



State of Utah

JON M. HUNTSMAN, JR.  
*Governor*

GARY HERBERT  
*Lieutenant Governor*

Department of  
Environmental Quality

Amanda Smith  
*Acting Executive Director*

DIVISION OF RADIATION CONTROL  
Dane L. Finerfrock  
*Director*

July 2, 2009

David C. Frydenlund  
Vice President, Regulatory Affairs and Counsel  
Denison Mines (USA) Corp.  
1050 17<sup>th</sup> Street, Suite 950  
Denver, Colorado 80265

RE: Renewal Application for Radioactive Material License (RML) No. UT1900479

Dear Mr. Frydenlund:

On February 28, 2007, Denison Mines (USA) Corp. submitted an application to renew the State of Utah RML No. UT1900479 for the White Mesa Uranium Mill located near Blanding Utah. The Division of Radiation Control (DRC) has reviewed the documentation that you provided according to NUREG 1556. On November 24, 2008, additional information was requested by the DRC and was later provided by Denison Mines. After reviewing the additional information provided, it has been determined that additional information is still required before the renewal of your RML (UT1900479) can proceed. Attached you will find a list of Interrogatory Statements outlining the information requiring further explanation. This list is divided into two sections. The first section is the 2<sup>nd</sup> round of Health Physics Interrogatories and the second section are Engineering Interrogatories. Environmental issues regarding this RML renewal were addressed during the last Groundwater Quality Discharge Permit Amendment of March 17, 2008. The DRC requests a response to these Interrogatory Statements by August 17, 2009. Please contact John Hultquist at (801) 536-4250 if you have any questions or concerns.

UTAH RADIATION CONTROL BOARD

Dane Finerfrock, Executive Secretary

Cc: David Turk, Radiation Safety Officer (w/enclosure)  
Harold Roberts, Executive Vice President, U.S. Operations (w/enclosure)

enclosure  
DLF/RJ/rj

# **SECTION 1**

**UTAH DIVISION OF RADIATION CONTROL  
DENISON MINES (USA) CORPORATION  
WHITE MESA URANIUM MILL  
BLANDING, UTAH**

**HEALTH PHYSICS INTERROGATORIES – ROUND 2**

**JULY 2, 2009**

## TABLE OF CONTENTS

### SectionPage

INTERROGATORY STATEMENT- RADIATION SAFETY OFFICER (RSO): .....	3
INTERROGATORY STATEMENT-THE EMERGENCY RESPONSE PLAN: .....	3
INTERROGATORY STATEMENT-RELEASE SURVEYS: .....	5
INTERROGATORY STATEMENT-AIR MONITORING: .....	11
INTERROGATORY STATEMENT- EXTERNAL RADIATION MONITORING: .....	11
INTERROGATORY STATEMENT- EMPLOYEE TRAINING: .....	11
INTERROGATORY STATEMENT-STANDARD OPERATING PROCEDURES: .....	13
INTERROGATORY STATEMENT-RESPIRATORY PROTECTION PROGRAM: .....	13
INTERROGATORY STATEMENT-RECORDS: .....	14
INTERROGATORY STATEMENT-REVISIONS AND UPDATES.....	14

## ACRONYMS AND ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DOT	US Department of Transportation
NRC	Nuclear Regulatory Commission
OSL	Optically Stimulated Luminescence
RML	Radioactive Materials License
RPP	Respiratory Protection Program
RSO	Radiation Safety Officer
RWP	Radiation Work Permit
SOP	Standard Operating Procedures
URCR	Utah Radiation Control Rules

**INTERROGATORY STATEMENT- RADIATION SAFETY OFFICER (RSO):**

Round One Interrogatory Statements 1 through 9 were answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT-THE EMERGENCY RESPONSE PLAN:**

Round One Interrogatory Statement 10 was answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT-ALTERNATE FEED:**

1. Round One Interrogatory Statement 11 "Provide the inspection procedure that discusses the inspection requirements of the alternate feed material that are stored in containers other than drums from when the mill takes acceptance of the material until they process the material" and Statement 12 "Provide the procedure that discusses how alternate feed material that is leaking from containers other than drums and is exposed to the wind will be containerized." The issue is ALARA. Demonstrate how mill workers and the General Public are protected from unnecessary inhalation exposure from alternate Feed Stocks that have 0.009 to 65% uranium content that are allowed to be exposed to the wind.

**BASIS FOR INTERROGATORY:**

Appendix C: Best Management Practices Plan 4.2.2 states that drums and other containers stored outdoors are maintained in good condition and secured from wind or leakage. During multiple inspections it has been observed and documented with photographs that alternate feed that have been shipped and stored in super sack type containers. These containers have been compromised and this material is leaking and is exposed to the wind.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix C: Best Management Practices Plan Section 4.2.2 *Protect Material Outside*.

**INTERROGATORY STATEMENT-ALTERNATE FEED:**

2. Round One Interrogatory Statement 13 "Provide the procedure used to determine how and when alternate feed material is to be processed through the mill." The Mill is currently installing an Alternate Feed Circuit to the mill with operational status to begin in June 2009. Provide Radiation Safety information, for example additional PPE requirements and monitoring requirements, and a general overview of operation of this new circuit.

**BASIS FOR INTERROGATORY:**

In UAC R313-22-33(1)(b). General Requirements for the Issuance of Specific Licenses. states "A license application shall be approved if the Executive Secretary determines that the applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety or the environment." Section 9 of the License Application requires a description of the Mills facilities and Section 10 requires a description of the Radiation Safety Program. During multiple inspections in 2008 it has been observed and documented with photographs that alternate feed is being store at the mill for future process.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-22-33(1)(b). General Requirements for the Issuance of Specific Licenses

**REFERENCES:**

UAC R313-22-33(1)(b). General Requirements for the Issuance of Specific Licenses

**INTERROGATORY STATEMENT-ALTERNATE FEED:**

3. Provide a list of approved alternate feed material that Denison Mines will no longer be accepting. Include an updated list of approved alternate feeds with their corresponding License Condition.

**BASIS FOR INTERROGATORY:**

Use the License Renewal to remove alternate feed license conditions that are no longer active.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Volume 1: Table 4.2-1 "Alternate Feed Materials Licensed to Date for Processing at the Mill".

**INTERROGATORY STATEMENT-RELEASE SURVEYS:**

4. Procedure *End Dump Trailer Acceptance, Handling and Release, PBL-9, Rev No R-0* that was provided in Round 1 response. The procedure does not instruct the mills radiation safety technicians on the radiation survey techniques or documentation requirements used by the mill to release ore trucks from the restricted area. Provide a procedure that instructs radiation safety technicians on how to perform and document radiological surveys.

**BASIS FOR INTERROGATORY:**

Procedure *End Dump Trailer Acceptance, Handling and Release, PBL-9, Rev No R-0*, was provided in Exhibit C of Dension Mines Interrogatory Round 1 response dated February 5, 2009. This procedure in Section 5 *Decontamination and Release of End Dump Trailers and Trucks* will be surveyed to document that the trucks meet the different DOT release criteria. This procedure does not instruct the Mills Radiation Technicians that use this procedure the proper survey methods to perform a radiological survey to verify that the DOT criteria have been met.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-15-501(1). Survey and Monitoring-General  
R313-22-33(1)(b). General Requirements for the Issuance of Specific Licenses

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix I: ALARA Program 2.6 *Surveys*.  
U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery Facilities.  
*End Dump Trailer Acceptance, Handling and Release, PBL-9, Rev No R-0*, Section 5 *Decontamination and Release of End Dump Trailers and Trucks*

**INTERROGATORY STATEMENT-RELEASE SURVEYS:**

5. Procedure *Intermodal Container Acceptance, Handling and Release, PBL-2, Rev No R-0* that was provided in Round 1 response. The procedure does not instruct the mills radiation safety technicians on the radiation survey techniques and documentation requirements used by the mill to release ore trucks from the restricted area. Provide a procedure that instructs radiation safety technicians on how to perform and document radiological surveys.

**BASIS FOR INTERROGATORY:**

Procedure *Intermodal Container Acceptance, Handling and Release, PBL-2, Rev No R-0*, was provided in Exhibit D of Dension Mines Interrogatory Round 1 response dated February 5, 2009. This procedure in Section 5 *Decontamination and Release of IMCs for Restricted Use* and Section 6 *Decontamination and Release of IMCs for Unrestricted Use* will be surveyed to document that the intermodals meet the different release criteria. This procedure does not instruct the Mills Radiation Technicians that use this procedure the proper survey methods to perform a radiological survey to verify that the release criteria have been met.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-15-501(1). Survey and Monitoring-General  
R313-22-33(1)(b). General Requirements for the Issuance of Specific Licenses

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix I: ALARA Program Section 2.6 *Surveys*.  
U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery Facilities.  
*Procedure Intermodal Container Acceptance, Handling and Release, PBL-2, Rev No R-0*

## **INTERROGATORY STATEMENT-RELEASE SURVEYS:**

6. Round One Interrogatory Statement 16 "Release Surveys for Product Drums:  
Explain how the survey techniques, the release standards used and documentation of surveys of Product Drums that contain radioactive material are sufficient to demonstrate regulatory compliance and maintain public health and safety. Explain why surveying techniques such as the use of Large Area Wipes or swipes to look for removable contamination are not being used on all Product Drums being surveyed for release." 49CFR 173.443(1) Contamination Control requires a removable contamination survey on **EACH** package. Change product drum survey procedures to reflect the regulatory requirement.

## **BASIS FOR INTERROGATORY:**

Appendix B and E: says that a fixed Alpha Survey will be performed on each product drum but a removable survey will only be performed on 25% of the product drums. Main concern is removable contamination but survey procedures only require 25%. Appendix I Section 2.6 references NRC Reg. Guide 8.30 which states that product shipments should not exceed DOT limits in 49 CFR 173.443 on removable external contamination. 49 CFR 173.443(1) describes the method of surveying for removable contamination. Specifies release limits for removable contamination are in Table 9 at 2,200 dpm/100 cm<sup>2</sup> Alpha and 2,200 dpm/100 cm<sup>2</sup> Beta and the dose rate is less than 0.5 mrem/hr which is in paragraph (c). 49CFR173.443 also states that *each* package will be surveyed for removable contamination. Even though NRC Reg. Guide 8.30 states that not every package needs to be surveyed for removable contamination, 49CFR173.443 overrides NRC Reg. Guide 8.30.

## **APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-15-501(1). Survey and Monitoring-General  
49CFR173.443(1) Contamination Control

## **REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix B: Release and Shipping of Vanadium Blackflake Section 5 *Product Shipment Surveys*.  
Radioactive Materials License Renewal Application for RML UT1900479: Appendix E: Radiation Protection Manual Section 2.7 *Product Shipment Surveys*.  
Radioactive Materials License Renewal Application for RML UT1900479: Appendix G: Yellowcake Precipitation Section 10 *Procedures for preparing yellowcake drums and shipping*.  
U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery Facilities Section 2.8 *Surveys of Packages Prepared for Shipment*.

**INTERROGATORY STATEMENT-RELEASE SURVEYS:**

7. Provide a procedure that instructs radiation safety technicians on how to perform and document radiological surveys for releasing equipment from the Mills restricted area.

**BASIS FOR INTERROGATORY:**

Appendix E says that equipment will meet Reg. Guide 1.86 standards but does not indicate how the surveys will be performed. No procedure in renewal application for conducting an unrestricted survey or releasing surveyed equipment out of the Restricted Area.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-15-501(1). Survey and Monitoring-General

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix E:  
Radiation Protection Manual Section 2.6 *Equipment Release Surveys*.  
U.S. Nuclear Regulatory Commission Regulatory Guide 1.86: Decontamination of  
Facilities and Equipment Prior to Release for Unrestricted Use.

### **INTERROGATORY STATEMENT-RELEASE SURVEYS:**

8. Round One Interrogatory statements 14-17 "Explain how the survey techniques, the release standards used and documentation of surveys of Equipment are sufficient to demonstrate regulatory compliance and maintain public health and safety. Explain why surveying techniques such as the use of Large Area Wipes and swipes to look for removable contamination are not being used on all items being surveyed for release"

In response to the method outlined in 49 CFR 173.443(1)(a) Denison Mines states "Using portable alpha detection equipment that measures the combined fixed and removable contamination is therefore "another method" contemplated by paragraph b)(which is 49CFR 173.443(1)(b)) above "equal or greater efficiency", because the Mill applies the removable contamination standard to a combined reading of fixed and removable contamination." Provide efficiency calculations to determine the efficiency of this method. Include the survey procedure used, the efficiency of the meters and probes used in relation to U-238. Show that the meters and probes that are/will be used has the appropriate sensitivity to provide a small enough reading to measure the required release limits.

### **BASIS FOR INTERROGATORY:**

Appendix E also says that equipment will meet Reg. Guide 1.86 standards but does not indicate how the surveys will be performed. No procedure in renewal application for conducting an unrestricted survey or releasing surveyed equipment out of the Restricted Area.

### **APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority  
R313-15-101. Radiation Protection Programs  
R313-15-501(1). Survey and Monitoring-General

### **REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix E:  
Radiation Protection Manual Section 2.6 *Equipment Release Surveys*.  
U.S. Nuclear Regulatory Commission Regulatory Guide 1.86: Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use.

**INTERROGATORY STATEMENT-ALARA:**

9. Round One Interrogatory Statement 18 "Designated Eating Areas within the Restricted Area: Explain the justification of having designated eating areas and the number of eating areas within the restricted area." and Statement 19 "Designated Eating Area within the Restricted Area: Define the criteria used for determining designated eating areas within the Restricted Area." Define what controls each Designated Eating Area must have (i.e. frisking requirements, wash facilities, Entry Procedures, etc.) to be a suitable Designated Eating Areas.

**BASIS FOR INTERROGATORY:**

Appendix I: ALARA Program Section 2.2.2 *Policy for Eating-Restricted Area*: lists nine different areas within the restricted area that are designated eating areas. Explain the process and criteria used by the RSO in determining appropriate eating areas within the restricted area this is not clearly defined in this section and how is the criteria maintained. Even though these areas are within the restricted area of the mill, workers enter them as if they were leaving the restricted area.

**APPLICABLE RULE(S) OR REGULATION(S):**

- R313-24-1(3). Purpose and Authority
- R313-15-101. Radiation Protection Programs
- R313-15-501(1). Survey and Monitoring-General

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix I: ALARA Program Section 2.2.2 *Policy for Eating-Restricted Area*.

**INTERROGATORY STATEMENT-AIR MONITORING:**

Round One Interrogatory Statements 20 and 22 were answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT- EXTERNAL RADIATION MONITORING:**

Round One Interrogatory Statements 23 and 24 were answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT- EMPLOYEE TRAINING:**

Round One Interrogatory Statements 25 and 26 were answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT- EMPLOYEE TRAINING:**

10. In the revised White Mesa Mill Radiation Safety Training Program Appendix C *Radiation Protection at the White Mesa Mill Section 4 Types of Radiation:* There are five types of ionizing radiation Alpha, Beta, Gamma, X-Ray and Neutron. All forms of ionizing radiation should be mentioned and then be specific on what types of ionizing radiation are found at the Mill.

**BASIS FOR INTERROGATORY:**

The statement at the beginning of section 4 of "There are three types of radiation: alpha, beta and gamma radiation." is a false statement. There are five types of ionizing radiation and many other types of non-ionizing radiation. The three most common forms of ionizing radiation at the mill are alpha, beta and gamma. In addition, DRC inspectors have observed neutron sources in the form of density/moisture nuclear gauges being used and stored at the Mill during construction projects. Therefore, all five types of ionizing radiation should be discussed with an emphasis on alpha, beta, and gamma.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-22-33(1)(a). General Requirements for Issuance of Specific License

**REFERENCES:**

*White Mesa Mill Radiation Safety Training Program Appendix C Radiation Protection at the White Mesa Mill section 4 Types of Radiation.*

## **INTERROGATORY STATEMENT- EMPLOYEE TRAINING:**

11. In the revised White Mesa Mill Radiation Safety Training Program Appendix C *Radiation Protection at the White Mesa Mill section 4.3 Gamma Radiation*: This section does not discuss the three (3) fixed nuclear gauges that the mill uses. Include a discussion on the fixed gauges in this section.

## **BASIS FOR INTERROGATORY:**

The Mill has three (3) fixed nuclear gauges that are regulated by General Radioactive Materials License Number G3-250. They each contain a Cs-137 source. The radiological health concerns associated with these gauges need to be discussed. In addition, an emphasis needs to be made on the requirement of R313-21-22 (4)(c)(iii) "(licensees) shall assure that other testing, installation, servicing, and removal from installation involving the radioactive materials, its shielding or containment, are performed:

(A) in accordance with the instructions provided by the labels; or

(B) by a person holding a specific license pursuant to R313-22 or from the Nuclear Regulatory Commission, an Agreement State, or a Licensing State to perform such activities." Denison Mines does have a Specific Radioactive Materials License but that license **does not have a license condition** that allows them to do the work outlined in R313-21-22 (4)(c)(iii). So any work done to these gauges cannot be done by Denison Mine employees.

## **APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-21-22. General Licenses\*--Radioactive Material Other Than Source Material.

## **REFERENCES:**

*White Mesa Mill Radiation Safety Training Program Appendix C Radiation Protection at the White Mesa Mill section 4.3 Gamma Radiation.*

**INTERROGATORY STATEMENT- EMPLOYEE TRAINING:**

Round One Interrogatory Statement 27 was answered appropriately and to the satisfaction of the DRC.

**INTERROGATORY STATEMENT-STANDARD OPERATING PROCEDURES:**

12. Round One Interrogatory Statement 28: "Provide a complete list and copies of all operating procedures used at the mill. Explain how employees are trained on the procedures that they use. Explain where procedures are kept and how employees have access to the procedures that they use." Provide missing procedures.

**BASIS FOR INTERROGATORY:**

There are Standard Operating Procedures that are missing from the application. The following are examples, but not limited to, of procedures that are missing from the application: The Respirator Protection Program and the ALARA Program references NRC Reg. Guide 8.15. Reg. Guide 8.15 and UAC R313-15-703 lists all of the procedures required in a Respirator Protection Program. The Mill's Respirator Protection Program is missing some of these procedures.

**APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-15-703(3)(d). Use of Individual Respiratory Protection Equipment

R313-22-33(1)(b). General Requirements for Issuance of Specific License

**REFERENCES:**

Radioactive Materials License Renewal Application for RML UT1900479: Appendix L: Respiratory Protection Program Section 2.8 *Storage of Respiratory Equipment*.

Radioactive Materials License Renewal Application for RML UT1900479: Appendix I: ALARA Program Sections 2.6 *Surveys* and 2.7.5 *RPP Complies with Regulatory Requirements*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Section 3.2 *Written Procedures*.

**INTERROGATORY STATEMENT-RESPIRATORY PROTECTION PROGRAM:**

Round One Interrogatory Statements 29 through 34 were answered appropriately and to the satisfaction of the DRC.

## **INTERROGATORY STATEMENT-RECORDS:**

Round One Interrogatory Statement 35 was answered appropriately and to the satisfaction of the DRC.

## **INTERROGATORY STATEMENT-REVISIONS AND UPDATES**

13. Round One Interrogatory Statement 36: "Provide all revisions to procedures and programs that have been added or revised since February 2007 License renewal application was submitted. Also provide all procedures and programs that were not included with the February 2007 License renewal application." Provide the list below.

### **BASIS FOR INTERROGATORY:**

In Denison Mines Response to the first round of Interrogatories an updated list of all procedures and programs was provided. The following is a list of procedures and programs that have been updated since February 2007 or were not provided in the original application:

- PBL-3 Tailings Capacity Evaluation R-0 9/25/00
- Section 3.1 White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan DUSA 6 9/01/08
- RPP-1 Respiratory Protection Program DUSA-2 12/1/08
- Quality Assurance Program
- Groundwater Monitoring Plan and Standard Operating Procedures for UDEQ Split Sampling Program Rev.2 7/1/99
- PBL-RP-1 Radiation Monitoring-Personnel DUSA-3 8/1/08
- PBL-RP-3 Equipment Calibration DUSA-2 12/1/08
- UDEQ Split Sampling Groundwater QA Project Plan Rev.1 5/1/99
- GWDP Groundwater Monitoring Quality Assurance Plan (QAP) DUSA 3 6/18/08
- Cell 4a BAT Monitoring, Operations and Maintenance Plan DUSA 1.3 9/1/08
- PBL-4 Clearance of Linde Material Intermodal Containers R-0 3/15/01
- PBL-6 Heritage Alternate Feed Management R-1 2/14/03

### **APPLICABLE RULE(S) OR REGULATION(S):**

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-22-33(1)(a). General Requirements for Issuance of Specific License

### **REFERENCES:**

Denison Mines (USA) Corp. WHITE MESA MILL SOP MASTER CONTROL LIST, Rev. No.: R-11, December 01, 2008

## **SECTION 2**

**UTAH DIVISION OF RADIATION CONTROL  
DENISON MINES (USA) CORPORATION  
WHITE MESA URANIUM MILL  
BLANDING, UTAH**

**ENGINEERING COMMENT INTERROGATORIES –  
ROUND 1**

**JUNE 29, 2009**

## TABLE OF CONTENTS

### Section/Page

INTERROGATORY STATEMENT - RECLAMATION PLAN:.....	3
INTERROGATORY STATEMENT - LICENSE VIOLATIONS:.....	15
INTERROGATORY STATEMENT - CORRECTION OF MODELING INFERENCES: ..	16
INTERROGATORY STATEMENT - CORRECT VERSION OF DOCUMENTS:.....	17
INTERROGATORY STATEMENT - OMISSION OF DOCUMENT.....	19

## ACRONYMS AND ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DRC	Utah Division of Radiation Control
DUSA	Denison Mines (USA) Corp.
NRC	Nuclear Regulatory Commission
NUREG-XXXX	Reports and Books Prepared by the NRC
NUREG/CR-XXXX	Reports and Books Prepared by NRC Contractors
PMF	Probable Maximum Flood
RWP	Radiation Work Permit
UAC R313	Utah Administrative Code, Rule 313
MILDOS	MILDOS Computer Code

## INTERROGATORY STATEMENT- The Reclamation Plan:

### I-A:

The currently approved, latest Reclamation Plan needs to receive a unique identifying number as to the version of the plan it is. The DRC request that DUSA assign a version number (e.g. 4.0) to the currently approved reclamation plan. If there are iterative changes necessary to the plan as a result of these License Renewal Application comments, each DUSA proposed revision to the plan must be identified by a unique reference number, e.g. a suffix to the number, such as proposed Revision 4.1, 4.2, etc.

The updates to the Reclamation Plan conveyed by DUSA letter dated July 25, 2008 were not included in the License Renewal Application. They need to be included.

### Basis for the Interrogatory:

The last known recent update to the reclamation plan was approved by a DRC letter dated August 4, 2008. No version number was assigned to the updated Reclamation Plan. This unnumbered updated version can be confused with the earlier version.

The updates to the Reclamation Plan conveyed by DUSA letter dated July 25, 2008 were not included in the License Renewal Application. They need to be included.

In addition, the August 4, 2008 DRC letter approved the addition of revised drawing figures A-5.1-1, A-5.1-2, and A-5.1-3, which were conveyed by a DUSA letter dated July 25, 2008. This action updated a previous version of the *Reclamation Plan, White Mesa Mill, Revision 3.0*, dated July 24, 2000.

### Regulatory Basis:

1. UAC R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions, incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

### References:

Cover sheet for the bound document, *Reclamation Plan, White Mesa Mill, Revision 3.0*, (the Reclamation Plan), dated July 24, 2000

## **INTERROGATORY STATEMENT - The Reclamation Plan:**

### **I-B:**

Please update and complete the Section 8 of the *License Renewal Application*, regarding the Reclamation Plan. Please include the current approved version of the Reclamation Plan as an Appendix to the License Renewal Application.

### **Basis for the Interrogatory:**

The verbiage in the license renewal application (Section 8, p. 74) is incomplete and outdated as shown by a reference to another DUSA submittal, where said reference is a blank field (no date). Further, the Index to the Appendices omits any reference to the Reclamation Plan (see license renewal application, p. vi). Also, see previous interrogatory for update information needed to describe the currently approved Reclamation Plan.

As a result of disjointed nature of the Reclamation Plan, its lack of unique identification, distribution of its content across multiple submittals, and the fact it is not included as an attachment to the License Renewal Application, poses a significant problem to agency review. Further, DUSA has a responsibility to ensure the Reclamation Plan is current, complete, and comprehensive. As a result, future DRC interrogatories may include additional topics that have not been presented or examined to date.

### **Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

### **References:**

Section 8 of the subject *License Renewal Application*.

## INTERROGATORY STATEMENT- The Reclamation Plan:

### I-C:

#### Regarding the Cell 1 Discharge Channel, on Figure A-2.2.4-1 Sedimentation Basin Detail :

1. The potential need for or absence of rip-rap protection for the Cell 1 discharge channel, entry and exit platform aprons must be explained and justified. An adequate demonstration will include, but is not limited to analysis according to NUREG-1623.
2. The need to join or not join (the existing configuration) the discharge channel to the toe of the new south dike of Cell 1 must be explained and justified.
3. Drawing details are needed to show the outcome of the above analyses to describe the sections of the discharge channel, its lining, appurtenant entry, exit apron zones, dike alignment and lining.

#### Basis for the Interrogatory:

1. The need for using rip-rap protection for the Cell 1 discharge channel, entry and exit aprons need to be analyzed under Potential Maximum Precipitation and Flood conditions.
2. It appears advantageous to connect the discharge channel to the toe of the new south dike of Cell 1 to ensure entry flow path longevity, and to possibly eliminate need for rip-rap armor south of the discharge channel on the west dike of Cell 1.
3. The construction requirements for the discharge channel, its lining, appurtenant entry, exit apron zones, dike alignment and lining need to be specified.

#### Regulatory Basis:

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.
3. License Condition 9.5.

#### References:

Reclamation Plan, Revision 3.0, Figure A-2.2.4-1 Sedimentation Basin Detail  
NUREG-1623, *Design of Erosion Protection for Long-Term Stabilization*

## INTERROGATORY STATEMENT- The Reclamation Plan:

### I-D:

This interrogatory is being provided for DUSA's information only. This item will be pursued concurrent with DRC review of the *Infiltration and Contaminant Transport Modeling Report, White Mesa Mill Site, Blanding Utah* (ICTM) prepared by DUSA. Last correspondence on the report was furnished by DUSA on April 30, 2009.

Is installation of a rock apron at the base of all the final covered tailings cell outslope intended for the entire perimeter of the final covered tailings cell system? If so, please clarify by specifying on the drawings that such is required. If not, please demonstrate that the absence of such will be adequate for the 1,000-year design period or at minimum a 200-year period.

### Basis for the Interrogatory:

The reclamation plan drawings only distinctly specify rock aprons on the south outslope of Cell 4A. It is unclear if installation of a rock apron at the base or toe of all dike outside side slopes is intended. That is, are rock aprons to be installed for the entire perimeter of the tailings cell system? Reclamation Plan figures A-5.1-1, -2, -3 and -4 show a plan view and cross-sections of the tailings cells. The section A-A' on Figure A-5.1-2 on the left side refers to Fig. A-5.1-4, which is a drawing of the "Rock Apron at Base of the Toe of the Cell Outslope." None of these plan views or cross-sections specifically shows rock aprons, other than the south side of Cells 4A.

### Regulatory Basis:

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.
3. 10CFR40 Appendix A Part 6A(1):  
“(1) For impoundments containing uranium byproduct materials, the final radon barrier must be completed *as expeditiously as practicable considering technological feasibility* after the pile or impoundment ceases operation in accordance with a written, Commission-approved reclamation plan. . . . Deadlines for completion of the final radon barrier and, if applicable, the following interim milestones must be established as a condition of the individual license: windblown tailings retrieval and placement on the pile and interim stabilization (including dewatering or the removal of freestanding liquids and recontouring). The placement of erosion protection barriers or other features necessary for long-term control of the tailings must also be completed in a timely manner in accordance with a written, Commission-approved reclamation plan.”

### References:

Reclamation Plan, Figures A-5.1-1, -2, -3 and -4.

## INTERROGATORY STATEMENT- The Reclamation Plan:

### I-E:

Please demonstrate that for final reclamation of the tailings cells a filter blanket is necessary or unnecessary to be installed below the riprap cover, for the top, side slopes, and rock aprons of the tailings cells.

### Basis for the Interrogatory:

There is no filter blanket shown or specified in the Reclamation Plan. A demonstration of layer stability is needed to justify the omission of a filter blanket in the cover design.

Also, we recognize that different engineering design has been proposed by DUSA in the November 21, 2007 Infiltration and Contaminant Transport Modeling Report, White Mesa Site, Blanding, Utah, prepared by MWH Americas Inc. Erosion stability issues and radon controls must be considered in the final reclamation plan and must be closely coordinated with the ICTM report that may be approved later.

### Regulatory Basis:

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

### References:

1. 2002, T.L. Johnson, NUREG-1623, *Design of Erosion Protection for Long-Term Stabilization*, Appendix D, Designing Riprap Erosion Protection, Paragraph 2.1.1, Filter Requirements: *"It is generally recommended that a filter or bedding layer comprised of well-graded rock material be placed on the cover or in locations where rock riprap is to be placed for erosion protection. Locations recommended for filter placement include impoundment side slopes, toes of slopes, transition areas, diversion ditches and channels, stilling areas, and flow impact areas. The purpose of the filter is to bed the riprap and prevent stone penetration into the cover and/or radon barrier, prevent soil erosion from flow at the stone/soil interface, and to prevent the pooling of precipitation and/or tributary runoff from infiltrating into the cover and waste materials. Filter sizing criteria are presented in NUREG/CR-4620 (Nelson, 1986)."*
2. Same Drawing References, per the interrogatory immediately above this one.

**INTERROGATORY STATEMENT- The Reclamation Plan:**

**I-F:**

Reclamation Plan Fig. 3.2.3-1, Site Map Showing Locations of Buildings and Tankage needs to be updated to current conditions.

**Basis for the Interrogatory:**

The map provided is outdated.

**Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

**References:**

Reclamation Plan Fig. 3.2.3-1. A recent request to DUSA by DRC dated requested an updated map of the tank system.

**INTERROGATORY STATEMENT- The Reclamation Plan:**

**I-G:**

In the DRC copy of the Reclamation Plan, Appendix G, Attachment 9, Rainfall-Duration Curve for One-Hour PMP at White Mesa Mill is illegible. Please provide a readable copy of the graph.

**Basis for the Interrogatory:**

The copy of the above came as a solid black block for the graph.

**Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

**References:**

Reclamation Plan Version 3.0, Appendix G, Attachment 9

**INTERROGATORY STATEMENT- The Reclamation Plan:**

**I-H:**

Numerous references to the NRC in the Reclamation Plan must be changed to the Utah Division of Radiation Control (DRC). A general overriding amendment to the Reclamation Plan may best satisfy this need.

E.g. according to the last sentence on p. B-2, "The report will be submitted to the NRC [Nuclear Regulatory Commission]." Paragraph 1.4.1.2 on p. B-3 and paragraph 1.5 on p. B-6 also refer to the NRC.

**Basis for the Interrogatory:**

There are numerous references in the Reclamation Plan for items involving the NRC. The Utah Division of Radiation Control (DRC) generally now fills this role. Therefore, all references to the NRC in the Reclamation Plan generally must be changed to the Utah DRC.

**Regulatory Basis:**

R313-12, General Provisions.

R313-24, Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements.

**INTERROGATORY STATEMENT- The Reclamation Plan:**

**I-I:**

In the Reclamation Plan on pp. B-2 and B-16, the *Final Construction Report* is referred to. This report is important to independently document the completion of the reclamation and decommissioning work. In that regard, please revise the Reclamation Plan to include the following:

1. Please remove any reference to NRC/DRC field presence in the Reclamation Plan.
2. The report must be submitted to the DRC within 180 calendar days after the apparent completion of Construction, for Executive Secretary review and approval.

**Basis for the Interrogatory:**

There is no current distinct requirement in the license for a Final Closure Report. There are many regulatory and administrative needs for such a report.

**Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.
3. R313-24-1(3)
4. R313-22-36(10)
5. R313-22-34(7)
6. R313-22-34(1)

**References:**

Reclamation Plan, Attachment B, *Quality Plan for Construction Activities White Mesa Project Blanding, Utah.*

## **INTERROGATORY STATEMENT- The Reclamation Plan:**

### **I-J:**

It appears the current Table of Contents (TOC) in the Reclamation Plan (Revision 3.0) is taken directly from Revision 2.0, which is now outdated. The actual content and page numbers of the plan were revised in Revision 3.0. Additional content changes to the plan as a result of review of the current license renewal application are expected.

Adjustments to the current TOC in the Reclamation Plan are needed to bring the table up to date. A final adjustment will need to be done at the end of the review iterations for the license renewal application.

### **Basis for the Interrogatory:**

The TOC in the current Reclamation Plan is outdated, and needs to be brought up to date.

### **Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

### **References:**

Reclamation Plan, Table of Contents.

## **INTERROGATORY STATEMENT- The Reclamation Plan:**

### **I-K:**

The Reclamation Plan refers to work in Tailings Cells 1, 2, 3 and sometimes Cell 4A. However the plans and specifications for the reclamation of Cell 4A are not always included in the Reclamation Plan written text and drawings.

Additions to the Reclamation Plan are needed to include provisions, for the reclamation of Cell 4A, into the plans and specifications. Provisions for Cell 4A needs to be incorporated into the Reclamation Plan Table of Contents (TOC), as well as the plans and specifications.

### **Basis for the Interrogatory:**

Provisions in the existing Reclamation Plan for the tailings cell system do not always include Cell 4A in the written text and drawings, as well as the TOC. Provisions for Cell 4A must be included in the Reclamation Plan. The plan must be comprehensive and describe reclamation design, construction, and specifications for all aspects of site closure.

### **Regulatory Basis:**

1. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
2. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

### **References:**

Reclamation Plan, Table of Contents, Sections 2.0, and 3.0, List of Tables, List of Attachments, etc.

**INTERROGATORY STATEMENT- The Reclamation Plan:**

**I-L:**

The tailings cell cover design found in the Reclamation Plan provided with the February 28, 2007 License Renewal Application is not the same as that provided in the November 21, 2007 Infiltration and Contaminant Transport Modeling Report, White Mesa Site, Blanding, Utah, prepared by MWH Americas Inc. It will be DUSA's responsibility to amend the License Renewal Application and the Reclamation Plan to ensure that the tailings cells cover design, plans, specifications and construction ultimately authorized conforms to the approved ICTM.

**Basis for the Interrogatory:**

Provisions in the existing License Renewal Application and Reclamation Plan will need to be adjusted to ensure that the tailings cells cover design, plans, specifications and construction conforms to the approved ICTM.

**Regulatory Basis:**

3. R313-24-4. Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements -Clarifications or Exceptions incorporate 10CFR40 Appendix A with some exceptions and substitutions.
4. 10CFR40, Appendix A, Criterion 9 requires an Executive Secretary approved reclamation plan for the White Mesa Mill.

**References:**

ICTM, November, 2007

## **INTERROGATORY STATEMENT- License Violations:**

### **II-A.**

The application states that license violations identified during NRC or State of Utah site inspections are listed. However, not all violations are listed. Please include a listing of all violations of your Ground Water Quality Protection Permit.

Basis for the Interrogatory: The above regulatory basis document states that license violations identified during NRC or Agreement State site inspections should be listed in License Renewal Applications. The State Ground Water Quality Protection Rules are incorporated by reference in the Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements in UAC R313-24.

#### Regulatory Basis:

1. NUREG-1569 Appendix A: *Guidance for Reviewing Historical Aspects of Site Performance for License Renewals and Amendments*;
2. R313-24-4(1)(b) – including exclusion of 10 CFR 40, Appendix A, Criterion 5(B)(1) thru 5H, Criterion 7A, and Criterion 13; and replacement with Utah Administrative Code R317-6 [Ground Water Quality Protection Rules]
3. *License Renewal Application* paragraph 1.2.6: Listing and Description of Violations, etc.

#### References:

1. *License Renewal Application*, Section 9, Table 9.2-1: NRC and UDEQ Inspections at White Mesa Mill since March 31, 1997.
2. NUREG-1569 Appendix A: *Guidance for Reviewing Historical Aspects of Site Performance for License Renewals and Amendments* ;

## **INTERROGATORY STATEMENT- Correction of Modeling Inferences**

### **II-B:**

1. There is no paragraph 3.13.1.6 in the *Environmental Report* (ER). This reference must be corrected.
2. License Renewal Application Paragraph 6.5.8 should clearly state that the statement is based on modeling predictions.
3. License Renewal Application Paragraph 6.5.9 should also clearly state that the statement in the paragraph is based on modeling predictions.

### **Basis for the Interrogatory:**

1. The above basis paragraph 6.5.8 currently states that, "Section 3.13.1.6 of the ER . . . concludes that even running at full capacity in high-grade . . . ores the maximum . . . doses to the public are well within . . . applicable regulatory standards and ALARA goals."
2. In License Renewal Application, paragraph 6.5.9 it states that, "The MILDOS Area Modeling confirms that the current design and operation controls at the Mill are sufficient to result in operations at full capacity processing high-grade ores that are within the regulatory standards and applicable ALARA goals."

### **Regulatory Basis:**

1. The *Environmental Report* (ER), Vol. 4 of the *License Renewal Application*, paragraph 3.13.1.6. of the ER is referenced in paragraph 6.5.8 of the application.
2. *License Renewal Application*,
  - a. Paragraph 6.5.8, MILDOS Area Modeling
  - b. Paragraph 6.5.9, Summary of Effectiveness of Environmental Controls and Monitoring.
3. *Utah Administrative Code R317-6, Ground Water Quality Protection.*

### **References:**

1. *License Renewal Application*, paragraph 6.5.8, MILDOS Area Modeling
2. *Ibid.*, paragraph 6.5.9, Summary of Effectiveness of Environmental Controls and Monitoring.

## **INTERROGATORY STATEMENT- Correct Version of Documents**

### **II-C:**

The SWBMPP provided as tab 1 in Appendix C of the *License Renewal Application* is not the approved version. Please replace with the June 2008 edition, that was approved by the DRC on July 1, 2008.

### **Basis for the Interrogatory:**

The provided SWBMPP version in the *License Renewal Application* has been superseded.

### **Regulatory Basis:**

*Utah Ground Water Discharge Permit No. UGW370004* dated March 17, 2008.

### **References:**

1. DUSA Storm Water Best Management Practices Plan (SWBMPP), June 2008.
2. DRC Approval Letter July 1, 2008.

## INTERROGATORY STATEMENT- Correct Version of Documents

### II-D:

The edition of the *White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan* (DMT Plan) provided as tab 3.1 of Appendix A of the February 28, 2007 *License Renewal Application*, is not the approved version. Please replace it with the approved "09/08 Revision: Denison-6" version of the plan and attachments.

### Basis for the Interrogatory:

The provided "02/07 Revision: DUSA-2" version of the DMT Plan in the *License Renewal Application* has been superseded. The current version of the plan was approved by the DRC on September 17, 2008.

### Regulatory Basis:

*Utah Ground Water Discharge Permit No. UGW370004* dated March 17, 2008.

### References:

1. September 12, 2008 DUSA Email conveying Proposed Revisions to the *White Mesa Mill Tailings Management System; and Discharge Minimization Technology (DMT) Monitoring Plan*.
2. DRC Approval Letter September 17, 2008.

## **INTERROGATORY STATEMENT- Omission of Document**

### **II-E:**

The *License Renewal Application* appears to not contain the *Cell 4A BAT Monitoring, Operations and Maintenance Plan* (O&M Plan). Please include the latest approved edition in the application.

### **Basis for the Interrogatory:**

The *License Renewal Application* appears not to contain the current version of the Cell 4A O&M Plan, approved by the DRC on September 17, 2008.

### **Regulatory Basis:**

*Utah Ground Water Discharge Permit No. UGW370004* dated March 17, 2008.

### **References:**

1. September 16, 2008 DUSA email conveying proposed revisions to the *Cell 4A BAT Monitoring, Operations and Maintenance Plan* (O&M Plan);
2. September 12, 2008 DUSA email conveying proposed attachments to the O&M Plan;
3. DRC O&M Plan Approval Letter, September 17, 2008.