

**APPENDIX E**

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NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS RADON  
FLUX MEASUREMENT PROGRAM  
WHITE MESA MILL SITE, 2010

PREPARED BY  
TELLCO ENVIRONMENTAL

**National Emission Standards for Hazardous Air Pollutants  
2010 Radon Flux Measurement Program  
White Mesa Millsite  
6425 South Highway 191  
Blanding, Utah 84511**

Prepared for: Denison Mines (USA) Corporation  
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## **1. INTRODUCTION**

During June 2010, Telco Environmental, LLC (Telco) of Grand Junction, Colorado, provided support to Denison Mines (USA) Corporation (Denison Mines) regarding the required National Emission Standards for Hazardous Air Pollutants (NESHAPs) Radon Flux Measurements. These measurements are required of Denison Mines to show compliance with Federal Regulations. The standard is not an average per facility, but is an average per radon source.

Telco was contracted to provide radon canisters, equipment, and canister placement personnel as well as lab analysis of samples for calendar year 2010. The sampling effort commenced on June 14, 2010. Denison Mines personnel provided support for loading and unloading charcoal from the canisters. This report includes the procedures employed by Denison Mines and Telco to obtain the results presented in Section 9.0 of this report.

## **2. SITE DESCRIPTION**

The White Mesa Millsite facility is located in San Juan County in southeastern Utah, a few miles south of Blanding, Utah. The mill began operations in 1980 for the purpose of extracting uranium and vanadium from feed stocks. Processing effluents from the operation are deposited in four "lined" cells, which vary in depth. Cells 1 and 4A are used for "liquor" storage, while Cells 2 and 3 are used for sand tailings/liquor deposition. The areas tested for radon emanation are representative of the disposition of tailings for the 2010 reporting period. Since the June 2010 sampling event, Denison Mines has received authorization from the Utah Division of Radiation Control to construct a fifth cell, Cell 4B.

Cell 2 has a total area of approximately 270,624 square meters (m<sup>2</sup>). This cell was comprised of one region, a soil cover of varying thickness, which required NESHAPs radon flux monitoring. There were no exposed tailings or standing liquid within Cell 2.

Cell 3 has a total area of 288,858 m<sup>2</sup>. This cell was comprised of two source regions that required NESHAPs radon monitoring: at the time of the June 2010 sampling event, approximately 147,251 m<sup>2</sup> of the cell had a soil cover of varying thickness, and approximately 75,556 m<sup>2</sup> of exposed tailings "beaches". The remaining approximately 66,051 m<sup>2</sup> was covered by standing liquid in "low" elevation areas. The standing liquid level was a little higher than in 2009. Raffinate crystals and residue from the repair of the original Cell 4A in 2006 have been placed in Cell 3.

The Cell 2 and Cell 3 cover regions were approximately the same size during the 2010 radon flux sampling as they were for the 2009 sampling program; the standing liquid area in Cell 3 was a little larger. Due to worker health and safety concerns expressed by both Denison Mines and Telco personnel, portions of the unstable and wet beaches and covered areas were not sampled.

## **3. REGULATORY REQUIREMENTS FOR THE SITE**

Radon emissions from the uranium mill tailings piles at this site are regulated by the State of Utah's Division of Radiation Control and administered by the Utah Division of Air Quality under generally applicable standards set by the Environmental Protection Agency (EPA) for Operating Mills.

Applicable regulations are specified in 40 CFR Part 61, Subpart W, National Emission Standards for Radon Emissions from Operating Mill Tailings, with technical procedures in Appendix B. At present, there are no Subpart T uranium mill tailings at this site. These regulations are a subset of the National Emission Standards for Hazardous Air Pollutants (NESHAPs). According to subsection 61.252 Standard, (a) radon-222 emissions to ambient air from an existing uranium mill tailings pile shall not exceed an average of 20 picoCuries per square meter per second (pCi/m<sup>2</sup>-s) for each pile or region. Subsection 61.253, Determining Compliance, states that: "Compliance with the emission standard in this subpart shall be determined annually through the use of Method 115 of Appendix B." The repaired Cell 4A, and newly constructed Cell 4B, were both constructed after December 15, 1989 and each was constructed with less than 40 acres surface area. Cell 4A and 4B comply with the requirements of 40 CFR 61.252(b), therefore no radon flux measurement is required on either Cell 4A or 4B.

#### **4. SAMPLING METHODOLOGY**

Radon emissions were measured using Large Area Activated Charcoal Canisters (canisters) in conformance with 40 CFR, Part 61, Appendix B, Method 115, Restrictions to Radon Flux Measurements, (EPA, 2009). These are passive gas adsorption sampling devices used to determine the flux rate of radon-222 gas from a surface. The canisters were constructed using a 10-inch diameter PVC end cap containing a bed of 180 grams of activated, granular charcoal. The prepared charcoal was placed in the canisters on a support grid on top of a ½ inch thick layer of foam and secured with a retaining ring under 1½ inches of foam (see Figure 1, page 10).

One hundred canisters were placed in each region. Due to worker health and safety concerns, measurement of the wet beach areas was limited to areas readily accessible by foot. Each charged canister was placed directly onto the surface (open face down) and exposed to the surface for 24 hours. Radon gas adsorbed onto the charcoal and the subsequent radioactive decay of the entrained radon resulted in radioactive lead-214 and bismuth-214. These radon progeny isotopes emit characteristic gamma photons that can be detected through gamma spectroscopy. The original total activity of the adsorbed radon was calculated from these gamma ray measurements using calibration factors derived from cross-calibration of standard sources containing known total activities of radium-226 with geometry identical to the counted samples and from the principles of radioactive decay.

After 24 hours, the exposed charcoal was transferred to a sealed plastic sample container (to prevent radon loss and/or further exposure during transport), identified and labeled, and transported to the Tellico laboratory in Grand Junction, Colorado for analysis. Upon completion of on-site activities, the field equipment was alpha- and beta-gamma scanned for possible contamination resulting from fieldwork activities. All field equipment was surveyed by Denison Mines Radiation Safety personnel and released for unrestricted use. Tellico personnel maintained custody of the samples from collection through analysis.

#### **5. FIELD OPERATIONS**

##### **5.1 Equipment Preparation**

All charcoal was dried at 110°C before use in the field. Unused charcoal and recycled charcoal were treated the same. 180-gram aliquots of dried charcoal were weighed and placed in sample containers.

Proper balance operation was verified daily by checking a standard weight. The balance readout agreed with the known standard weight to within  $\pm 0.1$  percent.

After acceptable balance check, empty containers were individually placed on the balance and the scale was re-zeroed with the container on the balance. Unexposed and dried charcoal was carefully added to the container until the readout registered 180 grams. The lid was immediately placed on the container and sealed with plastic tape. The balance was checked for readout drift between readings.

Sealed containers with unexposed charcoal were placed individually in the shielded counting well, with the bottom of the container centered over the detector, and the background count rate was documented. Three five-minute background counts were conducted on ten percent of the containers, selected at random to represent the "batch". If the background counts were too high to achieve an acceptable lower limit of detection (LLD), the entire charcoal batch was labeled non-conforming and recycled through the heating/drying process.

## **5.2 Sample Locations, Identification, and Placement**

Designated sample point locations were established within each region. A sample identification number (ID) was assigned to every sample point, using a sequential alphanumeric system indicating the charcoal batch and physical location within the region (e.g., H01...H100). This ID was written on an adhesive label and affixed to the top of the canister. The sample ID, date, and time of placement were recorded on the radon flux measurements data sheets for the set of one hundred measurements.

The sampling locations were spread out throughout each region. Prior to placing a canister at each sample location, the retaining ring, screen, and foam pad of each canister were removed to expose the charcoal support grid. A pre-measured charcoal charge was selected from a batch, opened and distributed evenly across the support grid. The canister was then reassembled and placed face down on the surface at each sampling location. Care was exercised not to push the device into the soil surface. The canister rim was "sealed" to the surface using a berm of local borrow material.

Five canisters (blanks) for each region were similarly processed and the canisters were kept inside an airtight plastic bag during each 24-hour testing period.

## **5.3 Sample Retrieval**

At the end of the 24-hour testing period, all canisters were disassembled and each sample was individually poured through a funnel into a container. Identification numbers were transferred to the appropriate container, which was sealed and placed in a box for transport. Retrieval date and time were recorded on the same data sheets as the sample placement information. The blank samples were similarly processed.

## **5.4 Environmental Conditions**

A rain gauge and a minimum/maximum thermometer were in place at Denison Mines' site to monitor rainfall and air temperatures during sampling in order to ensure compliance with the regulatory measurement criteria.

In accordance with 40 CFR, Part 61, Appendix B, Method 115:

- Measurements were not initiated within 24 hours of rainfall. Canister H42 became submerged in raffinate liquid from a ruptured distribution line.
- No rainfall occurred during any of the sampling periods.
- None of the radon measurements presented in this report were performed during temperatures below 35°F or on frozen ground (the minimum air temperature recorded at the site during the collection periods was 45°F).

## **6. SAMPLE ANALYSIS**

### **6.1 Apparatus**

Apparatus used for the analysis:

- Single- or multi-channel pulse height analysis system, Ludlum Model 2200 with a Teledyne 3" x 3" sodium iodide, thallium-activated (NaI(Tl)) detector.
- Lead shielded counting well approximately 40 cm deep with 5-cm thick lead walls and a 7-cm thick base and 5 cm thick top.
- National Institute of Standards and Technology (NIST) traceable aqueous solution radium-226 absorbed onto 180 grams of activated charcoal.
- Ohaus Model C501 balance with 0.1-gram sensitivity.

### **6.2 Sample Inspection and Documentation**

Once in the laboratory, the integrity of each charcoal container was verified by visual inspection of the plastic container. Laboratory staff documented damaged or unsealed containers and verified that the data sheet was complete.

Two samples (I07 and J100) were lost due to charcoal spillage in the field and one sample (H42) was lost when it became submerged in raffinate from a ruptured distribution line. All of the remaining 297 sample containers received and inspected at the Telco analytical laboratory were verified as valid.

### **6.3 Background and Sample Counting**

The gamma ray counting system was checked daily, including background and radium-226 source measurements prior to and after each counting session. Based on calibration statistics, using two sources with known radium-226 content, background and source control limits were established for each Ludlum/Teledyne counting system with shielded well (see Appendix A).

Gamma ray counting of exposed charcoal samples included the following steps:

- The length of count time was determined by the activity of the sample being analyzed, according to a data quality objective of a minimum of 1,000 accrued counts for any given sample.

- The sample container was centered on the NaI detector and the shielded well door was closed.
- The sample was counted over a determined count length and then the mid-sample count time, date, and gross counts were documented on the radon flux measurements data sheet and used in the calculations.
- The above steps were repeated for each exposed charcoal sample.
- Approximately 10 percent of the containers counted were selected for recounting. These containers were recounted within a few days following the original count.

## **7. QUALITY CONTROL (QC) AND DATA VALIDATION**

Charcoal flux measurement QC samples included the following intra-laboratory analytical frequency objectives:

- Blanks, 5 percent, and
- Recounts, 10 percent

All sample data were subjected to validation protocols that included assessments of sensitivity, precision, accuracy, and completeness. All method-required data quality objectives (EPA, 2009) were attained.

### **7.1 Sensitivity**

A total of fifteen blanks were analyzed by measuring the radon progeny activity in samples subjected to all aspects of the measurement process, excepting exposure to the source region. These blank sample measurements comprised approximately 5 percent of the field measurements. The results of the blank sample radon flux rates ranged from 0.02 to 0.25 pCi/m<sup>2</sup>-s, with an average of approximately 0.12 pCi/m<sup>2</sup>-s.

### **7.2 Precision**

Thirty recount measurements, distributed throughout the sample sets, were performed by replicating analyses of individual field samples (see Appendix B). These recount measurements comprised approximately 10 percent of the total number of samples analyzed. The precision of all recount measurements, expressed as relative percent difference (RPD), ranged from less than 1 percent to 9.2 percent with an overall average precision of approximately 2.7 percent.

### **7.3 Accuracy**

Accuracy of field measurements was assessed daily by counting two laboratory control samples with known Ra-226 content. Accuracy of these lab control sample measurements, expressed as percent bias, ranged from approximately -1.4 percent to +0.9 percent. The arithmetic average bias of the lab control sample measurements was approximately 0.0 percent (see Appendix A).



## 7.4 Completeness

Ninety-nine samples from the Cell 2 Cover Region were verified, representing 99 percent completeness for that region.

Ninety-nine samples from the Cell 3 Beaches region were verified, representing 99 percent completeness for that region.

Ninety-nine samples from the Cell 3 Covered Region were verified, representing 99 percent completeness for that region.

Altogether, 297 samples from the total 300 sample locations were verified during this sampling program, representing approximately 99.0 percent completeness overall.

## 8. CALCULATIONS

Radon flux rates were calculated for charcoal collection samples using calibration factors derived from cross-calibration to sources with known total activity with identical geometry as the charcoal containers. A yield efficiency factor was used to calculate the total activity of the sample charcoal containers. Individual field sample result values presented were not reduced by the results of the field blank analyses.

In practice, radon flux rates were calculated by a database computer program. The algorithms utilized by the data base program were as follows:

### Equation 8.1:

$$\text{pCi Rn-222/m}^2\text{sec} = \frac{N}{[T_s * A * b * 0.5^{(d/91.75)}]}$$

where: N = net sample count rate, cpm under 220-662 keV peak  
 T<sub>s</sub> = sample duration, seconds  
 b = instrument calibration factor, cpm per pCi; values used:  
     0.1729, for M-01/D-21 and  
     0.1725, for M-02/D-20  
 d = decay time, elapsed hours between sample mid-time and count mid-time  
 A = area of the canister, m<sup>2</sup>

### Equation 8.2:

$$\text{Error, } 2\sigma = 2 \times \frac{\sqrt{\frac{\text{Gross Sample, cpm}}{\text{Sample Count, t, min}} + \frac{\text{Background Sample, cpm}}{\text{Background Count, t, min}}}}{\text{Net, cpm}} \times \text{Sample Concentration}$$

**Equation 8.3:**

$$LLD = \frac{2.71 + (4.65)(S_b)}{[T_s * A * b * 0.5^{(d/91.75)}]}$$

where: 2.71 = constant

4.65 = confidence interval factor

S<sub>b</sub> = standard deviation of the background count rate

T<sub>s</sub> = sample duration, seconds

b = instrument calibration factor, cpm per pCi; values used:

0.1729, for M-01/D-21 and

0.1725, for M-02/D-20

d = decay time, elapsed hours between sample mid-time and count mid-time

A = area of the canister, m<sup>2</sup>

## 9. RESULTS

### 9.1 Mean Radon Flux

Referencing 40 CFR, Part 61, Subpart W, Appendix B, Method 115 - Monitoring for Radon-222 Emissions, Subsection 2.1.7 - Calculations, "the mean radon flux for each region of the pile and for the total pile shall be calculated and reported as follows:

- (a) The individual radon flux calculations shall be made as provided in Appendix A EPA 86(1). The mean radon flux for each region of the pile shall be calculated by summing all individual flux measurements for the region and dividing by the total number of flux measurements for the region.
- (b) The mean radon flux for the total uranium mill tailings pile shall be calculated as follows:

$$J_s = \frac{J_1 A_1 + \dots J_2 A_2 [+ \dots J_i A_i]}{A_t}$$

Where: J<sub>s</sub> = Mean flux for the total pile (pCi/m<sup>2</sup>-s)

J<sub>i</sub> = Mean flux measured in region i (pCi/m<sup>2</sup>-s)

A<sub>i</sub> = Area of region i (m<sup>2</sup>)

A<sub>t</sub> = Total area of the pile (m<sup>2</sup>)

2.1.8 Reporting. The results of individual flux measurements, the approximate locations on the pile, and the mean radon flux for each region and the mean radon flux for the total stack [pile] shall be included in the emission test report. Any condition or unusual event that occurred during the measurements that could significantly affect the results should be reported."

## 9.2 Site Results

### Site Specific Sample Results (reference Figure 2 and Appendix C)

(a) The mean radon flux for each region within the site as follows:

$$\text{Cell 2 - Cover Area} = 13.8 \text{ pCi/m}^2\text{-s (based on 270,624 m}^2\text{ area)}$$

$$\text{Cell 3 - Cover Area} = 5.7 \text{ pCi/m}^2\text{-s (based on 147,251 m}^2\text{ area)}$$

$$\text{- Beach Areas} = 37.5 \text{ pCi/m}^2\text{-s (based on 75,556 m}^2\text{ area)}$$

$$\text{- Standing Liquid} = 0 \text{ pCi/m}^2\text{-s (based on 66,051 m}^2\text{ area)}$$

Note: Reference Appendix C of this report for the entire summary of individual measurement results.

(b) Using the data presented above, the calculated mean radon flux for each cell (pile) is, as follows:

$$\text{Cell 2} = 13.8 \text{ pCi/m}^2\text{-s}$$

$$\frac{(13.8)(270,624)}{270,624}$$

$$\text{Cell 3} = 12.7 \text{ pCi/m}^2\text{-s}$$

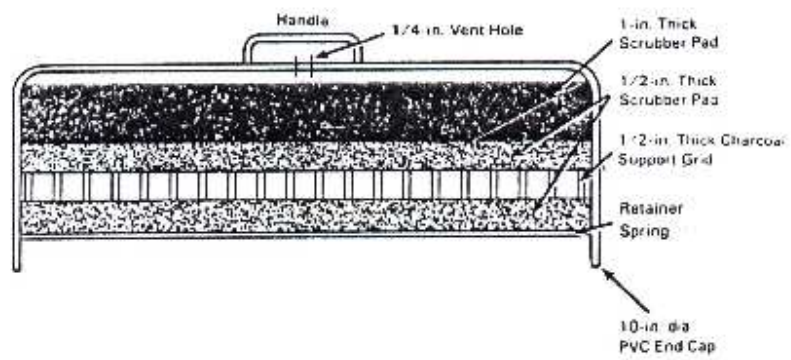
$$\frac{(5.7)(147,251) + (37.5)(75,556) + (0)(66,051)}{288,858}$$

As shown above, the arithmetic mean radon flux for the each cell at Denison Mines' White Mesa milling facility is below the NRC and EPA standard of 20 pCi/m<sup>2</sup>-s. No condition or unusual event occurred during the measurements that could significantly affect the reported results. Appendix C is a summary of individual measurement results, including blank sample analysis. Sample locations are depicted on Figure 2, which is included in Appendix D. The map was produced by Tellco.

## References

- U. S. Environmental Protection Agency, *Radon Flux Measurements on Gardiner and Royster Phosphogypsum Piles Near Tampa and Mulberry, Florida*, EPA 520/5-85-029, NTIS #PB86-161874, January 1986.
- U. S. Environmental Protection Agency, *Title 40, Code of Federal Regulations*, February 2009.
- U. S. Nuclear Regulatory Commission, *Radiological Effluent and Environmental Monitoring at Uranium Mills*, Regulatory Guide 4.14, April 1980.
- U. S. Nuclear Regulatory Commission, *Title 10, Code of Federal Regulations*, Part 40, Appendix A, January 2009.

**Figure 1**  
Large Area Activated Charcoal Canisters Diagram



**FIGURE 1** Large-Area Radon Collector

## **Appendix A**

### Charcoal Canister Analyses Support Documents



### ACCURACY APPRAISAL TABLE

DENISON MINES (USA) CORPORATION  
 WHITE MESA MILL, BLANDING, UTAH  
 2010 NESHAPs RADON FLUX MEASUREMENTS  
 CELLS 2 & 3

SYSTEM I.D.	DATE	Bkg Counts (1 min. each)			Source Counts (1 min. each)			AVG NET cpm	YIELD cpm/pCi	FOUND pCi	SOURCE ID	KNOWN pCi	% BIAS
		#1	#2	#3	#1	#2	#3						
M-01/D-21	6/18/2010	139	159	150	10531	10441	10470	10331	0.1729	59753	GS-04	59300	0.8%
M-01/D-21	6/18/2010	134	150	143	10475	10301	10413	10254	0.1729	59306	GS-04	59300	0.0%
M-01/D-21	6/19/2010	118	166	116	10403	10401	10359	10254	0.1729	59308	GS-04	59300	0.0%
M-01/D-21	6/19/2010	155	137	122	10353	10487	10596	10341	0.1729	59807	GS-04	59300	0.9%
M-01/D-21	6/20/2010	138	123	148	10153	10395	10337	10159	0.1729	58755	GS-04	59300	-0.9%
M-01/D-21	6/20/2010	125	152	149	10183	10353	10552	10221	0.1729	59113	GS-04	59300	-0.3%
M-01/D-21	6/18/2010	139	159	150	10300	10242	10359	10151	0.1729	58710	GS-05	59300	-1.0%
M-01/D-21	6/18/2010	134	150	143	10537	10686	10255	10350	0.1729	59863	GS-05	59300	0.9%
M-01/D-21	6/19/2010	118	166	116	10384	10500	10444	10309	0.1729	59626	GS-05	59300	0.5%
M-01/D-21	6/19/2010	155	137	122	10550	10218	10366	10240	0.1729	59225	GS-05	59300	-0.1%
M-01/D-21	6/20/2010	138	123	148	10214	10310	10543	10219	0.1729	59105	GS-05	59300	-0.3%
M-01/D-21	6/20/2010	125	152	149	10237	10356	10481	10216	0.1729	59086	GS-05	59300	-0.4%
M-02/D-20	6/18/2010	157	117	151	10340	10533	10450	10299	0.1725	59706	GS-04	59300	0.7%
M-02/D-20	6/18/2010	132	126	127	10252	10359	10512	10246	0.1725	59397	GS-04	59300	0.2%
M-02/D-20	6/19/2010	124	137	155	10314	10231	10439	10189	0.1725	59069	GS-04	59300	-0.4%
M-02/D-20	6/19/2010	129	140	120	10363	10512	10488	10325	0.1725	59853	GS-04	59300	0.9%
M-02/D-20	6/20/2010	122	134	153	10404	10423	10517	10312	0.1725	59778	GS-04	59300	0.8%
M-02/D-20	6/20/2010	156	131	141	10250	10193	10235	10083	0.1725	58454	GS-04	59300	-1.4%
M-02/D-20	6/18/2010	157	117	151	10523	10432	10303	10278	0.1725	59581	GS-05	59300	0.5%
M-02/D-20	6/18/2010	132	126	127	10317	10520	10266	10239	0.1725	59358	GS-05	59300	0.1%
M-02/D-20	6/19/2010	124	137	155	10469	10168	10334	10185	0.1725	59043	GS-05	59300	-0.4%
M-02/D-20	6/19/2010	129	140	120	10325	10367	10331	10211	0.1725	59196	GS-05	59300	-0.2%
M-02/D-20	6/20/2010	122	134	153	10466	10204	10211	10157	0.1725	58883	GS-05	59300	-0.7%
M-02/D-20	6/20/2010	156	131	141	10316	10373	10439	10233	0.1725	59324	GS-05	59300	0.0%
AVERAGE PERCENT BIAS FOR ALL ANALYTICAL SESSIONS:													0.0%



CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: White Mesa Mill, Blanding, UT

CLIENT: Denison Mines USA Corp.

Calibration Check Log

System ID: M-02 / D-20 Calibration Date: 6/07/10 Due Date: 6/07/11

Scaler S/N: 51563 (M-02) High Voltage: 825 Window: 4.42 Thrshld: 2.20

Detector S/N: 41532 (D-20) Source ID/SN: Ra<sup>226</sup>/GS-04 Source Activity: 59.3 KpCi

Blank Canister Bkgd. Range, cpm: 2σ = 110 to 163 3σ = 96 to 176

Gross Source Range, cpm: 2σ = 10152 to 10605 3σ = 10039 to 10718

Technician: D L Coor

All counts times are one minute.

Date	By	Background Counts (1 min. each)				Source Counts (1 min. each)				ok? Y/N
		#1	#2	#3	Avg.	#1	#2	#3	Average	
6/18/10	DL Coor	157	117	151	142	10340	10533	10450	10441	Y
6/18/10	DL Coor	132	126	127	128	10252	10359	10512	10374	Y
6/19/10	DL Coor	124	137	155	139	10314	10231	10439	10328	Y
6/19/10	DL Coor	129	140	120	130	10363	10512	10488	10454	Y
6/20/10	DL Coor	122	134	153	136	10404	10423	10517	10448	Y
6/20/10	DL Coor	156	131	141	143	10250	10193	10235	10226	Y

Y/N: Y = average background and source cpm falls within the control limits.  
 N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: White Mesa Mill, Blanding, UT

CLIENT: Denison Mines USA

Calibration Check Log

System ID: M-02/D-20 Calibration Date: 6/07/10 Due Date: 6/07/11

Scaler S/N: 51563 (M-02) High Voltage: 825 Window: 4.42 Threshld: 2.20

Detector S/N: 41532 (D-20) Source ID/SN: Ra<sup>226</sup>/GS-05 Source Activity: 59.3 KpCi

Blank Canister Bkgd. Range, cpm:  $2\sigma =$  110 to 163  $3\sigma =$  96 to 176

Gross Source Range, cpm:  $2\sigma =$  10143 to 10564  $3\sigma =$  10038 to 10669

Technician: D L Coop

All counts times are one minute.

Date	By	Background Counts (1 min. each)				Source Counts (1 min. each)				ok? Y/N
		#1	#2	#3	Avg.	#1	#2	#3	Average	
6/18/10	D L Coop	157	117	151	142	10523	10432	10303	10419	Y
6/18/10	D L Coop	132	126	127	128	10317	10520	10266	10368	Y
6/19/10	D L Coop	124	137	155	139	10469	10168	10334	10324	Y
6/19/10	D L Coop	129	140	120	130	10325	10367	10331	10341	Y
6/20/10	D L Coop	122	134	153	136	10466	10204	10211	10294	Y
6/20/10	D L Coop	154	131	141	143	10316	10373	10439	10376	Y

Y/N: Y = average background and source cpm falls within the control limits.  
 N = average background and source cpm does not fall within the control limits.  
 The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: White Mesa Mill, Blanding, UT

CLIENT: Denison Mines USA

Calibration Check Log

System ID: M-01/D-21 Calibration Date: 6/07/10 Due Date: 6/07/11

Scaler S/N: 51572 (M-01) High Voltage: 1125 Window: 4.42 Thrshld: 2.20

Detector S/N: 41533 (D-21) Source ID/SN: Ra<sup>224</sup>/GS-04 Source Activity: 59.3 kpci

Blank Canister Bkgd. Range, cpm:  $2\sigma =$  111 to 170  $3\sigma =$  96 to 185

Gross Source Range, cpm:  $2\sigma =$  10169 to 10631  $3\sigma =$  10054 to 10747

Technician: DZ Cooper

All counts times are one minute.

Date	By	Background Counts (1 min. each)				Source Counts (1 min. each)				ok? Y/N
		#1	#2	#3	Avg.	#1	#2	#3	Average	
6/18/10	DZ Cooper	139	159	150	149	10531	10441	10470	10481	Y
6/18/10	DZ Cooper	134	150	143	142	10475	10301	10413	10396	Y
6/19/10	DZ Cooper	118	166	116	133	10403	10401	10359	10388	Y
6/19/10	DZ Cooper	155	137	122	138	10353	10487	10596	10479	Y
6/20/10	DZ Cooper	138	123	148	136	10153	10395	10337	10295	Y
6/20/10	DZ Cooper	125	152	149	142	10183	10353	10552	10363	Y

Y/N: Y = average background and source cpm falls within the control limits.  
 N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: White Mesa Mill, Blanding, UT

CLIENT: Denison Mines USA Corp.

Calibration Check Log

System ID: M-01/D-21 Calibration Date: 6/07/10 Due Date: 6/07/11

Scaler S/N: 51572 (M-01) High Voltage: 1125 Window: 4.42 Thrshld: 2.20

Detector S/N: 41533 (D-21) Source ID/SN: R<sub>g</sub>224/GS-05 Source Activity: 59.3 KpCi

Blank Canister Bkgd. Range, cpm:  $2\sigma =$  111 to 170  $3\sigma =$  96 to 185

Gross Source Range, cpm:  $2\sigma =$  10112 to 10663  $3\sigma =$  9975 to 10801

Technician: DL Coop

All counts times are one minute.

Date	By	Background Counts (1 min. each)				Source Counts (1 min. each)				ok? Y/N
		#1	#2	#3	Avg.	#1	#2	#3	Average	
6/18/10	DLCoop	139	159	150	149	10300	10242	10359	10300	Y
6/18/10	DLCoop	134	150	143	142	10537	10686	10255	10493	Y
6/19/10	DLCoop	118	166	116	133	10384	10500	10444	10443	Y
6/19/10	DLCoop	155	137	122	138	10550	10218	10366	10378	Y
6/20/10	DLCoop	138	123	148	136	10214	10310	10543	10356	Y
6/20/10	DLCoop	125	152	149	142	10237	10356	10481	10358	Y

Y/N: Y = average background and source cpm falls within the control limits.  
 N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

## **Appendix B**

### Recount Data Analyses

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: I

SURFACE: TAILINGS

AIR TEMP MIN: 45°F

WEATHER: NO RAIN

AREA: BEACH

DEPLOYED: 6 14 10

RETRIEVED: 6 15 10

CHARCOAL BKG: 145

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

RECOUNT CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	ANALYSIS HR	MID-TIME HR	CNT (MIN)	GROSS >OUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	PRECISION % RPD
I10 RECOUNT	I10	9 33	9 29	6 19 10 11	49	1 10573	223.7	30.7	3.1	0.05	
	I10	9 33	9 29	6 20 10 21	17	1 8415	223.7	31.3	3.1	0.07	1.9%
I20 RECOUNT	I20	9 34	9 43	6 19 10 11	57	1 30817	219.5	89.5	9.0	0.05	
	I20	9 34	9 43	6 20 10 21	17	1 24451	219.5	91.2	9.1	0.07	1.9%
I30 RECOUNT	I30	9 43	9 49	6 19 10 12	4	1 9790	218.8	28.2	2.8	0.05	
	I30	9 43	9 49	6 20 10 21	19	1 7590	218.8	28.0	2.8	0.07	0.7%
I40 RECOUNT	I40	10 6	10 1	6 19 10 12	11	1 4038	223.6	11.5	1.2	0.05	
	I40	10 6	10 1	6 20 10 21	19	1 3097	223.6	11.2	1.1	0.07	2.6%
I50 RECOUNT	I50	9 56	9 51	6 19 10 12	19	1 5080	221.8	14.5	1.5	0.05	
	I50	9 56	9 51	6 20 10 21	21	1 4093	221.8	14.9	1.5	0.07	2.7%
I60 RECOUNT	I60	9 40	9 44	6 19 10 12	26	1 10863	219.4	31.5	3.2	0.05	
	I60	9 40	9 44	6 20 10 21	21	1 8575	219.4	31.7	3.2	0.07	0.6%
I70 RECOUNT	I70	9 33	9 39	6 19 10 12	33	1 15603	219.6	45.4	4.5	0.05	
	I70	9 33	9 39	6 20 10 21	23	1 12585	219.6	46.8	4.7	0.07	3.0%
I80 RECOUNT	I80	9 21	9 29	6 19 10 12	44	1 13709	219.3	39.9	4.0	0.05	
	I80	9 21	9 29	6 20 10 21	23	1 11063	219.3	41.1	4.1	0.07	3.0%
I90 RECOUNT	I90	9 11	9 24	6 19 10 12	51	1 16173	219.5	47.1	4.7	0.05	
	I90	9 11	9 24	6 20 10 21	24	1 12963	219.5	48.1	4.8	0.07	2.1%
I100 RECOUNT	I100	9 1	9 19	6 19 10 12	59	1 11898	220.8	34.5	3.5	0.05	
	I100	9 1	9 19	6 20 10 21	24	1 9609	220.8	35.5	3.6	0.07	2.9%

**AVERAGE PERCENT PRECISION FOR THE CELL 3 BEACH REGION: 2.1%**

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 2

BATCH: J

SURFACE: SOIL

AIR TEMP MIN: 48°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 16 10

RETRIEVED: 6 17 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

RECOUNT CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	ANALYSIS MIN	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	PRECISION % RPD			
J10	J10	11	59	12	2	6 18 10	19 35	1	1716	214.4	2.8	0.3	0.03	
RECOUNT	J10	11	59	12	2	6 19 10	11 32	1	1528	214.4	2.8	0.3	0.04	0.0%
J20	J20	12	18	12	13	6 18 10	19 45	1	6292	214.1	10.9	1.1	0.03	
RECOUNT	J20	12	18	12	13	6 19 10	11 32	1	5702	214.1	11.1	1.1	0.04	1.8%
J30	J30	11	59	12	2	6 18 10	19 56	1	7515	219.3	13.1	1.3	0.03	
RECOUNT	J30	11	59	12	2	6 19 10	11 34	1	6715	219.3	13.1	1.3	0.04	0.0%
J40	J40	12	18	12	13	6 18 10	20 9	1	8170	221.1	14.3	1.4	0.03	
RECOUNT	J40	12	18	12	13	6 19 10	11 34	1	7268	221.1	14.3	1.4	0.04	0.0%
J50	J50	12	51	12	41	6 18 10	20 20	1	3793	213.4	6.5	0.7	0.03	
RECOUNT	J50	12	51	12	41	6 19 10	11 35	1	3508	213.4	6.7	0.7	0.04	3.0%
J60	J60	13	2	12	50	6 18 10	20 29	2	1104	218.9	0.73	0.1	0.03	
RECOUNT	J60	13	2	12	50	6 19 10	11 36	2	1092	218.9	0.80	0.1	0.04	9.2%
J70	J70	12	51	12	41	6 18 10	20 40	1	1508	218.1	2.4	0.2	0.03	
RECOUNT	J70	12	51	12	41	6 19 10	11 38	1	1428	218.1	2.6	0.3	0.04	8.0%
J80	J80	13	2	12	50	6 18 10	20 52	1	2527	221.9	4.3	0.4	0.03	
RECOUNT	J80	13	2	12	50	6 19 10	11 38	1	2335	221.9	4.4	0.4	0.04	2.3%
J90	J90	13	16	12	59	6 18 10	21 4	1	17078	221.4	30.5	3.1	0.03	
RECOUNT	J90	13	16	12	59	6 19 10	11 39	1	15796	221.4	31.4	3.1	0.04	2.9%
J99	J99	13	16	12	59	6 18 10	21 25	3	1340	217.7	0.54	0.1	0.03	
RECOUNT	J99	13	16	12	59	6 19 10	11 41	3	1307	217.7	0.58	0.1	0.04	7.1%
<b>AVERAGE PERCENT PRECISION FOR THE CELL 2 COVERED REGION:</b>											<b>3.4%</b>			

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: H

SURFACE: SOIL

AIR TEMP MIN: 46°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 15 10

RETRIEVED: 6 16 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

RECOUNT CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	ANALYSIS MIN	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	PRECISION % RPD			
H10 RECOUNT	H10	10	56	10	56	6 18 10	17 24	1	7791	218.5	16.1	1.6	0.04	
	H10	10	56	10	56	6 19 10	11 22	1	6804	218.5	16.1	1.6	0.04	0.0%
H20 RECOUNT	H20	10	56	10	55	6 18 10	17 36	2	1493	216.2	1.3	0.1	0.04	
	H20	10	56	10	55	6 19 10	11 23	2	1412	216.2	1.4	0.1	0.04	7.4%
H30 RECOUNT	H30	11	16	11	7	6 18 10	17 48	1	6622	215.4	13.7	1.4	0.04	
	H30	11	16	11	7	6 19 10	11 25	1	5787	215.4	13.7	1.4	0.04	0.0%
H40 RECOUNT	H40	11	6	11	5	6 18 10	18 3	1	2334	213.5	4.6	0.5	0.04	
	H40	11	6	11	5	6 19 10	11 25	1	2040	213.5	4.6	0.5	0.04	0.0%
H50 RECOUNT	H50	11	36	11	31	6 18 10	18 13	1	3671	215.1	7.5	0.8	0.04	
	H50	11	36	11	31	6 19 10	11 27	1	3332	215.1	7.6	0.8	0.04	1.3%
H60 RECOUNT	H60	11	30	11	20	6 18 10	18 32	1	1125	212.6	2.1	0.2	0.04	
	H60	11	30	11	20	6 19 10	11 27	1	1043	212.6	2.2	0.2	0.04	4.7%
H70 RECOUNT	H70	11	45	11	40	6 18 10	18 45	2	1919	216.0	1.7	0.2	0.04	
	H70	11	45	11	40	6 19 10	11 29	2	1779	216.0	1.8	0.2	0.04	5.7%
H80 RECOUNT	H80	11	56	11	44	6 18 10	18 59	1	4092	218.5	8.4	0.8	0.04	
	H80	11	56	11	44	6 19 10	11 28	1	3584	218.5	8.3	0.8	0.04	1.2%
H90 RECOUNT	H90	11	57	11	49	6 18 10	19 6	1	3315	217.2	6.8	0.7	0.04	
	H90	11	57	11	49	6 19 10	11 31	1	2998	217.2	6.9	0.7	0.04	1.5%
H100 RECOUNT	H100	12	0	11	36	6 18 10	19 18	1	1741	218.2	3.4	0.3	0.04	
	H100	12	0	11	36	6 19 10	11 31	1	1583	218.2	3.5	0.4	0.04	2.9%
<b>AVERAGE PERCENT PRECISION FOR THE CELL 3 COVERED REGION:</b>											<b>2.5%</b>			



## **Appendix C**

Radon Flux Sample Laboratory Data (including Blanks)

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: I

SURFACE: TAILINGS

AIR TEMP MIN: 45°F

WEATHER: NO RAIN

AREA: BEACH

DEPLOYED: 6 14 10

RETRIEVED: 6 15 10

CHARCOAL BKG: 145

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
I01	I01	9	27	9	26	6 19 10	11 43	1	12852	219.8	37.2	3.7	0.05	
I02	I02	9	28	9	26	6 19 10	11 43	1	14492	223.1	42.2	4.2	0.05	
I03	I03	9	28	9	26	6 19 10	11 44	1	30474	219.7	88.9	8.9	0.05	
I04	I04	9	29	9	27	6 19 10	11 44	1	13326	221.4	38.7	3.9	0.05	
I05	I05	9	30	9	27	6 19 10	11 46	1	14212	226.5	41.3	4.1	0.05	
I06	I06	9	30	9	27	6 19 10	11 46	1	3089	223.8	8.7	0.9	0.05	
I07	I07	9	31	9	28									spilled
I08	I08	9	32	9	28	6 19 10	11 48	1	16025	223.5	46.7	4.7	0.05	
I09	I09	9	32	9	29	6 19 10	11 49	1	6378	222.6	18.3	1.8	0.05	
I10	I10	9	33	9	29	6 19 10	11 49	1	10573	223.7	30.7	3.1	0.05	
I11	I11	9	34	9	29	6 19 10	11 51	1	11924	228.3	34.6	3.5	0.05	
I12	I12	9	34	9	30	6 19 10	11 51	1	11718	225.1	34.1	3.4	0.05	
I13	I13	9	35	9	30	6 19 10	11 52	1	25711	224.2	75.1	7.5	0.05	
I14	I14	9	36	9	30	6 19 10	11 52	1	28631	223.4	84.0	8.4	0.05	
I15	I15	9	37	9	31	6 19 10	11 54	1	13225	222.4	38.5	3.8	0.05	
I16	I16	9	37	9	31	6 19 10	11 54	1	25167	222.4	73.8	7.4	0.05	
I17	I17	9	31	9	41	6 19 10	11 55	1	13015	224.4	37.4	3.7	0.05	
I18	I18	9	32	9	42	6 19 10	11 55	1	15139	221.3	43.7	4.4	0.05	
I19	I19	9	33	9	42	6 19 10	11 57	1	14742	223.2	42.5	4.2	0.05	
I20	I20	9	34	9	43	6 19 10	11 57	1	30817	219.5	89.5	8.9	0.05	
I21	I21	9	35	9	43	6 19 10	11 58	1	13961	227.5	40.2	4.0	0.05	
I22	I22	9	36	9	44	6 19 10	11 58	1	19814	218.3	57.4	5.7	0.05	
I23	I23	9	36	9	31	6 19 10	12 0	1	42469	234.0	124.5	12.4	0.05	
I24	I24	9	37	9	44	6 19 10	12 0	1	20593	220.7	59.7	6.0	0.05	
I25	I25	9	38	9	45	6 19 10	12 1	1	11122	218.7	32.0	3.2	0.05	
I26	I26	9	39	9	46	6 19 10	12 1	1	11574	217.6	33.4	3.3	0.05	
I27	I27	9	40	9	46	6 19 10	12 3	1	10456	218.4	30.1	3.0	0.05	
I28	I28	9	41	9	47	6 19 10	12 3	1	7500	218.1	21.5	2.1	0.05	
I29	I29	9	42	9	48	6 19 10	12 4	1	7241	219.4	20.7	2.1	0.05	
I30	I30	9	43	9	49	6 19 10	12 4	1	9790	218.8	28.2	2.8	0.05	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: I

SURFACE: TAILINGS

AIR TEMP MIN: 45°F

WEATHER: NO RAIN

AREA: BEACH

DEPLOYED: 6 14 10

RETRIEVED: 6 15 10

CHARCOAL BKG: 145

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	RETRIV DA	ANALYSIS YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:			
I31	I31	10	0	9	57	6	19	10	12	6	1	8766	224.8	25.3	2.5	0.05	
I32	I32	10	1	9	57	6	19	10	12	6	1	9321	223.2	27.0	2.7	0.05	
I33	I33	10	2	9	57	6	19	10	12	7	1	3690	220.9	10.4	1.0	0.05	
I34	I34	10	3	9	58	6	19	10	12	7	1	7624	221.3	22.0	2.2	0.05	
I35	I35	10	3	9	58	6	19	10	12	8	1	5966	218.1	17.1	1.7	0.05	
I36	I36	10	4	9	58	6	19	10	12	8	1	5227	225.0	15.0	1.5	0.05	
I37	I37	10	4	9	59	6	19	10	12	10	1	4642	223.3	13.2	1.3	0.05	
I38	I38	10	5	9	59	6	19	10	12	10	1	3444	218.4	9.7	1.0	0.05	
I39	I39	10	5	10	0	6	19	10	12	11	1	6776	223.9	19.5	1.9	0.05	
I40	I40	10	6	10	1	6	19	10	12	11	1	4038	223.6	11.5	1.1	0.05	
I41	I41	10	6	10	1	6	19	10	12	13	1	8942	222.7	25.8	2.6	0.05	
I42	I42	10	6	10	2	6	19	10	12	13	1	4946	217.1	14.1	1.4	0.05	
I43	I43	10	3	9	57	6	19	10	12	14	1	24976	219.1	73.0	7.3	0.05	
I44	I44	10	2	9	56	6	19	10	12	14	1	29814	220.7	87.4	8.7	0.05	
I45	I45	10	1	9	56	6	19	10	12	16	1	12921	221.8	37.5	3.8	0.05	
I46	I46	10	0	9	55	6	19	10	12	16	1	10252	218.6	29.8	3.0	0.05	
I47	I47	9	59	9	54	6	19	10	12	17	1	4369	224.5	12.4	1.2	0.05	
I48	I48	9	58	9	53	6	19	10	12	17	1	12119	222.5	35.3	3.5	0.05	
I49	I49	9	57	9	52	6	19	10	12	19	1	4661	227.6	13.3	1.3	0.05	
I50	I50	9	56	9	51	6	19	10	12	19	1	5080	221.8	14.5	1.5	0.05	
I51	I51	9	46	9	50	6	19	10	12	20	1	6593	219.1	18.9	1.9	0.05	
I52	I52	9	45	9	49	6	19	10	12	20	1	16407	218.2	47.7	4.8	0.05	
I53	I53	9	44	9	49	6	19	10	12	22	1	11459	222.2	33.1	3.3	0.05	
I54	I54	9	44	9	48	6	19	10	12	22	1	19723	225.0	57.4	5.7	0.05	
I55	I55	9	43	9	48	6	19	10	12	23	1	18801	222.1	54.6	5.5	0.05	
I56	I56	9	42	9	47	6	19	10	12	23	1	13801	219.2	40.0	4.0	0.05	
I57	I57	9	42	9	46	6	19	10	12	25	1	11365	220.2	32.9	3.3	0.05	
I58	I58	9	41	9	45	6	19	10	12	25	1	11372	219.2	33.0	3.3	0.05	
I59	I59	9	40	9	45	6	19	10	12	26	1	12422	222.5	35.9	3.6	0.05	
I60	I60	9	40	9	44	6	19	10	12	26	1	10863	219.4	31.5	3.1	0.05	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: I

SURFACE: TAILINGS

AIR TEMP MIN: 45°F

WEATHER: NO RAIN

AREA: BEACH

DEPLOYED: 6 14 10

RETRIEVED: 6 15 10

CHARCOAL BKG: 145

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	RETRIV DA	ANALYSIS YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:			
I61	I61	9	39	9	44	6	19	10	12	27	1	19403	221.5	56.4	5.6	0.05	
I62	I62	9	38	9	43	6	19	10	12	27	1	11570	216.1	33.5	3.4	0.05	
I63	I63	9	38	9	43	6	19	10	12	29	1	20219	217.5	58.8	5.9	0.05	
I64	I64	9	37	9	42	6	19	10	12	29	1	9674	219.1	28.0	2.8	0.05	
I65	I65	9	36	9	42	6	19	10	12	30	1	27631	219.2	80.5	8.0	0.05	
I66	I66	9	36	9	41	6	19	10	12	30	1	15841	220.4	46.1	4.6	0.05	
I67	I67	9	35	9	41	6	19	10	12	32	1	21397	219.5	62.3	6.2	0.05	
I68	I68	9	34	9	40	6	19	10	12	32	1	4300	217.7	12.2	1.2	0.05	
I69	I69	9	34	9	40	6	19	10	12	33	1	12273	221.2	35.5	3.6	0.05	
I70	I70	9	33	9	39	6	19	10	12	33	1	15603	219.6	45.4	4.5	0.05	
I71	I71	9	32	9	38	6	19	10	12	35	1	9852	220.2	28.5	2.8	0.05	
I72	I72	9	32	9	37	6	19	10	12	35	1	6986	217.8	20.1	2.0	0.05	
I73	I73	9	31	9	37	6	19	10	12	36	1	20572	219.7	59.9	6.0	0.05	
I74	I74	9	30	9	36	6	19	10	12	36	1	6365	216.4	18.3	1.8	0.05	
I75	I75	9	30	9	36	6	19	10	12	38	1	11567	217.2	33.5	3.4	0.05	
I76	I76	9	24	9	30	6	19	10	12	38	1	10790	222.6	31.3	3.1	0.05	
I77	I77	9	24	9	30	6	19	10	12	41	4	1231	226.3	0.5	0.1	0.05	
I78	I78	9	23	9	30	6	19	10	12	40	1	6052	224.5	17.4	1.7	0.05	
I79	I79	9	22	9	30	6	19	10	12	44	1	14033	224.1	40.7	4.1	0.05	
I80	I80	9	21	9	29	6	19	10	12	44	1	13709	219.3	39.9	4.0	0.05	
I81	I81	9	20	9	28	6	19	10	12	45	1	8477	220.5	24.5	2.4	0.05	
I82	I82	9	19	9	28	6	19	10	12	45	1	12669	219.2	36.8	3.7	0.05	
I83	I83	9	18	9	28	6	19	10	12	47	1	10075	217.0	29.1	2.9	0.05	
I84	I84	9	17	9	27	6	19	10	12	47	1	8264	222.7	23.9	2.4	0.05	
I85	I85	9	16	9	27	6	19	10	12	48	1	3713	221.3	10.5	1.0	0.05	
I86	I86	9	15	9	26	6	19	10	12	48	1	9466	223.4	27.4	2.7	0.05	
I87	I87	9	14	9	26	6	19	10	12	49	1	11003	220.4	31.8	3.2	0.05	
I88	I88	9	13	9	25	6	19	10	12	49	1	9140	222.9	26.4	2.6	0.05	
I89	I89	9	12	9	25	6	19	10	12	51	1	9918	219.9	28.6	2.9	0.05	
I90	I90	9	11	9	24	6	19	10	12	51	1	16173	219.5	47.1	4.7	0.05	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: I

SURFACE: TAILINGS

AIR TEMP MIN: 45°F

WEATHER: NO RAIN

AREA: BEACH

DEPLOYED: 6 14 10

RETRIEVED: 6 15 10

CHARCOAL BKG: 145

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
I91	I91	9 10	9 24	6 19	10 10	12 53	1	10985	222.4	31.7	3.2	0.05		
I92	I92	9 9	9 23	6 19	10 10	12 53	1	36258	219.3	106.0	10.6	0.05		
I93	I93	9 8	9 23	6 19	10 10	12 54	1	18589	220.6	54.0	5.4	0.05		
I94	I94	9 7	9 22	6 19	10 10	12 54	1	12287	221.0	35.6	3.6	0.05		
I95	I95	9 6	9 22	6 19	10 10	12 56	1	8388	219.4	24.1	2.4	0.05		
I96	I96	9 5	9 21	6 19	10 10	12 56	1	11144	215.3	32.3	3.2	0.05		
I97	I97	9 4	9 21	6 19	10 10	12 57	1	10700	220.2	30.9	3.1	0.05		
I98	I98	9 3	9 20	6 19	10 10	12 57	1	12663	219.4	36.7	3.7	0.05		
I99	I99	9 2	9 20	6 19	10 10	12 59	1	12524	221.8	36.2	3.6	0.05		
I100	I100	9 1	9 19	6 19	10 10	12 59	1	11898	220.8	34.5	3.4	0.05		
<b>AVERAGE RADON FLUX RATE FOR THE CELL 3 BEACH REGION:</b>											37.5	pCi/m <sup>2</sup> s		

BLANK CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	ANALYSIS MIN	MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
I BLANK 1	I BLANK 1	10 10	10 8	6 19	10 10	11 2	10	2295	213.4	0.25	0.04	0.05	CONTROL	
I BLANK 2	I BLANK 2	10 10	10 8	6 19	10 10	11 2	10	2079	211.0	0.18	0.04	0.05	CONTROL	
I BLANK 3	I BLANK 3	10 10	10 8	6 19	10 10	11 13	10	2106	212.0	0.19	0.04	0.05	CONTROL	
I BLANK 4	I BLANK 4	10 10	10 8	6 19	10 10	11 13	10	2002	210.8	0.16	0.04	0.05	CONTROL	
I BLANK 5	I BLANK 5	10 10	10 8	6 19	10 10	11 24	10	2051	211.6	0.17	0.04	0.05	CONTROL	
<b>AVERAGE BLANK CANISTER ANALYSIS FOR THE CELL 3 BEACH REGION:</b>											0.19	pCi/m <sup>2</sup> s		

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 2

BATCH: J

SURFACE: SOIL

AIR TEMP MIN: 48°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 16 10

RETRIEVED: 6 17 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:			
J01	J01	11	44	11	49	6	18	10	19	24	2	1684	215.1	1.2	0.1	0.03	
J02	J02	11	47	11	50	6	18	10	19	25	3	1333	217.4	0.5	0.1	0.03	
J03	J03	11	49	11	51	6	18	10	19	28	2	1015	224.2	0.6	0.1	0.03	
J04	J04	11	50	11	52	6	18	10	19	28	2	1027	214.4	0.6	0.1	0.03	
J05	J05	11	51	11	53	6	18	10	19	30	2	1092	214.9	0.7	0.1	0.03	
J06	J06	11	53	11	54	6	18	10	19	30	2	1595	222.2	1.2	0.1	0.03	
J07	J07	11	54	11	59	6	18	10	19	33	2	1711	215.0	1.2	0.1	0.03	
J08	J08	11	56	12	0	6	18	10	19	33	1	142905	216.4	252.4	25.2	0.03	
J09	J09	11	58	12	1	6	18	10	19	35	1	1025	213.9	1.5	0.2	0.03	
J10	J10	11	59	12	2	6	18	10	19	35	1	1716	214.4	2.8	0.3	0.03	
J11	J11	12	0	12	3	6	18	10	19	36	1	5903	214.4	10.2	1.0	0.03	
J12	J12	12	3	12	4	6	18	10	19	36	1	4629	216.8	7.9	0.8	0.03	
J13	J13	12	5	12	5	6	18	10	19	38	1	8871	214.2	15.4	1.5	0.03	
J14	J14	12	7	12	6	6	18	10	19	39	2	1903	214.4	1.4	0.1	0.03	
J15	J15	12	10	12	7	6	18	10	19	42	2	1288	215.9	0.9	0.1	0.03	
J16	J16	12	12	12	9	6	18	10	19	42	1	1201	214.7	1.9	0.2	0.03	
J17	J17	12	13	12	10	6	18	10	19	44	1	6901	217.0	12.0	1.2	0.03	
J18	J18	12	15	12	11	6	18	10	19	44	1	1558	211.7	2.5	0.3	0.03	
J19	J19	12	16	12	12	6	18	10	19	45	1	10362	214.7	18.1	1.8	0.03	
J20	J20	12	18	12	13	6	18	10	19	45	1	6292	214.1	10.9	1.1	0.03	
J21	J21	11	44	11	50	6	18	10	19	47	2	1315	217.5	0.9	0.1	0.03	
J22	J22	11	47	11	50	6	18	10	19	47	1	33738	219.1	59.6	6.0	0.03	
J23	J23	11	49	11	51	6	18	10	19	50	3	1001	215.3	0.3	0.0	0.03	
J24	J24	11	50	11	52	6	18	10	19	50	2	1710	231.0	1.3	0.1	0.03	
J25	J25	11	51	11	53	6	18	10	19	52	1	2085	219.3	3.4	0.3	0.03	
J26	J26	11	53	11	54	6	18	10	19	53	2	1006	216.7	0.6	0.1	0.03	
J27	J27	11	54	11	59	6	18	10	19	55	1	2841	216.2	4.8	0.5	0.03	
J28	J28	11	56	12	0	6	18	10	19	55	1	9798	217.5	17.1	1.7	0.03	
J29	J29	11	58	12	1	6	18	10	19	56	1	10066	214.2	17.6	1.8	0.03	
J30	J30	11	59	12	2	6	18	10	19	56	1	7515	219.3	13.1	1.3	0.03	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 2

BATCH: J

SURFACE: SOIL

AIR TEMP MIN: 48°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 16 10

RETRIEVED: 6 17 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	RETRIV DA	ANALYSIS YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:			
J31	J31	12	1	12	3	6	18	10	19	58	1	15550	215.4	27.3	2.7	0.03	
J32	J32	12	3	12	4	6	18	10	19	58	2	1228	212.8	0.8	0.1	0.03	
J33	J33	12	5	12	5	6	18	10	20	0	1	16455	216.9	28.9	2.9	0.03	
J34	J34	12	7	12	6	6	18	10	20	1	3	1277	215.4	0.5	0.0	0.03	
J35	J35	12	10	12	7	6	18	10	20	5	3	1002	215.0	0.3	0.0	0.03	
J36	J36	12	12	12	9	6	18	10	20	4	1	7343	213.1	12.8	1.3	0.03	
J37	J37	12	13	12	10	6	18	10	20	8	1	5351	210.1	9.2	0.9	0.03	
J38	J38	12	15	12	11	6	18	10	20	8	1	12010	221.5	21.1	2.1	0.03	
J39	J39	12	16	12	12	6	18	10	20	9	1	3666	212.3	6.3	0.6	0.03	
J40	J40	12	18	12	13	6	18	10	20	9	1	8170	221.1	14.3	1.4	0.03	
J41	J41	12	21	12	14	6	18	10	20	12	3	1164	211.5	0.4	0.0	0.03	
J42	J42	12	23	12	15	6	18	10	20	11	1	12910	215.9	22.8	2.3	0.03	
J43	J43	12	25	12	16	6	18	10	20	15	1	3054	216.4	5.2	0.5	0.03	
J44	J44	12	26	12	17	6	18	10	20	15	1	5116	211.7	8.9	0.9	0.03	
J45	J45	12	28	12	18	6	18	10	20	16	1	14252	216.5	25.2	2.5	0.03	
J46	J46	12	45	12	37	6	18	10	20	16	1	31982	224.0	56.8	5.7	0.03	
J47	J47	12	46	12	38	6	18	10	20	18	2	1452	229.1	1.0	0.1	0.03	
J48	J48	12	48	12	39	6	18	10	20	18	2	1384	220.7	1.0	0.1	0.03	
J49	J49	12	50	12	40	6	18	10	20	20	1	3235	215.4	5.5	0.6	0.03	
J50	J50	12	51	12	41	6	18	10	20	20	1	3793	213.4	6.5	0.7	0.03	
J51	J51	12	53	12	42	6	18	10	20	21	1	10928	213.4	19.2	1.9	0.03	
J52	J52	12	54	12	43	6	18	10	20	21	1	5029	219.8	8.7	0.9	0.03	
J53	J53	12	55	12	44	6	18	10	20	23	1	13336	219.2	23.5	2.4	0.03	
J54	J54	12	56	12	45	6	18	10	20	23	1	38851	218.8	69.1	6.9	0.03	
J55	J55	12	57	12	46	6	18	10	20	24	1	3329	220.8	5.7	0.6	0.03	
J56	J56	12	58	12	47	6	18	10	20	24	1	26889	220.7	47.8	4.8	0.03	
J57	J57	12	59	12	48	6	18	10	20	26	1	26277	215.7	46.6	4.7	0.03	
J58	J58	13	0	12	49	6	18	10	20	26	2	1661	217.0	1.2	0.1	0.03	
J59	J59	13	1	12	50	6	18	10	20	29	2	1235	221.4	0.8	0.1	0.03	
J60	J60	13	2	12	50	6	18	10	20	29	2	1104	218.9	0.7	0.1	0.03	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 2

BATCH: J

SURFACE: SOIL

AIR TEMP MIN: 48°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 16 10

RETRIEVED: 6 17 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	RETRIV DA	ANALYSIS YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:			
J61	J61	12	21	12	14	6	18	10	20	32	3	1217	210.1	0.5	0.0	0.03	
J62	J62	12	23	12	15	6	18	10	20	31	1	2554	213.4	4.3	0.4	0.03	
J63	J63	12	25	12	16	6	18	10	20	35	2	1001	212.0	0.6	0.1	0.03	
J64	J64	12	26	12	17	6	18	10	20	35	2	1324	213.4	0.9	0.1	0.03	
J65	J65	12	28	12	18	6	18	10	20	37	1	6811	227.7	11.9	1.2	0.03	
J66	J66	12	45	12	37	6	18	10	20	37	1	13216	221.6	23.4	2.3	0.03	
J67	J67	12	46	12	38	6	18	10	20	38	1	5177	213.7	9.0	0.9	0.03	
J68	J68	12	48	12	39	6	18	10	20	38	1	13843	214.9	24.5	2.4	0.03	
J69	J69	12	50	12	40	6	18	10	20	40	1	1265	214.7	2.0	0.2	0.03	
J70	J70	12	51	12	41	6	18	10	20	40	1	1508	218.1	2.4	0.2	0.03	
J71	J71	12	53	12	42	6	18	10	20	41	1	14099	216.0	24.9	2.5	0.03	
J72	J72	12	54	12	43	6	18	10	20	41	1	2910	214.3	4.9	0.5	0.03	
J73	J73	12	55	12	44	6	18	10	20	43	1	6439	214.5	11.2	1.1	0.03	
J74	J74	12	56	12	45	6	18	10	20	43	1	40083	215.4	71.5	7.2	0.03	
J75	J75	12	57	12	46	6	18	10	20	45	1	6587	214.9	11.5	1.2	0.03	
J76	J76	12	58	12	47	6	18	10	20	47	3	1216	218.5	0.5	0.0	0.03	
J77	J77	12	59	12	48	6	18	10	20	50	1	3534	217.7	6.1	0.6	0.03	
J78	J78	13	0	12	49	6	18	10	20	50	1	3114	228.2	5.3	0.5	0.03	
J79	J79	13	1	12	50	6	18	10	20	52	1	79392	215.8	141.6	14.2	0.03	
J80	J80	13	2	12	50	6	18	10	20	52	1	2527	221.9	4.3	0.4	0.03	
J81	J81	13	9	12	51	6	18	10	20	53	1	1209	217.4	1.9	0.2	0.03	
J82	J82	13	10	12	52	6	18	10	20	54	2	1609	219.9	1.2	0.1	0.03	
J83	J83	13	11	12	53	6	18	10	20	56	1	4206	214.1	7.3	0.7	0.03	
J84	J84	13	12	12	54	6	18	10	20	56	1	2292	218.0	3.9	0.4	0.03	
J85	J85	13	13	12	55	6	18	10	20	58	2	1821	209.7	1.4	0.1	0.03	
J86	J86	13	14	12	56	6	18	10	20	58	1	3785	217.3	6.5	0.7	0.03	
J87	J87	13	14	12	57	6	18	10	21	1	3	1004	214.5	0.3	0.0	0.03	
J88	J88	13	15	12	58	6	18	10	21	1	3	1007	210.4	0.3	0.0	0.03	
J89	J89	13	15	12	59	6	18	10	21	5	4	1101	215.9	0.2	0.0	0.03	
J90	J90	13	16	12	59	6	18	10	21	4	1	17078	221.4	30.5	3.0	0.03	



CLIENT: DENISON MINES      PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL      PROJECT NO.: 10004.00

PILE: 2      BATCH: J      SURFACE: SOIL      AIR TEMP MIN: 48°F      WEATHER: NO RAIN  
 AREA: COVER      DEPLOYED: 6 16 10      RETRIEVED: 6 17 10      CHARCOAL BKG: 147      cpm      Wt. Out: 180.0      g.  
 FIELD TECHNICIANS: WM,MC,CS,DLC      COUNTED BY: DLC      DATA ENTRY BY: DLC      TARE WEIGHT: 29.2      g.  
 COUNTING SYSTEM I.D.: M01/D21, M02/D20      CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	MIN	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
J91	J91	13	9	12	51	6 18 10	21	8	1	2635	218.7	4.5	0.4	0.03	
J92	J92	13	10	12	52	6 18 10	21	8	1	1431	212.9	2.3	0.2	0.03	
J93	J93	13	11	12	53	6 18 10	21	10	1	1631	211.6	2.7	0.3	0.03	
J94	J94	13	12	12	54	6 18 10	21	11	2	1611	218.2	1.2	0.1	0.03	
J95	J95	13	13	12	55	6 18 10	21	13	1	1163	218.9	1.8	0.2	0.03	
J96	J96	13	14	12	56	6 18 10	21	14	2	1194	230.3	0.8	0.1	0.03	
J97	J97	13	15	12	57	6 18 10	21	18	3	1145	215.6	0.4	0.0	0.03	
J98	J98	13	15	12	58	6 18 10	21	19	5	1077	211.1	0.1	0.0	0.03	
J99	J99	13	16	12	59	6 18 10	21	25	3	1340	217.7	0.5	0.1	0.03	
J100	J100	13	16	12	59										No Sample
<b>AVERAGE RADON FLUX RATE FOR THE CELL 2 COVERED REGION:</b>												13.8	pCi/m <sup>2</sup> s		

BLANK CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	MIN	ANALYSIS MO	DA	YR	MID-TIME HR	MIN	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
J BLANK 1	J BLANK 1	11	44	11	50	6 19 10	10	27	10	1862	213.7	0.08	0.03	0.04	CONTROL
J BLANK 2	J BLANK 2	11	44	11	50	6 19 10	10	38	10	1820	210.5	0.07	0.03	0.04	CONTROL
J BLANK 3	J BLANK 3	11	44	11	50	6 19 10	10	38	10	1580	211.7	0.02	0.03	0.04	CONTROL
J BLANK 4	J BLANK 4	11	44	11	51	6 19 10	10	49	10	1696	210.9	0.04	0.03	0.04	CONTROL
J BLANK 5	J BLANK 5	11	44	11	51	6 19 10	10	49	10	1551	209.1	0.02	0.03	0.04	CONTROL
<b>AVERAGE BLANK CANISTER ANALYSIS FOR THE CELL 2 COVERED REGION:</b>												0.05	pCi/m <sup>2</sup> s		

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: H

SURFACE: SOIL

AIR TEMP MIN: 46°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 15 10

RETRIEVED: 6 16 10

CHARCOAL BKG: 147

cpm

Wt. Out:

180.0 g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT:

29.2 g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
H01	H01	10	38	10	47	6 18 10	17 14	1	1231	221.2	2.3	0.2	0.04	
H02	H02	10	40	10	48	6 18 10	17 14	1	2731	217.4	5.4	0.5	0.04	
H03	H03	10	42	10	49	6 18 10	17 17	3	1328	218.5	0.6	0.1	0.04	
H04	H04	10	44	10	50	6 18 10	17 16	1	2897	218.1	5.8	0.6	0.04	
H05	H05	10	46	10	51	6 18 10	17 20	2	1262	213.8	1.0	0.1	0.04	
H06	H06	10	48	10	52	6 18 10	17 20	2	1797	214.2	1.6	0.2	0.04	
H07	H07	10	50	10	53	6 18 10	17 22	2	1649	214.7	1.4	0.1	0.04	
H08	H08	10	52	10	54	6 18 10	17 22	1	5298	219.9	10.8	1.1	0.04	
H09	H09	10	54	10	55	6 18 10	17 24	1	8677	217.5	17.9	1.8	0.04	
H10	H10	10	56	10	56	6 18 10	17 24	1	7791	218.5	16.1	1.6	0.04	
H11	H11	10	38	10	46	6 18 10	17 25	1	1695	215.7	3.2	0.3	0.04	
H12	H12	10	40	10	47	6 18 10	17 25	1	1648	217.8	3.2	0.3	0.04	
H13	H13	10	42	10	48	6 18 10	17 27	2	1763	212.3	1.5	0.2	0.04	
H14	H14	10	44	10	49	6 18 10	17 27	2	1572	217.1	1.3	0.1	0.04	
H15	H15	10	47	10	50	6 18 10	17 30	2	1207	218.1	1.0	0.1	0.04	
H16	H16	10	48	10	51	6 18 10	17 30	2	1466	219.0	1.2	0.1	0.04	
H17	H17	10	50	10	52	6 18 10	17 33	3	1020	215.8	0.4	0.1	0.04	
H18	H18	10	53	10	53	6 18 10	17 31	1	1067	216.4	1.9	0.2	0.04	
H19	H19	10	54	10	54	6 18 10	17 37	4	1181	218.5	0.3	0.0	0.04	
H20	H20	10	56	10	55	6 18 10	17 36	2	1493	216.2	1.3	0.1	0.04	
H21	H21	10	58	10	58	6 18 10	17 40	1	6584	218.5	13.6	1.4	0.04	
H22	H22	11	0	10	59	6 18 10	17 40	1	1497	216.1	2.9	0.3	0.04	
H23	H23	11	2	11	0	6 18 10	17 43	3	1135	219.8	0.5	0.1	0.04	
H24	H24	11	4	11	1	6 18 10	17 43	3	1222	216.1	0.6	0.1	0.04	
H25	H25	11	6	11	2	6 18 10	17 45	1	1163	220.2	2.1	0.2	0.04	
H26	H26	11	8	11	3	6 18 10	17 45	1	4770	216.3	9.8	1.0	0.04	
H27	H27	11	10	11	4	6 18 10	17 47	1	9487	217.1	19.8	2.0	0.04	
H28	H28	11	12	11	5	6 18 10	17 47	1	14410	223.2	30.2	3.0	0.04	
H29	H29	11	14	11	6	6 18 10	17 48	1	4849	213.7	10.0	1.0	0.04	
H30	H30	11	16	11	7	6 18 10	17 48	1	6622	215.4	13.7	1.4	0.04	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: H

SURFACE: SOIL

AIR TEMP MIN: 46°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 15 10

RETRIEVED: 6 16 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:	
H31	H31	10	57	10	56	6 18 10	17	50	1	4398	216.7	9.0	0.9	0.04	
H32	H32	10	59	10	57	6 18 10	17	51	3	1216	216.1	0.5	0.1	0.04	
H33	H33	10	59	10	58	6 18 10	17	53	1	2069	217.7	4.1	0.4	0.04	
H34	H34	11	1	11	59	6 18 10	17	54	2	1433	223.0	1.2	0.1	0.04	
H35	H35	11	2	11	0	6 18 10	17	57	2	1275	217.2	1.0	0.1	0.04	
H36	H36	11	3	11	1	6 18 10	17	57	2	1016	218.2	0.8	0.1	0.04	
H37	H37	11	4	11	2	6 18 10	17	59	1	1072	212.9	2.0	0.2	0.04	
H38	H38	11	4	11	3	6 18 10	18	0	2	1599	217.0	1.4	0.1	0.04	
H39	H39	11	5	11	4	6 18 10	18	3	2	1606	217.4	1.4	0.1	0.04	
H40	H40	11	6	11	5	6 18 10	18	3	1	2334	213.5	4.6	0.5	0.04	
H41	H41	11	18	11	9	6 18 10	18	4	2	1410	218.0	1.2	0.1	0.04	
H42	H42	11	20												submerged
H43	H43	11	22	11	16	6 18 10	18	7	3	1191	214.4	0.5	0.1	0.04	
H44	H44	11	24	11	17	6 18 10	18	7	3	1171	209.9	0.5	0.1	0.04	
H45	H45	11	26	11	18	6 18 10	18	10	2	1973	220.6	1.8	0.2	0.04	
H46	H46	11	28	11	19	6 18 10	18	10	2	1333	214.4	1.1	0.1	0.04	
H47	H47	11	30	11	28	6 18 10	18	12	1	1075	216.0	2.0	0.2	0.04	
H48	H48	11	32	11	29	6 18 10	18	12	1	1176	217.0	2.2	0.2	0.04	
H49	H49	11	34	11	30	6 18 10	18	13	1	1968	216.0	3.8	0.4	0.04	
H50	H50	11	36	11	31	6 18 10	18	13	1	3671	215.1	7.5	0.7	0.04	
H51	H51	11	8	11	6	6 18 10	18	15	1	2508	219.4	5.0	0.5	0.04	
H52	H52	11	9	11	7	6 18 10	18	16	3	1007	215.1	0.4	0.1	0.04	
H53	H53	11	10	11	8	6 18 10	18	20	3	1012	211.8	0.4	0.1	0.04	
H54	H54	11	11	11	9	6 18 10	18	19	1	2184	218.6	4.3	0.4	0.04	
H55	H55	11	12	11	9	6 18 10	18	24	3	1005	221.3	0.4	0.1	0.04	
H56	H56	11	20	11	16	6 18 10	18	23	1	2720	215.3	5.5	0.5	0.04	
H57	H57	11	22	11	17	6 18 10	18	27	1	2121	217.1	4.2	0.4	0.04	
H58	H58	11	26	11	18	6 18 10	18	29	3	1441	223.4	0.7	0.1	0.04	
H59	H59	11	26	11	19	6 18 10	18	32	2	1355	217.6	1.1	0.1	0.04	
H60	H60	11	30	11	20	6 18 10	18	32	1	1125	212.6	2.1	0.2	0.04	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: H

SURFACE: SOIL

AIR TEMP MIN: 46°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 15 10

RETRIEVED: 6 16 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
H61	H61	11	32	11	21	6 18 10	18 34	1	1370	214.6	2.6	0.3	0.04	
H62	H62	11	35	11	22	6 18 10	18 34	1	1151	215.6	2.1	0.2	0.04	
H63	H63	11	36	11	23	6 18 10	18 37	3	1081	217.8	0.5	0.1	0.04	
H64	H64	11	37	11	24	6 18 10	18 37	2	1630	217.4	1.4	0.1	0.04	
H65	H65	11	38	11	25	6 18 10	18 40	2	1963	218.2	1.8	0.2	0.04	
H66	H66	11	39	11	26	6 18 10	18 40	3	1092	221.8	0.5	0.1	0.04	
H67	H67	11	40	11	27	6 18 10	18 43	2	1636	215.7	1.4	0.1	0.04	
H68	H68	11	41	11	39	6 18 10	18 43	2	1311	216.0	1.1	0.1	0.04	
H69	H69	11	43	11	40	6 18 10	18 45	2	1076	219.0	0.8	0.1	0.04	
H70	H70	11	45	11	40	6 18 10	18 45	2	1919	216.0	1.7	0.2	0.04	
H71	H71	11	44	11	28	6 18 10	18 48	2	1311	219.7	1.1	0.1	0.04	
H72	H72	11	46	11	29	6 18 10	18 48	2	1166	216.3	0.9	0.1	0.04	
H73	H73	11	47	11	30	6 18 10	18 51	3	1414	217.6	0.7	0.1	0.04	
H74	H74	11	48	11	31	6 18 10	18 50	1	1370	216.1	2.6	0.3	0.04	
H75	H75	11	51	11	32	6 18 10	18 54	1	16852	219.4	35.8	3.6	0.04	
H76	H76	11	53	11	33	6 18 10	18 54	1	12873	220.1	27.3	2.7	0.04	
H77	H77	11	53	11	43	6 18 10	18 56	2	1585	213.6	1.4	0.1	0.04	
H78	H78	11	54	11	43	6 18 10	18 56	1	4131	214.0	8.5	0.9	0.04	
H79	H79	11	55	11	44	6 18 10	18 59	2	1777	215.0	1.6	0.2	0.04	
H80	H80	11	56	11	44	6 18 10	18 59	1	4092	218.5	8.4	0.8	0.04	
H81	H81	11	57	11	45	6 18 10	19 1	1	1102	216.2	2.0	0.2	0.04	
H82	H82	11	58	11	45	6 18 10	19 1	1	2699	223.0	5.5	0.5	0.04	
H83	H83	11	59	11	46	6 18 10	19 2	1	4153	221.7	8.5	0.9	0.04	
H84	H84	12	0	11	46	6 18 10	19 2	1	13962	210.4	29.6	3.0	0.04	
H85	H85	12	1	11	47	6 18 10	19 3	1	5435	217.5	11.3	1.1	0.04	
H86	H86	11	53	11	47	6 18 10	19 3	1	13230	220.6	27.8	2.8	0.04	
H87	H87	11	54	11	48	6 18 10	19 5	1	2514	215.5	5.0	0.5	0.04	
H88	H88	11	55	11	48	6 18 10	19 5	1	3365	222.8	6.9	0.7	0.04	
H89	H89	11	56	11	49	6 18 10	19 6	1	4508	218.7	9.3	0.9	0.04	
H90	H90	11	57	11	49	6 18 10	19 6	1	3315	217.2	6.8	0.7	0.04	

CLIENT: DENISON MINES

PROJECT: RADON FLUX MEASUREMENTS, WHITE MESA MILL

PROJECT NO.: 10004.00

PILE: 3

BATCH: H

SURFACE: SOIL

AIR TEMP MIN: 46°F

WEATHER: NO RAIN

AREA: COVER

DEPLOYED: 6 15 10

RETRIEVED: 6 16 10

CHARCOAL BKG: 147

cpm

Wt. Out: 180.0

g.

FIELD TECHNICIANS: WM,MC,CS,DLC

COUNTED BY: DLC

DATA ENTRY BY: DLC

TARE WEIGHT: 29.2

g.

COUNTING SYSTEM I.D.: M01/D21, M02/D20

CAL. DUE: 6/07/11

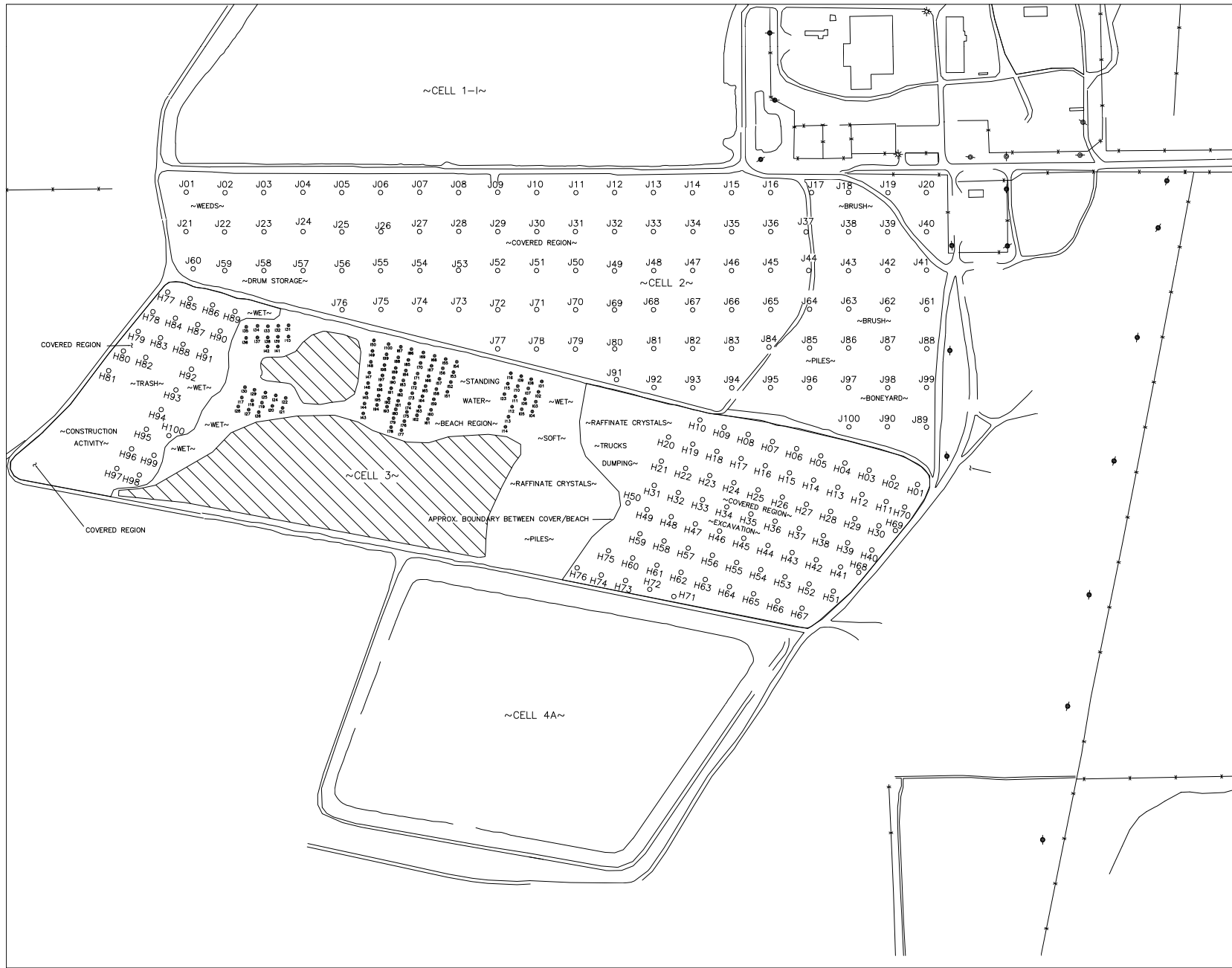
GRID LOCATION	SAMPLE I. D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	DA	YR	MID-TIME HR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:
H91	H91	11 58	11 50	6 18	10 10	19 8	1	29362	213.6	62.1	6.2	0.04		
H92	H92	11 59	11 50	6 18	10 10	19 8	1	4895	220.6	10.1	1.0	0.04		
H93	H93	12 0	11 51	6 18	10 10	19 11	3	1288	216.6	0.6	0.1	0.04		
H94	H94	12 6	11 42	6 18	10 10	19 11	2	1955	216.8	1.8	0.2	0.04		
H95	H95	12 5	11 41	6 18	10 10	19 14	1	2996	219.9	6.1	0.6	0.04		
H96	H96	12 4	11 40	6 18	10 10	19 14	1	3473	213.3	7.2	0.7	0.04		
H97	H97	12 3	11 39	6 18	10 10	19 16	2	1740	219.0	1.6	0.2	0.04		
H98	H98	12 2	11 38	6 18	10 10	19 16	1	3474	217.3	7.2	0.7	0.04		
H99	H99	12 1	11 37	6 18	10 10	19 18	2	1677	215.6	1.5	0.1	0.04		
H100	H100	12 0	11 36	6 18	10 10	19 18	1	1741	218.2	3.4	0.3	0.04		
<b>AVERAGE RADON FLUX RATE FOR THE CELL 3 COVERED REGION:</b>											5.7	pCi/m <sup>2</sup> s		

BLANK CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	RETRIV HR	ANALYSIS MIN	MID-TIME MO	DA	YR	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m <sup>2</sup> s	± pCi/m <sup>2</sup> s	LLD pCi/m <sup>2</sup> s	COMMENTS:	
H BLANK 1	H BLANK 1	10 30	10 41	6 19	10 10	10 5	10	1997	211.7	0.13	0.03	0.04	CONTROL	
H BLANK 2	H BLANK 2	10 30	10 41	6 19	10 10	10 5	10	1923	209.6	0.11	0.03	0.04	CONTROL	
H BLANK 3	H BLANK 3	10 30	10 41	6 19	10 10	10 16	10	2000	208.9	0.13	0.03	0.04	CONTROL	
H BLANK 4	H BLANK 4	10 30	10 41	6 19	10 10	10 16	10	1891	209.3	0.10	0.03	0.04	CONTROL	
H BLANK 5	H BLANK 5	10 30	10 41	6 19	10 10	10 27	10	1805	209.4	0.08	0.03	0.04	CONTROL	
<b>AVERAGE BLANK CANISTER ANALYSIS FOR THE CELL 3 COVERED REGION:</b>											0.11	pCi/m <sup>2</sup> s		

## **Appendix D**

Sample Locations Map (Figure 2)



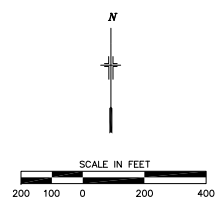
**WHITE MESA MILL  
BLANDING, UTAH  
NESHAPS 2010**

PREPARED FOR  
DENISON MINES (USA) CORP.

**LEGEND**

- J01 - SAMPLE LOCATION ON BEACH AREAS
- H01 - SAMPLE LOCATION ON COVERED AREAS

**FIGURE 2**



**TELCO**  
ENVIRONMENTAL, LLC

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