

# Uranium Watch

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Walt Baker  
Executive Secretary  
Utah Water Quality Board  
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RE: Comments on UPDES Permit Number UT0025810. Velvet Mine: Uranium One Exploration, Inc.

Below please find the comments on the Utah Division of Water Quality (DWQ) Draft Utah Pollutant Discharge Elimination System (UPDES) Permit Number UT0025810 for the Uranium One Exploration, Inc. (Uranium One) Velvet Mine, San Juan County, Utah. The Public Notice was issued on October 22, 2008.

## **I. Application**

Uranium One Exploration submitted an application (Application) for the Velvet Mine UPDES permit, dated September 29, 2008. The application included two EPA forms, supporting tables and figures, and analytical data.

A. The Application states (page 9): "Long-term water consumption will be due to use of water in the mining process within the mine."

### **COMMENT:**

1. The Application should describe how the water that is contaminated with uranium, radium, and other radioactive and hazardous constituents will be used in the mining process and how that water might be returned to a point where it would then enter the barium treatment facility.

B. The Application (page 9), states: "Uranium One proposes to resume the historic dewatering program...."

### **COMMENT:**

1. The Application fails to describe the historic dewatering program, the historic discharge water treatment program, and the environmental impacts from those programs.

Such a description is important because of the past discharge of untreated, contaminated water from the Velvet Mine, possible residual contamination of the dry wash and drainage environment due to the historical discharge of untreated mine water, and the fact that the previous operator of the Velvet Mine operated an IX column in order to remove the uranium and other contaminants from the mine water. Additionally, the historic dewatering program would provide an understanding of why an IX resin column, rather than a barium chloride pond, was necessary and why the mine itself became part of the licensed operations of the Atlas Uranium Mill under the Atomic Energy Act and Nuclear Regulatory Commission regulations.

2. The DWQ should review and consider the past licensing records that brought the Velvet Mine under the NRC regulation and explain why the mine no longer falls under the Atomic Energy Act. See attached document, sent via first class mail.

3. The Application should have included an evaluation of the cumulative impacts of the discharge of the mine water. The DWQ should have required the Application to include characterization of the soil and water in and along the Dry Wash, Big Indian Wash, Hatch Wash, and Kane Creek so that background constituents and the extent of previous contamination from the mine could be established.

4. The Application should have included historical data on the concentration levels of various radiological and chemical constituents of the mine water and untreated and treated discharge water. This information is available and should be looked at by the DWQ.

5. The Application should have described and the DWQ should consider how the new discharge from the Velvet Mine would mobilize radioactive and non-radioactive materials that were previously deposited in the Dry Wash and the drainage system.

B. The Application briefly describes the barium chloride treatment operation that will be used to treat mine water prior to discharge. The Application states that the water will be mixed with barium chloride and the barium chloride assists in "Radium reduction."

COMMENT:

1. A report entitled, *Environmental Remediation of Uranium Production Facilities*<sup>1</sup>, supports the assertion that barium chloride is used to remove radium. The report (page 63) states: "Barium chloride is widely used in the uranium industry to remove radium." However, barium chloride is not used to remove uranium from mine water. The Application fails to explain how uranium and other radioactive and chemical constituents would be removed from the mine water in the treatment process.

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<sup>1</sup> Environmental Remediation of Uranium Production Facilities: A Joint Report By OECD Nuclear Energy Agency, International Atomic Energy Agency. Published by OECD Publishing, 2002. ISBN 9264195092, 9789264195097. 323 pages.

2. Historically, it has been the uranium in the discharge water that did meet standards. The Application (page 11) includes data on the Mine Water Influent Water Quality (Table 1). The total Uranium is 22.0 mg/L and 15.0 pCi/L. The water quality standard for uranium is 4.0 pCi/L and 2.0 mg/L. The Application (page 12) includes a Barium Chloride test results in Table 2. That table shows that the uranium content is 10.0 pCi/L. Therefore, the uranium content of the mine water, after treatment, remains over twice the Utah Water Quality Standards.

3. Table 2 also indicates that the ug/L of uranium (or is that mg/L?) is 15.0, and the Water Quality Standard is 4.0. However, the draft UPDES permit states that the standard for mg/L for uranium is 2.0. Be that as it may, it still appears that the uranium content for the discharged treated mine water would not meet the Utah Water Quality Standards for uranium.

4. The Application also includes data on the gross alpha for the mine water and the gross alpha after barium chloride treatment. Again, the gross alpha (measured with and without uranium and radon) remains above Water Quality Standards after treatment.

5. The Application does not explain how Uranium One will treat the mine water in order to meet the uranium standards and the gross alpha standards. Clearly, under the treatment plan envisioned by Uranium One, the water from the Velvet Mine could not possibly meet Utah Water Quality Standards.

C. Application (page 10) states: "Solid wastes from this [barium chloride] treatment process ... will be disposed of in an off-site licensed landfill. "

COMMENT:

1. The Application should have identified the type of waste that will be disposed of; characterized that waste; identified the specific federal and state regulatory programs that regulate that type of waste; identify specific licensed facilities that are or could be authorized to receive and dispose of that type of waste; and identify where, exactly, they intend to dispose of the waste; and identify any authorizations that must be approved.

2. The Velvet Mine should not operate until there is a known site that is authorized to receive and dispose of the waste from the barium chloride treatment facility and that site has an agreement with Uranium One to receive that waste.

## **II. Draft UPDES Permit**

A. Section I.D. Specific Limitations and Self-monitoring requirements.

COMMENT:

1. The monitoring requirements should include provisions for periodic split-sampling program to verify the sampling methods and results.

2. The table of Effluent Limitations (page 6) should include the requirement to measure Total Uranium in pico Curies per liter (pCi/L) and include the limits in pCi/L. The table

should the requirement to measure gross alpha and include the limits on gross alpha (with and without uranium and radon).

B. Section II. describes the Storm Water Pollution Prevention Plan requirements.

**COMMENT:**

1. The Application that I received did not include a Storm Water Pollution Prevention Plan (SWPP) and the draft Permit does not reference such a plan. Therefore, the public has not been provided an opportunity to review and comment on the SWPP. The Permit should include a date for the submittal of the required SWPP, and the Division of Water Quality should provide the public an opportunity to review and comment on that plan.

**III. Conclusion**

**The permit request should be denied for the following reasons:**

A. Application is incomplete.

B. The applicant has not demonstrated that the proposed mine-water treatment plan will be sufficient, such that the discharged mine water will meet the Water Quality Standards for uranium and gross alpha.

C. The applicant has not demonstrated that there is, in fact, a licensed facility that is authorized and willing to dispose of the mine-water treatment waste.

D. The Application did not address the cumulative impacts of the discharge of the mine water over the life of the Velvet Mine, nor the cumulative impacts from the discharge of uranium mine water for past, current, and expected uranium-mining operations in southeastern Utah.

E. The Application did not include the required SWPP.

F. The Application did not include background soil and water samples from the drainages that have been and will be impacted by the discharge of mine water from the Velvet Mine.

Thank you for this opportunity to comment.

Sincerely,

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Program Director  
Uranium Watch

These comments are also submitted on behalf of the following organizations:

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