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28 April 2008

Mr. Steven D. Landau
Manager, Environmental Affairs
Denison Mines (USA) Corp.
1050 17th Street, Suite 950
Denver, CO 80265

**Subject: Review of Environmental Radiological Monitoring Program
for the White Mesa Uranium Mill**

Dear Mr. Landau:

This letter report provides a review of the environmental radiological monitoring program at Denison's White Mesa Uranium Mill (the "Mill") in San Juan County, Utah, in support of an application by Denison Mines (USA) Corp. (DUSA) to develop new tailings cell 4B... Specifically, this report addresses the question of whether or not any changes to the current environmental radiation monitoring program at the Mill site are warranted by the addition of tailings Cell 4B

In preparing this report, we directly reference and use information in Mill's 2007 Semi-Annual Effluent Monitoring Reports (DUSA 2007 and 2008), and other information provided to us by DUSA.

1.0 CURRENT ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

Annual meteorological data collected from the Mill's meteorological station show that the predominant wind directions during the past four years (2004-2007) were blowing from the north-north-easterly and northerly directions (Turk 2007 and Landau 2008b). The 2007 annual frequency distribution is presented graphically in Figure 1. The wind blows from the north-north-easterly (at an average speed of 2.8 m/s, 14.9% of the time) and northerly (at an average speed of 3.1 m/s, 14.0% of the time) (Landau 2008b). The locations of the air monitoring stations are also shown on Figure 1. These data are considered to represent long term wind patterns at the Mill. Air monitoring stations BHV-1 and BHV-2 will detect radiological

characteristics of winds from the south and station BHV-4 and BHV-6 will detect radiological characteristics of winds from the north.

The current radiological monitoring program at the Mill has the following environmental media and conditions (DUSA 2007 and 2008):

1. Air particulate radionuclide concentrations from the following sampling stations (see Figure 2):
 - North, East, and South of the Mill site: BHV-1 & BHV-2 (north), BHV-5 (east), BHV-4 (south);
 - BHV-3 (a background station west of the Mill) used to monitor airborne particulate until November 1995 and subsequently decommissioned with the approval of the United States Nuclear Regulatory Commission (NRC);
 - BHV-6 (station specifically requested by the White Mesa Ute Community south of the Mill site).
2. External (direct) gamma radiation measurements at air monitoring stations BHV-1, BHV-2, BHV-3, BHV-4, aBHV-5 and BHV-6.
3. Radon-222 is measured at air monitoring stations BHV-1, BHV-2, BHV-4, BHV-5 and BHV-6.
4. Vegetative uptake of radionuclides at three periphery locations.
5. Stack releases from the facility's air emissions sources.
6. Annual Surface water samples from within Cottonwood Creek and, when flowing, the Westwater Creek drainage, both located west of the Mill.
7. Annual Soil radionuclide activity obtained near the air monitoring station.
8. Groundwater at the Mill facility, as well as up gradient and down gradient).

2.0 REVIEW OF ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

In order to review the adequacy of the environmental radiological monitoring program in light of the addition of Cell 4B, some general observations from the semi-annual effluent reports for 2007 (DUSA 2007 and 2008) and meteorological data are provided:

- The current BHV stations cover the predominant wind directions: BHV-1 and BHV-2 cover winds that flow predominantly from the south, and BHV-4 and BHV-6 cover the winds predominantly flowing from the north of the Mill.
- The annual mean wind speed was 3.4 m/s;

- The measured activity of airborne particulate (U-nat, Th-230, Ra-226 and Pb-210) at all monitoring stations shown in Figure 2 were well below regulatory Effluent Concentration Limits (ECLs) and the Mill's "As Low As Reasonably Achievable" (ALARA) goals (i.e., 25% of the ECL);
- Previously, radon monitoring had been carried out but was discontinued with the agreement of the NRC in 1995. However, over time, radon detection has improved and alpha track monitoring for radon was implemented at the environmental monitoring stations in the 1st quarter of 2007. The measured radon-222 concentration values are compared to derived ECLs which serve an ALARA goal. It is noted that the annual average radon-222 concentrations were less than the evaluation values for 2007.
- Results of thermoluminescent (TLD) measurement for external gamma radiation indicate gamma levels generally consistent with the local background, which although variable due to local geology and variation in altitude, is about 120 mrem per year (30 mrem per quarter), except for BHV-1 (which is adjacent to the front gate) and BHV-5 (near the site boundary).
- 2007 data compared to previous years indicate no increase in uptake of Ra-226 or Pb-210 in vegetation and are well within the range of previous sampling episodes. Moreover, the droughts in recent years have affected the availability of vegetative species at the three sampling locations.
- Stack releases were reported but these are direct stack measurements and are not comparable to ECLs which for regulatory compliance purposes are site boundary standards.
- Soil samples collected for fall 2007 showed that Ra-226 and U-nat concentrations were near background.
- Surface water samples were collected at Cottonwood Creek but radionuclide data did not indicate trending over time nor influences from the Mill operations. Westwater Creek was not able to be sampled because it was dry for the sampling events.

The results from DUSA (2007) did not show any anomalies from the historical data, which indicates the Mill's ALARA practices are adequately protecting the people and the environment. The measured radon-222 concentration were less than the derived ECLs; however, it is understood that monitoring will be continued to identify trends over time. .

3.0 EVALUATION

In our opinion, the current environmental radiological monitoring program is quite comprehensive and provides adequate measurements to provide assurance that the current activities at the Mill are not adversely affecting the local environment and to confirm the MILDOS modelling.

MILDOS modelling has shown that the introduction of tailings cell 4B will have no material effect on the exposures and doses to people living nearby the Mill. In part, this is due to the nature of local winds that predominantly blow from the north-north-easterly and northerly

directions based on the meteorological data from the last four years. As a result, any dust or radon from activities at the site will tend to disperse towards the valley to the west of the cell away from nearby residents. Thus, existing monitoring is adequate for ensuring protection of people who live near the Mill.

Given our understanding of the existing monitoring data and the low doses to people who live or undertake recreational activities such as hiking or hunting near the Mill, in our opinion the current environmental radiological monitoring is adequate and consistent with the objectives set out in the NRC's Regulatory Guide 4.14, *Radiological Effluent and Environmental Monitoring at Uranium Mills* (NRC 1980).

In closing, the current radiological monitoring program at the Mill adequately monitors the release of radioactive materials to the local environment associated with current Mill activities.

Should you have any questions or comments on this letter, please contact us at your convenience.

Yours very truly,

SENES Consultants Limited

Douglas B. Chambers, Ph.D.
Vice-President, Director of
Radioactivity and Risk Studies

REFERENCES

Denison Mines (USA) Corp. (DUSA) 2007. *White Mesa Uranium Mill Radioactive Materials License UT900479 Semi-Annual Effluent Monitoring Report (January through June, 2007)*. December.

Denison Mines (USA) Corp. (DUSA) 2008. *White Mesa Uranium Mill Radioactive Materials License UT900479 Semi-Annual Effluent Monitoring Report (July through Decemeber, 2007)*. March.

Landau, S. 2008a. E-mail to D. Chambers: FW: 34489 Environmental Rad Monitoring at White Mesa Mill

Landau, S. 2008b. E-mail to D. Chambers: 2007 Windrose

Turk, D. 2007. E-mail to D. Chambers: FW: Additional Weather Information.

United States Nuclear Regulatory Commission (NRC) 1980. Regulatory Guide 4.14, *Radiological Effluent and Environmental Monitoring at Uranium Mills-Rev. 1*.

FIGURE 2
LOCATION OF AIR MONITORING STATIONS

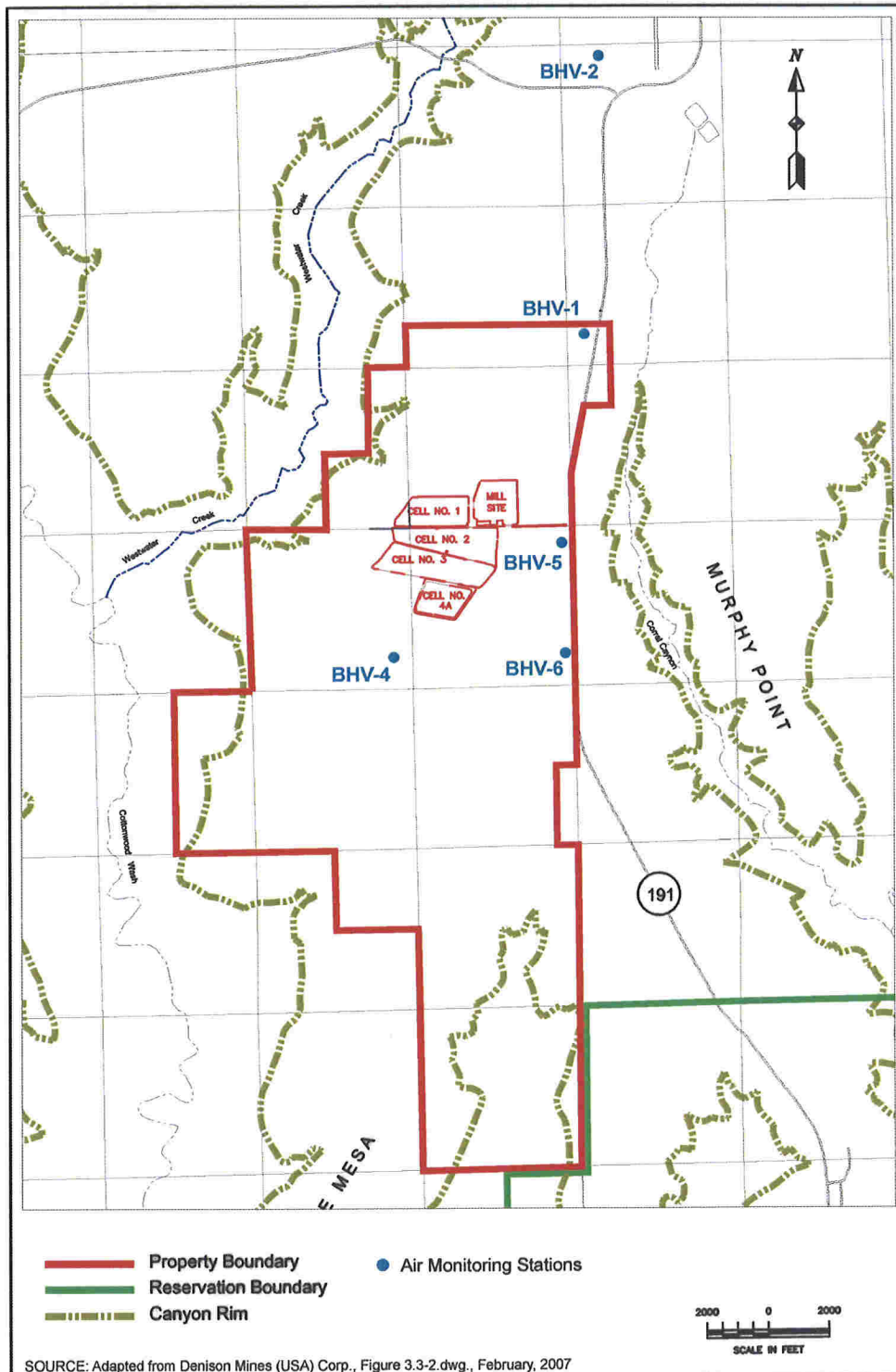


FIGURE 1
 2007 WIND ROSE PLOT

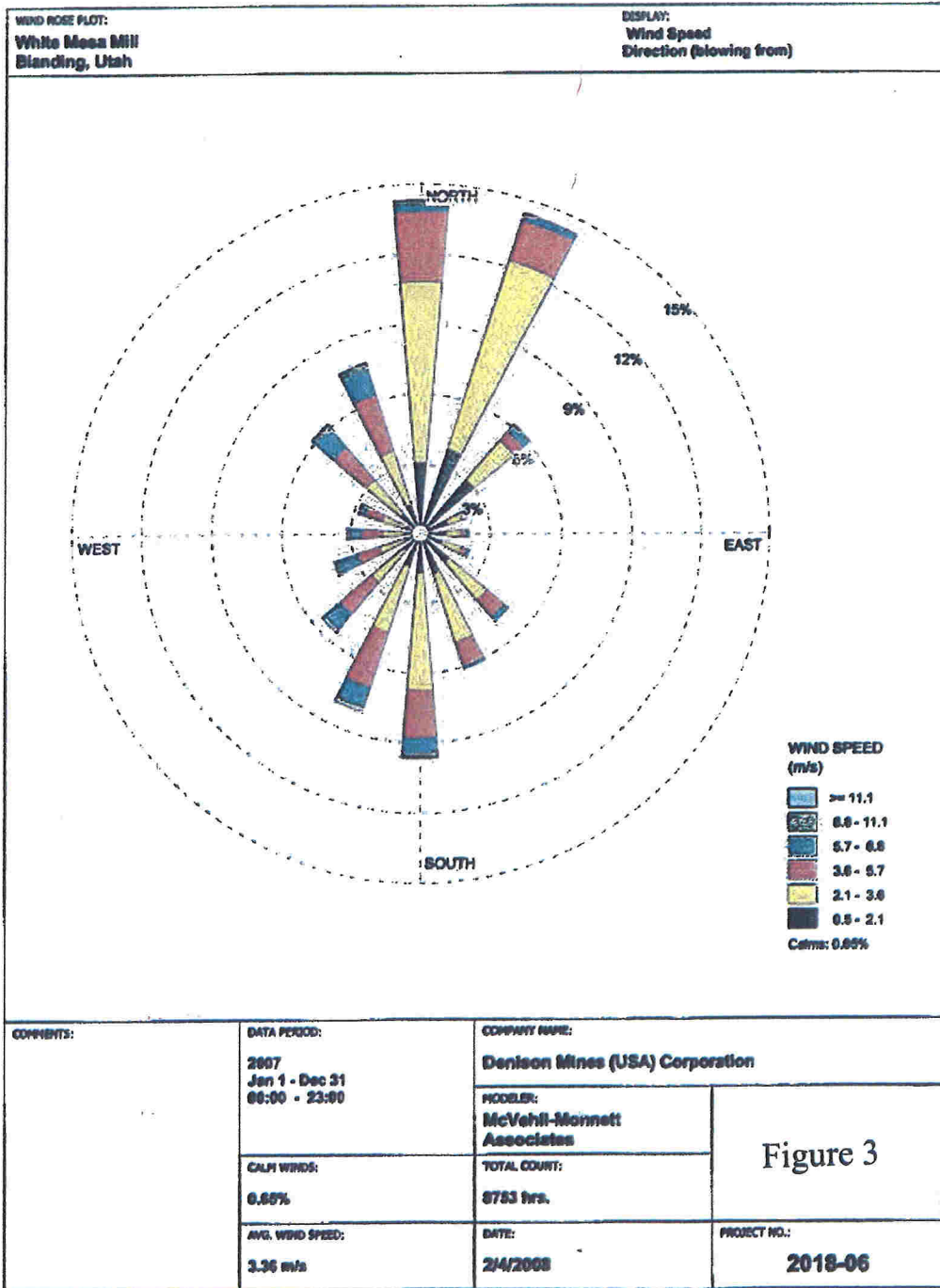


FIGURE 2
LOCATION OF AIR MONITORING STATIONS

