

# **Exhibit C**



UTE MOUNTAIN UTE TRIBE  
ENVIRONMENTAL PROGRAMS DEPARTMENT

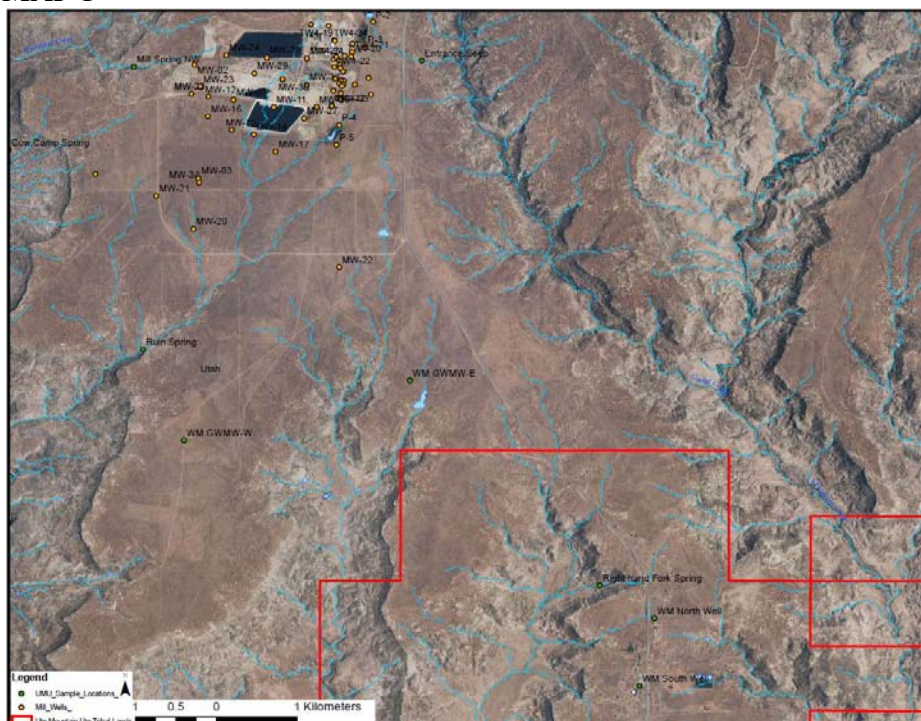
**Exhibit C to December 16, 2011 Comments on DUSA RML Renewal**

**Re: Identification of Potential Tailings Cell Influence in Groundwater at White Mesa Mill**

Assessment of groundwater data from two monitoring wells at Denison Mine's (USA) Corp. (DUSA) White Mesa Uranium Mill ("the Mill", or "Mill") has been completed by the Ute Mountain Ute Tribe Environmental Programs Department (UMU-EPD). UMU-EPD staff presents results of this assessment below, which indicate that contamination originating from the tailings cells is present in the groundwater at the southern boundary of the Mill's monitoring network.

Monitoring wells MW-20 and MW-22 were installed by (the Mill or DUSA) in 1994. They are located downgradient of the tailings impoundments and are the closest monitoring wells to the Ute Mountain Ute Tribal community of White Mesa (see Map 1 below).

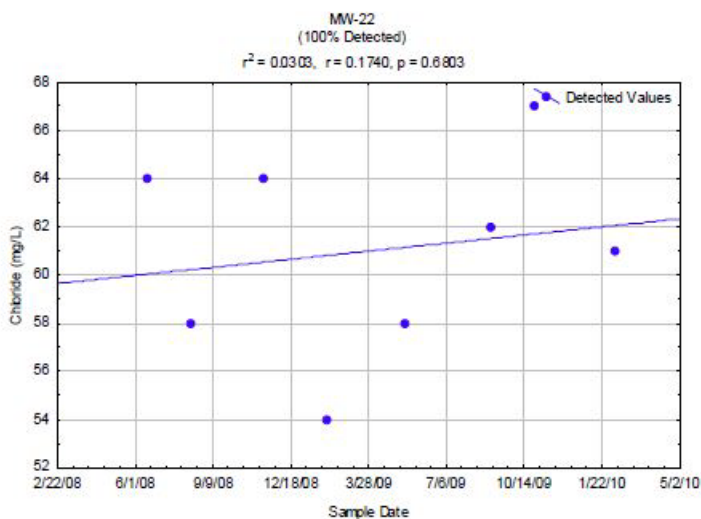
MAP 1



Although the wells were installed in 1994, the Utah Division of Radiation Control (DRC) did not require DUSA to provide any monitoring data from these wells until 2010 (after adding a requirement at Part I.E.2 of the Groundwater Discharge Permit (Permit UGW370004) during the March 17, 2008 Permit Modification). This requirement mandated DUSA to begin quarterly monitoring for eight consecutive quarters in wells MW-20 and MW-22 and to submit a report to determine background water quality and calculations of groundwater velocities within the vicinities of these wells.

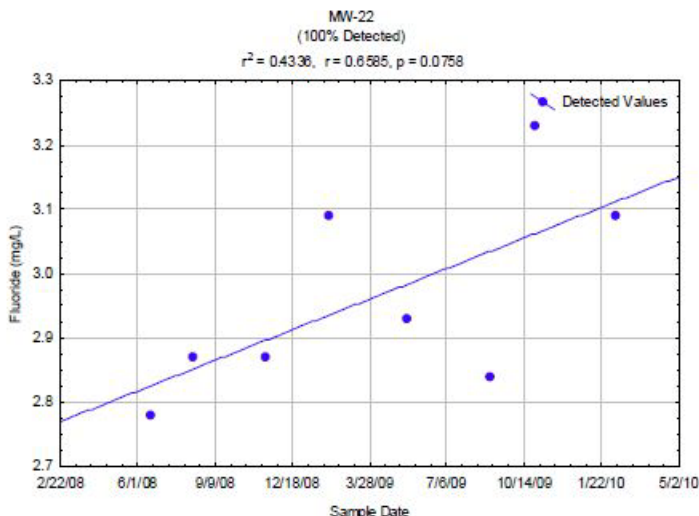
On June 1, 2010 DUSA submitted the “Background Groundwater Quality Report for Wells MW-20 and MW-22 for Denison Mines (USA) Corp.’s White Mesa Mill Site, San Juan County Utah.” The results included in the report for well MW-22 are disturbing and indicate that the groundwater aquifer is dangerously contaminated by the tailings impoundments. The presence of tailings leachate in the groundwater at MW-22 (located approximately one mile south of tailings cell 4A and approximately 1.3 miles north of the Tribes’ border, see Map 1 above) is alarming due to the serious risk of pollutant-migration to springs around the mesa as well as to the deeper Navajo aquifer, which supplies drinking water to the community of White Mesa (and to Bluff).

DUSA has resolutely stated that chloride, followed by fluoride, is the best indicator of tailings cell leakage (“Revised Background Groundwater Quality Report: Existing Wells For Denison Mines (USA) Corp.’s White Mesa Mill Site, San Juan County, Utah, October 2007,” “Background Report”). Chloride has chemical properties that facilitate transport by water and it is often chosen as a tracer of groundwater flow. Chloride is present at elevated concentrations in MW-20 and MW-22 and the results exhibit a rising trend:



Background Report, 2007

Fluoride is cited by DUSA as the second-best indicator of tailings impact to groundwater at White Mesa, “Other than chloride, the constituent with most promise for indicating potential impacts from tailings solutions is fluoride,” Background Report page 9-3. Fluoride is also present at elevated levels on a rising trend in MW-20 and MW-22:



Background Report, 2007

Additional chemical indicators of tailings impacts are also evident in the southern-most monitoring wells, where MW-22 displays a pH trending downwards with a sample result as low as 5.5 s.u. Furthermore, cadmium, cobalt, molybdenum, nickel and zinc are all present in the tailings solutions at extremely high concentrations (Annual Tailings Wastewater Monitoring Report Groundwater Quality Discharge Permit UGW370004 White Mesa Uranium Mill, November 19, 2010), and analytical results included in the Background Report state that these trace metals exist at elevated concentrations in MW-22 and are exhibiting rising trends (Background Report, 2007).

Manganese is another trace metal that is present in MW-22 at alarming concentrations. Manganese is present in the tailings at high concentrations (Annual Tailings Report) and the concentrations in MW-22 have been recorded as high as 31,800 ug/L (Background Report, 2007), which is a level that cannot represent natural groundwater conditions. Analysis of over 5,000 manganese results from the U.S. Geological Survey National Water-Quality Assessment Program, which collected trace element concentrations in groundwater from 5,183 monitoring wells between 1992 and 2003 from aquifers in arid and humid regions across the United States (Trace Elements and Radon in Groundwater Across the United States: U.S. Geological Survey Scientific Investigations Report 2011-5059), did not find a single manganese result at such a high level.

There is also isotopic evidence suggesting tailings cell influence at MW-22. The report, “Summary of work completed, data results, interpretations and recommendations for the July 2007 samplings event at the Denison Mines, USA, White Mesa Uranium Mill near Blanding, Utah, University of Utah May 2008” (University of Utah Report), provides evidence that modern

(less than 50 year old) surface water is recharging the shallow aquifer at the Mill site and is present in the groundwater at MW-22.

Tritium is a radioactive isotope of hydrogen. Because groundwater tritium concentrations reflect atmospheric tritium levels when the water was last in contact with the atmosphere, tritium can be used to date groundwater recharge. Tritium found in MW-22 indicates that recent recharge from a surface water source is occurring and influencing the well (page 27, 33). The evidence of recent surface water recharge in the aquifer, along with the presence of chemical tailings signature parameters, directly contradicts the WMM's claim and DRC's acceptance of calculated groundwater velocities and travel times in the shallow aquifer ("Calculated average linear groundwater velocities for MW-20 and MW-22 are 0.33 feet per year (ft/yr) and 0.43 ft/yr, respectively" Ground Water Quality Discharge Permit UGW370004 Statement of Basis February, 2011).

Sulfur isotopes were also sampled in MW-22, "Analytical results for sulfur-34 and oxygen-18 isotopes of sulfate, and deuterium and oxygen-18 isotopes of water were conducted to provide a possible fingerprint of water originating from the Mill tailings cells. Down-gradient waters with a similar isotopic fingerprint as the tailings cells, in addition to a significantly different isotopic fingerprint up-gradient of the tailings cells, may imply the tailings cells as contamination point-sources," (University of Utah Report page 4). MW-22 exhibited sulfur isotopes with ratios similar to surface water sites in tandem with oxygen-sulfur isotopes that were distinct from the surface water sites. These results, "may be explained by a recharge of surface water that isn't evaporated" (University of Utah Report page 48). Tailings leachate originating from the bottom of the tailings cells is un-exposed to the atmosphere and is thus a probable source for this signature given the distressing presence of leakage parameters of MW-22.

DRC has failed to adequately analyze multiple lines of evidence that indicate contamination originating from the tailings cells. Contaminants characteristic of the mill's tailings cells present in the groundwater aquifer a generous distance from the source constitutes a serious threat to public and environmental health. DRC has dismissed evidence from well MW-22 by stating that, "Monitoring wells MW-20 and MW-22 are far downgradient from the nearest tailings impoundment. MW-20 is about three quarters of a mile away and MW-22 is about a mile away and cross gradient from the downgradient edge of Cell 4A making it unlikely that groundwater quality in samples from these wells today has been influenced by potential tailings cell" (Ground Water Quality Discharge Permit UGW370004 Statement of Basis February, 2011).

The Tribe demands that DRC designate MW-20 and MW-22 as Point of Compliance Wells and immediately require DUSA to implement the concurrent closure and other groundwater protection measures the Tribe has specified in, "Comments Regarding Denison Mines (USA) Corp. Radioactive Materials License Renewal DRC-045" along with any other groundwater remediation measures that are necessary to protect human health and the environment.

## References

Ayotte, J.D. Gronberg, J.M., and Apodaca, L.E., 2011, *Trace Elements and Radon in Groundwater Across the United States: U.S. Geological Survey Scientific Investigations Report 2011-5059*, 115 p.

Solomon, D.Kip., Hurst, T.Grant., May 2008. *Summary of work completed, data results, interpretations and recommendations For the July 2007 Sampling Event At the Denison Mines, USA, White Mesa Uranium Mill Near Blanding Utah.*

Interra, Inc. Prepared for Denison Mines. June 2010. *Background Groundwater Quality Report for Wells MW-20 and MW-22 for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah.*

Denison Mines (USA) Corp. Annual Tailings Wastewater Monitoring Report Groundwater Quality Discharge Permit UGW370004 White Mesa Uranium Mill. November 19, 2010.

Utah Division of Radiation Control. Ground Water Quality Discharge Permit UGW370004 Statement of Basis February, 2011.

Ute Mountain Ute Tribe, December 2011. Comments Regarding Denison Mines (USA) Corp. Radioactive Materials License Renewal DRC-045. Gary Hayes, Chairman, Ute Mountain Ute Tribe to Rusty Lundberg, Director, Utah Division of Radiation Control.