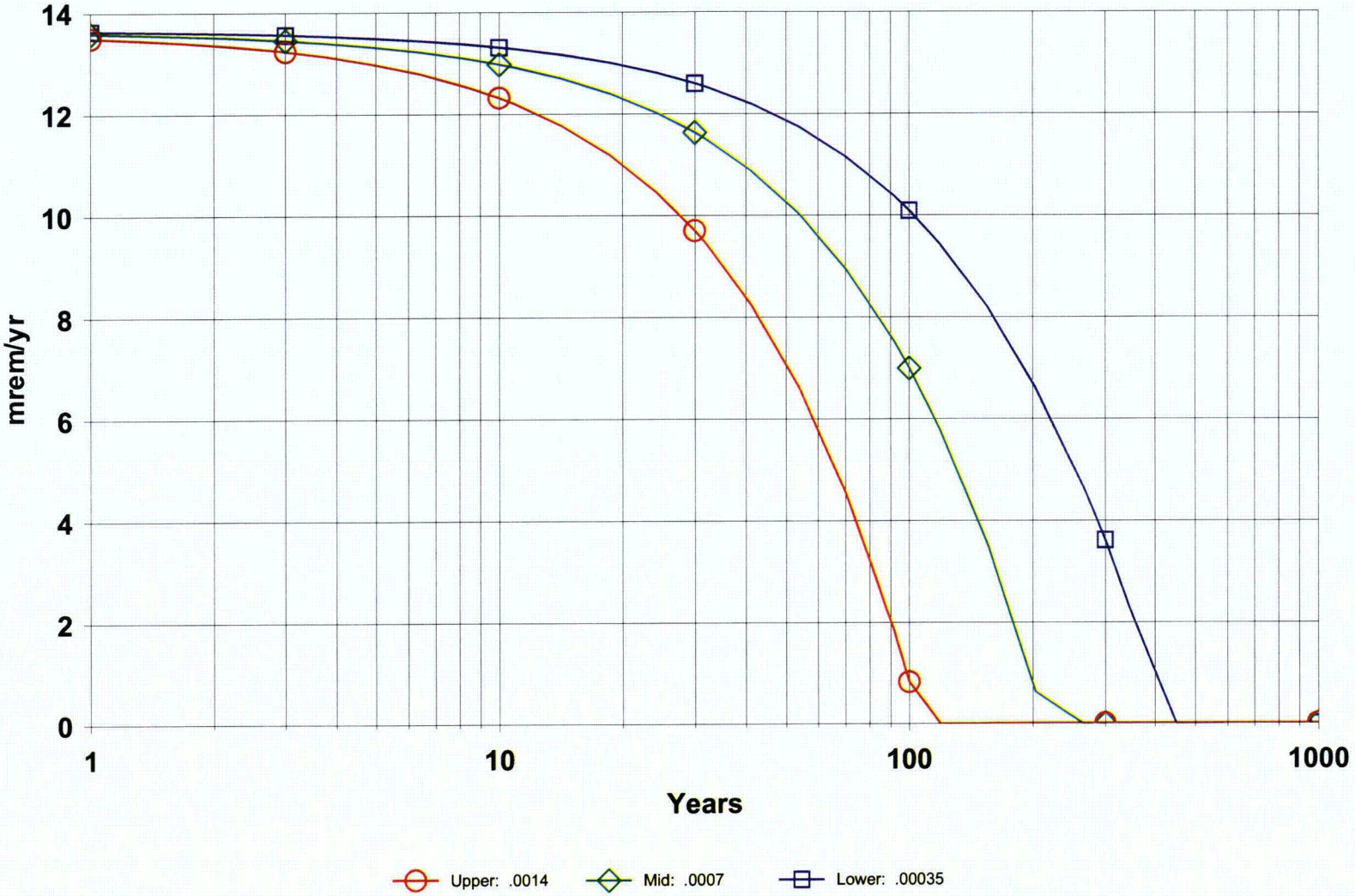
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: External

DOSE: All Nuclides Summed, External With SA on Contaminated zone erosion rate



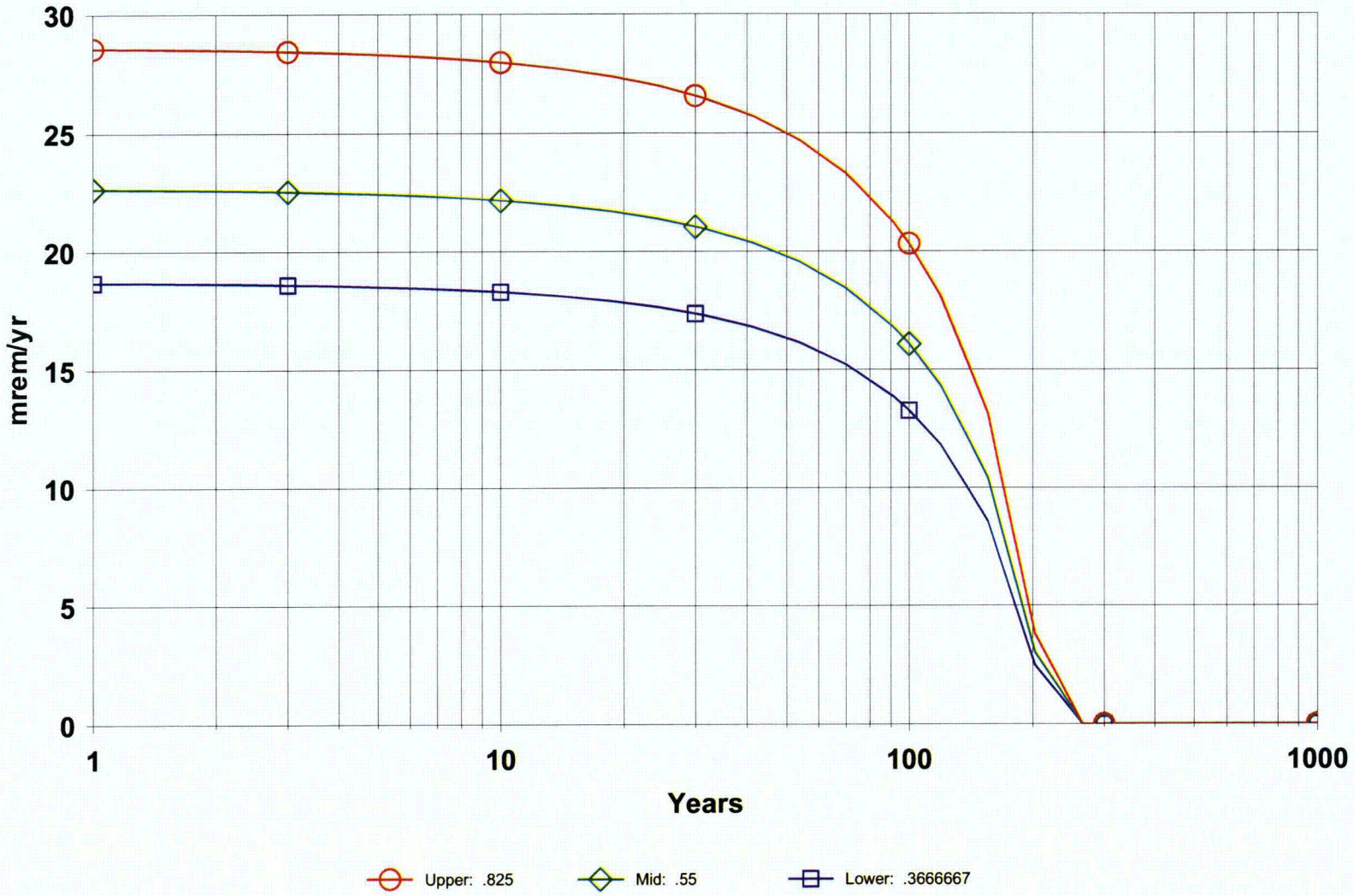
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: External

DOSE: All Nuclides Summed, Plant (Water Independent) With SA on Contaminated zone erosion rate



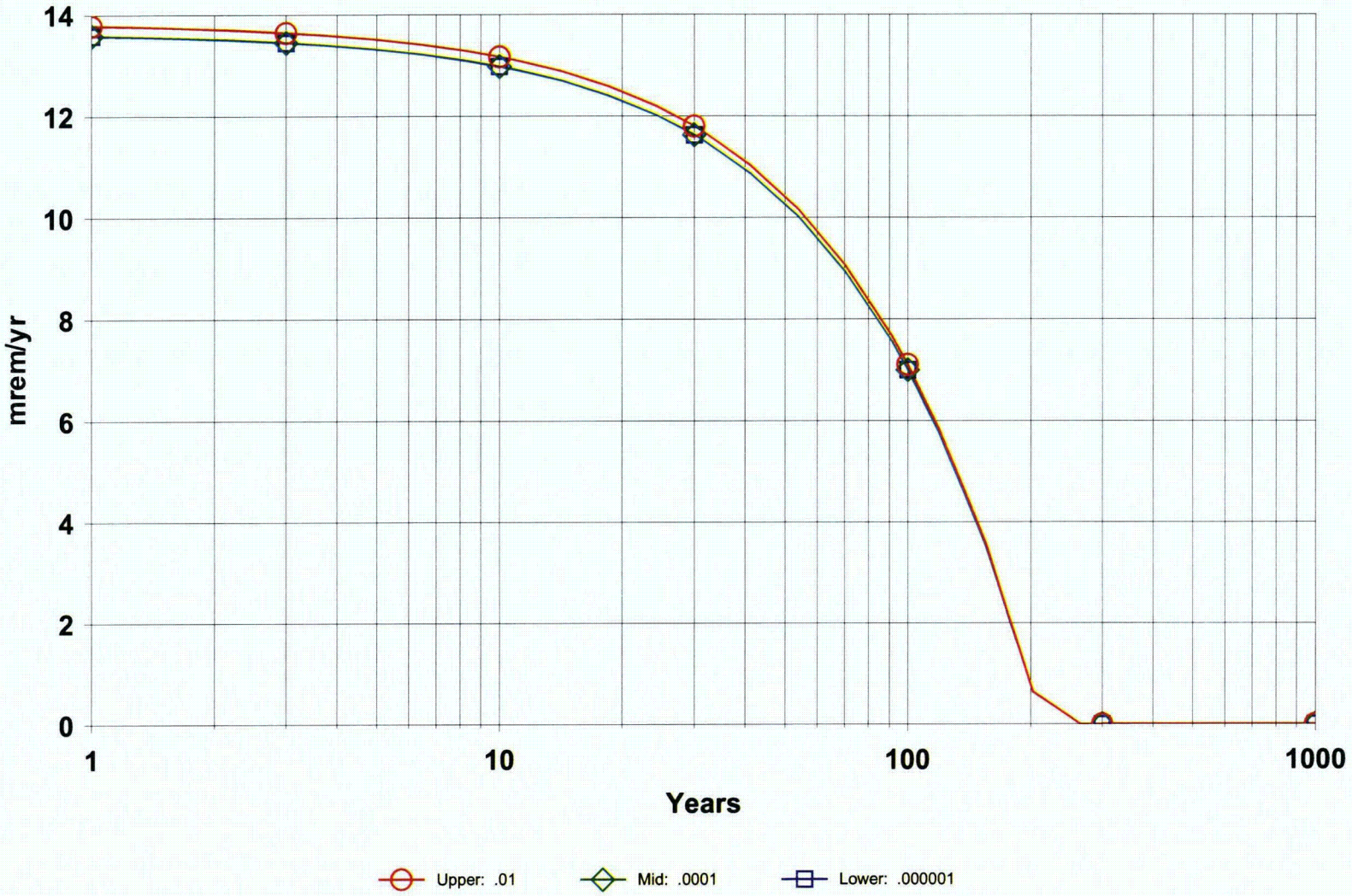
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: Plant (Water Independent)

DOSE: All Nuclides Summed, External With SA on External Gamma Shielding factor



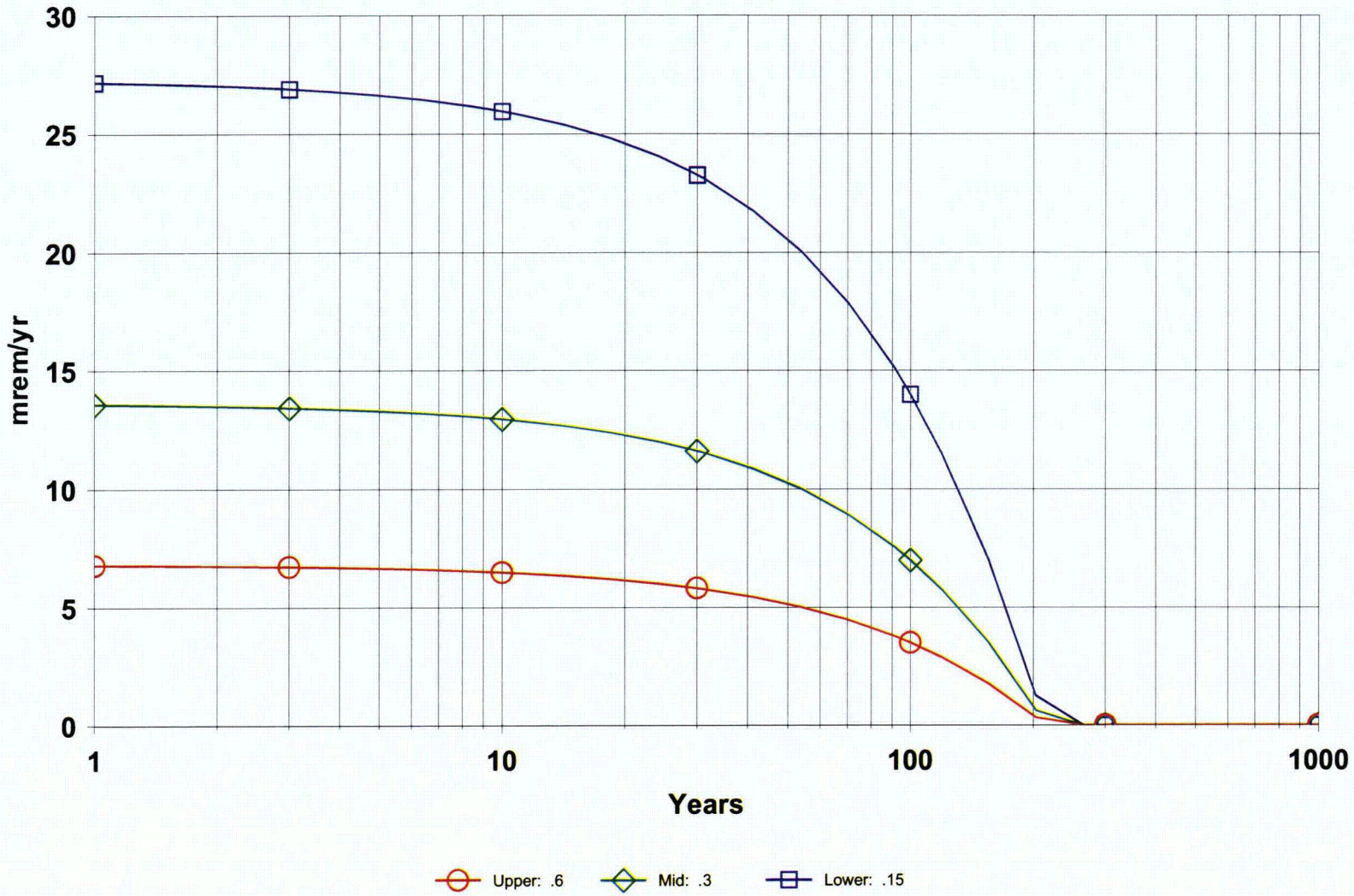
C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 10:52 GRAPHICS.ASC Pathways: External

DOSE: All Nuclides Summed, Plant (Water Independent) With SA on Mass loading for foliar deposition



C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 12:04 GRAPHICS.ASC Pathways: Plant (Water Independent)

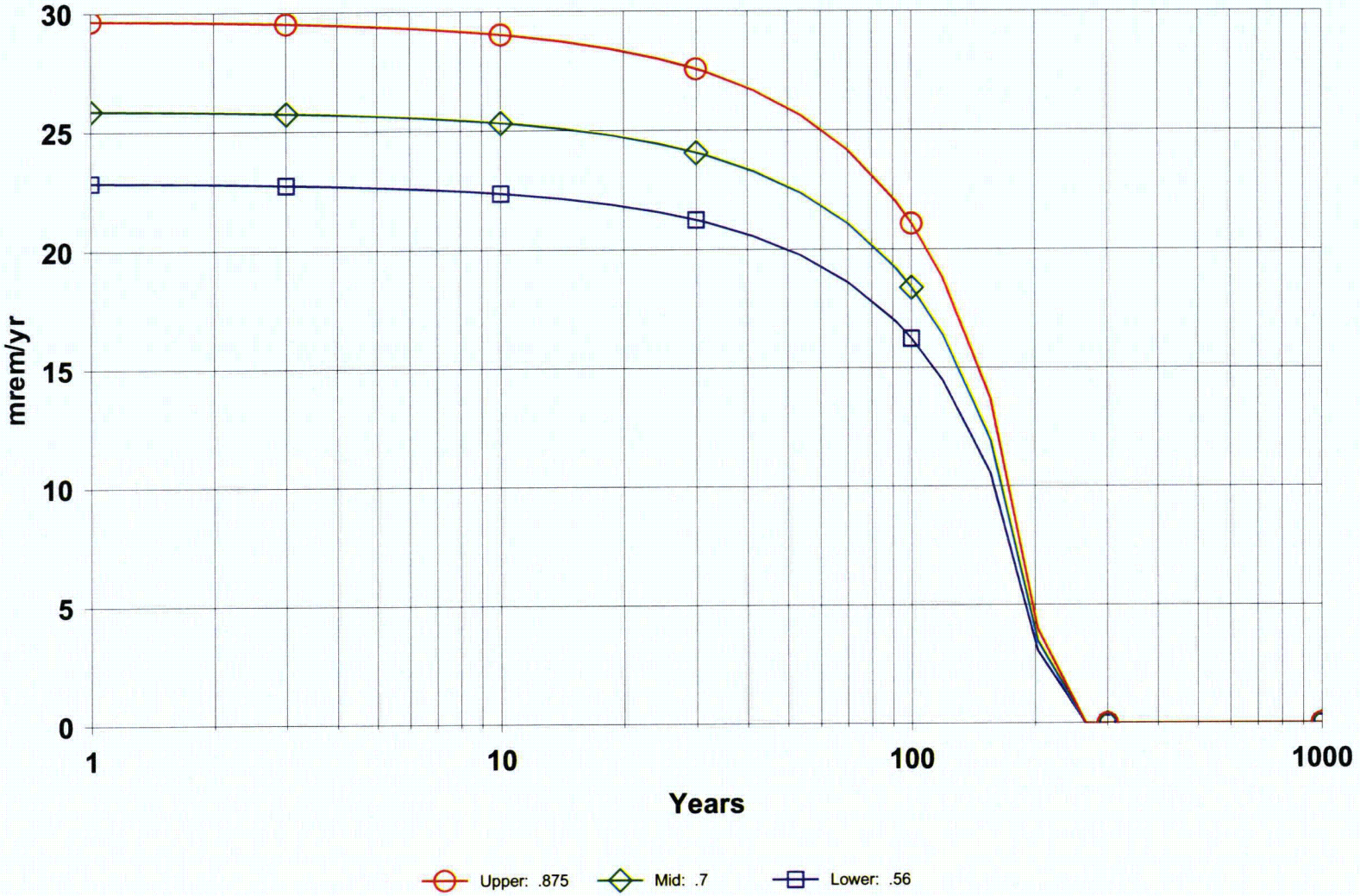
DOSE: All Nuclides Summed, Plant (Water Independent) With SA on Depth of roots



C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD 09/24/2008 12:04 GRAPHICS.ASC Pathways: Plant (Water Independent)

POWERTECH (USA) INC.

DOSE: All Nuclides Summed, External With SA on External Gamma Shielding factor



Radium Benchmark 09/22/2008 08:41 GRAPHICS.ASC Pathways: External

Radium Benchmark Dose Assessment

Attachment 3.0

RESRAD Model Output
Radium

Summary : D[redacted]y Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 11

0 Menu	Parameter	*Current* Value#	*Base* Case*	*Parameter* Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(1)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(2)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(3)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(4)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(5)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(6)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(7)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(8)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(9)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(10)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(11)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2(1)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(2)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Pb-210+D	7.276E-03	5.370E-03	DCF3(1)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(2)
D-34	Food transfer factors:			
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(1,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(1,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(1,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(2,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(2,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(2,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(1,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(1,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(2,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(2,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

Summary : D[redacted]y Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Site-Specific Parameter Summary

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.500E-01	2.000E+00	---	THICK0
R011	Length parallel to aquifer flow (m)	1.000E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Pb-210	5.000E+00	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Ra-226	5.000E+00	0.000E+00	---	S1(2)
R012	Concentration in groundwater (pCi/L): Pb-210	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Ra-226	not used	0.000E+00	---	W1(2)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.260E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	7.000E-04	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	5.384E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	1.000E-34	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.990E+02	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	7.120E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	3.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	9.990E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	3.200E-01	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	3.600E-01	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	5.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	1.300E+06	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	2.640E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	3.400E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	2.974E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	4.260E-02	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	7.030E+02	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	1.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	4.050E+00	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	1.000E+01	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	1.322E+03	2.500E+02	---	UW

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R015	Number of unsaturated zone strata	1	1	---	NS
R015	Unsat. zone 1, thickness (m)	1.520E+01	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	2.610E+00	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	4.200E-01	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	9.200E-02	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	3.280E-01	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	1.140E+01	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.030E-02	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Pb-210				
R016	Contaminated zone (cm**3/g)	2.700E+02	1.000E+02	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	5.500E+02	1.000E+02	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	2.700E+02	1.000E+02	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.018E-05	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Ra-226				
R016	Contaminated zone (cm**3/g)	5.000E+02	7.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	9.100E+03	7.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	5.000E+02	7.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.500E-06	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R017	Inhalation rate (m**3/yr)	8.400E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	5.500E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	9.200E+01	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	6.300E+01	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	5.400E+00	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	9.000E-01	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	1.000E+00	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	0.000E+00	5.000E-01	---	FR9
R018	Contamination fraction of plant food	2.500E-01	-1	---	FPLANT
R018	Contamination fraction of meat	2.500E-01	-1	---	FMEAT
R018	Contamination fraction of milk	0.000E+00	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	6.800E+01	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	5.500E+01	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	5.000E+01	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	1.600E+02	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	5.000E-01	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	1.000E-04	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	3.000E-01	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	0.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	4.020E-01	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	3.660E-01	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	1.100E+00	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	8.000E-02	8.000E-02	---	TE(3)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	1.000E+00	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	257	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	active
5 -- milk ingestion	active
6 -- aquatic foods	active
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Summary : Dorothy Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	10000.00 square meters	Pb-210	5.000E+00
Thickness:	0.15 meters	Ra-226	5.000E+00
Cover Depth:	0.00 meters		

0

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.812E+01	3.800E+01	3.775E+01	3.685E+01	3.422E+01	2.402E+01	0.000E+00	0.000E+00
M(t):	1.525E+00	1.520E+00	1.510E+00	1.474E+00	1.369E+00	9.609E-01	0.000E+00	0.000E+00

0Maximum TDOSE(t): 3.812E+01 mrem/yr at t = 0.000E+00 years

Summary : [redacted]ey Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	1.478E-02	0.0004	6.341E-03	0.0002	0.000E+00	0.0000	7.776E+00	0.2040	3.785E-01	0.0099	0.000E+00	0.0000	9.784E-01	0.0257
Ra-226	2.269E+01	0.5952	2.485E-03	0.0001	0.000E+00	0.0000	5.876E+00	0.1541	2.015E-01	0.0053	0.000E+00	0.0000	1.956E-01	0.0051
Total	2.270E+01	0.5956	8.826E-03	0.0002	0.000E+00	0.0000	1.365E+01	0.3581	5.801E-01	0.0152	0.000E+00	0.0000	1.174E+00	0.0308

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.154E+00	0.2401
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.897E+01	0.7599
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.812E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : [redacted]ey Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	1.432E-02	0.0004	6.118E-03	0.0002	0.000E+00	0.0000	7.503E+00	0.1974	3.653E-01	0.0096	0.000E+00	0.0000	9.440E-01	0.0248
Ra-226	2.264E+01	0.5958	2.665E-03	0.0001	0.000E+00	0.0000	6.087E+00	0.1602	2.125E-01	0.0056	0.000E+00	0.0000	2.244E-01	0.0059
Total	2.265E+01	0.5962	8.783E-03	0.0002	0.000E+00	0.0000	1.359E+01	0.3576	5.778E-01	0.0152	0.000E+00	0.0000	1.168E+00	0.0307

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.833E+00	0.2324
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.917E+01	0.7676
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.800E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : Dewey Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	1.344E-02	0.0004	5.695E-03	0.0002	0.000E+00	0.0000	6.984E+00	0.1850	3.400E-01	0.0090	0.000E+00	0.0000	8.787E-01	0.0233
Ra-226	2.254E+01	0.5971	3.003E-03	0.0001	0.000E+00	0.0000	6.472E+00	0.1715	2.321E-01	0.0061	0.000E+00	0.0000	2.784E-01	0.0074
Total	2.255E+01	0.5975	8.698E-03	0.0002	0.000E+00	0.0000	1.346E+01	0.3565	5.721E-01	0.0152	0.000E+00	0.0000	1.157E+00	0.0307

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.222E+00	0.2178
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.952E+01	0.7822
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.775E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : B[redacted]y Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	1.077E-02	0.0003	4.429E-03	0.0001	0.000E+00	0.0000	5.432E+00	0.1474	2.644E-01	0.0072	0.000E+00	0.0000	6.834E-01	0.0185
Ra-226	2.218E+01	0.6017	3.969E-03	0.0001	0.000E+00	0.0000	7.556E+00	0.2050	2.879E-01	0.0078	0.000E+00	0.0000	4.342E-01	0.0118
Total	2.219E+01	0.6020	8.398E-03	0.0002	0.000E+00	0.0000	1.299E+01	0.3524	5.523E-01	0.0150	0.000E+00	0.0000	1.118E+00	0.0303

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.395E+00	0.1735
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.046E+01	0.8265
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.685E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : D[redacted]ey Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	5.712E-03	0.0002	2.145E-03	0.0001	0.000E+00	0.0000	2.630E+00	0.0769	1.281E-01	0.0037	0.000E+00	0.0000	3.309E-01	0.0097
Ra-226	2.107E+01	0.6156	5.388E-03	0.0002	0.000E+00	0.0000	9.012E+00	0.2634	3.673E-01	0.0107	0.000E+00	0.0000	6.721E-01	0.0196
Total	2.107E+01	0.6158	7.533E-03	0.0002	0.000E+00	0.0000	1.164E+01	0.3402	4.953E-01	0.0145	0.000E+00	0.0000	1.003E+00	0.0293

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.097E+00	0.0905
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.112E+01	0.9095
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.422E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : [redacted]y Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	5.952E-04	0.0000	1.506E-04	0.0000	0.000E+00	0.0000	1.848E-01	0.0077	8.997E-03	0.0004	0.000E+00	0.0000	2.324E-02	0.0010
Ra-226	1.610E+01	0.6704	4.388E-03	0.0002	0.000E+00	0.0000	6.825E+00	0.2841	2.895E-01	0.0120	0.000E+00	0.0000	5.814E-01	0.0242
Total	1.610E+01	0.6704	4.539E-03	0.0002	0.000E+00	0.0000	7.010E+00	0.2918	2.985E-01	0.0124	0.000E+00	0.0000	6.047E-01	0.0252

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.177E-01	0.0091
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.380E+01	0.9909
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.402E+01	1.0000

*Sum of all water independent and dependent pathways.

Summary : D[redacted]ey Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBRADIUMBENCHMARK.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Summary : D[redacted]y Burdock
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Pb-210+D	Pb-210+D	1.000E+00	1.831E+00	1.767E+00	1.644E+00	1.279E+00	6.194E-01	4.355E-02	0.000E+00	0.000E+00
0Ra-226+D	Ra-226+D	1.000E+00	5.760E+00	5.743E+00	5.710E+00	5.594E+00	5.248E+00	3.841E+00	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	3.353E-02	8.996E-02	1.945E-01	4.978E-01	9.766E-01	9.202E-01	0.000E+00	0.000E+00
Ra-226+D	ΣDSR(j)		5.793E+00	5.833E+00	5.905E+00	6.092E+00	6.224E+00	4.761E+00	0.000E+00	0.000E+00

The DSR includes contributions from associated (half-life ≤ 180 days) daughters.
0

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Pb-210	1.366E+01	1.415E+01	1.520E+01	1.955E+01	4.036E+01	5.741E+02	*7.634E+13	*7.634E+13
Ra-226	4.315E+00	4.286E+00	4.234E+00	4.104E+00	4.016E+00	5.251E+00	*9.885E+11	*9.885E+11

*At specific activity limit
0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Pb-210	5.000E+00	0.000E+00	1.831E+00	1.366E+01	1.831E+00	1.366E+01
Ra-226	5.000E+00	25.40 ± 0.05	6.235E+00	4.010E+00	5.793E+00	4.315E+00

Summary : [redacted]y Burdock
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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Pb-210	Pb-210	1.000E+00	9.154E+00	8.833E+00	8.222E+00	6.395E+00	3.097E+00	2.177E-01	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	1.677E-01	4.498E-01	9.723E-01	2.489E+00	4.883E+00	4.601E+00	0.000E+00	0.000E+00
Pb-210	ΣDOSE(j)		9.322E+00	9.282E+00	9.194E+00	8.884E+00	7.980E+00	4.819E+00	0.000E+00	0.000E+00
0Ra-226	Ra-226	1.000E+00	2.880E+01	2.872E+01	2.855E+01	2.797E+01	2.624E+01	1.920E+01	0.000E+00	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Pb-210	Pb-210	1.000E+00	5.000E+00	4.847E+00	4.555E+00	3.664E+00	1.967E+00	2.232E-01	4.445E-04	1.568E-13
Pb-210	Ra-226	1.000E+00	0.000E+00	1.530E-01	4.449E-01	1.333E+00	3.009E+00	4.626E+00	4.444E+00	3.269E+00
Pb-210	ΣS(j):		5.000E+00	5.000E+00	5.000E+00	4.996E+00	4.976E+00	4.849E+00	4.445E+00	3.269E+00
0Ra-226	Ra-226	1.000E+00	5.000E+00	4.998E+00	4.993E+00	4.978E+00	4.935E+00	4.785E+00	4.383E+00	3.224E+00

THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time = 1.35 seconds

Radium Benchmark Dose Assessment

Attachment 3.1

RESRAD Model Output
Uranium

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(2)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(3)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(4)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(5)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(6)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(7)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(8)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(9)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(10)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(11)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(12)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(13)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(14)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(15)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(16)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(17)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(18)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(19)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(20)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(21)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(22)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(23)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(24)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(25)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(26)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(27)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(28)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(29)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(30)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2(3)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(4)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(5)
B-1	U-234	1.320E-01	1.320E-01	DCF2(6)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(7)
B-1	U-238	1.180E-01	1.180E-01	DCF2(8)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(9)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	7.276E-03	5.370E-03	DCF3(3)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(4)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(5)
D-1	U-234	2.830E-04	2.830E-04	DCF3(6)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(7)
D-1	U-238	2.550E-04	2.550E-04	DCF3(8)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(9)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(4,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(5,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(5,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(5,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(6,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(6,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(6,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(7,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(7,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(7,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(8,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(8,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(8,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(9,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(9,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(4,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(4,2)
D-5				
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(5,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(5,2)
D-5				
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(6,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(6,2)
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(7,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(7,2)
D-5				
D-5	U-238 , fish	1.000E+01	1.000E+01	BIOFAC(8,1)
D-5	U-238 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(8,2)
D-5				
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(9,1)
D-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(9,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

Site-Specific Parameter Summary

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.500E-01	2.000E+00	---	THICK0
R011	Length parallel to aquifer flow (m)	1.000E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): U-234	4.920E+01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): U-235	2.200E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): U-238	4.860E+01	0.000E+00	---	S1(8)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(6)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(8)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.260E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	7.000E-04	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	5.384E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	1.000E-34	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.990E+02	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	7.120E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	3.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	9.990E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	3.200E-01	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	3.600E-01	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	5.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	1.300E+06	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	2.640E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	3.400E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	2.974E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	4.260E-02	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	7.030E+02	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	1.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	4.050E+00	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	1.000E+01	1.000E+01	---	DWIBWT

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	1.322E+03	2.500E+02	---	UW
R015	Number of unsaturated zone strata	1	1	---	NS
R015	Unsat. zone 1, thickness (m)	1.520E+01	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	2.610E+00	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	4.200E-01	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	9.200E-02	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	3.280E-01	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	1.140E+01	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.030E-02	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(6,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.480E-05	ALEACH(6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.480E-05	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.480E-05	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for daughter Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.362E-04	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for daughter Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.480E-05	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.746E-05	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for daughter Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.919E-05	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R016	Distribution coefficients for daughter Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.585E-08	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R017	Inhalation rate (m**3/yr)	8.400E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	5.500E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	9.200E+01	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	6.300E+01	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	5.400E+00	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	9.000E-01	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	1.000E+00	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	0.000E+00	5.000E-01	---	FR9
R018	Contamination fraction of plant food	2.500E-01	-1	---	FPLANT
R018	Contamination fraction of meat	2.500E-01	-1	---	FMEAT
R018	Contamination fraction of milk	0.000E+00	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	6.800E+01	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	5.500E+01	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	5.000E+01	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	1.600E+02	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	5.000E-01	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	1.000E-04	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	3.000E-01	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	0.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	4.020E-01	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	3.660E-01	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	1.100E+00	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	8.000E-02	8.000E-02	---	TE(3)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	1.000E+00	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	257	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	active
5 -- milk ingestion	active
6 -- aquatic foods	active
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Summary : D[redacted]y Burdock
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\DBURANIUMBENCHMARK.RAD

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	10000.00 square meters	U-234	4.920E+01
Thickness:	0.15 meters	U-235	2.200E+00
Cover Depth:	0.00 meters	U-238	4.860E+01

0

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	7.073E+00	7.054E+00	7.015E+00	6.878E+00	6.472E+00	4.824E+00	0.000E+00	0.000E+00
M(t):	2.829E-01	2.821E-01	2.806E-01	2.751E-01	2.589E-01	1.930E-01	0.000E+00	0.000E+00

0Maximum TDOSE(t): 7.073E+00 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	9.939E-03	0.0014	3.606E-01	0.0510	0.000E+00	0.0000	7.561E-01	0.1069	4.355E-02	0.0062	0.000E+00	0.0000	3.803E-01	0.0538
U-235	7.959E-01	0.1125	1.503E-02	0.0021	0.000E+00	0.0000	3.199E-02	0.0045	1.853E-03	0.0003	0.000E+00	0.0000	1.607E-02	0.0023
U-238	3.236E+00	0.4576	3.185E-01	0.0450	0.000E+00	0.0000	7.091E-01	0.1003	4.085E-02	0.0058	0.000E+00	0.0000	3.567E-01	0.0504
Total	4.042E+00	0.5715	6.942E-01	0.0981	0.000E+00	0.0000	1.497E+00	0.2117	8.625E-02	0.0122	0.000E+00	0.0000	7.530E-01	0.1065

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0 Water Dependent Pathways

0 Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.550E+00	0.2192
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.609E-01	0.1217
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.661E+00	0.6591
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.073E+00	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Radio- Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	9.937E-03	0.0014	3.589E-01	0.0509	0.000E+00	0.0000	7.525E-01	0.1067	4.335E-02	0.0061	0.000E+00	0.0000	3.785E-01	0.0537
U-235	7.953E-01	0.1127	1.496E-02	0.0021	0.000E+00	0.0000	3.195E-02	0.0045	1.877E-03	0.0003	0.000E+00	0.0000	1.601E-02	0.0023
U-238	3.232E+00	0.4582	3.170E-01	0.0449	0.000E+00	0.0000	7.058E-01	0.1001	4.065E-02	0.0058	0.000E+00	0.0000	3.550E-01	0.0503
Total	4.037E+00	0.5723	6.909E-01	0.0980	0.000E+00	0.0000	1.490E+00	0.2113	8.588E-02	0.0122	0.000E+00	0.0000	7.494E-01	0.1063

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0 Water Dependent Pathways

0	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Radio- Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.543E+00	0.2188
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.601E-01	0.1219
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.650E+00	0.6593
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.054E+00	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	9.936E-03	0.0014	3.555E-01	0.0507	0.000E+00	0.0000	7.454E-01	0.1063	4.293E-02	0.0061	0.000E+00	0.0000	3.749E-01	0.0534
U-235	7.939E-01	0.1132	1.483E-02	0.0021	0.000E+00	0.0000	3.186E-02	0.0045	1.923E-03	0.0003	0.000E+00	0.0000	1.589E-02	0.0023
U-238	3.223E+00	0.4594	3.140E-01	0.0448	0.000E+00	0.0000	6.991E-01	0.0997	4.027E-02	0.0057	0.000E+00	0.0000	3.516E-01	0.0501
Total	4.027E+00	0.5740	6.844E-01	0.0976	0.000E+00	0.0000	1.476E+00	0.2105	8.513E-02	0.0121	0.000E+00	0.0000	7.424E-01	0.1058

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0 Water Dependent Pathways

0 Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.529E+00	0.2179
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.584E-01	0.1224
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.628E+00	0.6597
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.015E+00	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	9.956E-03	0.0014	3.436E-01	0.0500	0.000E+00	0.0000	7.204E-01	0.1047	4.149E-02	0.0060	0.000E+00	0.0000	3.623E-01	0.0527
U-235	7.888E-01	0.1147	1.437E-02	0.0021	0.000E+00	0.0000	3.155E-02	0.0046	2.077E-03	0.0003	0.000E+00	0.0000	1.547E-02	0.0022
U-238	3.190E+00	0.4638	3.035E-01	0.0441	0.000E+00	0.0000	6.756E-01	0.0982	3.892E-02	0.0057	0.000E+00	0.0000	3.398E-01	0.0494
Total	3.989E+00	0.5799	6.615E-01	0.0962	0.000E+00	0.0000	1.428E+00	0.2076	8.249E-02	0.0120	0.000E+00	0.0000	7.176E-01	0.1043

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.478E+00	0.2149
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.523E-01	0.1239
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.548E+00	0.6612
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.878E+00	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0 *Water Independent Pathways (Inhalation excludes radon)*

0 Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.021E-02	0.0016	3.097E-01	0.0478	0.000E+00	0.0000	6.491E-01	0.1003	3.739E-02	0.0058	0.000E+00	0.0000	3.265E-01	0.0504
U-235	7.717E-01	0.1192	1.315E-02	0.0020	0.000E+00	0.0000	3.057E-02	0.0047	2.433E-03	0.0004	0.000E+00	0.0000	1.432E-02	0.0022
U-238	3.084E+00	0.4765	2.734E-01	0.0422	0.000E+00	0.0000	6.087E-01	0.0940	3.506E-02	0.0054	0.000E+00	0.0000	3.061E-01	0.0473
Total	3.866E+00	0.5973	5.962E-01	0.0921	0.000E+00	0.0000	1.288E+00	0.1991	7.488E-02	0.0116	0.000E+00	0.0000	6.470E-01	0.1000

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0 Water Dependent Pathways

0 Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.333E+00	0.2059
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.322E-01	0.1286
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.307E+00	0.6655
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.472E+00	1.0000

0*Sum of all water independent and dependent pathways.

Summary : Dewey Burdock
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.234E-02	0.0026	1.913E-01	0.0396	0.000E+00	0.0000	4.015E-01	0.0832	2.311E-02	0.0048	0.000E+00	0.0000	2.017E-01	0.0418
U-235	6.627E-01	0.1374	8.775E-03	0.0018	0.000E+00	0.0000	2.400E-02	0.0050	2.714E-03	0.0006	0.000E+00	0.0000	9.918E-03	0.0021
U-238	2.532E+00	0.5248	1.687E-01	0.0350	0.000E+00	0.0000	3.755E-01	0.0778	2.163E-02	0.0045	0.000E+00	0.0000	1.888E-01	0.0391
Total	3.207E+00	0.6647	3.687E-01	0.0764	0.000E+00	0.0000	8.010E-01	0.1660	4.745E-02	0.0098	0.000E+00	0.0000	4.004E-01	0.0830

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0 Water Dependent Pathways

0 Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.298E-01	0.1720
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.081E-01	0.1468
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.287E+00	0.6812
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.824E+00	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0 Water Independent Pathways (Inhalation excludes radon)
0

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0 Water Dependent Pathways
0

Radio-Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0*Sum of all water independent and dependent pathways.

Summary : Dewey Burdock
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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	U-234	1.000E+00	3.151E-02	3.136E-02	3.107E-02	3.003E-02	2.707E-02	1.676E-02	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	2.125E-07	6.250E-07	1.437E-06	4.156E-06	1.088E-05	2.230E-05	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	3.660E-09	2.588E-08	1.368E-07	1.205E-06	9.591E-06	7.763E-05	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	1.248E-11	1.627E-10	1.708E-09	3.948E-08	7.406E-07	1.074E-05	0.000E+00	0.000E+00
U-234	ΣDSR(j)		3.151E-02	3.137E-02	3.107E-02	3.004E-02	2.709E-02	1.687E-02	0.000E+00	0.000E+00
0U-235+D	U-235+D	1.000E+00	3.913E-01	3.908E-01	3.899E-01	3.866E-01	3.758E-01	3.156E-01	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	3.422E-05	1.063E-04	2.492E-04	7.281E-04	1.913E-03	3.926E-03	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	3.202E-07	2.065E-06	1.025E-05	8.164E-05	5.240E-04	2.345E-03	0.000E+00	0.000E+00
U-235+D	ΣDSR(j)		3.913E-01	3.909E-01	3.902E-01	3.874E-01	3.783E-01	3.219E-01	0.000E+00	0.000E+00
0U-238	U-238	5.400E-05	1.524E-06	1.516E-06	1.502E-06	1.452E-06	1.308E-06	8.079E-07	0.000E+00	0.000E+00
0U-238+D	U-238+D	9.999E-01	9.591E-02	9.568E-02	9.522E-02	9.357E-02	8.862E-02	6.762E-02	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	4.463E-08	1.333E-07	3.082E-07	8.939E-07	2.341E-06	4.774E-06	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	2.042E-13	1.390E-12	7.205E-12	6.198E-11	4.707E-10	3.175E-09	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	2.576E-15	3.913E-14	4.577E-13	1.197E-11	2.767E-10	7.395E-09	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	7.414E-18	1.982E-16	4.446E-15	3.018E-13	1.678E-11	8.586E-10	0.000E+00	0.000E+00
U-238+D	ΣDSR(j)		9.591E-02	9.568E-02	9.522E-02	9.357E-02	8.863E-02	6.762E-02	0.000E+00	0.000E+00

The DSR includes contributions from associated (half-life ≤ 180 days) daughters.

0

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	7.933E+02	7.971E+02	8.046E+02	8.323E+02	9.228E+02	1.482E+03	*6.247E+09	*6.247E+09
U-235	6.389E+01	6.395E+01	6.407E+01	6.453E+01	6.609E+01	7.767E+01	*2.161E+06	*2.161E+06
U-238	2.606E+02	2.613E+02	2.625E+02	2.672E+02	2.821E+02	3.697E+02	*3.361E+05	*3.361E+05

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
U-234	4.920E+01	0.000E+00	3.151E-02	7.933E+02	3.151E-02	7.933E+02
U-235	2.200E+00	0.000E+00	3.913E-01	6.389E+01	3.913E-01	6.389E+01
U-238	4.860E+01	0.000E+00	9.592E-02	2.606E+02	9.592E-02	2.606E+02

Summary : D[redacted]y Burdock
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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated
DOSE(j,t), mrem/yr

0Nuclide (j)	Parent (i)	THF(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	U-234	1.000E+00	1.550E+00	1.543E+00	1.529E+00	1.478E+00	1.332E+00	8.244E-01	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	2.169E-06	6.480E-06	1.498E-05	4.344E-05	1.138E-04	2.320E-04	0.000E+00	0.000E+00
U-234	ΣDOSE(j)		1.550E+00	1.543E+00	1.529E+00	1.478E+00	1.332E+00	8.246E-01	0.000E+00	0.000E+00
0Th-230	U-234	1.000E+00	1.046E-05	3.075E-05	7.068E-05	2.045E-04	5.355E-04	1.097E-03	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	9.922E-12	6.757E-11	3.502E-10	3.012E-09	2.288E-08	1.543E-07	0.000E+00	0.000E+00
Th-230	ΣDOSE(j)		1.046E-05	3.075E-05	7.068E-05	2.045E-04	5.355E-04	1.097E-03	0.000E+00	0.000E+00
0Ra-226	U-234	1.000E+00	1.801E-07	1.273E-06	6.732E-06	5.928E-05	4.719E-04	3.819E-03	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	1.252E-13	1.902E-12	2.225E-11	5.817E-10	1.345E-08	3.594E-07	0.000E+00	0.000E+00
Ra-226	ΣDOSE(j)		1.801E-07	1.273E-06	6.732E-06	5.928E-05	4.719E-04	3.820E-03	0.000E+00	0.000E+00
0Pb-210	U-234	1.000E+00	6.141E-10	8.003E-09	8.404E-08	1.942E-06	3.644E-05	5.283E-04	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	3.603E-16	9.632E-15	2.161E-13	1.467E-11	8.154E-10	4.173E-08	0.000E+00	0.000E+00
Pb-210	ΣDOSE(j)		6.141E-10	8.003E-09	8.404E-08	1.942E-06	3.644E-05	5.283E-04	0.000E+00	0.000E+00
0U-235	U-235	1.000E+00	8.608E-01	8.598E-01	8.578E-01	8.505E-01	8.268E-01	6.943E-01	0.000E+00	0.000E+00
0Pa-231	U-235	1.000E+00	7.529E-05	2.339E-04	5.483E-04	1.602E-03	4.209E-03	8.638E-03	0.000E+00	0.000E+00
0Ac-227	U-235	1.000E+00	7.045E-07	4.542E-06	2.255E-05	1.796E-04	1.153E-03	5.160E-03	0.000E+00	0.000E+00
0U-238	U-238	5.400E-05	7.404E-05	7.370E-05	7.300E-05	7.055E-05	6.357E-05	3.926E-05	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	4.661E+00	4.650E+00	4.628E+00	4.547E+00	4.307E+00	3.286E+00	0.000E+00	0.000E+00
U-238	ΣDOSE(j)		4.661E+00	4.650E+00	4.628E+00	4.548E+00	4.307E+00	3.286E+00	0.000E+00	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

Summary : D[redacted]y Burdock
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Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated
S(j,t), pCi/g

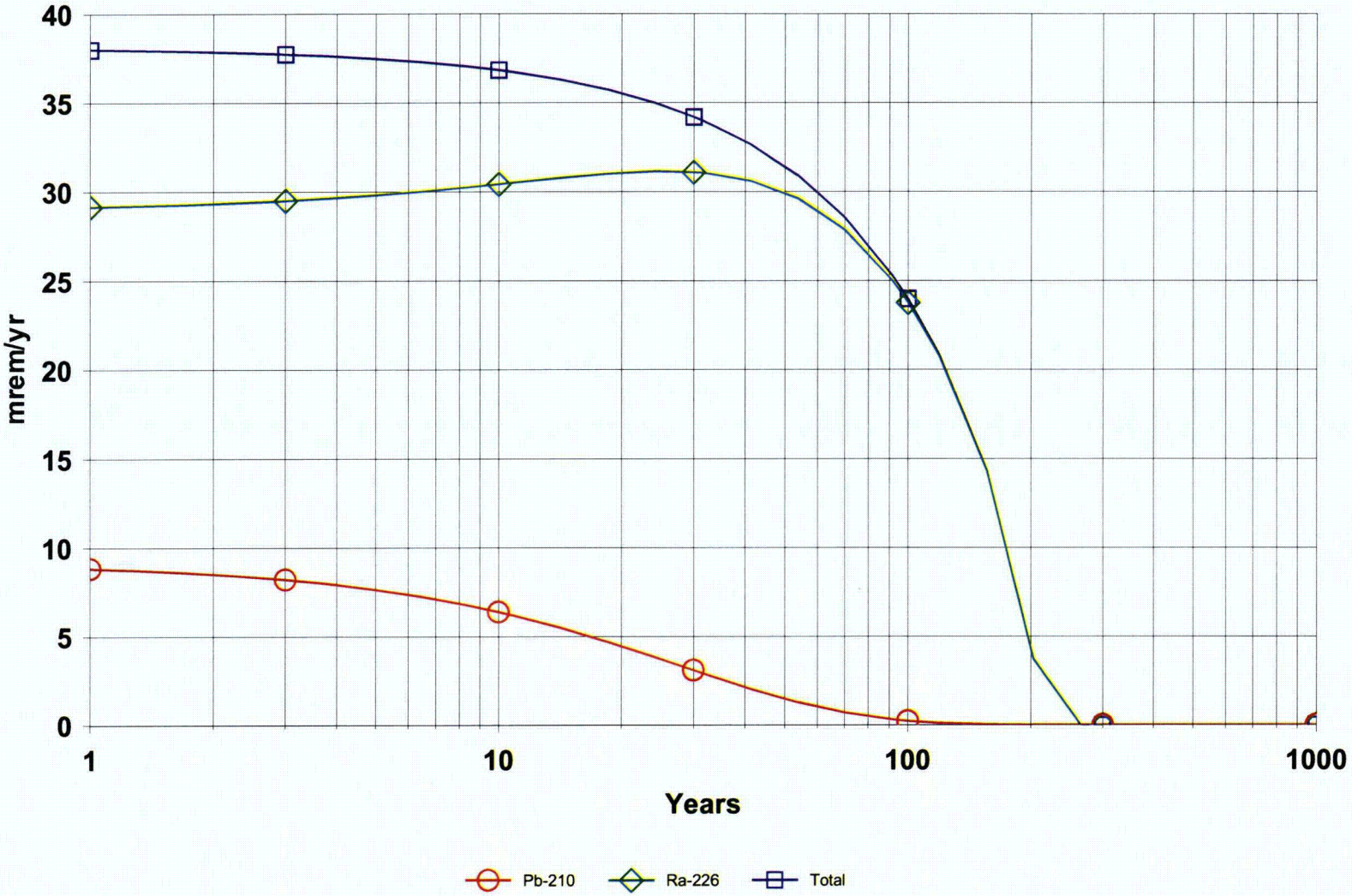
0Nuclide (j)	Parent (i)	THF(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	U-234	1.000E+00	4.920E+01	4.920E+01	4.919E+01	4.917E+01	4.912E+01	4.892E+01	4.836E+01	4.644E+01
U-234	U-238	9.999E-01	0.000E+00	1.378E-04	4.132E-04	1.377E-03	4.126E-03	1.370E-02	4.064E-02	1.302E-01
U-234	ΣS(j):		4.920E+01	4.920E+01	4.919E+01	4.917E+01	4.912E+01	4.893E+01	4.840E+01	4.657E+01
0Th-230	U-234	1.000E+00	0.000E+00	4.429E-04	1.329E-03	4.427E-03	1.327E-02	4.414E-02	1.315E-01	4.284E-01
Th-230	U-238	9.999E-01	0.000E+00	6.201E-10	5.580E-09	6.199E-08	5.574E-07	6.176E-06	5.514E-05	5.955E-04
Th-230	ΣS(j):		0.000E+00	4.429E-04	1.329E-03	4.428E-03	1.327E-02	4.415E-02	1.316E-01	4.290E-01
0Ra-226	U-234	1.000E+00	0.000E+00	9.592E-08	8.629E-07	9.576E-06	8.588E-05	9.423E-04	8.185E-03	8.058E-02
Ra-226	U-238	9.999E-01	0.000E+00	8.953E-14	2.417E-12	8.941E-11	2.407E-09	8.823E-08	2.313E-06	7.746E-05
Ra-226	ΣS(j):		0.000E+00	9.592E-08	8.629E-07	9.576E-06	8.588E-05	9.424E-04	8.187E-03	8.066E-02
0Pb-210	U-234	1.000E+00	0.000E+00	9.862E-10	2.621E-08	9.200E-07	2.149E-05	5.236E-04	6.643E-03	7.589E-02
Pb-210	U-238	9.999E-01	0.000E+00	6.914E-16	5.531E-14	6.539E-12	4.711E-10	4.109E-08	1.716E-06	7.068E-05
Pb-210	ΣS(j):		0.000E+00	9.862E-10	2.621E-08	9.200E-07	2.149E-05	5.237E-04	6.645E-03	7.596E-02
0U-235	U-235	1.000E+00	2.200E+00	2.200E+00	2.200E+00	2.199E+00	2.196E+00	2.188E+00	2.164E+00	2.083E+00
0Pa-231	U-235	1.000E+00	0.000E+00	4.655E-05	1.396E-04	4.652E-04	1.394E-03	4.624E-03	1.369E-02	4.360E-02
0Ac-227	U-235	1.000E+00	0.000E+00	7.331E-07	6.459E-06	6.676E-05	4.956E-04	3.228E-03	1.224E-02	4.214E-02
0U-238	U-238	5.400E-05	2.624E-03	2.624E-03	2.624E-03	2.623E-03	2.620E-03	2.610E-03	2.582E-03	2.484E-03
U-238	U-238	9.999E-01	4.860E+01	4.859E+01	4.859E+01	4.857E+01	4.852E+01	4.833E+01	4.780E+01	4.601E+01
U-238	ΣS(j):		4.860E+01	4.860E+01	4.859E+01	4.857E+01	4.852E+01	4.833E+01	4.781E+01	4.601E+01

THF(i) is the thread fraction of the parent nuclide.
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Attachment 4.0

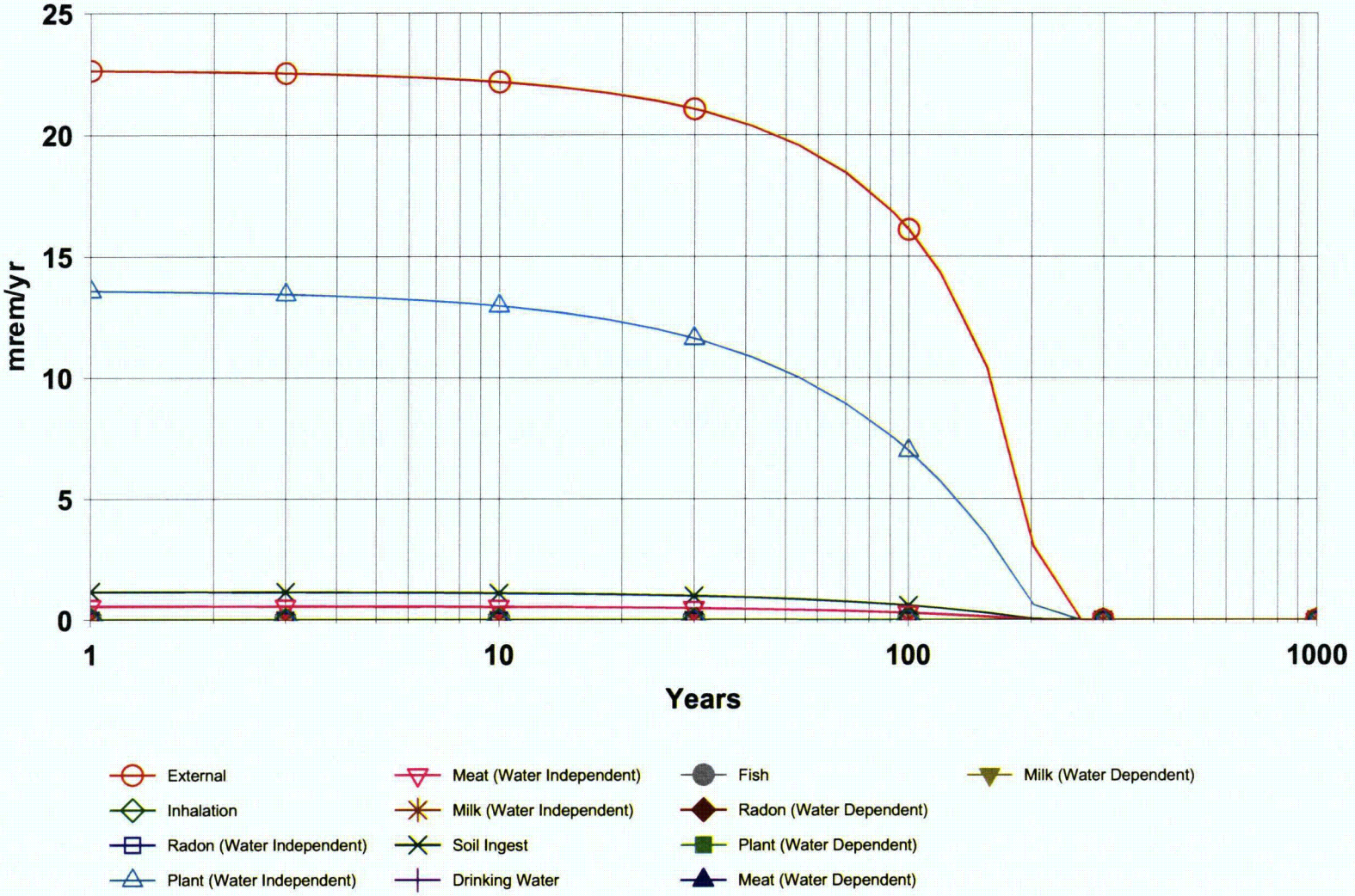
RESRAD Radium Dose Figures

DOSE: All Nuclides Summed, All Pathways Summed



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DOSE: All Nuclides Summed, Component Pathways

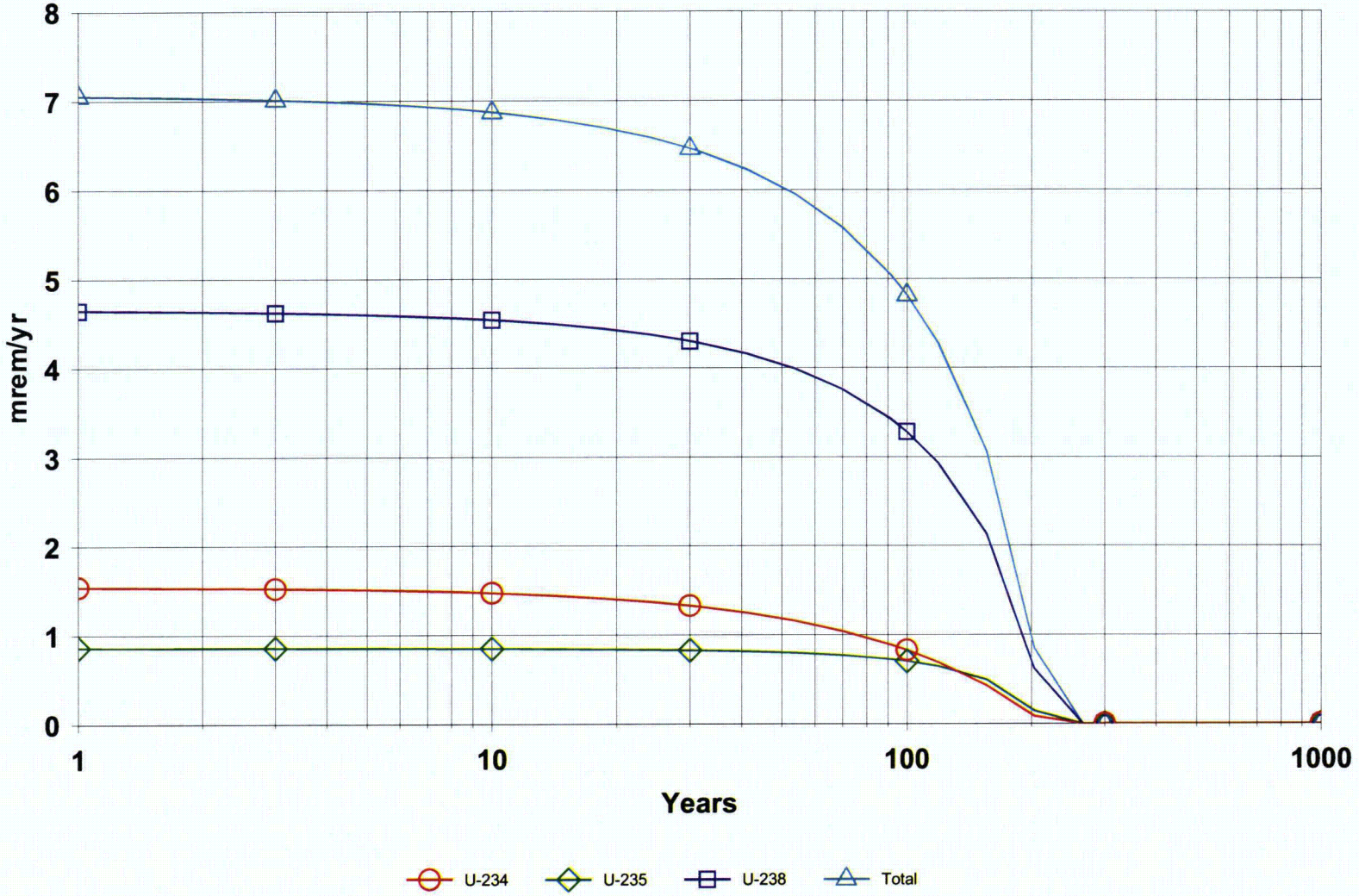


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Attachment 4.1

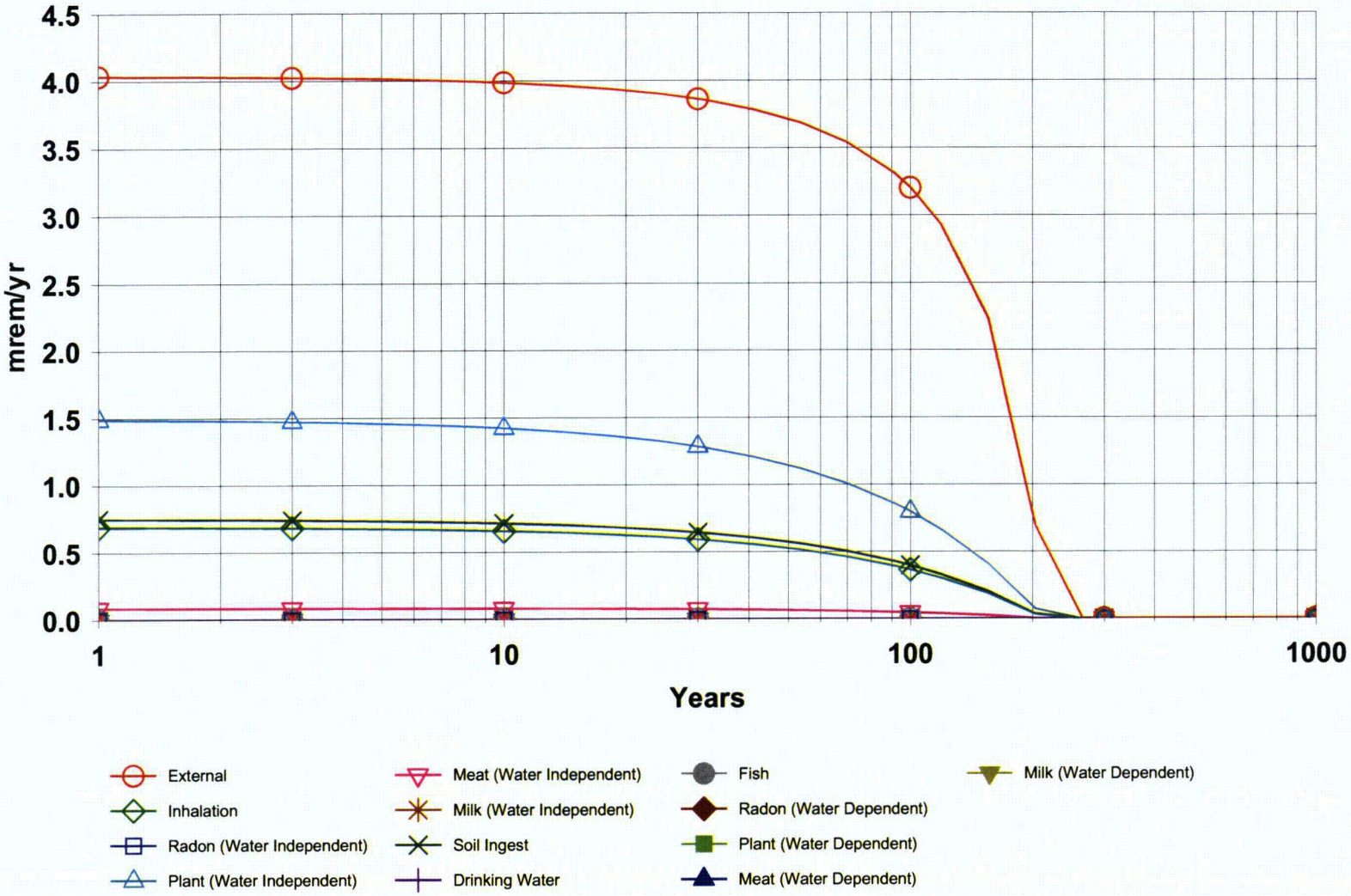
RESRAD Uranium Dose Graphics

DOSE: All Nuclides Summed, All Pathways Summed



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DOSE: All Nuclides Summed, Component Pathways



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POWERTECH (USA) INC.

APPENDIX 6.1-A

BASELINE RADIOLOGICAL REPORT

BASELINE RADIOLOGICAL INVESTIGATION REPORT

POWERTECH (USA) INC.
DEWEY-BURDOCK ISR LICENSING SUPPORT
KNIGHT PIESOLD PROJECT NO. DV10200279.01

January 29, 2009

Prepared By:

ERG

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, New Mexico 87113

BASELINE RADIOLOGICAL INVESTIGATION REPORT

POWERTECH (USA) INC.
BASELINE SOIL AND VEGETATION RADIOLOGICAL INVESTIGATION
KNIGHT PIESOLD PROJECT NO. DV10200279.01

Prepared for: Knight Piesold, Inc.
Denver, CO

Prepared by: Environmental Restoration Group, Inc
Albuquerque, NM

Author Approval

Michael J. Schierman, Health Physicist — 1/29/2009 Date

Project Manager Approval:

Paul Bergstrom, Project Manager — 1/29/2009 Date

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Acronyms and Abbreviations

Acronym	Definition
AMS	Air Monitoring Station
CFR	Code of Federal Regulations
cm	centimeters
cpm	counts per minute
Powertech	Powertech Uranium (Corporation)
ERG	Environmental Restoration Group
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
GPS	Global Positioning System
IQR	Interquartile Range
ISR	In Situ Recovery
LLD	Lower Limit of Detection
MDC	Minimum Detectable Concentration
mrem/yr	millirem per year
N	sample number
NaI	Sodium Iodide (detector)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
pCi/f, g, L, m^2-s	picocuries per filter, gram, liter, per meter square per second
PIC	pressurized ion chamber
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RER	Relative Error Ratio
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
TLD	Thermoluminescent Detector
µCi/g, kg, ml	microcuries per gram, kilogram, milliliter

Acronyms and Abbreviations (concluded)

Acronym	Definition
U-nat	Natural Uranium
μR/hr	microRoentgens per hour

1.0 INTRODUCTION

This report presents the results of a baseline radiological study conducted for the Dewey-Burdock uranium in situ recovery (ISR) Project site owned by Powertech (USA), Inc. The work was performed by Environmental Restoration Group (ERG) under contract to Knight Piesold and Company (Knight Piesold) in accordance with the Baseline Radiological Sampling Plan, herein referred to as the Sampling Plan (ERG, 2007). The work was performed between August 2007 and August 2008 to obtain a radioactive materials license from the U.S. Nuclear Regulatory Commission (NRC).

1.1 Description of the Project

The approximately 11,000-acre project site is a sparsely populated region of open rangeland north of the city of Edgemont, South Dakota as shown in Figure 1-1. It is located in Fall River and Custer Counties on the southwest flank of the Black Hills uplift. It is part of the northern extension of the Edgemont uranium district discovered in the 1950s. The eastern portion of the site includes historic open pit surface uranium mines that have not been reclaimed. This is area is referred to as the surface mine area in this report.

The general process of uranium in situ recovery will involve the oxidation of uranium from its reduced state within the rollfront using a leaching solution (lixiviant) such as gaseous oxygen, hydrogen peroxide and gaseous carbon dioxide to solubilize the uranium ion causing it to go into solution in the ore bearing aquifer. Once solubilized, the uranium will be pumped to the surface where it is complexed onto ion exchange resins, then eluted and precipitated before drying and packaging. Mining units will include wellfields consisting of injection, recovery and monitoring wells. A central processing plant will be constructed on the site to recover and package the final product.

Figure 1-2 shows the site, including the roll fronts near the towns of Dewey and Burdock, the main permit and surface mine areas, and an anomalous area of elevated radioactivity in the north portion of the main permit area.

1.2 Purpose and Scope

This report provides baseline radiological data for surface soils (0-5 and 0-15 centimeters [cm]), subsurface soils to a depth of 1 meter, vegetation, locally grazed livestock, direct radiation, radon-222 in air; and radon-222 flux rates representative of the Dewey-Burdock property.

Field investigations, sample collection, and other quality-related work performed were conducted in accordance with applicable ERG standard operating procedures (SOPs), listed below:

- SOP .010 Radon Flux Cannister Deployment
- SOP 1.22 Determining the Concentration of Airborne Radioactive Particles
- SOP 1.05 Calibration of Scaler, Ratemeters

- SOP 1.51 Correlation between Gamma-Ray Count Rate and Exposure Rate
- SOP 2.02 General Equipment Decontamination
- SOP 2.07 Function Check of Equipment
- SOP 2.09 Correlation between Gamma-Ray Measurements and Radium-226 in Soil
- SOP 3.02 Sample Control and Documentation
- SOP 5.01 Setup and Operation of Trimble Pro XRS GPS Receiver with Trimble TSCe Datalogger
- SOP 5.02 Download, Correction, and Export of GPS Survey Data
- SOP 5.06 Creating, Uploading, and Navigating to Waypoints
- SOP 7.08 Surface and Shallow Subsurface Soil Sampling
- SOP 7.09 Vegetation Sampling

2.0 SCOPE OF BASELINE FIELD INVESTIGATION

2.1 Overall Scope of Project

The baseline radiological field investigations consisted of the following activities:

- Performing a Global Positioning System (GPS)-based gamma survey at 100 to 500 meter transects spanning the permit area;
- Performing a second GPS-based gamma survey of two, collective land application areas at 100 meter transects;
- Collecting surface soil samples (0-15 cm) at 75 randomly selected and at 5 biased locations;
- Collecting subsurface soil samples at nine randomly selected locations taken at depth intervals of 15-30 cm and 30-100 cm;
- Collecting surface (0-15 cm) and subsurface samples at the same depth intervals at 17 randomly selected locations in the land application areas;
- Monitoring radionuclide concentrations in air at one background and seven additional Air Monitoring Stations (AMS) locations;

- Collecting shallow (0-5 cm) surface soil and vegetation samples at each AMS;
- Monitoring radon concentrations in ambient air;
- Taking radon flux measurements at nine locations coinciding with the subsurface samples;
- Monitoring exposure rates, using a High Pressurized Ion Chamber (PIC) and thermoluminescent detectors (TLDs); and
- Collecting three samples of locally grazed livestock.

Table 2-1 summarizes the scope of the field investigation. All soil, vegetation, and air particulate samples were shipped under chain-of-custody to a National Environmental Accreditation Conference-certified laboratory, Energy Laboratories in Casper, Wyoming.

The units reported in the body, tables, and figures of this document vary. NRC Regulatory Guide 4.14, *Radiological Effluent and Environmental Monitoring at Uranium Mills* has specific requirements for unit reporting in tables. For example, NRC Regulatory Guide 4.14 recommends that radionuclide soil concentrations be reported in units of microcuries per gram (μCi/g). Where applicable, the tables adopt this unit. The main body of the report, however, adopts the unit picocuries per gram (pCi/g) for this parameter, as this unit is used more generally and consistently by the uranium industry and public.

3.0 GPS-BASED GAMMA-RAY (DIRECT RADIATION) SURVEYS

This section documents the results of the baseline direct radiation (gamma-ray) survey of the Dewey-Burdock property conducted in September 2007. An introduction to the survey methods is followed by a discussion of the results.

3.1 GPS Survey Methods

A GPS-based gamma survey was conducted over the main permit and surface mine areas of the Dewey-Burdock Uranium Project from September 13-27, 2007 and completed on July 14, 2008. Unshielded 2"x 2" sodium iodide (NaI) detectors were coupled to a ratemeter/scaler (set in ratemeter mode) and a Trimble Pro XRS GPS Receiver with Trimble TSCe Datalogger. Survey transects were spaced at approximately 500-meter intervals in the main permit area and 100 meters in the surface mine area. The transect spacing was reduced in the surface mine area in anticipation of finding a greater variation in gamma-ray emissions, due to historical mining in the area. The survey speed was maintained between 2 and 5 feet per second with x- and y-coordinates and gamma-ray count rates recorded every second. The detector height was held relatively constant at approximately 18 inches above ground surface. Depending on the terrain, field personnel surveyed using ATVs or by walking with the equipment in backpacks.

A second GPS-based gamma survey was conducted over the land application areas from July 17-19, 2008, using the Ludlum gamma-ray detection system described above with the same response characteristics as used in the initial survey. The scanning speed and detection height were unchanged from the initial survey and the transect spacing was 100 meters.

The function of survey instruments was checked at the beginning and end of each work day using a National Institute of Standards and Technology-traceable cesium-137 source. Calibration Sheets and function check data are provided in Appendix A.

3.2 Observed Gamma-Ray Count Rates

The gamma-ray count rate data were first evaluated as an entire set and then subdivided into the main permit (the entire data set less the surface mine area) and surface mine areas.

The observed gamma-ray count rates are presented as colors representing ranges of counts in Figure 3-1. This figure was developed using ArcView Geographic Information System (GIS), Version 9.3. Table 3-1 presents summary statistics for each data set. The difference between the median and mean count rates is the first indication of skewness in each of the data set. The count rate data are presented as histograms in Figures 3-2a through 3-2f. Neither the entire data set nor the main permit and surface mine area data sets pass the Anderson-Darling Normality Test at a 95 percent level of significance. That is, the data sets are not normally distributed. Additional tests of the data sets indicated that none of them followed a lognormal or exponential distribution. Furthermore, normalizing data transformations were conducted and the transformed data did not follow standard distributions. For these reasons, data analysis and summaries were performed using non-parametric statistical methods, which are less sensitive to extreme observations typical of skewed data distributions.

The median and interquartile range (IQR) are non-parametric measures of central tendency and variability, respectively. The IQR is the difference between the first (Q1) and third (Q3) quartiles, i.e., 25 and 75 percent of the data area less than Q1 and Q3, respectively. Any datum that is outside the range of 1.5 times the IQR lower than Q1 and 1.5 times the IQR higher than Q3 is considered an outlier. Extreme outliers, or extremes, are those exceeding three times the IQR to the left and right from the first and third quartiles respectively (Ott and Longnecker, 2001).

3.2.1 Entire Data Set

The summary statistics of the GPS-based gamma-ray survey are listed in Table 3.-1. The median of the gamma-ray count rates for the overall data set was 12,687 counts per minute (cpm). Field personnel collected 157,075 readings ranging from 5,550 to 460,485 cpm.

3.2.2 Main Permit Area

As shown in Table 3-1, the median gamma-ray count rate for the main permit area data set was 12,664 cpm for 71,148 observations. The IQR was 2,539 cpm. The count rates ranged from 5,883 to 171,243 cpm.

Low outliers in the main permit area data set, count rates below 7,790 cpm, appear to be limited to two clusters. High outliers in the data set, count rates exceeding 17,946 cpm, appear to be limited to an approximately 600-acre located at the north end of the main permit area. The area is identified as an anomalous area on Figure 3-1.

Approximately 0.2 and 3 % of the gamma-ray count rates observed in the main permit area are comprised of low and high outliers, respectively.

The majority of high outliers are located in the north section of the main permit area. The source of these anomalous gamma-ray count rate data has not been characterized. The count rates ranged from to 8,863 to 22,130 cpm and the median was 15,503 cpm.

High outliers also occur in the southeast portion of the main permit area. The elevated count rates occur near an artesian well and associated localized discharge. This area is identified on Figure 3-1.

3.2.2 Surface Mine Area

In the surface mine area, the gamma-ray count rates ranged from 5,550 to 460,485 cpm and the median was 12,717 cpm. The IQR was 3,658. In general, clusters of higher readings are associated with open pits, waste rock, and drainages in the surface mine area. Low and high outliers in this area are gamma-ray count rates below 5,638 cpm and exceeding 20,270 cpm, respectively. Approximately 0.004 and 9 % of the gamma-ray count rates observed in the surface mine area are low and high outliers, respectively.

3.2.3 Discussion

Given the greater variability in the surface mine area data and the assumption that elevated areas of activity are indicative of statistically significant differences in the data sets, the variations in the main permit and surface mine area data sets were compared using Levene's Test for Equal Variance, a non-parametric statistical test. The Levene's Test was also used to compare the variances of the main permit and anomalous north area gamma-ray count rates.

The null hypothesis in this case is that the two variances are equal. The results of the Levene's Test indicate that the null hypothesis can be rejected at the level of 95 percent significance level. That is, there is sufficient evidence for the variances in the main permit and surface mine area gamma-ray count rates being distinct. The variances in the main permit anomalous area are also distinct.

Based on the above information, it is clear that the surface mine area in the eastern quarter of the site exhibits radiological impacts from historic and/or current anthropogenic activities within the area. In addition, gamma-ray count rates in the anomalous north area also are clearly distinct from those in the wider main permit area. The precise sources of the differences are not relevant in the context of this investigation since they are part of the baseline or background radiological characteristics of the site.

3.2.4 Land Application Areas

The summary statistics of the GPS-based gamma-ray survey of the Dewey and Burdock land application areas are listed in Table 3-2. The gamma-ray count rates obtained in the main permit area are listed in the table to facilitate comparison between the land application areas and the larger area in which they occur. The data are shown as ranges of count rates on Figure 3-3.

Gamma-ray count rates in the land application areas are similar to those obtained in the larger main permit area. In the Dewey land application area, the median of the gamma-ray count rates was 12,523 cpm. Field personnel collected 23,480 readings ranging from 6,798 to 20,422 cpm. In the Burdock land application area, the median of the gamma-ray count rates was 12,232 cpm. Field personnel collected 13,647 readings ranging from 8,498 to 24,248 cpm.

4.0 BASELINE RADIOLOGICAL INVESTIGATION SOIL SAMPLING

This section presents the results of the baseline soil sampling conducted in October 2007 and July 2008. Baseline soil sampling in the land application areas is included. Table 2-1 summarizes the Dewey-Burdock baseline soil sampling program.

4.1 Sampling Strategy and Methods

The soil sampling strategy for the Dewey-Burdock site consisted of biased and random sampling at the eight AMS (Figure 4-1), a set of 80 additional locations (Figure 4-2), and 17 locations in the land applications areas (Figure 4-3).

Shallow (0-5 cm) surface soil samples were collected at the eight AMS locations (the seven surrounding and one background locations shown on Figure 4.1). The offsite AMS is located approximately 3 miles west of the site.

Biased samples were collected at 5 of the set of 80 locations, the remainder was placed randomly, using Visual Sampling Plan, Version 5.0. The biased samples were obtained in the surface mine area and selected to bound the upper range of radionuclide concentrations. The five biased samples are not sufficient to characterize radium-226 concentrations in impacted areas.

The additional 80 surface soil samples were collected from 0 to 15 cm below ground surface. Seventy one of these samples were collected using a hand shovel. A hand auger was used to collect samples at 0 to 15, 15 to 30, and 30 to 100 cm at nine of the 80 locations.

The 17 land application soil samples were placed randomly, using Visual Sampling Plan, Version 5.0. With one exception, the samples were collected from 0 to 15, 15 to 30, and 30 to 100 cm below ground surface, using a hand auger. The exception occurred due to refusal encountered in one borehole.

All samples were analyzed for radium-226. Ten of the set of 80 samples were also analyzed for natural uranium, lead-210, and thorium-230. Thirteen duplicates were collected in the set of 80 samples: 11 with the surface set and two with the subsurface set. All duplicate samples in this set were analyzed for radium-226 while two were also analyzed for natural uranium, thorium-230, and lead-210.
All of the samples collected from the land application area were analyzed for radium-226, natural uranium, thorium-230 and lead-210. Duplicate samples were collected at one location for the three depth intervals and analyzed for the same radionuclides.

The analytes and corresponding analytical methods were:

- Radium-226 via gamma spectroscopy or radon emanation: U.S. Environmental Protection Agency (EPA) Methods 901.1 and 903.1, respectively. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980. The majority of radium-226 analyses were performed using EPA Method 901.1.

- Thorium-230: EPA 907.0 *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980.

- Natural Uranium: EPA 6020 ICP-MS, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*, June, 2007

- Lead-210: EPA 909.0M *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980.

4.2 Analytical Results for Soil Samples

Table 4-1 presents the radionuclide concentrations in soil samples collected as part of the baseline radiological investigation. The radium-226 results described in this section are those determined using only EPA Method 901.1.

Samples are identified as follows, with duplicates labeled as "dup":

- AMS: air monitoring station
- SMA: surface mine area
- MPA: main permit area
- NEA: northeast area
- RFA: roll front area
- LAN: land application area north (Dewey)
- LAS: land application south (Burdock)

The laboratory analytical data reports are provided in Appendix B.

4.3 Analysis of Concentration of Radium in Soil

The purpose of the following analysis is to determine the baseline distributions of radium-226 concentrations in site soils.

4.3.1 Surface Soil Concentrations in Overall Data Set

In the set of 80 surface samples, the mean and median radium-226 concentrations are 2.9 and 1.3 pCi/g, respectively. Q1 and Q3 are 1.1 and 1.7 pCi/g, respectively (Table 4-1). The IQR is 0.6. The mode is 1.1 pCi/g (12 observations). One result (0.45 pCi/g, Sample Location SMA-18) was a low outlier. Thirteen values exceeded 2.3 pCi/g, the cutoff for high outliers.

The soil data were fitted to normal and lognormal distributions. The p-values for both distributions are less than 0.005, indicating that at a 95% confidence level ($p = 0.05$), the distributions are non-normal and non-lognormal.

Considering that the data do not fit normal or lognormal distributions, and clear differences in the gamma-ray count rates obtained in the surface mine and main permit areas are indicative of differences in the levels of gamma-emitting radionuclides therein, the set of surface soil data was divided into surface mine and main permit area subsets, as discussed in the following sections.

4.3.2 Surface Soil Concentrations in Surface Mine Area

Twenty-five surface soil samples were collected in the surface mine area. The mean and median radium-226 concentrations in the surface mine area are 5.9 and 1.4 pCi/g respectively. Q1 and Q3 are 1.0 and 2.75 pCi/g, respectively. The IQR is 1.75. The mode is 1.0 pCi/g (3 observations).

The data were compiled into a histogram and fitted to a normal distribution and a lognormal distribution. When tests for goodness of fit were applied to the distributions, the associated p-values were both less than 0.005 for the normal and lognormal distributions. These low p-values denote the hypotheses that the data came from a normal distribution or a lognormal distribution are rejected at a 95% confidence level.

There are five values exceeding 5.9 pCi/g, the cutoff for outliers. The outliers are the radium-226 concentrations in the five biased samples, all collected in the surface mine area. All of the other samples (75 of 80) were placed randomly in undisturbed areas. The five biased samples are not sufficient to characterize radium-226 concentrations in impacted areas.

With the outliers omitted from the surface mine area data set, the process of fitting its histogram was repeated. The resulting p-values were 0.006 (for normal distribution) and 0.418 (lognormal distribution). The p-value for the data being a lognormal distribution is greater than 0.05, thus the distribution is accepted as lognormal, with statistical significance.

The central tendency and variability of a lognormal distribution are best represented by the geometric mean and geometric standard deviation, each of which is 1.3 pCi/g radium-226 in the case of the surface mine area data set. The data lie within a population range of $1.3/1.3^2$ to $1.3*1.3^2$, or 0.76 to 2.2 pCi/g.

4.3.3 Surface Soil Concentrations in Main Permit Area

Fifty-five surface soil samples were collected in the main permit area. The data were compiled into a histogram and fitted to normal and lognormal distributions. When tests for goodness of fit were applied to the distributions, the associated p-values were both less than 0.005. These low p-values denote the hypotheses that the data came from a normal or lognormal distribution are both rejected at a 95% confidence level.

The mean and median radium-226 concentrations in the main permit area are 1.5 and 1.3 pCi/g respectively. Q1 and Q3 are 1.1 and 1.7 pCi/g, respectively. The IQR is 0.6 pCi/g. There are three values exceeding 2.6 pCi/g, the cutoff for outliers in the main permit area data set. With the outliers omitted from the main permit area data set, the process of fitting its histogram was repeated. The results of fitting the histogram without the possible outliers were p-values of less than 0.005 (normal distribution) and 0.068 (lognormal distribution). The p-value for the data being a lognormal distribution is greater than 0.05, thus the distribution is accepted as lognormal, with statistical significance.

The geometric mean and geometric standard deviation of the set of main permit area radium-226 concentrations are each 1.3 pCi/g. The data lie within a population range of $1.3/1.3^2$ to $1.3*1.3^2$, or 0.76 to 2.2 pCi/g.

4.3.3.1 North Section of Main Permit Area

It was stated above that elevated gamma-ray count rates were observed in an approximately 600-acre area located at the north end of the main permit area. Considering that the elevated levels are likely due to relatively higher increased levels of one or more gamma-emitting radionuclides, radium-226 concentrations in soil samples collected from this area were evaluated.

Eight surface soil samples were collected in this area (MPA-R01, NEA-R02, NEA-R03, NEA-R04, NEA-R05, RFA-03, RFA-06, and RFA-17). One of these samples was considered an outlier of the main permit area data set (NEA-R05).

There are too few soil samples collected in this area to characterize it statistically. However, the gamma-ray count rates therein differ from the main permit area, with statistical significance.

4.3.4 Surface Soil Concentrations in Land Application Area Soils

Radium-226 concentrations in surface soils in the land application areas are summarized as follows:

- In both areas, radium-226 concentrations ranged from 0.7 to 4.4 pCi/g, with a median of 0.9 and average of 1.1 pCi/g.
- The median radium-226 concentration in the Dewey land application area was 1.0 pCi/g.
- The median radium-226 concentration in the Burdock land application area was 0.8 pCi/g.

4.3.5 Discussion

Although the distributions of the main permit and surface mine area radium-226 concentration data sets are similar, the gamma-ray count rate distributions in these two areas differ, with statistical significance. The gamma-ray count rates observed in the anomalous portion of the main permit area also differ from the main permit area.

4.4 Subsurface Soil Sampling Results

Table 4-1 lists the subset of subsurface biased samples that were collected at depth in the Dewey and Burdock roll front areas: RFA-B01, RFA-B02 RFA-B13 RFA-B15, RFA-B17, RFA-B21, RFA-B30, RFA-B36, and RFA-B37. Subsurface radium-226 concentrations in these samples, ranging from 0.7 to 5.6 pCi/g, are comparable to those observed in the associated 0 to 15 cm surface samples in the samples. There is no apparent trend with depth.

Subsurface radium-226 concentrations in the land application areas can be summarized as follows:

- Radium-226 concentrations range from 0.4 to 4.1 pCi/g, with a median of 0.9 pCi/g.
- Radium-226 concentrations in the Dewey land application area have a median of 1.2 pCi/g.
- Radium-226 concentrations in the Burdock land application area have a median of 0.8 pCi/g.

The subsurface results in both land application areas are comparable to those observed in the 0 to 15 cm surface samples in the samples. There is no apparent trend with depth.

4.5 Other Radiological Parameters

Table 4-1 summarizes the analytical results for all samples analyzed for the extended suite of radiological parameters (all locations and depths combined). Table 4-2 summarizes the concentrations of all radionuclides by depth interval. Arithmetic and geometric means and standard deviations can be used to compare normal and lognormal distributions, respectively. Medians can be used to compare non-parametric distributions. A positive relationship between

radium-226 concentrations and concentrations of natural uranium, thorium-230, and lead-210 is apparent at all depths. At 0 to 15, 15 to 30, and 30 to 100 cm:

- Radium-226 concentrations are 1.0 (median), 1.0 (median) and 1.1 (geometric mean) pCi/g.
- Thorium-230 concentrations are 0.6 (mean), 0.5 (median) and 0.7 (mean) pCi/g.
- Natural uranium concentrations are 1.0 (mean), 1.0 (median) and 1.2 (geometric mean) pCi/g.
- Lead-210 concentrations are 1.2 (mean), 1.1 (median) and 0.9 (mean) pCi/g.

The concentrations of uranium, lead-210, and thorium-230 are consistently lower in the Burdock than in the Dewey Land Application Area, indicating that the lower radium-226 concentration in Burdock is not a laboratory artifact.

4.6 Soil Data Quality

4.6.1 Analysis of Duplicate Samples

This section briefly summarizes the results of the quality control (QC) samples collected for the baseline soil sampling program. The results of this QC effort are documented in Table 4-3, which lists the analytical results for each duplicate pair along with corresponding errors and lower limits of detection (LLDs). Table 4-3 documents associated comparisons, presenting the corresponding RPD (in the case of natural uranium) and/or Replicate Error Ratio (RER) for each QC pair. The calculation of RPDs and RERs is a standard technique used to evaluate laboratory precision.

The RPD is calculated as follows:

$$RPD = \frac{|A - B|}{\frac{A + B}{2}}$$

Where A and B are the sample and duplicate results, respectively.

The RER is calculated as follows:

$$RER = \frac{|S - R|}{\sqrt{(Sx0.15)^2 + (E_s)^2} + \sqrt{(Rx0.15)^2 + (E_R)^2}}$$

Where S and are the sample and duplicate concentrations, respectively. E_S and E_R are the sample (E_S) and duplicate errors (E_R). The factor of 0.15 accounts for any inherent systematic error which cannot be quantified.

The acceptance criteria are an RPD and RER of less than 40 and 1 percent for data above the minimal detectable concentration (MDC), respectively, as established in a Quality Assurance Project Plan (QAPP) (ERG 2006).

This data set shows four cases where the RER for lead-210 was greater than 1 and five cases where the RPD exceeded 40. There are three cases where the RER for radium-226 is exceeded.

The consequences of the few results exceeding the acceptance criteria are minimal since in each case the concentrations are low. In addition, lead-210 largely has no impact when addressing the impact of the baseline radiological characteristics of the site and potential impacts from site operations.

There is close agreement for all other analytical results reported for each duplicate pair collected for all parameters. Overall, duplicate results are generally comparable for the majority of QC samples collected. Considering the low level of radioactivity observed in most of the QC pairs, the laboratory performance on blind duplicates is satisfactory.

4.6.2 Limits of Detection

A summary of the results with respect to reporting limits and minimum detectable concentrations (MDCs) is as follows:

- The radium-226, lead-210, and thorium-230 LLDs (reported as MDCs or reporting limits) in the NEA, MPA, RFA, and SMA soil samples were all $1*10^{-7}$ µCi/g.
- The natural uranium LLDs in the NEA, MPA, RFA, and SMA samples ranged from $1.7*10^{-8}$ to $2.0*10^{-8}$ µCi/g.
- None of the results NEA, MPA, RFA, and SMA samples were below their respective LLDs.
- The lead-210 LLDs for the LAN and LAS samples ranged from $1.9*10^{-6}$ to $3.8*10^{-6}$ µCi/g. In all but one case, the lead-210 results were lower than their respective LLDs.
- The radium-226 LLDs for the LAN and LAS samples ranged from $4.0*10^{-8}$ to $1.0*10^{-7}$ µCi/g. All of the LAN and LAS results exceeded their respective LLDs.
- The thorium-230 LLD for the LAN and LAS samples was $1.0*10^{-7}$ µCi/g. Results for 17 of the 53 (surface and subsurface) samples were reported below $1.0*10^{-7}$ µCi/g.
- The natural uranium LLD for the LAN and LAS samples was $7.0*10^{-9}$ µCi/g. All of the results exceeded the LLD.

The LLD recommended in RG 4.14 for natural uranium, thorium-230, radium-226, and lead-210 in soils is $2*10^{-7}$ µCi/g. The only case for which the guidance values were not attained was the LLD for lead-210 in the LAN and LAS samples.

5.0 RADIUM-226 ESTIMATES BASED ON GAMMA-SOIL CORRELATION

To estimate site-wide radium-226 concentrations at each of the GPS-based gamma survey points, a gamma-soil radium correlation was established by performing a regression between the surface soil analytical results documented in Section 4 for the 80 surface (0 to 15 cm) soil samples and one-minute integrated direct radiation measurements collected at each of these locations prior to sample collection. The measurements were collected with the same Ludlum 44-10/2221 2-in by 2-in sodium iodide gamma detection systems used in the GPS-based gamma survey. The measurements are listed in Table 4-1.

Two linear correlation iterations were performed to derive the site-wide gamma-soil radium correlation used as the basis for the soil radium-226 values plotted in Figures 5-1 and 5-2. The first attempt included all 80 data points, followed by the use of a truncated data set that excluded outlying data.

Figure 5-1 displays a plot of concentrations of radium in soil over 1-minute counts of gamma radiation (all 80 points). Overlaid on the plot are a linear fit and its 95% predicted interval. The linear fit of the data resulted in an R^2 of 0.75, denoting that 75% of the variability of the data is accounted for by the linear fit. The equation of the linear fit is:

$$[Radium\text{-}226] = -0.87+0.0002 \times Gamma\ Count\ Rate$$

Where [Radium-226] is the predicted concentration based on the gamma-ray count rate in cpm.

While the R^2 determines that the linear fit is a fair model for all the data, it appears that outliers and large values of radium-226 are increasing the slope of the line, resulting in an over prediction of radium-226 concentrations. The regression analysis was repeated after removing the five outlying radium-226 results from the surface mine area data set. The data without the five outliers are shown in Figure 5-2 and the equation of the linear fit is:

$$[Radium\text{-}226] = -1.04+0.000187 \times Gamma\ Count\ Rate$$

This model has an R^2 of 0.43, denoting a poor fit, the model accounting for 43 percent of the variance in the data set.

The two equations predict slightly different radium-226 concentrations. Using an arbitrary gamma count rate of 10,000 cpm in both equations yields predicted radium-226 concentrations of 1.1 pCi/g in the first case and 0.83 pCi/g with the five outliers removed.

Using the latter equation, soil radium-226 concentrations were estimated for each discrete gamma survey measurement. These data were then interpolated as reflected in Figure 5-3, using

a grid block averaging method. The smallest sized grid block that fits within the survey transects without missing data coverage is 700x700 ft. Table 5-1 lists summary data for the predicted radium-226 concentrations in each of the major areas.

Of the 1,015 grid blocks covering the entire permit area, the majority (approximately 78 percent) of the interpolated surface radium-226 concentrations is less than 1.5 pCi/g. In the overall data set, the median predicted radium-226 concentration is 1.1 pCi/g and the range is 0.0 to 24.9 pCi/g. In the main permit area (excluding the anomalous area), the median predicted radium-226 concentration is 0.0 pCi/g and the range is 0.0 to 9.0 pCi/g. In the surface mine area, the median predicted radium-226 concentration is 1.5 pCi/g and the range is 0.0 to 24.9 pCi/g. In the anomalous portion of the main permit area, the median predicted radium-226 concentration is 1.4 pCi/g and the range is 0.0 to 2.3 pCi/g.

It is important to acknowledge that discrepancies between measured soil radium-226 concentrations reported by the laboratory and corresponding radium-226 concentrations estimated by gamma surveys are inevitable in a characterization survey of this nature and magnitude, given the heterogeneity of the site (at least in some areas) and differing detector-source geometry at various sample/survey locations.

At the same time, Figure 5-3 shows that without a gamma survey, reliance on a random soil sampling program alone would not have identified elevated areas of radioactivity at the site.

6.0 RADON FLUX MEASUREMENTS

This section documents the results of pre-operational radon-222 (radon) flux measurements and ambient air monitoring.

6.1 Radon Flux Measurements

The Sampling Plan specified that three rounds of radon flux measurements would be taken to characterize pre-operational conditions in accordance with NRC Regulatory Guide 4.14. The following documents the results of the three rounds of measurements taken in September 2007; and April and July 2008.

Radon flux rates were measured at nine locations on three occasions in the Dewey and Burdock roll front areas. The locations are shown on Figure 4-1. The locations coincide with the nine soil samples collected from 0 to 100 cm below ground surface (not in land application areas).

The first round of flux canisters was deployed on September 26, retrieved on September 27, and analyzed on September 28, 2007. The second round of flux canisters was deployed on April 20, retrieved on April 21, and analyzed on April 22, 2008. The third round of flux canisters was deployed on July 14, retrieved on July 15, and analyzed on July 16, 2008. The canisters were analyzed using EPA Test Method 115, *Monitoring for Radon-222 Emissions* (40 *Code of Federal Regulations* [CFR] 61, Appendix B) . Results are documented in the Table 6-1. Sampling for the three periods yielded average flux rates of 1.22, 0.74, and 1.5 picocuries per

meter squared second (pCi/m^2-s), respectively. Flux rates ranged between 0.68 and 1.77 pCi/m^2-s in Fall 2007, 0.28 and 1.33 pCi/m^2-s in Spring 2008 and 0.48 and 2.38 pCi/m^2-s in Summer 2008.

These values are one to two orders of magnitude below the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) requirements of 20 pCi/m^2-s specified in 10 CFR 40, Appendix A, Criterion 6. Although the latter requirement applies to tailings and thus is not directly germane to this characterization, it is useful as a context to demonstrate the relatively low magnitude of baseline radon flux rates measured at the site.

Completed radon flux measurement forms are provided in Appendix C.

7.0 VEGETATION CHARACTERIZATION

This section documents the results of the first round of vegetation sampling conducted for the baseline radiological characterization.

7.1 Sampling Methods and Analytes

One vegetation sample was collected at each AMS in August, 2007; and April and July, 2008. The samples were collected using grass clippers and placed in large plastic lawn bags, labeled appropriately, and stored in a laboratory supplied cooler until transferred to the laboratory. The analytes and corresponding analytical methods were the same as those used for soil. Polonium-210, determined using a laboratory-specific digestion and alpha spectrometry method, was added to the analytical suite (Energy Laboratories, 2008).

7.2 Results

Table 7-1 presents the results of the vegetation sampling. There appear to be no temporal or spatial trends in the data. The following list is a summary of the averages for the set of samples:

- Radium-226 concentrations ranged from 0.02 to 0.09 pCi/g, averaging 0.05 pCi/g.
- Natural uranium concentrations ranged from 0.01 to 0.04 pCi/g, averaging 0.02 pCi/g.
- Thorium-230 concentrations ranged from 0.01 to 0.03 pCi/g, averaging 0.02 pCi/g.
- Lead-210 concentrations ranged from 0.6 to 1.7 pCi/g, averaging 1.2 pCi/g.
- Polonium-210 concentrations ranged from 0.08 to 0.23 pCi/g, averaging 0.15 pCi/g.

Analytical errors associated with the reported concentrations results are high, relative to the reported means.

With the exception of lead-210, radionuclide concentrations in the vegetation samples are one to orders of magnitude lower than those in the corresponding shallow (0 to 5 cm) soil samples. There are no apparent spatial or temporal patterns in the vegetation.

8.0 AIR MONITORING

This section documents the results of baseline radiological air monitoring, which was comprised of two tasks: high volume particulate and radon sampling.

Eight Hi-Q Model HVP-4200AFC high volume air samplers were established within and surrounding the proposed permit area. The samplers operated continuously from August 13, 2007 to August 13, 2008. The locations of the air samplers are shown on Figure 4-1.

Passive track etch detectors were placed at each of the eight AMS locations and an additional eight biased locations to measure radon-222 concentrations in air. For QC purposes, one duplicate detector was placed at each of two locations during each sampling event. The locations of the passive radon detectors are also shown on Figure 4-1.

8.1 Sampling Methods and Analytes

8.1.1 High Volume Air Sampling

Airborne particulates were collected using the Hi-Q high volume air samplers. The samplers operated nearly continuously from August 2007 to August 2008. The locations of the air samplers are shown on Figure 4-1.

Each high volume air sampler was equipped with an 8-in. by 10-in. 0.8 micron glass fiber filter paper. The air filters were collected approximately bi-weekly, prior to saturation, from each of the eight air samplers. Flow rate and total flow data were recorded at the same time. Over the course of 351 days, the filters were collected as follows:

- Period 1: August 13 to October 2, 2007
- Period 2: October 2, 2007 to January 4, 2008
- Period 3: January 4 to April 1, 2008.
- Period 4: April 1 to July 9, 2008
- Period 5: July 9 to August 13, 2008

The filters were composited and digested by the external analytical laboratory. The samples were analyzed for radium-226, thorium-230, natural uranium, and lead-210, using the same methods as listed for the soil samples.

The laboratory data were reported in units of picocuries per filter composite (pCi/f). The data were converted to units of micocuries per milliliter (μCi/ml), as follows:

$$Concentration, \mu Ci/ml = \frac{Filter\ Concentration}{Total\ Flow}(1*10^{-12})$$

The units of total flow and filter concentration in the equation are cubic meters and pCi/f, respectively. The resulting concentrations for each radionuclide and high volume sampler were compared to effluent concentration limits listed in Table 2 of 10 CFR 20 Appendix B and reported in Table 8-1 as percentages of the respective effluent limits. The most conservative effluent limits were applied to thorium-230 ($3*10^{-12}$ μCi/ml) and lead-210 ($6*10^{-13}$ μCi/ml). The Class D and W limits were applied to natural uranium ($3*10^{-12}$ μCi/ml) and radium-226 ($9*10^{-13}$ μCi/ml), respectively.

8.1.2 Ambient Radon

Radtrak passive radon-222 (track etch) detectors were used to determine ambient radon concentrations in air.

The detector measures average radon concentrations in air over the measurement period. The results are reported in picocuries per liter (pCi/L).

With an overlap in time across the group of detectors, but not on an individual location basis, the four quarterly measurement periods were: August 14 to September 27, 2007; September 27, 2007 to February 1 through 12, 2008; February 1 through 12, 2008 to May 17, 2008; and May 17 to July 17, 2008.

8.2 Results

8.2.1 High Volume Air Sampling

In general and relative to one another (e.g., natural uranium to radium-226), the average concentrations of radionuclides were consistent at each location from period to period. The radionuclide with the lowest average concentration was radium-226, followed by thorium-230, natural uranium, and lead-210. Average radium-226 concentrations were five orders of magnitude lower than lead-210 concentrations. The data are listed in Table 8-1, where they are also summarized as averages and ranges.

Site-wide, the data can be summarized as follows:

- Natural uranium concentrations ranged from $-3.0*10^{-17}$ to $9.1*10^{-15}$ μCi/ml and averaged $7.5*10^{-16}$ μCi/ml.
- Thorium-230 concentrations ranged from $-9.5*10^{-19}$ to $5.6*10^{-17}$ μCi/ml and averaged $1.2*10^{-17}$ μCi/ml.

- Radium-226 concentrations ranged from $-4.9*10^{-17}$ to $4.7*10^{-17}$ µCi/ml and averaged $8.9*10^{-19}$ µCi/ml.

- Lead-210 concentrations ranged from $-1.1*10^{-16}$ to $4.1*10^{-14}$ µCi/ml and averaged $1.4*10^{-14}$ µCi/ml.

There are no clear patterns in the radionuclide concentrations, when evaluating them spatially or temporally. Natural uranium concentrations at each location were on the order of 10^{-16} µCi/ml over the course of monitoring. Thorium-230 concentrations fluctuated between the orders of 10^{-17} and 10^{-18} µCi/ml. Radium-226 concentrations fluctuated between the orders of 10^{-17} and 10^{-19} µCi/ml. Finally, lead-210 concentrations at each location were all on the order of 10^{-14} µCi/ml over the course of monitoring.

With the exception of natural uranium, the values determined above are similar to U.S. background concentrations reported in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Report to the General Assembly, Sources and Effects of Ionizing Radiation, Annex B. The regional concentrations reported in this reference document are: uranium-238 ($2.4*10^{-17}$ to $1.4*10^{-16}$ µCi/ml), thorium-230 ($1.6*10^{-17}$ µCi/ml), radium-226 ($1.6*10^{-17}$ µCi/ml), and lead-210 ($2.7*10^{-15}$ to $2.7*10^{-14}$ µCi/ml).

In terms of comparison to 10 CFR 20 Appendix B effluent concentrations, the data can be summarized as follows:

- Natural uranium concentrations were 0.0 to 0.3 percent of its effluent concentration.

- Thorium-230 concentrations were 0.0 percent of its effluent concentration.

- Radium-226 concentrations were -0.01 to 0.01 percent of its effluent concentration.

- Lead-210 concentrations were -0.02 to 6.78 percent of its effluent concentration.

The LLDs, in pCi/f, reported by the laboratory for each radionuclide were converted to µCi/ml by multiplying pCi/f by $1*10^{-12}$. In no cases were the LLDs higher that their respective 10 CFR 20 effluent concentration limits. The LLDs reported in Period 2 by the laboratory for uranium exceeded the recommendation in NRC Regulatory Guide 4.14.

The LLDs for each of the radionuclides are listed in Table 8-1.

8.2.2 Ambient Radon

The ambient radon monitoring results are listed in Table 8-2. Quarter 1 ambient radon concentrations ranged from 1.0 to 9.8, averaging 2.4 pCi/L. Quarter 2 concentrations ranged from 0.4 to 1.8, averaging 1.2 pCi/L. Quarter 3 concentrations ranged from 0.4 to 3.3, averaging 1.8 pCi/L. Quarter 4 concentrations ranged from 0.5 to 0.8, averaging 0.5 pCi/L. Site-wide, annual radon concentrations ranged from to 0.6 to 3.9, and averaged 1.7 pCi/L.

Figure 8-1 presents the ambient radon concentrations in relation to the radium-226 concentrations predicted from the gamma-ray count rate data. One expects higher radon concentrations in the historically mined areas. However, there is only one case where this is true: the Quarter 1 observation at Rn-02, located adjacent to the edge of an open pit mine, is 9.8 pCi/l. There appear to be no spatial trends in the current data set, other than the levels are within the same order of magnitude across the site.

Duplicates were collected at AMS-01 and AMS-BKG in each of the monitoring periods. The QC summary for the radon monitoring is as follows:

- AMS-01: In Quarters 1 and 4, the RPD was 0. In Quarters 2 and 3, the RPD was 55.5.
- AMS-BKG: The RPDs were 30 (Quarter 1), 6.5 (Quarter 2), 12.5 (Quarter 3), and 0.7 (Quarter 4).

In terms of effluent concentrations, the measured values exceed the 10 CFR 20 limit of 0.1 pCi/L for radon-222 with daughters present. However, on average the measured values are within the range of reported worldwide ambient background radon concentrations, 0.027 to 2.7 pCi/L (United Nations Scientific Committee on the Effects of Atomic Radiation [UNSCEAR], 2000).

9.0 AMBIENT EXPOSURE RATES

9.1 Cross-Calibration of Sodium Iodide Detectors and High-Pressure Ion Chamber

Both the sodium iodide detector and PIC measure gamma radiation. The sodium iodide detection system measures the rate that the gamma rays interact with the detector in cpm, has a lower sensitivity than the PIC and is energy dependent. The PIC is a highly accurate ionization chamber for measuring exposure rate in micoRoentgens per hour (μR/h) but requires a longer count time. The PIC was used because it measures exposure rates directly and is considered a primary standard by NIST, when calibrated. The PIC measures gamma, X-rays, and cosmic radiation without discrimination. It is highly stable, relatively energy independent, and serves as an excellent tool to calibrate other survey equipment to measure exposure rates. Because of its portability and shorter measurement times, the sodium iodide detector is more efficient than the PIC for use in large area surveys. By performing the large area gamma surveys with sodium iodide detectors, then developing a correlation between the two instruments, exposure rates derived from the sodium iodide measurements can represent site wide gamma emissions from surface soils.

Powertech collected 12 co-located static gamma counts and exposure rate measurements to develop the correlation between gamma counts and exposure rates. The locations were biased towards areas where gamma shine was not relatively high; that is, where gamma count rates remained relatively constant at 18 in, 1 m, and 2 m above ground surface. In addition, locations were chosen to encompass most of the range of sodium iodide detector readings observed in the GPS-based gamma surveys. The sodium iodide measurements were taken using one of the 2-inch

by 2-inch sodium iodide detectors that was used in the baseline gamma survey. A 1-minute integrated count was taken at each of the 12 locations with the detector suspended at 18 in. above the ground surface. Exposure rate measurements were then collected at a 1-m height at each location, directly above the location where the sodium iodide detector was held. Exposure rates were determined after 20-minute integrated counts. The PIC and gross gamma measurements were performed on July 14 to 16, 2008 at the locations shown on Figure 9-1.

The linear equation representing the correlation between exposure rates and gamma-ray count rates, determined using the PIC and average of the two sodium iodide detectors is:

$$Exposure\ Rate = 0.0007 \times Gamma\ Count\ Rate + 2.02$$

where the exposure rate is in gross microRoentgens per hour (μR/hr) and the gamma count rate is in gross cpm.

The linear regression model for the average is a good fit, with an R^2 of 0.96. Nearly all of the data align along the slope of the line, as shown in Figure 9-2. The correlations are similar for the individual sodium iodide detectors and not discussed further.

The linear regression model predicts an average exposure rate of 10.9 μR/hr for the site. The range of predicted exposure rates is 5.9 to 324 μR/hr, based on the observed gamma-ray count rates at the site. The predicted site-wide exposure rates are shown as ranges of colors in 700 by 700 ft grid block averages on Figure 9-3.

9.2 Ambient Exposure Rates Determined using Thermoluminescent Detectors

Ambient exposure rates were determined for three periods, using TLDs supplied and analyzed by Landauer, Inc. The monitoring periods were: August 18, 2007 to February 4, 2008, February 4 to May 17, 2008, and May 17 to July 17, 2008.

The TLDs were deployed at each of the eight AMS locations. Duplicates were deployed at AMS-01 and the background location (AMS-BKG).

Five of the nine TLDs deployed in the August 2007 to February 2008 period were lost, presumably by way of cattle consumption and/or disturbance.

The ambient gamma dose rate monitoring results are listed in Table 9-1. The results for the TLDs reported in millirem per year (mrem/yr) ambient dose equivalents are as follows:

- AMS-01: 94.9 for 303 monitored days, projected to 114 mrem/yr
- AMS-02: 54.0 for 61 monitored days, projected to 323 mrem/yr
- AMS-03: 38.6 for 103 monitored days, projected to 137 mrem/yr
- AMS-04: 152.8 for 303 monitored days, projected to 184 mrem/yr

- AMS-05: 123.7 for 303 monitored days, projected to 149 mrem/yr
- AMS-06: 88.0, for 164 monitored days projected to 196 mrem/yr
- AMS-07: 145.3 for 303 monitored days, projected to 175 mrem/yr
- AMS-BKG: 167.8 for 303 monitored days, projected to 202 mrem/yr

Excluding the result at AMS-02, the range of exposure rates (114 to 202 mrem/yr) and average (165 mrem/yr) is similar to average worldwide exposures to natural radiation sources comprised of comic radiation, cosmogenic radionuclides, and external terrestrial radiation reported in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Report to the General Assembly, Sources and Effects of Ionizing Radiation, Annex. The typical ranges of average worldwide exposures reported in this reference document are to 60 to160 mrem/yr.

10.0 FOOD SAMPLING

To determine baseline radionuclide concentrations in local food, Powertech collected three tissue samples (one of liver [DBAT-03], two of meat [DBAT-01, DBAT-02]) from a locally grazing cow on June 25, 2008. The samples were analyzed for natural uranium, radium-226, lead-210, and polonium-210. The results are listed in Table 10-1.

For the majority of analytes, the reported concentrations are at or below LLDs that, in turn, exceed the LLDs recommended in RG 4.14. This is evident for all reported concentrations of natural uranium, radium-226 and polonium-210 in Sample DBAT-01, and lead-210 in all three samples. There are only three cases where radionuclide concentrations exceed LLDs. Radium-226 concentrations are 0.003 and 0.06 pCi/g in Samples DBAT-01 and DBAT-02. The concentration of polonium-210 in Sample DBAT-03 is 0.02 pCi/g.

11.0 SUMMARY AND CONCLUSIONS

The results of the Dewey-Burdock baseline field investigation documented herein indicate the following:

- Baseline gamma-ray count rates have been obtained across the permit area. Twenty-five percent of the count rates were lower than 11,395 cpm. Seventy-five percent of the count rates were below 14,437 cpm. Three distinct populations of gamma-ray count rates were observed: an anomalous 600-acre portion of the main permit area, the main permit area itself, and the surface mine area. Considered individually, each has non-parametric count-rate distributions.
- Elevated levels of radioactivity, as characterized by gamma readings greater than 17,945 cpm in the main permit area and 20,270 cpm in the surface mine area, occur in the

anomalous portion of the main permit area and legacy mine wastes and open pits in the surface mine area.

- The surface soil sampling results corroborate the findings discussed above regarding spatial trends of radioactivity at the site. The majority of the site is characterized by an average predicted surface radium-226 concentration of 0.9 pCi/g. One exception is in the north end of the main permit area where the average predicted radium-226 concentration is 1.1 pCi/g. Also, areas in the surface mine area exhibit higher levels of radioactivity which are indicative of anthropogenic or other impacts.

- Experience at other milling sites underscores the need for using detailed baseline radiological information that shows varying site wide radium-226 concentrations, as adherence to a single number (especially if a conservative estimator such as a mean is used) can result in unnecessary cleanup and/or habitat destruction.

- Average radon flux rates ranged between 0.60 and 1.57 pCi/m^2-s. The highest individual measurement was 2.38 pCi/m^2-s These values are one to two orders of magnitude below the NESHAPS limit of 20 pCi/m^2-s specified in 10 CFR 40, Appendix A, Criterion 6. Although the latter requirement applies to uranium mill tailings and thus is not directly germane to this characterization, it is informative to demonstrate the relatively low magnitude of baseline radon flux levels measured at the site.

- Analytical errors associated with the low radionuclide concentrations in vegetation samples do not allow for a correlation to radionuclide concentrations in soils at the same sample locations.

- Particulate radionuclide concentrations in air across the site have been consistently low and at levels at least 95 % below their respective 10 CFR 20 effluent levels.

- Site-wide, annual radon concentrations ranged from to 0.6 to 3.9, and averaged 1.7 pCi/L. There appear to be no temporal or spatial trends in the current data set other than the levels are within the same order of magnitude across the site.

- A linear regression model comparing PIC to gamma-ray count rate measurements predicts an average exposure rate of 10.9 µR/hr for the site. The range of predicted exposure rates is 5.9 to 324 µR/hr, based on the observed gamma-ray count rates at the site.

- Baseline ambient exposure rates, as determined using TLDs, range from 108.6 to 158.2 mrem/yr.

In summary, it is clear that portions of the surface mine area, in the eastern quarter of the site exhibits radiological impacts from historic and or current anthropogenic activities within the area. The precise sources of these impacts are not relevant in the context of this investigation since the apparent impacts are part of the baseline or background radiological characteristics of the site.

11.0 REFERENCES

10 CFR 20. "Standards for Protection Against Radiation." *Code of Federal Regulations*: Office of Federal Register National Archives and Records Administration. Washington, D.C. 1 January, 1999.

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Tables

Table 2-1. Summary of Baseline Radiological Investigation Scope

Survey Method/Endpoint	Baseline Investigation Scope	Parameters Evaluated
A. GPS-based Gamma Surveys	18- inch high, unshielded gamma-ray readings coupled with x- and y- coordinates taken every second moving along 100 or 500 meter transects at ≤1.5 meters per second. Surveys were made over the entire site along 17 transects in the main permit area, 48 transects in the surface mine area, and along two roads. A second survey covered land application areas along 100 meter transects.	Serve as basis to estimate exposure rates, surface soil radium-226 concentrations, and to identify additional areas for biased sampling.
B. Biased Soil Sampling	Biased samples at 5 locations, all collected from 0 to 15 cm.	Radium-226 for all samples; Thorium-230, natural uranium, lead-210, for a subset (2 locations)
C. Random Soil Sampling	Random samples at 75 locations. Nine of the 75 locations were sampled at depth (15-30 cm and 30-100 cm). Ten duplicates at 0 to 15 cm. One duplicate at 15 to 30 cm. One duplicate at 30 to 100 cm.	Radium-226 for all samples; Thorium-230, natural uranium, lead-210 (8 from 0 to 15 cm and one each at 15 to 30 and 30 to 100 cm)
D. Soil sampling in land application areas	Random samples at 17 locations, all but one of which were sampled at 0 to 15, 15 to 30 and 30 to 100 cm. Refusal was encountered at 45 cm in the exceptional location. One duplicate each at 0 to 5, 15 to 30, and 30 to 100 cm.	Radium-226, thorium-230, natural uranium, and lead-210 for all samples
E. Exposure Rate Monitoring	Exposure rate determinations based on TLD and PIC measurements. TLD measurements collected for four quarters.	Exposure Rates
F. Soil and Vegetation Sampling at Air Monitoring Stations	Eight locations: seven onsite (AMS-01 through AMS-07) and one located approximately 1.9 miles west of the southwest corner of the permit area (AMS-BKG). Vegetation samples collected for four quarters. Given the diurnal nature of winds, at various times this station would be representative of downwind and upwind locations.	Vegetation: radium-226, thorium-230, natural uranium, lead-210, and polonium-210 Soil: All of above except polonium-210
G. Air Particulate Sampling	Eight locations: seven onsite (AMS-01 through AMS-07) and one located approximately 1.9 miles west of the southwest corner of the permit area (AMS-BKG). Air particulate samples collected for four quarters.	Air filters: radium-226, thorium-230, natural uranium, lead-210 and polonium-210

Table 2-1. Summary of Baseline Radiological Investigation Scope (concluded)

Survey Method/Endpoint	Baseline Investigation Scope	Parameters Evaluated
H. Radon in air	16 locations: eight AMS and eight additional locations. Radon in air measurements taken for four quarters.	Radon-222
I. Radon Flux Measurements	Radon flux measurements at nine locations (coinciding with biased soil samples collected at depth in Task C above). The first two of three rounds of measurements is documented herein.	Radon-222
J. Locally Grazed Livestock Sampling	Three samples collected from one locally grazing cow.	Radium-226, thorium-230, natural uranium, lead-210 and polonium-210

Table 3-1. Statistical Summary of Gamma-Ray Count Rates in Entire Data Set, Main Permit and Surface Mine Areas

	Gamma-Ray Count Rate (cpm)		
Statistic	**Entire Data Set**	**Main Permit Area**	**Surface Mine Area**
Mean	15,025	13,073	16,823
Standard Deviation	17,095	2,995	23,377
Median	12,687	12,664	12,717
Mode	12,487 (n=53)	12,585 (n=35)	12,138 (n=31)
Minimum	5,550	5,883	5,550
Maximum	460,485	171,243	460,485
Q1	11,395	11,598	11,125
Q3	14,437	14,137	14,783
IQR	3,042	2,539	3,658
No. of Counts	157,075	75,345	81,757

Notes:
Entire data set does not include gamma-ray counts obtained along the eastern haul road. In addition, the sum of the counts in the main permit and surface mine areas is 27 counts greater than the counts in the entire data set, due to an overlap in counts within the two shapes placed as a layer in ArcView GIS to select the data sets. .

Table 3-2. Statistical Summary of Gamma-Ray Count Rates in Land Application Areas

	Gamma-Ray Count Rate (cpm)		
		Land Application Area	
Statistic	**Main Permit Area**	**Dewey**	**Burdock**
Mean	13,073	12,815	12,308
Standard Deviation	2,995	1,940	1,318
Median	12,664	12,523	12,232
Mode	12,585 (n=35)	11,778 (n=15)	12,266 (n=16)
Minimum	5,883	6,798	8,498
Maximum	171,243	20,422	24,248
Q1	11,598	11,437	11,504
Q3	14,137	13,993	12,958
IQR	2,539	2,556	1,454
No. of Counts	75,345	23,480	13,647

Table 4-1. Radionuclide Concentrations in All Soil Samples

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
AMS-1	9/27/2007	0-5	-	9.6E-07	2.0E-06	3.0E-07	4.0E-07	1.0E-07	1.4E-06	2.0E-07
AMS-2	9/27/2007	0-5	-	9.5E-07	3.0E-06	3.0E-07	5.0E-07	1.0E-07	1.1E-06	2.0E-07
AMS-3	9/27/2007	0-5	-	8.2E-07	2.0E-06	2.0E-07	4.0E-07	1.0E-07	1.5E-06	2.0E-07
AMS-4	9/27/2007	0-5	-	1.4E-06	2.0E-06	2.0E-07	8.0E-07	2.0E-07	1.5E-06	3.0E-07
AMS-5	9/27/2007	0-5	-	6.8E-07	2.0E-06	2.0E-07	6.0E-07	1.0E-07	1.3E-06	3.0E-07
AMS-6	9/27/2007	0-5	-	5.5E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	8.0E-07	2.0E-07
AMS-7	9/27/2007	0-5	-	5.8E-07	2.0E-06	2.0E-07	3.0E-07	8.0E-08	1.1E-06	2.0E-07
AMS-BKG	9/27/2007	0-5	-	1.9E-06	2.0E-06	2.0E-07	9.0E-07	1.0E-07	2.4E-06	4.0E-07
MPA-B01	9/25/2007	0-15	13824	-	-	-	-	-	1.4E-06	3.0E-07
MPA-B02	9/25/2007	0-15	14176	-	-	-	-	-	1.1E-06	2.0E-07
MPA-B03	9/25/2007	0-15	13006	-	-	-	-	-	1.3E-06	3.0E-07
MPA-R01	9/24/2007	0-15	13749	-	-	-	-	-	1.4E-06	2.0E-07
MPA-R02	9/24/2007	0-15	16059	-	-	-	-	-	2.6E-06	3.0E-07
MPA-R03	9/24/2007	0-15	10796	7.5E-07	7.0E-07	1.0E-07	4.0E-07	1.0E-07	1.1E-06	2.0E-07
MPA-R04	9/24/2007	0-15	10810	-	-	-	-	-	9.0E-07	2.0E-07
MPA-R04-Dup	9/24/2007	0-15	-	-	-	-	-	-	8.0E-07	2.0E-07
MPA-R05	9/24/2007	0-15	11850	-	-	-	-	-	1.2E-06	2.0E-07
NEA-R01	9/24/2007	0-15	12302	9.1E-07	7.0E-07	2.0E-07	6.0E-07	1.0E-07	1.1E-06	2.0E-07
NEA-R02	9/24/2007	0-15	13176	-	-	-	-	-	1.3E-06	2.0E-07
NEA-R03	9/24/2007	0-15	16393	-	-	-	-	-	2.2E-06	3.0E-07
NEA-R04	9/24/2007	0-15	17356	-	-	-	-	-	2.3E-06	3.0E-07
NEA-R04-Dup	9/24/2007	0-15	-	-	-	-	-	-	2.5E-06	3.0E-07
NEA-R05	9/24/2007	0-15	17269	-	-	-	-	-	2.8E-06	3.0E-07
RFA-B01A	9/26/2007	0-15	13115	8.7E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	1.2E-06	2.0E-07
RFA-B01A-Dup	9/26/2007	0-15	-	9.0E-07	8.0E-07	1.0E-07	7.0E-07	1.0E-07	1.1E-06	2.0E-07
RFA-B02A	9/26/2007	0-15	13360	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B03	9/25/2007	0-15	14253	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B04	9/25/2007	0-15	13963	-	-	-	-	-	1.5E-06	3.0E-07
RFA-B06	9/25/2007	0-15	13819	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B07	9/25/2007	0-15	12700	-	-	-	-	-	1.7E-06	2.0E-07
RFA-B08	9/25/2007	0-15	13433	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B08-Dup	9/25/2007	0-15	13528	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B09	9/25/2007	0-15	14825	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B10	9/25/2007	0-15	13366	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B11	9/25/2007	0-15	14253	8.8E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.8E-06	3.0E-07
RFA-B12	9/25/2007	0-15	13135	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B13A	9/26/2007	0-15	13987	-	-	-	-	-	1.8E-06	3.0E-07
RFA-B14	9/25/2007	0-15	13872	-	-	-	-	-	1.7E-06	3.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
RFA-B15A	9/26/2007	0-15	13535	-	-	-	-	-	1.4E-06	3.0E-07
RFA-B16	9/25/2007	0-15	13675	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B17A	9/26/2007	0-15	16283	-	-	-	-	-	2.0E-06	3.0E-07
RFA-B18	9/25/2007	0-15	13835	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B19	9/25/2007	0-15	13689	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B20	9/25/2007	0-15	13113	8.8E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.3E-06	3.0E-07
RFA-B21A	9/26/2007	0-15	16641	-	-	-	-	-	5.6E-06	4.0E-07
RFA-B22	9/25/2007	0-15	14087	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B23	9/25/2007	0-15	19674	-	-	-	-	-	3.6E-06	4.0E-07
RFA-B24	9/25/2007	0-15	12766	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B25	9/25/2007	0-15	10300	6.7E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	1.2E-06	2.0E-07
RFA-B26	9/25/2007	0-15	11791	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B27	9/25/2007	0-15	13794	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B28	9/25/2007	0-15	15246	-	-	-	-	-	2.4E-06	3.0E-07
RFA-B28-Dup	9/25/2007	0-15	-	-	-	-	-	-	1.8E-06	3.0E-07
RFA-B29	9/25/2007	0-15	14345	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B30A	9/26/2007	0-15	12461	-	-	-	-	-	1.8E-06	2.0E-07
RFA-B31	9/25/2007	0-15	12221	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B33	9/25/2007	0-15	13221	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B34	9/25/2007	0-15	13408	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B35	9/25/2007	0-15	12290	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B36A	9/25/2007	0-15	12465	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B37A	9/26/2007	0-15	11170	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B38	9/25/2007	0-15	11852	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B39	9/25/2007	0-15	11478	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B40	9/25/2007	0-15	12629	5.6E-07	1.0E-06	2.0E-07	3.0E-07	1.0E-07	1.1E-06	2.0E-07
RFA-B41	9/25/2007	0-15	11806	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B43	9/25/2007	0-15	13264	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B44	9/25/2007	0-15	11436	-	-	-	-	-	1.4E-06	2.0E-07
RFA-B45	9/25/2007	0-15	12242	-	-	-	-	-	1.6E-06	3.0E-07
SMA-B01	9/24/2007	0-15	10459	1.2E-06	6.0E-07	1.0E-07	5.0E-07	1.0E-07	9.0E-07	2.0E-07
SMA-B01-Dup	9/24/2007	0-15	-	1.5E-06	2.0E-06	2.0E-07	6.0E-07	1.0E-07	1.4E-06	3.0E-07
SMA-B03	9/24/2007	0-15	22410	-	-	-	-	-	1.5E-06	2.0E-07
SMA-B04	9/24/2007	0-15	15263	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B07	9/24/2007	0-15	22925	-	-	-	-	-	3.2E-06	3.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
SMA-B09	9/24/2007	0-15	12879	-	-	-	-	-	1.2E-06	2.0E-07
SMA-B09-Dup	9/24/2007	0-15	-	-	-	-	-	-	1.7E-06	2.0E-07
SMA-B10	9/25/2007	0-15	13184	-	-	-	-	-	1.4E-06	2.0E-07
SMA-B11	9/24/2007	0-15	17346	-	-	-	-	-	2.3E-06	3.0E-07
SMA-B13	9/25/2007	0-15	13252	-	-	-	-	-	1.7E-06	3.0E-07
SMA-B14	9/24/2007	0-15	14483	-	-	-	-	-	1.4E-06	3.0E-07
SMA-B14-Dup	9/24/2007	0-15	-	-	-	-	-	-	1.6E-06	2.0E-07
SMA-B15	9/24/2007	0-15	8474	-	-	-	-	-	8.0E-07	2.0E-07
SMA-B16	9/24/2007	0-15	10235	-	-	-	-	-	9.0E-07	2.0E-07
SMA-B17	9/24/2007	0-15	10139	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B18	9/25/2007	0-15	8511	-	-	-	-	-	5.0E-07	1.0E-07
SMA-B18-Dup	9/25/2007	0-15	-	-	-	-	-	-	4.0E-07	1.0E-07
SMA-B19	9/24/2007	0-15	10074	-	-	-	-	-	1.2E-06	2.0E-07
SMA-B20	9/27/2007	0-15	10897	-	-	-	-	-	9.0E-07	2.0E-07
SMA-B21	9/24/2007	0-15	16712	-	-	-	-	-	1.4E-06	2.0E-07
SMA-B22	9/24/2007	0-15	10618	-	-	-	-	-	8.0E-07	2.0E-07
SMA-B23	9/24/2007	0-15	16233	-	-	-	-	-	2.7E-06	3.0E-07
SMA-B23-Dup	9/24/2007	0-15	-	-	-	-	-	-	2.8E-06	3.0E-07
SMA-B24	9/24/2007	0-15	12662	-	-	-	-	-	1.3E-06	2.0E-07
SMA-B25	9/24/2007	0-15	9991	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B26	9/28/2007	0-15	73243	-	-	-	-	-	1.1E-05	5.0E-07
SMA-B27	9/28/2007	0-15	130293	6.7E-05	3.0E-05	8.0E-07	3.0E-05	8.0E-07	4.0E-05	1.1E-06
SMA-B28	9/29/2007	0-15	39061	-	-	-	-	-	6.4E-06	4.0E-07
SMA-B29	9/28/2007	0-15	231041	1.6E-05	2.0E-05	7.0E-07	2.0E-05	6.0E-07	2.9E-05	9.0E-07
SMA-B30	9/28/2007	0-15	89139	-	-	-	-	-	3.4E-05	9.0E-07
LAN 001A	7/18/2008	0-15	-	1.8E-06	2.4E-06	2.3E-06	1.2E-06	6.0E-07	8.0E-07	9.0E-08
LAN 002A	7/18/2008	0-15	-	8.6E-07	3.4E-06	2.3E-06	9.0E-07	5.0E-07	9.0E-07	1.0E-07
LAN 003A	7/18/2008	0-15	-	7.8E-07	8.0E-07	2.2E-06	7.0E-07	6.0E-07	1.2E-06	1.0E-07
LAN 004A	7/18/2008	0-15	-	6.9E-07	1.0E-06	1.4E-06	6.0E-07	6.0E-07	1.9E-06	2.0E-07
LAN 004A-DUP	7/18/2008	0-15	-	7.2E-07	5.0E-07	1.4E-06	4.0E-07	3.0E-07	7.0E-07	1.0E-07
LAN 005A	7/18/2008	0-15	-	8.4E-07	1.2E-06	1.4E-06	9.0E-07	5.0E-07	4.4E-06	3.0E-07
LAN 006A	7/18/2008	0-15	-	7.1E-07	-5.0E-09	1.4E-06	3.0E-07	5.0E-07	1.1E-06	1.0E-07
LAN 007A	7/18/2008	0-15	-	8.1E-07	6.0E-07	1.4E-06	3.0E-07	5.0E-07	7.0E-07	1.0E-07
LAN 008A	7/18/2008	0-15	-	2.1E-06	1.0E-06	1.4E-06	1.0E-06	7.0E-07	9.0E-07	1.0E-07
LAN 009A	7/18/2008	0-15	-	1.1E-06	-4.0E-07	1.4E-06	3.0E-07	6.0E-07	8.0E-07	1.0E-07
LAN 010A	7/18/2008	0-15	-	1.6E-06	1.8E-06	1.2E-06	1.2E-06	6.0E-07	1.2E-06	2.0E-07
LAS 001A	7/19/2008	0-15	-	1.2E-06	1.6E-06	1.2E-06	6.0E-07	5.0E-07	9.0E-07	1.0E-07
LAS 002A	7/19/2008	0-15	-	4.8E-07	1.4E-06	1.2E-06	1.0E-07	5.0E-07	7.0E-07	1.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
LAS 003A	7/19/2008	0-15	-	5.0E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 004A	7/19/2008	0-15	-	1.1E-06	1.2E-06	1.2E-06	6.0E-07	5.0E-07	8.0E-07	1.0E-07
LAS 005A	7/19/2008	0-15	-	1.2E-06	1.6E-06	1.2E-06	4.0E-07	3.0E-07	9.0E-07	1.0E-07
LAS 006A	7/19/2008	0-15	-	3.7E-07	7.0E-07	1.1E-06	6.0E-07	6.0E-07	7.0E-07	1.0E-07
LAS 007A	7/19/2008	0-15	-	4.3E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	8.0E-07	1.0E-07
RFA-B01B	9/26/2007	15-30	13115	1.1E-06	2.0E-06	2.0E-07	9.0E-01	2.0E-01	1.7E-06	2.0E-07
RFA-B01B-Dup	9/26/2007	15-30	-	9.9E-07	9.0E-07	2.0E-07	9.0E-01	2.0E-01	1.5E-06	2.0E-07
RFA-B02B	9/26/2007	15-30	-	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B13B	9/26/2007	15-30	-	-	-	-	-	-	1.8E-06	2.0E-07
RFA-B15B	9/26/2007	15-30	-	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B17B	9/26/2007	15-30	-	-	-	-	-	-	2.2E-06	3.0E-07
RFA-B21B	9/26/2007	15-30	-	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B30B	9/26/2007	15-30	-	-	-	-	-	-	2.1E-06	3.0E-07
RFA-B36B	9/26/2007	15-30	-	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B37B	9/26/2007	15-30	-	-	-	-	-	-	7.0E-07	2.0E-07
LAN 001B	7/18/2008	15-30	-	1.9E-06	4.6E-06	2.3E-06	1.4E-06	6.0E-07	8.0E-07	1.0E-07
LAN 002B	7/18/2008	15-30	-	7.5E-07	1.5E-06	2.3E-06	4.0E-07	4.0E-07	1.0E-06	1.0E-07
LAN 003B	7/18/2008	15-30	-	1.1E-06	2.4E-06	2.3E-06	8.0E-07	5.0E-07	1.2E-06	1.0E-07
LAN 004B	7/18/2008	15-30	-	7.9E-07	2.2E-06	1.4E-06	2.0E-07	5.0E-07	1.3E-06	2.0E-07
LAN 004B-DUP	7/18/2008	15-30	-	6.8E-07	-3.0E-07	1.4E-06	5.0E-07	4.0E-07	7.0E-07	1.0E-07
LAN 005B	7/18/2008	15-30	-	7.1E-07	9.0E-07	1.4E-06	6.0E-07	4.0E-07	1.6E-06	2.0E-07
LAN 006B	7/18/2008	15-30	-	7.5E-07	5.0E-07	1.4E-06	6.0E-07	4.0E-07	1.3E-06	1.0E-07
LAN 007B	7/18/2008	15-30	-	1.5E-06	6.0E-07	1.4E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAN 008B	7/18/2008	15-30	-	3.5E-06	1.0E-07	1.4E-06	9.0E-07	7.0E-07	1.0E-06	1.0E-07
LAN 009B	7/18/2008	15-30	-	1.8E-06	-3.0E-07	1.4E-06	7.0E-07	5.0E-07	4.1E-06	3.0E-07
LAN 010B	7/18/2008	15-30	-	1.5E-06	1.1E-06	1.1E-06	7.9E-06	1.2E-06	1.4E-06	2.0E-07
LAS 001B	7/19/2008	15-30	-	8.6E-07	1.1E-06	1.2E-06	4.0E-07	5.0E-07	8.0E-07	1.0E-07
LAS 002B	7/19/2008	15-30	-	7.1E-07	7.0E-07	1.2E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003B	7/19/2008	15-30	-	1.2E-06	1.1E-06	1.1E-06	5.0E-07	4.0E-07	9.0E-07	1.0E-07
LAS 004B	7/19/2008	15-30	-	9.5E-07	1.3E-06	1.2E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAS 005B	7/19/2008	15-30	-	1.6E-06	1.4E-06	1.1E-06	4.0E-07	4.0E-07	1.0E-06	2.0E-07
LAS 006B	7/19/2008	15-30	-	4.8E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 007B	7/19/2008	15-30	-	4.5E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	7.0E-07	1.0E-07
LAN 008B	7/18/2008	15-30	-	3.5E-06	1.0E-07	1.4E-06	9.0E-07	7.0E-07	1.0E-06	1.0E-07
LAN 009B	7/18/2008	15-30	-	1.8E-06	-3.0E-07	1.4E-06	7.0E-07	5.0E-07	4.1E-06	3.0E-07
LAN 010B	7/18/2008	15-30	-	1.5E-06	1.1E-06	1.1E-06	7.9E-06	1.2E-06	1.4E-06	2.0E-07
LAS 001B	7/19/2008	15-30	-	8.6E-07	1.1E-06	1.2E-06	4.0E-07	5.0E-07	8.0E-07	1.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Concluded)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
LAS 002B	7/19/2008	15-30	-	7.1E-07	7.0E-07	1.2E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003B	7/19/2008	15-30	-	1.2E-06	1.1E-06	1.1E-06	5.0E-07	4.0E-07	9.0E-07	1.0E-07
LAS 004B	7/19/2008	15-30	-	9.5E-07	1.3E-06	1.2E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAS 005B	7/19/2008	15-30	-	1.6E-06	1.4E-06	1.1E-06	4.0E-07	4.0E-07	1.0E-06	2.0E-07
LAS 006B	7/19/2008	15-30	-	4.8E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 007B	7/19/2008	15-30	-	4.5E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	7.0E-07	1.0E-07
RFA-B01C	9/26/2007	30-100	-	1.5E-06	6.0E-07	1.0E-07	8.0E-01	1.0E-01	1.2E-06	2.0E-07
RFA-B01C-Dup	9/29/2007	30-100	-	1.3E-06	1.0E-06	2.0E-07	1.0E+00	2.0E-01	1.7E-06	3.0E-07
RFA-B02C	9/26/2007	30-100	-	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B13C	9/26/2007	30-100	-	-	-	-	-	-	1.6E-06	2.0E-07
RFA-B15C	9/26/2007	30-100	-	-	-	-	-	-	1.5E-06	3.0E-07
RFA-B17C	9/26/2007	30-100	-	-	-	-	-	-	2.5E-06	3.0E-07
RFA-B21C	9/26/2007	30-100	-	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B30C	9/26/2007	30-100	-	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B36C	9/26/2007	30-100	-	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B37C	9/26/2007	30-100	-	-	-	-	-	-	1.1E-06	2.0E-07
LAN 001C	7/18/2008	30-100	-	1.9E-06	1.9E-06	2.2E-06	1.6E-06	7.0E-07	9.0E-07	1.0E-07
LAN 002C	7/18/2008	30-100	-	1.5E-06	1.1E-06	2.2E-06	3.0E-07	3.0E-07	1.2E-06	1.0E-07
LAN 003C	7/18/2008	30-100	-	2.0E-06	2.6E-06	2.3E-06	6.0E-07	3.0E-07	1.0E-06	1.0E-07
LAN 004C	7/18/2008	30-100	-	1.5E-06	8.0E-07	1.4E-06	7.0E-07	5.0E-07	1.0E-06	1.0E-07
LAN 004C-DUP	7/18/2008	30-100	-	1.3E-06	1.2E-06	1.4E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAN 005C	7/18/2008	30-100	-	7.1E-07	6.0E-07	1.4E-06	5.0E-07	4.0E-07	1.5E-06	2.0E-07
LAN 006C	7/18/2008	30-100	-	1.1E-06	7.0E-07	1.4E-06	5.0E-07	3.0E-07	1.4E-06	2.0E-07
LAN 007C	7/18/2008	30-100	-	2.5E-06	1.0E-07	1.4E-06	8.0E-07	6.0E-07	4.0E-07	1.0E-07
LAN 009C	7/18/2008	30-100	-	1.6E-06	5.0E-07	1.4E-06	1.1E-06	6.0E-07	3.9E-06	3.0E-07
LAN 010C	7/18/2008	30-100	-	2.7E-06	1.9E-06	1.2E-06	1.9E-06	8.0E-07	1.5E-06	2.0E-07
LAS 001C	7/19/2008	30-100	-	6.1E-07	9.0E-07	1.1E-06	1.0E-07	3.0E-07	8.0E-07	1.0E-07
LAS 002C	7/19/2008	30-100	-	6.3E-07	4.0E-07	1.1E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003C	7/19/2008	30-100	-	9.3E-07	7.0E-07	1.2E-06	1.0E-06	5.0E-07	8.0E-07	1.0E-07
LAS 004C	7/19/2008	30-100	-	1.3E-06	1.2E-06	1.1E-06	5.0E-07	3.0E-07	9.0E-07	1.0E-07
LAS 005C	7/19/2008	30-100	-	9.8E-07	1.2E-06	1.1E-06	7.0E-07	5.0E-07	1.1E-06	2.0E-07
LAS 006C	7/19/2008	30-100	-	6.5E-07	-3.0E-07	1.5E-06	3.0E-07	9.0E-08	6.0E-07	1.0E-07
LAS 007C	7/19/2008	30-100	-	7.2E-07	-7.0E-07	1.5E-06	5.0E-07	1.0E-07	7.0E-07	1.0E-07

Notes:
All errors reported are ± 2σ.

Table 4-2. Statistical Summary of Radionuclide Concentrations by Depth Interval

Depth Interval (cm)	Statistic	Radium-226 (pCi/g)	Thorium-230 (pCi/g)	Natural Uranium (pCi/g)	Lead-210 (pCi/g)
0-15	Mean	1.4	0.6	1.0	1.2
	Median	1.0	0.6	0.9	1.1
	No.	26	18	18	18
	σ	1.1	0.3	0.5	0.9
	Range	0.7-5.6	0.1-1.2	0.4-2.1	-0.4-3.4
	Distribution	Non-parametric	Normal	Normal	Normal
15-30	Mean	1.3	1.1	1.2	1.1
	Median	1.0	0.5	1.0	1.1
	No.	36	27	28	28
	σ	0.8	2.0	0.8	0.9
	Range	0.7-4.1	0.3-7.9	0.5-3.5	-0.3-4.6
	Distribution	Non-parametric	Non-parametric	Non-parametric	Non-parametric
30-100	Mean	1.3	0.7	1.3	0.9
	Median	1.1	0.6	1.3	0.8
	No.	25	16	17	17
	σ	0.7	0.5	0.6	0.8
	Range	0.4-3.9	0.1-1.9	0.6-2.7	-0.7-2.6
	Distribution	Lognormal[a]	Normal	Lognormal[b]	Normal

Notes:

a. The geometric mean for radium-226 at 30 to 100 cm is 1.1 pCi/g.
b. The geometric mean for natural uranium at 30 to 100 cm is 1.2 pCi/g.

Table 4-3. Quality Control Summary for Soil Samples

		RPD	Replicate Error Ratio		
Sample ID	Depth (cm)	U-nat	Pb-210	Th-230	Ra-226
MPA-R04+Duplicate	0-15	-	-	-	0.2
NEA-R04+Duplicate	0-15	-	-	-	0.2
RFA-B01A+Duplicate	0-15	3.4	0.0	0.0	0.2
RFA-B01B+Duplicate	15-30	10.5	**1.8**	0.0	0.3
RFA-B01C+Duplicate	30-100	14.3	**1.0**	0.5	0.8
RFA-B08+Duplicate	0-15	-	-	-	0.0
RFA-B28+Duplicate	0-15	-	-	-	0.7
SMA-B01+Duplicate	0-15	22.2	**2.8**	0.4	0.8
SMA-B09+Duplicate	0-15	-	-	-	0.8
SMA-B14+Duplicate	0-15	-	-	-	0.3
SMA-B18+Duplicate	0-15	-	-	-	0.4
SMA-B23+Duplicate	0-15	-	-	-	0.1
LAN-004A+Duplicate	0-15	-4.3	0.5	0.6	**8.5**
LAN-004B+Duplicate	15-30	15.0	**2.5**	0.9	**4.2**
LAN-004C+Duplicate	30-100	14.3	0.4	0.6	**1.4**

Notes:
The radium-226, lead-210, and thorium-230 LLDs were all $1*10^{-7}$ µCi/g. All results are greater than 5 times their respective MDC, with the exception of radium-226 in Sample Location SMA-B18-Dup.
The natural uranium LLDs ranged from $1.7*10^{-8}$ to $2.0*10^{-8}$ µCi/g.
None of the results were below their respective LLDs.
Bolded values are anomalous QC results.

Table 5-1. Summary of Predicted Radium-226 Concentrations in Grid Blocks

		Predicted Radium-226 Concentration Based on Average of Counts Within Grid Block (pCi/g)					
Data Set	No. of Grid Blocks	Median	Minimum	Maximum	Q1	Q3	IQR
All Data	1,015	1.1	0	24.9	0	1.4	1.4
Surface Mine Area	171	1.5	0	24.9	1.1	1.8	0.7
Main Permit Area without Anomalous Area	791	1.0	0	9.0	0	1.3	1.3
Anomalous Area	53	1.4	0	2.3	0	1.8	1.8

Table 6-1. Baseline Radon Flux Measurements

Location	Date	Flux (pCi/m^{2}s)	Std. Dev. (pCi/m^{2}s)	LLD (pCi/m^{2}s)	Average Flux @ Location (pCi/m^{2}s)
RFA-B01	September 2007	1.68	0.06	0.18	1.57
	April 2008	0.64	0.05	0.15	
	July 2008	2.38	0.06	0.15	
RFA-B02	September 2007	0.89	0.05	0.15	0.86
	April 2008	0.76	0.05	0.16	
	July 2008	0.94	0.05	0.15	
RFA-B13	September 2007	1.77	0.06	0.17	1.53
	April 2008	0.56	0.05	0.16	
	July 2008	2.27	0.06	0.15	
RFA-B15	September 2007	1.22	0.05	0.15	1.35
	April 2008	1.12	0.06	0.16	
	July 2008	1.71	0.05	0.15	
RFA-B17	September 2007	1.25	0.06	0.16	1.05
	April 2008	0.61	0.05	0.16	
	July 2008	1.30	0.05	0.15	
RFA-B21	September 2007	0.97	0.05	0.14	0.71
	April 2008	0.28	0.05	0.16	
	July 2008	0.89	0.05	0.14	
RFA-B30	September 2007	1.73	0.06	0.17	1.49
	April 2008	0.70	0.05	0.16	
	July 2008	2.03	0.05	0.15	
RFA-B36	September 2007	0.68	0.05	0.16	0.60
	April 2008	0.64	0.05	0.16	
	July 2008	0.48	0.06	0.15	
RFA-B37	September 2007	0.80	0.05	0.14	1.13
	April 2008	1.33	0.06	0.16	
	July 2008	1.27	0.05	0.14	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation

Location	Date Collected		8/14/2007	4/20/08	7/15/08	Average (µCi/kg)
AMS-01	U-nat (µCi/kg)	Concentration	1.4E-05	2.8E-02D	9.4E-06	1.4E-05
		Error ± 2σ	-	-	-	
		LLD	1.7E-06	2.4E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	5.5E-05	3.3E-05	8.1E-05	5.6E-05
		Error ± 2σ	3.2E-05	5.5E-06	1.2E-05	
		LLD	1.7E-06	3.7E-06	7.4E-06	
	Th-230 (µCi/kg)	Concentration	<1.7E-06	1.2E-05	1.2E-05	8.6E-06
		Error ± 2σ	<1.7E-06	5.2E-06	8.4E-06	
		LLD	1.7E-06	2.0E-07	8.4E-07	
	Pb-210 (µCi/kg)	Concentration	1.8E-03	2.9E-03	3.3E-04	1.7E-03
		Error ± 2σ	5.4E-04	1.1E-04	1.3E-04	
		LLD	8.6E-06	1.0E-06	2.1E-04	
	Po-210 (µCi/kg)	Concentration	1.3E-04	4.7E-04	1.7E-05	2.1E-04
		Error ± 2σ	9.8E-05	7.2E-05	1.5E-05	
		LLD	8.6E-06	1.0E-06	1.0E-06	
AMS-02	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	1.0E-05	2.7E-02D	3.2E-06	6.6E-06
		Error ± 2σ	-	-	-	
		LLD	5.5E-07	2.0E-07	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.2E-05	3.0E-05	9.3E-06	2.0E-05
		Error ± 2σ	1.1E-05	4.5E-06	3.6E-06	
		LLD	5.5E-07	2.8E-06	4.0E-06	
	Th-230 (µCi/kg)	Concentration	4.7E-06	1.4E-05	-9.5E-07U	5.9E-06
		Error ± 2σ	6.0E-06	4.9E-06	5.0E-06	
		LLD	5.5E-07	2.0E-07	4.7E-07	
	Pb-210 (µCi/kg)	Concentration	3.3E-04	1.3E-03	1.5E-04	5.9E-04
		Error ± 2σ	1.5E-04	6.9E-05	7.3E-05	
		LLD	2.7E-06	1.0E-06	1.2E-04	
	Po-210 (µCi/kg)	Concentration	1.8E-05	2.0E-04	9.1E-06U	7.6E-05
		Error ± 2σ	2.0E-05	4.2E-05	8.5E-06	
		LLD	2.7E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (continued)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-03	U-nat (µCi/kg)	Concentration	9.8E-06	1.5E-01D	7.7E-06	9.8E-06
		Error ± 2σ	-	-	-	
		LLD	6.4E-07	2.4E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	7.4E-05	1.1E-04	7.5E-06	9.2E-05
		Error ± 2σ	2.2E-05	9.7E-06	4.9E-06	
		LLD	6.4E-07	3.7E-06	6.6E-06	
	Th-230 (µCi/kg)	Concentration	2.6E-06	4.1E-05	1.0E-05	2.2E-05
		Error ± 2σ	4.4E-06	1.1E-05	6.6E-06	
		LLD	6.4E-07	2.0E-07	7.7E-07	
	Pb-210 (µCi/kg)	Concentration	9.1E-04	1.4E-03	3.3E-04	8.8E-04
		Error ± 2σ	2.2E-04	8.2E-05	1.2E-04	
		LLD	3.2E-06	1.0E-06	1.9E-04	
	Po-210 (µCi/kg)	Concentration	7.8E-05	2.3E-04	9.6E-06U	1.5E-04
		Error ± 2σ	4.4E-05	4.4E-05	1.1E-05	
		LLD	3.2E-06	1.0E-06	1.0E-06	
AMS-04	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	9.3E-06	2.1E-02D	8.4E-06	9.3E-06
		Error ± 2σ	-	-	-	
		LLD	8.1E-07	1.9E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.3E-05	3.1E-05	9.3E-06	2.7E-05
		Error ± 2σ	1.4E-05	4.6E-06	5.2E-06	
		LLD	8.0E-07	2.8E-06	6.7E-06	
	Th-230 (µCi/kg)	Concentration	3.6E-06	8.3E-06	-2.7E-06U	6.0E-06
		Error ± 2σ	5.6E-06	4.2E-06	4.2E-06	
		LLD	8.0E-07	2.0E-07	7.7E-07	
	Pb-210 (µCi/kg)	Concentration	1.5E-03	1.2E-03	2.1E-04	1.4E-03
		Error ± 2σ	3.0E-04	6.6E-05	1.2E-04	
		LLD	4.0E-06	1.0E-06	1.9E-04	
	Po-210 (µCi/kg)	Concentration	9.8E-05	1.7E-04	9.0E-06U	1.3E-04
		Error ± 2σ	6.4E-05	3.9E-05	9.6E-06	
		LLD	4.0E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (continued)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-05	U-nat (µCi/kg)	Concentration	3.7E-05	2.3E-01D	1.4E-05	3.7E-05
		Error ± 2σ	-	-		
		LLD	1.3E-06	1.3E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.4E-05	7.9E-05	5.9E-06U	5.2E-05
		Error ± 2σ	1.8E-05	5.7E-06	5.3E-06	
		LLD	1.3E-06	1.8E-06	7.7E-06	
	Th-230 (µCi/kg)	Concentration	1.5E-05	4.8E-05	-8.8E-07U	3.2E-05
		Error ± 2σ	1.7E-05	8.1E-06	5.7E-06	
		LLD	1.3E-06	2.0E-07	8.8E-07	
	Pb-210 (µCi/kg)	Concentration	1.7E-03	3.3E-04	3.4E-04	1.0E-03
		Error ± 2σ	4.2E-04	3.0E-05	1.4E-04	
		LLD	6.5E-06	1.0E-06	2.2E-04	
	Po-210 (µCi/kg)	Concentration	6.6E-05	1.6E-04	2.1E-05	1.1E-04
		Error ± 2σ	6.0E-05	3.1E-05	1.6E-05	
		LLD	6.5E-06	1.0E-06	1.0E-06	
AMS-06	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	3.8E-05	1.3E-01D	2.2E-05	3.8E-05
		Error ± 2σ	-	-		
		LLD	8.3E-07	3.2E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	3.2E-05	9.2E-05	1.8E-05	6.2E-05
		Error ± 2σ	1.6E-05	9.9E-06	5.0E-06	
		LLD	8.2E-07	4.6E-06	5.0E-06	
	Th-230 (µCi/kg)	Concentration	1.9E-05	3.9E-05	2.1E-05	2.9E-05
		Error ± 2σ	1.3E-05	1.1E-05	7.4E-06	
		LLD	8.2E-07	2.0E-07	5.7E-07	
	Pb-210 (µCi/kg)	Concentration	1.0E-03	1.8E-03	1.4E-04U	1.4E-03
		Error ± 2σ	2.6E-04	1.1E-04	8.7E-05	
		LLD	4.1E-06	1.0E-06	1.4E-04	
	Po-210 (µCi/kg)	Concentration	6.0E-05	4.0E-04	5.7E-06U	2.3E-04
		Error ± 2σ	4.4E-05	7.7E-05	5.7E-06	
		LLD	4.1E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (concluded)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-07	U-nat (µCi/kg)	Concentration	1.8E-05	1.4E-01 D	2.7E-05	1.8E-05
		Error ± 2σ	-	-		
		LLD	9.7E-07	21E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.7E-05	7.6E-05	2.4E-05	5.2E-05
		Error ± 2σ	1.6E-05	7.2E-06	7.5E-06	
		LLD	9.7E-07	3.0E-06	7.7E-06	
	Th-230 (µCi/kg)	Concentration	1.6E-05	4.0E-05	2.0E-05	2.8E-05
		Error ± 2σ	1.8E-05	1.2E-05	8.6E-06	
		LLD	9.7E-07	2.0E-07	8.6E-07	
	Pb-210 (µCi/kg)	Concentration	2.1E-03	6.2E-04	-3.2E-05U	1.4E-03
		Error ± 2σ	3.6E-04	5.3E-05	1.3E-04	
		LLD	4.8E-06	1.0E-06	2.1E-04	
	Po-210 (µCi/kg)	Concentration	1.5E-04	2.3E-04	2.0E-05	1.9E-04
		Error ± 2σ	8.2E-05	4.7E-05	1.3E-05	
		LLD	4.8E-06	1.0E-06	1.0E-06	
AMS-BKG	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	4.0E-05	9.0E-02D	1.0E-05	2.5E-05
		Error ± 2σ	-	-	-	
		LLD	9.7E-07	3.8E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	4.1E-05	8.3E-05	1.3E-05	6.2E-05
		Error ± 2σ	2.0E-05	1.1E-05	4.6E-06	
		LLD	9.7E-07	6.4E-06	5.1E-06	
	Th-230 (µCi/kg)	Concentration	1.0E-05	3.5E-05	7.3E-06	2.3E-05
		Error ± 2σ	1.3E-05	1.2E-05	4.2E-06	
		LLD	9.7E-07	2.0E-07	5.6E-07	
	Pb-210 (µCi/kg)	Concentration	6.9E-04	1.4E-03	1.3E-04U	1.0E-03
		Error ± 2σ	2.8E-04	1.0E-04	8.6E-05	
		LLD	4.8E-06	1.0E-06		
	Po-210 (µCi/kg)	Concentration	2.5E-05	2.2E-04	9.3E-06	1.2E-04
		Error ± 2σ	3.2E-05	5.1E-05	8.8E-06	
		LLD	4.8E-06	1.0E-06	1.0E-06	

Notes:
D = Lower limit of detection increased due to sample matrix interference. Average concentrations s do not include "D"-qualified results.

Table 8-1. Baseline Radionuclide Concentrations in Air

Location	Monitoring Period[a]	Concentration (µCi/ml)							% of Effluent Concentration				Lower Limit of Detection (µCi/ml)			
		U-nat	Th-230	Th-230 2σ Error	Ra-226	Ra-226 2σ Error	Pb-210	Pb-210 2σ Error	U-nat	Th-230	Ra-226	Pb-210	U-nat	Th-230	Ra-226	Pb-210
AMS-01	1	-1.3E-17	3.4E-18	1.0E-17	1.8E-17	1.7E-17	2.1E-14	2.4E-16	0.00%	0.00%	0.00%	3.54%	1.7E-18	1.7E-18	1.2E-17	2.1E-16
	2	2.4E-17	1.3E-17	9.8E-18	1.4E-17	9.7E-18	2.1E-14	4.9E-16	0.00%	0.00%	0.00%	3.51%	1.5E-18	1.5E-18	8.3E-18	4.2E-16
	3	3.7E-15	1.3E-17	4.2E-17	1.2E-17	5.7E-17	1.9E-14	9.8E-16	0.12%	0.00%	0.00%	3.13%	3.9E-15	2.3E-18	5.7E-17	3.7E-16
	4	0.0E+00	1.6E-18	1.1E-17	7.2E-18	9.1E-18	4.1E-14	6.9E-16	0.00%	0.00%	0.00%	6.78%	1.6E-16	1.6E-18	1.6E-18	7.9E-18
	5	-1.7E-17	6.5E-18	2.5E-17	-3.1E-17	2.7E-17	1.0E-14	6.5E-16	0.00%	0.00%	0.00%	1.74%	4.3E-18	4.3E-18	5.6E-17	6.7E-16
AMS-02	1	-2.0E-17	4.7E-18	1.1E-17	-8.6E-18	1.3E-17	8.9E-15	2.5E-16	0.00%	0.00%	0.00%	1.49%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	4.2E-18	0.0E+00	7.4E-18	-4.2E-18	7.4E-18	8.2E-15	4.2E-16	0.00%	0.00%	0.00%	1.37%	1.4E-18	1.4E-18	7.6E-18	3.9E-16
	3	2.9E-15	1.8E-18	2.5E-17	-2.6E-17	3.3E-17	1.2E-14	7.5E-16	0.10%	0.00%	0.00%	1.96%	3.1E-15	1.8E-18	4.1E-17	3.0E-16
	4	0.0E+00	1.6E-17	1.1E-17	-2.3E-18	7.0E-18	2.0E-14	4.7E-16	0.00%	0.00%	0.00%	3.26%	1.5E-16	1.5E-18	1.5E-18	7.6E-18
	5	-1.3E-17	0.0E+00	8.0E-18	-4.9E-17	2.3E-17	1.5E-14	6.5E-16	0.00%	0.00%	0.01%	2.44%	4.0E-18	4.0E-18	5.3E-17	6.2E-16
AMS-03	1	-3.0E-17	9.3E-18	1.2E-17	-1.4E-17	1.3E-17	9.2E-15	2.5E-16	0.00%	0.00%	0.00%	1.53%	1.5E-18	1.5E-18	1.2E-17	1.9E-16
	2	1.8E-17	8.9E-18	9.0E-18	9.6E-18	9.5E-18	8.0E-15	4.4E-16	0.00%	0.00%	0.00%	1.34%	1.5E-18	1.5E-18	8.9E-18	4.1E-16
	3	2.8E-15	6.9E-18	2.2E-17	-4.8E-18	3.7E-17	1.2E-14	7.5E-16	0.09%	0.00%	0.00%	1.98%	2.9E-15	1.7E-18	3.6E-17	2.8E-16
	4	0.0E+00	9.3E-18	1.0E-17	5.4E-18	8.8E-18	1.3E-14	3.9E-16	0.00%	0.00%	0.00%	2.16%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-1.6E-17	1.9E-17	9.7E-18	-3.2E-18	3.1E-17	1.2E-14	6.5E-16	0.00%	0.00%	0.00%	1.99%	4.2E-18	4.2E-18	5.0E-17	6.6E-16
AMS-04	1	-2.6E-17	2.5E-18	1.1E-17	-2.8E-17	1.2E-17	8.5E-15	2.6E-16	0.00%	0.00%	0.00%	1.42%	1.7E-18	1.7E-18	9.9E-18	2.0E-16
	2	1.9E-17	6.6E-18	9.0E-18	1.2E-17	9.5E-18	1.0E-14	4.6E-16	0.00%	0.00%	0.00%	1.74%	1.5E-18	1.5E-18	8.1E-18	4.1E-16
	3	3.0E-15	-9.5E-19	3.0E-17	2.5E-17	4.7E-17	-1.1E-16	7.0E-16	0.10%	0.00%	0.00%	0.02%	3.2E-15	1.9E-18	4.4E-17	3.1E-16
	4	0.0E+00	9.4E-18	1.1E-17	2.3E-18	8.3E-18	2.2E-14	5.1E-16	0.00%	0.00%	0.00%	3.66%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-1.0E-18	2.7E-17	9.7E-18	-5.2E-18	3.3E-17	1.3E-14	6.7E-16	0.00%	0.00%	0.00%	2.23%	4.2E-18	4.2E-18	5.5E-17	6.6E-16

Table 8-1. Radionuclide Concentrations in Air (concluded)

Location	Monitoring Period[a]	Concentration (µCi/ml)							% of Effluent Concentration				Lower Limit of Detection (µCi/ml)			
		U-nat	Th-230	Th-230 2σ Error	Ra-226	Ra-226 2σ Error	Pb-210	Pb-210 2σ Error	U-nat	Th-230	Ra-226	Pb-210	U-nat	Th-230	Ra-226	Pb-210
AMS-05	1	1.0E-18	4.7E-18	1.1E-17	1.1E-17	1.5E-17	1.0E-14	2.3E-16	0.00%	0.00%	0.00%	1.66%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	2.7E-17	1.5E-17	1.0E-17	1.5E-17	9.9E-18	1.1E-14	4.8E-16	0.00%	0.00%	0.00%	1.91%	1.5E-18	1.5E-18	8.5E-18	4.3E-16
	3	2.8E-15	3.6E-17	2.3E-17	-1.3E-17	4.0E-17	1.0E-14	7.2E-16	0.09%	0.00%	0.00%	1.68%	2.9E-15	1.7E-18	4.3E-17	2.8E-16
	4	0.0E+00	2.0E-17	1.4E-17	4.7E-17	1.3E-17	2.5E-14	5.3E-16	0.00%	0.00%	0.01%	4.09%	1.5E-16	1.5E-18	1.5E-18	7.7E-18
	5	2.4E-17	5.6E-17	9.5E-18	2.2E-17	3.4E-17	1.1E-14	6.3E-16	0.00%	0.00%	0.00%	1.85%	4.1E-18	4.1E-18	4.9E-17	6.4E-16
AMS-06	1	-1.4E-17	9.4E-18	1.2E-17	0.0E+00	1.4E-17	6.0E-15	2.2E-16	0.00%	0.00%	0.00%	1.00%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	1.7E-17	5.5E-18	1.0E-17	-5.5E-18	8.4E-18	1.1E-14	4.9E-16	0.00%	0.00%	0.00%	1.80%	1.6E-18	1.6E-18	9.5E-18	4.4E-16
	3	2.9E-15	1.0E-17	2.4E-17	-2.0E-17	3.9E-17	1.7E-14	8.2E-16	0.10%	0.00%	0.00%	2.89%	3.1E-15	1.8E-18	4.2E-17	2.9E-16
	4	0.0E+00	1.4E-17	1.2E-17	2.3E-17	1.0E-17	2.1E-14	4.8E-16	0.00%	0.00%	0.00%	3.56%	1.5E-16	1.5E-18	1.5E-18	7.3E-18
	5	-2.6E-18	2.0E-17	9.1E-18	6.9E-18	3.3E-17	1.9E-14	6.9E-16	0.00%	0.00%	0.00%	3.25%	4.0E-18	4.0E-18	4.9E-17	6.2E-16
AMS-07	1	-1.1E-17	6.4E-18	9.1E-18	-1.3E-17	1.1E-17	7.2E-15	2.2E-16	0.00%	0.00%	0.00%	1.20%	1.4E-18	1.4E-18	9.2E-18	1.7E-16
	2	2.0E-17	7.9E-18	8.1E-18	-6.6E-19	7.5E-18	1.3E-14	4.4E-16	0.00%	0.00%	0.00%	2.13%	1.3E-18	1.3E-18	7.3E-18	3.7E-16
	3	9.1E-15	2.0E-17	2.6E-17	3.9E-18	4.2E-17	1.7E-14	7.8E-16	0.30%	0.00%	0.00%	2.85%	2.9E-15	1.7E-18	4.3E-17	2.8E-16
	4	0.0E+00	1.3E-17	1.2E-17	2.9E-17	1.0E-17	2.8E-14	5.4E-16	0.00%	0.00%	0.00%	4.66%	1.4E-16	1.4E-18	1.4E-18	7.0E-18
	5	-9.2E-19	1.7E-17	8.5E-18	1.4E-17	3.0E-17	1.3E-14	5.9E-16	0.00%	0.00%	0.00%	2.10%	3.7E-18	3.7E-18	4.6E-17	5.8E-16
AMS-BKG	1	1.6E-18	2.0E-17	1.3E-17	-5.6E-18	1.4E-17	8.3E-15	2.5E-16	0.00%	0.00%	0.00%	1.38%	1.6E-18	1.6E-18	1.2E-17	2.2E-16
	2	2.1E-17	2.0E-18	1.2E-17	3.0E-18	1.1E-17	1.8E-14	6.6E-16	0.00%	0.00%	0.00%	3.05%	2.0E-18	2.0E-18	1.2E-17	5.7E-16
	3	3.0E-15	2.8E-17	2.9E-17	-5.1E-18	4.0E-17	1.3E-14	7.7E-16	0.10%	0.00%	0.00%	2.18%	3.2E-15	1.9E-18	4.1E-17	2.5E-16
	4	0.0E+00	-7.8E-19	9.4E-18	1.2E-17	9.5E-18	2.0E-14	4.8E-16	0.00%	0.00%	0.00%	3.29%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-8.1E-18	2.4E-17	9.3E-18	-1.7E-17	2.4E-17	1.2E-14	6.3E-16	0.00%	0.00%	0.00%	2.00%	4.0E-18	4.0E-18	4.0E-17	5.3E-16

Notes:

a. The laboratory reported no blank assay data for Period 5. Blank assays in the sample concentration calculation were assumed to be 50 percent of the values for blanks reported for the previous period. The assumption is based on the relative, approximate run-time of the air samplers in both periods.

NR = Not reported by the laboratory.

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
AMS-1	8/14/07	9/27/07	1.00E-09	-	6.82E-10	1000	7.23E-10	2.09E-10	4.92E-10	1.00E-09
	9/27/07	2/1/08	7.00E-10	-	2.00E-10	700				
	2/1/08	5/17/08	7.00E-10	7.1E-11	2.83E-10	700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-1[a]	8/14/07	9/27/07	1.00E-09	-	6.82E-10	1000	5.73E-10	2.88E-10	4.00E-10	1.00E-09
	9/27/07	2/1/08	4.00E-10	-	2.00E-10	400				
	2/1/08	5/17/08	4.00E-10	5.2E-11	2.83E-10	400				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-2	8/15/07	9/27/07	2.20E-09	-	6.98E-10	2200	1.70E-09	7.62E-10	4.92E-10	2.20E-09
	9/27/07	2/1/08	1.20E-09	-	2.00E-10	1200				
	2/1/08	5/17/08	7.00E-10	7.0E-11	2.83E-10	700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-3	8/14/07[b]	9/27/07[b]	1.20E-09	-	6.82E-10	1200	1.20E-09	9.30E-10	4.92E-10	2.70E-09
	9/27/07	2/4/08	1.20E-09	-	2.00E-10	1200				
	2/4/08	5/17/08	2.70E-09	7.9E-11	2.91E-10	2700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-4	8/14/07	9/24/07	1.20E-09	-	7.32E-10	1200	1.20E-09	9.98E-10	5.75E-10	2.90E-09
	9/27/07	2/4/08	1.20E-09	-	2.00E-10	1200				
	2/4/08	5/17/08	2.90E-09	7.8E-11	2.91E-10	2900				
	5/17/08	7/17/08	5.75E-10	-	4.92E-10	575				
AMS-5	8/15/07	9/27/07	2.20E-09	-	6.98E-10	2200	1.60E-09	7.16E-10	4.92E-10	2.20E-09
	9/27/07	2/1/08	1.00E-09	-	2.00E-10	1000				
	2/1/08	5/17/08	1.20E-09	7.9E-11	2.83E-10	1200				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements (concluded)

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
AMS-6	8/17/07	9/27/07	2.60E-09	-	7.32E-10	2600	1.80E-09	8.40E-10	6.89E-10	2.60E-09
	9/27/07	2/1/08	1.00E-09	-	2.00E-10	1000				
	2/11/08	5/17/08	1.30E-09	7.6E-11	2.83E-10	1300				
	5/17/08	7/17/08	6.89E-10	-	4.92E-10	689				
AMS-7	8/14/07	9/27/07	1.10E-09	-	6.82E-10	1100	1.30E-09	4.15E-10	4.92E-10	1.50E-09
	9/27/07	2/1/08	1.50E-09	-	2.00E-10	1500				
	2/1/08	5/17/08	1.00E-09	7.2E-11	2.83E-10	1000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-BKG	8/14/07	9/24/07	2.00E-09	-	7.32E-10	2000	1.80E-09	6.58E-10	4.95E-10	2.00E-09
	9/27/07	2/1/08	1.60E-09	-	2.00E-10	1600				
	2/1/08	5/17/08	1.70E-09	8.1E-11	2.83E-10	1700				
	5/17/08	7/17/08	4.95E-10	-	4.92E-10	495				
AMS-BKG[a]	8/14/07	9/27/07	2.70E-09	-	6.82E-10	2700	2.10E-09	9.03E-10	4.92E-10	2.70E-09
	9/27/07	2/1/08	1.50E-09	-	2.00E-10	1500				
	2/1/08	5/17/08	1.50E-09	8.1E-11	2.83E-10	1500				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 01	8/14/07	9/23/07	2.00E-09	-	7.50E-10	2000	1.65E-09	8.35E-10	5.00E-10	2.40E-09
	9/23/07	2/11/08	1.30E-09	-	2.00E-10	1300				
	2/11/08	5/17/08	2.40E-09	8.5E-11	3.13E-10	2400				
	5/17/08	7/17/08	5.00E-10	-	4.76E-10	500				
Rn 02	8/14/07	9/23/07	9.80E-09	-	7.50E-10	9800	3.86E-09	5.15E-09	5.75E-10	9.80E-09
	9/23/07	2/11/08	1.20E-09	-	2.00E-10	1200				
	no data	-	-	-	-	-				
	5/17/08	7/17/08	5.75E-10	1.5E-10	4.92E-10	575				

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements (concluded)

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
Rn 03	8/14/07	9/23/07	1.20E-09	-	7.50E-10	1200	1.05E-09	9.63E-10	4.92E-10	2.70E-09
	9/23/07	2/11/08	9.00E-10	-	2.00E-10	900				
	2/11/08	5/17/08	2.70E-09	8.6E-11	3.13E-10	2700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 04	8/14/07	9/23/07	2.00E-09	-	7.50E-10	2000	1.70E-09	6.34E-10	5.00E-10	2.00E-09
	9/23/07	2/1/08	1.40E-09	-	2.00E-10	1400				
	2/11/08	5/17/08	1.00E-09	7.7E-11	2.83E-10	1000				
	5/17/08	7/17/08	5.00E-10	-	4.92E-10	500				
Rn 05	8/14/07	9/23/07	1.50E-09	-	7.50E-10	1500	1.30E-09	7.82E-10	8.18E-10	2.60E-09
	9/23/07	2/12/08	1.10E-09	-	2.00E-10	1100				
	2/11/08	5/17/08	2.60E-09	8.6E-11	3.16E-10	2600				
	5/17/08	7/17/08	8.18E-10	-	4.92E-10	818				
Rn 06	8/19/07	9/23/07	3.30E-09	-	8.57E-10	3300	2.30E-09	1.35E-09	4.92E-10	3.30E-09
	9/23/07	2/11/08	1.30E-09	-	2.00E-10	1300				
	2/11/08	5/17/08	3.00E-09	8.5E-11	3.13E-10	3000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 07	8/15/07	9/23/07	3.00E-09	-	7.69E-10	3000	2.40E-09	1.18E-09	7.21E-10	3.30E-09
	9/23/07	2/12/08	1.80E-09	-	2.00E-10	1800				
	2/12/08	5/17/08	3.30E-09	8.3E-11	3.16E-10	3300				
	5/17/08	7/17/08	7.21E-10	-	4.92E-10	721				
Rn 08	8/14/07	9/23/07	1.50E-09	-	7.50E-10	1500	1.40E-09	4.39E-10	4.92E-10	1.50E-09
	9/23/07	2/1/08	1.30E-09	-	2.00E-10	1300				
	9/23/07	2/1/08	1.00E-09	7.2E-11	2.83E-10	1000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				

Notes:
a. Duplicate track etch detector
b. Seal potentially compromised

Table 9-1. Ambient Gamma Dose Rates using TLDs

Location	Starting Date	End Date	Dose (mrem)	Projected Annual Dose (mrem)
AMS-01	9/18/07	2/4/08	-	114
	2/4/08	5/17/08	37.2[a]	
	5/17/08	7/17/08	57.7[a]	
AMS-02	9/18/07	2/4/08	-	323
	2/4/08	5/17/08	-	
	5/17/08	7/17/08	54.0	
AMS-03	9/18/07	2/4/08	-	137
	2/4/08	5/17/08	38.6	
	5/17/08	7/17/08		
AMS-04	9/18/07	2/4/08	62.4	184
	2/4/08	5/17/08	36.1	
	5/17/08	7/17/08	54.3	
AMS-05	9/18/07	2/4/08	50.6	149
	2/4/08	5/17/08	36.7	
	5/17/08	7/17/08	36.4	
AMS-06	9/18/07	2/4/08	-	196
	2/4/08	5/17/08	36.9	
	5/17/08	7/17/08	51.1	
AMS-07	9/18/07	2/4/08	73.7	175
	2/4/08	5/17/08	35.5	
	5/17/08	7/17/08	36.1	
AMS-BKG	9/18/07	2/4/08	68.8[a]	202
	2/4/08	5/17/08	40.5[a]	
	5/17/08	7/17/08	58.5[a]	

Notes:
a. Result is average of measurement plus duplicate.

Table 10-1. Baseline Radionuclide Concentrations in Local Food

Sample ID	Radionuclide	Parameter	Result
DBAT-01	**U-nat (µCi/kg)**	**Concentration**	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	3.0E-06
		Error ± 2σ	2.0E-06
		LLD	3.0E-06
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	2.0E-05
		LLD	8.0E-06
	Pb-210 (µCi/kg)	Concentration	-7.0E-06
		Error ± 2σ	4.0E-05
		LLD	7.0E-06
	Po-210 (µCi/kg)	Concentration	8.0E-06
		Error ± 2σ	1.0E-04
		LLD	8.0E-06
DBAT-02	**U-nat (µCi/kg)**	Concentration	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	6.0E-05
		Error ± 2σ	3.0E-05
		LLD	4.0E-05
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.4E-03
		LLD	1.0E-04
	Pb-210 (µCi/kg)	Concentration	2.0E-04
		Error ± 2σ	7.0E-04
		LLD	1.2E-03
	Po-210 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.2E-03
		LLD	1.0E-04
DBAT-03	**U-nat (µCi/kg)**	Concentration	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	3.0E-06
		Error ± 2σ	1.0E-06
		LLD	2.0E-06
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.0E-04
		LLD	6.0E-06
	Pb-210 (µCi/kg)	Concentration	-7.0E-06
		Error ± 2σ	4.0E-05
		LLD	6.0E-05
	Po-210 (µCi/kg)	Concentration	2.0E-05
		Error ± 2σ	2.0E-04
		LLD	6.0E-06

Figures

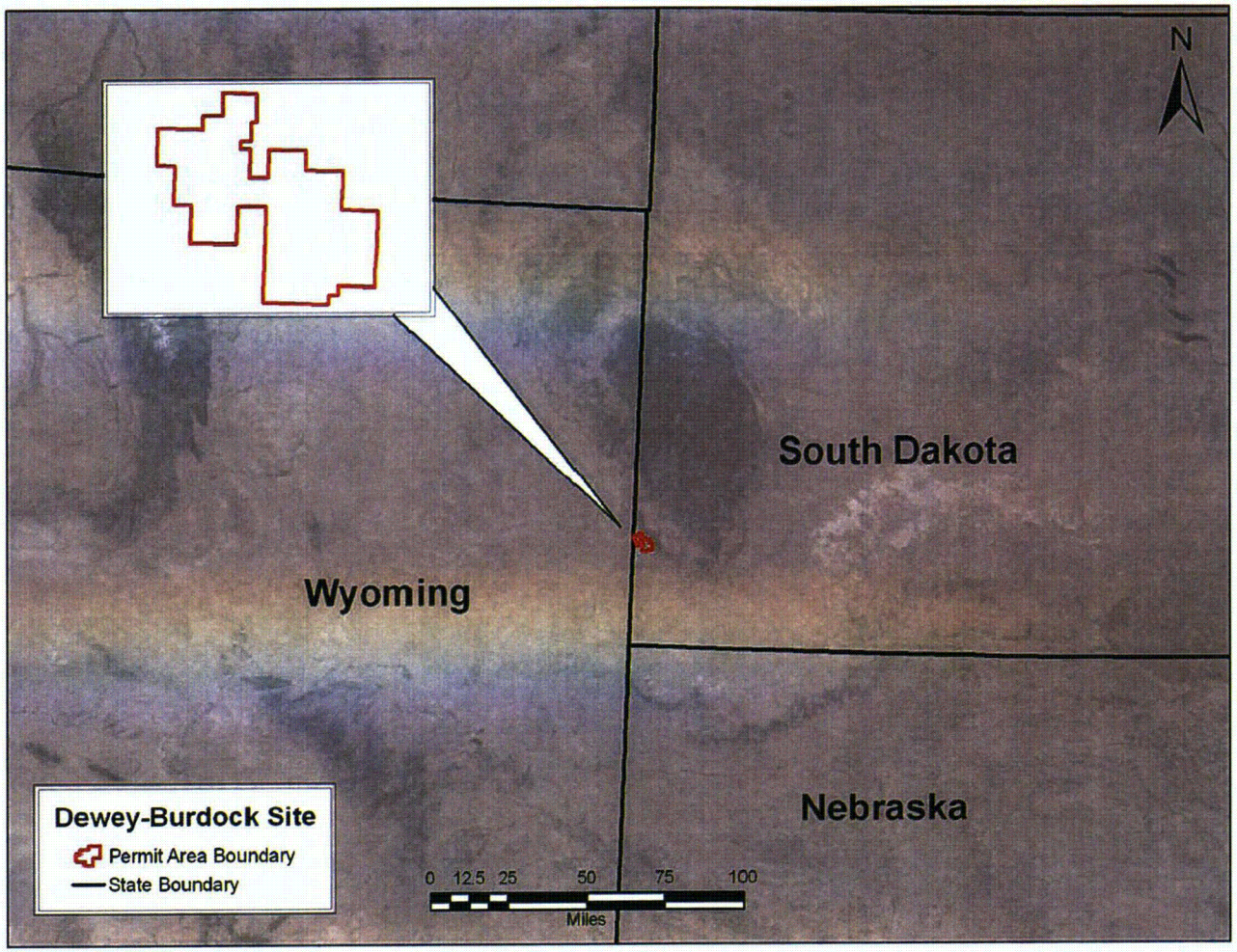


Figure 1-1. Dewey-Burdock Site Location

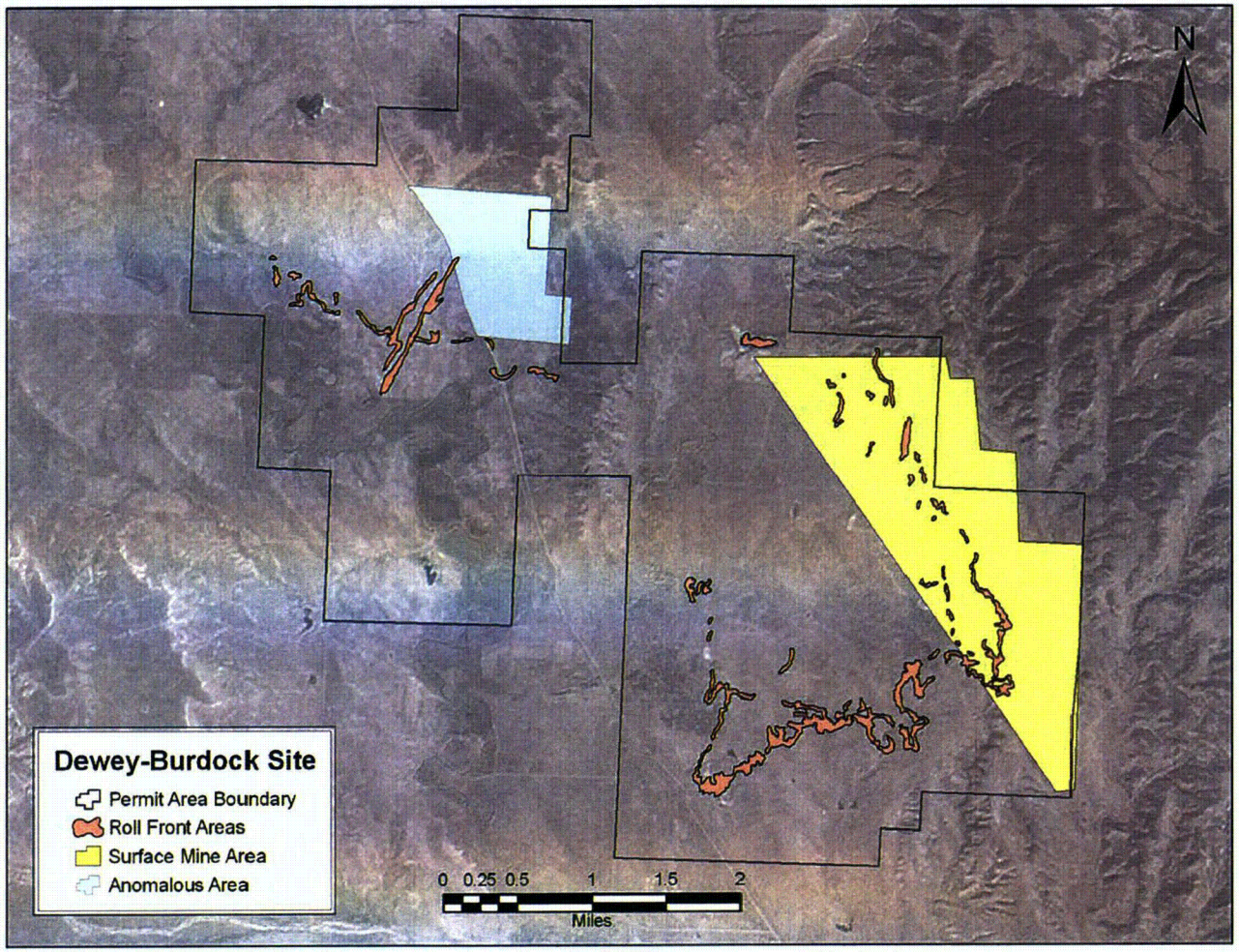


Figure 1-2. Salient Areas of Dewey-Burdock Site

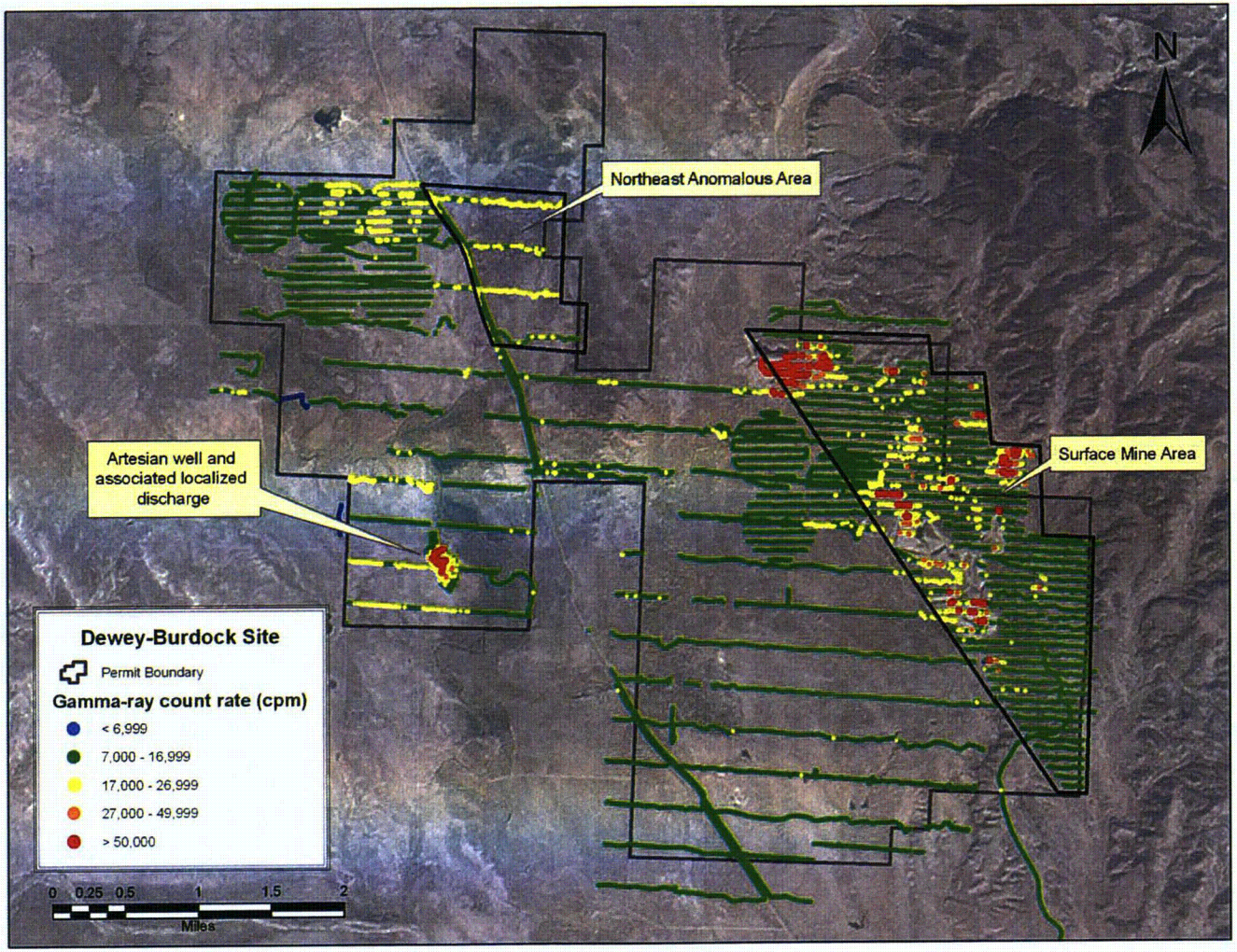


Figure 3-1. Baseline GPS-Based Gamma-Ray Count Rates

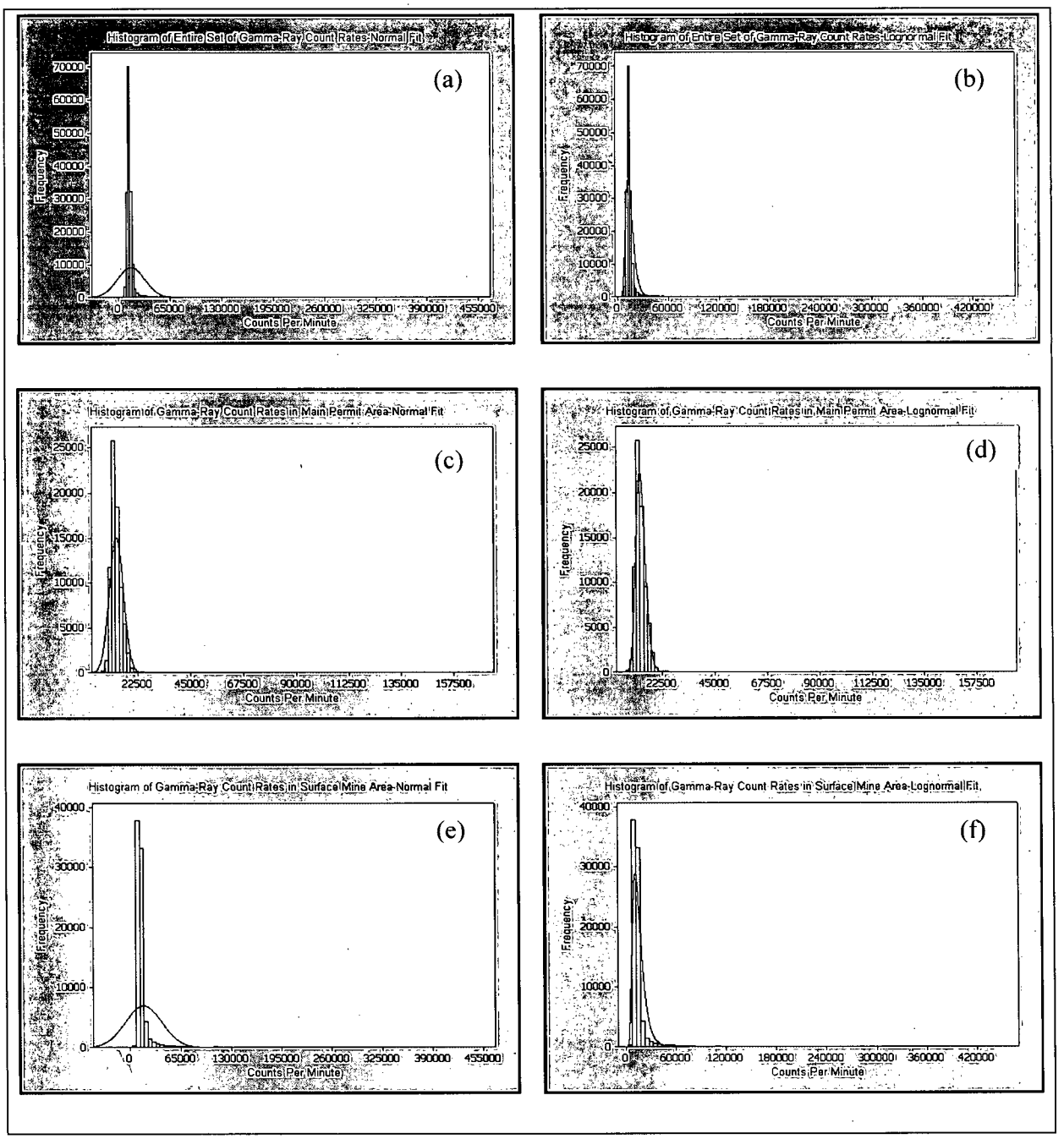


Figure 3-2. Frequency Histograms of Gamma-Ray Count Rates (a) normal fit in entire data set, (b) lognormal fit in entire data set, (c) normal fit in main permit area, (d) lognormal fit in main permit area, (e) normal fit in surface mine area, (f) lognormal fit in surface mine area.

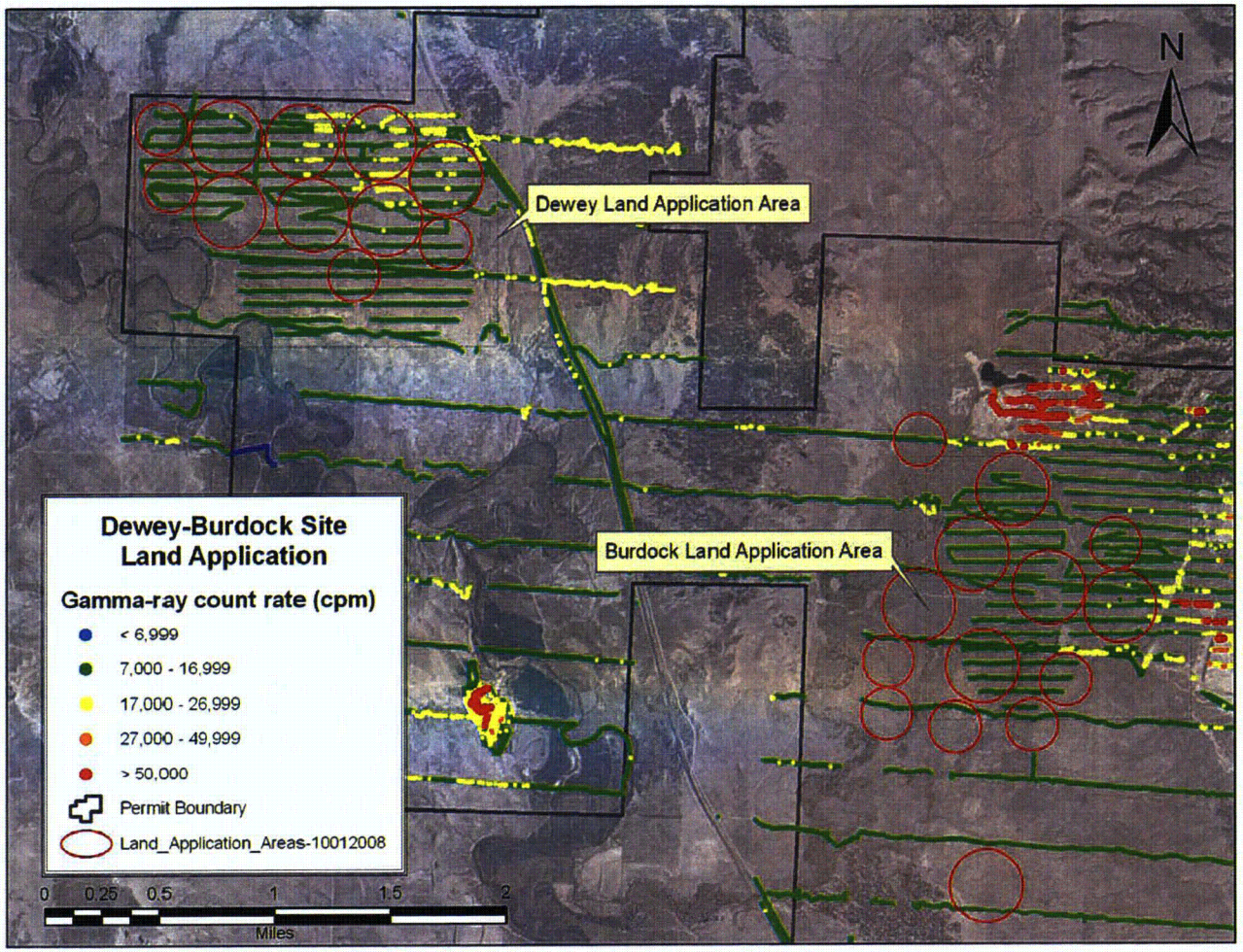


Figure 3-3. GPS-Based Gamma-Ray Count Rates in the Land Application Areas

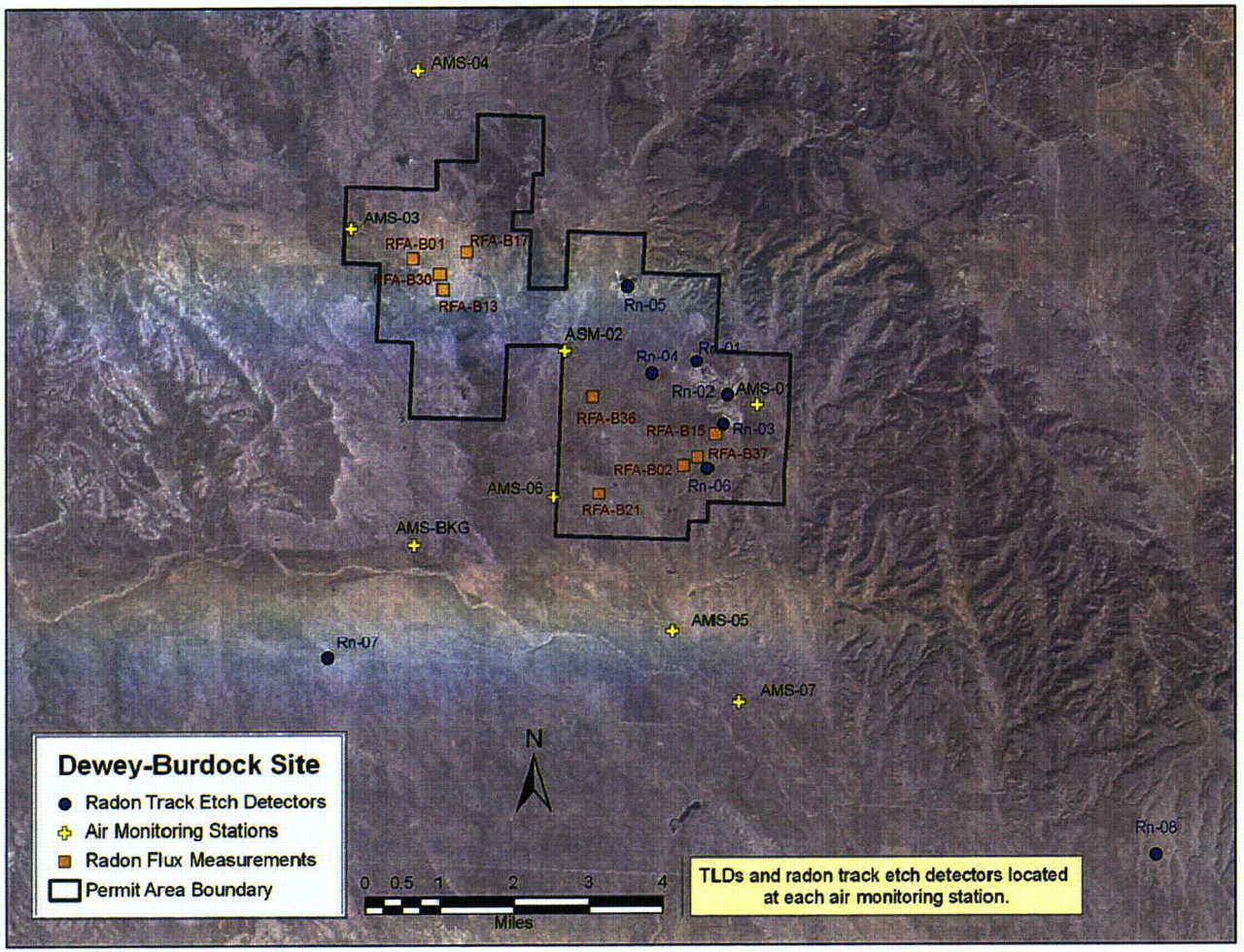


Figure 4-1. Air Monitoring Station, Ambient Radon, and Radon Flux Measurement Locations

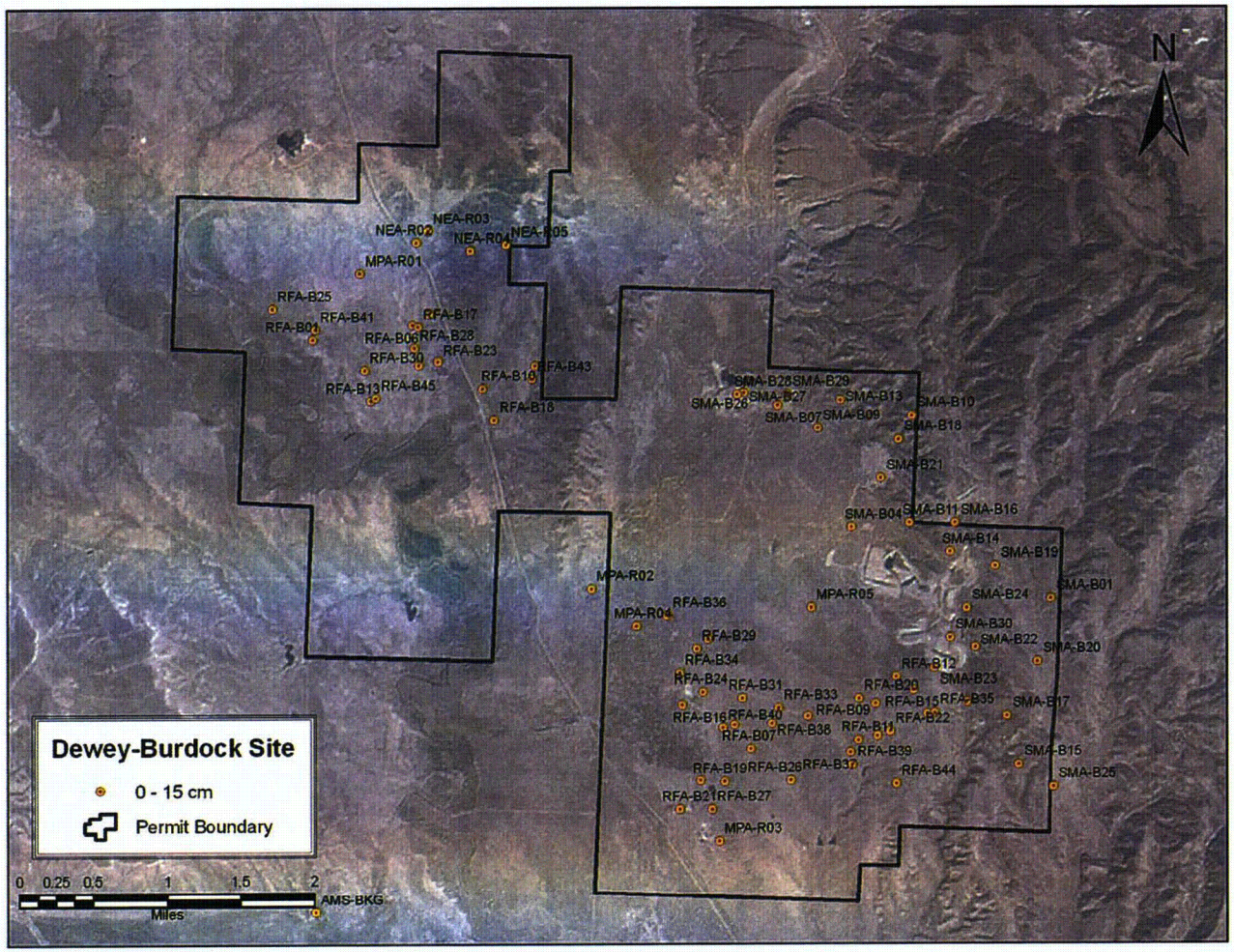


Figure 4-2. Soil Sample Locations (does not include samples collected at AMS locations and land application areas)

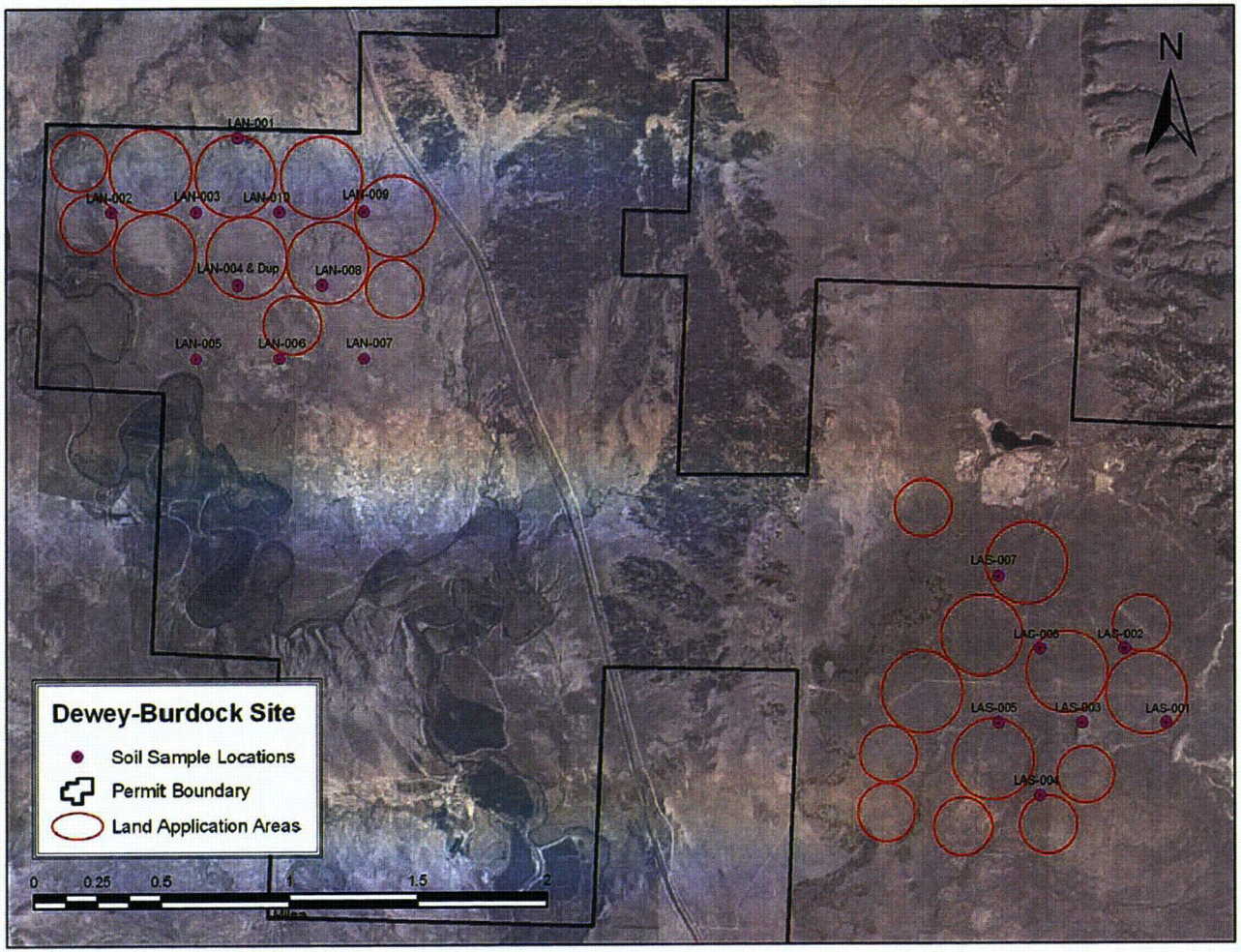


Figure 4-3. Soil Sample Locations in Land Application Areas

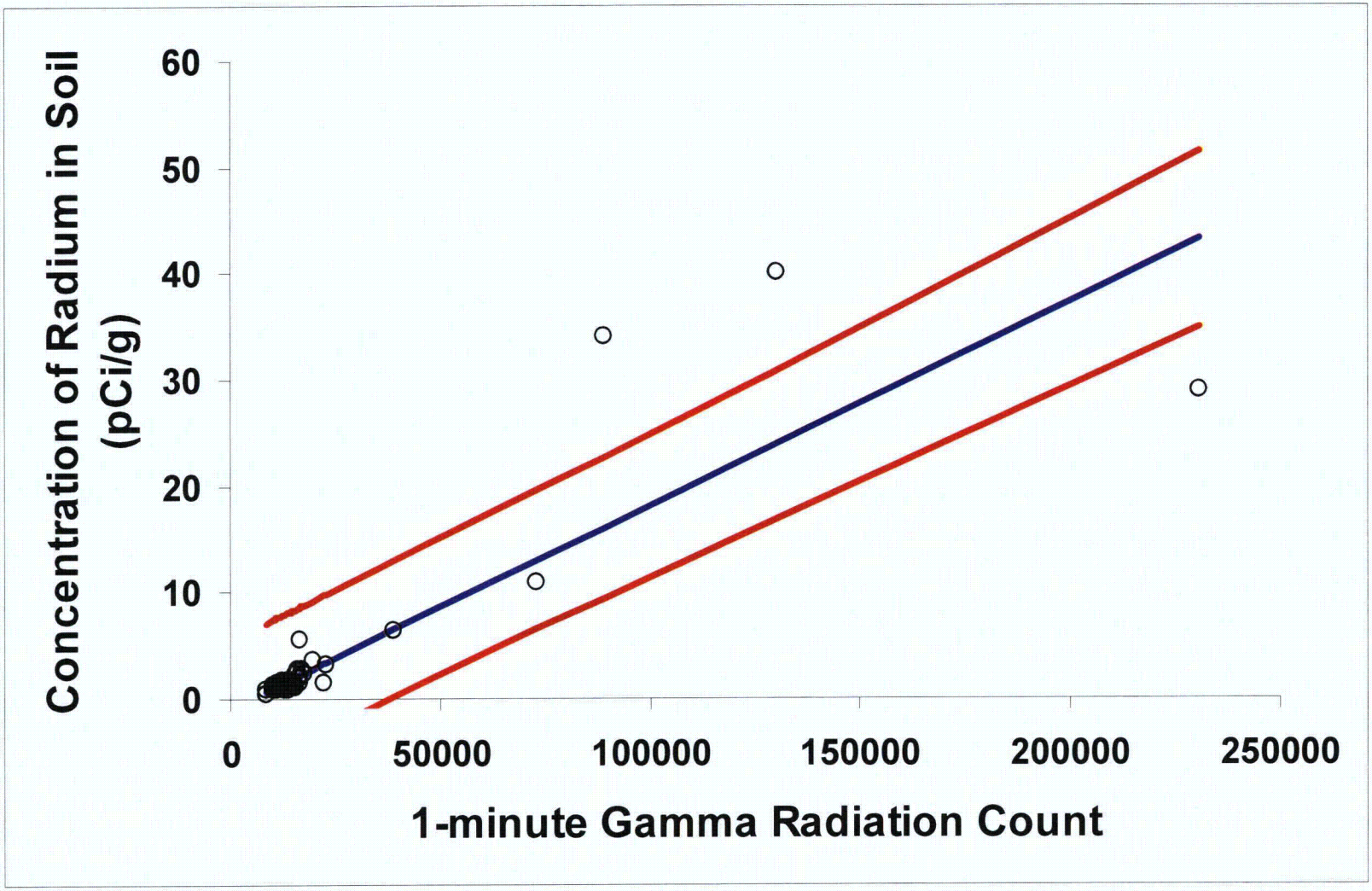


Figure 5-1. Correlation of concentrations of radium in soil and 1-minute integrated gamma-ray counts, using all 80 pairs of measurements. The red lines are predicted 95 percent confidence lines.

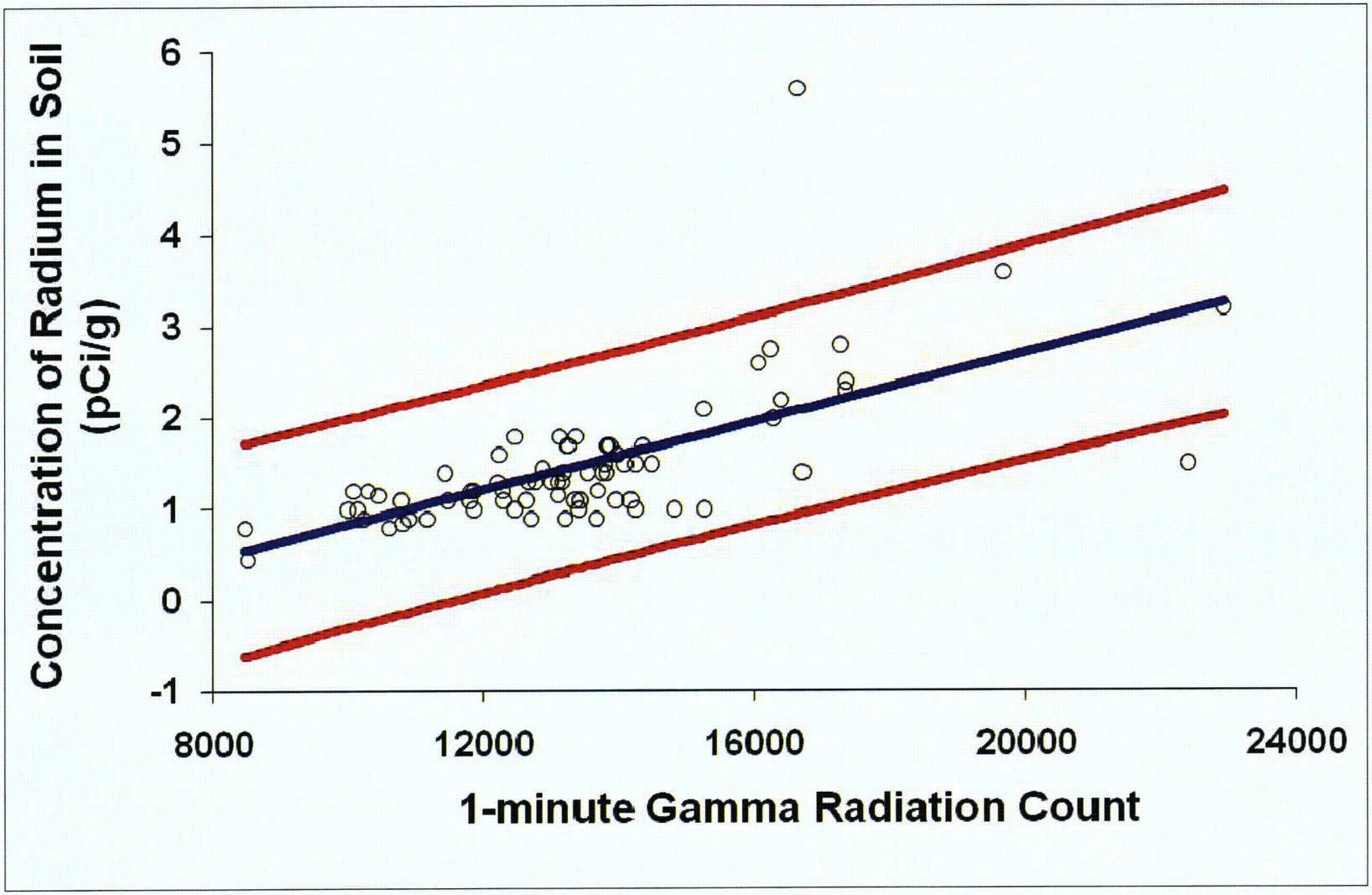


Figure 5-2. Correlation of concentrations of radium in soil and 1-minute integrated gamma-ray counts, with five outliers removed. The red lines are predicted 95 percent confidence lines.

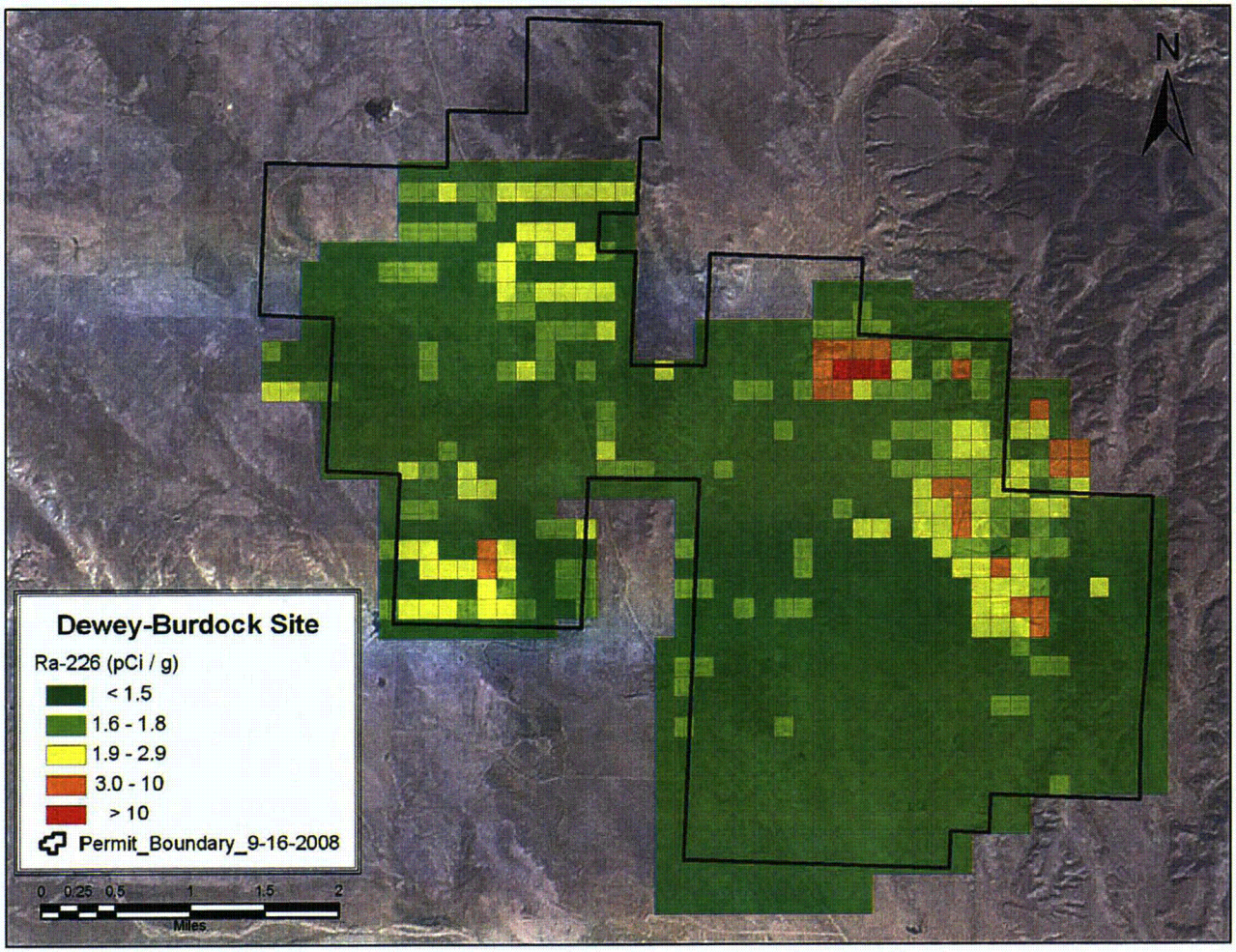


Figure 5-3. Grid block averages of radium-226 concentrations predicted from correlation between radium-226 concentrations in soil and gamma-ray count rates

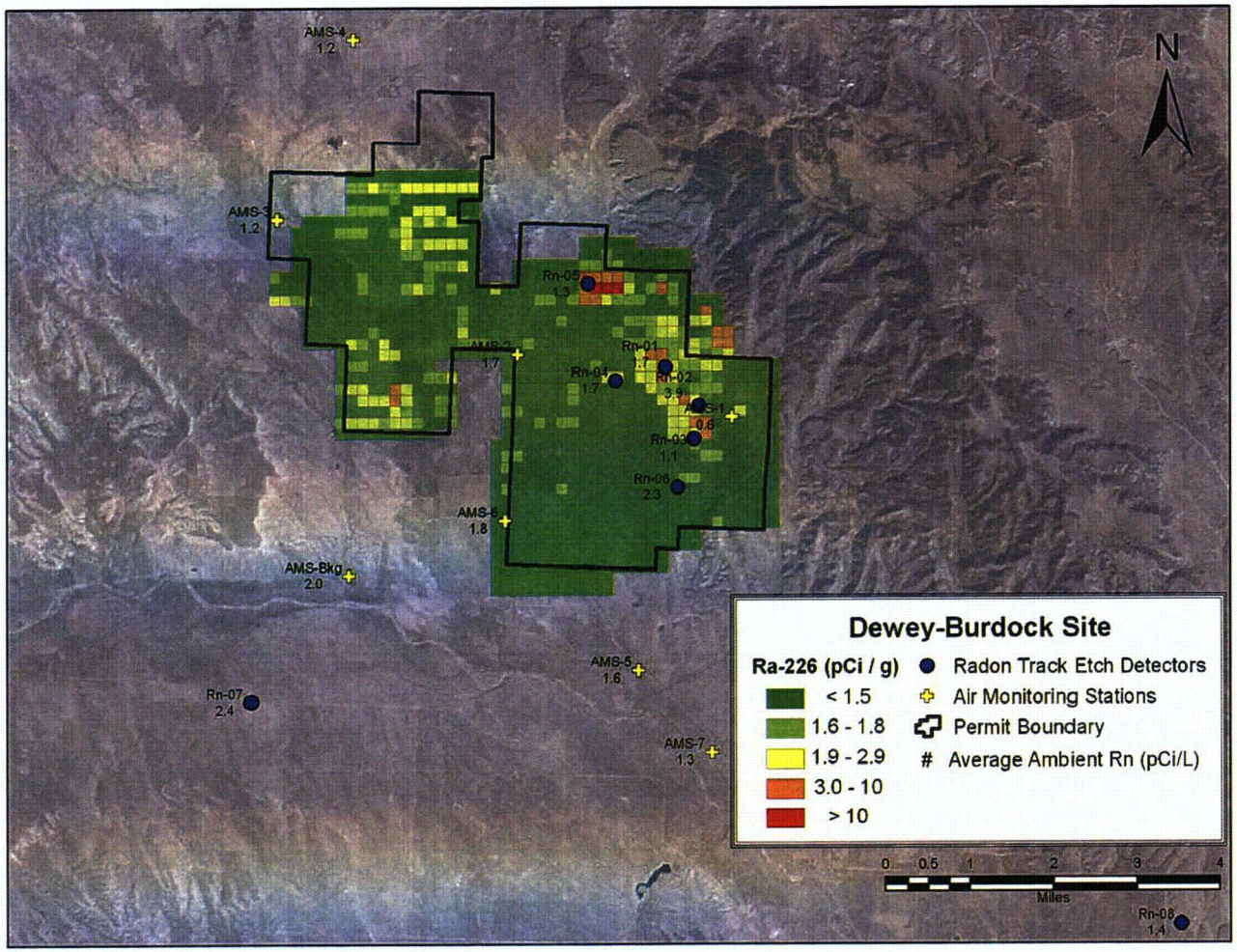


Figure 8-1. Ambient Radon Concentrations Superimposed on Predicted Radium-226 Concentrations

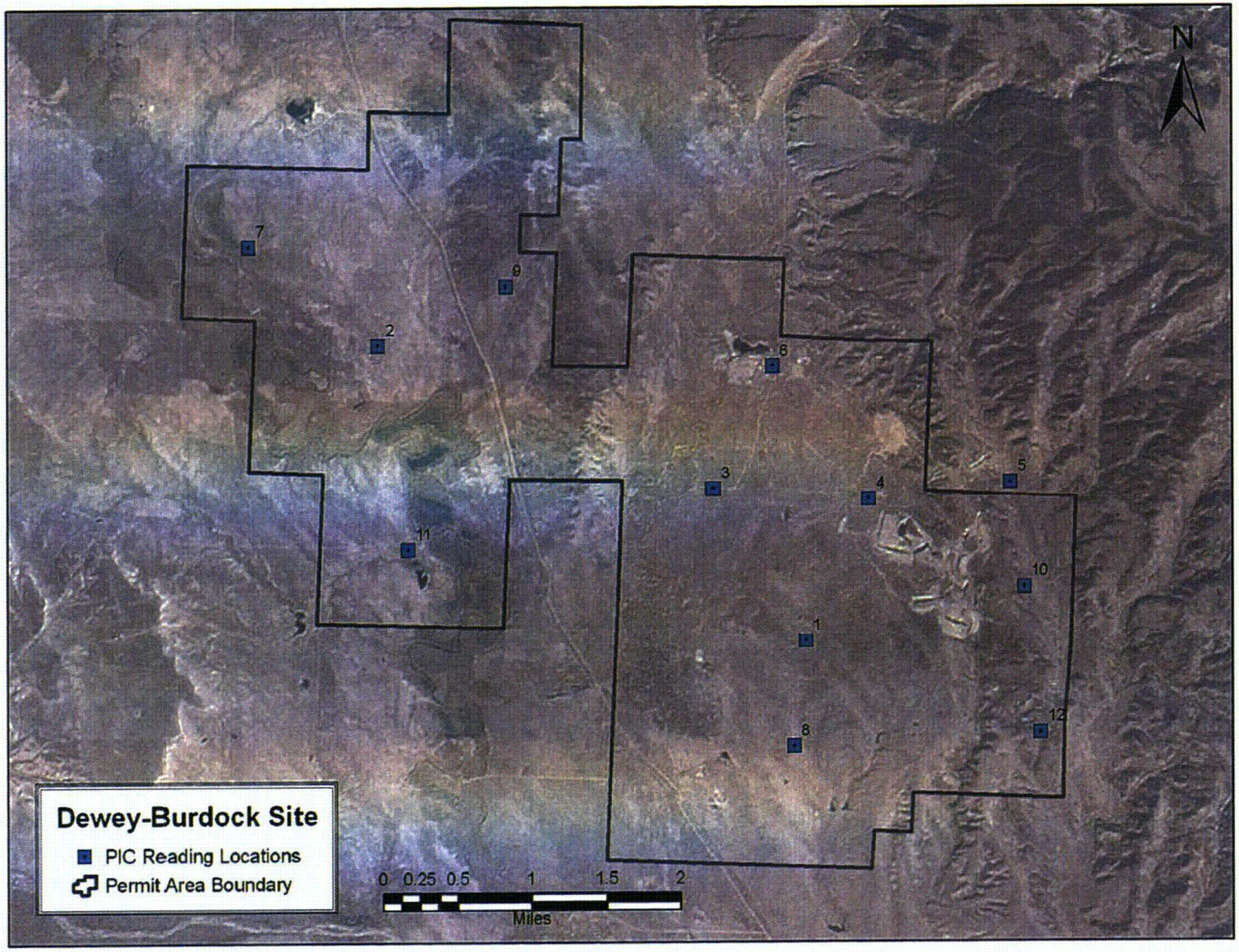


Figure 9-1. Locations of PIC-Sodium Iodide Correlation Measurements

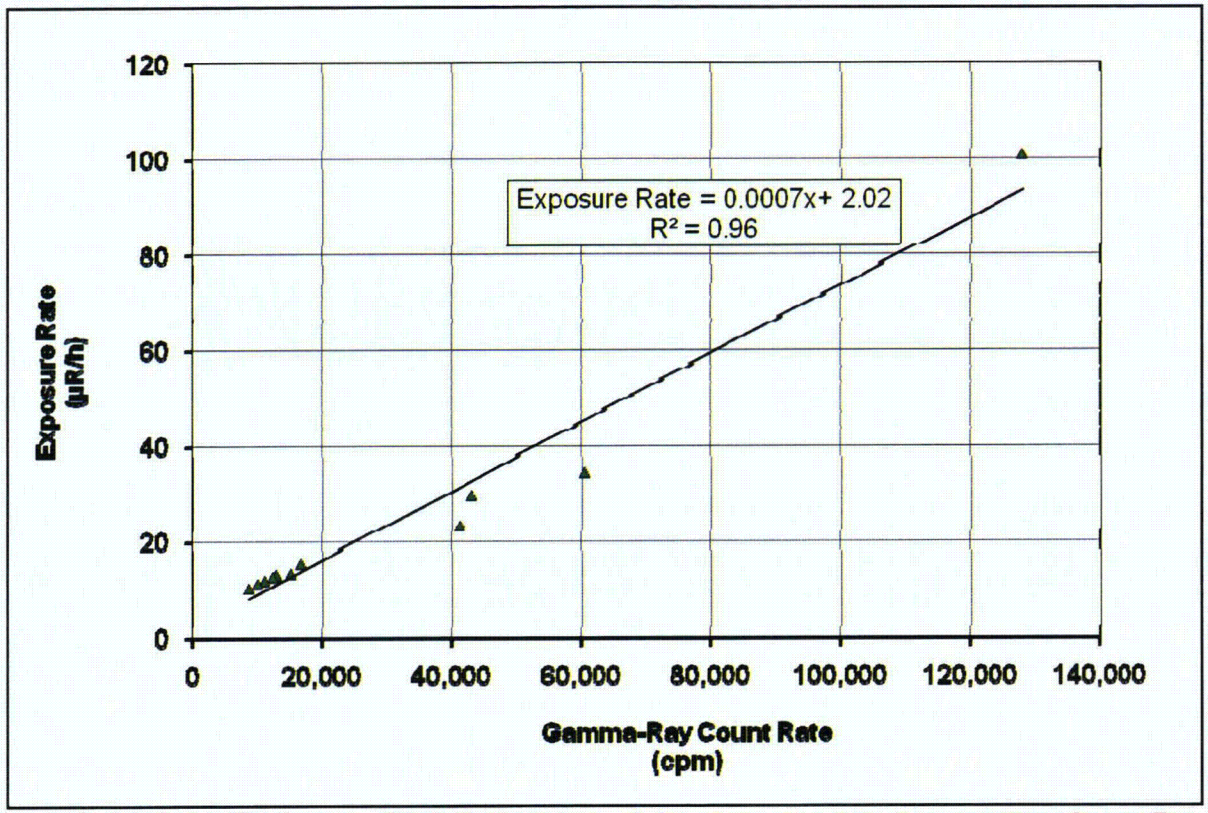


Figure 9-2. Linear Regression Model: Exposure Rates Correlated to Gamma-Ray Count Rates

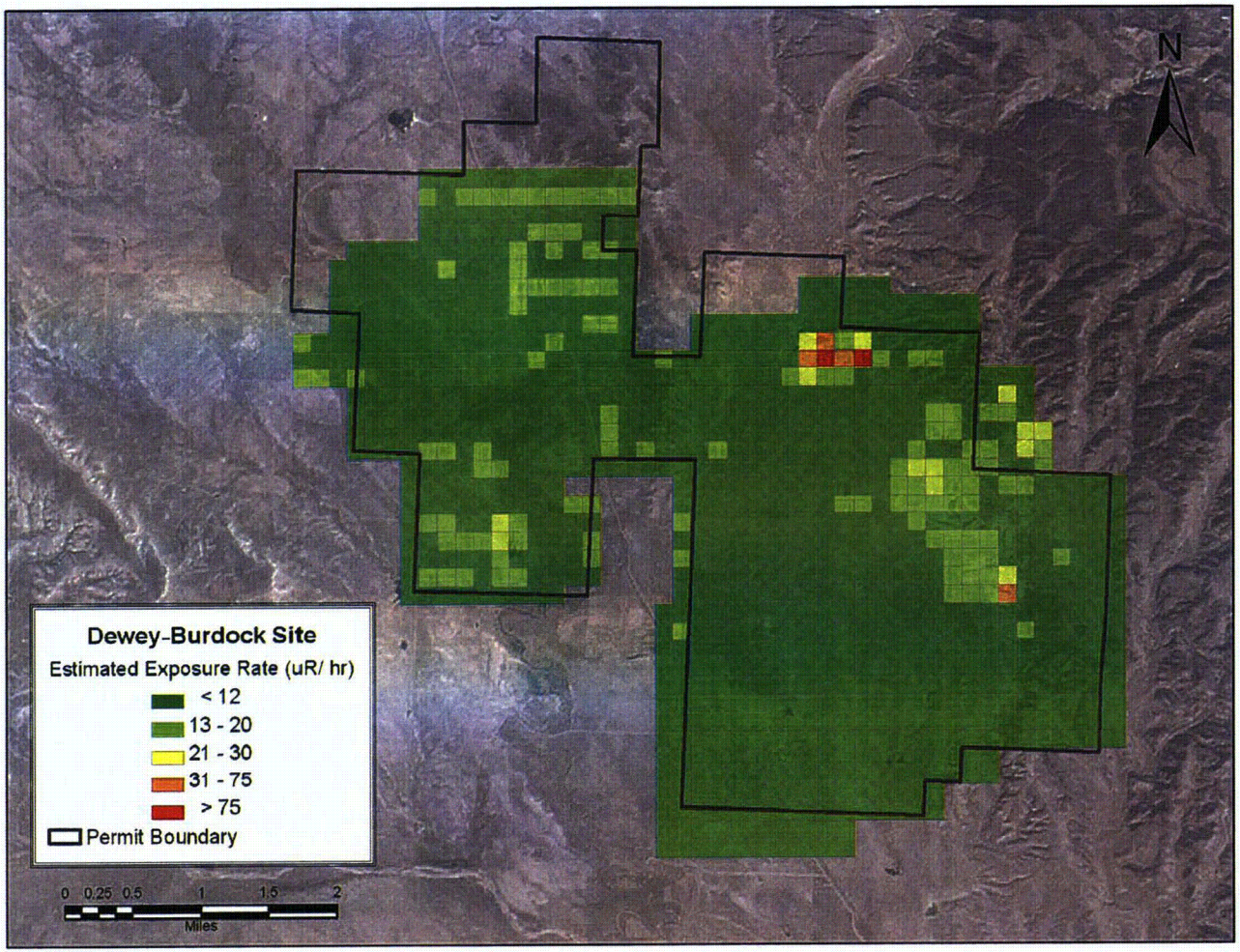


Figure 9-3. Predicted Site-Wide Exposure Rates, Grid Block Averages

Appendix A

GPS-Based Gamma-Ray Survey Calibration Sheets and Function Check Data

Reuter-Stokes

Calibration Certificate

Reuter-Stokes certifies that the Environmental Radiation Monitor, identified below, has been calibrated for output using the shadow shield technique*, and calibrated with radiation sources traceable to the National Institute of Standards and Technology.

Sensor Type:	100 R/Hr
Serial Number:	07J00KM1
Calibration Date:	6/19/08
Sensitivity:	10.21 mV/μR/h

Brandon Brady 6/23/08
Authorized Signature

*Calibration Procedure: RS-SOP 238.1

Reuter-Stokes

Calibration Data

Sensor Type:	100 R/Hr	Source (CS-137):	BB-400
Serial Number:	07J00KM1	Date of Certification:	12/1/94
Calibration Date:	6/19/08	Exposure Rate at 1 meter:	4.226 mR/h

Customer Name: ENVIRONMENTAL RESTORATION

Sensitivity (Ra-226): 10.21 mV/μR/h

Distance		Exposure Rate	P+S+A	S+A	P	k(CS-137)
Feet	cm	μR/h	V	V	V	mV/μR/h
11.8	359	235.064	3.692	1.264	2.428	10.33
13.8	420	171.114	3.202	1.435	1.768	10.33
15.8	481	129.972	3.173	1.832	1.341	10.31
17.8	542	101.968	3.335	2.283	1.052	10.32

k(CS-137) = 10.32 mv/μR/h

k(Ra-226) = .9892 k(CS-137)

k(Ra-226) = 10.21 mv/μR/h

$\bar{k}$ = 10.32 mv/μR/h

σ = .008 mv/μR/h

$V = \frac{\sigma}{k}$ = 0.074%

By: _____ Date: 6/19/08

Reuter-Stokes

RSS-131 FIRMWARE PARAMETERS

S/N 07J00KM1

RAC	2.210E-08
ZLN	0.000E-00
ZMN	4.324E-01
ZHN	-2.127E-03
ZLD	0.000E-00
ZMD	-2.414E-04
ZHD	-6.174E-07
RLN	4.619E+11
RMN	2.231E+09
RHN	1.001E+07
RLV	-1.524E+08
RMV	2.094E+04
RHV	-1.548E+02

Only change in constants is
In the RAC from 2.228E-08

By: _____
Level 2 Nuclear / Electrical Inspector

Date: 4/9/08

Reviewed By: Brandon Bradley 4/9/08
Product Engineer

[redacted]

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Gamma Standard

S.O.# 3951
P.O.# N/A

Description of Standard:

Model No. CS-7AS Serial No. 4054-02 Isotope Cs-137

The source of gamma radiation is mounted on a 2.54 cm diameter PLASTIC disc, 3 mm thick and sealed in a PLASTIC RESIN.

Measurement Method:

The gamma ray emission rate was compared with a similar standard, which was calibrated by NIST S/N 2752-91. The comparison of relative gama ray emission rates was accomplished using a high resolution gamma-ray detector (nominal active volume 100 cm³) and a multichannel pulse height analyzer.

Measurement Result:

The gamma ray activity of the standard on 10-03-2002 was 8.5 μCi.

The uncertainty of the measurement is 5 %, which is the sum of the uncertainty assigned to the NIST reference (2.2 %), random counting error at the 99% confidence level, and the estimated upper limit of systematic errors.

Calibrated by: ART REUST Reviewed by: [signature]

Calibration Technician: [signature] Q.A. Representative: Anthony W. Roth

Calibration Date: 10-03-2002 Reviewed Date: 10-4-02

Analytical Services
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 345-3461 Fax (505) 761-5416
Toll Free (866) RAD-LABS (723-5227)
www.eberlineservices.com

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 190171

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	3998866
40 Kcpm	+/- 10%	40 Kcpm	39888
4 Kcpm	+/- 10%	4 Kcpm	3988
400 cpm	+/- 10%	400 cpm	398

Calibrated By: [signature] Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: [signature] Date: 10/9/07

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221 Serial No.: 117634

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	398978
40 Kcpm	+/- 10%	40 Kcpm	39900
4 Kcpm	+/- 10%	4 Kcpm	3990
400 cpm	+/- 10%	400 cpm	399

Calibrated By: _____ Calibration Date: 9-6-07

Calibration Due: 9-6-08

Reviewed By: _____ Date: 9-6-07

ERG Form 1.02B

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221 Serial No.: 117648

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	399233
40 Kcpm	+/- 10%	40 Kcpm	39924
4 Kcpm	+/- 10%	4 Kcpm	3992
400 cpm	+/- 10%	400 cpm	399

Calibrated By: [signature] Calibration Date: 9-5-07

Calibration Due: 9-5-08

Reviewed By: [signature] Date: 9-6-07

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 138377

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	400 Kcpm	400 Kcpm
100 Kcpm	100 Kcpm	100 Kcpm
40 Kcpm	40 Kcpm	40 Kcpm
10 Kcpm	10 Kcpm	10 Kcpm
4 Kcpm	4 Kcpm	4 Kcpm
1 Kcpm	1 Kcpm	1 Kcpm
400 cpm	400 cpm	400 cpm
100 cpm	100 cpm	102 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	400 Kcpm	400 Kcpm	398495
40 Kcpm	40 Kcpm	40 Kcpm	39859
4 Kcpm	4 Kcpm	4 Kcpm	3987
400 cpm	400 cpm	400 cpm	399

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 149942

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	400 Kcpm	400 Kcpm
100 Kcpm	100 Kcpm	100 Kcpm
40 Kcpm	40 Kcpm	40 Kcpm
10 Kcpm	10 Kcpm	10 Kcpm
4 Kcpm	4 Kcpm	4 Kcpm
1 Kcpm	1 Kcpm	1 Kcpm
400 cpm	400 cpm	400 cpm
100 cpm	100 cpm	102 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	400 Kcpm	400 Kcpm	397437
40 Kcpm	40 Kcpm	40 Kcpm	39749
4 Kcpm	4 Kcpm	4 Kcpm	3975
400 cpm	400 cpm	400 cpm	398

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR118372

Counter Mfg.: Ludlum Model: 2221r Serial No.: 149942

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.7μCi (2/18/08) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	22785	
800	48024	
900	67222	
1000	74072	
1050	75152	
1100	77671	10353
→ 1150	78495	10558
1200	78943	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR198936

Counter Mfg.: Ludlum Model: 2221 Serial No.: 117648

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.81μCi (3/07/07) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	34348	
800	62611	
900	75761	
1000	80115	
1100	81583	9258
1200	82568	

Comments: Recommended Operating High Voltage: 1100 volts

Calibrated By: [signature] Calibration Date: 9-5-07

Calibration Due: 9-5-08

Reviewed By: [signature] Date: 9-6-07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR118372

Counter Mfg.: Ludlum Model: 2221 Serial No.: 117634

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.81µCi (3/07/07) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	33013	
800	61587	
900	76444	
1000	81227	
1100	82653	9657
1200	83660	

Comments: Recommended Operating High Voltage: 1100 volts

Calibrated By: _____ Calibration Date: 9-6-07

Calibration Due: 9-6-08

Reviewed By: _____ Date: 9-6-07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR198936

Counter Mfg.: Ludlum Model: 2221r Serial No.: 138377

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.7µCi (2/18/08) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	27018	
800	52935	
900	70350	
1000	75558	
1050	76535	
1100	77714	10137
1150	77995	10243
1200	78417	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR153990

Counter Mfg.: Ludlum Model: 2221 Serial No.: 190171

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other: _____

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other: _____

Gamma Source: ☑ Cs-137 @ 5.81μCi (3/07/07) sn: 4097-03 ☐ Other: _____

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	1058	
800	24638	
900	47539	
1000	68923	
1100	77419	
1150	79281	9781
1200	80757	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: _____ Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: _____ Date: 10/9/07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR153990

Counter Mfg.: Ludlum Model: 2221 Serial No.: 190171

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other: _____

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other: _____

Gamma Source: ☑ Cs-137 @ 5.81µCi (3/07/07) sn: 4097-03 ☐ Other: _____

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	1058	
800	24638	
900	47539	
1000	68923	
1100	77419	
1150	79281	9781
1200	80757	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: _____ Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: C. Ludlum Date: 10/9/07

(A)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: Ludlum 2221 Serial No. 117634 Cal. Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. PR 118372 Cal. Due Date 9-6-08

Source: Cs-137 Activity: 8.5 μCi on 10-2-02 Serial No. 4059-02 Cs-7A-5

Distance to Source: 6-in. see notes

Notes:

Date	Time	Battery	High Voltage	Threshold (mv)	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/13/07	0700	5.9	1102	100	97668	7912	89756	0.5%	MW	Barn
9/13/07	1710	5.8	1092	98	84131	7860	76271	0.5%	MW	Barn
9/14/07	6:50am	5.7	1108	100	91644	7968	83676	0.5%	DRF	Barn
9/14/07	8:20pm	5.7	1100	100	55681*	8100	47581	0.3%	DRF	Barn
9/15/07	6:35am	5.7	1105	100	66837*	8325	58512	0.4%	DRF	Barn
9/15/07	5:00pm	5.5	1083	97	68549*	8210	60339	0.4%	DRF	Barn
9/17/07	~~7:15am~~ 8:30am DRF	5.7	1102	99	363089 **	8920**	354268	2%	DRF	Barn
9/17/07	4:20pm	5.5	1090	99	368305**	8838**	359467	2%	DRF	Barn
9/18/07	7:10am	5.6	1101	100	137052***	9060***	127992	0.7%	DRF	Barn
9/18/07	2:30pm	5.4	1100	99	130824***	8542***	122282	0.7%	DRF	Barn
9/19/07	5:45am	5.7	1106	100	134695	~~7805***~~ -8241 DRF 9/19/07	126454	0.7%	DRF	Barn
—	—	—	—	—	—	—	—	—	—	—

Reviewed By: [signature] Date: 12/02/08

* Detector was raised by ~2" due to the mount on the ATV lifting during survey on 9/14/07.
** Function check jig used (source-detector distance of ~2")
*** Detector was placed on the ground (source-detector distance of 6" center-to-center)

(A)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: Ludlum 2221 — Serial No. PR118372 — Cal. Due Date 9-6-08

Detector: Ludlum 44-10 — Serial No. 117634 — Cal. Due Date 9-6-08

Source: Cs-137 — Activity: 8.5 μCi on 10-3-02 — Serial No. 4059-02 Cs-7AS

Distance to Source 6-in. see note

Notes: _____

Date	Time	Battery	High Voltage	Threshold (mV)	Gross Counts CPM	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/19/07	5:35pm	5.4	1096	98	136365	8394	127971	0.7%	DRF	Barn
9/20/07	6:15am	5.5	1103	100	136370	8382	127988	0.7%	DRF	barn
9/20/07	5:15pm	5.4	1078	97	131286	8210	123076	0.7%	DRF	Barn
9/21/07	7:10am	5.6	1102	99	136577	8422	128155	0.7%	DRF	Barn
9/21/07	4:20pm	5.3	1091	98	134782	8112	126670	0.7%	DRF	Barn
9/25/07	7:50am	5.5	1107	100	135603	8512	127091	0.7%	DRF	Barn
9/25/07	1745	5.4	1095	99	126887	8282	118605	0.7%	NW	Barn
9/26/07 NW	9/25/07 0700	5.5	1106	100	133522	8903	124619	0.7%	NW	Barn
9/26/07	4:40pm	5.4	1096	98	135688	8143	127545	0.7%	DRF	Barn
9/27/07	0616	5.5	1107	100	137172	9263	127909	0.7%	NW	Barn
9/29/07	3:15pm	5.3	1089	99	132525	8267	124258	0.7%	DRF	Barn
—	—	—	—	—	—	—	—	—	—	—

Reviewed By: _____ Date: 12/08/

(B)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: Ludlum 2221 | Serial No. 117648 | Cal. Due Date 9-6-08
Detector: Ludlum 44-10 | Serial No. PR198936 | Cal. Due Date 9-6-08
Source: Cs-137 | Activity: 8.5 μCi as of 10-3-02 | Serial No. 4054-07 Cs-7A1
Distance to Source: 6-7 in. see notes

Notes: _____

Date	Time	Battery	High Voltage	Threshold (mv)	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/13/07	07:00	5.3	1104	102	105016	7486	97530	0.6%	NW	Barn
9/13/07	1710	5.3	1092	101	116576	7627	108949	0.7%		
9/14/07	6:50am	5.3	1108	101	116036	7785	108251	0.7%	DRF	Barn
9/14/07	8:30pm	5.3	1098	101	103725	7742	95983	0.6%	DRF	Barn
9/15/07	6:35am	5.3	1104	101	95925	8086	87839	0.5%	DRF	Barn
9/15/07	5:30pm	5.2	1088	100	102852	7904	94948	0.6%	DRF	Barn
9/17/07	5:15am	5.3	1102	100	292273*	8350*	283923	2%	DRF	Barn
9/17/07	4:20pm	5.2	1092	100	302007*	8154*	293853	2%	DRF	Barn
9/18/07	6:45am	5.8	1101	100	133803**	8418**	125385	0.7%	DRF	Barn
9/18/07	2:30pm	5.6	1102	101	131147**	8147**	122995	0.7%	DRF	Barn
9/19/07	5:45am	5.6	1107	100	~~134695~~** 131759 DRF 9/19/07	~~8241~~** 7805 DRF 9/19/07	123954	0.7%	DRF	Barn
—	—	—	—	—	—	—	—	—	—	—

Reviewed By: _____ Date: 12/01/08

*Check done on function check jig (distance to source of 2½")
**Check done by setting detector on the ground (distance to source of 6" center-to-center)

(B)

Daily Function Check Form

Site: Pavertech, SD

Ratemeter: 2221 (Ludlum) Serial No. 117648 Cal Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. PR198936 Cal. Due Date 9-6-08

Source: Cs-137 Activity: 8.5 µCi on 10-3-02 Serial No 4054-02 Cs-7AS

Distance to Source: 6-in

Notes: _____

Date	Time	Battery	High Voltage	Threshold (mv) DRF 9/20/07	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/19/07	5:39pm	5.4	1096	100	132023	7849	124174	0.7%	DRF	Barn
9/20/07	6:15am	5.5	1103	100	135383	7894	127489	0.7%	DRF	Barn
9/20/07	5:15pm	5.3	1088	99	131307	7677	123630	0.7%	DRF	Barn
9/21/07	7:10am	5.4	1104	100	137336	8011	129325	0.7%	DRF	Barn
9/21/07	19:02	5.2	1097	100	126207	7676	118531	0.7%	NW	Barn
9/25/07	750am	5.4	1110	101	132611	8052	124559	0.7%	DRF	Barn
9/25/07	17:36	5.2	1099	100	127914 NW 13076	7914	123162	0.7%	NW	Barn
9/25/07	0705	5.3	1107	101	132784	8447	124337	0.7%	NW	Barn
9/27/07	0622	5.3	1107	100	133717	8681	125036	0.7%	NW	Barn
9/27/07	6:16pm	5.2	1098	100	134674	7814	126860	0.7%	DRF	Barn
9/28/07	0755	5.3	1106	101	130787	8242	122545	0.7%	NW	Barn
9/28/07	1037	5.2	1101	100	129316	8110	121206	0.7%	NW	Barn

Reviewed By: _____ Date: 12/01/08

#1

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Serial No. 149942 Cal. Due Date 7-8-09
Detector: 44-10
Serial No. PR118372 128377 NW Cal. Due Date 7-8-09
Source: Cs-137
Activity: 8.5 mCi 03-02 Serial No. 4054-02
Distance to Source: 6-in (jig)
Acceptance Range 82660 to 84723

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/14/08	1042	5.5	1142	101	92278	8055	84223	0.005	NW	Elbow Cap
					91566	8154	83412			
					91851	8211	83640			
					91751	8138	83613			
					91792	7882	83910			
					91184	8141	83043			
					91781	8017	83764			
					91595	8161	83434			
					91975	8167	83808			
					92129	8061	84068			
7/14/08	1712	5.3	1083	97	90998	7672	83326			
7/15/08	0753	5.5	1129	100	90010	7955	82055			
7/15/08	1423	5.3	1081	96	91301	7444	83857			
7/16/08	0736	5.7	1162	103	93043	7899	85144			
7/16/08	1524	5.3	1092	98	90511	7781	82730			
7/17/08	1202	5.5	1126	100	93565	7500	86065			
7/17/08	1946	5.4	1115	100	93121	7414	82707			
7/18/08	0838	5.6	1154	102	89584	7084	82500			

Reviewed By: [signature]
Date: 12/02/08

#1

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Detector: 44-10
Source: Cs-137
Distance to Source: 6-in. (jig)

PR118372
Serial No. 149942 / Cal. Due Date 7-8-09
Serial No. ~~138377~~ NW Cal. Due Date 7-8-09
Activity: 8.5 µCi, 10-3-02 Serial No. _____
Acceptance Range 82660 to 84723

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7-19-08	0758	5.5	1153	102	96860	6592	90268	0.005	NW	Elbow Canyon AD
7-19-08	1441	5.4	1132	100	90159	7287	82872	↓	↓	↓
				2 σ						

Reviewed By: [signature]
Date: 12/02/08

#2

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Serial No. 138377 Cal. Due Date 7-8-09

Detector: 44-10
Serial No. PR 198936 Cal. Due Date 7-8-09

Source: Cs-137
Activity: 8.5 μCi, 10-3-02 Serial No. 4054-02

Distance to Source: 6 in. (jig)
Acceptance Range 80 190 to 84083

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/14/08	1035	5.8	1148	100	90596	7106	83490	0.005	NW	ELBOW CANYON RD
					89803	7021	82782			
					90015	7466	82549			
					89675	7456	82219			
					89520	7393	82127			
					89607	7697	81910			
					89010	7488	81522			
					89102	7522	81580			
					89350	7633	81717			
					89152	7685	81467			
	1712	5.7	1140	99	90957	7200	83757			
7/15/08	0751	5.7	1143	98	89384	7394	81990			
7/15/08	1423	5.7	1139	98	89870	7143	82727			
7/16/08	0737	5.7	1145	98	89462	7337	82125			
7/16/08	1526	5.5	1141	98	89532	7386	82146			
7/17/08	1203	5.6	1143	98	90804	6841	83963			
7/17/08	1946	5.4	1142	98	91557	6685	84872			
7/18/08	0841	5.5	1145	98	87936	6384	81552			

Reviewed By: [signature]

Date: 12/04/08

(#2)

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Serial No. 132377 Cal. Due Date 7-8-09
Detector: Ludlum 44-10
Serial No. PR 198-936 Cal. Due Date 7-8-09
Source: Cs-137
Activity: 8.5 μCi, 10-3-02 Serial No: 4054-02
Distance to Source: 6-½. (Jig)
Acceptance Range 80190 to 84083

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/19/08	0758	5.4	1146	99	94840	6360	88480	0.005	NW	ELBOW CANYON RD
7/19/08	1440	5.4	1143	98	90961	6712	84249	0.005	?	

Reviewed By: [signature]
Date: 12/02/08

Appendix B

Laboratory Analytical Data

ENERGY LABORATORIES, INC. • 2821 Plant Street • Rapid City, SD 57702 • www.energylab.com
Toll Free 888.672.1225 • Voice 605.342.1225 • Fax 605.342.1397 • rapid_city@energylab.com

ANALYTICAL SUMMARY REPORT

April 24, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08030221

Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 8 samples from Environmental Restoration Group Inc on 3/19/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08030221-001	AMS-BKG	10/02/07 0:00	03/19/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08030221-002	AMS-01	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-003	AMS-02	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-004	AMS-03	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-005	AMS-04	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-006	AMS-05	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-007	AMS-06	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-008	AMS-07	10/02/07 0:00	03/19/08	Filter	Composite Fee Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Linda Ta

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-001
Client Sample ID: AMS-BKG

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 16:59/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	834	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	23.1	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.9	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.7	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	3.2	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-002
Client Sample ID: AMS-01

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:03/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.3	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	1160	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	27.3	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	4.1	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.9	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-003
Client Sample ID: AMS-02

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:07/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	560	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	19.0	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.6	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-004
Client Sample ID: AMS-03

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:12/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	821	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	23.0	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.3	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-005
Client Sample ID: AMS-04

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:16/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.0	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	790	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	22.5	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	4.7	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.8	pCi/Filter		0.2		1	E907.0	04/10/08 15:00/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	04/10/08 15:00/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-006
Client Sample ID: AMS-05

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:36/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	654	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	20.5	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	2.9	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-007
Client Sample ID: AMS-06

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:40/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.1	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	942	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	24.6	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	1.5	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-008
Client Sample ID: AMS-07

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	1.6	mg/filter		0.5		10	SW6020	04/02/08 17:44/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	1300	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	28.9	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.3	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	2.8	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

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

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 04/24/08
Work Order: R08030221

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: C_RA226-2688
Sample ID: C08030621-004AMS	Sample Matrix Spike				Run: SUB-C98992				04/01/08 11:46
Radium 226	3.8	pCi/g		125	70	130			
Sample ID: C08030621-004AMSD	Sample Matrix Spike Duplicate				Run: SUB-C98992				04/01/08 11:46
Radium 226	4.1	pCi/g		135	70	130	7.9	26.2	S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the MS MSD pair are acceptable, the high response is considered to b matrix related. The batch is approved.									
Sample ID: LCS-18083	Laboratory Control Sample				Run: SUB-C98992				04/01/08 15:03
Radium 226	11	pCi/L		82	70	130			
Sample ID: MB-18083	Method Blank				Run: SUB-C98992				04/01/08 15:03
Radium 226	-1	pCi/L							
Method: E907.0									Batch: C_18083
Sample ID: C08030720-001KMS	Sample Matrix Spike				Run: SUB-C99086				03/26/08 15:15
Thorium 230	23.1	pCi/L	0.20	94	70	130			
Sample ID: C08030720-001KMSD	Sample Matrix Spike Duplicate				Run: SUB-C99086				03/26/08 15:15
Thorium 230	23.8	pCi/L	0.20	97	70	130	2.8	30	
Sample ID: LCS-18083	Laboratory Control Sample				Run: SUB-C99086				03/26/08 15:15
Thorium 230	46.1	pCi/g-dry	0.10	98	70	130			
Sample ID: MB-18083	Method Blank				Run: SUB-C99086				03/26/08 15:15
Thorium 230	ND	pCi/g-dry							
Method: E907.0									Batch: C_R99819
Sample ID: C08040278-005DMS	Sample Matrix Spike				Run: SUB-C99819				04/10/08 15:00
Thorium 228	13.4	pCi/L	0.20	115	70	130			
Sample ID: C08040278-005DMSD	Sample Matrix Spike Duplicate				Run: SUB-C99819				04/10/08 15:00
Thorium 228	13.8	pCi/L	0.20	117	70	130	2.9	30	
Sample ID: MB-R99819	Method Blank				Run: SUB-C99819				04/10/08 15:00
Thorium 230	0.1	pCi/L							
Sample ID: LCS-R99819	Laboratory Control Sample				Run: SUB-C99819				04/10/08 15:00
Thorium 228	10.0	pCi/L	0.20	123	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 04/24/08
Work Order: R08030221

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: C_18083
Sample ID: R08030221-004A	Sample Matrix Spike				Run: SUB-C98854				03/25/08 12:00
Lead 210	1540	pCi/Filter	1.0	121	70	130			
Sample ID: R08030221-004A	Sample Matrix Spike Duplicate				Run: SUB-C98854				03/25/08 12:00
Lead 210	1300	pCi/Filter	1.0	81	70	130	17	30	
Sample ID: MB-R98854	Method Blank				Run: SUB-C98854				03/25/08 12:00
Lead 210	5	pCi/Filter							
Sample ID: LCS-R98854	Laboratory Control Sample				Run: SUB-C98854				03/25/08 12:00
Lead 210	94.1	pCi/Filter	1.0	75	70	130			
Method: SW6020									Batch: C_18083
Sample ID: MB-18083	Method Blank				Run: SUB-C99006				04/02/08 16:51
Uranium	0.0001	mg/kg	6E-05						
Sample ID: LCS1-18083	Laboratory Control Sample				Run: SUB-C99006				04/02/08 16:55
Uranium	0.0470	mg/kg	0.015	89	75	125			
Sample ID: C08030621-004AMS	Sample Matrix Spike				Run: SUB-C99175				04/03/08 20:44
Uranium	24.4	mg/kg	0.028	102	75	125			
Sample ID: C08030621-004AMSD	Sample Matrix Spike Duplicate				Run: SUB-C99175				04/03/08 20:50
Uranium	24.1	mg/kg	0.029	100	75	125	1.6	20	

Qualifiers:
RL - Analyte reporting limit.
ND - Not detected at the reporting limit.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name: Environmental Restoration Group	Project Name, PWS, Permit, Etc.: Dewey - Burdock	Sample Origin: State: South Dakota	EPA/State Compliance: Yes ☐ No ☒
Report Mail Address: 8809 Washington St NE Suite 150 Albuquerque NM 87113	Contact Name: Michael Schierman Phone/Fax: 505-298-4224 Email: mikeschiermanecrgotfreecom		Sampler: (Please Print) NA
Invoice Address: Same as above	Invoice Contact & Phone: Michael Schierman	Purchase Order:	Quote/Bottle Order: NA

Special Report/Formats – ELI must be notified prior to sample submittal for the following:
Please Send EDD to ~~Foreman~~ Cory @ RESPEC

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☑ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

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)	Natural Uranium	Ra-226	Th-230	Pb-210	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments:	Lab ID
1 Ams-Bkg	9/28/07 10/02/07	NA	O	X	X	X	X		2		Please composite all filters	B803022I-001A
2 Ams-01												002A
3 Ams-02												003A
4 Ams-03												004A
5 Ams-04												005A
6 Ams-05												006A
7 Ams-06												007A
8 Ams-07												008A
9												
10												

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Shipped by: MJS
Cooler ID(s):
Receipt Temp: _____ °C
On Ice: Yes No
Custody Seal Intact Y N
Signature Match Y N

LABORATORY USE ONLY

Custody Record MUST be Signed					
Relinquished by (print): Michael Schierman	Date/Time: 3/18/08	Signature: Michael Schierman	Received by (print): Steve Fairbank	Date/Time: 3-19-08 1300	Signature: Steve Fairbank
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory:	Date/Time:	Signature:

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.

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ANALYTICAL SUMMARY REPORT

February 12, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08010193 Quote ID: R279
Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 9 samples from Environmental Restoration Group Inc on 1/17/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08010193-001	BKG	10/09/07 0:00	01/17/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08010193-002	AMS-01	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-003	AMS-02	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-004	AMS-03	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-005	AMS-04	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-006	AMS-05	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-007	AMS-06	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-008	AMS-07	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-009	AMS-08	10/09/07 0:00	01/17/08	Filter	Same As Above

Thank you for submitting your samples to Energy Laboratories, Inc. - Rapid City. The following pages contain the results of the sample tests listed above and applicable analytical notes.

The samples were analyzed in accordance with the methods specified on the analytical reports. All analyses were accompanied by appropriate quality control samples throughout the test. Where applicable, the results of these quality control samples will be included, following your analytical data.

If you have any questions regarding the analyses performed or the results of these analyses, please contact Energy Laboratories Inc. - Rapid City at (605) 342-1225, (888) 672-1225 or Rapid_City@energylab.com.

Report Approved By: Linda Larson

Linda Larson
Rapid City - Project Manager

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-001
Client Sample ID: BKG

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 20:52/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2550	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	60.6	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	3.2	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	1.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-002
Client Sample ID: AMS-01

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 20:59/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	5140	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	86.1	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	2.5	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.9	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	1.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-003
Client Sample ID: AMS-02

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:05/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2610	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	61.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.3	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.6	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.5	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-004
Client Sample ID: AMS-03

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:12/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1690	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	49.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	2.3	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.9	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	2.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-005
Client Sample ID: AMS-04

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:18/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2830	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	63.8	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.9	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	2.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-006
Client Sample ID: AMS-05

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/01/08 21:14/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	3200	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	67.9	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	7.7	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	4.0	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.5	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-007
Client Sample ID: AMS-06

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2940	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	65.1	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	4.8	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-008
Client Sample ID: AMS-07

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:32/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	4010	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	76.0	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	5.8	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.3	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.5	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-009
Client Sample ID: AMS-08

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:38/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	21.9	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	10.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.6	pCi/Filter		0.2		1	E903.0	02/06/08 12:12/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	02/06/08 12:12/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	0.9	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 02/12/08
Work Order: R08010193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: C_17568
Sample ID: MB-17568	Method Blank				Run: SUB-C96493				02/01/08 15:45
Uranium	2E-05	mg/L	1E-05						
Sample ID: LCS1-17568	Laboratory Control Sample				Run: SUB-C96493				02/01/08 15:49
Uranium	0.0487	mg/L	0.00030	97	80	120			
Sample ID: C08010900-005BMS4	Post Digestion Spike				Run: SUB-C96493				02/01/08 16:59
Uranium	0.0583	mg/L	0.00030	107	70	130			
Sample ID: C08010900-005BMSD4	Post Digestion Spike Duplicate				Run: SUB-C96493				02/01/08 17:03
Uranium	0.0582	mg/L	0.00030	107	70	130	0.2	20	
Method: E903.0									Batch: C_17568
Sample ID: R08010193-001A	Sample Duplicate				Run: SUB-C96642				02/06/08 11:08
Radium 226	1.66	pCi/Filter	0.20				65	78.7	
Sample ID: R08010193-008A	Sample Matrix Spike				Run: SUB-C96642				02/06/08 12:12
Radium 226	31.5	pCi/Filter	0.20	41	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the Duplicate are acceptable, the low response is considered to be matrix related. The batch is approved.									
Sample ID: LCS-17568	Laboratory Control Sample				Run: SUB-C96642				02/06/08 12:12
Radium 226	14.5	pCi/Filter	0.20	114	70	130			
Sample ID: MB-17568	Method Blank				Run: SUB-C96642				02/06/08 12:12
Radium 226	ND	pCi/Filter	0.2						
Method: E907.0									Batch: C_17568
Sample ID: R08010193-009A	Sample Matrix Spike				Run: SUB-C96487				01/28/08 15:30
Thorium 230	42.6	pCi/Filter	0.20	88	70	130			
Sample ID: R08010193-009A	Sample Matrix Spike Duplicate				Run: SUB-C96487				01/28/08 15:30
Thorium 230	44.7	pCi/Filter	0.20	93	70	130	4.8	30	
Sample ID: LCS-17568	Laboratory Control Sample				Run: SUB-C96487				01/28/08 15:30
Thorium 230	4.60	pCi/Filter	0.20	94	70	130			
Sample ID: MB-17568	Method Blank				Run: SUB-C96487				01/28/08 15:30
Thorium 230	ND	pCi/Filter	0.2						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 02/12/08
Work Order: R08010193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: C_R96680
Sample ID: R08010193-003A	Sample Matrix Spike				Run: SUB-C96680				02/01/08 08:30
Lead 210	3540	pCi/Filter	1.0	78	70	130			
Sample ID: R08010193-003A	Sample Matrix Spike Duplicate				Run: SUB-C96680				02/01/08 08:30
Lead 210	3490	pCi/Filter	1.0	74	70	130	1.3	30	
Sample ID: MB-R96680	Method Blank				Run: SUB-C96680				02/01/08 08:30
Lead 210	ND	pCi/Filter	1						
Sample ID: LCS-R96680	Laboratory Control Sample				Run: SUB-C96680				02/01/08 08:30
Lead 210	112	pCi/Filter	1.0	94	70	130			
Method: SW6020									Batch: C_17568
Sample ID: MB-17568	Method Blank				Run: SUB-C96602				02/05/08 19:17
Uranium	ND	mg/filter	0.003						
Sample ID: LCS1-17568	Laboratory Control Sample				Run: SUB-C96602				02/05/08 20:39
Uranium	0.0509	mg/kg	0.015	102	75	125			
Sample ID: R08010193-009A	Sample Matrix Spike				Run: SUB-C96602				02/05/08 22:05
Uranium	0.545	mg/filter	0.030	109	75	125			
Sample ID: R08010193-009A	Sample Matrix Spike Duplicate				Run: SUB-C96602				02/05/08 22:12
Uranium	0.558	mg/filter	0.030	112	75	125	2.4	20	

Qualifiers:

RL - Analyte reporting limit

ND - Not detected at the reporting limit.

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ANALYTICAL SUMMARY REPORT

August 14, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08060209

Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 9 samples from Environmental Restoration Group Inc on 6/11/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08060209-001	AMS-01	03/08/08 0:00	06/11/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08060209-002	AMS-02	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-003	AMS-03	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-004	AMS-04	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-005	AMS-05	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-006	AMS-06	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-007	AMS-07	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-008	AMS-08	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-009	AMS-BKG	03/08/08 0:00	06/11/08	Filter	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Linda Le

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-001
Client Sample ID: AMS-01

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0072	mg/filter		0.00030		5	SW6020	06/28/08 19:31/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2510	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	38.2	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.9	pCi/Filter		0.2		1	E907.0	06/30/08 21:30/eli-c
Thorium 230 precision (±)	0.9	pCi/Filter				1	E907.0	06/30/08 21:30/eli-c
Radium 226	4.6	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-002
Client Sample ID: AMS-02

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0057	mg/filter		0.00030		5	SW6020	06/28/08 19:35/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1160	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	28.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.1	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-003
Client Sample ID: AMS-03

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0036	mg/filter		0.00030		5	SW6020	06/28/08 19:39/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1200	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	28.4	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	0.7	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-004
Client Sample ID: AMS-04

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0048	mg/filter		0.00030		5	SW6020	06/28/08 19:43/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1040	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	27.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.8	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	-0.9	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	0.6	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-005
Client Sample ID: AMS-05

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0096	mg/filter		0.00030		5	SW6020	06/28/08 19:47/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1270	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	29.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.1	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	3.9	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-006
Client Sample ID: AMS-06

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0067	mg/filter		0.00030		5	SW6020	06/28/08 19:51/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	775	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	24.5	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-007
Client Sample ID: AMS-07

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0071	mg/filter		0.00030		5	SW6020	06/28/08 19:55/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1030	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	26.9	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	0.6	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.3	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-008
Client Sample ID: AMS-08

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0094	mg/filter		0.00030		5	SW6020	06/28/08 19:59/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	11.6	pCi/Filter	U			1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	14.8	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.5	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.3	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-009
Client Sample ID: AMS-BKG

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0097	mg/filter		0.00030		5	SW6020	06/28/08 20:03/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1040	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	27.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	3.0	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	1.8	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

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.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Environmental Restoration Group	Dewey - Burdock	State: S. Dakota	Yes ☐ No ☒
Report Mail Address:	**Contact Name:** Phone/Fax:	Email:	Sampler: (Please Print)
8809 Washington St NE, Suite 150 Albuquerque NM 87113	Michael Schierman 505-750-4224	mikeschierman@energymine.com	mike Schierman
Invoice Address:	**Invoice Contact & Phone:**	Purchase Order:	Quote/Bottle Order:
Albuquerque NM 87113	Same as above	NA	NA

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: Excel
- ☐ LEVEL IV
- ☐ NELAC

RUSH — Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: Please use entire filter composite

Shipped by: MJS

Cooler ID(s): N/A

Receipt Temp: Filters °C

On Ice: Yes No

Custody Seal 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	Natural Uranium	Radium-226	Th-230	Lead-210	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	LABORATORY USE ONLY
1	AMS-01	11/08 - 7/08	NA	O							X		B0806209001A
2	AMS-02												002A
3	AMS-03												003A
4	AMS-04												004A
5	AMS-05												005A
6	AMS-06												006A
7	AMS-07												007A
8	AMS-08												008A
9	AMS-BKG												009A
10													

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Michael Schierman	6/10/08	Michael Schierman			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Steve Fitzland	6/11/08 1100	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal:

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-001
Client Sample ID: AMS-BKG

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0065	mg/filter		0.00030		1	SW6020	08/13/08 01:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1840	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	1.2	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-002
Client Sample ID: AMS-01

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0081	mg/filter		0.00030		1	SW6020	08/13/08 01:29/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2820	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	65.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.7	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.8	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-003
Client Sample ID: AMS-02

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	*0.0043*	*mg/filter*		*0.00030*		1	SW6020	08/13/08 01:33/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1210	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	49.5	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.0	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.3	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-004
Client Sample ID: AMS-03

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0071	mg/filter		0.00030		1	SW6020	08/13/08 01:53/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1110	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	48.4	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-005
Client Sample ID: AMS-04

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0073	mg/filter		0.00030		5	SW6020	08/13/08 01:57/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1440	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	52.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.9	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-006
Client Sample ID: AMS-05

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0086	mg/filter		0.00030		5	SW6020	08/13/08 02:02/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1510	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	52.7	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.9	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-007
Client Sample ID: AMS-06

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0067	mg/filter		0.00030		5	SW6020	08/13/08 02:06/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1390	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	51.5	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.2	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-008
Client Sample ID: AMS-07

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0080	mg/filter		0.00030		5	SW6020	08/13/08 02:10/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1960	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	57.3	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.8	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-009
Client Sample ID: AMS-08

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0034	mg/filter		0.00030		1	SW6020	08/13/08 02:14/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	23.9	pCi/Filter	U			1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	33.8	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.0	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	0.7	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.9	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-001
Client Sample ID: AMS-1

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00056	mg/filter		0.00030		1	SW6020	09/30/08 20:13/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	497	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	25.2	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	0.8	pCi/Filter	U	0.2		1	E907.0	10/12/08 13:45/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	10/12/08 13:45/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

ENERGY LABORATORIES, INC. * 2821 Plant St * Rapid City, SD 57702
Toll Free 888.672.1225 * 605.342.1225 * FAX 605.342.1397 * rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-002
Client Sample ID: AMS-2

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00078	mg/filter		0.00030		1	SW6020	09/30/08 20:17/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	752	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	27.9	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	0.5	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.2	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	-2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.7	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-003
Client Sample ID: AMS-3

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00056	mg/filter		0.00030		1	SW6020	09/30/08 20:21/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	579	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.1	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.3	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-004
Client Sample ID: AMS-4

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0016	mg/filter		0.00030		1	SW6020	09/30/08 20:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	650	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.9	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.8	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-005
Client Sample ID: AMS-5

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0034	mg/filter		0.00030		1	SW6020	09/30/08 20:29/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	552	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	25.7	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	3.2	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	1.5	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-006
Client Sample ID: AMS-6

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0015	mg/filter		0.00030		1	SW6020	09/30/08 20:33/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	998	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	30.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.5	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.8	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-007
Client Sample ID: AMS-7

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0016	mg/filter		0.00030		1	SW6020	09/30/08 20:37/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	696	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	27.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-008
Client Sample ID: AMS-BKG

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0011	mg/filter		0.00030		1	SW6020	09/30/08 20:41/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	606	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	-0.4	pCi/Filter	U			1	E903.0	10/07/08 18:55/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	10/07/08 18:55/eli-c
Radium 226 MDC	2.0	pCi/Filter				1	E903.0	10/07/08 18:55/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

ANALYTICAL SUMMARY REPORT

December 14, 2007

Michael Schierrman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R07100004

Project Name: Dewey Burdock Baseline Soil Sampling

Energy Laboratories Inc. received the following 118 samples from Environmental Restoration Group Inc on 9/29/2007 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R07100004-001	SMA-B01	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-002	SMA-B01Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-003	SMA-B03	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-004	SMA-B04	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-005	SMA-B07	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-006	SMA-B09	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-007	SMA-B09Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-008	SMA-B10	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-009	SMA-B11	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-010	SMA-B13	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-011	SMA-B14	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-012	SMA-B14Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-013	SMA-B15	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-014	SMA-B16	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-015	SMA-B17	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-016	SMA-B18	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-017	SMA-B18Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-018	SMA-B19	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-019	SMA-B20	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-020	SMA-B21	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-021	SMA-B22	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-022	SMA-B23	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-023	SMA-B23Dup	09/24/07 0:00	09/29/07	Soil	Same As Above

R07100004-024	SMA-B24	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-025	SMA-B25	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-026	SMA-B26	09/28/07 0:00	09/29/07	Soil	Same As Above
R07100004-027	SMA-B27	09/28/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-028	SMA-B28	09/28/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-029	SMA-B29	09/28/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-030	SMA-B30	09/28/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-031	MPA-R01	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-032	MPA-R02	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-033	MPA-R03	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-034	MPA-R04	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-035	MPA-R04Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-036	MPA-R05	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-037	NEA-R01	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-038	NEA-R02	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-039	NEA-R03	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-040	NEA-R04	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-041	NEA-R04Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-042	NEA-R05	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-043	AMS-1	09/27/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-044	AMS-2	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-045	AMS-3	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-046	AMS-4	09/27/07 0:00	09/29/07	Soil	Same As Above

R07100004-047	AMS-5	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-048	AMS-6	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-049	AMS-7	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-050	AMS-BKG	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-051	MPA-B01	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-052	MPA-B02	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-053	MPA-B03	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-054	RFA-B01A	09/26/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-055	RFA-B01B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-056	RFA-B01C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-057	RFA-B01ADup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-058	RFA-B01BDup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-059	RFA-B01CDup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-060	RFA-B02A	09/26/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-061	RFA-B02B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-062	RFA-B02C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-063	RFA-B03	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-064	RFA-B04	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-065	RFA-B06	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-066	RFA-B07	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-067	RFA-B08	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-068	RFA-B08Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-069	RFA-B09	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-070	RFA-B10	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-071	RFA-B11	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-072	RFA-B12	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-073	RFA-B13A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-074	RFA-B13B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-075	RFA-B13C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-076	RFA-B14	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-077	RFA-B15A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-078	RFA-B15B	09/26/07 0:00	09/29/07	Soil	Same As Above

R07100004-079	RFA-B15C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-080	RFA-B16	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-081	RFA-B17A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-082	RFA-B17B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-083	RFA-B17C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-084	RFA-B18	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-085	RFA-B19	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-086	RFA-B20	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-087	RFA-B21A	09/26/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-088	RFA-B21B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-089	RFA-B21C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-090	RFA-B22	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-091	RFA-B23	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-092	RFA-B24	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-093	RFA-B25	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-094	RFA-B26	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-095	RFA-B27	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-096	RFA-B28	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-097	RFA-B28Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-098	RFA-B29	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-099	RFA-B30A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-100	RFA-B30B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-101	RFA-B30C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-102	RFA-B31	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-103	RFA-B33	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-104	RFA-B34	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-105	RFA-B35	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-106	RFA-B36A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-107	RFA-B36B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-108	RFA-B36C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-109	RFA-B37A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-110	RFA-B37B	09/26/07 0:00	09/29/07	Soil	Same As Above

R07100004-111	RFA-B37C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-112	RFA-B38	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-113	RFA-B39	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-114	RFA-B40	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-115	RFA-B41	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-116	RFA-B43	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-117	RFA-B44	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-118	RFA-B45	09/25/07 0:00	09/29/07	Soil	Same As Above

Thank you for submitting your samples to Energy Laboratories, Inc. - Rapid City. The following pages contain the results of the sample tests listed above and applicable analytical notes.

The samples were analyzed in accordance with the methods specified on the analytical reports. All analyses were accompanied by appropriate quality control samples throughout the test. Where applicable, the results of these quality control samples will be included, following your analytical data.

If you have any questions regarding the analyses performed or the results of these analyses, please contact Energy Laboratories Inc. - Rapid City at (605) 342-1225, (888) 672-1225 or Rapid_City@energylab.com.

Report Approved By: _____

Linda Larson

Rapid City - Project Manager

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium, Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-001	SMA-B01	1.2E-06	6.0E-07	1.0E-07	9.0E-07	2.0E-07	5.0E-07	1.0E-07	9.0E-07	2.0E-07
R07100004-002	SMA-B01Dup	1.5E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	1.4E-06	3.0E-07
R07100004-003	SMA-B03								1.5E-06	2.0E-07
R07100004-004	SMA-B04								1.0E-06	2.0E-07
R07100004-005	SMA-B07								3.2E-06	3.0E-07
R07100004-006	SMA-B09								1.2E-06	2.0E-07
R07100004-007	SMA-B09Dup								1.7E-06	2.0E-07
R07100004-008	SMA-B10								1.4E-06	2.0E-07
R07100004-009	SMA-B11								2.3E-06	3.0E-07
R07100004-010	SMA-B13								1.7E-06	3.0E-07
R07100004-011	SMA-B14								1.4E-06	3.0E-07
R07100004-012	SMA-B14Dup								1.6E-06	2.0E-07
R07100004-013	SMA-B15								8.0E-07	2.0E-07
R07100004-014	SMA-B16								9.0E-07	2.0E-07
R07100004-015	SMA-B17								1.0E-06	2.0E-07
R07100004-016	SMA-B18								5.0E-07	1.0E-07
R07100004-017	SMA-B18Dup								4.0E-07	1.0E-07
R07100004-018	SMA-B19								1.2E-06	2.0E-07
R07100004-019	SMA-B20								9.0E-07	2.0E-07
R07100004-020	SMA-B21								1.4E-06	2.0E-07
R07100004-021	SMA-B22								8.0E-07	2.0E-07
R07100004-022	SMA-B23								2.7E-06	3.0E-07
R07100004-023	SMA-B23Dup								2.8E-06	3.0E-07
R07100004-024	SMA-B24								1.3E-06	2.0E-07
R07100004-025	SMA-B25								1.0E-06	2.0E-07
R07100004-026	SMA-B26								1.1E-05	5.0E-07
R07100004-027	SMA-B27	6.7E-05	3.0E-05	8.0E-07	3.0E-05	1.0E-06	3.0E-05	8.0E-07	4.0E-05	1.1E-06
R07100004-028	SMA-B28								6.4E-06	4.0E-07
R07100004-029	SMA-B29	1.6E-05	2.0E-05	7.0E-07	2.0E-05	8.0E-07	2.0E-05	6.0E-07	2.9E-05	9.0E-07
R07100004-030	SMA-B30								3.4E-05	9.0E-07
R07100004-031	MPA-R01								1.4E-06	2.0E-07
R07100004-032	MPA-R02								2.6E-06	3.0E-07
R07100004-033	MPA-R03	7.5E-07	7.0E-07	1.0E-07	8.0E-07	2.0E-07	4.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-034	MPA-R04								9.0E-07	2.0E-07
R07100004-035	MPA-R04Dup								8.0E-07	2.0E-07
R07100004-036	MPA-R05								1.2E-06	2.0E-07
R07100004-037	NEA-R01	9.1E-07	7.0E-07	2.0E-07	9.0E-07	2.0E-07	6.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-038	NEA-R02								1.3E-06	2.0E-07
R07100004-039	NEA-R03								2.2E-06	3.0E-07
R07100004-040	NEA-R04								2.3E-06	3.0E-07
R07100004-041	NEA-R04Dup								2.5E-06	3.0E-07

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium, Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-042	NEA-R05								2.8E-06	3.0E-07
R07100004-043	AMS-1	9.6E-07	2.0E-06	3.0E-07	7.0E-07	2.0E-07	4.0E-07	1.0E-07	1.4E-06	2.0E-07
R07100004-044	AMS-2	9.5E-07	3.0E-06	3.0E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-045	AMS-3	8.2E-07	2.0E-06	2.0E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	1.5E-06	2.0E-07
R07100004-046	AMS-4	1.4E-06	2.0E-06	2.0E-07	7.0E-07	1.0E-07	8.0E-07	2.0E-07	1.5E-06	3.0E-07
R07100004-047	AMS-5	6.8E-07	2.0E-06	2.0E-07	8.0E-07	2.0E-07	6.0E-07	1.0E-07	1.3E-06	3.0E-07
R07100004-048	AMS-6	5.5E-07	1.0E-06	2.0E-07	3.0E-07	1.0E-07	4.0E-07	1.0E-07	8.0E-07	2.0E-07
R07100004-049	AMS-7	5.8E-07	2.0E-06	2.0E-07	3.0E-07	1.0E-07	3.0E-07	8.0E-08	1.1E-06	2.0E-07
R07100004-050	AMS-BKG	1.9E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	9.0E-07	1.0E-07	2.4E-06	4.0E-07
R07100004-051	MPA-B01								1.4E-06	3.0E-07
R07100004-052	MPA-B02								1.1E-06	2.0E-07
R07100004-053	MPA-B03								1.3E-06	3.0E-07
R07100004-054	RFA-B01A	8.7E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	7.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-055	RFA-B01B	1.1E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	1.7E-06	2.0E-07
R07100004-056	RFA-B01C	1.5E-06	6.0E-07	1.0E-07	1.0E-06	2.0E-07	8.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-057	RFA-B01ADup	9.0E-07	8.0E-07	1.0E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-058	RFA-B01BDup	9.9E-07	9.0E-07	2.0E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	1.5E-06	2.0E-07
R07100004-059	RFA-B01CDup	1.3E-06	1.0E-06	2.0E-07	1.0E-06	2.0E-07	1.0E-06	2.0E-07	1.7E-06	3.0E-07
R07100004-060	RFA-B02A								1.1E-06	2.0E-07
R07100004-061	RFA-B02B								9.0E-07	2.0E-07
R07100004-062	RFA-B02C								9.0E-07	2.0E-07
R07100004-063	RFA-B03								1.5E-06	3.0E-07
R07100004-064	RFA-B04								1.1E-06	2.0E-07
R07100004-065	RFA-B06								1.7E-06	2.0E-07
R07100004-066	RFA-B07								9.0E-07	2.0E-07
R07100004-067	RFA-B08								1.1E-06	2.0E-07
R07100004-068	RFA-B08Dup								1.1E-06	2.0E-07
R07100004-069	RFA-B09								1.0E-06	2.0E-07
R07100004-070	RFA-B10								1.8E-06	3.0E-07
R07100004-071	RFA-B11	8.8E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	5.0E-07	1.0E-07	1.0E-06	2.0E-07
R07100004-072	RFA-B12								1.8E-06	3.0E-07
R07100004-073	RFA-B13A								1.6E-06	2.0E-07
R07100004-074	RFA-B13B								1.8E-06	2.0E-07
R07100004-075	RFA-B13C								1.6E-06	2.0E-07
R07100004-076	RFA-B14								1.7E-06	3.0E-07
R07100004-077	RFA-B15A								1.4E-06	3.0E-07
R07100004-078	RFA-B15B								1.5E-06	2.0E-07
R07100004-079	RFA-B15C								1.5E-06	3.0E-07
R07100004-080	RFA-B16								9.0E-07	2.0E-07
R07100004-081	RFA-B17A								2.0E-06	3.0E-07
R07100004-082	RFA-B17B								2.2E-06	3.0E-07

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium, Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-083	RFA-B17C								2.5E-06	3.0E-07
R07100004-084	RFA-B18								1.7E-06	3.0E-07
R07100004-085	RFA-B19								1.2E-06	2.0E-07
R07100004-086	RFA-B20	8.8E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	5.0E-07	1.0E-07	1.3E-06	3.0E-07
R07100004-087	RFA-B21A								5.3E-06	4.0E-07
R07100004-088	RFA-B21B								1.3E-06	2.0E-07
R07100004-089	RFA-B21C								1.2E-06	2.0E-07
R07100004-090	RFA-B22								1.5E-06	2.0E-07
R07100004-091	RFA-B23								3.6E-06	4.0E-07
R07100004-092	RFA-B24								1.3E-06	2.0E-07
R07100004-093	RFA-B25	6.7E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	4.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-094	RFA-B26								1.1E-06	2.0E-07
R07100004-095	RFA-B27								1.5E-06	2.0E-07
R07100004-096	RFA-B28								2.4E-06	3.0E-07
R07100004-097	RFA-B28Dup								1.8E-06	3.0E-07
R07100004-098	RFA-B29								1.7E-06	3.0E-07
R07100004-099	RFA-B30A								1.8E-06	2.0E-07
R07100004-100	RFA-B30B								2.1E-06	3.0E-07
R07100004-101	RFA-B30C								1.7E-06	3.0E-07
R07100004-102	RFA-B31								1.3E-06	2.0E-07
R07100004-103	RFA-B33								9.0E-07	2.0E-07
R07100004-104	RFA-B34								1.0E-06	2.0E-07
R07100004-105	RFA-B35								1.2E-06	2.0E-07
R07100004-106	RFA-B36A								1.0E-06	2.0E-07
R07100004-107	RFA-B36B								1.1E-06	2.0E-07
R07100004-108	RFA-B36C								1.0E-06	2.0E-07
R07100004-109	RFA-B37A								9.0E-07	2.0E-07
R07100004-110	RFA-B37B								7.0E-07	2.0E-07
R07100004-111	RFA-B37C								1.1E-06	2.0E-07
R07100004-112	RFA-B38								1.0E-06	2.0E-07
R07100004-113	RFA-B39								1.1E-06	2.0E-07
R07100004-114	RFA-B40	5.6E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	3.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-115	RFA-B41								1.2E-06	2.0E-07
R07100004-116	RFA-B43								1.7E-06	3.0E-07
R07100004-117	RFA-B44								1.4E-06	2.0E-07
R07100004-118	RFA-B45								1.6E-06	3.0E-07

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E901.1									Batch: C_16378
Sample ID: MB-R92021	Method Blank				Run: SUB-C92021				10/22/07 12:00
Bismuth 214	ND	pCi/g-dry	0.05						
Radium 226	ND	pCi/g-dry	0.05						
Sample ID: LCS-R92021	Laboratory Control Sample				Run: SUB-C92021				10/22/07 12:00
Bismuth 214	50.3	pCi/g-dry	0.10	106	70	130			
Sample ID: R07100004-103A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.00	pCi/g-dry	0.10				11	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-105A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.40	pCi/g-dry	0.10				15	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-107A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	0.900	pCi/g-dry	0.10				20	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-109A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	0.800	pCi/g-dry	0.10				12	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-111A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.00	pCi/g-dry	0.10				9.5	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-113A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.10	pCi/g-dry	0.10				0.0	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-115A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.20	pCi/g-dry	0.10				0.0	30	
Radium 226 precision (±)	0.300	pCi/g-dry							
Sample ID: R07100004-117A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.30	pCi/g-dry	0.10				7.4	30	
Radium 226 precision (±)	0.200	pCi/g-dry							

Qualifiers:

- Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike				Run: SUB-C91456				10/18/07 12:11
Radium 226	3.2	pCi/g-dry	0.10	75	70	130			
MSD failed and was not imported to Omega.									
Sample ID: LCS-16379	Laboratory Control Sample				Run: SUB-C91456				10/18/07 12:11
Radium 226	0.059	pCi/g-dry	0.10	92	70	130			
Sample ID: MB-16379	Method Blank				Run: SUB-C91456				10/18/07 12:11
Radium 226	ND	pCi/g-dry	0.0002						
Method: E903.0									Batch: C_16398
Sample ID: LCS-16398	Laboratory Control Sample				Run: SUB-C91630				10/22/07 12:54
Radium 226	34	pCi/g-dry	0.10	108	70	130			
Sample ID: R07100004-086A	Sample Matrix Spike				Run: SUB-C91980				10/29/07 13:32
Radium 226	3.7	pCi/g-dry	0.50	101	70	130			
Sample ID: R07100004-086A	Sample Matrix Spike Duplicate				Run: SUB-C91980				10/29/07 13:32
Radium 226	3.7	pCi/g-dry	0.50	98	70	130	1.6	27.5	
Method: E907.0									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike				Run: SUB-C91536				10/09/07 15:00
Thorium 230	2.97	pCi/g-dry	0.10	103	70	130			
Sample ID: LCS-16379	Laboratory Control Sample				Run: SUB-C91536				10/09/07 15:00
Thorium 230	5.20	pCi/g-dry	0.10	106	70	130			
Sample ID: MB-16379	Method Blank				Run: SUB-C91536				10/09/07 15:00
Thorium 230	ND	pCi/g-dry	0.0002						
Method: E907.0									Batch: C_16398
Sample ID: R07100004-048A	Sample Matrix Spike				Run: SUB-C91708				10/18/07 00:00
Thorium 230	3.19	pCi/g-dry	0.10	98	70	130			
Sample ID: R07100004-048A	Sample Matrix Spike Duplicate				Run: SUB-C91708				10/18/07 00:00
Thorium 230	3.22	pCi/g-dry	0.10	100	70	130	1.1	30	
Sample ID: LCS-R91708	Laboratory Control Sample				Run: SUB-C91708				10/18/07 00:00
Thorium 230	5.50	pCi/g-dry	0.10	93	70	130			
Sample ID: MB-R91708	Method Blank				Run: SUB-C91708				10/18/07 00:00
Thorium 230	ND	pCi/g-dry	0.01						

Qualifiers:

L - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E907.0									Batch: C_R91728
Sample ID: C07061601-002AMSD	Sample Matrix Spike Duplicate				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	58.5	pCi/L	1.0	100	70	130	3.0	30	
Sample ID: C07070262-015AMS	Sample Matrix Spike				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	63.7	pCi/L	0.20	101	70	130			
Sample ID: LCS-15162	Laboratory Control Sample				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	5.40	pCi/L	0.20	92	70	130			
Sample ID: MB-R91728	Method Blank				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	ND	pCi/L	0.2						
Method: E909.0M									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike Duplicate				Run: SUB-C92688			11/06/07 08:10	
Lead 210	497	pCi/g-dry	0.10	123	70	130	88	30	R
Sample ID: MB-R92688	Method Blank				Run: SUB-C92688			11/06/07 08:10	
Lead 210	ND	pCi/g-dry	0.05						
Sample ID: LCS-R92688	Laboratory Control Sample				Run: SUB-C92688			11/06/07 08:10	
Lead 210	90.0	pCi/g-dry	0.10	112	70	130			
Method: E909.0M									Batch: C_16398
Sample ID: R07100004-114A	Sample Matrix Spike				Run: SUB-C92976			11/08/07 09:20	
Lead 210	485	pCi/g-dry	0.10	120	70	130			
Sample ID: R07100004-114A	Sample Matrix Spike Duplicate				Run: SUB-C92976			11/08/07 09:20	
Lead 210	458	pCi/g-dry	0.10	114	70	130	5.8	30	

Qualifiers:

L - Analyte reporting limit.
R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020								Batch: C_16405	
Sample ID: MB-16405	Method Blank				Run: SUB-C91124			10/11/07 23:38	
Uranium	9E-05	mg/kg-dry	6E-05						
Uranium, Activity	6E-05	pCi/g-dry	4E-05						
Sample ID: LCS1-16405	Laboratory Control Sample				Run: SUB-C91124			10/11/07 23:50	
Uranium	0.0203	mg/kg-dry	0.015	101	75	125			
Uranium, Activity	0.0137	pCi/g-dry	0.010	101	75	125			
Sample ID: LCS-16405	Laboratory Control Sample				Run: SUB-C91124			10/11/07 23:54	
Uranium	1.02	mg/kg-dry	0.015	101	75	125			
Uranium, Activity	0.687	pCi/g-dry	0.010	101000	75	125			S
Sample ID: R07100004-033A	Sample Matrix Spike				Run: SUB-C91124			10/12/07 00:23	
Uranium	26.1	mg/kg-dry	0.029	104	75	125			
Uranium, Activity	17.7	pCi/g-dry	0.019	104	75	125			
Sample ID: R07100004-033A	Sample Matrix Spike Duplicate				Run: SUB-C91124			10/12/07 00:27	
Uranium	25.8	mg/kg-dry	0.029	103	75	125	1.1	20	
Uranium, Activity	17.5	pCi/g-dry	0.019	5140	75	125	1.1	20	S
Method: SW6020								Batch: C_16406	
Sample ID: MB-16406	Method Blank				Run: SUB-C91124			10/12/07 00:52	
Uranium	ND	mg/kg-dry	6E-05						
Uranium, Activity	ND	pCi/g-dry	4E-05						
Sample ID: LCS1-16406	Laboratory Control Sample				Run: SUB-C91124			10/12/07 00:56	
Uranium	0.0212	mg/kg-dry	0.015	106	75	125			
Uranium, Activity	0.0144	pCi/g-dry	0.010	106	75	125			
Sample ID: LCS-16406	Laboratory Control Sample				Run: SUB-C91124			10/12/07 01:00	
Uranium	1.00	mg/kg-dry	0.015	100	75	125			
Uranium, Activity	0.679	pCi/g-dry	0.010	100000	75	125			S
Sample ID: R07100004-114A	Sample Matrix Spike				Run: SUB-C91124			10/12/07 02:39	
Uranium	22.7	mg/kg-dry	0.026	101	75	125			
Uranium, Activity	15.4	pCi/g-dry	0.017	101	75	125			
Sample ID: R07100004-114A	Sample Matrix Spike Duplicate				Run: SUB-C91124			10/12/07 02:43	
Uranium	23.1	mg/kg-dry	0.026	103	75	125	1.7	20	
Uranium, Activity	15.6	pCi/g-dry	0.017	5160	75	125	1.7	20	S

Qualifiers:

L - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-001
Client Sample ID: LAN 001A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.09	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.2	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.7	mg/kg-dry		0.01		10	SW6020	08/14/08 03:14/eli-c
Uranium, Activity	1.8	pCi/g-dry		0.007		10	SW6020	08/14/08 03:14/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-002
Client Sample ID: LAN 001B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	4.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.4	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.8	mg/kg-dry		0.01		10	SW6020	08/14/08 03:22/eli-c
Uranium, Activity	1.9	pCi/g-dry		0.007		10	SW6020	08/14/08 03:22/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-003
Client Sample ID: LAN 001C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.9	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.8	mg/kg-dry		0.01		10	SW6020	08/14/08 03:26/eli-c
Uranium, Activity	1.9	pCi/g-dry		0.007		10	SW6020	08/14/08 03:26/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-004
Client Sample ID: LAN 002A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	3.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.3	mg/kg-dry		0.01		10	SW6020	08/14/08 03:46/eli-c
Uranium, Activity	0.86	pCi/g-dry		0.007		10	SW6020	08/14/08 03:46/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-005
Client Sample ID: LAN 002B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.5	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.06	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 03:50/eli-c
Uranium, Activity	0.75	pCi/g-dry		0.007		10	SW6020	08/14/08 03:50/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-006
Client Sample ID: LAN 002C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.06	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 03:55/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 03:55/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-007
Client Sample ID: LAN 003A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.8	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 03:59/eli-c
Uranium, Activity	0.78	pCi/g-dry		0.007		10	SW6020	08/14/08 03:59/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-008
Client Sample ID: LAN 003B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.8	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.01		10	SW6020	08/14/08 04:03/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 04:03/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-009
Client Sample ID: LAN 003C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.6	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.9	mg/kg-dry		0.01		10	SW6020	08/14/08 04:07/eli-c
Uranium, Activity	2.0	pCi/g-dry		0.007		10	SW6020	08/14/08 04:07/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-010
Client Sample ID: LAN 004A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.9	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.6	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:11/eli-c
Uranium, Activity	0.69	pCi/g-dry		0.007		10	SW6020	08/14/08 04:11/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-011
Client Sample ID: LAN 004B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.3	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.2	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:15/eli-c
Uranium, Activity	0.79	pCi/g-dry		0.007		10	SW6020	08/14/08 04:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-012
Client Sample ID: LAN 004C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.8	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:19/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 04:19/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-013
Client Sample ID: LAN 005A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	4.4	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:39/eli-c
Uranium, Activity	0.84	pCi/g-dry		0.007		10	SW6020	08/14/08 04:39/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-014
Client Sample ID: LAN 005B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.9	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.6	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:43/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 04:43/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-015
Client Sample ID: LAN 005C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.5	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:47/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 04:47/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-016
Client Sample ID: LAN 004A Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.4	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 04:51/eli-c
Uranium, Activity	0.72	pCi/g-dry		0.007		10	SW6020	08/14/08 04:51/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-017
Client Sample ID: LAN 004B Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:55/eli-c
Uranium, Activity	0.68	pCi/g-dry		0.007		10	SW6020	08/14/08 04:55/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-018
Client Sample ID: LAN 004C Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:59/eli-c
Uranium, Activity	1.3	pCi/g-dry		0.007		10	SW6020	08/14/08 04:59/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-019
Client Sample ID: LAN 006A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.005	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 05:03/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 05:03/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-020
Client Sample ID: LAN 006B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.3	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 05:07/eli-c
Uranium, Activity	0.75	pCi/g-dry		0.007		10	SW6020	08/14/08 05:07/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-021
Client Sample ID: LAN 006C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.4	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.01		10	SW6020	08/14/08 05:43/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 05:43/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-022
Client Sample ID: LAN 007A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 05:51/eli-c
Uranium, Activity	0.81	pCi/g-dry		0.007		10	SW6020	08/14/08 05:51/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-023
Client Sample ID: LAN 007B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 05:55/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 05:55/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-024
Client Sample ID: LAN 007C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.4	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.8	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	3.6	mg/kg-dry		0.01		10	SW6020	08/14/08 05:59/eli-c
Uranium, Activity	2.5	pCi/g-dry		0.007		10	SW6020	08/14/08 05:59/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-025
Client Sample ID: LAN 008A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.0	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.09	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	1	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	3.1	mg/kg-dry		0.01		10	SW6020	08/14/08 07:15/eli-c
Uranium, Activity	2.1	pCi/g-dry		0.007		10	SW6020	08/14/08 07:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-026
Client Sample ID: LAN 008B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	5.1	mg/kg-dry		0.01		10	SW6020	08/14/08 07:19/eli-c
Uranium, Activity	3.5	pCi/g-dry		0.007		10	SW6020	08/14/08 07:19/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-027
Client Sample ID: LAN 009A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.4	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.6	mg/kg-dry		0.01		10	SW6020	08/14/08 07:23/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 07:23/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-028
Client Sample ID: LAN 009B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	4.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.6	mg/kg-dry		0.01		10	SW6020	08/14/08 07:27/eli-c
Uranium, Activity	1.8	pCi/g-dry		0.007		10	SW6020	08/14/08 07:27/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-029
Client Sample ID: LAN 009C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	3.9	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Thorium 230	1.1	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.4	mg/kg-dry		0.01		10	SW6020	08/14/08 07:31/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/14/08 07:31/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-030
Client Sample ID: LAN 010A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.8	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	1.2	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.3	mg/kg-dry		0.01		10	SW6020	08/14/08 07:35/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/14/08 07:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-031
Client Sample ID: LAN 010B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.4	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	7.9	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	1.2	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 07:39/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 07:39/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-032
Client Sample ID: LAN 010C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.9	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.5	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	1.9	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.8	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	4.0	mg/kg-dry		0.01		10	SW6020	08/14/08 07:44/eli-c
Uranium, Activity	2.7	pCi/g-dry		0.007		10	SW6020	08/14/08 07:44/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-033
Client Sample ID: LAS 001A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.6	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.8	mg/kg-dry		0.01		10	SW6020	08/14/08 07:48/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.007		10	SW6020	08/14/08 07:48/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-034
Client Sample ID: LAS 001B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.3	mg/kg-dry		0.01		10	SW6020	08/14/08 08:08/eli-c
Uranium, Activity	0.86	pCi/g-dry		0.007		10	SW6020	08/14/08 08:08/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-035
Client Sample ID: LAS 001C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.9	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.1	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.91	mg/kg-dry		0.01		10	SW6020	08/15/08 16:46/eli-c
Uranium, Activity	0.61	pCi/g-dry		0.007		10	SW6020	08/15/08 16:46/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-036
Client Sample ID: LAS 002A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.1	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.71	mg/kg-dry		0.01		10	SW6020	08/15/08 16:50/eli-c
Uranium, Activity	0.48	pCi/g-dry		0.007		10	SW6020	08/15/08 16:50/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-037
Client Sample ID: LAS 002B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/15/08 16:54/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/15/08 16:54/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-038
Client Sample ID: LAS 003C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.93	mg/kg-dry		0.01		10	SW6020	08/15/08 16:58/eli-c
Uranium, Activity	0.63	pCi/g-dry		0.007		10	SW6020	08/15/08 16:58/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-039
Client Sample ID: LAS 003A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.74	mg/kg-dry		0.01		10	SW6020	08/15/08 17:03/eli-c
Uranium, Activity	0.50	pCi/g-dry		0.007		10	SW6020	08/15/08 17:03/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-040
Client Sample ID: LAS 003B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.8	mg/kg-dry		0.01		10	SW6020	08/14/08 08:12/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.007		10	SW6020	08/14/08 08:12/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-041
Client Sample ID: LAS 003C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	1	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 17:15/eli-c
Uranium, Activity	0.93	pCi/g-dry		0.007		10	SW6020	08/15/08 17:15/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-042
Client Sample ID: LAS 004A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.6	mg/kg-dry		0.01		10	SW6020	08/26/08 01:02/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/26/08 01:02/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-043
Client Sample ID: LAS 004B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.3	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 17:43/eli-c
Uranium, Activity	0.95	pCi/g-dry		0.007		10	SW6020	08/15/08 17:43/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-044
Client Sample ID: LAS 004C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.9	mg/kg-dry		0.01		10	SW6020	08/26/08 01:28/eli-c
Uranium, Activity	1.3	pCi/g-dry		0.007		10	SW6020	08/26/08 01:28/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-045
Client Sample ID: LAS 005A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.6	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.4	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.02		10	SW6020	08/29/08 23:20/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.01		10	SW6020	08/29/08 23:20/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-046
Client Sample ID: LAS 005B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.4	mg/kg-dry		0.01		10	SW6020	08/26/08 01:32/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/26/08 01:32/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-047
Client Sample ID: LAS 005C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 18:00/eli-c
Uranium, Activity	0.98	pCi/g-dry		0.007		10	SW6020	08/15/08 18:00/eli-c

Report Definitions:
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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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-048
Client Sample ID: LAS 006A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.6	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.55	mg/kg-dry		0.01		10	SW6020	08/15/08 18:04/eli-c
Uranium, Activity	0.37	pCi/g-dry		0.007		10	SW6020	08/15/08 18:04/eli-c

Report Definitions:
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MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-049
Client Sample ID: LAS 006B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.71	mg/kg-dry		0.01		10	SW6020	08/15/08 18:08/eli-c
Uranium, Activity	0.48	pCi/g-dry		0.007		10	SW6020	08/15/08 18:08/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-050
Client Sample ID: LAS 006C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.6	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.6	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.3	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.09	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.96	mg/kg-dry		0.01		10	SW6020	08/15/08 18:28/eli-c
Uranium, Activity	0.65	pCi/g-dry		0.007		10	SW6020	08/15/08 18:28/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-051
Client Sample ID: LAS 007A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.09	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.64	mg/kg-dry		0.01		10	SW6020	08/15/08 18:32/eli-c
Uranium, Activity	0.43	pCi/g-dry		0.007		10	SW6020	08/15/08 18:32/eli-c

Report Definitions:
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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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-052
Client Sample ID: LAS 007B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.67	mg/kg-dry		0.01		10	SW6020	08/15/08 18:36/eli-c
Uranium, Activity	0.45	pCi/g-dry		0.007		10	SW6020	08/15/08 18:36/eli-c

Report Definitions:
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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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-053
Client Sample ID: LAS 007C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.7	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.6	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/15/08 18:40/eli-c
Uranium, Activity	0.72	pCi/g-dry		0.007		10	SW6020	08/15/08 18:40/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
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ANALYTICAL SUMMARY REPORT

October 08, 2007

Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: C07081328

Project Name: DB Vegetation Sampling

Energy Laboratories, Inc. received the following 8 samples from Environmental Restoration Group Inc on 8/23/2007 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C07081328-001	AMS-05	08/14/07 00:00	08/23/07	Vegetation	Uranium, Total Digestion, Radiochemistry Lead 210 Polonium 210 Radium 226 Thorium, Isotopic
C07081328-002	AMS-02	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-003	AMS-BKG	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-004	AMS-06	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-005	AMS-01	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-006	AMS-07	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-007	AMS-04	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-008	AMS-03		08/23/07	Vegetation	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By: R. A. Gaulin
Roger Gaulin
Laboratory Supervisor

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-001	**DateReceived:**	08/23/07
Client Sample ID:	AMS-05	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.7E-03	uCi/kg		6.5E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	2.1E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	6.6E-05	uCi/kg		6.5E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	3.0E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.4E-05	uCi/kg		1.3E-06		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	9.1E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.5E-05	uCi/kg		1.3E-06		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	8.5E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	3.7E-05	uCi/kg		1.3E-06		SW6020	09/08/07 07:16 / bws

* 2σ = precision estimate

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: C07081328-002
Client Sample ID: AMS-02

Report Date: 10/08/07
Collection Date: 08/14/07
DateReceived: 08/23/07
Matrix: Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	3.3E-04	uCi/kg		2.7E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	7.5E-05	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.8E-05	uCi/kg		2.7E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	9.9E-06	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.2E-05	uCi/kg		5.5E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	5.6E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	4.7E-06	uCi/kg		5.5E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	3.0E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.0E-05	uCi/kg		5.5E-07		SW6020	09/08/07 07:20 / bws

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: C07081328-003
Client Sample ID: AMS-BKG

Report Date: 10/08/07
Collection Date: 08/14/07
DateReceived: 08/23/07
Matrix: Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	6.9E-04	uCi/kg		4.8E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.4E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	2.5E-05	uCi/kg		4.8E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	1.6E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	4.1E-05	uCi/kg		9.7E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	9.9E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.0E-05	uCi/kg		9.7E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	6.3E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	4.0E-05	uCi/kg		9.7E-07		SW6020	09/08/07 07:24 / bws

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	Report Date:	10/08/07
Project:	DB Vegetation Sampling	Collection Date:	08/14/07
Lab ID:	C07081328-004	DateReceived:	08/23/07
Client Sample ID:	AMS-06	Matrix:	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.0E-03	uCi/kg		4.1E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.3E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	6.0E-05	uCi/kg		4.1E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	2.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	3.2E-05	uCi/kg		8.2E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	8.1E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.9E-05	uCi/kg		8.2E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	6.6E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	3.8E-05	uCi/kg		8.3E-07		SW6020	09/08/07 07:28 / bws

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-005	**DateReceived:**	08/23/07
Client Sample ID:	AMS-01	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.8E-03	uCi/kg		8.6E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	2.7E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.3E-04	uCi/kg		8.6E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	4.9E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	5.5E-05	uCi/kg		1.7E-06		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	1.6E-05	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	ND	uCi/kg		1.7E-06		E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.3E-05	uCi/kg		1.7E-06		SW6020	09/08/07 07:33 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-006	**DateReceived:**	08/23/07
Client Sample ID:	AMS-07	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	2.1E-03	uCi/kg		4.8E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.8E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.5E-04	uCi/kg		4.8E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	4.1E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.7E-05	uCi/kg		9.7E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	8.1E-06	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	1.6E-05	uCi/kg		9.7E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	9.2E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.8E-05	uCi/kg		9.7E-07		SW6020	09/08/07 07:37 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-007	**DateReceived:**	08/23/07
Client Sample ID:	AMS-04	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.5E-03	uCi/kg		4.0E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.5E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	9.8E-05	uCi/kg		4.0E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	3.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.3E-05	uCi/kg		8.0E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	6.8E-06	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	3.6E-06	uCi/kg		8.0E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	2.8E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	9.3E-06	uCi/kg		8.1E-07		SW6020	09/08/07 07:53 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	Report Date:	10/08/07
Project:	DB Vegetation Sampling	Collection Date:	Not Provided
Lab ID:	C07081328-008	DateReceived:	08/23/07
Client Sample ID:	AMS-03	Matrix:	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	9.1E-04	uCi/kg		3.2E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.1E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	7.8E-05	uCi/kg		3.2E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	2.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	7.4E-05	uCi/kg		6.4E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	1.1E-05	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	2.6E-06	uCi/kg		6.4E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	2.2E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	9.8E-06	uCi/kg		6.4E-07		SW6020	09/08/07 07:57 / bws

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-001
Client Sample ID: AMS-BKG

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	3.5E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000012	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.2E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	5.1E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.4E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.0E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	9.0E-02	uCi/kg	D	3.8E-06		25	SW6020	06/11/08 21:36/eli-c
RADIUM 226								
Radium 226 MDC	6.4E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000083	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	0.000011	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-002
Client Sample ID: AMS-01

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.2E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	5.2E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	4.7E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	7.2E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	2.9E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.1E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.8E-02	uCi/kg	D	2.4E-06		25	SW6020	06/11/08 21:44/eli-c
RADIUM 226								
Radium 226 MDC	3.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000033	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	5.5E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-003
Client Sample ID: AMS-02

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.4E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	4.9E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.0E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.2E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.3E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	6.9E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.7E-02	uCi/kg	D	1.9E-06		25	SW6020	06/11/08 21:49/eli-c
RADIUM 226								
Radium 226 MDC	2.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000030	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	4.5E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-004
Client Sample ID: AMS-03

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.1E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000011	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.3E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.4E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.4E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	8.2E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.5E-01	uCi/kg	D	2.4E-06		25	SW6020	06/11/08 21:53/eli-c
RADIUM 226								
Radium 226 MDC	3.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.00011	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	9.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-005
Client Sample ID: AMS-04

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	8.3E-06	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.7E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	3.9E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.2E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	6.6E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.1E-02	uCi/kg	D	1.9E-06		25	SW6020	06/11/08 21:57/eli-c
RADIUM 226								
Radium 226 MDC	2.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000031	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	4.6E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-006
Client Sample ID: AMS-06

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	3.9E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000011	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	4.0E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	7.7E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.8E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.1E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.3E-01	uCi/kg	D	3.2E-06		25	SW6020	06/11/08 22:13/eli-c
RADIUM 226								
Radium 226 MDC	4.6E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000092	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	9.9E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-007
Client Sample ID: AMS-05

Report Date: 06/16/08
Collection Date: 04/21/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.8E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	8.1E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.6E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	3.1E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	3.3E-04	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	3.0E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.3E-01	uCi/kg	D	1.3E-06		25	SW6020	06/11/08 22:17/eli-c
RADIUM 226								
Radium 226 MDC	1.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000079	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	5.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-008
Client Sample ID: AMS-07

Report Date: 06/16/08
Collection Date: 04/21/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.0E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000012	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.3E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.7E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	6.2E-04	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	5.3E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.4E-01	uCi/kg	D	2.1E-06		25	SW6020	06/11/08 22:22/eli-c
RADIUM 226								
Radium 226 MDC	3.0E-06	uCi/kg				1	E903.0	05/16/08 11:45/eli-c
Radium 226	0.000076	uCi/kg				1	E903.0	05/16/08 11:45/eli-c
Radium 226 precision (±)	7.2E-06	uCi/kg				1	E903.0	05/16/08 11:45/eli-c

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.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-001
Client Sample ID: AMS-02

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-9.5E-07	uCi/kg	U	4.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	5.0E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.1E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	8.5E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.5E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	7.3E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	3.2E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 01:53/eli-c
RADIUM 226								
Radium 226	9.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	3.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	4.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-002
Client Sample ID: AMS-03

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.0E-05	uCi/kg		7.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	6.6E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.6E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.1E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.9E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	7.7E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 01:57/eli-c
RADIUM 226								
Radium 226	7.5E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	4.9E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	6.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-003
Client Sample ID: AMS-04

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-2.7E-06	uCi/kg	U	7.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.0E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	9.6E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.9E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	8.4E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:01/eli-c
RADIUM 226								
Radium 226	9.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.2E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	6.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-004
Client Sample ID: AMS-05

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-8.8E-07	uCi/kg	U	8.8E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	5.7E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.1E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.6E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	1.4E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:05/eli-c
RADIUM 226								
Radium 226	5.9E-06	uCi/kg	U			1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	7.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-005
Client Sample ID: AMS-06

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	2.1E-05	uCi/kg		5.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	7.4E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	5.7E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	5.7E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.4E-04	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	8.7E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	2.2E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:09/eli-c
RADIUM 226								
Radium 226	1.8E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	5.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-006
Client Sample ID: AMS-07

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	2.0E-05	uCi/kg		8.6E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	8.6E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.0E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.3E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	-3.2E-05	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	2.7E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:13/eli-c
RADIUM 226								
Radium 226	2.4E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	7.5E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	7.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-007
Client Sample ID: AMS-BKG

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	7.3E-06	uCi/kg		5.6E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.3E-06	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	8.8E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.3E-04	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	8.6E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	1.0E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:17/eli-c
RADIUM 226								
Radium 226	1.3E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	4.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	5.1E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-008
Client Sample ID: AMS-01

Report Date: 09/30/08
Collection Date: 07/15/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.2E-05	uCi/kg		8.4E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	8.4E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.7E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.5E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	9.4E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:37/eli-c
RADIUM 226								
Radium 226	8.1E-05	uCi/kg				1	E903.0	08/11/08 11:26/eli-c
Radium 226 precision (±)	1.2E-05	uCi/kg				1	E903.0	08/11/08 11:26/eli-c
Radium 226 MDC	7.4E-06	uCi/kg				1	E903.0	08/11/08 11:26/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-001
Client Sample ID: DBAT-01

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:46/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:46/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.0	pCi/g-dry	U	0.008		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	0.1	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	-0.007	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.04	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	0.08	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.003	pCi/g-dry	U			1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.002	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.003	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.008		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.02	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

Report Definitions:
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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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-002
Client Sample ID: DBAT-02

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:50/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:50/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.0	pCi/g-dry	U	0.1		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	1.2	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	0.2	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.7	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	1.2	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.06	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.03	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	1.4	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

Report Definitions:
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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

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-003
Client Sample ID: DBAT-03

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:54/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:54/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.02	pCi/g-dry	U	0.006		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	0.2	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	-0.007	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.04	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	0.06	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.003	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.001	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.002	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.006		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

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

Radon Monitoring Report

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Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4730145	DRNF	01-FEB-08	17-MAY-08	RN-8 1350 CALIB FACT= 37.8 STD DEV= 7.1 DAYS EXPOSED: 106	111.1	1.0	198	37.2 A	2.38	T33605
4730146	DRNF	01-FEB-08	17-MAY-08	HV-1 DANIELS W/TLD 1428 CALIB FACT= 37.8 STD DEV= 8.0 DAYS EXPOSED: 106	70.3	0.7	158	37.2 A	2.38	T33605
4730148	DRNF	01-FEB-08	17-MAY-08	HV-1 DANIELS W/TLD 1428 CALIB FACT= 37.8 STD DEV= 8.7 DAYS EXPOSED: 106	44.9	0.4	133	37.2 A	2.38	T33605
4730149	DRNF	01-FEB-08	17-MAY-08	RN-4 1528 CALIB FACT= 37.8 STD DEV= 7.3 DAYS EXPOSED: 106	102.9	1.0	190	37.2 A	2.38	T33605
4730150	DRNF	01-FEB-08	17-MAY-08	HV-2 SPENCER W/TLD 1604 CALIB FACT= 37.8 STD DEV= 7.9 DAYS EXPOSED: 106	71.3	0.7	159	37.2 A	2.38	T33605
4730169	DRNF	04-FEB-08	17-MAY-08	HV-4 DEWEY W/TLD 1630 CALIB FACT= 38.1 STD DEV= 5.1 DAYS EXPOSED: 103	298.8	2.9	381	37.2 A	2.38	T33605
4730170	DRNF	04-FEB-08	17-MAY-08	HV-3 BEAVER CREEK W/TLD 1650 CALIB FACT= 38.0 STD DEV= 5.3 DAYS EXPOSED: 103	279.2	2.7	362	37.2 A	2.38	T33605

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Q.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	LOT NO.
4730199	DRNF	11-FEB-08	17-MAY-08	RN-3 1440 CALIB FACT= 38.0 STD DEV= 5.4 DAYS EXPOSED: 96	256.6	2.7	340	37.2 A	2.38	T33605
4730200	DRNF	11-FEB-08	17-MAY-08	RN-6 1452 CALIB FACT= 38.1 STD DEV= 5.2 DAYS EXPOSED: 96	283.3	3.0	366	37.2 A	2.38	T33605
4730201	DRNF	11-FEB-08	17-MAY-08	RN-1 1517 CALIB FACT= 38.0 STD DEV= 5.6 DAYS EXPOSED: 96	231.9	2.4	316	37.2 A	2.38	T33605
4730203	DRNF	12-FEB-08	17-MAY-08	RN-7 1810 CALIB FACT= 38.1 STD DEV= 5.0 DAYS EXPOSED: 95	317.4	3.3	399	37.2 A	2.38	T33605
4730204	DRNF	12-FEB-08	17-MAY-08	RN-5 1544 CALIB FACT= 38.0 STD DEV= 5.5 DAYS EXPOSED: 95	248.3	2.6	332	37.2 A	2.38	T33605
4730221	DRNF	01-FEB-08	17-MAY-08	BKGD-ANDERSEN W/TLD 1725 CALIB FACT= 37.9 STD DEV= 6.2 DAYS EXPOSED: 106	175.4	1.7	261	37.2 A	2.38	T33605
4730222	DRNF	01-FEB-08	17-MAY-08	BKGD-ANDERSEN W/TLD 1725 CALIB FACT= 37.9 STD DEV= 6.5 DAYS EXPOSED: 106	153.9	1.5	240	37.2 A	2.38	T33605

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Q.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

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Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4730223	DRNF	01-FEB-08	17-MAY-08	HV-6 SCHOOL HOUSE W/TLD 1710 CALIB FACT= 37.9 STD DEV= 6.6 DAYS EXPOSED: 106	140.7	1.3	227	37.2 A	2.38	T33605
4730224	DRNF	01-FEB-08	17-MAY-08	HV-5 ENGLEBERT W/TLD 1311 CALIB FACT= 37.9 STD DEV= 6.9 DAYS EXPOSED: 106	122.3	1.2	209	37.2 A	2.38	T33605
4730225	DRNF	01-FEB-08	17-MAY-08	HV-7 HECK W/TLD 1325 CALIB FACT= 37.8 STD DEV= 7.1 DAYS EXPOSED: 106	109.0	1.0	196	37.2 A	2.38	T33605

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Q.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4729620	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-06 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	71	37.2	A 1.27	T33604
4729621	DRNM	17-MAY-08	17-JUL-08	RN-02 CALIB FACT= 36.6 STD DEV= 11.0 DAYS EXPOSED: 61	35.1	0.6	83	37.2	A 1.27	T33604
4729622	DRNM	17-MAY-08	~~18~~-JUL-08 17, according to radon test detector log. DRF 8/19/08	RN-01 CALIB FACT= 36.6 STD DEV= 11.3 DAYS EXPOSED: 63	31.2	0.5	79	37.2	A 1.27	T33604
4729638	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-01 DANIELS CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	63	37.2	A 1.27	T33604
4729639	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-01 DANIELS CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2	A 1.27	T33604
4729640	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-03 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	74	37.2	A 1.27	T33604

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Q.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4729647	DRNM	17-MAY-08	17-JUL-08	RN-07 CALIB FACT= 36.7 STD DEV= 10.4 DAYS EXPOSED: 61	44.0	0.7	92	37.2 A	1.27	T33604
4729648	DRNM	17-MAY-08	17-JUL-08	AMS-BKG ANDERSON CALIB FACT= 36.6 STD DEV= 11.3 DAYS EXPOSED: 61	30.2	0.5	78	37.2 A	1.27	T33604
4729649	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-BKG ANDERSON CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604
4729653	DRNM	17-MAY-08	17-JUL-08	AMS-04 DEWEY CALIB FACT= 36.6 STD DEV= 11.0 DAYS EXPOSED: 61	35.1	0.6	83	37.2 A	1.27	T33604
4729654	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-03 BEAVER CREEK RANCH CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2 A	1.27	T33604
4729655	DRNM	17-MAY-08	17-JUL-08	AMS-06 SCHOOL CALIB FACT= 36.6 STD DEV= 10.5 DAYS EXPOSED: 61	42.0	0.7	90	37.2 A	1.27	T33604

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Q.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4729667	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-05 ENGLEBERT CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	65	37.2 A	1.27	T33604
4729668	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-07 NECK CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2 A	1.27	T33604
4729669	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-08 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	56	37.2 A	1.27	T33604
4729673	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE ~~RN-01~~ RN-04, according to radon test detector log DF 8-18-08 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604
4729674	DRNM	17-MAY-08	17-JUL-08	RN-05 CALIB FACT= 36.7 STD DEV= 10.1 DAYS EXPOSED: 61	49.9	0.8	98	37.2 A	1.27	T33604
4729675	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-02 SPENCER CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604

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Q.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER
Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4681411	DRNF	14-AUG-07	24-SEP-07	BACKGROUND-KEITH ANDERSON	83.6	2.0	
4681412	DRNF	14-AUG-07	23-SEP-07	RADON 01-BASE WASH PILE, NORTH SIDE	81.0	2.0	
4681414	DRNF	14-AUG-07	23-SEP-07	RADON 02-MIDDLE OF MILE WASTE EDGE OPEN PIT	390.0	9.8	
4681416	DRNF	14-AUG-07	23-SEP-07	RADON 03-SOUTH OF DARROW PIT MINE	48.8	1.2	
4681417	DRNF	14-AUG-07	23-SEP-07	RADON 04-MET STATION	79.0	2.0	
4681418	DRNF	14-AUG-07	23-SEP-07	RADON 05-ABANDONED MINE NEAR N BD	60.0	1.5	
4681419	DRNF	14-AUG-07	24-SEP-07	LOCATION 4 DEWEY	47.5	1.2	
4681421	DRNF	14-AUG-07	27-SEP-07	LOCATION 3 BEAVER CREEK RANCH (NO GOLD COVER)	50.8	1.2	
4681424	DRNF	14-AUG-07	27-SEP-07	LOCATION 1-NW DANIELS RANCH	43.6	1.0	
4681433	DRNF	14-AUG-07	27-SEP-07	LOCATION 1 DULICATE-NW DANIELS RANCH	44.2	1.0	
4681439	DRNF	14-AUG-07	27-SEP-07	LOCATION 7 HECK'S RANCH	47.5	1.1	
4681440	DRNF	14-AUG-07	27-SEP-07	BACKGROUND-KEITH ANDERSON	117.8	2.7	

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Q.C. Release	Process No.	Report Date	Date Received
VVG	A21305	05-OCT-07	01-OCT-07

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

(1) Detector Number	(2) Detector Type	(3) Starting Date	(4) Ending Date	Field Data / Comments	(6) Exposure pCi/l-days	(7) Avg. Radon Conc. pCi/l	(8)
4690837	DRNF	15-AUG-07	27-SEP-07	LOCATION 2-MRS SPENCER'S HOUSE	93.9	2.2	
4690838	DRNF	15-AUG-07	23-SEP-07	RADON 07-WYOMING LINE	118.1	3.0	
4690839	DRNF	16-AUG-07	23-SEP-07	MARC KOLLENBECK'S HOUSE RN-08	113.4	3.0	
4690840	DRNF	19-AUG-07	23-SEP-07	RADON 06-ROLLFRONT AREA	114.8	3.3	
4690841	DRNF	17-AUG-07	27-SEP-07	LOCATION 6-OLD SCHOOLHOUSE	106.7	2.6	
4690842	DRNF	15-AUG-07	27-SEP-07	LOCATION 5-PINK 2-STORY HOUSE	93.2	2.2	

(5)

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21305	05-OCT-07	01-OCT-07

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER
Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4703748	DRNF	27-SEP-07	01-FEB-08	SPENCER-LOC 2	154.8	1.2	
4703749	DRNF	27-SEP-07	01-FEB-08	DANIELS-LOC 1	83.1	0.7	
4703750	DRNF	27-SEP-07	01-FEB-08	DANIELS-LOC 1	44.9	0.4	
4703751	DRNF	27-SEP-07	04-FEB-08	DEWEY- LOC 4	161.6	1.2	
4703752	DRNF	27-SEP-07	04-FEB-08	BEAVER CREEK RANCH-LOC 3	150.5	1.2	
4703765	DRNF	23-SEP-07	11-FEB-08	RN-03	126.3	0.9	
4703766	DRNF	23-SEP-07	11-FEB-08	RN-01	179.6	1.3	
4703768	DRNF	23-SEP-07	01-FEB-08	RN-04	183.3	1.4	
4703769	DRNF	23-SEP-07	12-FEB-08	NO GOLD SEAL RN-05	157.9	1.1	
4703771	DRNF	23-SEP-07	12-FEB-08	RN-07	261.7	1.8	
4703797	DRNF	27-SEP-07	01-FEB-08	MECH RANCH-LOC 7	188.9	1.5	
4703799	DRNF	27-SEP-07	01-FEB-08	ENGLEBERT RANCH-LOC 5	128.2	1.0	
4703800	DRNF	27-SEP-07	01-FEB-08	SCHOOL-LOC 6	122.6	1.0	
4703801	DRNF	27-SEP-07	01-FEB-08	ANDERSON-BKG	198.9	1.6	

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Q.C. Release	Process No.	Report Date	Date Received
VVG	A21380	04-MAR-08	15-FEB-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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LANDAUER

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Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4703802	DRNF	27-SEP-07	01-FEB-08	ANDERSON-BKG	196.4	1.5	
4712642	DRNF	23-SEP-07	11-FEB-08	RN-06	190.2	1.3	
4712643	DRNF	23-SEP-07	01-FEB-08	RN-08	171.3	1.3	
4712644	DRNF	23-SEP-07	11-FEB-08	RN-02	173.8	1.2	
①	②	③	④	⑤	⑥	⑦	⑧

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21380	04-MAR-08	15-FEB-08

Appendix C

Radon Flux Measurement Documentation

ERG Radon Flux Canister Data Log

Site: Dewey-Burdock

NM

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	22	—	—	—	—	TriB Blank
2	257	07/14/08	09:24	07/15/08	10:06	RFA-B37
3	258		09:27		10:14	RFA-B21
4	8		08:19		08:49	RFA-B17
5	73		08:55		09:29	RFA-B36
6	65		09:13		09:54	RFA-B15
7	95		09:20		10:00	RFA-B02
8	92		08:10		08:43	RFA-B30
9	38		08:05		08:41	RFA-B13
10	59		07:56		08:30	RFA-B01
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Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

[redacted]

ERG Radon Flux Canister Data Log

Site: Dewey - Burdock

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	91	09/26/07	08:51	09/27/07	10:00	RFA-821
2	55	09/26/07	11:18	09/27/07	09:40	RFA-831
3	72	09/26/07	09:04	09/27/07	10:10	RFA-837
4	73	09/26/07	09:33	09/27/07	10:20	RFA-802
5	23	09/26/07	10:15	09/27/07	10:30	RFA-815
6	63	09/26/07	12:12	09/27/07	10:36	RFA-817
7	105	09/26/07	12:40	09/27/07	10:27	RFA-813
8	102	09/26/07	13:04	09/27/07	10:15	RFA-830
9	45	09/26/07	13:50	09/27/07	10:07	RFA-801
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Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

[redacted]

Radon – 222 Canister Chain of Custody Record

Facility: Dewey Burdock
Pile or Stack Name: N/A
Area of Pile or Stack: N/A
Field Representative: N. WRUBEL

	Deployment	Retrival
Date	4/20/08	4/21/08
Rel. Humid.	$\bar{x}$ = 39; 6-71	$\bar{x}$ = 39.44; 19-68
Bar. Press.	29.50 in.	30.02 in.
Temp. (F)	~71 °F $\bar{x}$ = 59; 36-81	~40 °F $\bar{x}$ = 38.25

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no frost observed

Deployment/Retrieval Record

Item	Location ID or Description	Coordinates North	Coordinates East	Canister Number	Deployment Time	Deployment By	Retrieval Time	Retrieval By	Comments
101	RFA-B21	428288.77	999249.30	48	0830	NW	0802	NW	
102	RFA-B31	432201.68	1001484.26	2	0852		0825		
103	RFA-B37	430292.49	1005338.17	71	0900		0838		
104	RFA-B02	430887.96	1006307.79	59	0909		0846		
105	RFA-B15	432487.00	1007590.62	80	0918		0854		
106	RFA-B17	445319.19	989455.54	90	1010		0930		
107	RFA-B01	444878.75	986206.90	256	1024		0948		
108	RFA-B13	442713.12	988273.03	38	1035		1001		
109	RFA-B30	443902.77	988057.01	88	1045		1009		
110	Trip Blank	–	–	255	–	–	–	–	
111									
112									
113									
114									

Custody Transfer Record

Items Nos.	Reliquished By	Date	Time	Accepted By	Date	Time 10AM
101-110	[illegible]	4/21/08	1400	K Baker	4/22/08	10AM

Radon Flux Measurements

Site Dewey - Burdock

RFA-B##

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Counts	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(nCi)	Flux pCi/m2s	Flux Error 1.00 S.D.	LLD pCi/m2s	Remarks
257	7/16	1520	7/14	9:24	7/15	10:06		1200	5117						37			
258	"	15:40		9:27		10:14		"	4448						21			
8	"	16:01		8:19		8:49		"	5121						17			
73	"	16:22		8:55		9:29		"	3712						36			
65	"	16:46		9:13		9:54		"	5845						15			
95	"	17:10		9:20		10:00		"	4515						ϕ2			
92	"	17:31		8:10		8:43		"	6326						3ϕ			
* 92 B	"	17:52		"		"		"	6386						3ϕ			
38	"	18:16		8:05		8:41		"	6724						13			
22	"	18:38		—		—		"	3126						—	BLANK		
59	"	18:59		7:56		8:30		"	6871				[illegible]	RFA-B	ϕ1			
BKG #2		19:42						"	2938									
STD #3	"	20:03						"	42987									
STD #1	"	20:24						"	47880									

ROI 563-[redacted]7
4/22/08

Radon Flux Measurements

Site Dewey-Bredock

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Count	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(nCi)	Flux pCi/m2s	Flux Error 1.00 S.D.	LLD pCi/m2s	Remarks
STD 1	4/22	1720							29888	48042								
STD 3	4/22	1740							39122									
BKG1		1808							2757									
38		1840							3642									
88		1905							3848									
90		1923							3695									
256		1945							3810									
80		2010							4481									
80B		2031							4374									
3-9		2055							3952									
2		2115							3751									
71		2137							4800									
255		2200							2863									
48		2220							3182									
BKG2		2241							2605									
STD 1		2308							48463									
STD 3		2330							38657									

Kenneth Baker

Data entered 4/23/08 by MJS

LLM = 562 - 68

Radon Flux Measurements

Site Dewey-Burdock, SD

TOTAL

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Counts	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(nCi)	Flux pCi/m2s	Flux Error 1.00S.D.	LLD pCi/m2s	Remarks
STD 1	9/28/07	1600						1200	31826	1.9				46124				
STD 3	9/28/07	1635							26724	2.2				40807				
BKG 1	9/28/07	1700							-50	482				3594				
91	9/28/07	1722	9/26/07	0851	9/27/07	1000			1220	21				4230				
55	9/28/07	1745	9/26/07	1118	9/27/07	0940			810	31				3627				
72	9/28/07	1805	9/26/07	0925	9/27/07	1010		1200	1137	22				3992				
73	9/28/07	1830	9/26/07	0948	9/27/07	1020			925	28				4064				
23	9/28/07	1853	9/26/07	1015	9/27/07	1030			1744	14.6				4582				
63	9/28/07	1921	9/26/07	1212	9/27/07	1036			1596	16.1				4478				
105	9/28/07	1946	9/26/07	1240	9/27/07	1022			1742	16				5261				
102	9/28/07	2009	9/26/07	1304	9/27/07	1015			1986	13.3				5049				
45	9/28/07	2030	9/26/07	1350	9/27/07	1007			1672	16.2				4876				
45B	9/28/07	2100	9/26/07	1350	9/27/07	1007			1404	18.9				4824				
46	9/28/07	2121	NA	NA	NA	NA	NA		219	110				1799				Trip Blank
BKG2	9/28/07	2142							279	82				2601				
STD 3	9/28/07	2204							25961	2.3				40345				
STD 1	9/28/07	2225							31277	1.9				45948				

APPENDIX 6.1-B

TVA GROUNDWATER DATA

Table C-1. Historic Water-Quality Data From Well #2

Analyte	6/15/1979	10/6/1980	1/16/1981	4/6/1981	7/6/1981	10/19/1981	4/12/1982	7/26/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	200	229	218	220	218	210	220	242	220	218
Arsenic (mg/L)	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.021	<0.005	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	171	229	218	220	218	210	220	242	220	218
Boron (mg/L)	<1									
Calcium (mg/L)	50	60	86	91	64	63	46	49	51	50
Carbonate (mg/L)	36									
Cation/Anion Balance (%)	-67.8								0.8	2.86
Chlorine (mg/L)	16	5.5	9	10	10	9	10	8	11	10
Conductivity (umhos)	1450	1525	1530	1475	1520	1505	1590	1560	1570	1750
hardness (mg/L)	203	233	234	226	220	240	184	190	192	192
Iron (mg/L)	0.34	0.45	0.95	0.32	0.48	6.4	0.5	0.8	1.3	1.19
Lead (mg/L)	<0.05	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005
Magnesium (mg/L)	19	20	16	20	22	20	16	15	15	16
Manganese (mg/L)	0.14	0.1	0.28	0.1	0.1	0.25	0.15	0.1	0.09	0.09
Nitrogen (mg/L)	1.5	<0.1	0.21	0.13	<0.1	0.49	0.15	<0.1	1.39	0.94
pH	8.2	7.74	7.57	7.67	7.89	7.16	7.69	7.78	7.69	7.63
Phosphate (mg/L)	<0.01	<0.03	<0.03	<0.03	0.03	0.08	0.069	0.06	0.04	<0.03
Potassium (mg/L)	16	15	16.6	16	13	16	15	14	14	14
Radium 226 (pCi/L)					1.04		1.26	0.09		0.5
Selenium (mg/L)	<0.01								297	
Silicon (mg/L)	7.3	4.44	<1	9.4	6.42	8.6	<2	9.2	8.7	9.73
Sodium (mg/L)	288	269	251	264	280	244	306	300	297	318
Sulfate (mg/L)	604	415	536	556	556	626	580	582	574	590
Total Dissolved Solids (mg/L)	1113	1030	1004	1039	1052	1008	1038	1062	1010	1074
Total Suspended Solids (mg/L)	1.6	1	1	<1	<1	22	<1	<1	3	5
Uranium (ug/L)					0.007		1.6	0.4		
Vanadium (mg/L)	<0.05									
Zinc (mg/L)	0.01	0.005	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.03	<0.005

Table C-2. Historic Water-Quality Data From Well #7

Analyte	6/15/1979	8/10/1979	9/12/1979
Alkalinity (mg/L)	191		171
Arsenic (mg/L)	<0.01		<0.01
Bicarbonate as HCO3 (mg/L)	159		37
Boron (mg/L)	<1		<1
Calcium (mg/L)	33		38
Carbonate (mg/L)	36		84
Cation/Anion Balance (%)	-73.2		-64.9
Chlorine (mg/L)	18		6
Conductivity (umhos)	1350		1325
hardness (mg/L)	153		182
Iron (mg/L)	0.48		0.5
Lead (mg/L)	<0.05		<0.05
Magnesium (mg/L)	17		21
Manganese (mg/L)	0.04		0.03
Nitrogen (mg/L)	2.3		0.39
pH	8.3		8.7
Phosphate (mg/L)	<0.01		<0.01
Potassium (mg/L)	15		14
Radium 226 (pCi/L)		1	
Selenium (mg/L)	<0.01		<0.01
Silicon (mg/L)	6.6		6.4
Sodium (mg/L)	307		277
Sulfate (mg/L)	600		600
Total Dissolved Solids (mg/L)	1104		1058
Total Suspended Solids (mg/L)	1.2		3.2
Uranium (ug/L)			
Vanadium (mg/L)	<0.05		<0.05
Zinc (mg/L)	0.08		0.08

Table C-3. Historic Water-Quality Data From Well #8

Analyte	6/15/1979	8/14/1979	9/12/1979	10/6/1980	1/6/1981	4/8/1981	7/6/1981	10/19/1981	4/12/1982	7/26/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	170	0	180	181	166	182	176	184	170	194	178	177
Arsenic (mg/L)	<0.01	0	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	207	0	195	181	166	182	148	184	170	194	178	177
Boron (mg/L)	<1	0	<1	0	0	0	0	0	0	0	0	0
Calcium (mg/L)	52	0	58	52	74	79	55	55	59	60	54	60
Carbonate (mg/L)	0	0	12	0	0	0	28	0	0	0	0	0
Cation/Anion Balance (%)	-66.7	0	-64.1	0	0	0	0	0	0	0	0.03	3.71
Chlorine (mg/L)	16	0	16	9	9	12	12	13	11	8.5	12	12
Conductivity (umhos)	1285	0	1300	1450	1430	1375	1400	1380	1425	1390	1390	1410
hardness (mg/L)	233	0	243	229	264	216	218	220	248	232	260	266
Iron (mg/L)	0.71	0	0.13	0.25	0.46	0.26	0.15	0.3	0.25	0.17	0.26	0.25
Lead (mg/L)	<0.05	0	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium (mg/L)	25	0	24	25	22	22	25	23	26	22	24	26
Manganese (mg/L)	0.11	0	0.08	0.08	0.23	0.09	0.07	0.13	0.14	0.08	0.09	0.1
Nitrogen (mg/L)	2.9	0	0.29	0.1	0.15	1.62	0.1	1.23	0.24	<0.1	0.81	0.17
pH	8.5	0	8.3	7.8	7.74	7.85	8.08	7.59	7.62	7.67	7.74	7.64
Phosphate (mg/L)	<0.01	0	<0.01	<0.03	<0.03	<0.03	0.03	0.03	<0.03	<0.03	0.03	<0.03
Potassium (mg/L)	18	0	19	16	18.9	18	14	18	19	17	18	17
Radium 226 (pCi/L)	0	1.9	0	0	0	0	1.27	0	1.37	1.44	0	1.6
Selenium (mg/L)	<0.01	0	<0.01	0	0	0	0	0	0	0	218	0
Silicon (mg/L)	6.6	0	4.9	3.6	<1	8.1	10.7	7.5	<2	5.8	6.7	7.23
Sodium (mg/L)	277	0	265	226	215	232	245	210	218	253	218	242
Sulfate (mg/L)	640	0	616	400	504	536	488	520	520	514	520	530
Total Dissolved Solids (mg/L)	1130	0	1106	918	942	972	974	904	904	964	860	942
Total Suspended Solids (mg/L)	4.8	0	0.4	1	2	4	1	1	2	<1	<1	5
Uranium (ug/L)	0	0	0	0	0	0	0.007	0	0.8	2.2	0	1
Vanadium (mg/L)	<0.05	0	<0.05	0	0	0	0	0	0	0	0	0
Zinc (mg/L)	0.01	0	0.01	0.005	<0.01	<0.01	<0.01	0.01	<0.03	<0.01	<0.03	<0.005

Table C-4. Historic Water-Quality Data From Well #13

Analyte	6/15/1979	8/16/1979	9/12/1979	10/7/1980	1/13/1981	4/6/1981	7/6/1981	10/19/1981	4/12/1982	7/26/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	160		170	180	176	166	167	183	169	196	168	172
Arsenic (mg/L)	<0.01		<0.01	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	171		207	180	176	166	167	183	169	196	168	172
Boron (mg/L)	<1		<1									
Calcium (mg/L)	66		74	66	102	103	67	70	68	65	67	69
Carbonate (mg/L)	12											
Cation/Anion Balance (%)	-58.6		-54.7								4.84	3.57
Chlorine (mg/L)	16		14	9	9	12	11	9	11	8	11	11
Conductivity (umhos)	1200		1100	1290	1400	1275	1300	1280	1300	1310	1280	1275
hardness (mg/L)	284		304	298	248	262	264	268	268	274	266	276
Iron (mg/L)	1.61		1.38	4.3	8.1	1.18	0.6	2.3	1.6	1.65	1.8	1.62
Lead (mg/L)	<0.05		<0.05	<0.005	0.027	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005
Magnesium (mg/L)	29		29	34	23	25	28	26	27	24	26	25
Manganese (mg/L)	0.13		0.09	0.14	0.45	0.08	0.09	0.13	0.15	0.1	0.09	0.1
Nitrogen (mg/L)	0.78		0.24	<0.1	0.69	<0.1	<0.1	0.52	0.11	<0.1	0.94	0.28
pH	8.1		8.1	7.69	7.79	7.94	7.86	7.5	7.48	7.55	7.75	7.63
Phosphate (mg/L)	<0.01		<0.01	<0.03	0.06	0.09	0.03	0.03	<0.03	0.03	0.03	<0.03
Potassium (mg/L)	15		14	14	16.2	15	11	16	15	15	15	15
Radium 226 (pCi/L)		2.1					2.01		2.98	2.37		1
Selenium (mg/L)	<0.01		<0.01								199	
Silicon (mg/L)	6.4		6.6	2.4	7.8	6.6	10.7	7.5	<2	7.1	7.4	7.85
Sodium (mg/L)	216		169	164	185	191	195	162	184	207	199	205
Sulfate (mg/L)	568		480	404	464	480	468	500	472	492	456	480
Total Dissolved Solids (mg/L)	1006		882	950	936	854	912	862	836	842	792	876
Total Suspended Solids (mg/L)	0.4		1.6	11	71	4	3	2	2	1	1	6
Uranium (ug/L)							0.004		0.6	2.5		1
Vanadium (mg/L)	<0.05		<0.05									
Zinc (mg/L)	<0.01		<0.01	0.03	0.3	<0.01	<0.01	<0.01	0.13	<0.01	<0.03	<0.005

Table C-5. Historic Water-Quality Data From Well #16

Analyte	7/22/1981	10/19/1981	4/12/1982
Alkalinity (mg/L)	157	156	144
Arsenic (mg/L)	0.005	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	157	156	144
Boron (mg/L)			
Calcium (mg/L)	130	130	128
Carbonate (mg/L)			
Cation/Anion Balance (%)			
Chlorine (mg/L)	7	7	6
Conductivity (umhos)	1150	1160	1175
hardness (mg/L)	540	520	528
Iron (mg/L)	0.25	0.12	0.05
Lead (mg/L)	<0.005	0.015	<0.005
Magnesium (mg/L)	55	51	54
Manganese (mg/L)	0.15	0.17	0.17
Nitrogen (mg/L)	<0.1	0.28	0.22
pH	7.32	7.31	7.39
Phosphate (mg/L)	<0.03	0.03	<0.03
Potassium (mg/L)	28	24	21
Radium 226 (pCi/L)	4.9		5.38
Selenium (mg/L)			
Silicon (mg/L)	14.27	7.5	<2
Sodium (mg/L)	55	45	50
Sulfate (mg/L)	510	494	488
Total Dissolved Solids (mg/L)	894	796	848
Total Suspended Solids (mg/L)	1	1	<1
Uranium (ug/L)	0.007		1.7
Vanadium (mg/L)			
Zinc (mg/L)	<0.01	0.05	0.07

Table C-6. Historic Water-Quality Data From Well #18

Analyte	8/6/1979	8/15/1979	9/12/1979	10/9/1980	1/8/1981	4/8/1981	7/1/1981	10/1/1981	4/13/1982	7/27/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	200		238	202	180	192	195	184	190	214	184	182
Arsenic (mg/L)	<0.01		<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.018	<0.005	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	195		168	202	180	162	195	184	190	214	184	182
Boron (mg/L)	<1		<1									
Calcium (mg/L)	37		39	35	44	53	38	38	19	40	38	37
Carbonate (mg/L)	24		60			30						
Cation/Anion Balance (%)	-75.4		-75.9								2.69	2.47
Chlorine (mg/L)	14		20	13	13	12	11	12	12	8	12	13
Conductivity (umhos)	1325		1300	1420	1370	1375	1410	1350	1400	1390	1420	1410
hardness (mg/L)	142		139	136	136	138	140	140	124	141	140	135
Iron (mg/L)	7.42		1.25	1.4	2.1	1.34	1.9	1.4	1.3	2.6	2.6	1.45
Lead (mg/L)	<0.05		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium (mg/L)	12		10	15.5	12	13	14	13	7	12	14	13
Manganese (mg/L)	0.15		0.05	0.08	0.16	0.07	0.07	0.06	0.12	0.08	0.08	0.08
Nitrogen (mg/L)	0.87		0.28	0.34	0.35	0.39	0.25	1.4	0.36	<0.1	1.04	0.42
pH	8.4		8.3	7.88	7.98	8.02	7.82	7.77	7.81	7.69	7.89	7.75
Phosphate (mg/L)	<0.01		<0.01	<0.03	<0.03	<0.03	0.03	0.03	0.033	0.03	0.04	<0.03
Potassium (mg/L)	10		11	9	9.4	10	9	12	10	9	10	9
Radium 226 (pCi/L)		0.96					1.87		4.44	1.26		2.2
Radium 226 (pCi/L)										0.57		
Selenium (mg/L)	<0.01		<0.01								279	
Silicon (mg/L)	6.4		5.6	3	<1	7.4	2.14	6.4	<2	7.9	7.4	7.85
Sodium (mg/L)	281		325	287	263	266	280	252	137	287	279	280
Sulfate (mg/L)	525		570	538	504	468	520	510	520	530	506	506
Total Dissolved Solids (mg/L)	999		1118	926	948	974	898	876	906	922	908	520
Total Suspended Solids (mg/L)	3.6		0.4	1	3	4	4	2	2	2	1	5
Uranium (ug/L)		8					0.008		7.6	6.7		8
Vanadium (mg/L)	<0.05		<0.05									
Zinc (mg/L)	0.01		<0.01	<0.005	<0.01	<0.01	0.03	<0.01	<0.03	<0.01	<0.03	<0.005

Table C-7. Historic Water-Quality Data From Well #42

Analyte	8/6/1979	8/15/1979	9/12/1979	10/9/1980	1/8/1981	4/8/1981	7/22/1981	10/21/1981	4/13/1982	7/27/1982	4/11/1983
Alkalinity (mg/L)	180		180	198	188	189	192	179	186	204	188
Arsenic (mg/L)	<0.01		<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.025	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	171		195	198	188	165	192	179	186	204	188
Boron (mg/L)	<1		<1								
Calcium (mg/L)	47		49	39	48	54	38	39	36	42	37
Carbonate (mg/L)	24		12			24					
Cation/Anion Balance (%)	-75.1		-75.8								0.33
Chlorine (mg/L)	14		14	12	9	11	12	11	12	10.5	12
Conductivity (umhos)	1250		1200	1400	1360	1380	1400	1365	1400	1375	1400
hardness (mg/L)	138		147	142	140	142	144	140	148	146	164
Iron (mg/L)	0.61		0.63	0.25	1.5	0.42	0.55	0.4	0.5	0.84	0.38
Lead (mg/L)	<0.05		<0.05	0.026	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
Magnesium (mg/L)	5		6	16	13	13	14	13	13	13	11
Manganese (mg/L)	0.12		0.07	0.08	0.2	0.1	0.08	0.07	0.12	0.09	0.09
Nitrogen (mg/L)	0.52		0.05	0.38	0.28	0.17	<0.1	0.4	0.13	<0.1	0.84
pH	8.3		8.4	7.86	7.96	8	7.79	7.67	7.86	7.68	7.92
Phosphate (mg/L)	<0.01		<0.01	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	0.03	<0.03
Potassium (mg/L)	10		10	10	9.4	10	9	12	10	10	10
Radium 226 (pCi/L)		51					37.4		82.62	80.33	
Selenium (mg/L)	<0.01		<0.01								276
Silicon (mg/L)	6.4		5.8	3	1.7	6.6	4.81	7.5	<2	7.9	8
Sodium (mg/L)	274		286	282	260	266	280	252	264	283	276
Sulfate (mg/L)	525		560	576	504	498	520	520	520	514	516
Total Dissolved Solids (mg/L)	984		1033	920	964	964	910	906	903	916	888
Total Suspended Solids (mg/L)	4.8		5.2		2	8	2	1	<1	<1	<1
Uranium (ug/L)		7					0.02		13.6	12	
Vanadium (mg/L)	<0.05		<0.05								
Zinc (mg/L)	0.01		<0.01	0.01	<0.01	<0.01	0.01	0.01	<0.03	<0.01	<0.03

Table C-8. Historic Water-Quality Data From Well #4002

Analyte	9/12/1979	4/12/1982	7/26/1982	7/27/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	150	144	202		146	146
Arsenic (mg/L)	<0.01	<0.005	<0.005		<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	134	144	202		146	146
Boron (mg/L)	<1					
Calcium (mg/L)	45	46	23		45	46
Carbonate (mg/L)	24					
Cation/Anion Balance (%)	-62.2				0.99	0.12
Chlorine (mg/L)	8	5	3		6	7
Conductivity (umhos)	1100	1195	1160		1160	1190
hardness (mg/L)	187	90	168		168	184
Iron (mg/L)	2.3	2.6	1.38		8.3	3.35
Lead (mg/L)	<0.05	<0.005	<0.005		<0.005	0.005
Magnesium (mg/L)	18	16	10		13	15
Manganese (mg/L)	0.06	0.14	0.1		0.09	0.1
Nitrogen (mg/L)	0.46	0.17	<0.1		0.67	0.91
pH	8.5	7.52	7.51		7.6	7.61
Phosphate (mg/L)	<0.01	0.033	<0.03		0.03	<0.03
Potassium (mg/L)	13	10	9		9	9
Radium 226 (pCi/L)		43.36	32.13	32.13		
Selenium (mg/L)	<0.01				212	
Silicon (mg/L)	5.1	<2	3.4		8	7.23
Sodium (mg/L)	191	198	226		212	197
Sulfate (mg/L)	440	448	427		450	440
Total Dissolved Solids (mg/L)	805	766	770		740	784
Total Suspended Solids (mg/L)	1.6	6	2		5	9
Uranium (ug/L)		2.1	5	5		
Vanadium (mg/L)	<0.05					
Zinc (mg/L)	0.01	<0.03	<0.01		<0.03	<0.005

Table C-9. Historic Water-Quality Data From Well #7002

Analyte	6/15/1979	9/12/1979	10/6/1980	1/6/1981	4/6/1981	7/6/1981	10/19/1981	4/12/1982	7/26/1982	4/11/1983	4/17/1984
Alkalinity (mg/L)	210	224	269	264	264	263	280	264	300	268	267
Arsenic (mg/L)	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005
Bicarbonate as HCO3 (mg/L)	256	273	269	264	264	263	280	264	300	268	267
Boron (mg/L)	<1	<1									
Calcium (mg/L)	194	233	235	337	375	238	230	243	238	242	243
Carbonate (mg/L)											
Cation/Anion Balance (%)	-37.9	-39.3								0.55	3.52
Chlorine (mg/L)	16	16	6	9	10	9	8	9	6	9	10
Conductivity (umhos)	1925	2000	2500	2400	2400	2400	2400	2400	2400	2400	2500
hardness (mg/L)	1002	948	990	904	968	956	928	944	970	1020	928
Iron (mg/L)	3.56	2.48	2.5	3.38	2.55	2.1	2.7	2.5	2.47	5.8	2.16
Lead (mg/L)	<0.05	<0.05	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium (mg/L)	126	89	95	72	96	100	93	98	90	90	109
Manganese (mg/L)	0.46	0.32	0.38	0.82	0.37	0.3	0.38	0.51	0.37	0.39	0.33
Nitrogen (mg/L)	1.6	0.29	<0.1	0.16	0.52	<0.1	1.01	0.15	<0.1	0.44	0.37
pH	7.8	8	7.27	7.33	7.59	7.63	7.14	7.21	7.26	7.3	7.26
Phosphate (mg/L)	<0.01	<0.01	0.03	<0.03	<0.03	0.03	0.03	0.045	<0.03	0.04	<0.03
Potassium (mg/L)	25	25	32	33	35	24	33	29	30	32	27
Radium 226 (pCi/L)								8.69	9.37		
Selenium (mg/L)	<0.01	<0.01								200	
Silicon (mg/L)	7.3	7.3	4.17	<1	7.4	8.83	8.6	<2	8.6	8.7	8.45
Sodium (mg/L)	181	191	172	181	193	201	180	210	195	200	192
Sulfate (mg/L)	1150	1105	800	973	1097	1107	987	973	1090	1107	1077
Total Dissolved Solids (mg/L)	1818	1793	1940	1822	1942	1970	1690	1780	1886	1820	1810
Total Suspended Solids (mg/L)	4	7.2	8	4	6	4	6	5	2	6	10
Uranium (ug/L)								0.2	2		10
Vanadium (mg/L)	<0.05	<0.05									
Zinc (mg/L)	<0.01	<0.01	0.005	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.03	<0.005

APPENDIX 6.1-C

NUMBER OF SURFACE WATER SAMPLES COLLECTED ANALYTICAL METHOD, AND PQL BY CONSTITUENT

Number of Surface Water Samples Collected, Analytical Method, and PQL by Constituent

Constituent, Unit	Number of Samples Analyzed	Analytical Method	PQL[1]
Microbiological			
Bacteria, Fecal Coliform (cfu/100ml)	81	A9222 D	2
Major Anions and Cations			
Anions (meq/L)	81	A1030 E	
Bicarbonate as HCO3 (mg/L)	81	A2320 B	5
Carbonate as CO3 (mg/L)	81	A2320 B	5
Sulfate (mg/L)	81	E300.0	36
Chloride (mg/L)	82	E300.0	1
Fluoride (mg/L)	81	E300.0	0.1
Nitrogen, Nitrate as N (mg/L)	81	E300.0	0.1
Cations (meq/L)	81	A1030 E	
Ammonia as N (mg/L)	61	A4500-NH3 G	1
Sodium-Dissolved (mg/L)	66	E200.7	0.8
Calcium-Dissolved (mg/L)	66	E200.7	0.5
Magnesium-Dissolved (mg/L)	66	E200.7	0.5
Potassium-Dissolved (mg/L)	66	E200.7	0.5
Silica-Dissolved (mg/L)	66	E200.7	0.5
General Water Quality Indicators			
Alkalinity-Total as CaCO3 (mg/L)	81	A2320 B	5
Anion/Cation Balance (± 5) (%)	81	A1030 E	
Conductivity @ 25 C (umhos/cm)	81	A2510 B	5
pH	81	A4500-H B	0.01
Sodium Adsorption Ratio (meq/L)	61	calculated	0.1
Solids-Total Dissolved TDS (mg/L)	81	A2540 C	5
Solids-Total Dissolved, Calc. (mg/L)	81	A1030 E	5
TDS Balance (0.80 - 1.20) (dec.%)	81	A1030 E	
Solids-Suspended Sediment SSC (mg/L)	81	D3977	5
Solids-Total Suspended TSS (mg/L)	81	A2540 D	5
Metals, Dissolved			
Aluminum-Dissolved (mg/L)	66	E200.7	0.1
Arsenic-Dissolved (mg/L)	66	E200.8	0.001
Barium-Dissolved (mg/L)	66	E200.7	0.1
Boron-Dissolved (mg/L)	66	E200.7	0.1
Cadmium-Dissolved (mg/L)	66	E200.8	0.005
Chromium-Dissolved (mg/L)	66	E200.7	0.05
Copper-Dissolved (mg/L)	66	E200.8	0.01
Iron-Dissolved (mg/L)	66	E200.7	0.03
Lead-Dissolved (mg/L)	66	E200.8	0.001
Manganese-Dissolved (mg/L)	66	E200.7	0.01
Mercury-Dissolved (mg/L)	66	E200.8	0.001
Molybdenum-Dissolved (mg/L)	66	E200.7	0.1

Number of Surface Water Samples Collected, Analytical Method, and PQL by Constituent (cont.)

Constituent, Unit	Number of Samples Analyzed	Analytical Method	PQL[1]
Selenium-Dissolved (mg/L)	66	A3114 B	0.001
Selenium-IV-Dissolved (mg/L)	61	A3114 B	0.001
Selenium-VI-Dissolved (mg/L)	61	A3114 B	0.001
Silver-Dissolved (mg/L)	66	E200.8	0.005
Thorium 232-Dissolved (mg/L)	66	E200.8	0.005
Uranium-Dissolved (mg/L)	70	E200.8	0.003
Vanadium-Dissolved (mg/L)	66	E200.7	0.1
Zinc-Dissolved (mg/L)	66	E200.7	0.01
Metals, Suspended			
Thorium 232-Suspended (mg/L)	81	E200.8	0.001
Uranium-Suspended (mg/L)	81	E200.8	0.0003
Metals, Total			
Aluminum-Total (mg/L)	66	E200.7	0.1
Arsenic-Total (mg/L)	81	E200.8	0.001
Barium-Total (mg/L)	81	E200.7	0.1
Boron-Total (mg/L)	81	E200.7	0.2
Cadmium-Total (mg/L)	81	E200.8	0.005
Calcium-Total (mg/L)	57	E200.7	1
Chromium-Total (mg/L)	81	E200.7	0.05
Chromium-Hexavalent (mg/L)	66	A3500-Cr B	
Chromium-Trivalent (mg/L)	66	calculated	0.01
Copper-Total (mg/L)	81	E200.7	0.01
Iron-Total (mg/L)	81	E200.7	0.03
Lead-Total (mg/L)	81	E200.8	0.001
Magnesium-Total (mg/L)	57	E200.7	0.5
Manganese-Total (mg/L)	81	E200.7	0.01
Mercury-Total (mg/L)	91	E245.1	0.001
Molybdenum-Total (mg/L)	81	E200.7	0.1
Nickel-Total (mg/L)	81	E200.7	0.05
Potassium-Total (mg/L)	57	E200.7	0.5
Selenium-Total (mg/L)	81	A3114 B	0.002
Selenium-IV-Total (mg/L)	66	A3114 B	0.001
Selenium-VI-Total (mg/L)	66	A3114 B	0.001
Silica-Total (mg/L)	57	E200.7	0.5
Silver-Total (mg/L)	81	E200.8	0.005
Sodium-Total (mg/L)	57	E200.7	0.5
Thorium 232-Total (mg/L)	73	E200.8	0.005
Uranium-Total (mg/L)	81	E200.8	0.0003
Vanadium-Total (mg/L)	81	E200.7	0.1
Zinc-Total (mg/L)	81	E200.7	0.01

Number of Surface Water Samples Collected, Analytical Method, and PQL by Constituent (concl.)

Constituent, Unit	Number of Samples Analyzed	Analytical Method	PQL[1]
Lead 210-Dissolved (pCi/L)	46	E909.0M	1
Lead 210-Suspended (pCi/L)	46	E909.0M	1
Lead 210-Total (pCi/L)	37	E909.0M	1
Polonium 210-Dissolved (pCi/L)	46	RMO-3008	1
Polonium 210-Suspended (pCi/L)	46	RMO-3008	1
Polonium 210-Total (pCi/L)	37	RMO-3008	1
Radium 226-Dissolved (pCi/L)	63	E903.0	0.2
Radium 226-Suspended (pCi/L)	70	E903.0	0.2
Radium 226-Total (pCi/L)	73	E903.0	0.2
Thorium 230-Dissolved (pCi/L)	70	E907.0	0.2
Thorium 230-Suspended (pCi/L)	70	E907.0	0.2
Thorium 230-Total (pCi/L)	61	E907.0	0.2
Gross Alpha-Total (pCi/L)	81	E900.0	1
Gross Beta-Total (pCi/L)	81	E900.0	2
Gross Gamma-Total (pCi/L)	66	E901.1	20

[1]PQL = Practical Quantitation Limit. The concentration that can be reliably measured within specified limits during routine laboratory operating conditions, below which results are reported as "less than reporting limit". The contracting laboratory uses the PQL as the reporting limit.

APPENDIX 6.1-D

SURFACE WATER QUALITY DATA

POWERTECH (USA) INC.

Appendix 6.1-D
Water Quality Data from CHR01

CHR01											
Parameters	**7/31/2007**	**9/5/2007***	**9/5/2007***	**9/26/2007**	**10/17/2007**	**11/19/2007**	**3/9/2008**	**4/16/2008**	**5/26/2008**	**6/17/2008**	**Average**
A/C Balance (± 5) (%)	0.0317	-2.1	-2.45	-4.68	-0.301	-0.593	-4.49	-1.81	1.47	6.05	-0.89
Alkalinity-Total as CaCO3 (mg/L)	310	196	198	248	320	322	92	248	80	272	229
Aluminum-Dissolved (mg/L)					0.05	0.05	0.05	0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)					0.6	0.1	8.4	0.05	94.7	5.1	18.2
Ammonia (mg/L)					0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anions (meq/L)	83.7	47.9	49	91.5	95.6	105	20.8	86.1	3.51	30.3	61.3
Arsenic-Dissolved (mg/L)					0.001	0.0005	0.0005	0.001	0.0005	0.001	0.0008
Arsenic-Total (mg/L)	0.001	0.002	0.002	0.002	0.002	0.0005	0.004	0.001	0.024	0.003	0.0042
Bacteria, Fecal Coliform (cfu/100ml)	8	160	150	76	4	1	20	1	2100	16	254
Barium-Dissolved (mg/L)					0.05	0.05	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.8	0.1	0.13
Bicarbonate as HCO3 (mg/L)	378	234	236	302	390	393	112	302	98	332	278
Boron-Dissolved (mg/L)					0.3	0.2	0.1	0.3	0.1	0.2	0.20
Boron-Total (mg/L)	0.4	0.6	0.61	0.34	0.2	0.2	0.05	0.2	0.05	0.2	0.29
Cadmium-Dissolved (mg/L)					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)					398	411	155	370	29.7	161	254
Calcium-Total (mg/L)	366	186	191	344			160	366	62	175	231
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	83.8	45.9	46.7	83.3	95	104	19	83.1	3.61	34.2	59.9
Chloride (mg/L)	125	74	74	138	166	176	249	156	2	78	124
Chromium-Dissolved (mg/L)					0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.19	0.025	0.042
Chromium-Trivalent (mg/L)					0.005	0.005	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	6580	3990	4030	6450	6940	7530	1860	6600	367	2770	4712
Copper-Dissolved (mg/L)					0.005	0.005	0.005	0.005	0.005	0.005	0.005

CHR01											
Parameters	**7/31/2007**	**9/5/2007***	**9/5/2007***	**9/26/2007**	**10/17/2007**	**11/19/2007**	**3/9/2008**	**4/16/2008**	**5/26/2008**	**6/17/2008**	**Average**
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.1	0.005	0.015
Fluoride (mg/L)	0.3	0.4	0.4	0.1	0.3	0.3	0.4	0.05	0.4	0.7	0.3
Gross Alpha-Total (pCi/L)	16.9	15.9	16.7	33.8	34.2	27	5.1	5.7	29.1	35.3	22.0
Gross Beta-Total (pCi/L)	21.9	18.6	1	21.9	21.3	1	4.8	-9.2	22.1	15.5	11.9
Gross Gamma-Total (pCi/L)					1070	10	10	0	0	0	182
Iron-Dissolved (mg/L)					0.03	0.06	0.015	0.015	0.05	0.015	0.031
Iron-Total (mg/L)	0.15	0.66	0.71	1.1	0.95	0.61	9.12	0.49	88.3	2.99	10.51
Lead 210-Dissolved (pCi/L)				0.5	3.2	0.5			0.5		1.2
Lead 210-Suspended (pCi/L)				0.5	0.5	0.5			4.4		1.5
Lead 210-Total (pCi/L)				0.5		0.5			5		2.0
Lead-Dissolved (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.001	0.001	0.0005	0.0005	0.0005	0.008	0.0005	0.118	0.003	0.0134
Magnesium-Dissolved (mg/L)					189	201	36	175	9	65.8	113
Magnesium-Total (mg/L)	188	92	94	172			38.4	171	37.3	70.5	108
Manganese-Dissolved (mg/L)					2.75	3.01	0.05	0.68	0.005	0.04	1.09
Manganese-Total (mg/L)	1.13	0.2	0.21	0.25	2.94	2.66	0.33	0.68	1.19	0.38	1.00
Mercury-Dissolved (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00055	0.00055	0.00005	0.00005	0.0004
Molybdenum-Dissolved (mg/L)					0.05	0.05	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)					0.005	0.005	0.005	0.005	0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.08	0.025	0.031
Nitrogen, Nitrate as N (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.4	0.05	0.4	0.05	0.12
pH	7.83	8.3	8.26	8.2	7.57	7.63	7.78	8.03	7.81	8.29	7.97
Polonium 210-Dissolved (pCi/L)				0.5	1.6	1.7			0.5		1.1
Polonium 210-Suspended (pCi/L)				0.5	0.5	2.3			4.1		1.9
Polonium 210-Total (pCi/L)				0.5		4			4.6		3.0
Potassium-Dissolved (mg/L)					15	15	5	26	6	12	13
Potassium-Total (mg/L)	19	15	15	17			6.7	22.1	27.4	13.2	16.9
Radium 226-Dissolved (pCi/L)				0.1	0.5		0.2	0.3	0.06	0.2	0.2

CHR01											
Parameters	**7/31/2007**	**9/5/2007***	**9/5/2007***	**9/26/2007**	**10/17/2007**	**11/19/2007**	**3/9/2008**	**4/16/2008**	**5/26/2008**	**6/17/2008**	**Average**
Radium 226-Suspended (pCi/L)				0.1	0.1	0.6	1.2	-0.1	4	-0.9	0.7
Radium 226-Total (pCi/L)	0.1	0.1	0.1	0.1		0.6	1.5	0.1	4.1	-0.72	0.7
Selenium-Dissolved (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0025	0.0005	0.0008
Selenium-IV-Dissolved (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.002	0.002	0.002	0.003	0.0005	0.0005	0.001	0.0005	0.0005	0.0005	0.0013
Selenium-VI-Dissolved (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)					0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)					13	12.4	5.6	6.4	2.6	6.1	7.7
Silica-Total (mg/L)	7.2	7.8	8.1	8.6			45.4	6.3	63.5	18.1	20.6
Silver-Dissolved (mg/L)					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)					14	15	3.5	12	1.2	7.9	8.93
Sodium-Dissolved (mg/L)					1360	1530	189	1140	28	471	786
Sodium-Total (mg/L)	1140	657	665	1180			191	1140	30	509	689
Solids-Suspended Sediment SSC (mg/L)	53	49	56	34	6170	10	424	5	4840	102	1174
Solids-Total Dissolved Calculated (mg/L)	5590	3160	3230	5970	6370	7040	1280	5720	219	2060	4064
Solids-Total Dissolved TDS (mg/L)	5900	3200	3200	5900	6500	7100	1300	5700	400	2200	4140
Solids-Total Suspended TSS (mg/L)	54	54	57	35	12	8	400	8	4400	110	514
Sulfate (mg/L)	3550	2010	2060	3970	4060	4520	572	3690	86	1090	2561
TDS Balance (0.80 - 1.20) (dec.%)	1.06	1.02	0.99	0.98	1.03	1	0.98	0.99	1.84	1.07	1.10
Thorium 230-Dissolved (pCi/L)				0.1	0.1	0.1	0.1	0.3	0.1	0	0.114
Thorium 230-Suspended (pCi/L)				0.1	0.9	3.8	0.8	0.2	2	0	1.1
Thorium 230-Total (pCi/L)				0.1		3.8	0.8	0.5	2.1	0.08	1.2
Thorium 232-Dissolved (pCi/L)					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.005	0.0005	0.017	0.0005	0.0026
Thorium 232-Total (mg/L)		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.046	0.0025	0.007
Uranium-Dissolved (mg/L)				0.0149	0.0308	0.031	0.0034	0.0324	0.0024	0.0177	0.019
Uranium-Suspended (mg/L)	0.00015	0.0012	0.0012	0.00015	0.00015	0.0006	0.002	0.0006	0.0038	0.00015	0.0010
Uranium-Total (mg/L)	0.0223	0.0142	0.0142	0.015	0.032	0.0316	0.0043	0.0365	0.0119	0.0214	0.020

CHR01											
Parameters	**7/31/2007**	**9/5/2007***	**9/5/2007***	**9/26/2007**	**10/17/2007**	**11/19/2007**	**3/9/2008**	**4/16/2008**	**5/26/2008**	**6/17/2008**	**Average**
Vanadium-Dissolved (mg/L)					0.05	0.05	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.3	0.05	0.08
Zinc-Dissolved (mg/L)					0.005	0.02	0.005	0.005	0.005	0.005	0.008
Zinc-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.005	0.46	0.02	0.058

* Replicate

POWERTECH (USA) INC.

Water Quality Data from CHR05

CHR05														
Parameters	**7/31/2007**	**9/5/2007**	**9/26/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007**	**1/11/2008**	**2/12/2008**	**3/9/2008**	**4/14/2008***	**4/14/2008***	**5/26/2008**	**6/17/2008**	**Average**
A/C Balance (± 5) (%)	1.77	-3.85	-0.328	0.765	-1.58	-3.9	2.85	-5.77	2.67	-1.29	-3.76	-9.14	5.94	-1.20
Alkalinity-Total as CaCO3 (mg/L)	200	214	324	352	180	182	234	246	92	164	168	90	224	205
Aluminum-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)				0.2	0.1	0.05	0.05	0.05	8.8	0.4	0.4	170	5.3	18.5
Ammonia (mg/L)				0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.06
Anions (meq/L)	57.1	59	88.4	99.1	78	50.6	45.6	48.1	18.1	57.4	63.4	6.07	38.6	54.6
Arsenic-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.0006
Arsenic-Total (mg/L)	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.003	0.002	0.002	0.029	0.004	0.0036
Bacteria, Fecal Coliform (cfu/100ml)	180	290	8	200	26	6	2	1	32	1	1	3500	28	329
Barium-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.9	0.10	0.12
Bicarbonate as HCO3 (mg/L)	244	261	395	429	219	222	285	300	112	200	205	110	273	250
Boron-Dissolved (mg/L)				0.4	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.05	0.2	0.23
Boron-Total (mg/L)	0.4	0.54	0.39	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.26
Cadmium-Dissolved (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)				492	389	441	525	496	152	407	457	34.3	234	363
Calcium-Total (mg/L)	311	270	422				515	526	148	430	418	70.8	254	336
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	59.2	54.6	87.8	101	75.6	46.8	48.2	42.9	19.1	55.9	58.8	5.05	43.5	53.7
Chloride (mg/L)	386	344	221	269	912	509	258	250	232	780	861	17	337	414
Chromium-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.007
Chromium-Hexavalent (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.009	0.0025	0.0032
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.19	0.025	0.038
Chromium-Trivalent (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	4980	4630	6590	6910	6090	4080	3510	3320	1810	5150	5150	537	3570	4333

CHR05														
Parameters	7/31/2007	9/5/2007	9/26/2007	10/17/2007	11/19/2007	12/11/2007	1/11/2008	2/12/2008	3/9/2008	4/14/2008*	4/14/2008*	5/26/2008	6/17/2008	Average
Copper-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.100	0.005	0.012
Fluoride (mg/L)	0.5	0.4	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.05	1	0.4	0.5	0.4
Gross Alpha-Total (pCi/L)	16.7	9.7	25.6	23.2	16.8	24.9	19.3	15.7	4	19.8	19.9	29.8	29.9	19.6
Gross Beta-Total (pCi/L)	18.7	1	9.8	11.1	38	12.5	10.8	7.6	4.8	10.2	-0.1	22.4	-1.7	11.2
Gross Gamma-Total (pCi/L)				1140	967	10	10	10	10	0	0	40.1	0	219
Iron-Dissolved (mg/L)				0.15	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.05	0.015	0.032
Iron-Total (mg/L)	0.09	0.25	0.39	0.84	0.24	0.13	0.06	0.1	6.92	0.36	0.43	108	3.41	9.32
Lead 210-Dissolved (pCi/L)			0.5	6.6	0.5	5.9	0.5					0.7		2.5
Lead 210-Suspended (pCi/L)			0.5	3	0.5	0.5	22					11.2		6.3
Lead 210-Total (pCi/L)			0.5		0.5	5.9	22					12		8.2
Lead-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.006	0.0005	0.0005	0.11	0.002	0.0095
Magnesium-Dissolved (mg/L)				380	164	109	136	113	34.2	127	127	10.1	84.9	129
Magnesium-Total (mg/L)	168	151	330				132	115	35.3	138	134	44.8	92.4	134
Manganese-Dissolved (mg/L)				1.53	0.16	0.07	0.07	0.12	0.04	0.59	0.59	0.005	0.16	0.33
Manganese-Total (mg/L)	0.12	0.48	0.58	1.69	0.23	0.1	0.13	0.12	0.21	0.73	0.73	1.39	0.53	0.54
Mercury-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00055	0.0008	0.00055	0.00005	0.00005	0.0005
Molybdenum-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)				0.005	0.005	0.01	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.008
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.100	0.025	0.031
Nitrogen, Nitrate as N (mg/L)	0.05	0.05	0.05	0.05	0.05	0.3	0.4	0.6	0.5	0.05	0.05	0.4	0.05	0.2
pH	7.98	8.08	8.09	7.74	7.95	7.90	7.82	7.78	7.67	8.10	8.04	7.78	8.30	7.94
Polonium 210-Dissolved (pCi/L)			0.5	0.5	1.5	2.4	0.5					-0.3		0.9
Polonium 210-Suspended (pCi/L)			0.5	0.5	1.3	0.5	0.5					3.8		1.2
Polonium 210-Total (pCi/L)			0.5		2.8	3.4	0.5					3.5		2.1

CHR05														
Parameters	7/31/2007	9/5/2007	9/26/2007	10/17/2007	11/19/2007	12/11/2007	1/11/2008	2/12/2008	3/9/2008	4/14/2008*	4/14/2008*	5/26/2008	6/17/2008	Average
Potassium-Dissolved (mg/L)				18	12	6	7	5	6	8	8	6	10	9
Potassium-Total (mg/L)	13.3	14	19				6.2	5.1	6.9	8.4	9.6	31.5	11.7	12.6
Radium 226-Dissolved (pCi/L)			0.1	0.1		0.1	0.1	0.1	0.07	0.1	0.1	1.4	0.2	0.2
Radium 226-Suspended (pCi/L)			0.1	0.1	0.1	0.1	0.1	0.1	1.8	0.3	0.5	3.8	-0.7	0.6
Radium 226-Total (pCi/L)	0.1	0.1	0.1		0.1	0.1	0.1	0.1	1.8	0.4	0.5	5.1	-0.48	0.7
Selenium-Dissolved (mg/L)				0.0005	0.0005	0.002	0.003	0.002	0.002	0.0005	0.0005	0.0025	0.0005	0.0014
Selenium-IV-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.001	0.002	0.003	0.0005	0.0005	0.001	0.003	0.003	0.002	0.0005	0.0005	0.0005	0.0005	0.0014
Selenium-VI-Dissolved (mg/L)				0.0005	0.0005	0.002	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0008
Selenium-VI-Total (mg/L)				0.0005	0.0005	0.001	0.003	0.002	0.002	0.0005	0.0005	0.0005	0.0005	0.0011
Silica-Dissolved (mg/L)				10	4.4	10.4	14.1	14	5.6	3.4	3.4	2.9	4.7	7.3
Silica-Total (mg/L)	7.4	7.8	11				13.5	16.6	48.3	5.4	5.6	56.4	17.6	19.0
Silver-Dissolved (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)				8.4	10	4	2.5	2.1	3.8	6.3	6.2	2.1	8	5.34
Sodium-Dissolved (mg/L)				1020	974	360	245	200	197	572	580	54	564	477
Sodium-Total (mg/L)	678	652	897				248	196	196	634	630	58	601	479
Solids-Suspended Sediment SSC (mg/L)	7	6	18	7040	17	8	2.5	11	197	15	18	4840	91	944
Solids-Total Dissolved Calculated (mg/L)	3710	3730	5720	6450	4900	3100	2920	2950	1160	3540	3860	365	2560	3459
Solids-Total Dissolved TDS (mg/L)	4100	3700	6500	7200	5200	3300	3200	2900	1200	3700	3800	340	2800	3688
Solids-Total Suspended TSS (mg/L)	14	6	23	8	16	7	2.5	9	220	19	20	4900	95	411
Sulfate (mg/L)	2030	2160	4160	4060	2340	1570	1610	1730	463	1540	1710	180	1180	1903
TDS Balance (0.80 - 1.20) (dec.%)	1.1	1	1.13	1.11	1.06	1.07	1.1	1	1.04	1.06	0.99	0.94	1.07	1.05
Thorium 230-Dissolved (pCi/L)			0.1	0.1	0.1	0.1	0.1	0.2	0.1	0	0.1	0.1	0	0.091
Thorium 230-Suspended (pCi/L)			0.1	0.6	0.1	0.1	0.1	0.3	1.4	0.1	0.3	2.2	-0.1	0.5
Thorium 230-Total (pCi/L)			0.1		0.1	0.1	0.1	0.2	1.5	0.1	0.4	2.3	-0.04	0.5

CHR05														
Parameters	7/31/2007	9/5/2007	9/26/2007	10/17/2007	11/19/2007	12/11/2007	1/11/2008	2/12/2008	3/9/2008	4/14/2008*	4/14/2008*	5/26/2008	6/17/2008	Average
Thorium 232-Dissolved (pCi/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.003	0.0005	0.0005	0.035	0.0005	0.0033
Thorium 232-Total (mg/L)		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.046	0.0025	0.006
Uranium-Dissolved (mg/L)			0.0346	0.0368	0.0151	0.0125	0.015	0.0143	0.0039	0.0134	0.0135	0.0028	0.0139	0.016
Uranium-Suspended (mg/L)	0.00015	0.0003	0.00015	0.00015	0.00015	0.0004	0.00015	0.00015	0.0036	0.0005	0.00015	0.0067	0.00015	0.0010
Uranium-Total (mg/L)	0.011	0.0136	0.0348	0.0378	0.0143	0.0152	0.0158	0.0136	0.0043	0.0141	0.014	0.0122	0.0173	0.017
Vanadium-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.3	0.05	0.07
Zinc-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.006
Zinc-Total (mg/L)	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.03	0.005	0.005	0.47	0.02	0.044

* Replicate

Water Quality Data from BVC01

	BVC01												
Parameters	**7/24/2007**	**8/20/2007**	**9/26/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007***	**12/11/2007***	**1/11/2008**	**3/9/2008**	**4/14/2008**	**5/26/2008**	**6/17/2008**	**Average**
A/C Balance (± 5) (%)	0.715	1.06	-4.61	-1.92	-2.71	0.412	-2.7	1.85	3.65	-3.44	0.05	4.51	-0.26
Alkalinity-Total as CaCO3 (mg/L)	134	112	78	112	196	188	184	214	214	160	84	156	153
Aluminum-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)				0.1	0.05	0.2	0.2	0.3	0.3	0.5	99.3	4.3	11.7
Ammonia (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anions (meq/L)	15.2	17.4	17.4	71.6	95.3	49.8	52.3	40.8	59.4	63.4	9.42	59.9	46.0
Arsenic-Dissolved (mg/L)				0.001	0.0005	0.002	0.001	0.0005	0.0005	0.0005	0.0005	0.001	0.0008
Arsenic-Total (mg/L)	0.002	0.002	0.002	0.001	0.0005	0.001	0.0005	0.0005	0.0005	0.002	0.048	0.004	0.0053
Bacteria, Fecal Coliform (cfu/100ml)	68	2500	1	76	30	6	14	16	1	1	5700	44	705
Barium-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.06
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.1	0.14
Bicarbonate as HCO3 (mg/L)	163	137	85	137	239	229	224	261	261	195	102	190	185
Boron-Dissolved (mg/L)				0.3	0.6	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.29
Boron-Total (mg/L)	0.2	0.2	0.21	0.3	0.5	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.27
Cadmium-Dissolved (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)				314	379	452	451	499	308	425	75.5	358	362
Calcium-Total (mg/L)	68.4	73	53					506	295	381	132	362	234
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	15.4	17.8	15.9	68.9	90.3	50.3	49.6	42.3	63.9	59.2	9.43	65.6	45.7
Chloride (mg/L)	101	158	141	852	1370	581	610	208	113	973	62	970	512
Chromium-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.19	0.025	0.039

BVC01													
Parameters	7/24/2007	8/20/2007	9/26/2007	10/17/2007	11/19/2007	12/11/2007*	12/11/2007*	1/11/2008	3/9/2008	4/14/2008	5/26/2008	6/17/2008	Average
Chromium-Trivalent (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	1480	1660	1740	5750	7290	4370	4380	3140	5000	5340	908	5140	3850
Copper-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.11	0.005	0.014
Fluoride (mg/L)	0.7	0.6	0.9	0.5	0.2	0.3	0.4	0.4	0.2	0.05	0.5	0.6	0.4
Gross Alpha-Total (pCi/L)	5.9	7.1	6.6	12	65.8	27.9	25.8	12.6	17.4	15.1	18.2	8.9	18.6
Gross Beta-Total (pCi/L)	10.3	14.7	9.4	2.7	44.4	14.9	5.7	4.1	12.5	-27.1	12.7	-11.1	7.8
Gross Gamma-Total (pCi/L)				10	10	1310	1120	10	10	0	0	0	274
Iron-Dissolved (mg/L)				0.015	0.18	0.015	0.015	0.015	0.015	0.015	0.015	0.03	0.035
Iron-Total (mg/L)	0.48	0.66	0.61	0.13	0.05	0.25	0.28	0.29	0.44	0.52	137	3.02	12.0
Lead 210-Dissolved (pCi/L)			0.5	0.5	4.6	11	0.5	0.5			-1		2.4
Lead 210-Suspended (pCi/L)			0.5	0.5	0.5	3	4.4	0.5			15.3		3.5
Lead 210-Total (pCi/L)			0.5		4.6	14	4.4	0.5			14		6.3
Lead-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.088	0.002	0.0080
Magnesium-Dissolved (mg/L)				141	209	110	109	114	129	127	17.2	124	120
Magnesium-Total (mg/L)	29.5	27.8	28					121	127	128	59.8	130	81
Manganese-Dissolved (mg/L)				0.08	0.23	0.06	0.06	0.05	0.32	0.83	0.005	0.73	0.26
Manganese-Total (mg/L)	0.15	0.11	0.2	0.16	0.18	0.08	0.09	0.09	0.36	0.98	1.82	0.97	0.43
Mercury-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00055	0.00055	0.00005	0.00005	0.0004
Molybdenum-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)				0.005	0.005	0.005	0.01	0.005	0.01	0.005	0.005	0.005	0.006
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.15	0.025	0.035
Nitrogen, Nitrate as N (mg/L)	0.05	0.1	0.05	0.05	0.05	0.3	0.3	0.4	0.05	0.05	0.6	0.05	0.17
pH	8.31	8.8	8.79	7.84	7.77	7.88	7.89	7.68	8.1	8.09	7.69	8.13	8.08

BVC01													
Parameters	7/24/2007	8/20/2007	9/26/2007	10/17/2007	11/19/2007	12/11/2007*	12/11/2007*	1/11/2008	3/9/2008	4/14/2008	5/26/2008	6/17/2008	Average
Polonium 210-Dissolved (pCi/L)			0.5	2.6	1.9	1	1.4	0.5			0.3		1.2
Polonium 210-Suspended (pCi/L)			0.5	0.5	2.5	1.6	1.2	1.4			3		1.5
Polonium 210-Total (pCi/L)			0.5		4.4	2.6	2.6	1.4			3.3		2.5
Potassium-Dissolved (mg/L)				15	11	5	6	5	12	10	7	8	9
Potassium-Total (mg/L)	9.5	11.4	11					5.3	11.3	13	37.4	8.8	13.5
Radium 226-Dissolved (pCi/L)			0.1	0.3		0.1	0.1	0.1	-0.02	0.1	2	-0.02	0.3
Radium 226-Suspended (pCi/L)			0.1	0.1	0.1	0.4	0.1	0.1	-0.7	0	3.1	-0.9	0.2
Radium 226-Total (pCi/L)	0.1	0.1	0.1		0.1	0.4	0.1	0.1	-0.7	0.1	5.1	-0.95	0.4
Selenium-Dissolved (mg/L)				0.0005	0.0005	0.002	0.002	0.003	0.0005	0.0005	0.0025	0.0005	0.0013
Selenium-IV-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0007
Selenium-IV-Total (mg/L)				0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.002	0.003	0.001	0.0005	0.0005	0.001	0.001	0.003	0.0005	0.0005	0.0005	0.0005	0.0012
Selenium-VI-Dissolved (mg/L)				0.0005	0.0005	0.002	0.002	0.003	0.0005	0.0005	0.0005	0.0005	0.0011
Selenium-VI-Total (mg/L)				0.0005	0.0005	0.001	0.001	0.003	0.0005	0.0005	0.0005	0.0005	0.0009
Silica-Dissolved (mg/L)				0.5	1.6	11	11	13	6.9	2.1	2.9	2.2	5.7
Silica-Total (mg/L)	2.7	6.2	3.8					14.6	8.2	4.8	51.9	12.9	13.1
Silver-Dissolved (mg/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)				11	13	4.7	4.5	1.9	10	6.8	2.5	9.9	7.14
Sodium-Dissolved (mg/L)				950	1240	426	412	182	864	625	93	856	628
Sodium-Total (mg/L)	213	263	242					191	876	659	99	902	431
Solids-Suspended Sediment SSC (mg/L)	19	47	40	4510	20	13	13	12	11	19	4840	59	800
Solids-Total Dissolved Calculated (mg/L)	967	1120	1090	4520	5860	3110	3210	2610	4070	3840	609	3830	2903
Solids-Total Dissolved TDS (mg/L)	950	1100	1200	4600	6100	3500	3500	2900	4300	3800	620	4000	3048
Solids-Total Suspended TSS (mg/L)	27	51	31	2.5	20	10	12	12	12	17	4600	100	408
Sulfate (mg/L)	463	511	568	2180	2540	1430	1510	1470	2490	1570	317	1410	1372

BVC01													
Parameters	**7/24/2007**	**8/20/2007**	**9/26/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007***	**12/11/2007***	**1/11/2008**	**3/9/2008**	**4/14/2008**	**5/26/2008**	**6/17/2008**	**Average**
TDS Balance (0.80 - 1.20) (dec.%)	0.98	0.96	1.08	1.02	1.04	1.14	1.1	1.09	1.04	0.99	1.01	1.04	1.04
Thorium 230-Dissolved (pCi/L)			0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.0	0.1	0.1
Thorium 230-Suspended (pCi/L)			0.1	0.7	0.1	0.1	0.1	0.1	0.4	0.8	3.4	0.2	0.6
Thorium 230-Total (pCi/L)			0.1		0.1	0.1	0.1	0.1	0.4	1.1	3.4	0.3	0.6
Thorium 232-Dissolved (pCi/L)				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.013	0.0005	0.0015
Thorium 232-Total (mg/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.04	0.0025	0.006
Uranium-Dissolved (mg/L)			0.0075	0.0097	0.0182	0.0124	0.0129	0.0134	0.0269	0.0125	0.002	0.0092	0.012
Uranium-Suspended (mg/L)	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015	0.0004	0.00015	0.0009	0.00015	0.0031	0.00015	0.0005
Uranium-Total (mg/L)	0.004	0.0046	0.0076	0.0097	0.018	0.0142	0.0151	0.0139	0.0262	0.0127	0.0109	0.0113	0.012
Vanadium-Dissolved (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.4	0.05	0.08
Zinc-Dissolved (mg/L)				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc-Total (mg/L)	0.005	0.005	0.005	0.005	0.03	0.005	0.005	0.005	0.005	0.005	0.54	0.02	0.053

* Replicate

Water Quality Data from BVC04

	BVC04												
Parameters	**7/24/2007**	**8/20/2007**	**9/28/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007**	**1/11/2008**	**3/9/2008***	**3/9/2008***	**4/14/2008**	**5/26/2008**	**6/17/2008**	**Average**
A/C Balance (± 5) (%)	4.79	0.739	-3.55	-4.07	-1.84	-2.15	1.72	3.3	-1.79	-6.02	-1.82	9.39	-0.11
Alkalinity-Total as CaCO3 (mg/L)	80	106	110	166	176	190	220	118	116	186	84	148	142
Aluminum-Dissolved (mg/L)			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)			2	0.6	0.2	0.1	0.6	9.9	8.3	0.7	61.3	3.2	8.7
Ammonia (mg/L)				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anions (meq/L)	26.6	14.6	91.7	94.5	67.4	51	41.7	26.1	27.9	91.1	7.96	46.6	48.9
Arsenic-Dissolved (mg/L)			0.001	0.0005	0.001	0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.0005	0.0007
Arsenic-Total (mg/L)	0.003	0.003	0.002	0.0005	0.001	0.0005	0.001	0.004	0.004	0.003	0.023	0.004	0.004
Bacteria, Fecal Coliform (cfu/100ml)	110	350	12	62	1	10	4	32	36	1	1200	44	155
Barium-Dissolved (mg/L)			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.1	0.09
Bicarbonate as HCO3 (mg/L)	98	129	134	202	215	232	268	144	141	227	102	180	173
Boron-Dissolved (mg/L)			0.5	0.6	0.4	0.2	0.2	0.2	0.1	0.3	0.2	0.4	0.31
Boron-Total (mg/L)	0.2	0.05	0.4	0.6	0.4	0.2	0.2	0.1	0.1	0.4	0.2	0.4	0.27
Cadmium-Dissolved (mg/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)			288	382	426	449	463	225	220	455	51.5	300	326
Calcium-Total (mg/L)	146	77.8					508	217	223	401	81.3	309	245
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	29.3	14.8	85.4	87.1	65	48.8	43.2	27.9	27	80.8	7.68	56.2	47.8
Chloride (mg/L)	251	118	1310	1540	1040	601	255	339	364	1730	9	739	691
Chromium-Dissolved (mg/L)			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.008	0.0025	0.0025	0.0025	0.0031
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.08	0.025	0.030
Chromium-Trivalent (mg/L)			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

BVC04													
Parameters	**7/24/2007**	**8/20/2007**	**9/28/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007**	**1/11/2008**	**3/9/2008***	**3/9/2008***	**4/14/2008**	**5/26/2008**	**6/17/2008**	**Average**
Conductivity @ 25 C (umhos/cm)	2660	1400	7030	7130	5460	4370	3310	2640	2510	7540	784	514	3779
Copper-Dissolved (mg/L)			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.07	0.005	0.010
Fluoride (mg/L)	0.45	0.4	0.05	0.05	0.5	0.3	0.3	0.4	0.3	0.05	0.6	0.7	0.3
Gross Alpha-Total (pCi/L)	11.4	7	2.3	26.6	34.7	17.1	13.9	6.7	8.8	23.4	12.5	3.9	14.0
Gross Beta-Total (pCi/L)	13.9	15.4	1	14	48.1	11.7	7.2	-2	2.9	2.8	12.9	-12.4	9.6
Gross Gamma-Total (pCi/L)			10	10	1080	1100	10	10	10	0	0	0	223
Iron-Dissolved (mg/L)			0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.04	0.04	0.015	0.02
Iron-Total (mg/L)	1.34	2.48	1.34	0.39	0.31	0.19	0.68	8.65	8.28	0.74	63.1	2.69	7.5
Lead 210-Dissolved (pCi/L)			0.5	0.5	0.5	26	2.2				0.9		5.1
Lead 210-Suspended (pCi/L)			1	0.5	0.5	8.6	0.5				-30		-3.2
Lead 210-Total (pCi/L)					0.5	35	2.2				33		17.7
Lead-Dissolved (mg/L)			0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.002	0.003	0.001	0.0005	0.0005	0.0005	0.0005	0.007	0.008	0.0005	0.047	0.002	0.006
Magnesium-Dissolved (mg/L)			171	210	140	101	124	53.3	51.9	177	13.2	105	115
Magnesium-Total (mg/L)	47.7	24.8					125	53.5	54.8	161	32.8	111	76
Manganese-Dissolved (mg/L)			0.02	0.16	0.1	0.04	0.05	0.08	0.09	0.55	0.005	0.28	0.14
Manganese-Total (mg/L)	0.51	0.41	0.1	0.18	0.1	0.05	0.12	0.28	0.29	0.72	1.34	0.44	0.38
Mercury-Dissolved (mg/L)			0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00055	0.00055	0.00055	0.00005	0.00005	0.0004
Molybdenum-Dissolved (mg/L)			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.08	0.025	0.030
Nitrogen, Nitrate as N (mg/L)	0.05	0.4	0.05	0.05	0.1	0.3	0.4	0.5	0.5	0.05	0.3	0.05	0.23
pH	7.72	8.48	8.23	7.94	7.97	7.88	7.8	8.09	7.9	7.97	7.71	8.14	7.99
Polonium 210-Dissolved (pCi/L)			0.5	3	1.3	0.5	1.8				0.1		1.2

BVC04													
Parameters	**7/24/2007**	**8/20/2007**	**9/28/2007**	**10/17/2007**	**11/19/2007**	**12/11/2007**	**1/11/2008**	**3/9/2008***	**3/9/2008***	**4/14/2008**	**5/26/2008**	**6/17/2008**	**Average**
Polonium 210-Suspended (pCi/L)			1	0.5	1.7	2.9	0.5				3.7		1.7
Polonium 210-Total (pCi/L)					3	2.9	1.8				3.8		2.9
Potassium-Dissolved (mg/L)			10	9	7	5	5	5	5	6	6	9	7
Potassium-Total (mg/L)	10	10.1					5.4	6.6	6.4	14.4	20.4	9.7	10.4
Radium 226-Dissolved (pCi/L)			0.1	0.5		0.1	0.1	0.08	0.06	0.1	-0.06	0.1	0.1
Radium 226-Suspended (pCi/L)			0.45	0.1	0.8	0.3	0.1	2.5	-0.3	0.2	2.2	-0.7	0.6
Radium 226-Total (pCi/L)	0.1	0.7	0.7		0.8	0.3	0.1	0.1	-0.2	0.3	2.2	-0.53	0.4
Selenium-Dissolved (mg/L)			0.003	0.0005	0.004	0.002	0.003	0.002	0.001	0.0005	0.0025	0.0005	0.0019
Selenium-IV-Dissolved (mg/L)				0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.0005	0.0005	0.0005	0.0006
Selenium-IV-Total (mg/L)			0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.0005	0.0005	0.0005	0.0005	0.00055
Selenium-Total (mg/L)	0.002	0.002	0.0005	0.0005	0.004	0.002	0.003	0.002	0.002	0.0005	0.0005	0.0005	0.0016
Selenium-VI-Dissolved (mg/L)				0.0005	0.004	0.002	0.003	0.0005	0.001	0.0005	0.0005	0.0005	0.0014
Selenium-VI-Total (mg/L)			0.0005	0.0005	0.004	0.002	0.003	0.0005	0.001	0.0005	0.0005	0.0005	0.0013
Silica-Dissolved (mg/L)			1	2	9.1	11.9	14.1	7.4	7.2	2.6	2.8	4.1	6.2
Silica-Total (mg/L)	7.9	15.5					16.6	54.5	46.3	6	77.6	12.9	29.7
Silver-Dissolved (mg/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)				12	7.9	4.6	2.4	4.3	4.2	10	2.8	9.4	6.40
Sodium-Dissolved (mg/L)			1100	1160	736	415	224	280	266	995	89	743	601
Sodium-Total (mg/L)	404	194					259	273	277	1070	96	770	418
Solids-Suspended Sediment SSC (mg/L)	111	156	86	5820	14	11	24	323	326	40	2700	51	805
Solids-Total Dissolved Calculated (mg/L)	1770	945	5640	5700	4110	3140	2650	1680	1730	5340	516	3090	3026
Solids-Total Dissolved TDS (mg/L)	1800	910	5600	5800	4500	3500	3000	1800	1800	5100	520	3500	3153
Solids-Total Suspended TSS (mg/L)	100	160	47	16	16	10	25	270	290	32	2200	55	268
Sulfate (mg/L)	859	436	2520	2670	1920	1450	1450	681	736	1860	286	1090	1330
TDS Balance (0.80 - 1.20) (dec.%)	1.03	0.97	0.99	1.01	1.09	1.11	1.12	1.06	1.02	0.96	1.02	1.12	1.04

BVC04													
Parameters	7/24/2007	8/20/2007	9/28/2007	10/17/2007	11/19/2007	12/11/2007	1/11/2008	3/9/2008*	3/9/2008*	4/14/2008	5/26/2008	6/17/2008	Average
Thorium 230-Dissolved (pCi/L)			1.7	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0	0.3
Thorium 230-Suspended (pCi/L)			1	0.1	0.1	0.1	0.1	0.3	1	0.1	2.1	0.3	0.5
Thorium 230-Total (pCi/L)					0.1	0.1	0.1	0.5	1	0.2	2.1	0.3	0.6
Thorium 232-Dissolved (pCi/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.004	0.004	0.0005	0.009	0.0005	0.0018
Thorium 232-Total (mg/L)			0.0025	0.0025	0.0025	0.0025	0.0025	0.005	0.0025	0.0025	0.021	0.0025	0.005
Uranium-Dissolved (mg/L)			0.014	0.023	0.0189	0.0114	0.0141	0.0056	0.0055	0.0165	0.0017	0.0078	0.012
Uranium-Suspended (mg/L)	0.0006	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015	0.0014	0.0011	0.00015	0.0021	0.00015	0.0005
Uranium-Total (mg/L)	0.0073	0.003	0.0137	0.0239	0.0177	0.0135	0.0144	0.0061	0.0062	0.0169	0.0069	0.0097	0.012
Vanadium-Dissolved (mg/L)			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.06
Zinc-Dissolved (mg/L)			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc-Total (mg/L)	0.01	0.01	0.005	0.005	0.005	0.005	0.005	0.06	0.04	0.005	0.27	0.02	0.037

* Replicate

Water Quality Data from PSC01

PSC01			
Parameters	7/19/2007	7/18/2008*	Average
A/C Balance (± 5) (%)	-2.54	-4.89	-3.72
Alkalinity-Total as CaCO3 (mg/L)	56	104	80
Aluminum-Dissolved (mg/L)		0.05	0.05
Aluminum-Total (mg/L)		233	233
Ammonia (mg/L)		0.6	0.6
Anions (meq/L)	30.5	23.7	27.1
Arsenic-Dissolved (mg/L)		0.008	0.008
Arsenic-Total (mg/L)	0.003	0.073	0.038
Bacteria, Fecal Coliform (cfu/100ml)	4000		4000
Barium-Dissolved (mg/L)		0.3	0.3
Barium-Total (mg/L)	0.2	1.2	0.7
Bicarbonate as HCO3 (mg/L)	68	127	98
Boron-Dissolved (mg/L)		0.05	0.05
Boron-Total (mg/L)	0.05	0.6	0.33
Cadmium-Dissolved (mg/L)		0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)		422	422
Calcium-Total (mg/L)	510	949	730
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	29	21.5	25.3
Chloride (mg/L)	2.8	2	2.4
Chromium-Dissolved (mg/L)		0.005	0.005
Chromium-Total (mg/L)	0.025	0.34	0.183
Conductivity @ 25 C (umhos/cm)	1840	1710	1775
Copper-Dissolved (mg/L)		0.005	0.005
Copper-Total (mg/L)	0.005	0.21	0.108
Fluoride (mg/L)	0.14	0.2	0.17
Gross Alpha-Total (pCi/L)	8.8	7	7.9
Gross Beta-Total (pCi/L)	15.1	12.8	14.0
Gross Gamma-Total (pCi/L)		0	0
Iron-Dissolved (mg/L)		0.1	0.1
Iron-Total (mg/L)	2	253	128
Lead-Dissolved (mg/L)		0.0005	0.0005
Lead-Total (mg/L)	0.002	0.144	0.073
Magnesium-Dissolved (mg/L)		20.3	20.3
Magnesium-Total (mg/L)	30.5	387	209
Manganese-Dissolved (mg/L)		0.81	0.81
Manganese-Total (mg/L)	0.16	6.34	3.25
Mercury-Dissolved (mg/L)		0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0001	0.0003
Molybdenum-Dissolved (mg/L)		0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)		0.005	0.005
Nickel-Total (mg/L)	0.025	0.33	0.18

PSC01			
Parameters	**7/19/2007**	**7/18/2008***	**Average**
Nitrogen, Nitrate as N (mg/L)	0.77	0.05	0.41
pH	7.16	7.12	7.14
Potassium-Dissolved (mg/L)		10	10
Potassium-Total (mg/L)	12.4	87.5	50.0
Radium 226-Dissolved (pCi/L)		0.3	0.3
Radium 226-Suspended (pCi/L)		7.1	7.1
Radium 226-Total (pCi/L)	0.7	7.4	4.1
Selenium-Dissolved (mg/L)		0.0025	0.0025
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005
Selenium-Total (mg/L)	0.002		0.002
Selenium-VI-Dissolved (mg/L)		0.0005	0.0005
Silica-Dissolved (mg/L)		5.2	5.2
Silica-Total (mg/L)	16.5	64	40.3
Silver-Dissolved (mg/L)		0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		0.05	0.05
Sodium-Dissolved (mg/L)		4	4
Sodium-Total (mg/L)	6.3	6	6.2
Solids-Suspended Sediment SSC (mg/L)	134	9760	4947
Solids-Total Dissolved Calculated (mg/L)	2020	1530	1775
Solids-Total Dissolved TDS @ (mg/L)	1700	1600	1650
Solids-Total Suspended TSS @ (mg/L)	150	12000	6075
Sulfate (mg/L)	1400	1040	1220
TDS Balance (0.80 - 1.20) (dec.%)	0.86	1.06	0.96
Thorium 230-Dissolved (pCi/L)		0	0
Thorium 230-Suspended (pCi/L)		4.2	4.2
Thorium 230-Total (pCi/L)		4.2	4.2
Thorium 232-Dissolved (mg/L)		0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.038	0.0193
Thorium 232-Total (mg/L)		0.042	0.042
Uranium-Dissolved (mg/L)		0.0016	0.0016
Uranium-Suspended (mg/L)	0.0004	0.0131	0.0068
Uranium-Total (mg/L)	0.01	0.0206	0.0153
Vanadium-Dissolved (mg/L)		0.05	0.05
Vanadium-Total (mg/L)	0.05	0.5	0.28
Zinc-Dissolved (mg/L)		0.005	0.005
Zinc-Total (mg/L)	0.03	0.73	0.38

*Passive sampler bottle 2

Water Quality Data from PSC02

PSC02				
Parameters	7/19/2007	7/18/2008*	7/18/2008**	Average
A/C Balance (± 5) (%)	3.42	2.96	-4.26	0.71
Alkalinity-Total as CaCO3 (mg/L)	50	106	94	83
Aluminum-Dissolved (mg/L)		0.05	0.05	0.05
Aluminum-Total (mg/L)		324	322	323
Ammonia (mg/L)		0.6	0.4	0.5
Anions (meq/L)	14.5	27.6	31.5	24.5
Arsenic-Dissolved (mg/L)		0.008	0.003	0.006
Arsenic-Total (mg/L)	0.003	0.097	0.107	0.069
Bacteria, Fecal Coliform (cfu/100ml)	4400			4400
Barium-Dissolved (mg/L)		0.3	0.3	0.3
Barium-Total (mg/L)	0.3	1	1.1	0.8
Bicarbonate as HCO3 (mg/L)	61	129	115	102
Boron-Dissolved (mg/L)		0.05	0.05	0.05
Boron-Total (mg/L)	0.05	0.9	0.9	0.62
Cadmium-Dissolved (mg/L)		0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)		551	564	558
Calcium-Total (mg/L)	270	1710	1780	1253
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5
Cations (meq/L)	15.6	29.3	28.9	24.6
Chloride (mg/L)	1.6	1	3	1.9
Chromium-Dissolved (mg/L)		0.005	0.005	0.005
Chromium-Total (mg/L)	0.025	0.51	0.52	0.352
Conductivity @ 25 C (umhos/cm)	1240	2000	2220	1820
Copper-Dissolved (mg/L)		0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.33	0.32	0.22
Fluoride (mg/L)	0.14	0.2	0.2	0.18
Gross Alpha-Total (pCi/L)	1.9	14.6	33.3	16.6
Gross Beta-Total (pCi/L)	11.9	-9	-5	-0.7
Gross Gamma-Total (pCi/L)		0	0	0
Iron-Dissolved (mg/L)		0.06	0.015	0.038
Iron-Total (mg/L)	0.28	337	356	231
Lead-Dissolved (mg/L)		0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.002	0.229	0.24	0.157
Magnesium-Dissolved (mg/L)		16.8	22.4	19.6
Magnesium-Total (mg/L)	18	616	607	414
Manganese-Dissolved (mg/L)		0.8	0.86	0.83
Manganese-Total (mg/L)	0.12	10.8	11.4	7.4
Mercury-Dissolved (mg/L)		0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0001	0.0001	0.0002
Molybdenum-Dissolved (mg/L)		0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)		0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.54	0.51	0.36

PSC02				
Parameters	**7/19/2007**	**7/18/2008***	**7/18/2008****	**Average**
Nitrogen, Nitrate as N (mg/L)	0.56	0.05	0.3	0.30
pH	7.26	7.21	7.16	7.21
Potassium-Dissolved (mg/L)		8	15	11.5
Potassium-Total (mg/L)	8	106	115	76
Radium 226-Dissolved (pCi/L)		0.05	0.6	0.33
Radium 226-Suspended (pCi/L)		21.3	24.8	23.1
Radium 226-Total (pCi/L)	0.1	21.3	25.4	15.6
Selenium-Dissolved (mg/L)		0.0025	0.0025	0.0025
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.003			0.003
Selenium-VI-Dissolved (mg/L)		0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)		4.8	4.7	4.8
Silica-Total (mg/L)	7	85.4	84.9	59.1
Silver-Dissolved (mg/L)		0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		0.05	0.1	0.08
Sodium-Dissolved (mg/L)		3	8	5.5
Sodium-Total (mg/L)	2	5	10	5.7
Solids-Suspended Sediment SSC (mg/L)	108	35800	24800	20236
Solids-Total Dissolved Calculated (mg/L)	998	1880	2060	1646
Solids-Total Dissolved TDS (mg/L)	1100	2100	2200	1800
Solids-Total Suspended TSS (mg/L)	140	26000	20000	15380
Sulfate (mg/L)	645	1220	1420	1095
TDS Balance (0.80 - 1.20) (dec.%)	1.07	1.1	1.08	1.08
Thorium 230-Dissolved (pCi/L)		0	0.1	0.05
Thorium 230-Suspended (pCi/L)		12.6	20	16.3
Thorium 230-Total (pCi/L)		12.6	20.1	16.4
Thorium 232-Dissolved (mg/L)		0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.132	0.056	0.063
Thorium 232-Total (mg/L)		0.051	0.054	0.053
Uranium-Dissolved (mg/L)		0.0016	0.0172	0.0094
Uranium-Suspended (mg/L)	0.0005	0.0435	0.0543	0.0328
Uranium-Total (mg/L)	0.0012	0.0311	0.0888	0.0404
Vanadium-Dissolved (mg/L)		0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.7	0.8	0.5
Zinc-Dissolved (mg/L)		0.005	0.02	0.013
Zinc-Total (mg/L)	0.02	1.17	1.22	0.80

* Passive sampler bottle 1

** Passive sampler bottle 2

Water Quality Data from UNT01

UNT01	
Parameters	**7/18/2008**
A/C Balance (± 5) (%)	-7.33
Alkalinity-Total as CaCO3 (mg/L)	2.5
Aluminum-Dissolved (mg/L)	0.4
Aluminum-Total (mg/L)	8.1
Ammonia (mg/L)	0.4
Anions (meq/L)	5.89
Arsenic-Dissolved (mg/L)	0.0005
Arsenic-Total (mg/L)	0.03
Barium-Dissolved (mg/L)	0.05
Barium-Total (mg/L)	0.05
Bicarbonate as HCO3 (mg/L)	2.5
Boron-Dissolved (mg/L)	0.05
Boron-Total (mg/L)	0.05
Cadmium-Dissolved (mg/L)	0.0025
Cadmium-Total (mg/L)	0.0025
Calcium-Dissolved (mg/L)	51.6
Calcium-Total (mg/L)	59.2
Carbonate as CO3 (mg/L)	2.5
Cations (meq/L)	5.09
Chloride (mg/L)	1
Chromium-Dissolved (mg/L)	0.005
Chromium-Total (mg/L)	0.025
Conductivity @ 25 C (umhos/cm)	536
Copper-Dissolved (mg/L)	0.005
Copper-Total (mg/L)	0.01
Fluoride (mg/L)	0.3
Gross Alpha-Total (pCi/L)	6.1
Gross Beta-Total (pCi/L)	12.6
Gross Gamma-Total (pCi/L)	221
Iron-Dissolved (mg/L)	0.05
Iron-Total (mg/L)	8.93
Lead-Dissolved (mg/L)	0.0005
Lead-Total (mg/L)	0.008
Magnesium-Dissolved (mg/L)	22.4
Magnesium-Total (mg/L)	24.8
Manganese-Dissolved (mg/L)	3.87
Manganese-Total (mg/L)	5.06
Mercury-Dissolved (mg/L)	0.0005
Mercury-Total (mg/L)	0.0001
Molybdenum-Dissolved (mg/L)	0.05
Molybdenum-Total (mg/L)	0.05
Nickel-Dissolved (mg/L)	0.09
Nickel-Total (mg/L)	0.11
Nitrogen, Nitrate as N (mg/L)	0.6

UNT01	
Parameters	**7/18/2008**
pH	4.91
Potassium-Dissolved (mg/L)	8
Potassium-Total (mg/L)	10.1
Radium 226-Dissolved (pCi/L)	0.2
Radium 226-Suspended (pCi/L)	0.03
Radium 226-Total (pCi/L)	0.3
Selenium-Dissolved (mg/L)	0.0025
Selenium-IV-Dissolved (mg/L)	0.0005
Selenium-VI-Dissolved (mg/L)	0.0005
Silica-Dissolved (mg/L)	0.8
Silica-Total (mg/L)	12.5
Silver-Dissolved (mg/L)	0.0025
Silver-Total (mg/L)	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	0.05
Sodium-Dissolved (mg/L)	2.5
Sodium-Total (mg/L)	2
Solids-Suspended Sediment SSC (mg/L)	291
Solids-Total Dissolved Calculated (mg/L)	369
Solids-Total Dissolved TDS (mg/L)	380
Solids-Total Suspended TSS (mg/L)	290
Sulfate (mg/L)	278
TDS Balance (0.80 - 1.20) (dec.%)	1.02
Thorium 230-Dissolved (pCi/L)	0
Thorium 230-Suspended (pCi/L)	0
Thorium 230-Total (pCi/L)	-0.02
Thorium 232-Dissolved (mg/L)	0.0025
Thorium 232-Suspended (mg/L)	0.002
Thorium 232-Total (mg/L)	0.0025
Uranium-Dissolved (mg/L)	0.00015
Uranium-Suspended (mg/L)	0.00015
Uranium-Total (mg/L)	0.0009
Vanadium-Dissolved (mg/L)	0.05
Vanadium-Total (mg/L)	0.2
Zinc-Dissolved (mg/L)	0.06
Zinc-Total (mg/L)	0.09

Water Quality Data from SUB01

SUB01			
Parameters	3/24/2008	6/18/2008	Average
A/C Balance (± 5) (%)	4.36	1.86	3.11
Alkalinity-Total as CaCO3 (mg/L)	38	84	61
Aluminum-Dissolved (mg/L)	0.2	0.3	0.25
Aluminum-Total (mg/L)	22.4	52.8	37.6
Ammonia (mg/L)	0.05	1.2	0.63
Anions (meq/L)	2.17	2.54	2.36
Arsenic-Dissolved (mg/L)	0.001	0.003	0.002
Arsenic-Total (mg/L)	0.005	0.014	0.010
Bacteria, Fecal Coliform (cfu/100ml)	44	20	32
Barium-Dissolved (mg/L)	0.05	0.05	0.05
Barium-Total (mg/L)	0.1	0.2	0.15
Bicarbonate as HCO3 (mg/L)	46	102	74
Boron-Dissolved (mg/L)	0.05	0.1	0.08
Boron-Total (mg/L)	0.05	0.2	0.13
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	21	21.1	21.1
Calcium-Total (mg/L)	25.1	30.2	27.7
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	2.37	2.63	2.50
Chloride (mg/L)	3	5	4
Chromium-Dissolved (mg/L)	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.005	0.025	0.015
Chromium-Total (mg/L)	0.025	0.06	0.043
Chromium-Trivalent (mg/L)	0.005	0.06	0.033
Conductivity @ 25 C (umhos/cm)	230	250	240
Copper-Dissolved (mg/L)	0.005	0.005	0.005
Copper-Total (mg/L)	0.02	0.03	0.025
Fluoride (mg/L)	0.3	0.6	0.45
Gross Alpha-Total (pCi/L)	2.4	16.2	9.3
Gross Beta-Total (pCi/L)	5.1	20.2	12.7
Gross Gamma-Total (pCi/L)	10	0	5
Iron-Dissolved (mg/L)	0.15	0.31	0.23
Iron-Total (mg/L)	15.1	44.1	29.6
Lead 210-Dissolved (pCi/L)		0.7	0.7
Lead 210-Suspended (pCi/L)		-2.1	-2.1
Lead 210-Total (pCi/L)		-1.4	-1.4
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.009	0.026	0.018
Magnesium-Dissolved (mg/L)	4.4	4.4	4.4
Magnesium-Total (mg/L)	8.4	15.1	11.8
Manganese-Dissolved (mg/L)	0.02	0.24	0.13
Manganese-Total (mg/L)	0.18	0.77	0.48
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005

SUB01			
Parameters	3/24/2008	6/18/2008	Average
Mercury-Total (mg/L)	0.00005	0.0005	0.0003
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	1.2	0.05	0.63
pH	7.73	7.07	7.40
Polonium 210-Dissolved (pCi/L)		0.1	0.1
Polonium 210-Suspended (pCi/L)		1.3	1.3
Polonium 210-Total (pCi/L)		1.4	1.4
Potassium-Dissolved (mg/L)	4	8	6
Potassium-Total (mg/L)	8.3	20.9	14.6
Radium 226-Dissolved (pCi/L)	0.2	0.5	0.35
Radium 226-Suspended (pCi/L)	1	-0.2	0.4
Radium 226-Total (pCi/L)	1.2	0.3	0.75
Selenium-Dissolved (mg/L)	0.0005	0.0025	0.0015
Selenium-IV-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.001	0.0005	0.0008
Selenium-VI-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.001	0.0005	0.0008
Silica-Dissolved (mg/L)	8.6	7.9	8.25
Silica-Total (mg/L)	104	88.1	96.1
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	0.98	1.00	0.99
Sodium-Dissolved (mg/L)	18.9	20	19.5
Sodium-Total (mg/L)	17.8	21	19.4
Solids-Suspended Sediment SSC (mg/L)	198	393	296
Solids-Total Dissolved Calculated (mg/L)	162	164	163
Solids-Total Dissolved TDS @ (mg/L)	300	990	645
Solids-Total Suspended TSS @ (mg/L)	100	280	190
Sulfate (mg/L)	59	33	46
TDS Balance (0.80 - 1.20) (dec.%)	1.86	6.05	3.96
Thorium 230-Dissolved (pCi/L)	0.2	0.0	0.1
Thorium 230-Suspended (pCi/L)	0.2	0.4	0.3
Thorium 230-Total (pCi/L)	0.4	0.4	0.4
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.002	0.004	0.003
Thorium 232-Total (mg/L)	0.0025	0.012	0.0073
Uranium-Dissolved (mg/L)	0.00015	0.0003	0.0002
Uranium-Suspended (mg/L)	0.0006	0.0007	0.0007
Uranium-Total (mg/L)	0.0011	0.002	0.0016
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05
Zinc-Dissolved (mg/L)	0.005	0.01	0.008

SUB01			
Parameters	**3/24/2008**	**6/18/2008**	**Average**
Zinc-Total (mg/L)	0.06	0.13	0.10

Water Quality Data from SUB02

SUB02						
Parameters	9/27/2007	11/12/2007	2/10/2008	6/18/2008*	6/18/2008*	Average
A/C Balance (± 5) (%)	-4.01	-1.86	-3.33	4.36	3.39	-0.29
Alkalinity-Total as CaCO3 (mg/L)	92	102	90	96	98	96
Aluminum-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Ammonia (mg/L)		0.05	0.05	0.05	0.05	0.05
Anions (meq/L)	61.6	52.4	54.6	50.6	52.8	54.4
Arsenic-Dissolved (mg/L)	0.001	0.0005	0.001	0.0005	0.0005	0.0007
Arsenic-Total (mg/L)	0.0005	0.0005	0.0005	0.002	0.002	0.0011
Bacteria, Fecal Coliform (cfu/100ml)	2	1	1	1	1	1
Barium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	112	124	110	117	119	116
Boron-Dissolved (mg/L)	0.4	0.5	0.5	0.5	0.5	0.5
Boron-Total (mg/L)	0.5	0.4	0.5	0.5	0.5	0.5
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	622	561	538	609	620	590
Calcium-Total (mg/L)			579	602	627	603
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	56.8	50.5	51.1	55.2	56.5	54.0
Chloride (mg/L)	23	22	24	19	19	21
Chromium-Dissolved (mg/L)	0.005	0.005	0.025	0.005	0.005	0.009
Chromium-Hexavalent (mg/L)	0.025	0.0025	0.0025	0.005	0.02	0.011
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	3700	3340	3800	3540	3640	3604
Copper-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005
Fluoride (mg/L)	0.4	0.5	0.5	0.9	0.8	0.6
Gross Alpha-Total (pCi/L)	82.8	132	131	199	201	149
Gross Beta-Total (pCi/L)	55.9	83.3	81.5	80.1	88.7	77.9
Gross Gamma-Total (pCi/L)	10	1060	10	0	0	216
Iron-Dissolved (mg/L)	0.015	0.08	0.07	0.05	0.06	0.06
Iron-Total (mg/L)	0.14	0.23	0.22	0.18	0.25	0.20
Lead 210-Dissolved (pCi/L)	0.5	0.5		-1	-0.9	-0.2
Lead 210-Suspended (pCi/L)	0.5	0.5		1.5	-0.5	0.5
Lead 210-Total (pCi/L)		0.5		0.5	-1.4	-0.1
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium-Dissolved (mg/L)	212	180	198	204	211	201
Magnesium-Total (mg/L)			201	204	207	204
Manganese-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005
Manganese-Total (mg/L)	0.02	0.02	0.04	0.005	0.01	0.019
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

SUB02						
Parameters	9/27/2007	11/12/2007	2/10/2008	6/18/2008*	6/18/2008*	Average
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.005	0.005	0.025	0.005	0.005	0.009
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	0.05	0.1	0.2	0.05	0.05	0.09
pH	7.99	7.78	7.81	8.08	8.06	7.94
Polonium 210-Dissolved (pCi/L)	0.5	1.8		0	-0.2	0.5
Polonium 210-Suspended (pCi/L)	0.5	0.5		0.3	0.3	0.4
Polonium 210-Total (pCi/L)		1.5		0.3	0.1	0.6
Potassium-Dissolved (mg/L)	21	21	23	20	20	21
Potassium-Total (mg/L)			23.6	21.1	21.5	22.1
Radium 226-Dissolved (pCi/L)	0.6	0.6	0.4	0.7	0.6	0.6
Radium 226-Suspended (pCi/L)	0.1	0.1	0.1	-0.4	-0.5	-0.1
Radium 226-Total (pCi/L)		0.6	0.6	0.2	0.1	0.4
Selenium-Dissolved (mg/L)	0.006	0.002	0.002	0.0025	0.0025	0.003
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.001	0.002	0.002	0.003	0.001	0.0018
Selenium-VI-Dissolved (mg/L)		0.002	0.0005	0.002	0.001	0.001
Selenium-VI-Total (mg/L)	0.001	0.002	0.002	0.003	0.001	0.002
Silica-Dissolved (mg/L)	2	2.4	2.8	0.25	0.25	1.54
Silica-Total (mg/L)			2.9	0.25	0.25	1.13
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		1.6	1.6	1.5	1.6	1.6
Sodium-Dissolved (mg/L)	163	165	169	172	177	169
Sodium-Total (mg/L)			175	180	179	178
Solids-Suspended Sediment SSC (mg/L)	2.5	2.5	2.5	2.5	2.5	2.5
Solids-Total Dissolved Calculated (mg/L)	3950	3400	3510	3390	3520	3554
Solids-Total Dissolved TDS @ (mg/L)	3900	3900	2900	3800	3800	3660
Solids-Total Suspended TSS @ (mg/L)	2.5	2.5	10	7	5	5.40
Sulfate (mg/L)	2840	2390	2500	2310	2410	2490
TDS Balance (0.80 - 1.20) (dec.%)	0.99	1.15	0.83	1.12	1.07	1.03
Thorium 230-Dissolved (pCi/L)	0.1	0.1	0.4	0.1	0.1	0.2
Thorium 230-Suspended (pCi/L)	0.1	0.7	0.4	0.1	0.3	0.3
Thorium 230-Total (pCi/L)		0.1	0.5	0.2	0.4	0.3
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.164	0.171	0.177	0.175	0.174	0.172
Uranium-Suspended (mg/L)	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium-Total (mg/L)	0.168	0.162	0.168	0.19	0.19	0.18
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.10	0.06
Zinc-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005	0.005

SUB02						
Parameters	9/27/2007	11/12/2007	2/10/2008	6/18/2008*	6/18/2008*	Average
Zinc-Total (mg/L)	0.005	0.005	0.01	0.005	0.005	0.006

* Replicate

Water Quality Data from SUB03

SUB03			
Parameters	11/12/2007	6/18/2008	Average
A/C Balance (± 5) (%)	0.0673	4.34	2.20
Alkalinity-Total as CaCO3 (mg/L)	2.5	2.5	2.5
Aluminum-Dissolved (mg/L)	0.6	0.6	0.6
Aluminum-Total (mg/L)	0.7	1.2	1.0
Ammonia (mg/L)	0.1	0.1	0.1
Anions (meq/L)	12.9	10.7	11.8
Arsenic-Dissolved (mg/L)	0.0005	0.0005	0.0005
Arsenic-Total (mg/L)	0.0005	0.002	0.001
Bacteria, Fecal Coliform (cfu/100ml)	1	1	1
Barium-Dissolved (mg/L)	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	2.5	2.5	2.5
Boron-Dissolved (mg/L)	0.05	0.2	0.13
Boron-Total (mg/L)	0.05	0.1	0.08
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	128	130	129
Calcium-Total (mg/L)		132	132
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	12.9	11.7	12.3
Chloride (mg/L)	9	2	6
Chromium-Dissolved (mg/L)	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.0025	0.006	0.0043
Chromium-Total (mg/L)	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	1080	975	1028
Copper-Dissolved (mg/L)	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005
Fluoride (mg/L)	0.2	0.4	0.3
Gross Alpha-Total (pCi/L)	16.6	19.9	18.3
Gross Beta-Total (pCi/L)	38.8	21.8	30.3
Gross Gamma-Total (pCi/L)	1270	1080	1175
Iron-Dissolved (mg/L)	0.12	0.24	0.18
Iron-Total (mg/L)	0.16	1.1	0.63
Lead 210-Dissolved (pCi/L)	0.5	-3	-1.3
Lead 210-Suspended (pCi/L)	0.5	-0.8	-0.2
Lead 210-Total (pCi/L)	0.5	-3.8	-1.7
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.0005	0.0005
Magnesium-Dissolved (mg/L)	53.4	47.4	50.4
Magnesium-Total (mg/L)		48.6	48.6
Manganese-Dissolved (mg/L)	11.6	8.44	10.02
Manganese-Total (mg/L)	12.2	8.43	10.3
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005

SUB03			
Parameters	11/12/2007	6/18/2008	Average
Mercury-Total (mg/L)	0.0005	0.0005	0.0005
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.23	0.17	0.20
Nickel-Total (mg/L)	0.23	0.17	0.20
Nitrogen, Nitrate as N (mg/L)	0.05	0.05	0.05
pH	4.58	4.4	4.49
Polonium 210-Dissolved (pCi/L)	0.5	0	0.3
Polonium 210-Suspended (pCi/L)	0.5	0.5	0.5
Polonium 210-Total (pCi/L)	2.5	0.5	1.5
Potassium-Dissolved (mg/L)	35	16	26
Potassium-Total (mg/L)		17.9	17.9
Radium 226-Dissolved (pCi/L)	4.5	2.6	3.6
Radium 226-Suspended (pCi/L)	0.1	-0.09	0.01
Radium 226-Total (pCi/L)	4	2.5	3.3
Selenium-Dissolved (mg/L)	0.0005	0.0025	0.0015
Selenium-IV-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)	7.5	2.1	4.8
Silica-Total (mg/L)		3.8	3.8
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	0.15	0.05	0.10
Sodium-Dissolved (mg/L)	8.2	4	6.1
Sodium-Total (mg/L)		5	5
Solids-Suspended Sediment SSC (mg/L)	2.5	37	19.8
Solids-Total Dissolved Calculated (mg/L)	851	716	784
Solids-Total Dissolved TDS (mg/L)	970	820	895
Solids-Total Suspended TSS (mg/L)	6	26	16
Sulfate (mg/L)	699	510	605
TDS Balance (0.80 - 1.20) (dec.%)	1.14	1.15	1.15
Thorium 230-Dissolved (pCi/L)	0.1	0.0	0.1
Thorium 230-Suspended (pCi/L)	1.3	0.4	0.9
Thorium 230-Total (pCi/L)	0.1	0.3	0.2
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.0014	0.0023	0.0019
Uranium-Suspended (mg/L)	0.0008	0.0004	0.0006
Uranium-Total (mg/L)	0.0014	0.0031	0.0023
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.20	0.13
Zinc-Dissolved (mg/L)	0.16	0.10	0.13

SUB03			
Parameters	**11/12/2007**	**6/18/2008**	**Average**
Zinc-Total (mg/L)	0.17	0.08	0.13

Water Quality Data from SUB04

SUB04			
Parameters	11/12/2007	6/17/2008	Average
A/C Balance (± 5) (%)	-0.902	2.01	0.55
Alkalinity-Total as CaCO3 (mg/L)	2.5	2.5	2.5
Aluminum-Dissolved (mg/L)	1.2	0.4	0.8
Aluminum-Total (mg/L)	1.5	0.5	1.0
Ammonia (mg/L)	0.3	0.05	0.18
Anions (meq/L)	22.3	6.13	14.2
Arsenic-Dissolved (mg/L)	0.0005	0.0005	0.0005
Arsenic-Total (mg/L)	0.0005	0.001	0.001
Bacteria, Fecal Coliform (cfu/100ml)	1	1	1
Barium-Dissolved (mg/L)	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	2.5	2.5	2.5
Boron-Dissolved (mg/L)	0.1	0.05	0.08
Boron-Total (mg/L)	0.05	0.05	0.05
Cadmium-Dissolved (mg/L)	0.008	0.0025	0.005
Cadmium-Total (mg/L)	0.008	0.0025	0.005
Calcium-Dissolved (mg/L)	201	64.8	133
Calcium-Total (mg/L)		61.7	61.7
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	21.9	6.39	14.15
Chloride (mg/L)	18	2	10
Chromium-Dissolved (mg/L)	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.025	0.0025	0.0138
Chromium-Total (mg/L)	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	1650	692	1171
Copper-Dissolved (mg/L)	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005
Fluoride (mg/L)	0.6	0.4	0.5
Gross Alpha-Total (pCi/L)	13.6	3	8.3
Gross Beta-Total (pCi/L)	51.3	13	32.2
Gross Gamma-Total (pCi/L)	10	0	5
Iron-Dissolved (mg/L)	1.48	0.015	0.748
Iron-Total (mg/L)	3.73	0.18	1.96
Lead 210-Dissolved (pCi/L)	0.5	-2.1	-0.8
Lead 210-Suspended (pCi/L)	0.5	6.7	3.6
Lead 210-Total (pCi/L)	0.5	3	1.8
Lead-Dissolved (mg/L)	0.001	0.0005	0.0008
Lead-Total (mg/L)	0.0005	0.0005	0.0005
Magnesium-Dissolved (mg/L)	99.5	27.3	63.4
Magnesium-Total (mg/L)		26.8	26.8
Manganese-Dissolved (mg/L)	20.4	5.2	12.8
Manganese-Total (mg/L)	21.3	5.18	13.2
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005

SUB04			
Parameters	11/12/2007	6/17/2008	Average
Mercury-Total (mg/L)	0.0005	0.00005	0.00028
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.43	0.09	0.26
Nickel-Total (mg/L)	0.44	0.1	0.27
Nitrogen, Nitrate as N (mg/L)	0.05	0.05	0.05
pH	4.65	4.89	4.77
Polonium 210-Dissolved (pCi/L)	2.2	0.2	1.2
Polonium 210-Suspended (pCi/L)	0.5	0.2	0.4
Polonium 210-Total (pCi/L)	3.4	0.4	1.9
Potassium-Dissolved (mg/L)	46	14	30
Potassium-Total (mg/L)		14.7	14.7
Radium 226-Dissolved (pCi/L)	3.4	3.1	3.3
Radium 226-Suspended (pCi/L)	0.1	-0.4	-0.2
Radium 226-Total (pCi/L)	3.5	2.7	3.1
Selenium-Dissolved (mg/L)	0.0005	0.0025	0.0015
Selenium-IV-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.0005	0.001	0.0008
Selenium-VI-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.001	0.0008
Silica-Dissolved (mg/L)	16.2	3.7	10.0
Silica-Total (mg/L)		3.9	3.9
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	0.25	0.05	0.15
Sodium-Dissolved (mg/L)	17.1	2.9	10.0
Sodium-Total (mg/L)		3	3
Solids-Suspended Sediment SSC (mg/L)	12	2.5	7.3
Solids-Total Dissolved Calculated (mg/L)	1450	412	931
Solids-Total Dissolved TDS (mg/L)	1700	450	1075
Solids-Total Suspended TSS (mg/L)	23	2.5	12.8
Sulfate (mg/L)	1200	291	746
TDS Balance (0.80 - 1.20) (dec.%)	1.18	1.08	1.13
Thorium 230-Dissolved (pCi/L)	0.9	0	0.5
Thorium 230-Suspended (pCi/L)	0.5	0.2	0.4
Thorium 230-Total (pCi/L)	0.1	0.2	0.2
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.0021	0.0006	0.0014
Uranium-Suspended (mg/L)	0.0014	0.00015	0.0008
Uranium-Total (mg/L)	0.0024	0.0007	0.0016
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05
Zinc-Dissolved (mg/L)	0.37	0.07	0.22

SUB04			
Parameters	11/12/2007	6/17/2008	Average
Zinc-Total (mg/L)	0.41	0.06	0.24

Water Quality Data from SUB06

SUB06					
Parameters	9/27/2007	11/27/2007	2/10/2008	6/23/2008	Average
A/C Balance (± 5) (%)	2.82	-0.01	-2.74	3.85	0.98
Alkalinity-Total as CaCO3 (mg/L)	82	2.5	2.5	2.5	22.4
Aluminum-Dissolved (mg/L)	134	131	162	64.4	123
Aluminum-Total (mg/L)	160	0.05	166	62.8	97.2
Ammonia (mg/L)		3.4	4.5	2	3.3
Anions (meq/L)	119	119	154	66.6	114.7
Arsenic-Dissolved (mg/L)	0.003	0.004	0.004	0.002	0.003
Arsenic-Total (mg/L)	0.0015	0.003	0.004	0.002	0.003
Bacteria, Fecal Coliform (cfu/100ml)	1	1	1	1	1
Barium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	100	2.5	2.5	2.5	26.9
Boron-Dissolved (mg/L)	0.6	0.05	0.05	0.2	0.23
Boron-Total (mg/L)	0.7	0.05	0.05	0.2	0.25
Cadmium-Dissolved (mg/L)	0.026	0.026	0.036	0.015	0.026
Cadmium-Total (mg/L)	0.03	0.027	0.031	0.019	0.027
Calcium-Dissolved (mg/L)	512	471	534	328	461
Calcium-Total (mg/L)			571	330	451
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	126	119	145	72	116
Chloride (mg/L)	10	7	10	5	8
Chromium-Dissolved (mg/L)	0.005	0.005	0.025	0.01	0.011
Chromium-Hexavalent (mg/L)	0.025	0.01	0.005	0.0025	0.0106
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	6210	6390	7640	4110	6088
Copper-Dissolved (mg/L)	0.11	0.1	0.13	0.07	0.10
Copper-Total (mg/L)	0.14	0.1	0.13	0.06	0.11
Fluoride (mg/L)	3.7	5.5	7.4	3.9	5.1
Gross Alpha-Total (pCi/L)	3070	6780	8750	3570	5543
Gross Beta-Total (pCi/L)	2500	3200	3600	1200	2625
Gross Gamma-Total (pCi/L)	10	264	675	0	237
Iron-Dissolved (mg/L)	4.28	5.74	7.35	1.88	4.81
Iron-Total (mg/L)	4.66	5.93	8.22	2.19	5.25
Lead 210-Dissolved (pCi/L)	0.5	0.5		-0.6	0.1
Lead 210-Suspended (pCi/L)	0.5	0.5		3.7	1.6
Lead 210-Total (pCi/L)		0.5		3.1	1.8
Lead-Dissolved (mg/L)	0.001	0.001	0.001	0.0005	0.001
Lead-Total (mg/L)	0.0015	0.001	0.001	0.011	0.004
Magnesium-Dissolved (mg/L)	771	707	878	436	698
Magnesium-Total (mg/L)			930	439	685
Manganese-Dissolved (mg/L)	223	249	299	133	226
Manganese-Total (mg/L)	215	246	317	0.06	195
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.00005	0.0004

SUB06					
Parameters	9/27/2007	11/27/2007	2/10/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	5.07	5.58	6.45	3.01	5.03
Nickel-Total (mg/L)	6.53	0.025	6.14	3.03	3.93
Nitrogen, Nitrate as N (mg/L)	0.4	0.4	0.4	0.6	0.5
pH	3.22	3.2	3.19	3.52	3.28
Polonium 210-Dissolved (pCi/L)	0.5	1.7		0.3	0.8
Polonium 210-Suspended (pCi/L)	4.5	1.4		0.4	2.1
Polonium 210-Total (pCi/L)		3.1		0.7	1.9
Potassium-Dissolved (mg/L)	27	29	35	17	27
Potassium-Total (mg/L)			37.1	17.7	27.4
Radium 226-Dissolved (pCi/L)	4.3		2.2	2.2	2.9
Radium 226-Suspended (pCi/L)	0.1	0.1	1	-0.2	0.3
Radium 226-Total (pCi/L)		2	1.8	2	1.9
Selenium-Dissolved (mg/L)	0.035	0.014	0.017	0.009	0.019
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.013	0.013	0.016	0.008	0.013
Selenium-VI-Dissolved (mg/L)		0.014	0.002	0.009	0.008
Selenium-VI-Total (mg/L)	0.013	0.013	0.016	0.008	0.013
Silica-Dissolved (mg/L)	30	34.1	37.2	10.2	27.9
Silica-Total (mg/L)			41.5	11.4	26.5
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		0.59	0.7	0.44	0.58
Sodium-Dissolved (mg/L)	88	86.1	113	52	84.8
Sodium-Total (mg/L)			115	54	84.5
Solids-Suspended Sediment SSC (mg/L)	10	2.5	14	8	8.6
Solids-Total Dissolved Calculated (mg/L)	7090	7020	8910	4050	6768
Solids-Total Dissolved TDS (mg/L)	8100	8600	6800	4500	7000
Solids-Total Suspended TSS (mg/L)	5	5	10	14	9
Sulfate (mg/L)	5030	5700	7330	3180	5310
TDS Balance (0.80 - 1.20) (dec.%)	1.14	1.23	0.77	1.12	1.07
Thorium 230-Dissolved (pCi/L)	23.8	27.8	25.2	6.3	20.8
Thorium 230-Suspended (pCi/L)	0.1	1	0.1	0.2	0.4
Thorium 230-Total (pCi/L)		28.8	31.1	6.5	22.1
Thorium 232-Dissolved (mg/L)	0.011	0.01	0.013	0.0025	0.0091
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.01	0.01	0.013	0.005	0.010
Uranium-Dissolved (mg/L)	5.29	5.84	7.84	3.22	5.55
Uranium-Suspended (mg/L)	0.0013	0.0013	0.0019	0.0015	0.0015
Uranium-Total (mg/L)	7.38	5.83	6.73	3.61	5.89
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Zinc-Dissolved (mg/L)	4.31	4.45	6.58	2.99	4.58
Zinc-Total (mg/L)	5.55	4.46	7.22	2.92	5.04

Water Quality Data from SUB07

SUB07					
Parameters	9/27/2007	11/12/2007	3/24/2008	6/23/2008	Average
A/C Balance (± 5) (%)	2.11	-1.25	-3.45	-16.2	-4.70
Alkalinity-Total as CaCO3 (mg/L)	2.5	2.5	2.5	2.5	2.5
Aluminum-Dissolved (mg/L)	1.1	0.5	0.2	0.1	0.5
Aluminum-Total (mg/L)	1.7	0.6	0.4	0.8	0.9
Ammonia (mg/L)		2.4	2.4	0.2	1.7
Anions (meq/L)	10.4	6.18	3.95	3.59	6.03
Arsenic-Dissolved (mg/L)	0.001	0.0005	0.0005	0.0005	0.0006
Arsenic-Total (mg/L)	0.001	0.0005	0.0005	0.002	0.001
Bacteria, Fecal Coliform (cfu/100ml)	1	1	1	1	1
Barium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	2.5	2.5	2.5	2.5	2.5
Boron-Dissolved (mg/L)	0.2	0.05	0.05	0.05	0.09
Boron-Total (mg/L)	0.3	0.05	0.05	0.05	0.11
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	80	45.6	27.6	21.6	43.7
Calcium-Total (mg/L)			27	22.6	24.8
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	10.8	6.03	3.69	2.59	5.78
Chloride (mg/L)	10	7	4	2	6
Chromium-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.0025	0.01	0.025	0.0025	0.01
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	972	610	402	283	567
Copper-Dissolved (mg/L)	0.01	0.005	0.005	0.005	0.006
Copper-Total (mg/L)	0.02	0.005	0.005	0.005	0.009
Fluoride (mg/L)	0.2	0.2	0.2	0.2	0.2
Gross Alpha-Total (pCi/L)	5.3	5.1	1.9	5.8	4.5
Gross Beta-Total (pCi/L)	33.1	25.8	13.4	12.1	21.1
Gross Gamma-Total (pCi/L)	10	1290	10	0	328
Iron-Dissolved (mg/L)	0.44	0.48	1.58	0.11	0.65
Iron-Total (mg/L)	1.6	0.58	1.67	1.47	1.33
Lead 210-Dissolved (pCi/L)	0.5	0.5		-1.4	-0.1
Lead 210-Suspended (pCi/L)	0.65	0.5		0.6	0.6
Lead 210-Total (pCi/L)		0.5		-0.8	-0.2
Lead-Dissolved (mg/L)	0.003	0.004	0.0005	0.0005	0.002
Lead-Total (mg/L)	0.003	0.001	0.0005	0.013	0.004
Magnesium-Dissolved (mg/L)	49	26.3	16.4	12.2	26.0
Magnesium-Total (mg/L)			16	12.7	14.4
Manganese-Dissolved (mg/L)	8.21	5.54	2.85	1.98	4.65
Manganese-Total (mg/L)	9.04	5.55	2.76	2.03	4.85
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.00005	0.00005	0.0003

SUB07					
Parameters	9/27/2007	11/12/2007	3/24/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.17	0.12	0.06	0.03	0.10
Nickel-Total (mg/L)	0.17	0.12	0.07	0.025	0.10
Nitrogen, Nitrate as N (mg/L)	0.05	0.2	0.4	0.2	0.21
pH	3.81	4.12	4.16	4.97	4.27
Polonium 210-Dissolved (pCi/L)	0.5	1.8		0.4	0.9
Polonium 210-Suspended (pCi/L)	0.65	0.5		0.9	0.7
Polonium 210-Total (pCi/L)		1.3		1.3	1.3
Potassium-Dissolved (mg/L)	38	27	14	10	22.3
Potassium-Total (mg/L)			13.7	10.7	12.2
Radium 226-Dissolved (pCi/L)	0.8	0.7	0.4	-0.02	0.47
Radium 226-Suspended (pCi/L)	0.15	0.1	0.5	-0.4	0.09
Radium 226-Total (pCi/L)		0.5	0.8	-0.38	0.31
Selenium-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0025	0.001
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-VI-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)	0.5	0.25	1.4	2.8	1.2
Silica-Total (mg/L)			1.4	4.9	3.2
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		0.17	0.13	0.05	0.12
Sodium-Dissolved (mg/L)	10	6	3.4	2	5.4
Sodium-Total (mg/L)			3.5	2	2.8
Solids-Suspended Sediment SSC (mg/L)	17	16	2.5	26	15.4
Solids-Total Dissolved Calculated (mg/L)	682	399	254	225	390
Solids-Total Dissolved TDS (mg/L)	680	450	220	180	383
Solids-Total Suspended TSS (mg/L)	9	8	2.5	32	13
Sulfate (mg/L)	484	357	183	169	298
TDS Balance (0.80 - 1.20) (dec.%)	0.99	1.13	0.86	0.78	0.94
Thorium 230-Dissolved (pCi/L)	0.8	0.1	0.1	0	0.3
Thorium 230-Suspended (pCi/L)	0.15	0.9	0	0.2	0.3
Thorium 230-Total (pCi/L)		0.1	0.1	0.2	0.1
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.0011	0.0004	0.00015	0.0024	0.0010
Uranium-Suspended (mg/L)	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium-Total (mg/L)	0.0013	0.0004	0.0003	0.0006	0.0007
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.1	0.06
Zinc-Dissolved (mg/L)	0.17	0.14	0.06	0.04	0.10
Zinc-Total (mg/L)	0.2	0.12	0.08	0.02	0.11

Water Quality Data from SUB08

SUB08					
Parameters	9/26/2007	11/27/2007	2/10/2008	6/23/2008	Average
A/C Balance (± 5) (%)	-0.475	0.414	6.26	3.86	2.51
Alkalinity-Total as CaCO3 (mg/L)	102	136	246	130	154
Aluminum-Dissolved (mg/L)		0.05	0.05	0.05	0.05
Aluminum-Total (mg/L)		0.05	0.05	0.3	0.1
Ammonia (mg/L)		0.05	0.4	0.05	0.2
Anions (meq/L)	37.6	36.4	43.5	18.6	34.0
Arsenic-Dissolved (mg/L)		0.0005	0.002	0.003	0.0018
Arsenic-Total (mg/L)	0.003	0.0005	0.002	0.004	0.0024
Bacteria, Fecal Coliform (cfu/100ml)	4	2	1	12	4.8
Barium-Dissolved (mg/L)		0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	90	166	300	149	176
Boron-Dissolved (mg/L)		0.5	0.7	0.4	0.5
Boron-Total (mg/L)	0.48	0.5	0.7	0.4	0.5
Cadmium-Dissolved (mg/L)		0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)		134	186	79.4	133
Calcium-Total (mg/L)	102		181	83.1	122
Carbonate as CO3 (mg/L)	17	2.5	2.5	2.5	6.1
Cations (meq/L)	37.2	36.7	49.3	20.1	35.8
Chloride (mg/L)	34	26	42	14	29
Chromium-Dissolved (mg/L)		0.005	0.025	0.005	0.012
Chromium-Hexavalent (mg/L)		0.0025	0.008	0.0025	0.0043
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Chromium-Trivalent (mg/L)		0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	3630	3160	4180	1800	3193
Copper-Dissolved (mg/L)		0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005
Fluoride (mg/L)	0.4	0.4	0.4	0.5	0.4
Gross Alpha-Total (pCi/L)	0.5	4.8	12.2	14.1	7.9
Gross Beta-Total (pCi/L)	14	9.7	13.9	11.9	12.4
Gross Gamma-Total (pCi/L)		10	10	0	6.7
Iron-Dissolved (mg/L)		0.015	0.03	0.04	0.03
Iron-Total (mg/L)	0.11	0.1	0.34	0.53	0.27
Lead 210-Dissolved (pCi/L)	0.5	4.6		1.9	2.3
Lead 210-Suspended (pCi/L)	0.5	0.5		3.4	1.5
Lead 210-Total (pCi/L)	0.5	4.6		5.3	3.5
Lead-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.0005	0.0005	0.0005	0.013	0.0036
Magnesium-Dissolved (mg/L)		55.9	78.8	31.5	55.4
Magnesium-Total (mg/L)	60		78.3	33.5	57.3
Manganese-Dissolved (mg/L)		0.09	0.37	0.01	0.16
Manganese-Total (mg/L)	0.01	0.05	0.37	0.06	0.12
Mercury-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.0005	0.00005	0.0004

SUB08					
Parameters	9/26/2007	11/27/2007	2/10/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)		0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)		0.005	0.025	0.005	0.012
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	0.05	0.2	0.05	0.05	0.09
pH	9.37	7.59	7.54	8.92	8.36
Polonium 210-Dissolved (pCi/L)	0.5	0.5		0.0	0.3
Polonium 210-Suspended (pCi/L)	0.5	2.3		0.2	1.0
Polonium 210-Total (pCi/L)	0.5	2.3		0.2	1.0
Potassium-Dissolved (mg/L)		13	17	11	13.7
Potassium-Total (mg/L)	14		16.1	11.5	13.9
Radium 226-Dissolved (pCi/L)	0.1		0.1	-0.1	0.03
Radium 226-Suspended (pCi/L)	0.1	0.1	1.2	-0.4	0.3
Radium 226-Total (pCi/L)	0.1	0.5	0.4	-0.52	0.12
Selenium-Dissolved (mg/L)		0.0005	0.0005	0.0025	0.0012
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.001	0.0005	0.0005	0.0005	0.0006
Selenium-VI-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)		0.0005	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)		7	9.9	0.25	5.7
Silica-Total (mg/L)	0.5		11	0.8	4.1
Silver-Dissolved (mg/L)		0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		11	12	7.3	10.1
Sodium-Dissolved (mg/L)		576	759	304	546
Sodium-Total (mg/L)	618		789	324	577
Solids-Suspended Sediment SSC (mg/L)	2.5	11	66	13	23
Solids-Total Dissolved Calculated (mg/L)	2550	2470	3020	1270	2328
Solids-Total Dissolved TDS (mg/L)	2800	2600	3400	1300	2525
Solids-Total Suspended TSS (mg/L)	2.5	2.5	14	7	6.5
Sulfate (mg/L)	1880	1580	1790	747	1499
TDS Balance (0.80 - 1.20) (dec.%)	1.11	1.05	1.12	0.99	1.07
Thorium 230-Dissolved (pCi/L)	0.1	0.1	0.1	0.0	0.1
Thorium 230-Suspended (pCi/L)	0.1	0.1	0.1	0.0	0.1
Thorium 230-Total (pCi/L)	0.1	0.1	0.6	0.1	0.2
Thorium 232-Dissolved (mg/L)		0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.0017	0.0028	0.0025	0.0026	0.0024
Uranium-Suspended (mg/L)	0.00015	0.001	0.00015	0.00015	0.0004
Uranium-Total (mg/L)	0.0017	0.002	0.0023	0.0016	0.0019
Vanadium-Dissolved (mg/L)		0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.10	0.06
Zinc-Dissolved (mg/L)		0.02	0.02	0.005	0.015
Zinc-Total (mg/L)	0.005	0.005	0.02	0.005	0.0088

Water Quality Data from SUB09

SUB09			
Parameters	3/24/2008	6/23/2008	Average
A/C Balance (± 5) (%)	0.04	3.63	1.84
Alkalinity-Total as CaCO3 (mg/L)	28	80	54
Aluminum-Dissolved (mg/L)	0.05	0.2	0.13
Aluminum-Total (mg/L)	4.8	42.8	23.8
Ammonia (mg/L)	0.05	0.80	0.43
Anions (meq/L)	2.82	2.36	2.59
Arsenic-Dissolved (mg/L)	0.001	0.002	0.002
Arsenic-Total (mg/L)	0.002	0.017	0.010
Bacteria, Fecal Coliform (cfu/100ml)	2	190	96
Barium-Dissolved (mg/L)	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.2	0.13
Bicarbonate as HCO3 (mg/L)	34	98	66
Boron-Dissolved (mg/L)	0.1	0.1	0.1
Boron-Total (mg/L)	0.1	0.2	0.2
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	18.2	17.4	17.8
Calcium-Total (mg/L)	19.1	22.6	20.9
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	2.82	2.54	2.68
Chloride (mg/L)	8	4	6
Chromium-Dissolved (mg/L)	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.005	0.0025	0.0038
Chromium-Total (mg/L)	0.025	0.05	0.038
Chromium-Trivalent (mg/L)	0.005	0.05	0.028
Conductivity @ 25 C (umhos/cm)	297	249	273
Copper-Dissolved (mg/L)	0.005	0.005	0.005
Copper-Total (mg/L)	0.01	0.02	0.02
Fluoride (mg/L)	0.6	0.5	0.6
Gross Alpha-Total (pCi/L)	1.2	15.9	8.6
Gross Beta-Total (pCi/L)	14.7	20.6	17.7
Gross Gamma-Total (pCi/L)	10	0	5
Iron-Dissolved (mg/L)	0.04	0.21	0.13
Iron-Total (mg/L)	3.6	37	20.3
Lead 210-Dissolved (pCi/L)		-0.9	-0.9
Lead 210-Suspended (pCi/L)		4.5	4.5
Lead 210-Total (pCi/L)		3.6	3.6
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.004	0.045	0.025
Magnesium-Dissolved (mg/L)	11.1	10.3	10.7
Magnesium-Total (mg/L)	12.2	18.3	15.3
Manganese-Dissolved (mg/L)	0.005	0.08	0.043
Manganese-Total (mg/L)	0.02	0.23	0.13
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.00005	0.00005	0.00005

SUB09			
Parameters	3/24/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	0.05	0.3	0.18
pH	8.42	7.4	7.9
Polonium 210-Dissolved (pCi/L)		0	0
Polonium 210-Suspended (pCi/L)		0.9	0.9
Polonium 210-Total (pCi/L)		0.9	0.9
Potassium-Dissolved (mg/L)	15	13	14
Potassium-Total (mg/L)	17	24.9	21.0
Radium 226-Dissolved (pCi/L)	0.03	0.1	0.07
Radium 226-Suspended (pCi/L)	0.5	-0.06	0.22
Radium 226-Total (pCi/L)	0.5	0.04	0.27
Selenium-Dissolved (mg/L)	0.0005	0.0025	0.0015
Selenium-IV-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.001	0.002	0.002
Selenium-VI-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.002	0.0013
Silica-Dissolved (mg/L)	1.6	5.9	3.8
Silica-Total (mg/L)	19.5	73.4	46.5
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	0.62	0.42	0.52
Sodium-Dissolved (mg/L)	13.7	9	11.4
Sodium-Total (mg/L)	13.4	9	11
Solids-Suspended Sediment SSC (mg/L)	119	425	272
Solids-Total Dissolved Calculated (mg/L)	184	149	167
Solids-Total Dissolved TDS (mg/L)	250	280	265
Solids-Total Suspended TSS (mg/L)	100	190	145
Sulfate (mg/L)	95	28	62
TDS Balance (0.80 - 1.20) (dec.%)	1.37	1.87	1.62
Thorium 230-Dissolved (pCi/L)	0	0	0
Thorium 230-Suspended (pCi/L)	0.5	0.4	0.45
Thorium 230-Total (pCi/L)	0.5	0.5	0.5
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.001	0.005	0.003
Thorium 232-Total (mg/L)	0.0025	0.01	0.0063
Uranium-Dissolved (mg/L)	0.0005	0.0056	0.0031
Uranium-Suspended (mg/L)	0.0003	0.001	0.001
Uranium-Total (mg/L)	0.0008	0.0023	0.0016
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.1	0.08
Zinc-Dissolved (mg/L)	0.005	0.01	0.008
Zinc-Total (mg/L)	0.02	0.11	0.065

Water Quality Data from SUB10

SUB10			
Parameters	3/24/2008	6/23/2008	Average
A/C Balance (± 5) (%)	6.52	5.17	5.85
Alkalinity-Total as CaCO3 (mg/L)	54	38	46
Aluminum-Dissolved (mg/L)	0.05	0.3	0.18
Aluminum-Total (mg/L)	3	35	19
Ammonia (mg/L)	0.05	0.3	0.18
Anions (meq/L)	27.1	3.73	15.42
Arsenic-Dissolved (mg/L)	0.0005	0.0005	0.0005
Arsenic-Total (mg/L)	0.002	0.01	0.006
Bacteria, Fecal Coliform (cfu/100ml)	4	170	87
Barium-Dissolved (mg/L)	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.1	0.08
Bicarbonate as HCO3 (mg/L)	66	46	56
Boron-Dissolved (mg/L)	0.1	0.05	0.08
Boron-Total (mg/L)	0.05	0.1	0.08
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	248	34	141
Calcium-Total (mg/L)	255	39.6	147
Carbonate as CO3 (mg/L)	2.5	2.5	2.5
Cations (meq/L)	30.9	4.14	17.5
Chloride (mg/L)	32	3	18
Chromium-Dissolved (mg/L)	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.005	0.0025	0.0038
Chromium-Total (mg/L)	0.025	0.05	0.038
Chromium-Trivalent (mg/L)	0.005	0.05	0.028
Conductivity @ 25 C (umhos/cm)	2490	419	1455
Copper-Dissolved (mg/L)	0.005	0.005	0.005
Copper-Total (mg/L)	0.01	0.02	0.015
Fluoride (mg/L)	0.2	0.3	0.3
Gross Alpha-Total (pCi/L)	9	16.3	12.7
Gross Beta-Total (pCi/L)	36.5	22.1	29.3
Gross Gamma-Total (pCi/L)	10	0	5
Iron-Dissolved (mg/L)	0.015	0.14	0.078
Iron-Total (mg/L)	2.89	33.7	18.3
Lead 210-Dissolved (pCi/L)		0.1	0.1
Lead 210-Suspended (pCi/L)		5.2	5.2
Lead 210-Total (pCi/L)		5.3	5.3
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.003	0.039	0.021
Magnesium-Dissolved (mg/L)	103	14.5	58.8
Magnesium-Total (mg/L)	105	20.6	62.8
Manganese-Dissolved (mg/L)	0.02	0.04	0.03
Manganese-Total (mg/L)	0.04	0.35	0.20
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.00005	0.00005	0.00005

SUB10			
Parameters	3/24/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.005	0.005	0.005
Nickel-Total (mg/L)	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	0.05	0.6	0.33
pH	8.19	6.96	7.58
Polonium 210-Dissolved (pCi/L)		0	0
Polonium 210-Suspended (pCi/L)		1.1	1.1
Polonium 210-Total (pCi/L)		1.1	1.1
Potassium-Dissolved (mg/L)	41	13	27
Potassium-Total (mg/L)	42.3	23.1	32.7
Radium 226-Dissolved (pCi/L)	0.1	0.2	0.2
Radium 226-Suspended (pCi/L)	1.1	0.6	0.9
Radium 226-Total (pCi/L)	1.2	0.8	1.0
Selenium-Dissolved (mg/L)	0.0005	0.0025	0.0015
Selenium-IV-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Dissolved (mg/L)	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)	0.25	4.3	2.28
Silica-Total (mg/L)	10.4	64.6	37.5
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)	2.8	0.7	1.8
Sodium-Dissolved (mg/L)	208	19	114
Sodium-Total (mg/L)	209	19	114
Solids-Suspended Sediment SSC (mg/L)	195	737	466
Solids-Total Dissolved Calculated (mg/L)	1870	258	1064
Solids-Total Dissolved TDS (mg/L)	2100	410	1255
Solids-Total Suspended TSS (mg/L)	250	220	235
Sulfate (mg/L)	1210	135	673
TDS Balance (0.80 - 1.20) (dec.%)	1.1	1.59	1.35
Thorium 230-Dissolved (pCi/L)	0.1	0.1	0.1
Thorium 230-Suspended (pCi/L)	0.5	0.3	0.4
Thorium 230-Total (pCi/L)	0.6	0.5	0.6
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.003	0.005	0.004
Thorium 232-Total (mg/L)	0.0025	0.015	0.0088
Uranium-Dissolved (mg/L)	0.0027	0.0005	0.0016
Uranium-Suspended (mg/L)	0.0007	0.0008	0.0008
Uranium-Total (mg/L)	0.0033	0.0022	0.0028
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.1	0.08
Zinc-Dissolved (mg/L)	0.005	0.01	0.008
Zinc-Total (mg/L)	0.01	0.09	0.05

Water Quality Data from SUB11

SUB11					
Parameters	9/27/2007	11/27/2007	3/24/2008	6/23/2008	Average
A/C Balance (± 5) (%)	-4.19	4.5	10.9	7.71	4.73
Alkalinity-Total as CaCO3 (mg/L)	122	56	18	6	51
Aluminum-Dissolved (mg/L)	0.7	0.05	0.2	0.3	0.31
Aluminum-Total (mg/L)	1.2	0.5	1.9	9.6	3.3
Ammonia (mg/L)		2.1	0.05	0.05	0.73
Anions (meq/L)	2.88	1.72	0.66	1.05	1.58
Arsenic-Dissolved (mg/L)	0.002	0.002	0.0005	0.001	0.0014
Arsenic-Total (mg/L)	0.006	0.005	0.004	0.005	0.005
Bacteria, Fecal Coliform (cfu/100ml)	14	12	1	20	12
Barium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Barium-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Bicarbonate as HCO3 (mg/L)	149	68	22	7	62
Boron-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Boron-Total (mg/L)	0.1	0.05	0.05	0.05	0.06
Cadmium-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Cadmium-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Calcium-Dissolved (mg/L)	22	14.8	6.3	11.2	13.6
Calcium-Total (mg/L)			6.7	12.3	9.5
Carbonate as CO3 (mg/L)	2.5	2.5	2.5	2.5	2.5
Cations (meq/L)	2.65	1.88	0.83	1.23	1.65
Chloride (mg/L)	4	2	1	0.5	1.9
Chromium-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005
Chromium-Hexavalent (mg/L)	0.025	0.0025	0.005	0.0025	0.009
Chromium-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Chromium-Trivalent (mg/L)	0.005	0.005	0.005	0.005	0.005
Conductivity @ 25 C (umhos/cm)	202	188	68.7	131	147.4
Copper-Dissolved (mg/L)	0.005	0.005	0.005	0.005	0.005
Copper-Total (mg/L)	0.005	0.005	0.005	0.005	0.005
Fluoride (mg/L)	0.4	0.3	0.2	0.2	0.3
Gross Alpha-Total (pCi/L)	2.9	2	1.4	9.4	3.9
Gross Beta-Total (pCi/L)	10.6	9.1	5.8	10.4	9.0
Gross Gamma-Total (pCi/L)	10	1100	10	0	280
Iron-Dissolved (mg/L)	1.93	0.61	1.7	0.72	1.24
Iron-Total (mg/L)	0.015	31.8	15.7	21.4	17.2
Lead 210-Dissolved (pCi/L)	0.5	0.5		3.2	1.4
Lead 210-Suspended (pCi/L)	8.2	0.5		5	4.6
Lead 210-Total (pCi/L)		0.5		8.2	4.4
Lead-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Lead-Total (mg/L)	0.002	0.002	0.003	0.021	0.007
Magnesium-Dissolved (mg/L)	6	4.2	1.9	3.2	3.8
Magnesium-Total (mg/L)			2.1	4.3	3.2
Manganese-Dissolved (mg/L)	1.8	1.52	0.57	0.74	1.16
Manganese-Total (mg/L)	2.67	1.66	0.66	0.91	1.48
Mercury-Dissolved (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Mercury-Total (mg/L)	0.0005	0.0005	0.00005	0.00005	0.0003

SUB11					
Parameters	9/27/2007	11/27/2007	3/24/2008	6/23/2008	Average
Molybdenum-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Molybdenum-Total (mg/L)	0.05	0.05	0.05	0.05	0.05
Nickel-Dissolved (mg/L)	0.03	0.005	0.005	0.005	0.011
Nickel-Total (mg/L)	0.025	0.025	0.025	0.025	0.025
Nitrogen, Nitrate as N (mg/L)	0.05	0.1	0.05	0.1	0.08
pH	7.04	6.41	6.68	5.96	6.52
Polonium 210-Dissolved (pCi/L)	0.5	0.5		-0.2	0.3
Polonium 210-Suspended (pCi/L)	1	1.8		1.1	1.3
Polonium 210-Total (pCi/L)		1.8		0.9	1.4
Potassium-Dissolved (mg/L)	13	11	4	6	9
Potassium-Total (mg/L)			5.2	9	7.1
Radium 226-Dissolved (pCi/L)	0.7		0.1	-0.1	0.2
Radium 226-Suspended (pCi/L)	0.2	0.1	0.8	-0.4	0.2
Radium 226-Total (pCi/L)		0.1	0.9	-0.51	0.2
Selenium-Dissolved (mg/L)	0.002	0.0005	0.0005	0.0025	0.0014
Selenium-IV-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-IV-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Selenium-VI-Dissolved (mg/L)		0.0005	0.0005	0.0005	0.0005
Selenium-VI-Total (mg/L)	0.0005	0.0005	0.0005	0.0005	0.0005
Silica-Dissolved (mg/L)	8	7.1	0.8	2.6	4.6
Silica-Total (mg/L)			6.1	20.1	13.1
Silver-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Silver-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Sodium Adsorption Ratio (SAR) (meq/L)		0.3	0.24	0.19	0.24
Sodium-Dissolved (mg/L)	6	5.1	2.7	3	4.2
Sodium-Total (mg/L)			1.9	2	2.0
Solids-Suspended Sediment SSC (mg/L)	72	120	77	189	115
Solids-Total Dissolved Calculated (mg/L)	155	97	42	79	93
Solids-Total Dissolved TDS (mg/L)	220	140	90	200	163
Solids-Total Suspended TSS (mg/L)	79	120	61	74	84
Sulfate (mg/L)	15	25	12	43	24
TDS Balance (0.80 - 1.20) (dec.%)	1.43	1.48	2.14	2.56	1.90
Thorium 230-Dissolved (pCi/L)	1.6	0.1	0.2	0	0.5
Thorium 230-Suspended (pCi/L)	0.2	3	0	0.1	0.8
Thorium 230-Total (pCi/L)		3	0.2	0.2	1.1
Thorium 232-Dissolved (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Thorium 232-Suspended (mg/L)	0.0005	0.001	0.0005	0.0005	0.0006
Thorium 232-Total (mg/L)	0.0025	0.0025	0.0025	0.0025	0.0025
Uranium-Dissolved (mg/L)	0.0336	0.0009	0.00015	0.00015	0.0087
Uranium-Suspended (mg/L)	0.0004	0.0017	0.0003	0.00015	0.0006
Uranium-Total (mg/L)	0.0004	0.0016	0.00015	0.0008	0.0007
Vanadium-Dissolved (mg/L)	0.05	0.05	0.05	0.05	0.05
Vanadium-Total (mg/L)	0.05	0.05	0.05	0.1	0.06
Zinc-Dissolved (mg/L)	0.04	0.03	0.005	0.03	0.026
Zinc-Total (mg/L)	0.02	0.005	0.01	0.03	0.02

APPENDIX 6.1-E

STATISTICS FOR SURFACE WATER CONSTITUENTS AT OR ABOVE PQL

Appendix 6.1-E
Statistics for Surface Water Xonstituents at or above PQL by Xonstituent

Constituent, Unit	PQL	n Analyzed	n Detected	% exceeding detection	Mean	StDev	Q1	Median	Q3
Microbiological									
Bacteria, Fecal Coliform (cfu/100ml)	2	81	51	63.0%	510.1	1260	12	32	170
Major Anions and Cations									
Anions (meq/L)		81	81	100%	43.8	34.3	13.7	43.5	62.5
Bicarbonate as HCO3 (mg/L)	5	81	70	86.4%	179.8	98.9	102	156	240.3
Carbonate as CO3 (mg/L)	5	81	1	1.2%	17.0			17	
Sulfate (mg/L)	36	81	81	100%	1636	1447	473.5	1450	2365
Chloride (mg/L)	1	82	81	98.8%	265	394.1	9.5	78	338
Fluoride (mg/L)	0.1	81	75	92.6%	0.666	1.135	0.3	0.4	0.5
Nitrogen, Nitrate as N (mg/L)	0.1	81	36	44.4%	0.387	0.218	0.225	0.4	0.5
Cations (meq/L)		81	81	100%	43.5	33.4	13.85	43.5	61.55
Ammonia as N (mg/L)	1	61	16	26.2%	1.32	1.34	0.225	0.8	2.325
Sodium-Dissolved (mg/L)	0.8	66	66	100%	380.5	411.4	19.75	198.5	652.8
Calcium-Dissolved (mg/L)	0.5	66	66	100%	276.2	195.1	72.83	294	451.3
Magnesium-Dissolved (mg/L)	0.5	66	66	100%	132.4	168.0	27.05	104	172
Potassium-Dissolved (mg/L)	0.5	66	66	100%	13.67	9.64	6	11	17
Silica-Dissolved (mg/L)	0.5	66	59	89.4%	7.76	7.32	2.8	6.1	10.2
General Water Quality Indicators									
Alkalinity-Total as CaCO3 (mg/L)	5	81	70	86.4%	148.3	80.7	87	132	198.5
Anion/Cation Balance (± 5) (%)		81	81	100%	0.15	4.18	-2.62	0.04	3.345
Conductivity @ 25 C (umhos/cm)	5	81	81	100%	3319	2328	1028	3340	5145
pH	0.01	81	81	100%	7.30	1.46	7.33	7.81	8.09
Sodium Adsorption Ratio (meq/L)	0.1	61	58	95.1%	4.93	4.39	0.995	3.65	8.65
Solids-Total Dissolved TDS (mg/L)	5	81	81	100%	2928	2172	960	2900	4050
Solids-Total Dissolved Calculated (mg/L)	5	81	81	100%	2787	2125	898	2920	3905

Constituent, Unit	PQL	n Analyzed	n Detected	% exceeding detection	Mean	StDev	Q1	Median	Q3
TDS Balance (0.80 - 1.20) (dec.%)		81	81	100%	1.19	0.61	0.995	1.06	1.12
Solids-Suspended Sediment SSC (mg/L)	5	81	70	86.4%	662.1	1661	14	50	190.5
Solids-Total Suspended TSS (mg/L)	5	81	73	90.1%	282	945	11	26	100
Metals, Dissolved									
Aluminum-Dissolved (mg/L)	0.1	66	19	28.8%	26.23	53.98	0.2	0.5	1.2
Arsenic-Dissolved (mg/L)	0.001	66	27	40.9%	0.0017	0.001	0.001	0.001	0.002
Barium-Dissolved (mg/L)	0.1	66	1	1.5%	0.10			0.1	
Boron-Dissolved (mg/L)	0.1	66	52	78.8%	0.298	0.169	0.2	0.2	0.4
Cadmium-Dissolved (mg/L)	0.005	66	5	7.6%	0.022	0.011	0.0115	0.026	0.031
Chromium-Dissolved (mg/L)	0.05	66	1	1.5%	0.010			0.01	
Copper-Dissolved (mg/L)	0.01	66	5	7.6%	0.084	0.047	0.04	0.1	0.12
Iron-Dissolved (mg/L)	0.03	66	36	54.5%	0.848	1.655	0.05	0.145	0.6925
Lead-Dissolved (mg/L)	0.001	66	6	9.1%	0.0018	0.0013	0.001	0.001	0.0033
Manganese-Dissolved (mg/L)	0.01	66	56	84.8%	17.63	60.63	0.07	0.26	1.935
Mercury-Dissolved (mg/L)	0.001	66	0	0.0%					
Molybdenum-Dissolved (mg/L)	0.1	66	0	0.0%					
Nickel-Dissolved (mg/L)	0.05	66	16	24.2%	1.342	2.295	0.03	0.145	2.365
Selenium-Dissolved (mg/L)	0.001	66	20	30.3%	0.0058	0.0081	0.002	0.0025	0.0055
Selenium-IV-Dissolved (mg/L)	0.001	61	2	3.3%	0.0015	0.0007		0.0015	
Selenium-VI-Dissolved (mg/L)	0.001	61	15	24.6%	0.0034	0.0035	0.002	0.002	0.003
Silver-Dissolved (mg/L)	0.005	66	0	0.0%					
Thorium 232-Dissolved (mg/L)	0.005	66	3	4.5%	0.011	0.002	0.01	0.011	0.013
Uranium-Dissolved (mg/L)	0.003	70	66	94.3%	0.359	1.390	0.0025	0.0125	0.0240
Vanadium-Dissolved (mg/L)	0.1	66	0	0.0%					
Zinc-Dissolved (mg/L)	0.01	66	22	33.3%	0.893	1.869	0.02	0.05	0.22
Metals, Suspended									
Thorium 232-Suspended (mg/L)	0.001	81	15	18.5%	0.0074	0.009	0.003	0.004	0.009
Uranium-Suspended (mg/L)	0.0003	81	37	45.7%	0.00128	0.0013	0.0005	0.0009	0.0015
Metals, Total									

Constituent, Unit	PQL	n Analyzed	n Detected	% exceeding detection	Mean	StDev	Q1	Median	Q3
Aluminum-Total (mg/L)	0.1	66	53	80.3%	19.94	42.61	0.40	1.20	9.20
Arsenic-Total (mg/L)	0.001	81	60	74.1%	0.0050	0.008	0.002	0.002	0.004
Barium-Total (mg/L)	0.1	81	14	17.3%	0.343	0.344	0.10	0.20	0.575
Boron-Total (mg/L)	0.2	81	63	77.8%	0.312	0.163	0.20	0.30	0.40
Cadmium-Total (mg/L)	0.005	81	5	6.2%	0.023	0.010	0.0135	0.027	0.031
Calcium-Total (mg/L)	1	57	57	100%	242.2	182.8	71.9	217	373.5
Chromium-Total (mg/L)	0.05	81	7	8.6%	0.116	0.070	0.05	0.08	0.19
Chromium-Hexavalent (mg/L)		66	6	9.1%	0.0093	0.005	0.0058	0.008	0.012
Chromium-Trivalent (mg/L)	0.01	66	3	4.5%	0.053	0.006	0.050	0.050	0.060
Copper-Total (mg/L)	0.01	81	16	19.8%	0.059	0.047	0.02	0.045	0.10
Iron-Total (mg/L)	0.03	81	80	98.8%	8.785	23.31	0.2575	0.695	3.553
Lead-Total (mg/L)	0.001	81	37	45.7%	0.0165	0.030	0.002	0.003	0.013
Magnesium-Total (mg/L)	0.5	57	57	100%	106.1	138.19	28.75	70.5	133
Manganese-Total (mg/L)	0.01	81	80	98.8%	11.00	50.12	0.12	0.34	1.175
Mercury-Total (mg/L)	0.001	91	0	0.0%					
Molybdenum-Total (mg/L)	0.1	81	0	0.0%					
Nickel-Total (mg/L)	0.05	81	14	17.3%	1.244	2.291	0.095	0.16	1.088
Potassium-Total (mg/L)	0.5	57	57	100%	14.94	8.32	8.9	13.2	19
Selenium-Total (mg/L)	0.002	81	41	50.6%	0.0030	0.003	0.001	0.002	0.003
Selenium-IV-Total (mg/L)	0.001	66	2	3.0%	0.0010	0.0000		0.001	
Selenium-VI-Total (mg/L)	0.001	66	23	34.8%	0.0037	0.004	0.001	0.002	0.003
Silica-Total (mg/L)	0.5	57	54	94.7%	22.20	25.09	6.175	11	25.45
Silver-Total (mg/L)	0.005	81	0	0.0%					
Sodium-Total (mg/L)	0.5	57	57	100%	361.51	352.51	42.0	213.0	654.5
Thorium 232-Total (mg/L)	0.005	73	12	16.4%	0.0194	0.015	0.01	0.0125	0.035
Uranium-Total (mg/L)	0.0003	81	79	97.5%	0.3187	1.335	0.0024	0.0122	0.018
Vanadium-Total (mg/L)	0.1	81	11	13.6%	0.18	0.11	0.1	0.1	0.3
Zinc-Total (mg/L)	0.01	81	41	50.6%	0.583	1.569	0.02	0.05	0.185
Radionuclides									

Constituent, Unit	PQL	n Analyzed	n Detected	% exceeding detection	Mean	StDev	Q1	Median	Q3
Lead 210-Dissolved (pCi/L)	1	46	23	50.0%	2.7	6.0	-0.9	0.7	4.6
Lead 210-Suspended (pCi/L)	1	46	21	45.7%	3.68	9.51	1.05	4.4	7.45
Lead 210-Total (pCi/L)	1	37	23	62.2%	7.8	10.1	2.2	4.6	12.0
Polonium 210-Dissolved (pCi/L)	1	46	30	65.2%	1.0	1.0	0	0.75	1.8
Polonium 210-Suspended (pCi/L)	1	46	27	58.7%	1.73	1.253	0.9	1.4	2.5
Polonium 210-Total (pCi/L)	1	37	32	86.5%	2.1	1.31	0.95	2.05	3.25
Radium 226-Dissolved (pCi/L)	0.2	63	48	76.2%	0.75	1.14	0.1	0.25	0.7
Radium 226-Suspended (pCi/L)	0.2	70	40	57.1%	0.526	1.207	-0.4	0.3	1
Radium 226-Total (pCi/L)	0.2	73	51	69.9%	0.95	1.41	0.10	0.60	1.50
Thorium 230-Dissolved (pCi/L)	0.2	70	43	61.4%	2.12	6.60	0	0.1	0.3
Thorium 230-Suspended (pCi/L)	0.2	70	47	67.1%	0.740	0.893	0.2	0.4	0.9
Thorium 230-Total (pCi/L)	0.2	61	41	67.2%	2.35	6.46	0.2	0.5	1.3
Gross Alpha-Total (pCi/L)	1	81	80	98.8%	299.8	1320.0	6.775	15.9	26.4
Gross Beta-Total (pCi/L)	2	81	77	95.1%	153.4	619.1	9.2	13.4	22.1
Gross Gamma-Total (pCi/L)	20	66	37	56.1%	394	535	0.0	0.0	1075

PQL = Practical Quantitation Limit. The concentration that can be reliably measured within specified limits during routine laboratory operating conditions, below which results are reported as "less than PQL".
n Analyzed = The number of samples analyzed for a particular constituent.
n Detected = The number of samples where a particular constituent was detected at or above the PQL.
Mean = Arithmetic mean of those constituents detected above detection limit
StDev = Standard deviation of those constituents detected at or above PQL.
Q1 = First Quartile. The value holding ranked position 0.25 x (n Detected + 1) for each constituent. Value may be interpolated.
Q3 = Third Quartile. The value holding ranked position 0.75 x (n Detected + 1) for each constituent. Value may be interpolated.
Median = The middle value of ranked n Detected. Value may be interpolated.

APPENDIX 6.1-F

MINIMUM AND MAXIMUM RESULT FOR SAMPLED CONSTITUENT ABOVE PQL

Appendix 6.1-F
Minimum and Maximum Result for Sampled Constituent above PQL, Sampled Site and Date of Sampling

	Minimum at or above PQL			Maximum at or above PQL		
Constituent, Unit	Concentration	Site ID	Collection Date	Concentration	Site ID	Collection Date
Microbiological						
Bacteria, Fecal Coliform (cfu/100ml)	2	Sub09	3/24/2008	5700	BVC01	5/26/2008
Major Anions and Cations						
Anions (meq/L)	0.66	Sub11	3/24/2008	154	Sub06	2/10/2008
Bicarbonate as HCO3 (mg/L)	7.0	Sub11	6/23/2008	429	CHR05	10/17/2007
Carbonate as CO3 (mg/L)	17.0	Sub08	9/26/2007	17.0	Sub08	9/26/2007
Sulfate (mg/L)	12.0	Sub11	3/24/2008	7330	Sub06	2/10/2008
Chloride (mg/L)	1.0	Sub11	3/24/2008	1730	BVC04	4/14/2008
Fluoride (mg/L)	0.1	CHR01	9/26/2007	7.4	Sub06	2/10/2008
Nitrogen, Nitrate as N (mg/L)	0.1	Sub11	6/23/2008	1.20	Sub01	3/24/2008
Cations (meq/L)	0.83	Sub11	3/24/2008	145	Sub06	2/10/2008
Ammonia as N (mg/L)	0.10	Sub03	6/18/2008	4.5	Sub06	2/10/2008
Sodium-Dissolved (mg/L)	2.0	Sub07	6/23/2008	1530	CHR01	11/19/2007
Calcium-Dissolved (mg/L)	6.3	Sub11	3/24/2008	622	Sub02	9/27/2007
Magnesium-Dissolved (mg/L)	1.9	Sub11	3/24/2008	878	Sub06	2/10/2008
Potassium-Dissolved (mg/L)	4.0	Sub01	3/24/2008	46	Sub04	11/12/2007
Silica-Dissolved (mg/L)	0.8	Sub11	3/24/2008	37.2	Sub06	2/10/2008
General Water Quality Indicators						
Alkalinity-Total as CaCO3 (mg/L)	6.0	Sub11	6/23/2008	352	CHR05	10/17/2007
Anion/Cation Balance (± 5) (%)	-16.2	Sub07	6/23/2008	10.9	Sub11	3/24/2008
Conductivity @ 25 C (umhos/cm)	68.7	Sub11	3/24/2008	7640	Sub06	2/10/2008
pH	3.19	Sub06	2/10/2008	9.37	Sub08	9/26/2007
Sodium Adsorption Ratio (meq/L)	0.13	Sub07	3/24/2008	15	CHR01	11/19/2007
Solids-Total Dissolved TDS (mg/L)	90	Sub11	3/24/2008	8600	Sub06	11/27/2007

	Minimum at or above PQL			Maximum at or above PQL		
Constituent, Unit	Concentration	Site ID	Collection Date	Concentration	Site ID	Collection Date
Solids-Total Dissolved Calculated (mg/L)	42	Sub11	3/24/2008	8910	Sub06	2/10/2008
TDS Balance (0.80 - 1.20) (dec.%)	0.77	Sub06	2/10/2008	6.05	Sub01	6/18/2008
Solids-Suspended Sediment SSC (mg/L)	5.0	CHR01	4/16/2008	7040	CHR05	10/17/2007
Solids-Total Suspended TSS (mg/L)	5.0	Sub02	6/18/2008	4900	CHR05	5/26/2008
Metals, Dissolved						
Aluminum-Dissolved (mg/L)	0.10	Sub07	6/23/2008	162	Sub06	2/10/2008
Arsenic-Dissolved (mg/L)	0.001	Sub11	6/23/2008	0.004	Sub06	2/10/2008
Barium-Dissolved (mg/L)	0.10	BVC01	6/17/2008	0.10	BVC01	6/17/2008
Boron-Dissolved (mg/L)	0.10	Sub09	6/23/2008	0.70	Sub24	2/12/2008
Cadmium-Dissolved (mg/L)	0.008	Sub04	11/12/2007	0.036	Sub06	2/10/2008
Chromium-Dissolved (mg/L)	0.010	Sub06	6/23/2008	0.010	Sub06	6/23/2008
Copper-Dissolved (mg/L)	0.010	Sub07	9/27/2007	0.13	Sub06	2/10/2008
Iron-Dissolved (mg/L)	0.03	BVC01	6/17/2008	7.35	Sub06	2/10/2008
Lead-Dissolved (mg/L)	0.0010	Sub06	2/10/2008	0.004	Sub07	11/12/2007
Manganese-Dissolved (mg/L)	0.010	Sub08	6/23/2008	299	Sub06	2/10/2008
Mercury-Dissolved (mg/L)						
Molybdenum-Dissolved (mg/L)						
Nickel-Dissolved (mg/L)	0.01	BVC01	3/9/2008	6.45	Sub06	2/10/2008
Selenium-Dissolved (mg/L)	0.001	BVC04	3/9/2008	0.035	Sub06	9/27/2007
Selenium-IV-Dissolved (mg/L)	0.001	BVC04	3/9/2008	0.002	BVC01	5/26/2008
Selenium-VI-Dissolved (mg/L)	0.001	Sub02	6/18/2008	0.014	Sub06	11/27/2007
Silver-Dissolved (mg/L)						
Thorium 232-Dissolved (mg/L)	0.01	Sub06	11/27/2007	0.013	Sub06	2/10/2008
Uranium-Dissolved (mg/L)	0.0003	Sub01	6/18/2008	7.84	Sub06	2/10/2008
Vanadium-Dissolved (mg/L)						
Zinc-Dissolved (mg/L)	0.01	Sub10	6/23/2008	6.58	Sub06	2/10/2008
Metals, Suspended						
Thorium 232-Suspended (mg/L)	0.001	Sub09	3/24/2008	0.035	CHR05	5/26/2008

	Minimum at or above PQL			Maximum at or above PQL		
Constituent, Unit	Concentration	Site ID	Collection Date	Concentration	Site ID	Collection Date
Uranium-Suspended (mg/L)	0.0003	Sub09	3/24/2008	0.0067	CHR05	5/26/2008
Metals, Total						
Aluminum-Total (mg/L)	0.10	Sub24	2/12/2008	170.0	CHR05	5/26/2008
Arsenic-Total (mg/L)	0.001	Sub04	6/17/2008	0.0480	BVC01	5/26/2008
Barium-Total (mg/L)	0.10	Sub10	6/23/2008	1.10	BVC01	5/26/2008
Boron-Total (mg/L)	0.10	Sub10	6/23/2008	0.700	Sub08	2/10/2008
Cadmium-Total (mg/L)	0.008	Sub04	11/12/2007	0.031	Sub06	2/10/2008
Calcium-Total (mg/L)	6.7	Sub11	3/24/2008	627	Sub02	6/18/2008
Chromium-Total (mg/L)	0.05	Sub10	6/23/2008	0.190	CHR01	5/26/2008
Chromium-Hexavalent (mg/L)	0.005	Sub02	6/18/2008	0.020	Sub02	6/18/2008
Chromium-Trivalent (mg/L)	0.050	Sub10	6/23/2008	0.060	Sub01	6/18/2008
Copper-Total (mg/L)	0.01	Sub10	3/24/2008	0.140	Sub06	9/27/2007
Iron-Total (mg/L)	0.05	BVC01	11/19/2007	137.0	BVC01	5/26/2008
Lead-Total (mg/L)	0.001	Sub06	2/10/2008	0.118	CHR01	5/26/2008
Magnesium-Total (mg/L)	2.1	Sub11	3/24/2008	930	Sub06	2/10/2008
Manganese-Total (mg/L)	0.01	Sub02	6/18/2008	317	Sub06	2/10/2008
Mercury-Total (mg/L)						
Molybdenum-Total (mg/L)						
Nickel-Total (mg/L)	0.07	Sub07	3/24/2008	6.53	Sub06	9/27/2007
Potassium-Total (mg/L)	5.1	CHR05	2/12/2008	42.3	Sub10	3/24/2008
Selenium-Total (mg/L)	0.001	Sub02	6/18/2008	0.016	Sub06	2/10/2008
Selenium-IV-Total (mg/L)	0.001	BVC04	3/9/2008	0.001	BVC04	3/9/2008
Selenium-VI-Total (mg/L)	0.001	Sub02	6/18/2008	0.016	Sub06	2/10/2008
Silica-Total (mg/L)	0.8	Sub08	6/23/2008	104	Sub01	3/24/2008
Silver-Total (mg/L)						
Sodium-Total (mg/L)	1.90	Sub11	3/24/2008	1180	CHR01	9/26/2007
Thorium 232-Total (mg/L)	0.005	Sub06	6/23/2008	0.046	CHR01	5/26/2008
Uranium-Total (mg/L)	0.0003	Sub07	3/24/2008	7.38	Sub06	9/27/2007

	Minimum at or above PQL			Maximum at or above PQL		
Constituent, Unit	Concentration	Site ID	Collection Date	Concentration	Site ID	Collection Date
Vanadium-Total (mg/L)	0.10	Sub10	6/23/2008	0.40	BVC01	5/26/2008
Zinc-Total (mg/L)	0.01	Sub10	3/24/2008	7.22	Sub06	2/10/2008
Radionuclides						
Lead 210-Dissolved (pCi/L)	-3.0	Sub03	6/18/2008	26.0	BVC04	12/11/2007
Lead 210-Suspended (pCi/L)	-30	BVC04	5/26/2008	22.0	CHR05	1/11/2008
Lead 210-Total (pCi/L)	-3.8	Sub03	6/18/2008	35.0	BVC04	12/11/2007
Polonium 210-Dissolved (pCi/L)	-0.30	CHR05	5/26/2008	3.0	BVC04	10/17/2007
Polonium 210-Suspended (pCi/L)	0.20	Sub08	6/23/2008	4.5	Sub06	9/27/2007
Polonium 210-Total (pCi/L)	0.10	Sub02	6/18/2008	4.6	CHR01	5/26/2008
Radium 226-Dissolved (pCi/L)	-0.10	Sub11	6/23/2008	4.5	Sub03	11/12/2007
Radium 226-Suspended (pCi/L)	-0.90	CHR01	6/17/2008	4.0	CHR01	5/26/2008
Radium 226-Total (pCi/L)	-0.95	BVC01	6/17/2008	5.10	BVC01	5/26/2008
Thorium 230-Dissolved (pCi/L)	0.0	Sub11	6/23/2008	27.8	Sub06	11/27/2007
Thorium 230-Suspended (pCi/L)	-0.1	CHR05	6/17/2008	3.8	CHR01	11/19/2007
Thorium 230-Total (pCi/L)	-0.04	CHR05	6/17/2008	31.1	Sub06	2/10/2008
Gross Alpha-Total (pCi/L)	1.20	Sub09	3/24/2008	8750	Sub06	2/10/2008
Gross Beta-Total (pCi/L)	-27	BVC01	4/14/2008	3600	Sub06	2/10/2008
Gross Gamma-Total (pCi/L)	0.0	Sub10	6/23/2008	1310	BVC01	12/11/2007

POWERTECH (USA) INC.

APPENDIX 6.1-G

PERCENT DETECTIONS BY CONSTITUENT COMPARISON BETWEEN STREAMS AND SUBIMPOUNDMENTS

POWERTECH (USA) INC.

Appendix 6.1-G
Percent Detections by Constituent Comparison between Streams and Subimpoundments

Constituent, Unit	Streams			Subimpoundments			Total		
	Samples	Detects	Percent Detected	Samples	Detects	Percent Detected	Samples	Detects	Absolute difference in percent detects from streams and impoundments
Microbiological									
Bacteria, Fecal Coliform (cfu/100ml)	49	39	80%	32	12	38%	81	51	42%
Major Anions and Cations									
Anions (meq/L)	49	49	100%	32	32	100%	81	81	0%
Bicarbonate as HCO3 (mg/L)	49	49	100%	32	21	66%	81	70	34%
Carbonate as CO3 (mg/L)	49	0	0%	32	1	3%	81	1	3%
Sulfate (mg/L)	49	49	100%	32	32	100%	81	81	0%
Chloride (mg/L)	50	50	100%	32	31	97%	82	81	3%
Fluoride (mg/L)	49	43	88%	32	32	100%	81	75	12%
Nitrogen, Nitrate as N (mg/L)	49	21	43%	32	15	47%	81	36	4%
Cations (meq/L)	49	49	100%	32	32	100%	81	81	0%
Ammonia (mg/L)	34	1	3%	27	15	56%	61	16	53%
Sodium-Dissolved (mg/L)	35	35	100%	31	31	100%	66	66	0%
Calcium-Dissolved (mg/L)	35	35	100%	31	31	100%	66	66	0%
Magnesium-Dissolved (mg/L)	35	35	100%	31	31	100%	66	66	0%
Potassium-Dissolved (mg/L)	35	35	100%	31	31	100%	66	66	0%
Silica-Dissolved (mg/L)	35	34	97%	31	25	81%	66	59	16%
General Water Quality Indicators									
Alkalinity-Total as CaCO3 (mg/L)	49	49	100%	32	21	66%	81	70	34%
Anion/Cation Balance (± 5) (%)	49	49	100%	32	32	100%	81	81	0%
Conductivity @ 25 C (umhos/cm)	49	49	100%	32	32	100%	81	81	0%

Constituent, Unit	Streams			Subimpoundments			Total		
	Samples	Detects	Percent Detected	Samples	Detects	Percent Detected	Samples	Detects	Absolute difference in percent detects from streams and impoundments
pH	49	49	100%	32	32	100%	81	81	0%
Sodium Adsorption Ratio (meq/L)	34	34	100%	27	24	89%	61	58	11%
Solids-Total Dissolved TDS (mg/L)	49	49	100%	32	32	100%	81	81	0%
Solids-Total Dissolved Calculated (mg/L)	49	49	100%	32	32	100%	81	81	0%
TDS Balance (0.80 - 1.20) (dec.%)	49	49	100%	32	32	100%	81	81	0%
Solids-Suspended Sediment (mg/L)	49	48	98%	32	22	69%	81	70	29%
Solids-Total Suspended TSS (mg/L)	49	47	96%	32	26	81%	81	73	15%
Metals, Dissolved									
Aluminum-Dissolved (mg/L)	35	0	0%	31	19	61%	66	19	61%
Arsenic-Dissolved (mg/L)	35	11	31%	31	16	52%	66	27	20%
Barium-Dissolved (mg/L)	35	1	3%	31	0	0%	66	1	3%
Boron-Dissolved (mg/L)	35	34	97%	31	18	58%	66	52	39%
Cadmium-Dissolved (mg/L)	35	0	0%	31	5	16%	66	5	16%
Chromium-Dissolved (mg/L)	35	0	0%	31	1	3%	66	1	3%
Copper-Dissolved (mg/L)	35	0	0%	31	5	16%	66	5	16%
Iron-Dissolved (mg/L)	35	9	26%	31	27	87%	66	36	61%
Lead-Dissolved (mg/L)	35	0	0%	31	6	19%	66	6	19%
Manganese-Dissolved (mg/L)	35	31	89%	31	25	81%	66	56	8%
Nickel-Dissolved (mg/L)	35	3	9%	31	13	42%	66	16	33%
Selenium-Dissolved (mg/L)	35	13	37%	31	7	23%	66	20	15%
Selenium-IV-Dissolved (mg/L)	34	2	6%	27	0	0%	61	2	6%
Selenium-VI-Dissolved (mg/L)	34	9	26%	27	6	22%	61	15	4%
Thorium 232-Dissolved (mg/L)	35	0	0%	31	3	10%	66	3	10%
Uranium-Dissolved (mg/L)	38	38	100%	32	28	88%	70	66	13%
Zinc-Dissolved (mg/L)	35	2	6%	31	20	65%	66	22	59%

Constituent, Unit	Streams			Subimpoundments			Total		
	Samples	Detects	Percent Detected	Samples	Detects	Percent Detected	Samples	Detects	Absolute difference in percent detects from streams and impoundments
Metals, Suspended									
Thorium 232-Suspended (mg/L)	49	8	16%	32	7	22%	81	15	6%
Uranium-Suspended (mg/L)	49	20	41%	32	17	53%	81	37	12%
Metals, Total									
Aluminum-Total (mg/L)	35	30	86%	31	23	74%	66	53	12%
Arsenic-Total (mg/L)	49	39	80%	32	21	66%	81	60	14%
Barium-Total (mg/L)	49	10	20%	32	4	13%	81	14	8%
Boron-Total (mg/L)	49	44	90%	32	19	59%	81	63	30%
Cadmium-Total (mg/L)	49	0	0%	32	5	16%	81	5	16%
Calcium-Total (mg/L)	36	36	100%	21	21	100%	57	57	0%
Chromium-Total (mg/L)	49	4	8%	32	3	9%	81	7	1%
Chromium-Hexavalent (mg/L)	35	2	6%	31	4	13%	66	6	7%
Chromium-Trivalent (mg/L)	35	0	0%	31	3	10%	66	3	10%
Copper-Total (mg/L)	49	5	10%	32	11	34%	81	16	24%
Iron-Total (mg/L)	49	49	100%	32	31	97%	81	80	3%
Lead-Total (mg/L)	49	20	41%	32	17	53%	81	37	12%
Magnesium-Total (mg/L)	36	36	100%	21	21	100%	57	57	0%
Manganese-Total (mg/L)	49	49	100%	32	31	97%	81	80	3%
Nickel-Total (mg/L)	49	4	8%	32	10	31%	81	14	23%
Potassium-Total (mg/L)	36	36	100%	21	21	100%	57	57	0%
Selenium-Total (mg/L)	49	27	55%	32	14	44%	81	41	11%
Selenium-IV-Total (mg/L)	35	1	3%	31	1	3%	66	2	0%
Selenium-VI-Total (mg/L)	35	11	31%	31	12	39%	66	23	7%
Silica-Total (mg/L)	36	36	100%	21	18	86%	57	54	14%
Sodium-Total (mg/L)	36	36	100%	21	21	100%	57	57	0%

Constituent, Unit	Streams			Subimpoundments			Total		
	Samples	Detects	Percent Detected	Samples	Detects	Percent Detected	Samples	Detects	Absolute difference in percent detects from streams and impoundments
Thorium 232-Total (mg/L)	41	5	12%	32	7	22%	73	12	10%
Uranium-Total (mg/L)	49	49	100%	32	30	94%	81	79	6%
Vanadium-Total (mg/L)	49	4	8%	32	7	22%	81	11	14%
Zinc-Total (mg/L)	49	19	39%	32	22	69%	81	41	30%
Radionuclides									
Lead 210-Dissolved (pCi/L)	23	11	48%	23	12	52%	46	23	4%
Lead 210-Suspended (pCi/L)	23	9	39%	23	12	52%	46	21	13%
Lead 210-Total (pCi/L)	18	11	61%	19	12	63%	37	23	2%
Polonium 210-Dissolved (pCi/L)	23	15	65%	23	15	65%	46	30	0%
Polonium 210-Suspended (pCi/L)	23	12	52%	23	15	65%	46	27	13%
Polonium 210-Total (pCi/L)	18	14	78%	19	18	95%	37	32	17%
Radium 226-Dissolved (pCi/L)	34	21	62%	29	27	93%	63	48	31%
Radium 226-Suspended (pCi/L)	38	22	58%	32	18	56%	70	40	2%
Radium 226-Total (pCi/L)	45	25	56%	28	26	93%	73	51	37%
Thorium 230-Dissolved (pCi/L)	38	20	53%	32	23	72%	70	43	19%
Thorium 230-Suspended (pCi/L)	38	23	61%	32	24	75%	70	47	14%
Thorium 230-Total (pCi/L)	33	20	61%	28	21	75%	61	41	14%
Gross Alpha-Total (pCi/L)	49	49	100%	32	31	97%	81	80	3%
Gross Beta-Total (pCi/L)	49	45	92%	32	32	100%	81	77	8%
Gross Gamma-Total (pCi/L)	35	20	57%	31	17	55%	66	37	2%