DENISON MINES

DRC-2010-005501

Denison Mines (USA) Corp.
1050 17th Street, Suite 950
Denver, CO 80265
USA

Tel : 303 628-7798
Fax : 303 389-4125

www.denisonmines.com

August 4, 2010

VIA PDF AND EXPRESS DELIVERY

Rusty Lundberg, Co-Executive Secretary
Utah Water Quality Board
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144810
Salt Lake City, UT 84114-4820

Dear Mr. Lundberg:

Re: State of Utah Ground Water Discharge Permit No. UGW370004 White Mesa Uranium Mill – Notice Pursuant to Part I.G.3 of the Permit and UAC R317-6-6.16(C)

Please take notice pursuant to Part I.G.3 of the White Mesa Mill's (the "Mill's") State of Utah Groundwater Discharge Permit No. UGW370004 (the "Permit") and Utah Administrative Code ("UAC") R313-6-6.16(C) that Denison Mines (USA) Corp. ("Denison"), as operator of the Mill and holder of the Permit, failed to meet the discharge minimization technology ("DMT") standards in Part I.D.2 of the Permit, by allowing the wastewater elevation in the Mill's tailings Cell 3 to exceed the freeboard limit for that Cell by approximately 7.2 inches, as described in more detail below.

This exceedance was discovered at 1:00 pm on Friday July 30, 2010. Initial notice of this failure to maintain DMT was given by telephone to the Utah Department of Environmental Quality ("UDEQ") by phone call to Mr. David Rupp at 1:30 pm on August 2, 2010.

1. Facts and Background Information

a) Condition 10.3 of the Mill's State of Utah Radioactive Materials License No. UT1900479 (the "License") provides that freeboard limits for Cells 1 and 3 shall be set in accordance with procedures that have been approved by the U.S. Nuclear Regulatory Commission ("NRC"). Under those procedures:

(i) The freeboard limits are set as per the January 10, 1990 Drainage Report for Cell 1 at a liquid maximum elevation of 5,615.4 feet above mean sea level ("fmsl");

(ii) The freeboard limit for Cell 3 is determined annually using a formula set out in the procedure. The current freeboard limit for Cell 3 was previously calculated under this procedure at 5,601.6 fmsl. However, in UDEQ correspondence dated November 20, 2008 an interim variance and limit was established at 5,602.5 fmsl for Cell 3;

(iii) In conjunction with the variance established under (ii) above, an interim maximum elevation for Cell 4A was also established at 5,593.74 fmsl;

(iv) The maximum elevation of 5,593.74 fmsl for Cell 4A has been set assuming that the total probable maximum precipitation ("PMP") volume for Cells 2, 3 and 4A will be accommodated in Cell 4A. By letter dated December 11, 2008, Denison applied for an amendment to the License to set the freeboard limit for Cell 4A at 5,593.74 fmsl and to eliminate the need to set a freeboard limit for Cell 3, given that the freeboard limit of 5,593.74 fmsl for Cell 4A is adequate to accommodate the total PMP volume for Cells 2, 3 and 4A; and

(v) In addition, Part I.D.2 of the Permit provides that under no circumstances shall the freeboard of any tailings cell be less than three feet, as measured from the top of the flexible membrane liner ("FML"). The top of the FML in Cell 1 is at 5,618.5 fmsl, and the top of the FML in Cell 3 is at 5,608.5 fmsl. This means that Part I.D.2 of the Permit provides a secondary requirement that the maximum wastewater pool elevations in Cells 1 and 3 cannot exceed 5,615.5 and 5,605.5 fmsl, respectively.

b) In a letter to Denison dated April 29, 2010, UDEQ has indicated their agreement with Denison's position that the freeboard limit is not applicable to Cell 3, since Cell 3 is in pre-closure stages, and the PMP flood volume of Cell 3 can be attributed to, and managed in, Cell 4A. The April 29 letter indicated that to formalize this removal of freeboard limit, Denison needed to provide revisions to two documents, specifically the Discharge Minimization Technology ("DMT") Plan, and the Cell 4A Operations and Maintenance ("O&M") Plan. The requested revisions to both the DMT Plan and O&M Plan are being submitted with this notice.

c) During the weekly tailings survey measurement performed at approximately 1:00 pm on July 30, 2010, the wastewater pool elevation in Cell 3 was measured to be 5,603.10

finsl, compared to the current freeboard limit for Cell 3 of 5,602.50 fmsl, representing an exceedance of 0.6 feet, or 7.2 inches.

d) During the weekly tailings survey measurement performed on July 23, 2010, the wastewater pool elevation in Cell 3 was measured to be 5,602.76 finsl, compared to the current freeboard limit for Cell 3 of 5,602.50 fmsl, representing an exceedance of 0.26 feet, or 3.12 inches.

e) The July 23, 2010 elevation of Cell 3 was not reported to Denison's corporate personnel until August 2, 2010, (while corporate personnel were collecting information regarding the exceedance on July 30). On August 2, 2010, Mill personnel advised corporate personnel that the primary person responsible for the weekly tailings inspection was on vacation on July 23, 2010. The substitute personnel did perform the inspection and record the results; however, no notification was given to Denver Corporate personnel upon recording of the elevated liquid level.

f) It should be noted that the current freeboard limit in Cell 3 of 5,602.5 finsl is 6 feet below the top of the FML in Cell 3, so the exceedance of the current freeboard limit by 7.2 inches resulted in a wastewater pool elevation that was still over five feet below the top of the FML and over two feet below the secondary freeboard limit of 5,605.5 feet set out in Part I.D.2 of the Permit. As a result, there was no risk of the wastewater in Cell 3 overflowing over the top of the Cell 3 FML. Also, as mentioned above, since the freeboard limit in Cell 4A has been set to accommodate the PMP event for Cells 2, 3, and 4A, there was also no risk that even if a PMP event were to occur there would not have been adequate freeboard available in Cell 4A. The wastewater elevation survey for Cell 4A performed on July 30, 2010 indicated a wastewater elevation 89 inches (7.4 feet) below the freeboard limit of 5,593.74 fmsl for Cell 4A.

g) The Mill has been running on a 10-days on and 4-days off operating cycle. The 4-days off cycle resumed when the Mill shut down at 4:00 am on Saturday July 31, 2010.

h) As part of the plan to fill Cell 3 with tailings solids and to close Cell 3, the Mill has been altemating between periods of pumping Cell 3 liquids into Cell 4A and discharging CCD solids into Cell 3. The transfer pump from Cell 3 to Cell 4A operates for the duration of the 10 days that the Mill operates each run. The transfer pump was operating on July 23 and July 30.

i) The intention was to discharge tailings solids into Cell 3 at a rate that, given the rate solutions were being pumped from Cell 3 to Cell 4A, would not result in an exceedence of the freeboard limit in Cell 3. Earlier in 2010, the Mill staff had replaced

the existing pump in Cell 3 with a new pump to increase the flow rate of solutions from Cell 3 to Cell 4A during the liquid transfer cycle.

j) The Mill completed a cycle of removing liquids from Cell 3, and was in a cycle of operating and discharging CCD solids into Cell 3 at the time of the exceedence.

k) Cell 3 was receiving only CCD solids and solutions from the Cell 2 slimes drain, and Cell 4A was receiving all other tailings liquids, at the time of the exceedence.

2. Action Taken

Upon receipt of the initial survey results, the Mill's Environmental Coordinator notified the Mill Manager at 11:55am that day. The following plan of action was immediately put into place in accordance with section 5.1 of the Mill's Contingency Plan:

a) The transfer pump from Cell 3 to Cell 4A has been on and remains on in an effort to reduce the liquid level;

b) Verbal notification was given to Mr. David Rupp of UDEQ at 1:30 pm on August 2, 2010. The verbal notification was not given within 24 hours after discovery of the event, due to a miscommunication resulting in the failure of Denver staff to file the notification within that time period. This verbal notification was followed by this written notification within five days of discovery;

c) Solutions continued to be pumped from Cell 3 to Cell 4A in order to reduce the solution in Cell 3;

d) Compliance will be achieved during the week of August 2, 2010. Solutions continue to be pumped from Cell 3 to Cell 4A to continue the reduction in the Cell 3 liquid level; and

e) The Mill staff has been advised that required notifications need to occur even in the absence of primary environmental personnel, and backup staff are to be trained to contact corporate staff with timely notification of level exceedances.

3. Root Cause

The root cause analysis is as follows

a) The Mill has been altemating between continually pumping Cell 3 liquids into Cell 4A, while discharging CCD solids into Cell 3 during the Mill's operating periods.

b) Cell 3 was receiving only CCD solids, and Cell 4A was receiving all tailings liquids at the time of the exceedence. The Mill continues to pump solutions from Cell 3 to Cell 4A before and while solids are introduced into Cell 3, in an effort to maintain the solution level in Cell 3 below the freeboard limit during this process.

c) As a result of following the planned program of filling Cell 3 for closure, the remaining pond area in Cell 3 is small, approximately 7 to 10 acres, and is continually being reduced by the planned expansion of the solids beach as Cell 3 approaches its final tailings capacity.

d) As a result of the decreasing pond area, the ability to manage the freeboard level has become increasingly difficult.

e) Mill personnel received a copy of the April 29, 2010 letter from UDEQ which agreed with the need to remove the freeboard limit from Cell 3 to allow filling and closure, and which identified plan documents that should be updated to reflect this change.

f) Mill personnel were under the mistaken impression, as a result of the April 29, 2010 UDEQ letter, that the freeboard notification requirements for Cell 3 had been relaxed and instantaneous reporting of liquid levels was no longer required.

g) Upon review of the circumstances, after the discovery of the exceedance, it is again evident that it is no longer possible to manage the Cell 3 freeboard to achieve the calculated freeboard limit during the final stages of filling Cell 3 with solids and closing Cell 3. The exceedence occurred despite the fact that monitoring and surveying were performed at the required frequency, all pumping equipment was operating properly, and the liquid transfer from Cell 3 to Cell 4A was occurring as planned.

4. Actions That **Will** be Taken to **Prevent** a **Reoccurrence** of this **Incident**

The following actions will be taken to prevent a reoccurrence of this incident:

a) The Mill will continue to pump liquids from Cell 3 to Cell 4A, in preparation for dewatering and closure of Cell 3; and

b) Denison has completed and submitted with this notice draft revisions to the documents identified in UDEQ's April 19, 2010 letter, to document the elimination of freeboard

limits for Cell 3.

5. Affirmative Defense

Denison believes that the affirmative defense in Part I.G.3.c) of the Permit should be applicable to this incident, for the following reasons:

a) Notification

By virtue of the initial oral notification given to the UDEQ Duty Officer at 1:30 pm on August 2, 2010, and this written notice, Denison has submitted notification according to UAC R317-6-6.13. The oral notification exceeded the 24 hour requirement, but Denison submits that substantial compliance with the notification requirements have been met in the circumstances, given that Cell 3 freeboard limit is a matter that is currently under discussion between Denison and UDEQ.

b) Failure was not Intentional or Caused by the Permittee's Negligence

The exceedance of the freeboard limit was not intentional or caused by Denison's negligence, either in action or in failure to act. The Mill was taking actions to manage the freeboard requirements of all of its active tailings cells while filling Cell 3 to its final tailings solids capacity in preparation for closure. Based on a survey of the wastewater elevation in Cell 3 taken the week of Friday July 16, it appeared that there was ample freeboard in Cell 3, and, based on past Mill experience it was not unreasonable for Mill staff to come to that conclusion. The fact that the water level in Cell 3 increased at an unexpectedly fast rate was due to the planned discharge of CCD solids into Cell 3 coupled with the issue of managing liquids in a pool of decreasing size as the solids fill the cell. This discharge, and the pool's size reduction, are necessary to complete the filling and closure of the Cell.

c) The Permittee has Taken Adequate Measures to Meet Permit Conditions

Denison has taken adequate measures to meet Permit conditions in a timely manner. The provisions of the Mill's Contingency Plan are being implemented at the time of this notice.

d) The Provisions of UCA 19-5-107 Have Not Been Violated

The provisions of Utah Code 19-5-107 have not been violated. There has been no discharge of a pollutant into waters of the state. Denison has not caused pollution which constitutes a menace to public health and welfare, or is harmful to wildlife, fish or aquatic life, or impairs domestic,

agricultural, industrial, recreational, or other beneficial uses of water, nor has Denison placed or caused to be placed any waste in a location where there is probable cause to believe it will cause pollution.

There was no discharge of solutions from the Mill's tailings impoundments, and there was ample freeboard in Cell 4A to accommodate the PMP for Cells 2, 3, and 4A.

Please contact the undersigned if you have any questions or require any further information.

Yours truly,

Jo Ann Tischler
Director, Compliance and Permitting

cc: Rich Bartlett
David C, Frydenlund
Ron F. Hochstein
Ryan Palmer
Harold R. Roberts
David E. Turk

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ATTACHMENT 1

Revised Table 1

Duplicate RPD Analysis

Revised Table 1
Analysis of Duplicate Sample

Constituent	Ceii 4A	Duplicate of Geli 4A	% RPD Reported in November 2009	Corrected % RPD
Carbonate	ND	ND	NA	NA
Bicarbonate	ND	ND	NA	NA
Calcium	627	618	0.96	1.45
Chloride	4650	4130	7.74	11.85
Fluoride	0.3	0.3	0	0
Magnesium	3250	3270	0.41	0.61
Nitrogen -Ammonia	3140	3250	2.31	3.44
Nitrogen - Nitrate	28	26	4.88	7.41
Potassium	980	984	0.27	0.41
Sodium	5980	6050	0.78	1.16
Sulfate	67600	62100	5.58	8.48
Lab pH	1.4	1.38	0.96	1.44
TDS	81400	82500	0.9	1.34
Arsenic	62600	62220	0.41	0.61
Beryllium	296	321	5.48	8.10
Cadmium	1920	1910	0.35	0.52
Chromium	3220	5640	*40.07*	*54.63*
Cobalt	9440	18500	*48.48*	*64.85*
Copper	99200	106000	4.47	6.63
Iron	236000	245000	4.96	3.74
Lead	5360	5390	0.37	0.56
Manganese	178000	189000	4.04	5.99
Mercury	1.19	1.11	4.58	6.96
Molybdenum	24300	24300	0	0
Nickel	17100	17400	1.16	1.74
Selenium	4620	4590	0.43	0.65
Silver	78	82	3.36	5
Thallium	162	162	0	0
Tin	257	258	0.26	0.39
Uranium	118000	118000	0	0
Vanadium	918000	987000	4.89	7.24
Zinc	142000	151000	4.14	6.14
Gross Alpha	8910	9130	1.63	2.44
Acetone	60	110	*43.48*	*58.82*
Benzene	ND	ND	NA	NA
Carbon tetrachloride	ND	ND	NA	NA
Chloroform	4	7.1	*41.06*	*55.86*
Chloromethane	3.4	6.5	*46.62*	*62.63*
MEK	ND	ND	NA	NA
Methylene Chloride	ND	ND	NA	NA
Naphthalene	1.8	3	*36.36*	*50.00*
Tetrahydrofuran	ND	ND	NA	NA
Toluene	ND	ND	NA	NA
Xylenes	ND	ND	NA	NA

cc: David C, Frydenlund
Ron F. Hochstein
Ryan Palmer
Harold R. Roberts
David E. Turk

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Cell 4A BAT Monitoring, Operations and Maintenance Plan.

Introduction

Construction of Cell 4A was authorized by the Utah Department of Environmental Quality, Division of Radiation Control ("DRC) on June 25, 2007. The construction authorization provided that Cell 4A shall not be in operation until after a BAT Monitoring, Operations and Maintenance Plan is submitted for Executive Secretary review and approval. The Plan shall include requirements in Part F.3 of the Groundwater Discharge Permit No. UGW370004 ("GWDP") and full fill the requirements of Parts I.D.6, I.E.8, and I.F.8 of the GWDP.

Cell Design

Tailings Cell 4A consists of the following major elements:

a) Dikes – consisting of earthen embankments of compacted soil, constructed between 1989-1990, and composed of four dikes, each including a 15-foot wide road at the top (minimum). On the north, east, and south margins these dikes have slopes of 3H to 1V. The west dike has a interior slope of 2H to 1V. Width of these dikes varies; each has a minimum crest width of at least 15 feet to support an access road. Base width also varies from 89-feet on the east dike (with no exterior embankment), to 211-feet at the west dike.

b) Foundation – including subgrade soils over bedrock materials. Foundation preparation included excavation and removal of contaminated soils, compaction of imported soils to a maximum dry density of 90%. Floor of Cell 4A has an average slope of 1% that grades from the northeast to the southwest corners.

c) Tailings Capacity – the floor and inside slopes of Cell 4A encompass about 40 acres and have a maximum capacity of about 1.6 million cubic yards of tailings material storage (as measured below the required 3-foot freeboard).

d) Liner and Leak Detection Systems – including the following layers, in descending order:

   1) Primary Flexible Membrane Liner (FML) – consisting of impermeable 60 mil high density polyethylene (HDPE) membrane that extends across both the entire cell floor and the inside side-slopes, and is anchored in a trench at the top of the dikes on all four sides. The primary FML will be in direct physical contact with the tailings material over most of the Cell 4A floor area. In other locations, the primary FML will be in contact with the slimes drain collection system (discussed below).

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2) Leak Detection System – includes a permeable HDPE geonet fabric that extends across the entire area under the primary FML in Cell 4A, and drains to a leak detection sump in the southwest corner. Access to the leak detection sump is via an 18-inch inside diameter (ID) PVC pipe placed down the inside slope, located between the primary and secondary FML liners. At its base this pipe will be surrounded with a gravel filter set in the leak detection sump, having dimensions of 10 feet by 10 feet by 2 feet deep. In turn, the gravel filter layer will be enclosed in an envelope of geotextile fabric. The purpose of both the gravel and geotextile fabric is to serve as a filter.

3) Secondary FML – consisting of an impermeable 60-mil HDPE membrane found immediately below the leak detection geonet. Said FML also extends across the entire Cell 4A floor, up the inside side-slopes and is also anchored in a trench at the top of all four dikes.

4) Geosynthetic Clay Liner – consisting of a manufactured geosynthetic clay liner (GCL) composed of 0.2-inch of low permeability bentonite clay centered and stitched between two layers of geotextile. Prior to disposal of any wastewater in Cell 4A, the Permittee shall demonstrate that the GCL has achieved a moisture content of at least 50% by weight. This item is a revised requirement per DRC letter to DUSA dated September 28, 2007

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e) Slimes Drain Collection System – including a two-part system of strip drains and perforated collection pipes both installed immediately above the primary FML, as follows:

1) Horizontal Strip Drain System – is installed in a herringbone pattern across the floor of Cell 4A that drain to a “backbone” of perforated collection pipes. These strip drains are made of a prefabricated two-part geo-composite drain material (solid polymer drainage strip) core surrounded by an envelope of non-woven geotextile filter fabric. The strip drains are placed immediately over the primary FML on 50-foot centers, where they conduct fluids downgradient in a southwesterly direction to a physical and hydraulic connection to the perforated slimes drain collection pipe. A series of continuous sand bags, filled with filter sand cover the strip drains. The sand bags are composed of a woven polyester fabric filled with well graded filter sand to protect the drainage system from plugging.

2) Horizontal Slimes Drain Collection Pipe System – includes a “backbone” piping system of 4-inch ID Schedule 40 perforated PVC slimes drain collection (SDC) pipe found at the downgradient end of the strip drain lines. This pipe is in turn overlain by a berm of gravel that runs the entire diagonal length of the cell, surrounded by a geotextile fabric cushion in immediate contact with the primary FML. In turn, the gravel is overlain

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by a layer of non-woven geotextile to serve as an additional filter material. This perforated collection pipe serves as the "backbone" to the slimes drain system and runs from the far northeast corner downhill to the far southwest corner of Cell 4A where it joins the slimes drain access pipe.

3) Slimes Drain Access Pipe – consisting of an 18-inch ID Schedule 40 PVC pipe placed down the inside slope of Cell 4A at the southwest corner, above the primary FML. Said pipe then merges with another horizontal pipe of equivalent diameter and material, where it is enveloped by gravel and woven geotextile that serves as a cushion to protect the primary FML. A reducer connects the horizontal 18-inch pipe with the 4-inch SDC pipe. At some future time, a pump will be set in this 18-inch pipe and used to remove tailings wastewaters for purposes of de-watering the tailings cell.

f) Dike Splash Pads – A minimum of eight (8) 10-foot wide splash pads are installed on the interior dike slopes to protect the primary FML from abrasion and scouring by tailings slurry. These pads will consist of an extra layer of 60 mil HDPE membrane that will be placed down the inside slope of Cell 4A, from the top of the dike and down the inside slope. The pads on the north side of the Cell will extend to a point 5-feet beyond the toe of the slope to protect the liner bottom during initial startup of the Cell. The exact location of the splash pads is detailed on the As-Built Plans and Specifications.

g) Rub Protection Sheets – In addition to the splash pads described in f) above, rub sheets are installed beneath all piping entering or exiting Cell 4A that is not located directly on the splash pads.

h) Emergency Spillway – a concrete lined spillway constructed near the western corner of the north dike to allow emergency runoff from Cell 3 into Cell 4A. This spillway will be limited to a 6-inch reinforced concrete slab set directly over the primary FML in a 4-foot deep trapezoidal channel. No other spillway or overflow structure will be constructed at Cell 4A. All stormwater runoff and tailings wastewaters not retained in Cells 2 and 3, will be managed and contained in Cell 4A, including the Probable Maximum Precipitation and flood event.

Cell Operation

Solution Discharge

Cell 4A will initially be used for storage and evaporation of process solutions from the Mill operations. These process solutions will be from the uranium/vanadium solvent extraction circuit, or transferred from Cell 1 evaporation pond or the free water surface from Cell 3. The solution will be pumped to Cell 4A through 6 inch or 8 inch diameter HDPE pipelines. The initial solution discharge will be in the southwest corner of the Cell. The discharge pipe will be routed down the Splash Pad provided in the corner of the Cell to protect

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the pipeline running from the solution reclaim barge. The solution will be discharged in the bottom of the Cell, away from any sand bags or other installation on the top of the FML. Building the solution pool from the low end of the Cell will allow the solution pool to gradually rise around the slimes drain strips, eliminating any damage to the strip drains or the sand bag cover due to solution flowing past the drainage strips. The solution will eventually be discharged along the dike between Cell 3 and Cell 4A, utilizing the Splash Pads described above. The subsequent discharge of process solutions will be near the floor of the pond, through a discharge header designed to discharge through multiple points, thereby reducing the potential to damage the Splash Pads or the Slimes Drain system. At no time will the solution be discharged into less than 2 feet of solution. As the cell begin to fill with solution the discharge point will be pull back up the Splash Pad and allowed to continue discharging at or near the solution level.

Initial Solids Discharge

Once Cell 4A is needed for storage for tailings solids the slurry discharge from No. 8 CCD thickener will be pumped to the cell through 6 inch or 8 inch diameter HDPE pipelines. The pipelines will be routed along the dike between Cell 3 and Cell 4A, with discharge valves and drop pipes extending down the Splash Pads to the solution level. One or all of the discharge points can be used depending on operational considerations. Solids will settle into a cone, or mound, of material under the solution level, with the courser fraction settling out closer to the discharge point. The initial discharge locations are shown on Figure 1. Figure 2 illustrates the general location of the solution and slurry discharge pipelines and control valve locations. The valves are 6” or 8” stainless steel knife-gate valves. The initial discharge of slurry will be at or near the toe of the Cell slope and then gradually moved up the slope, continuing to discharge at or near the water surface. This is illustrated in Section A-A on Figure 2. Because of the depth of Cell 4A, each of the discharge points will be utilized for an extended period of time before the cone of material is above the maximum level of the solution. The discharge location will then moved further to the interior of the cell allowing for additional volume of solids to be placed under the solution level. The solution level in the cell will vary depending on the operating schedule of the Mill and the seasonal evaporation rates. The tailings slurry will not be allowed to discharge directly on to the Splash Pads, in order to further protect the FML. The tailings slurry will discharge directly in to the solution contained in the Cell, onto an additional protective sheet, or on to previously deposited tailings sand.

Equipment Access

Access will be restricted to the interior portion of the cell due to the potential to damage the flexible membrane liner. Only rubber tired all terrain vehicles or foot traffic will be allowed on the flexible membrane liner. Personnel are also cautioned on the potential damage to the flexible membrane liner through the use

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and handling of hand tools and maintenance materials.

Reclaim Water System

A pump barge and solution recovery system will be installed in the southwest corner of the cell to pump solution from the cell for water balance purposes or for re-use in the Mill process. Figure 3 illustrates the routing of the solution return pipeline and the location of the pump barge. The pump barge will be constructed and maintained to ensure that the flexible membrane liner is not damaged during the initial filling of the cell or subsequent operation and maintenance activities. The condition of the pump barge and access walkway will be noted during the weekly Cell inspections.

Interim Solids Discharge

Figure 4 illustrates the progression of the slurry discharge points around the east side of Cell 4A. Once the tailings solids have been deposited along the north and east sides of the Cell, the discharges points will subsequently be moved to the sand beaches, which will eliminate any potential for damage to the liner system.

Liner Maintenance and QA/QC

Any construction defects or operational damage discovered during observation of the flexible membrane liner will be repaired, tested and documented according to the procedures detailed in the approved **Revised construction Quality Assurance Plan for the Construction of the Cell 4A Lining System, May 2007, by GeoSyntec Consultants.**

BAT Performance Standards for Tailings Cell 4A

DUSA will operate and maintain Tailings Cell 4A so as to prevent release of wastewater to groundwater and the environment in accordance with this BAT Monitoring Operations and Maintenance Plan, pursuant to Part I.H.19 of the GWDP. These performance standards shall include:

1) Leak Detection System Pumping and Monitoring Equipment – the leak detection system pumping and monitoring equipment, includes a submersible pump, pump controller, water level indicator (head monitoring), and flow meter with volume totalizer. The pump controller is set to maintain the maximum level in the leak detection system at no more than 1 foot above the lowest level of the secondary flexible menbrane. A second leak detection pump with pressure transducer, flow meter, and manufacturer recommended spare parts for the pump controller and water level data collector is maintained in the Mill warehouse to

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ensure that the pump and controller can be replaced and operational within 24 hours of detection of a failure of the pumping system. The root cause of the equipment failure will be documented in a report to Mill management with recommendations for prevention of a re-occurrence.

2) Maximum Allowable Head – the Permittee shall measure the fluid head above the lowest point on the secondary flexible membrane by the use of procedures and equipment specified in the **White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, 08/10 Revision: Denison-7,** or the currently approved DMT Plan. Under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner.

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3) Maximum Allowable Daily LDS Flow Rates - the Permittee shall measure the volume of all fluids pumped from the LDS on a weekly basis, and use that information to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on the attached Table 1 to determine the maximum daily allowable LDS flow volume for varying head conditions in the cell. .

4) 3-foot Minimum Vertical Freeboard Criteria – the Permittee shall operate and maintain wastewater levels to provide a 3-foot Minimum of vertical freeboard in Tailings Cell 4A. Said measurements shall be made to the nearest 0.1 foot.

5) Slimes Drain Recovery Head Monitoring – immediately after the Permittee initiates pumping conditions in the Tailings Cell 4A slimes drain system, monthly recovery head tests and fluid level measurements will be made in accordance with a plan approved by the DRC Executive Secretary. The slimes drain system will pumping and monitoring equipment, includes a submersible pump, pump controller, water level indicator (head monitoring), and flow meter with volume totalizer.

Routine Maintenance and Monitoring

Trained personnel inspect the White Mesa tailings system on a once per day basis. Any abnormal occurrences or changes in the system will be immediately reported to Mill management and maintenance personnel. The inspectors are trained to look for events involving the routine placement of tailings material as well as events that could affect the integrity of the tailings cell dikes or lining systems. The daily inspection reports are summarized on a monthly basis and reviewed and signed by the Mill Manager.

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Solution Elevation

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Measurements of solution elevation in Cell 4A are to be taken by survey on a weekly basis, and measurements of the beach area in Cell 4A with the highest elevation are to be taken by survey on a monthly basis, by the use of the procedures and equipment specified in the latest approved edition of the DMT Plan.

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The survey will be performed by the Mill's Radiation Safety Officer or designee (the "Surveyor") with the assistance of another Mill worker (the "Assistant");¶
The survey will be performed using a survey instrument (the "Survey Instrument") accurate to 0.01 feet, such as a Sokkai No. B21, or equivalent, together with a survey rod (the "Survey Rod") having a visible scale in 0.01 foot increments;¶
The reference Points (the "Reference Points") for Cells 4A are known points established by Registered Land Surveyor. For Cell 4A, the Reference Point is a piece of metal rebar located on the dike between Cell 3 and Cell 4A. The elevation at the top of this piece of rebar (the Reference Point Elevation for Cell 4A is at 5,607.83 feet above mean sea level ("amsl");¶
The Surveyor will set up the Survey Instrument in a location where both the applicable Reference Point and pond surface are visible. For Cell 4A, this is typically on the road between Cell 3 and Cell4A, approximately 100 feet east of the Cell 4A Reference Point;¶
Once in location, the Surveyor will ensure that the Survey Instrument is level by centering the bubble in the level gauge on the Survey Instrument;¶
The Assistant will place the Survey Rod vertically on the Cell 4A Reference Point. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;¶
The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Reference Point Reading"), which represents the number of feet the Survey Instrument is reading above the Reference Point;¶
The Assistant will then move to a designated location where the Survey Rod can be placed on the surface of the main solution pond in Cell 4A. The designated location for Cell 4A is in the northeast corner of the Cell where the side slope allows for safe access t... [1]

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Leak Detection System

The Leak Detection System is monitored on a continuous basis by use of a pressure transducer that feeds water level information to an electronic data collector. The water levels are measured every hour and the information is stored for later retrieval. The water levels are measured to the nearest 0.10 inch. The data collector is currently programmed to store 7 days of water level information. The number of days of stored data can be increased beyond 7 days if needed. The water level data is downloaded to a laptop computer on a weekly basis and incorporated into the Mill's environmental monitoring data base, and into the files for weekly inspection reports of the tailings cell leak detection systems. Within 24 hours after collection of the weekly water level data, the information will be evaluated to ensure that: 1) the water level in the leak detection sump did not exceed the allowable level (5556.14 feet amsl), and 2) the average daily flow rate from the LDS did not exceed the maximum daily allowable flow rate at any time during the reporting period. For Cell 4A, under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner. To determine the Maximum Allowable Daily LDS Flow Rates in the Cell 4A leak detection system, the total volume of all fluids pumped from the LDS on a weekly basis shall be recovered from the data collector, and that information will be used to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on the attached Table 1, to determine the maximum daily allowable LDS flow volume for varying head conditions in Cell 4A. Any abnormal or out of compliance water levels must be immediately reported to Mill management. The data collector is also equipped with an audible alarm that sounds if the water level in the leak detection sump exceeds the allowable level (5556.14 feet amsl). The current water level is displayed at all times on the data collector and available for recording on the daily inspection form. The leak detection system is also equipped with a leak detection pump, EPS Model # 25S05-3 stainless steel, or equal. The pump is capable of pumping in excess of 25 gallons per minute at a total dynamic head of 50 feet. The pump has a 1.5 inch diameter discharge, and operates on 460 volt 3 phase power. The pump is equipped with a pressure sensing

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transducer to start the pump once the level of solution in the leak detection sump is approximately 2.25 feet (elevation 5555.89) above the lowest level of the leak detection sump (9 inches above the lowest point on the lower flexible membrane liner, to ensure the allowable 1.0 foot (5556.14 feet amsl) above the lowest point on the lower flexible membrane liner is not exceeded). The attached Figure 6, Leak Detection Sump Operating Elevations, illustrates the relationship between the sump elevation, the lowest point on the lower flexible membrane liner and the pump-on solution elevation for the leak detection pump. The pump also has manual start and stop controls. The pump will operate until the solution is drawn down to the lowest level possible, expected to be approximately 4 inches above the lowest level of the sump (approximate elevation 5554.0). The pump discharge is equipped with a 1.5 inch flow meter, EPS Paddle Wheel Flowsensor, or equal, that reads the pump discharge in gallons per minute, and records total gallons pumped. The flow rate and total gallons is recorded by the Inspector on the weekly inspection form. The leak detection pump is installed in the horizontal section of the 18 inch, horizontal, perforated section of the PVC collection pipe. The distance from the top flange face, at the collection pipe invert, to the centerline of the 22.5 degree elbow is 133.4 feet, and the vertical height is approximately 45 feet. The pump is installed at least 2 feet beyond the centerline of the elbow. The bottom of the pump will be installed in the leak detection sump at least 135.4 feet or more from the top of the flange invert. A pressure transducer installed with the pump continuously measures the solution head and is programmed to start and stop the pump within the ranges specified above. The attached Figure 5 illustrates the general configuration of the pump installation.

A second leak detection pump with pressure transducer, flow meter, and manufacturer recommended spare parts for the pump controller and water level data collector will be maintained in the Mill warehouse to ensure that the pump and controller can be replaced and operational within 24 hours of detection of a failure of the pumping system. The root cause of the equipment failure will be documented in a report to Mill management with recommendations for prevention of a re-occurrence.

Slimes Drain System

(i) A pump, Tsurumi Model # KTZ23.7-62 stainless steel, or equal, will be placed inside of the slimes drain access riser pipe and a near as possible to the bottom of the slimes drain sump. The bottom of the slimes drain sump is 38 feet below a water level measuring point at the centerline of the slimes drain access pipe, near the ground surface level. The pump discharge will be equipped with a 2 inch flow meter, E/H Model #33, or

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equal, that reads the pump discharge in gallons per minute, and records total gallons pumped. The flow rate and total gallons will be recorded by the Inspector on the weekly inspection form.

(ii) The slimes drain pump will be on adjustable probes that allow the pump to be set to start and stop on intervals determined by Mill management.

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(iii) The Cell 4A slimes drain pump will be checked weekly to observe that it is operating and that the level probes are set properly, which is noted on the Weekly Tailings Inspection Form. If at any time the pump is observed to be not working properly, it will be repaired or replaced within 15 days;

(iv) Depth to wastewater in the Cell 4A slimes drain access riser pipe shall be monitored and recorded weekly to determine maximum and minimum fluid head before and after a pumping cycle, respectively. All head measurements must be made from the same measuring point, to the nearest 0.01 foot. The results will be recorded as depth-in-pipe measurements on the Weekly Tailings Inspection Form;

(v) On a monthly basis, the slimes drain pump will be turned off and the wastewater in the slimes drain access pipe will be allowed to stabilize for at least 90 hours. Once the water level has stabilized (based on no change in water level for three (3) successive readings taken no less than one (1) hour apart) the water level of the wastewater will be measured and recorded as a depth-in-pipe measurement on the Monthly Inspection Data form, by measuring the depth to water below the water level measuring point on the slimes drain access pipe;

The slimes drain pump will not be operated until Mill management has determined that no additional process solutions will be discharged to Cell 4A, and the Cell has been partially covered with the first phase of the reclamation cap. The long term effectiveness and performance of the slimes drain dewatering will be evaluated on the same basis as the currently operating slimes drain system for Cell 2.

Tailings Emergencies

Inspectors will notify the Radiation Safety Officer and/or Mill management immediately if, during their inspection, they discover that an abnormal condition exists or an event has occurred that could cause a tailings emergency. Until relieved by the Environmental or Radiation Technician or Radiation Safety Officer, inspectors will have the authority to direct resources during tailings emergencies.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

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Cell 4A Solution Freeboard Calculation

The maximum tailings cell pond wastewater levels in Cells 1-I, Cell 2, Cell 3 and Cell 4A are regulated by condition 10.3 of the White Mesa Mill 11e.(2) Materials License.

Condition 10.3 states that "The **Freeboard limit for Cells 1shall be 5615.4 feet above mean seal level, and the freeboard limit for Cell 4A shall be set annually in accordance with the procedures set out in the latest edition of the White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, which is included as a section of the Mill's Environmental Protection Manual. Said calculations shall be submitted as part of the Annual Technical Evaluation Report. Said report shall be submitted for Executive Secretary approval no later than November 15 of each year.**"

The freeboard limits set out in Section 6.3 of the DMT Plan are intended to capture the Local 6-hour Probable Maximum Precipitation (PMP) event, which was determined in the January 10, 1990 Drainage Report for the White Mesa site to be 10 inches.

Based on the PMP storm event, the freeboard requirement for Cell 1 is a maximum operating water level of 5615.4 feet above mean sea level (amsl). The Cell 1 freeboard limit is not affected by operations or conditions in Cells 2, 3 or 4A.

Cells 2 and 3 have no freeboard limit because those Cells are full or near full of tailings solids and all precipitation falling on Cell 2 and 3 and the adjacent drainage area must be contained in Cell 4A. The flood volume from the PMP event over the Cell 2 and Cell 3 pond areas, plus the adjacent drainage areas, which must be contained in Cell 4A, is 123.4 acre-feet of water. The flood volume from the PMP event over the Cell 4A area is 36 acre-feet of water (40 acres, plus the adjacent drainage area of 3.25 acres, times the PMP of 10 inches). This would result in a total flood volume of 159.4 acre-feet, including the 123.4 acre-feet of solution from Cells 2 and 3, that must be contained in Cell 4A. The procedure for calculating the freeboard limit for Cell 4A is set out in the DMT Plan.

The Groundwater Quality Discharge Permit, No. UGW370004, for the White Mesa Mill requires that the minimum freeboard be no less than 3.0 feet for Cells 1 and 4A, but based on License condition 10.3 and the procedure set out in the DMT Plan, the freeboard limits for Cells 1 and 4A will be at least three feet.

Figure 7, Hydraulic Profile Schematic, shows the relationship between the Cells, and the relative elevations of the solution pools and the spillway elevations.

The required freeboard for Cell 4A will be recalculated annually.

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Deleted: The Cell 4A design includes a concrete spillway between Cell 3 and Cell 4A with the invert elevation 4 feet below the top of the Cell 3 dike, at an elevation of 5604.5 feet amsl. Once Cell 4A is placed in operation, the cell would be available for emergency overflows from Cell 3, but as long as the freeboard limit in Cell 3 is maintained at 5601.6 it is extremely unlikely that Cell 4A would see any overflow water from Cell 3 unless the full PMP event were to occur. Should Cell 3 receive the full PMP volume of 123.4 acre feet of water, approximately 62 acre feet of that volume would flow through the spillway into Cell 4A.¶
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Attachments

1) Figure 1, Initial Filling Plan, GeoSyntec Consultants

2) Figure 2, Initial Filling Plan, Details and Sections, GeoSyntec Consultants

3) Figure 3, Initial Filling Plan, Solution and Slurry Pipeline Routes, GeoSyntec Consultants

4) Figure 4, Interim Filling Plan, GeoSyntec Consultants

5) Figure 5, Leak Detection System Sump, GeoSyntec Consultants

6) Figure 6, Leak Detection Sump Operating Elevations

7) Figure 7, Hydraulic Profile Schematic

8) Cell 3 and Cell 4A Freeboard Calculation

9) Table 1, Calculated Action leakage Rates for Various Head Conditions, Cell 4A, White Mesa Mill, Blanding, Utah, GeoSyntec Consultants

10) White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, 3/07 Revision: DUSA-2, 32 pages, or currently approved version of the DMT

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as follows:

The survey will be performed by the Mill's Radiation Safety Officer or designee (the "Surveyor") with the assistance of another Mill worker (the "Assistant");
The survey will be performed using a survey instrument (the "Survey Instrument") accurate to 0.01 feet, such as a Sokkai No. B21, or equivalent, together with a survey rod (the "Survey Rod") having a visible scale in 0.01 foot increments;
The reference Points (the "Reference Points") for Cells 4A are known points established by Registered Land Surveyor. For Cell 4A, the Reference Point is a piece of metal rebar located on the dike between Cell 3 and Cell 4A. The elevation at the top of this piece of rebar (the Reference Point Elevation for Cell 4A is at 5,607.83 feet above mean sea level ("amsl");
The Surveyor will set up the Survey Instrument in a location where both the applicable Reference Point and pond surface are visible. For Cell 4A, this is typically on the road between Cell 3 and Cell4A, approximately 100 feet east of the Cell 4A Reference Point;
Once in location, the Surveyor will ensure that the Survey Instrument is level by centering the bubble in the level gauge on the Survey Instrument;
The Assistant will place the Survey Rod vertically on the Cell 4A Reference Point. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;
The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Reference Point Reading"), which represents the number of feet the Survey Instrument is reading above the Reference Point;
The Assistant will then move to a designated location where the Survey Rod can be placed on the surface of the main solution pond in Cell 4A. The designated location for Cell 4A is in the northeast corner of the Cell where the side slope allows for safe access to the solution surface.

The approximate coordinate locations for the measuring points for Cell 4A is 2,579,360 east, and 320,300 north. These coordinate locations may vary somewhat depending on solution elevations in the Cell.

The Assistant will hold the Survey Rod vertically with one end of the Survey Rod just touching the pond surface. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;

The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Pond Surface Reading"), which represents the number of feet the Survey Instrument is reading above the pond surface level.

The Surveyor will calculate the elevation of the pond surface in feet amsl by adding the Reference Point Reading for the Cell and subtracting the Pond Surface Reading for the Cell, and will record the number accurate to 0.01 feet.

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The freeboard depth required for Cell 4A from the PMP event would be 2.44 feet, plus a wave run-up depth of 0.77 feet (from the 1990 Drainage Report), for a total freeboard requirement of 3.2 feet. This calculation is illustrated on Attachment 4. The Groundwater Quality Discharge Permit, No. UGW370004, for the White Mesa Mill requires that the minimum freeboard be no less than 3.0 feet for any of the existing Cell construction, but based on the above calculation the freeboard would be set 3.2 feet below the top of liner. The freeboard for Cell 4A would therefore be 5595.3 amsl (top of liner 5598.5 – 3.2 feet). Figure 7, Hydraulic Profile Schematic, shows the relationship between the Cells, and the relative elevations of the solution pools and the spillway elevations.

If Cell 4A were required to store the entire PMP event for Cell 2, Cell 3 and Cell 4A, the required storage volume would be approximately 160 acre-feet of solution. This would increase the necessary freeboard to 4.77 feet.

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along with the re-calculation of the Cell 3 freeboard requirement. A calculation of the current freeboard calculation for both Cells is attached to this Plan.

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WHITE MESA MILL TAILINGS MANAGEMENT SYSTEM AND DISCHARGE MINIMIZATION TECHNOLOGY (DMT) MONITORING PLAN

1. INTRODUCTION

This Tailings Management System and Discharge Minimization Technology Monitoring Plan (the "Plan") for the White Mesa Mill (the "Mill") provides procedures for monitoring of the tailings cell system as required under State of Utah Radioactive Materials License No. UT1900479 (the "Radioactive Materials License"), as well as procedures for operating and maintenance of monitoring equipment and reporting procedures that are adequate to demonstrate DMT compliance under State of Utah Ground Water Discharge Permit No. 370004 for the Mill (the "GWDP").

This Plan is designed as a systematic program for constant surveillance and documentation of the integrity of the tailings impoundment system including dike stability, liner integrity, and transport systems, as well as monitoring of water levels in Roberts Pond and feedstock storage areas at the Mill. The Plan requires daily, weekly, quarterly, monthly and annual inspections and evaluations and monthly reporting to Mill management.

2. DAILY TAILINGS INSPECTIONS

The following daily tailings inspections shall be performed:

2.1. Daily Comprehensive Tailings Inspection

On a daily basis, including weekends, all areas connected with the four tailings cells will be inspected. Observations will be made of the current condition of each cell, noting any corrective action that needs to be taken.

The Environmental or Radiation Technician is responsible for performing the daily tailings inspections. The Radiation Safety Officer may designate other individuals with training, as described in Section 2.4 below, to perform the daily tailings inspection.

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Observations made by the inspector will be recorded on the *Daily Inspection Data* form (a copy of which is attached in Appendix A). The *Daily Inspection Data* form contains an inspection checklist, which includes a tailings cells map, and spaces to record observations, especially those of immediate concern and those requiring corrective action. The inspector will place a check by all inspection

items that appear to be operating properly. Those items where conditions of potential concern are observed should be marked with an "X". A note should accompany the "X" specifying what the concern is and what corrective measures will resolve the problem. This observation of concern should be noted on the form until the problem has been remedied. The date that corrective action was taken should be noted as well.

Areas to be inspected include the following: Cell 1, 2, 3, and 4A, Dikes 1, 2, 3, 4A-S, and 4A-W, wind movement of tailings, effectiveness of dust minimization methods, spray evaporation, Cell 2 spillway, Cell 3 spillway, Cell 3 and 4A liquid pools and associated liquid return equipment, cell leak detection systems, and the wildlife ponds.

Operational features of the tailings area are checked for conditions of potential concern. The following items require visual inspection during the daily tailings inspection:

a) Tailings slurry and SX raffinate transport systems from the Mill to the active disposal cell(s), and pool return pipeline and pumps.

   Daily inspections of the tailings lines are required to be performed when the Mill is operating. The lines to be inspected include the: tailings slurry lines from CCD to the active tailings cell; SX raffinate lines that can discharge into Cell 1, Cell 3 or Cell 4A; the pond return line from the tailings area to the Mill; and, lines transporting pond solutions from one cell to another.

b) Cell 1.

c) Cell 2.

d) Cell 3.

e) Cell 4A.

f) Dike structures including dikes 1, 2, 3, 4A-S, and 4A-W.

g) The Cell 2 spillway, Cell 3 spillway, Cell 3 and Cell 4A liquid pools and associated liquid return equipment.

h) Presence of wildlife and/or domesticated animals in the tailings area, including waterfowl and burrowing animal habitations.

i) Spray evaporation pumps and lines.

j) Wind movement of tailings and dust minimization.

Wind movement of tailings will be evaluated for conditions which may require initiation of preventative dust minimization measures for cells containing tailings sand. During tailings inspection, general surface conditions will be evaluated for the following: 1) areas of tailings subject to blowing and/or wind movement, 2) liquid pool size, 3) areas not subject to blowing and/or wind movement, expressed as a percentage of the total cell area. The evaluations will be reviewed on a weekly basis, or more frequently if warranted, and will be used to direct dust minimization activities.

k) Observation of flow and operational status of the dust control/spray evaporation system(s).

l) Observations of any abnormal variations in tailings pond elevations in Cells 1, 3, and 4A.

m) Locations of slurry and SX discharge within the active cells. Slurry and SX discharge points need to be indicated on the tailings cells map included in the *Daily Inspection Data* form.

n) An estimate of flow for active tailings slurry and SX line(s).

o) An estimate of flow in the solution return line(s).

p) Daily measurements in the leak detection system (LDS) sumps of the tailings cells will be made when warranted by changes in the solution level of the respective leak detection system.

The trigger for further action when evaluating the measurements in the Cell 1 and Cell 3 leak detection systems is a gain of more than 12 inches in 24 hours. The solution level in Cell 4A leak detection is not allowed to be more than 1.0 foot above the lowest point on the bottom flexible membrane liner (elevation 5556.14 feet amsl). If any of these observations are made, the Mill Manager should be notified immediately and the leak detection system pump started. In addition, the requirement to notify the Executive Secretary in accordance with Parts I.D.6 and I.G.3 of the Groundwater Discharge Permit must be adhered to when the solution level trigger for Cell 4A has been exceeded.

Whenever the leak detection system pump is operating and the flow meter totalizer is recording, a notation of the date and the time will be recorded on the *Daily Inspection Data* form. This data will be used in accordance with License Condition 11.3.B through 11.3.E of the Mill's Radioactive Materials License, to determine whether or not the flow rate into the leak detection system is in excess of the License Conditions.

q) An estimate of the percentage of the tailings beach surface area and solution pool area is made, including estimates of solutions, cover areas, and tailings sands for Cells 3 and 4A.

Items (a), (m), (n), and (o) are to be done only when the Mill is operating. When the Mill is down, these items cannot be performed.

2.2. Daily Operations Inspection

During Mill operation, the Shift Foreman, or other person with the training specified in Section 2.4 below, designated by the Radiation Safety Officer, will perform an inspection of the tailings line and tailings area at least once per shift, paying close attention for potential leaks and to the discharges from the pipelines. Observations by the Inspector will be recorded on the appropriate line on the *Operating Foreman's Daily Inspection* form.

2.3. Daily Operations Patrol

In addition to the inspections described in Sections 2.1 and 2.2 above, a Mill employee will patrol the tailings area at least twice per shift during Mill operations to ensure that there are no obvious safety or operational issues, such as leaking pipes or unusual wildlife activity or incidences.

No record of these patrols need be made, but the inspectors will notify the Radiation Safety Officer and/or Mill management in the event that during their inspection they discover that an abnormal condition or tailings emergency has occurred.

2.4. Training

All individuals performing inspections described in Sections 2.1 and 2.2 above must have Tailings Management System training as set out in the Tailings Inspection Training procedure, which is attached as Appendix B. This training will include a training pack explaining the procedure for performing the inspection and addressing inspection items to be observed. In addition, each individual, after reviewing the training pack, will sign a certification form, indicating that training has been received relative to his/her duties as an inspector.

2.5. Tailings Emergencies

Inspectors will notify the Radiation Safety Officer and/or Mill management immediately if, during their inspection, they discover that an abnormal condition exists or an event has occurred that could cause a tailings emergency. Until relieved by the Environmental or Radiation Technician or Radiation Safety Officer, inspectors will have the authority to direct resources during tailings emergencies.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

3. WEEKLY TAILINGS AND DMT INSPECTION

3.1. Weekly Tailings Inspections

Weekly tailings inspections are to be conducted by the Radiation Safety Department and include the following:

a) *Leak Detection Systems*

Each tailings cell's leak detection system shall be checked weekly to determine whether it is wet or dry. If marked wet, the liquid levels need to be measured and reported. In Cell 1 and Cell 3 the leak detection system is measured by use of a pipe that is removed from the system which will indicate the presence of solutions in the LDS system. The Cell 4A leak detection system is monitored on a continuous basis by use of a pressure transducer that feeds water level information to an electronic data collector. The pressure transducer is calibrated for fluid with a specific gravity of 1.0. The water levels are measured every hour and the information is stored for later retrieval. The water levels are measured to the nearest 0.10 inch. The data collector is currently programmed to store 7 days of water level information. The number of days of stored data can be increased beyond 7 days if needed. The water level data is downloaded to a laptop computer on a weekly basis and incorporated into the Mill's environmental monitoring data base, and into the files for weekly inspection reports of the tailings cell leak detection systems

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If sufficient fluid is present in the leak detection system of any cell, the fluid shall be pumped from the LDS, to the extent reasonably possible, and record the volume of fluid recovered. Any fluid pumped from an LDA shall be returned to a disposal cell.

If fluid is pumped from an LDS, the flow rate shall be calculated by dividing the recorded volume of fluid recovered by the elapsed time since fluid was last pumped or increases in the LDS fluid levels were recorded, whichever is the more recent. This calculation shall be documented as part of the weekly inspection.

Upon the initial pumping of fluid from an LDS, a fluid sample shall be collected and analyzed in accordance with paragraph 11.3 C. of the Radioactive Materials License.

For Cell 4A, under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner. To determine the Maximum Allowable Daily LDS Flow Rates in the Cell 4A leak detection system, the total volume of all fluids pumped from the LDS on a weekly basis shall be recovered from the data collector, and that information will be used to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on Table 1 in Appendix E, to determine the maximum daily allowable LDS flow volume for varying head conditions in Cell 4A.

b) Slimes Drain Water Level Monitoring

(i) Cell 3 is an active tailings cell while Cell 2 is partially reclaimed with approximately 90% of the surface covered by platform fill. Each cell has a slimes drain system which aids in dewatering the slimes and sands placed in the cell;

(ii) Cell 2 has a pump placed inside of the slimes drain access pipe at the bottom of the slimes drain. As taken from actual measurements, the bottom of the slimes drain is 38 feet below a water level measuring point at the centerline of the slimes drain access pipe, at the ground surface level. This means that the bottom of the slimes drain pool and the location of the pump are one foot above the lowest point of the FML in Cell 2, which, based on construction reports, is at a depth of 39 feet below the water level measuring point on the slimes drain access pipe for Cell 2;

(iii) The slimes drain pump in Cell 2 is activated and deactivated by a float

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mechanism and water level probe system. When the water level reaches the level of the float mechanism the pump is activated. Pumping then occurs until the water level reaches the lower probe which turns the pump off. The lower probe is located one foot above the bottom of the slimes drain standpipe, and the float valve is located at five feet above the bottom of the slimes drain standpipe. The average wastewater head in the Cell 2 slimes drain is therefore less than 5 feet and is below the phreatic surface of tailings Cell 2, about 20 feet below the water level measuring point on the slimes drain access pipe. As a result, there is a continuous flow of wastewater from Cell 2 into the slimes drain collection system. Mill management considers that the average allowable wastewater head in the Cell 2 slimes drain resulting from pumping in this manner is satisfactory and is as low as reasonably achievable.

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(iv) The Cell 2 slimes drain pump is checked weekly to observe that it is operating and that the water level probe and float mechanism are working properly, which is noted on the Weekly Tailings Inspection Form. If at any time the pump is observed to be not working properly, it will be fixed or replaced within 15 days;

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(v) Depth to wastewater in the Cell 2 slimes drain access pipe shall be monitored and recorded weekly to determine maximum and minimum fluid head before and after a pumping cycle, respectively. All head measurements must be made from the same measuring point (the notch at the north side of the access pipe), and made to the nearest 0.01 foot. The results will be recorded as depth-in-pipe measurements on the Weekly Tailings Inspection Form;

(vi) On a monthly basis, the slimes drain pump will be turned off and the wastewater in the slimes drain access pipe will be allowed to stabilize for at least 90 hours. Once the water level has stabilized (based on no change in water level for three (3) successive readings taken no less than one (1) hour apart) the water level of the wastewater will be measured and recorded as a depth-in-pipe measurement on the Monthly Inspection Data form, by measuring the depth to water below the water level measuring point on the slimes drain access pipe;

(vii) No process liquids shall be allowed to be discharged into Cell 2;

(viii) If at any time the most recent average annual head in the Cell 2 slimes drain is found to have increased above the average head for the previous calendar year, the Licensee will comply with the requirements of Part I.G.3 of the GWDP, including the requirement to provide notification to the Executive Secretary orally within 24 hours followed by written notification;

(ix) Because Cell 3 and Cell 4A are currently active, no pumping from the Cell 3 or Cell 4A slimes drain is authorized. Prior to initiation of tailings dewatering operations for Cell 3 or Cell 4A, a similar procedure will be developed for ensuring that average head elevations in the Cell 3 and Cell 4A slimes drains are kept as low as reasonably achievable, and that the Cell 3 and Cell 4A slimes drains are inspected and the results reported in accordance with the requirements of the permit."

c) Wind Movement of Tailings

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An evaluation of wind movement of tailings or dusting and control measures shall be taken if needed.

d) Tailings Wastewater Pool Elevation Monitoring

Solution elevation measurements in Cells 1and 4A and Roberts Pond are to be taken by survey on a weekly basis, and the beac area in Cell 4A with the maximum elevation is to be taken by survey on a monthly basis, as follows:

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(i) The survey will be performed by the Mill's Radiation Safety Officer or designee (the "Surveyor") with the assistance of another Mill worker (the "Assistant");

(ii) The survey will be performed using a survey instrument (the "Survey Instrument") accurate to 0.01 feet, such as a Sokkai No. B21, or equivalent, together with a survey rod (the "Survey Rod") having a visible scale in 0.01 foot increments;

(iii) The reference Points (the "Reference Points") for Cells 1and 4A, and Roberts Pond are known points established by professional survey. For Cell 1 and Roberts Pond, the Reference Point is a wooden stake with a metal disk on it located on the southeast corner of Cell 1. The elevation of the metal disk (the "Reference Point Elevation") for Cell 1 and Roberts Pond is at 5,623.14 feet above mean sea level ("FMSL"). For Cell 3 and cell 4A, the Reference Point is a piece of metal rebar located on the south dike of Cell 3. The elevation at the top of this piece of rebar (the Reference Point Elevation for Cell 4A) is at 5,607.83 FMSL;

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(iv) The Surveyor will set up the Survey Instrument in a location where both the applicable Reference Point and pond surface are visible. For Cell 1 and Roberts Pond, this is typically on the road on the Cell 1 south dike between Cell 1 and Roberts Pond, approximately 100 feet east of the Cell 1/Roberts Pond Reference Point. For Cell 4A, this is typically on the road on the Cell 3 dike approximately 100 feet east of the Cell 3 Reference Point;

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(v) Once in location, the Surveyor will ensure that the Survey Instrument is level by centering the bubble in the level gauge on the Survey Instrument;

(vi) The Assistant will place the Survey Rod vertically on the Reference Point (on the metal disk on the Cell 1/Roberts Pond Reference Point and on the top of the rebar on the Cell 4A Reference Point. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;

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(vii) The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Reference Point Reading"), which represents the number of feet the Survey Instrument is reading above the Reference Point;

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(viii) The Assistant will then move to a designated location where the Survey Rod can be placed on the surface of the main solution pond in the Cell 1, Cell 4A or Roberts Pond, or the area of the beach in Cell 4A with the highest elevation, as the case may be. These designated locations, and the methods to be used by the Assistant to consistently use the same locations are as follows:

A. Pond Surface Measurements

I. Cell 4A

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¶
A stake has been place in the central area of the south dike of Cell 3. The Assistant will walk perpendicular to the dike from the stake to the nearest point on the liquid surface of Cell 3 and place the Survey Rod at that location;¶
¶

The Assistant will walk down the slope in the northeast corner of Cell 4A and place the Survey Rod at the liquid level.

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II. Cell 1

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A mark has been painted on the north side of the ramp going to the pump platform in Cell 1. The Assistant will place the Survey Rod against that mark and hold the rod vertically, with one end just touching the liquid surface; and

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III Roberts Pond

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A mark has been painted on the railing of the pump stand in Roberts Pond. The Assistant will place the Survey Rod against that mark and hold the rod vertically, with one end just touching the liquid surface.

Based on the foregoing methods, the approximate coordinate locations for the measuring points for Roberts Pond and the Cells are:

	Northing	Easting
Roberts Pond	323,041	2,579,697
Cell 1	322,196	2,579,277
Cell 4A	320,300	2,579,360

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These coordinate locations may vary somewhat depending on solution elevations in the Pond and Cells;

B. Cell 4A Beach Elevation

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The Assistant will place the Survey Rod at the point on the beach area of Cell 4A that has the highest elevation. If it is not clear which area of the beach has the highest elevation, then multiple points on the beach area will be surveyed until the Surveyor is satisfied that the point on the Cell 4A beach area with the highest

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elevation has been surveyed. If it is clear that all points on the Cell 4A beach area are below 5,593 FMSL, then the Surveyor may rely on one survey point;

(ix) The Assistant will hold the Survey Rod vertically with one end of the Survey Rod just touching the pond surface. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;

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(x) The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Pond Surface Reading"), which represents the number of feet the Survey Instrument is reading above the pond surface level.

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The Surveyor will calculate the elevation of the pond surface as FSML by adding the Reference Point Reading for the Cell or Roberts Pond, as the case may be, to the Reference Point Elevation for the Cell or Roberts Pond and subtracting the Pond Surface Reading for the Cell or Roberts Pond, and will record the number accurate to 0.01 feet.

e) *Decontamination Pads*

(i) *New Decontamination Pad*

The New Decontamination Pad is located in the southeast corner of the ore pad, near the Mill's scale house.

A. In order to ensure that the primary containment of the New Decontamination Pad water collection system has not been compromised, and to provide an inspection capability to detect leakage from the primary containment, vertical inspection portals have been installed between the primary and secondary containments;

B. These portals will be visually observed on a weekly basis as a means of detecting any leakage from the primary containment into the void between the primary and secondary containment. The depth to water in each portal will be measured weekly, by physically measuring the depth to water with an electrical sounding tape/device. All measurements must be made from the same measuring point and be made to the nearest 0.01 foot;

C. These inspections will be recorded on the Weekly Tailings Inspection form;

D. The water level shall not exceed 0.10 foot above the concrete floor in any standpipe, at any time. This will be determined by subtracting

the weekly depth to water measurement from the distance from the measuring point in the standpipe to the dry concrete floor;

E. Any observation of fluid between the primary and secondary containments will be reported to the Radiation Safety Officer (RSO).

F. In addition to inspection of the water levels in the standpipes, the New Decontamination Pad, including the concrete integrity of the exposed surfaces of the pad, will be inspected on a weekly basis. Observations will be made of the current condition of the New Decontamination Pad. Any abnormalities relating to the pad and any damage to the concrete wash surface of the pad will be noted on the Weekly Tailings Inspection form. If there are any cracks greater than 1/8 inch separation (width), the RSO must be contacted. The RSO will have the responsibility to cease activities and have the cracks repaired.

(ii) *Existing Decontamination Pad*

The Existing Decontamination Pad is located between the northwest corner of the Mill's maintenance shop and the ore feeding grizzly.

A. The Existing Decontamination Pad will be inspected on a weekly basis. Observations will be made of the current condition of the Existing Decontamination Pad, including the concrete integrity of the exposed surfaces of the pad. Any abnormalities relating to the pad and any damage or cracks on the concrete wash surface of the pad will be noted on the Weekly Tailings Inspection form. If there are any cracks greater than 1/8 inch separation (width), the RSO must be contacted. The RSO will have the responsibility to cease activities and have the cracks repaired.

f) *Summary*

In addition, the weekly inspection should summarize all activities concerning the tailings area for that particular week.

Results of the weekly tailings inspection are recorded on the *Weekly Tailings and DMT Inspection* form. An example of the *Weekly Tailings and DMT Inspection* form is provided in Appendix A.

3.2. Weekly Inspection of Solution Levels in Roberts Pond

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On a weekly basis, solution elevations are taken on Roberts Pond, in accordance with the procedures set out in Section 3.1 d) above. The Weekly solution level in Roberts Pond is recorded on the *Weekly Tailings and DMT Inspection* form. Based on historical observations, the FML at the Pond Surface Reading area for Roberts Pond, is approximately six inches above the lowest point on the pond's FML. If the pond solution elevation at the Pond Surface Reading area is at or below the FML for that area, the pond will be recorded as being dry.

3.3. Weekly Feedstock Storage Area Inspections

Weekly feedstock storage area inspections will be performed by the Radiation Safety Department to confirm that:

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a) the bulk feedstock materials are stored and maintained within the defined area described in the GWDP, as indicated on the map attached hereto as Appendix D;

b) a 4 ft. buffer is maintained at the periphery of the storage area which is absent bulk material in order to assure that the materials do not encroach upon the boundary of the storage area; and

c) all alternate feedstock located outside the defined Feedstock Area are maintained within water tight containers.

The results of this inspection will be recorded on the *Ore Storage/Sample Plant Weekly Inspection Report*, a copy of which is contained in Appendix A. Any variance in stored materials from this requirement or observed leaking alternate feedstock drums or other containers will be brought to the attention of Mill Management and rectified within 15 days.

4. MONTHLY TAILINGS INSPECTION

Monthly tailings inspections will be performed by the Radiation Safety Officer or his designee from the Radiation Safety Department and recorded on the *Monthly Inspection Data* form, an example of which is contained in Appendix A. Monthly inspections are to be performed no sooner than 14 days since the last monthly tailings inspection and can be conducted concurrently with the quarterly tailings inspection when applicable. The following items are to be inspected:

a) Tailings Slurry Pipeline

When the Mill is operating, the slurry pipeline will be inspected at key locations to determine pipe wear. Pipe thickness will be measured using an ultrasonic device by either the radiation safety staff or other trained designees. The critical points of the pipe include bends, slope changes, valves, and junctions, which are critical to dike stability. These locations to be monitored will be determined by the Radiation Safety

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Officer or his designee from the Radiation Safety Department during the Mill run.

b) Diversion Ditches

Diversion ditches 1, 2 and 3 shall be monitored monthly for sloughing, erosion, undesirable vegetation, and obstruction of flow. Diversion berm 2 should be checked for stability and signs of distress.

c) Sedimentation Pond

Activities around the Mill and facilities area sedimentation pond shall be summarized for the month.

d) Overspray Dust Minimization

The inspection shall include an evaluation of overspray minimization, if applicable. This entails ensuring that the overspray system is functioning properly. In the event that overspray is carried more than 50 feet from the cell, the overspray system should be immediately shut-off.

e) Remarks

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A section is included on the *Monthly Inspection Data* form for remarks in which recommendations can be made or observations of concern can be documented.

f) Summary of Daily, Weekly and Quarterly Inspections

The monthly inspection will also summarize the daily, weekly and, if applicable, quarterly tailings inspections for the specific month.

In addition, settlement monitors are typically surveyed monthly and the results reported on the *Monthly Inspection Data* form.

5. QUARTERLY TAILINGS INSPECTION

The quarterly tailings inspection is performed by the Radiation Safety Officer or his designee from the Radiation Safety Department, having the training specified in Section 2.4 above, once per calendar quarter. A quarterly inspection should be performed no sooner than 45 days since the previous quarterly inspection was performed.

Each quarterly inspection shall include an Embankment Inspection, an Operations/Maintenance Review, a Construction Review and a Summary, as follows:

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a) Embankment Inspection

The Embankment inspection involves a visual inspection of the crest, slope and toe of each dike for movement, seepage, severe erosion, subsidence, shrinkage cracks, and exposed liner.

b) Operations/Maintenance Review

The Operations/Maintenance Review consists of reviewing Operations and Maintenance activities pertaining to the tailings area on a quarterly basis.

c) Construction Review

The Construction Review consists of reviewing any construction changes or modifications made to the tailings area on a quarterly basis.

d) Summary

The summary will include all major activities or observations noted around the tailings area on a quarterly basis.

If any of these conditions are noted, the conditions and corrective measures taken should be documented in the *Quarterly Inspection Data* form. An example of the *Quarterly Inspection Data* form is provided in Appendix A.

6. ANNUAL EVALUATIONS

The following annual evaluations shall be performed:

6.1. Annual Technical Evaluation

An annual technical evaluation of the tailings management system is performed by a registered professional engineer (PE), who has experience and training in the area of geotechnical aspects of retention structures. The technical evaluation includes an on-site inspection of the tailings management system and a thorough review of all tailings records for the past year. The Technical Evaluation also includes a review and summary of the annual movement monitor survey (see Section 5.2 below).

All tailings cells and corresponding dikes will be inspected for signs of erosion, subsidence, shrinkage, and seepage. The drainage ditches will be inspected to evaluate surface water control structures.

In the event tailings capacity evaluations (as per SOP PBL-3) were performed for the receipt of alternate feed material during the year, the capacity evaluation forms and associated calculation sheets will be reviewed to ensure that the maximum tailings capacity estimate is accurate. The amount of tailings added to the system since the last evaluation will also be calculated to determine the estimated capacity at the time of the evaluation.

Tailings inspection records will consist of daily, weekly, monthly, and quarterly tailings inspections. These inspection records will be evaluated to determine if any freeboard limits are being approached. Records will also be reviewed to summarize observations of potential concern. The evaluation also involves discussion with the Environmental and/or Radiation Technician and the Radiation Safety Officer regarding activities around the tailings area for the past year. During the annual inspection, photographs of the tailings area will be taken. The training of individuals will be reviewed as a part of the Annual Technical Evaluation.

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The registered engineer will obtain copies of selected tailings inspections, along with the monthly and quarterly summaries of observations of concern and the corrective actions taken. These copies will then be included in the Annual Technical Evaluation Report.

The Annual Technical Evaluation Report must be submitted by November 15th of every year to:

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Directing Dam Safety Engineer
State of Utah, Natural Resources
1636 West North Temple, Suite 220
Salt Lake City, Utah 84116-3156

6.2. Movement Monitors

A movement monitor survey is to be conducted by a licensed surveyor annually during the second quarter of each year. The movement monitor survey consists of surveying monitors along dikes 3-S, 4A-W, and 4A-S to detect any possible settlement or movement of the dikes. The data generated from this survey is reviewed and incorporated into the *Annual Technical Evaluation Report* of the tailings management system.

6.3. Freeboard Limits

The freeboard limits set out in this Section are intended to capture the Local 6-hour Probable Maximum Precipitation (PMP) event, which was determined in the January 10, 1990 Drainage Report (the "Drainage Report") for the White Mesa site to be 10 inches.

The flood volume from the PMP event over the Cell 1 pond area plus the adjacent drainage areas, was calculated in the Drainage Report to be 103 acre feet of water, with a wave run up factor of 0.90 feet.

The flood volume from the PMP event over the Cell 2 and Cell 3 pond areas, plus the adjacent drainage areas was calculated in the Drainage Report to be 123.4 acre-feet of water.

The flood volume from the PMP event over the Cell 4A area was calculated in the Drainage Report to be 36 acre-feet of water (40 acres, plus the adjacent drainage area of 3.25 acres, times the PMP of 10 inches), with a wave run up factor of 0.77 feet.

The total pool surface area in Cell 1 is 52.9 acres and in Cell 4A is 40 acres. The top of the flexible membrane liner ("FML") for Cell 1 is 5,618.2 FMSL and for Cell 4A is 5,598.5 FMSL.

Based on the foregoing, the freeboard limits for the Mill's tailings cells will be set as follows:

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6.3.1. Cell 1

The freeboard limit for Cell 1 will be set at 5,615.4 FMSL. This will allow Cell 1 to capture all of the PMP volume associated with Cell 1. The total volume requirement for Cell 1 is 103 acre feet divided by 52.9 acres equals 1.95 feet, plus the wave run up factor of 0.90 feet equals 2.85 feet. The freeboard limit is then 5,618.2 FMSL minus 2.85 feet equals 5,615.4 FMSL. Under Radioactive Materials License condition 10.3, this freeboard limit is set and is not recalculated annually.

6.3.2. Cell 2

The freeboard limit for Cell 2 is inapplicable, since Cell 2 is filled with solids. All of the PMP volume associated with Cell 2 will be attributed to Cell 4A (and/or any future tailings cells).

6.3.3. Cell 3

The freeboard limit for Cell 3 is inapplicable, since Cell 3 is close to being filled with solids, and all of the PMP flood volume associated with Cell 3 will be attributed to Cell 4A (and/or any future tailings cells).

6.3.4. Cell 4A

The freeboard limit for Cell 4A will be set assuming that the total PMP volume for Cells 2, 3 and 4A of 159.4 acre feet will be accommodated in Cell 4A. The procedure for calculating the freeboard limit for Cell 4A is as follows:

(a) When the Pool Surface Area is 40 Acres

When the pool surface area in Cell 4A is 40 acres (i.e., when there are no beaches), the freeboard limit for Cell 4A will be 5,593.7 FMSL, which is 4.76 feet below the FML (being the quotient of 159.4 acre feet divided by 40 acres, which equals 3.99 feet, plus the wave run up factor for Cell 4A of 0.77 feet, rounded to the nearest one-tenth of a foot);

(b) When the Maximum Elevation of the Beach Area is 5,593 FMSL or Less

When the maximum elevation of the beach area in Cell 4A is 5593 FMSL or less, then the freeboard limit will be 5,593.7 FMSL, which is the same as in (a) above. This allows for the situation where there may be beaches, but these beaches are at a lower elevation than the freeboard limit established in (a) above, and there is therefore ample freeboard above the beaches to hold the maximum PMP volume. The maximum elevation of the beach area will be determined by monthly surveys performed by Mill personnel in accordance with the Mill's DMT Plan.

(c) When the Maximum Elevation of the Beach Area First Exceeds 5,593 FMSL

When the maximum elevation of the beach area in Cell 4A first exceeds 5,593 FMSL, then the freeboard limit for the remainder of the ensuing year (period t=0) (until the next November 1) will be calculated when that elevation is first exceeded (the "Initial Calculation Date"), as follows:

i) The total number of dry tons of tailings that have historically been deposited into Cell 4A prior to the Initial Calculation Date ("T_0") will be determined;

ii) The expected number of dry tons to be deposited into Cell 4A for the remainder of the ensuing year (up to the next November 1), based on production estimates for that period ("Δ_0*"), will be determined;

iii) Δ_0* will be grossed up by a safety factor of 150% to allow for a potential underestimation of the number of tons that will be deposited in the cell during the remainder of the ensuing year. This grossed up number can be referred to as the "modeled tonnage" for the period;

iv) The total design tailings solid storage capacity of Cell 4A will be accepted as 2,094,000 dry tons of tailings;

v) The available remaining space in Cell 4A for solids as at the Initial Calculation Date will be calculated as 2,094,000 dry tons minus T_0;

vi) The reduction in the pool surface area for the remainder of the ensuing year will be assumed to be directly proportional to the reduction in the available space in Cell 4A for solids. That is, the reduced pool surface area for period t=0 ("RPA_0"), after the reduction, will be calculated to be:

$$(1 - (\Delta_0 * \times 1.5) / (2{,}094{,}000 - T_0)) \times 40 \text{ acres} = RPA_0$$

vii) The required freeboard for Cell 4A for the remainder of the period t=0 can be calculated in feet to be the wave run up factor for Cell 4A of 0.77 feet plus the quotient of 159.4 acre feet divided by the RPA_0. The freeboard limit for Cell 4A for the remainder of period t=0 would then be the elevation of the FML for Cell 4A of 5598.5 FMSL less this required freeboard amount, rounded to the nearest one-tenth of a foot; and

viii) The foregoing calculations will be performed at the Initial Calculation Date and the resulting freeboard limit will persist until the next November 1.

An example of this calculation is set out in Appendix F.

(d) *Annual Freeboard Calculation When the Maximum Elevation of the Beach Area Exceeds 5,593 FMSL*

On November 1 of each year (the "Annual Calculation Date"), the reduction in pool area for the ensuing year (referred to as period t) will be calculated by:

i) First, calculating the Adjusted Reduced Pool Area for the previous period ($ARPA_{t-1}$) to reflect actual tonnages deposited in Cell 4A for the previous period (period t-1). The RPA_{t-1} used for the previous period was based on expected tonnages for period t-1, grossed up by a safety factor. The $ARPA_{t-1}$ is merely the RPA that would have been used for period t-1 had the actual tonnages for year t-1 been known at the outset of period t-1 and had the RPA been calculated based on the actual tonnages for period t-1. This allows the freeboard calculations to be corrected each year to take into account actual tonnages deposited in the cell as of the date of the calculation. The $ARPA_{t-1}$ can be calculated using the following formula:

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$(1 - \Delta_{t-1} / (2{,}094{,}000 - T_{t-1})) \times ARPA_{t-2} = ARPA_{t-1}$

Where:

- Δ_{t-1} is the actual number of dry tons of tailings solids deposited in Cell 4A during period t-1;
- T_{t-1} is the actual number of dry tons of tailings solids historically deposited in Cell 4A prior to the beginning of period t-1; and
- $ARPA_{t-2}$ is the Adjusted Reduced Pool Area for period t-2. If period t-2 started at the Initial Calculation Date, then $ARPA_{t-2}$ is 40 acres;

ii) Once the $ARPA_{t-1}$ for the previous period (period t-1) has been calculated, the RPA for the subject period (period t) can be calculated as follows:

$(1 - (\Delta_t^* \times 1.5) / (2{,}094{,}000 - T_t)) \times ARPA_{t-1} = RPA_t$

Where:

- Δ_t^* is the expected number of dry tons of tailings to be deposited into Cell 4A for the ensuing year (period t), based on production estimates for the year (as can be seen from the foregoing formula, this expected number is grossed up by a safety factor of 1.5);
- T_t is the actual number of dry tons of tailings solids historically deposited in Cell 4A prior to the beginning of period t; and
- $ARPA_{t-1}$ is the Adjusted Reduced Pool Area for period t-1, which is the pool surface area for the previous period (period t-1) that should have applied during that period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period;

iii) The required freeboard for period t can be calculated in feet to be the wave run up factor for Cell 4A of 0.77 feet plus the quotient of 159.4 acre feet divided by the RPA_t. The freeboard limit for Cell 4A for period t would then be the elevation of the FML for Cell 4A of 5598.5 FMSL less this required freeboard amount, rounded to the nearest one-tenth of a foot; and

iv) The foregoing calculations will be performed at the Annual Calculation Date for period t and the resulting freeboard limit will persist until the next Annual Calculation Date for period t+1.

An example of this calculation is set out in Appendix F.

(e) When a Spillway is Added to Cell 4A that Allows Overflow Into a New Tailings Cell

When a spillway is added between Cell 4A and a new tailings cell (Cell 4B), then, if an approved freeboard limit calculation method for the new cell is set to cover the entire PMP event for Cells 2, 3, 4A and 4B, the freeboard limit for Cell 4A will be inapplicable, except for approved provisions to prevent storm water runoff from overtopping dikes.

6.3.5. Roberts Pond

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<#>*Tailings Cells 1 and 4A*¶
¶
The freeboard limits are as per *January 10, 1990 Drainage Report for Cells 1 and 4A* and are stated below:¶
¶
<#>A liquid maximum elevation of 5,615.4 feet mean sea level in Cell 1.¶
¶
<#>A liquid maximum elevation of 5,596.4 feet mean sea level in Cell 4A.¶
¶
<#>*Tailings Cell 3*¶
¶
The freeboard limit for Cell 3 is determined annually using the following procedure:¶
¶
<#>From a survey of Cell 3, the pool surface will be determined.¶
¶
<#>An estimate of the maximum tons of dry tailings to be generated during the next 12 months will be made. This estimate is multiplied by 1.5, a factor of safety, to yield the Maximum Mill Production.¶
¶
<#>The Maximum Mill Production is divided by the number of tons required to reduce the pool size by one acre and then subtracted from the pool surface (determined in Step i), yielding the Reduced Pool Area.¶
¶
<#>The PMP Flood Volume Requirement, as per the *January 10, 1990 Drainage Report*, is 123.4 acre feet. The PMP Flood Volume Requirement is divided by the Reduced Pool Area to determine the PMP Freeboard Level.¶
¶
<#>The Wave Run Up of 0.78 feet (as specified in the *January 10, 1990 Drainage Report*) is added to the PMP Freeboard Level to determine the Total Required Freeboard.¶
¶
The calculation of the Total Required Freeboard for Cell 3 will be calculated annually and the calculation sheet filed in the Mill Central File.¶
¶
<#>*Tailings Cell 4A*¶
¶
The freeboard limit for Cell 4A is determined annually using the following procedure:¶
¶
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The freeboard limit for Roberts Pond is a liquid maximum elevation of 5,624.0 feet above mean sea level, as specified in the GWDP.

Deleted: <#>Roberts Pond¶
¶
The freeboard limit for Roberts Pond is a liquid maximum elevation of 5,624.0 feet above mean sea level, as specified in the GWDP.¶

6.4. Annual Leak Detection Fluid Samples

In the event solution has been detected in a leak detection system, a sample will be collected on an annual basis. This sample will be analyzed according to the conditions set forth in License Condition 11.3.C. The results of the analysis will be reviewed to determine the origin of the solution.

6.5. Annual Inspection of the Decontamination Pads

a) New Decontamination Pad

During the second quarter of each year, the New Decontamination Pad will be taken out of service and inspected to ensure the integrity of the wash pad's exposed concrete surface. If any abnormalities are identified, i.e. cracks in the concrete with greater than 1/8 inch separation (width) or any significant deterioration or damage of the pad surface, repairs will be made prior to resuming the use of the facility. All inspection findings and any repairs required shall be documented on the Annual Decontamination Pad Inspection form. The inspection findings, any repairs required and repairs completed shall be summarized in the 2nd Quarter DMT Monitoring Report due September 1 of each calendar year.

b) Existing Decontamination Pad

During the second quarter of each year, the Existing Decontamination Pad will be taken out of service and inspected to ensure the integrity of the steel tank. If any abnormalities are identified, repairs will be made prior to resuming the use of the facility. All inspection findings and any repairs required shall be documented on the Annual Decontamination Pad Inspection form. The inspection findings, any repairs required and repairs completed shall be summarized in the 2nd Quarter DMT Monitoring Report due September 1 of each calendar year.

7. OTHER INSPECTIONS

All daily, weekly, monthly, quarterly and annual inspections and evaluations should be performed as specified in Sections 2, 3, 4, 5 and 6 above. However, additional inspections should be conducted after any significant storm or significant natural or man-made event occurs.

8. REPORTING REQUIREMENTS

In addition to the *Daily Inspection Data*, *Weekly Tailings Inspection*, *Monthly Inspection Data* and

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Q*uarterly Inspection Data* forms included as Appendix A and described in Sections 2, 3, 4 and 5 respectively, and the *Operating Foreman's Daily Inspection* and *Weekly Mill Inspection* forms described in Sections 2 and 3, respectively, the following additional reports shall also be prepared:

8.1. Monthly Tailings Reports

Monthly tailings reports are prepared every month and summarize the previous month's activities around the tailings area. If not prepared by the Radiation Safety Officer, the report shall be submitted to the Radiation Safety Officer for review. The Mill Manager will review the report as well before the report is filed in the Mill Central File. The report will contain a summary of observations of concern noted on the daily and weekly tailings inspections. Corrective measures taken during the month will be documented along with the observations where appropriate. All daily and weekly tailings inspection forms will be attached to the report. A monthly inspection form will also be attached. Quarterly inspection forms will accompany the report when applicable. The report will be signed and dated by the preparer in addition to the Radiation Safety Officer and the Mill Manager.

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8.2. DMT Reports

Quarterly reports of DMT monitoring activities, which will include the following information, will be provided to the Executive Secretary on the schedule provided in Table 5 of the GWDP:

a) On a quarterly basis, all required information required by Part 1.F.2 of the GWDP relating to the inspections described in Section 3.1(b) (Slimes Drain Water Level Monitoring), 3.1(d) (Tailings Wastewater Pool and Beach Area Elevation Monitoring), 3.2 (Weekly Inspection of Solution Levels in Roberts Pond) and 3.3 (Weekly Feedstock Storage Area Inspections);

b) On a quarterly basis, a summary of the daily water level (depth) inspections for the quarter for the presence of fluid in all three vertical inspection portals for each of the three chambers in the concrete settling tank system for the New Decontamination Pad, which will include a table indicating the water level measurements in each portal during the quarter;

c) With respect to the annual inspection of the New Decontamination Pad described in Section 6.5(a), the inspection findings, any repairs required, and repairs completed shall be summarized in the 2nd Quarter report, due September 1 of each calendar year;

d) With respect to the annual inspection of the Existing Decontamination Pad described in Section 6.5(b), the inspection findings, any repairs required, and repairs completed shall be summarized in the 2nd Quarter report, due September 1

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of each calendar year; and

e) An annual summary and graph for each calendar year of the depth to wastewater in the Cell 2 slimes drain must be included in the fourth quarter report. After the first year, and beginning in 2008, quarterly reports shall include both the current year monthly values and a graphic comparison to the previous year.

Deleted: Quarterly reports of DMT monitoring activities of all required information required by Part 1.F.2 of the GWDP relating to the inspections described in Section 3.1(b) (Slimes Drain Water Level Monitoring), 3.1(d) (Tailings Wastewater Pool Elevation Monitoring), 3.2 (Weekly Inspection of Solution Levels in Roberts Pond) and 3.3 (Weekly Feedstock Storage Area Inspections) will be provided to the Executive Secretary on the schedule provided in Table 5 of the GWDP. An annual summary and graph for each calendar year of the depth to wastewater in the Cell 2 slimes drain must be included in the fourth quarter report. After the first year, and beginning in 2008, quarterly reports shall include both the current year monthly values and a graphic comparison to the previous year.¶

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APPENDIX A

FORMS

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APPENDIX A (CONT.)
DAILY INSPECTION DATA

Inspector:_____
Date;_____
Accompanied by:_____
Time:_____

Any Item not "OK" must be documented. A check mark = OK, X = Action Required

I. TAILINGS SLURRY TRANSPORT SYSTEM					
Inspection Items	Conditions of Potential Concern	Cell 1	Cell 2	Cell 3	Cell 4A
Slurry Pipeline	Leaks, Damage, Blockage, Sharp Bends				
Pipeline Joints	Leaks, Loose Connections				
Pipeline Supports	Damage, Loss of Support				
Valves	Leaks, Blocked, Closed				
Point(s) of Discharge	Improper Location or Orientation				

II. OPERATIONAL SYSTEMS					
Inspection Items	Conditions of Potential Concern	Cell 1	Cell 2	Cell 3	Cell 4A
Water Level	Greater Than Operating Level, Large Change Since Previous Inspection				
Beach	Cracks, Severe Erosion, Subsidence				
Liner and Cover	Erosion of cover, Exposure of Liner				

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III. DIKES AND EMBANKMENTS							
Inspection Items	Conditions of Potential Concern	Dike 1-I	Dike 1-1A	Dike 2	Dike 3	Dike 4A-S	Dike 4A-W
Slopes	Sloughs or Sliding Cracks, Bulges, Subsidence, Severe Erosion, Moist Areas, Areas of Seepage Outbreak						
Crest	Cracks, Subsidence, Severe Erosion						

IV. FLOW RATES				
	Slurry Line(s)	Pond Return	S-X Tails	Spray System
GPM				

V. PHYSICAL INSPECTION OF SLURRY LINES(S)

Walked to Discharge Point _____Yes _____No
Observed Entire Discharge Line _____Yes _____No

VI. DUST CONTROL			
	Cell 2	Cell 3	Cell 4A
Dusting			
Wind Movement of Tailings			
Precipitation: _____ inches liquid			
General Meteorological conditions:_____ _____ _____			

VII. DAILY LEAK DETECTION CHECK			

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	Cell 1	Cell 2	Cell 3	Cell 4A
Leak Detection System Checked	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____

VIII OBSERVATIONS OF POTENTIAL CONCERN	**Action Required**

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[MAP OF TAILINGS AREA]

APPENDIX A (CONT)

DENISON MINES (USA) CORP.
WEEKLY TAILINGS INSPECTION

Date:_____ Inspectors: _____

1. Pond elevations (msl, ft)

Cell 1: (a) Pond Solution Elevation
_____
(b) FML Bottom Elevation
_____5597_____
(c) Depth of Water above FML ((a)-(b)) _____

Cell 3: (a)Pond Solution Elevation
_____
(b)FML Bottom Elevation
_____5570_____
(c)Depth of Water above FML ((a)-(b)) _____

Cell 4A: (a)Pond Solution Elevation
_____
(b)FML Bottom Elevation _____ 5564_____
(c)Depth of Water above FML ((a)-(b)) _____

Roberts
Pond: (a)Pond Solution Elevation _____
(b)FML Bottom Elevation
_____5612.34___
(c)Depth of Water above FML ((a)-(b)) _____

2. Slimes Drain Liquid Levels Cell 2

Pump functioning properly _____
Pump Timer set at 15min on 45 min off _____

_____Depth to Liquid pre-pump
_____Depth to Liquid Post-pump

(all measurements are depth-in-pipe)

Pre-pump head is 38'-Depth to Liquid Pre-pump = _____
Post-pump head is 38' –Depth to Liquid Post-pump = _____

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3. Leak Detection Systems

Observation:				
	Cell 1	Cell 2	Cell 3	Cell 4A
Is LDS wet or dry?	____wet____dry	____wet____dry	____wet____dry	____wet____dry
If wet, Record liquid level:	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid *
If sufficient fluid is present, record volume of fluid pumped and flow rate:	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____
Was fluid sample collected?	____yes____no	____yes____no	____yes____no	____yes____no

Observation:			
	New Decon Pad, Portal 1	New Decon Pad, Portal 2	New Decon Pad Portal 3
Is LDS (Portal) wet or dry?	____wet____dry	____wet____dry	____wet____dry
If wet, Record liquid level:	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid
If wet, Report to RSO			

4. Tailings Area Inspection (Note dispersal of blowing tailings):
_____
_____

5. Control Methods Implemented:_____
_____
_____

6. Remarks:_____
_____

7. Contaminated Waste Dump:_____

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* Does Level exceed 12 inches above the lowest point on the bottom flexible membrane liner (elevation 5556.14 amsl)? _____ no _____ yes

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¶
¶
¶
¶

If Cell 4A leak detection system level exceeds 12 inches above the lowest point on the bottom flexible membrane liner (elevation 5556.14 amsl), notify supervisor or Mill manager immediately.

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APPENDIX A (CONT.)

MONTHLY INSPECTION DATA

Inspector: _____

Date: _____

1. Slurry Pipeline: _____

_____

_____

_____

_____

Pipe Thickness:_____(To be measured only during periods when the Mill is operating)

2. Diversion Ditches and Diversion Berm:

Observation:

	Diversion Ditch 1	Diversion Ditch 2	Diversion Ditch 3	Diversion Berm 2
Diversion Ditches:				
Sloughing	_____yes_____no	_____yes_____no	_____yes_____no	
Erosion	_____yes_____no	_____yes_____no	_____yes_____no	
Undesirable Vegetation	_____yes_____no	_____yes_____no	_____yes_____no	
Obstruction of Flow	_____yes_____no	_____yes_____no	_____yes_____no	
Diversion Berm:				
Stability Issues				_____yes_____no
Signs of Distress				_____yes_____no

Comments:_____

_____

_____

_____

_____

_____

3. Summary of Activities Around Sedimentation Pond: _____

_____

_____

_____

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_____
_____

4. Overspray Dust Minimization:

Overspray system functioning properly: _____yes_____no

Overspray carried more than 50 feet from the cell: _____yes_____no
If "yes", was system immediately shut off? _____yes_____no

Comments:_____
_____
_____
_____
_____
_____

5. Remarks: _____
_____
_____
_____
_____
_____

6. Settlement Monitors

Cell 2 W1: _____	Cell 2W3-S: _____	Cell 3-1N: _____
Cell 2 W2: _____	Cell 2E1-N: _____	Cell 3-1C: _____
Cell 2 W3: _____	Cell 2E1-1S: _____	Cell 3-1S: _____
Cell 2 W4: _____	Cell 2E1-2S: _____	Cell 3-2N: _____
Cell 2W7-C: _____	Cell 2 East: _____	Cell 2W5-N: _____
Cell 2 W7N: _____	Cell 2 W7S: _____	Cell 2 W6N: _____
Cell 2 W6C: _____	Cell 2 W6S: _____	Cell 2 W4N: _____
Cell 4A-Toe: _____	Cell 2 W4S: _____	Cell 2 W5C: _____
Cell 3-2C: _____	Cell 3-2S: _____	Cell 2 W5S: _____

7. Summary of Daily, Weekly and Quarterly Inspections: _____
_____
_____
_____
_____
_____

8. Monthly Slimes Drain Static Head Measurement for Cell 2 (Depth-in-Pipe Water Level Reading): _____

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APPENDIX A (CONT.)

WHITE MESA MILL
TAILINGS MANAGEMENT SYSTEM

QUARTERLY INSPECTION DATA

Inspector: _____

Date: _____

1. Embankment Inspection: _____

_____
_____
_____
_____
_____

2. Operations/Maintenance Review: _____

_____
_____
_____
_____
_____

3. Construction Activities: _____

_____
_____
_____
_____
_____

4. Summary: _____

_____
_____
_____
_____
_____

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APPENDIX A (CONT.)

ORE STORAGE/SAMPLE PLANT WEEKLY INSPECTION REPORT

Week of _____ through _____ Date of Inspection:_____

Inspector:_____

Weather conditions for the week:

_____
_____
_____

Blowing dust conditions for the week:

_____
_____
_____
_____

Corrective actions needed or taken for the week:

_____
_____
_____
_____

Are all bulk feedstock materials stored in the area indicated on the attached diagram:
yes:_____ no:_____
comments:_____
_____

Are all alternate feedstock materials located outside the area indicated on the attached diagram maintained within water-tight containers:
yes:_____ no:_____
comments (e.g., conditions of containers):_____
_____
_____

Are all sumps and low lying areas free of standing solutions?
Yes:_____No:_____
If "No", how was the situation corrected, supervisor contacted and correction date?

_____
_____

Is there free standing water or water running off of the feedstock stockpiles?
Yes:_____No:_____
Comments:_____
_____

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_____
_____

Other comments:

_____
_____

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APPENDIX A (CONT.)

ANNUAL DECONTAMINATION PAD INSPECTION

Date of Inspection: _____

Inspector: _____

New Decontamination Pad:

Are there any cracks on the wash pad surface greater than 1/8 inch of separation? __Yes ___No

Is there any significant deterioration or damage of the pad surface? ____Yes ____No

Findings:

_____

_____

_____

Repair Work Required:

_____

_____

_____

Existing Decontamination Pad:

Were there any observed problems with the steel tank? ____Yes ____No

Findings:

_____

_____

_____

Repair Work Required:

_____

_____

_____

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APPENDIX B

TAILINGS INSPECTOR TRAINING

This document provides the training necessary for qualifying management-designated individuals for conducting daily tailings inspections. Training information is presented by the Radiation Safety Officer or designee from the Environmental Department. Daily tailings inspections are conducted in accordance with the White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan. The Radiation Safety Officer or designee from the Radiation Safety Department is responsible for performing monthly and quarterly tailings inspections. Tailings inspection forms will be included in the monthly tailings inspection reports, which summarize the conditions, activities, and areas of concern regarding the tailings areas.

Notifications:

The inspector is required to record whether all inspection items are normal (satisfactory, requiring no action) or that conditions of potential concern exist (requiring action). A "check" mark indicates no action required. If conditions of potential concern exist the inspector should mark an "X" in the area the condition pertains to, note the condition, and specify the corrective action to be taken. If an observable concern is made, it should be noted on the tailings report until the corrective action is taken and the concern is remedied. The dates of all corrective actions should be noted on the reports as well.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

Inspections:

All areas of the tailings disposal system are routinely patrolled and visible observations are to be noted on a daily tailings inspection form. Refer to Appendix A for an example of the daily tailings inspection form. The inspection form consists of three pages and is summarized as follows:

1. Tailings Slurry Transport System:

The slurry pipeline is to be inspected for leaks, damage, and sharp bends. The pipeline joints are to be monitored for leaks, and loose connections. The pipeline supports are to be

inspected for damage and loss of support. Valves are also to be inspected particularly for leaks, blocked valves, and closed valves. Points of discharge need to be inspected for improper location and orientation.

2. Operational Systems:

Operating systems including water levels, beach liners, and covered areas are items to be inspected and noted on the daily inspection forms. Sudden changes in water levels previously observed or water levels exceeding the operating level of a pond are potential areas of concern and should be noted. Beach areas that are observed as having cracks, severe erosion or cavities are also items that require investigation and notation on daily forms. Exposed liner or absence of cover from erosion are potential items of concern for ponds and covered areas. These should also be noted on the daily inspection form.

Cells 1, 3 and 4A solution levels are to be monitored closely for conditions nearing maximum operating level and for large changes in the water level since the last inspection. All pumping activities affecting the water level will be documented. In Cells 1 and 3, the PVC liner needs to be monitored closely for exposed liner, especially after storm events. It is important to cover exposed liner immediately as exposure to sunlight will cause degradation of the PVC liner. Small areas of exposed liner should be covered by hand. Large sections of exposed liner will require the use of heavy equipment

These conditions are considered serious and require immediate action. After these conditions have been noted to the Radiation Safety Officer, a work order will be written by the Radiation Safety Officer and turned into the Maintenance Department. All such repairs should be noted in the report and should contain the start and finish date of the repairs.

3. Dikes and Embankments:

Inspection items include the slopes and the crests of each dike. For slopes, areas of concern are sloughs or sliding cracks, bulges, subsidence, severe erosion, moist areas, and areas of seepage outbreak. For crests, areas of concern are cracks, subsidence, and severe erosion. When any of these conditions are noted, an "X" mark should be placed in the section marked for that dike.

In addition, the dikes, in particular dikes 3, 4A-S and 4A-W, should be inspected closely for mice holes and more importantly for prairie dog holes, as the prairie dogs are likely to burrow in deep, possibly to the liner. If any of these conditions exist, the inspection report should be marked accordingly.

4. Flow Rates:

Presence of all flows in and out of the cells should be noted. Flow rates are to be estimated in gallons per minute (GPM). Rates need to be determined for slurry lines, pond return, SX-tails, and the spray system. During non-operational modes, the flow rate column should be marked as "0". The same holds true when the spray system is not utilized.

5. Physical Inspection of Slurry Line(s):

A physical inspection of all slurry lines has to be made every 4 hours during operation of the mill. If possible, the inspection should include observation of the entire discharge line and discharge spill point into the cell. If "fill to elevation" flags are in place, the tailings and build-up is to be monitored and controlled so as to not cover the flags.

6. Dust Control:

Dusting and wind movement of tailings should be noted for Cells 2, 3, and 4A. Other observations to be noted include a brief description of present weather conditions, and a record of any precipitation received. Any dusting or wind movement of tailings should be documented. In addition, an estimate should be made for wind speed at the time of the observed dusting or wind movement of tailings.

The Radiation Safety Department measures precipitation on a daily basis. Daily measurements should be made as near to 8:00 a.m. as possible every day. Weekend measurements will be taken by the Shifter as close to 8:00 a.m. as possible. All snow or ice should be melted before a reading is taken.

7. Observations of Potential Concern:

All observations of concern during the inspection should be noted in this section. Corrective action should follow each area of concern noted. All work orders issued, contacts, or notifications made should be noted in this section as well. It is important to document all these items in order to assure that the tailings management system records are complete and accurate.

8. Map of Tailings Cells:

The last section of the inspection involves drawing, as accurately as possible, the following items where applicable.

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1. Cover area
2. Beach/tailing sands area
3. Solution as it exists
4. Pump lines
5. Activities around tailings cell (i.e. hauling trash to the dump, liner repairs, etc.)
6. Slurry discharge when operating
7. Over spray system when operating

9. Safety Rules:

All safety rules applicable to the mill are applicable when in the tailings area. These rules meet the required MSHA regulations for the tailings area. Please pay particular notice to the following rules:

1. The posted speed limit for the tailings area is 15 mph and should not be exceeded.
2. No food or drink is permitted in the area.
3. All personnel entering the tailings area must have access to a two-way radio.
4. Horseplay is not permitted at any time.
5. Only those specifically authorized may operate motor vehicles in the restricted area.
6. When road conditions are muddy or slick, a four-wheel drive vehicle is required in the area.
7. Any work performed in which there is a danger of falling or slipping in the cell will require the use of a safety belt or harness with attended life line and an approved life jacket. A portable eyewash must be present on site as well.
8. Anytime the boat is used to perform any work; an approved life jacket and goggles must be worn at all times. There must also be an approved safety watch with a two-way hand-held radio on shore. A portable eyewash must be present on site as well.

10. Preservation of Wildlife:

Every effort should be made to prevent wildlife and domesticated animals from entering the tailings area. All wildlife observed should be reported on the Wildlife Report Worksheet during each shift. Waterfowl seen near the tailings cells should be discouraged from landing by the use of noisemakers.

11. Certification:

Following the review of this document and on-site instruction on the tailings system inspection program, designated individuals will be certified to perform daily tailings inspections. The Radiation Safety Officer authorizes certification. Refer to the Certification Form, Appendix C. This form should be signed and dated only after a thorough review of the tailings information previously presented. The form will then be signed by the Radiation

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Safety Officer and filed.

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APPENDIX C

CERTIFICATION FORM

Date: _____

Name: _____

I have read the document titled "Tailings Management System, White Mesa Mill Tailings Inspector Training" and have received on-site instruction at the tailings system. This instruction included documentation of daily tailings inspections, analysis of potential problems (dike failures, unusual flows), notification procedures and safety.

_____
Signature

I certify that the above-named person is qualified to perform the daily inspection of the tailings system at the White Mesa Mill.

_____
Radiation Safety Personnel/ Tailings System Supervisor

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APPENDIX D
FEEDSTOCK STORAGE AREA

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APPENDIX E

TABLES

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Table 1

Calculated Action leakage Rates
for Various head Conditions
Cell 4A White mesa Mill
Blanding, Utah

Head above Liner System (feet)	Calculated Action leakage Rate (gallons / acre / day)
5	222.04
10	314.01
15	384.58
20	444.08
25	496.50
30	543.88
35	587.46
37	604.01

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APPENDIX F

Example of Freeboard Calculations For Cell 4A

Assumptions and Factors:

- Total PMP volume to be stored in Cell 4A – 159.4 acre feet
- Wave runup factor for Cell 4A – 0.77 feet
- Total capacity of Cell 4A – 2,094,000 dry tons
- Elevation of FML of Cell 4A – 5,598.5 FMSL
- Maximum pool surface area of Cell 4A – 40 acres
- Total tailings solids deposited into Cell 4A at time beach area first exceeds 5,593 FMSL – 1,000,000 dry tons*
- Date beach area first exceeds 5,593, FMSL – March 1, 2009*
- Expected and actual production is as set forth in the following table:

Time Period	Expected Tailings Solids Disposition into Cell 4A Determined at the beginning of the period (dry tons)*	Expected Tailings Solids Disposition into Cell 4A at the beginning of the period, multiplied by 150% Safety Factor (dry tons)	Actual Tailings Solids Disposition into Cell 4A determined at end of the period (dry tons)*
March 1, 2009 to November 1, 2009	150,000	225,000	225,000
November 1, 2009 to November 1, 2010	300,000	450,000	275,000
November 1, 2010 to November 1, 2011	200,000	300,000	250,000

*These expected and actual tailings and production numbers and dates are fictional and have been assumed for illustrative purposes only.

Based on these assumptions and factors, the freeboard limits for Cell 4A would be calculated as follows:

1. Prior to March 1, 2009

Prior to March 1, 2009, the maximum elevation of the beach area in Cell 4 is less than or equal to 5,593 FMSL, therefore the freeboard limit is set at 5,593.7 FMSL.

2. March 1, 2009 to November 1, 2009

The pool surface area would be reduced to the following amount

(1 – 225,000 / (2,094,000 – 1,000,000)) x 40 acres = 31.77 acres

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 31.77 acres equals 5.02 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 5.79 feet. This means that the freeboard limit for Cell 4A would be reduced from 5593.7 FMSL to 5592.7 FMSL (5598.5 FMSL minus 5.79 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at March 1, 2009, and this freeboard limit would persist until November 1, 2009.

3. November 1, 2009 to November 1, 2010

The pool surface area would be reduced to the following amount:

First, recalculate the pool surface area that should have applied during the previous period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period. Since the actual tonnage of 225,000 dry tons was the same as the modeled tonnage of 225,000 dry tons, the recalculated pool surface area is the same as the modeled pool surface area for the previous period, which is 31.77 acres.

Then, calculate the modeled pool surface area to be used for the period:

(1 – 450,000 / (2,094,000 – 1,000,000 - 225,000)) x 31.77 acres = 15.32 acres

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 15.32 acres equals 10.40 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 11.17 feet. This means that the freeboard limit for Cell 4A would be reduced from 5592.7 FMSL to 5587.3 FMSL (5598.5 FMSL minus 11.17 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at November 1, 2009, and this freeboard limit would persist until November 1, 2010.

4. November 1, 2010 to November 1, 2011

The pool surface area would be reduced to the following amount:

First, recalculate the pool surface area that should have applied during the previous period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period. Since modeled tonnages exceeded actual tonnages, the pool area was reduced too much during the previous period, and must be adjusted. The recalculated pool area for the previous period is:

(1 – 275,000 / (2,094,000 – 1,000,000 - 225,000) x 31.77 acres = 21.72 acres.

This recalculated pool surface area will be used as the starting point for the freeboard calculation to be performed at November 1, 2010.

Then, calculate the modeled pool surface area to be used for the period:

(1 – 300,000 / (2,094,000 – 1,000,000 - 225,000 – 275,000)) x 21.72 acres = 10.75 acres

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 10.75 acres equals 14.83 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 15.60 feet. This means that the freeboard limit for Cell 4A would be reduced from 5587.3 FMSL to 5582.9 FMSL (5598.5 FMSL minus 15.60 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at November 1, 2010, and this freeboard limit would persist until November 1, 2011.

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Cell 3	320,508	2,577,760

Page 19: [2] Deleted Jo Ann Tischler 8/4/2010 8:54:00 AM

Tailings Cells 1 and 4A

The freeboard limits are as per *January 10, 1990 Drainage Report for Cells 1 and 4A* and are stated below:

A liquid maximum elevation of 5,615.4 feet mean sea level in Cell 1.

A liquid maximum elevation of 5,596.4 feet mean sea level in Cell 4A.

Tailings Cell 3

The freeboard limit for Cell 3 is determined annually using the following procedure:

From a survey of Cell 3, the pool surface will be determined.

An estimate of the maximum tons of dry tailings to be generated during the next 12 months will be made. This estimate is multiplied by 1.5, a factor of safety, to yield the Maximum Mill Production.

The Maximum Mill Production is divided by the number of tons required to reduce the pool size by one acre and then subtracted from the pool surface (determined in Step i), yielding the Reduced Pool Area.

The PMP Flood Volume Requirement, as per the *January 10, 1990 Drainage Report*, is 123.4 acre feet. The PMP Flood Volume Requirement is divided by the Reduced Pool Area to determine the PMP Freeboard Level.

The Wave Run Up of 0.78 feet (as specified in the *January 10, 1990 Drainage Report*) is added to the PMP Freeboard Level to determine the Total Required Freeboard.

The calculation of the Total Required Freeboard for Cell 3 will be calculated annually and the calculation sheet filed in the Mill Central File.

Tailings Cell 4A

The freeboard limit for Cell 4A is determined annually using the following procedure:

The Cell 4A design includes a concrete spillway between Cell 3 and Cell 4A, with the invert elevation 4 feet below the top of the Cell 3 dike, at an elevation of 5604.5 feet amsl. Should Cell 3 receive the full PMP volume of 123.4 acre feet of water, approximately 62 acre feet of that volume would flow through the spillway into Cell 4A.

The flood volume from the PMP event over the Cell 4A area is 36 acre-feet of water (40 acres, plus the adjacent drainage area of 3.25 acres, times the PMP of 10 inches). This would result in a total flood volume of 98 acre-feet, including the 62 acre-feet of solution from Cell 3. The freeboard depth required for Cell 4A from the PMP event would be 2.44 feet, plus a wave run-up depth of 0.77 feet (from the 1990 Drainage Report), for a total freeboard requirement of 3.2 feet. This calculation is illustrated on Attachment 4. The Groundwater Quality Discharge Permit, No. UGW370004, for the White Mesa Mill requires that the minimum freeboard be no less than 3.0 feet for any of the existing Cell construction, but based on the above calculation the freeboard would be set 3.2 feet below the top of liner. The freeboard for Cell 4A would therefore be 5595.3 amsl (top of liner 5598.5 – 3.2 feet).

The calculation of the Total Required Freeboard for Cell 4A will be calculated annually and the calculation sheet filed in the Mill Central File.

WHITE MESA MILL TAILINGS MANAGEMENT SYSTEM AND DISCHARGE MINIMIZATION TECHNOLOGY (DMT) MONITORING PLAN

1. INTRODUCTION

This Tailings Management System and Discharge Minimization Technology Monitoring Plan (the "Plan") for the White Mesa Mill (the "Mill") provides procedures for monitoring of the tailings cell system as required under State of Utah Radioactive Materials License No. UT1900479 (the "Radioactive Materials License"), as well as procedures for operating and maintenance of monitoring equipment and reporting procedures that are adequate to demonstrate DMT compliance under State of Utah Ground Water Discharge Permit No. 370004 for the Mill (the "GWDP").

This Plan is designed as a systematic program for constant surveillance and documentation of the integrity of the tailings impoundment system including dike stability, liner integrity, and transport systems, as well as monitoring of water levels in Roberts Pond and feedstock storage areas at the Mill. The Plan requires daily, weekly, quarterly, monthly and annual inspections and evaluations and monthly reporting to Mill management.

2. DAILY TAILINGS INSPECTIONS

The following daily tailings inspections shall be performed:

2.1. Daily Comprehensive Tailings Inspection

On a daily basis, including weekends, all areas connected with the four tailings cells will be inspected. Observations will be made of the current condition of each cell, noting any corrective action that needs to be taken.

The Environmental or Radiation Technician is responsible for performing the daily tailings inspections. The Radiation Safety Officer may designate other individuals with training, as described in Section 2.4 below, to perform the daily tailings inspection.

Observations made by the inspector will be recorded on the *Daily Inspection Data* form (a copy of which is attached in Appendix A). The *Daily Inspection Data* form contains an inspection checklist, which includes a tailings cells map, and spaces to record observations, especially those of immediate concern and those requiring corrective action. The inspector will place a check by all inspection

items that appear to be operating properly. Those items where conditions of potential concern are observed should be marked with an "X". A note should accompany the "X" specifying what the concern is and what corrective measures will resolve the problem. This observation of concern should be noted on the form until the problem has been remedied. The date that corrective action was taken should be noted as well.

Areas to be inspected include the following: Cell 1, 2, 3, and 4A, Dikes 1, 2, 3, 4A-S, and 4A-W, wind movement of tailings, effectiveness of dust minimization methods, spray evaporation, Cell 2 spillway, Cell 3 spillway, Cell 3 and 4A liquid pools and associated liquid return equipment, cell leak detection systems, and the wildlife ponds.

Operational features of the tailings area are checked for conditions of potential concern. The following items require visual inspection during the daily tailings inspection:

a) Tailings slurry and SX raffinate transport systems from the Mill to the active disposal cell(s), and pool return pipeline and pumps.

   Daily inspections of the tailings lines are required to be performed when the Mill is operating. The lines to be inspected include the: tailings slurry lines from CCD to the active tailings cell; SX raffinate lines that can discharge into Cell 1, Cell 3 or Cell 4A; the pond return line from the tailings area to the Mill; and, lines transporting pond solutions from one cell to another.

b) Cell 1.

c) Cell 2.

d) Cell 3.

e) Cell 4A.

f) Dike structures including dikes 1, 2, 3, 4A-S, and 4A-W.

g) The Cell 2 spillway, Cell 3 spillway, Cell 3 and Cell 4A liquid pools and associated liquid return equipment.

h) Presence of wildlife and/or domesticated animals in the tailings area, including waterfowl and burrowing animal habitations.

i) Spray evaporation pumps and lines.

j) Wind movement of tailings and dust minimization.

Wind movement of tailings will be evaluated for conditions which may require initiation of preventative dust minimization measures for cells containing tailings sand. During tailings inspection, general surface conditions will be evaluated for the following: 1) areas of tailings subject to blowing and/or wind movement, 2) liquid pool size, 3) areas not subject to blowing and/or wind movement, expressed as a percentage of the total cell area. The evaluations will be reviewed on a weekly basis, or more frequently if warranted, and will be used to direct dust minimization activities.

k) Observation of flow and operational status of the dust control/spray evaporation system(s).

l) Observations of any abnormal variations in tailings pond elevations in Cells 1, 3, and 4A.

m) Locations of slurry and SX discharge within the active cells. Slurry and SX discharge points need to be indicated on the tailings cells map included in the *Daily Inspection Data* form.

n) An estimate of flow for active tailings slurry and SX line(s).

o) An estimate of flow in the solution return line(s).

p) Daily measurements in the leak detection system (LDS) sumps of the tailings cells will be made when warranted by changes in the solution level of the respective leak detection system.

The trigger for further action when evaluating the measurements in the Cell 1 and Cell 3 leak detection systems is a gain of more than 12 inches in 24 hours. The solution level in Cell 4A leak detection is not allowed to be more than 1.0 foot above the lowest point on the bottom flexible membrane liner (elevation 5556.14 feet amsl). If any of these observations are made, the Mill Manager should be notified immediately and the leak detection system pump started. In addition, the requirement to notify the Executive Secretary in accordance with Parts I.D.6 and I.G.3 of the Groundwater Discharge Permit must be adhered to when the solution level trigger for Cell 4A has been exceeded.

Whenever the leak detection system pump is operating and the flow meter totalizer is recording, a notation of the date and the time will be recorded on the *Daily Inspection Data* form. This data will be used in accordance with License Condition 11.3.B through 11.3.E of the Mill's Radioactive Materials License, to determine whether or not the flow rate into the leak detection system is in excess of the License Conditions.

q) An estimate of the percentage of the tailings beach surface area and solution pool area is made, including estimates of solutions, cover areas, and tailings sands for Cells 3 and 4A.

Items (a), (m), (n), and (o) are to be done only when the Mill is operating. When the Mill is down, these items cannot be performed.

2.2. Daily Operations Inspection

During Mill operation, the Shift Foreman, or other person with the training specified in Section 2.4 below, designated by the Radiation Safety Officer, will perform an inspection of the tailings line and tailings area at least once per shift, paying close attention for potential leaks and to the discharges from the pipelines. Observations by the Inspector will be recorded on the appropriate line on the *Operating Foreman's Daily Inspection* form.

2.3. Daily Operations Patrol

In addition to the inspections described in Sections 2.1 and 2.2 above, a Mill employee will patrol the tailings area at least twice per shift during Mill operations to ensure that there are no obvious safety or operational issues, such as leaking pipes or unusual wildlife activity or incidences.

No record of these patrols need be made, but the inspectors will notify the Radiation Safety Officer and/or Mill management in the event that during their inspection they discover that an abnormal condition or tailings emergency has occurred.

2.4. Training

All individuals performing inspections described in Sections 2.1 and 2.2 above must have Tailings Management System training as set out in the Tailings Inspection Training procedure, which is attached as Appendix B. This training will include a training pack explaining the procedure for performing the inspection and addressing inspection items to be observed. In addition, each individual, after reviewing the training pack, will sign a certification form, indicating that training has been received relative to his/her duties as an inspector.

2.5. Tailings Emergencies

Inspectors will notify the Radiation Safety Officer and/or Mill management immediately if, during their inspection, they discover that an abnormal condition exists or an event has occurred that could cause a tailings emergency. Until relieved by the Environmental or Radiation Technician or Radiation Safety Officer, inspectors will have the authority to direct resources during tailings emergencies.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

3. WEEKLY TAILINGS AND DMT INSPECTION

3.1. Weekly Tailings Inspections

Weekly tailings inspections are to be conducted by the Radiation Safety Department and include the following:

a) Leak Detection Systems

Each tailings cell's leak detection system shall be checked weekly to determine whether it is wet or dry. If marked wet, the liquid levels need to be measured and reported. In Cell 1 and Cell 3 the leak detection system is measured by use of a pipe that is removed from the system which will indicate the presence of solutions in the LDS system. The Cell 4A leak detection system is monitored on a continuous basis by use of a pressure transducer that feeds water level information to an electronic data collector. The pressure transducer is calibrated for fluid with a specific gravity of 1.0. The water levels are measured every hour and the information is stored for later retrieval. The water levels are measured to the nearest 0.10 inch. The data collector is currently programmed to store 7 days of water level information. The number of days of stored data can be increased beyond 7 days if needed. The water level data is downloaded to a laptop computer on a weekly basis and incorporated into the Mill's environmental monitoring data base, and into the files for weekly inspection reports of the tailings cell leak detection systems

If sufficient fluid is present in the leak detection system of any cell, the fluid shall be pumped from the LDS, to the extent reasonably possible, and record the volume of fluid recovered. Any fluid pumped from an LDA shall be returned to a disposal cell.

If fluid is pumped from an LDS, the flow rate shall be calculated by dividing the recorded volume of fluid recovered by the elapsed time since fluid was last pumped or increases in the LDS fluid levels were recorded, whichever is the more recent. This calculation shall be documented as part of the weekly inspection.

Upon the initial pumping of fluid from an LDS, a fluid sample shall be collected and analyzed in accordance with paragraph 11.3 C. of the Radioactive Materials License.

For Cell 4A, under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner. To determine the Maximum Allowable Daily LDS Flow Rates in the Cell 4A leak detection system, the total volume of all fluids pumped from the LDS on a weekly basis shall be recovered from the data collector, and that information will be used to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on Table 1 in Appendix E, to determine the maximum daily allowable LDS flow volume for varying head conditions in Cell 4A.

b) Slimes Drain Water Level Monitoring

(i) Cell 3 is an active tailings cell while Cell 2 is partially reclaimed with approximately 90% of the surface covered by platform fill. Each cell has a slimes drain system which aids in dewatering the slimes and sands placed in the cell;

(ii) Cell 2 has a pump placed inside of the slimes drain access pipe at the bottom of the slimes drain. As taken from actual measurements, the bottom of the slimes drain is 38 feet below a water level measuring point at the centerline of the slimes drain access pipe, at the ground surface level. This means that the bottom of the slimes drain pool and the location of the pump are one foot above the lowest point of the FML in Cell 2, which, based on construction reports, is at a depth of 39 feet below the water level measuring point on the slimes drain access pipe for Cell 2;

(iii) The slimes drain pump in Cell 2 is activated and deactivated by a float

mechanism and water level probe system. When the water level reaches the level of the float mechanism the pump is activated. Pumping then occurs until the water level reaches the lower probe which turns the pump off. The lower probe is located one foot above the bottom of the slimes drain standpipe, and the float valve is located at five feet above the bottom of the slimes drain standpipe. The average wastewater head in the Cell 2 slimes drain is therefore less than 5 feetand is below the phreatic surface of tailings Cell 2, about 20 feet below the water level measuring point on the slimes drain access pipe. As a result, there is a continuous flow of wastewater from Cell 2 into the slimes drain collection system. Mill management considers that the average allowable wastewater head in the Cell 2 slimes drain resulting from pumping in this manner is satisfactory and is as low as reasonably achievable.

(iv) The Cell 2 slimes drain pump is checked weekly to observe that it is operating and that the water level probe and float mechanism are working properly, which is noted on the Weekly Tailings Inspection Form. If at any time the pump is observed to be not working properly, it will be fixed or replaced within 15 days;

(v) Depth to wastewater in the Cell 2 slimes drain access pipe shall be monitored and recorded weekly to determine maximum and minimum fluid head before and after a pumping cycle, respectively. All head measurements must be made from the same measuring point (the notch at the north side of the access pipe), and made to the nearest 0.01 foot. The results will be recorded as depth-in-pipe measurements on the Weekly Tailings Inspection Form;

(vi) On a monthly basis, the slimes drain pump will be turned off and the wastewater in the slimes drain access pipe will be allowed to stabilize for at least 90 hours. Once the water level has stabilized (based on no change in water level for three (3) successive readings taken no less than one (1) hour apart) the water level of the wastewater will be measured and recorded as a depth-in-pipe measurement on the Monthly Inspection Data form, by measuring the depth to water below the water level measuring point on the slimes drain access pipe;

(vii) No process liquids shall be allowed to be discharged into Cell 2;

(viii) If at any time the most recent average annual head in the Cell 2 slimes drain is found to have increased above the average head for the previous calendar year, the Licensee will comply with the requirements of Part I.G.3 of the GWDP, including the requirement to provide notification to the Executive Secretary orally within 24 hours followed by written notification;

(ix) Because Cell 3 and Cell 4A are currently active, no pumping from the Cell 3 or Cell 4A slimes drain is authorized. Prior to initiation of tailings dewatering operations for Cell 3 or Cell 4A, a similar procedure will be developed for ensuring that average head elevations in the Cell 3 and Cell 4A slimes drains are kept as low as reasonably achievable, and that the Cell 3 and Cell 4A slimes drains are inspected and the results reported in accordance with the requirements of the permit."

c) Wind Movement of Tailings

An evaluation of wind movement of tailings or dusting and control measures shall be taken if needed.

d) Tailings Wastewater Pool Elevation Monitoring

Solution elevation measurements in Cells 1and 4A and Roberts Pond are to be taken by survey on a weekly basis, and the beac area in Cell 4A with the maximum elevation is to be taken by survey on a monthly basis, as follows:

(i) The survey will be performed by the Mill's Radiation Safety Officer or designee (the "Surveyor") with the assistance of another Mill worker (the "Assistant");
(ii) The survey will be performed using a survey instrument (the "Survey Instrument") accurate to 0.01 feet, such as a Sokkai No. B21, or equivalent, together with a survey rod (the "Survey Rod") having a visible scale in 0.01 foot increments;
(iii) The reference Points (the "Reference Points") for Cells 1and 4A, and Roberts Pond are known points established by professional survey. For Cell 1 and Roberts Pond, the Reference Point is a wooden stake with a metal disk on it located on the southeast corner of Cell 1. The elevation of the metal disk (the "Reference Point Elevation") for Cell 1 and Roberts Pond is at 5,623.14 feet above mean sea level ("FMSL"). For Cell 3 and cell 4A, the Reference Point is a piece of metal rebar located on the south dike of Cell 3. The elevation at the top of this piece of rebar (the Reference Point Elevation for Cell 4A) is at 5,607.83 FMSL;
(iv) The Surveyor will set up the Survey Instrument in a location where both the applicable Reference Point and pond surface are visible. For Cell 1 and Roberts Pond, this is typically on the road on the Cell 1 south dike between Cell 1 and Roberts Pond, approximately 100 feet east of the Cell 1/Roberts Pond Reference Point. For Cell 4A, this is typically on the road on the Cell 3 dike approximately 100 feet east of the Cell 3 Reference Point;
(v) Once in location, the Surveyor will ensure that the Survey Instrument is level by centering the bubble in the level gauge on the Survey Instrument;
(vi) The Assistant will place the Survey Rod vertically on the Reference Point (on the metal disk on the Cell 1/Roberts Pond Reference Point and on the top of the rebar on the Cell 4A Reference Point. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;
(vii) The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Reference Point Reading"), which represents the number of feet the Survey Instrument is reading above the Reference Point;

(viii) The Assistant will then move to a designated location where the Survey Rod can be placed on the surface of the main solution pond in the Cell 1, Cell 4A or Roberts Pond, or the area of the beach in Cell 4A with the highest elevation, as the case may be. These designated locations, and the methods to be used by the Assistant to consistently use the same locations are as follows:

A. Pond Surface Measurements

I. Cell 4A

The Assistant will walk down the slope in the northeast corner of Cell 4A and place the Survey Rod at the liquid level.

II. Cell 1

A mark has been painted on the north side of the ramp going to the pump platform in Cell 1. The Assistant will place the Survey Rod against that mark and hold the rod vertically, with one end just touching the liquid surface; and

III Roberts Pond

A mark has been painted on the railing of the pump stand in Roberts Pond. The Assistant will place the Survey Rod against that mark and hold the rod vertically, with one end just touching the liquid surface.

Based on the foregoing methods, the approximate coordinate locations for the measuring points for Roberts Pond and the Cells are:

	Northing	Easting
Roberts Pond	323,041	2,579,697
Cell 1	322,196	2,579,277
Cell 4A	320,300	2,579,360

These coordinate locations may vary somewhat depending on solution elevations in the Pond and Cells;

B. Cell 4A Beach Elevation

The Assistant will place the Survey Rod at the point on the beach area of Cell 4A that has the highest elevation. If it is not clear which area of the beach has the highest elevation, then multiple points on the beach area will be surveyed until the Surveyor is satisfied that the point on the Cell 4A beach area with the highest

elevation has been surveyed. If it is clear that all points on the Cell 4A beach area are below 5,593 FMSL, then the Surveyor may rely on one survey point;

(ix) The Assistant will hold the Survey Rod vertically with one end of the Survey Rod just touching the pond surface. The Assistant will ensure that the Survey Rod is vertical by gently rocking the rod back and forth until the Surveyor has established a level reading;

(x) The Surveyor will focus the cross hairs of the Survey Instrument on the scale on the Survey Rod, and record the number (the "Pond Surface Reading"), which represents the number of feet the Survey Instrument is reading above the pond surface level.

The Surveyor will calculate the elevation of the pond surface as FSML by adding the Reference Point Reading for the Cell or Roberts Pond, as the case may be, to the Reference Point Elevation for the Cell or Roberts Pond and subtracting the Pond Surface Reading for the Cell or Roberts Pond, and will record the number accurate to 0.01 feet.

e) *Decontamination Pads*

(i) *New Decontamination Pad*

The New Decontamination Pad is located in the southeast corner of the ore pad, near the Mill's scale house.

A. In order to ensure that the primary containment of the New Decontamination Pad water collection system has not been compromised, and to provide an inspection capability to detect leakage from the primary containment, vertical inspection portals have been installed between the primary and secondary containments;

B. These portals will be visually observed on a weekly basis as a means of detecting any leakage from the primary containment into the void between the primary and secondary containment. The depth to water in each portal will be measured weekly, by physically measuring the depth to water with an electrical sounding tape/device. All measurements must be made from the same measuring point and be made to the nearest 0.01 foot;

C. These inspections will be recorded on the Weekly Tailings Inspection form;

D. The water level shall not exceed 0.10 foot above the concrete floor in any standpipe, at any time. This will be determined by subtracting

the weekly depth to water measurement from the distance from the measuring point in the standpipe to the dry concrete floor;

E. Any observation of fluid between the primary and secondary containments will be reported to the Radiation Safety Officer (RSO).

F. In addition to inspection of the water levels in the standpipes, the New Decontamination Pad, including the concrete integrity of the exposed surfaces of the pad, will be inspected on a weekly basis. Observations will be made of the current condition of the New Decontamination Pad. Any abnormalities relating to the pad and any damage to the concrete wash surface of the pad will be noted on the Weekly Tailings Inspection form. If there are any cracks greater than 1/8 inch separation (width), the RSO must be contacted. The RSO will have the responsibility to cease activities and have the cracks repaired.

(ii) *Existing Decontamination Pad*

The Existing Decontamination Pad is located between the northwest corner of the Mill's maintenance shop and the ore feeding grizzly.

A. The Existing Decontamination Pad will be inspected on a weekly basis. Observations will be made of the current condition of the Existing Decontamination Pad, including the concrete integrity of the exposed surfaces of the pad. Any abnormalities relating to the pad and any damage or cracks on the concrete wash surface of the pad will be noted on the Weekly Tailings Inspection form. If there are any cracks greater than 1/8 inch separation (width), the RSO must be contacted. The RSO will have the responsibility to cease activities and have the cracks repaired.

f) *Summary*

In addition, the weekly inspection should summarize all activities concerning the tailings area for that particular week.

Results of the weekly tailings inspection are recorded on the *Weekly Tailings and DMT Inspection* form. An example of the *Weekly Tailings and DMT Inspection* form is provided in Appendix A.

3.2. Weekly Inspection of Solution Levels in Roberts Pond

On a weekly basis, solution elevations are taken on Roberts Pond, in accordance with the procedures set out in Section 3.1 d) above. The Weekly solution level in Roberts Pond is recorded on the *Weekly Tailings and DMT Inspection* form. Based on historical observations, the FML at the Pond Surface Reading area for Roberts Pond, is approximately six inches above the lowest point on the pond's FML. If the pond solution elevation at the Pond Surface Reading area is at or below the FML for that area, the pond will be recorded as being dry.

3.3. Weekly Feedstock Storage Area Inspections

Weekly feedstock storage area inspections will be performed by the Radiation Safety Department to confirm that:

a) the bulk feedstock materials are stored and maintained within the defined area described in the GWDP, as indicated on the map attached hereto as Appendix D;

b) a 4 ft. buffer is maintained at the periphery of the storage area which is absent bulk material in order to assure that the materials do not encroach upon the boundary of the storage area; and

c) all alternate feedstock located outside the defined Feedstock Area are maintained within water tight containers.

The results of this inspection will be recorded on the *Ore Storage/Sample Plant Weekly Inspection Report*, a copy of which is contained in Appendix A. Any variance in stored materials from this requirement or observed leaking alternate feedstock drums or other containers will be brought to the attention of Mill Management and rectified within 15 days.

4. MONTHLY TAILINGS INSPECTION

Monthly tailings inspections will be performed by the Radiation Safety Officer or his designee from the Radiation Safety Department and recorded on the *Monthly Inspection Data* form, an example of which is contained in Appendix A. Monthly inspections are to be performed no sooner than 14 days since the last monthly tailings inspection and can be conducted concurrently with the quarterly tailings inspection when applicable. The following items are to be inspected:

a) Tailings Slurry Pipeline

When the Mill is operating, the slurry pipeline will be inspected at key locations to determine pipe wear. Pipe thickness will be measured using an ultrasonic device by either the radiation safety staff or other trained designees. The critical points of the pipe include bends, slope changes, valves, and junctions, which are critical to dike stability. These locations to be monitored will be determined by the Radiation Safety

Officer or his designee from the Radiation Safety Department during the Mill run.

b) Diversion Ditches

Diversion ditches 1, 2 and 3 shall be monitored monthly for sloughing, erosion, undesirable vegetation, and obstruction of flow. Diversion berm 2 should be checked for stability and signs of distress.

c) Sedimentation Pond

Activities around the Mill and facilities area sedimentation pond shall be summarized for the month.

d) Overspray Dust Minimization

The inspection shall include an evaluation of overspray minimization, if applicable. This entails ensuring that the overspray system is functioning properly. In the event that overspray is carried more than 50 feet from the cell, the overspray system should be immediately shut-off.

e) Remarks

A section is included on the *Monthly Inspection Data* form for remarks in which recommendations can be made or observations of concern can be documented.

f) Summary of Daily, Weekly and Quarterly Inspections

The monthly inspection will also summarize the daily, weekly and, if applicable, quarterly tailings inspections for the specific month.

In addition, settlement monitors are typically surveyed monthly and the results reported on the *Monthly Inspection Data* form.

5. QUARTERLY TAILINGS INSPECTION

The quarterly tailings inspection is performed by the Radiation Safety Officer or his designee from the Radiation Safety Department, having the training specified in Section 2.4 above, once per calendar quarter. A quarterly inspection should be performed no sooner than 45 days since the previous quarterly inspection was performed.

Each quarterly inspection shall include an Embankment Inspection, an Operations/Maintenance Review, a Construction Review and a Summary, as follows:

a) Embankment Inspection

The Embankment inspection involves a visual inspection of the crest, slope and toe of each dike for movement, seepage, severe erosion, subsidence, shrinkage cracks, and exposed liner.

b) Operations/Maintenance Review

The Operations/Maintenance Review consists of reviewing Operations and Maintenance activities pertaining to the tailings area on a quarterly basis.

c) Construction Review

The Construction Review consists of reviewing any construction changes or modifications made to the tailings area on a quarterly basis.

d) Summary

The summary will include all major activities or observations noted around the tailings area on a quarterly basis.

If any of these conditions are noted, the conditions and corrective measures taken should be documented in the *Quarterly Inspection Data* form. An example of the *Quarterly Inspection Data* form is provided in Appendix A.

6. ANNUAL EVALUATIONS

The following annual evaluations shall be performed:

6.1. Annual Technical Evaluation

An annual technical evaluation of the tailings management system is performed by a registered professional engineer (PE), who has experience and training in the area of geotechnical aspects of retention structures. The technical evaluation includes an on-site inspection of the tailings management system and a thorough review of all tailings records for the past year. The Technical Evaluation also includes a review and summary of the annual movement monitor survey (see Section 5.2 below).

All tailings cells and corresponding dikes will be inspected for signs of erosion, subsidence, shrinkage, and seepage. The drainage ditches will be inspected to evaluate surface water control structures.

In the event tailings capacity evaluations (as per SOP PBL-3) were performed for the receipt of alternate feed material during the year, the capacity evaluation forms and associated calculation sheets will be reviewed to ensure that the maximum tailings capacity estimate is accurate. The amount of tailings added to the system since the last evaluation will also be calculated to determine the estimated capacity at the time of the evaluation.

Tailings inspection records will consist of daily, weekly, monthly, and quarterly tailings inspections. These inspection records will be evaluated to determine if any freeboard limits are being approached. Records will also be reviewed to summarize observations of potential concern. The evaluation also involves discussion with the Environmental and/or Radiation Technician and the Radiation Safety Officer regarding activities around the tailings area for the past year. During the annual inspection, photographs of the tailings area will be taken. The training of individuals will be reviewed as a part of the Annual Technical Evaluation.

The registered engineer will obtain copies of selected tailings inspections, along with the monthly and quarterly summaries of observations of concern and the corrective actions taken. These copies will then be included in the Annual Technical Evaluation Report.

The Annual Technical Evaluation Report must be submitted by November 15th of every year to:

Directing Dam Safety Engineer
State of Utah, Natural Resources
1636 West North Temple, Suite 220
Salt Lake City, Utah 84116-3156

6.2. Movement Monitors

A movement monitor survey is to be conducted by a licensed surveyor annually during the second quarter of each year. The movement monitor survey consists of surveying monitors along dikes 3-S, 4A-W, and 4A-S to detect any possible settlement or movement of the dikes. The data generated from this survey is reviewed and incorporated into the *Annual Technical Evaluation Report* of the tailings management system.

6.3. Freeboard Limits

The freeboard limits set out in this Section are intended to capture the Local 6-hour Probable Maximum Precipitation (PMP) event, which was determined in the January 10, 1990 Drainage Report (the "Drainage Report") for the White Mesa site to be 10 inches.

The flood volume from the PMP event over the Cell 1 pond area plus the adjacent drainage areas, was calculated in the Drainage Report to be 103 acre feet of water, with a wave run up factor of 0.90 feet.

The flood volume from the PMP event over the Cell 2 and Cell 3 pond areas, plus the adjacent drainage areas was calculated in the Drainage Report to be 123.4 acre-feet of water.

The flood volume from the PMP event over the Cell 4A area was calculated in the Drainage Report to be 36 acre-feet of water (40 acres, plus the adjacent drainage area of 3.25 acres, times the PMP of 10 inches), with a wave run up factor of 0.77 feet.

The total pool surface area in Cell 1 is 52.9 acres and in Cell 4A is 40 acres. The top of the flexible membrane liner ("FML") for Cell 1 is 5,618.2 FMSL and for Cell 4A is 5,598.5 FMSL.

Based on the foregoing, the freeboard limits for the Mill's tailings cells will be set as follows:

6.3.1. Cell 1

The freeboard limit for Cell 1 will be set at 5,615.4 FMSL. This will allow Cell 1 to capture all of the PMP volume associated with Cell 1. The total volume requirement for Cell 1 is 103 acre feet divided by 52.9 acres equals 1.95 feet, plus the wave run up factor of 0.90 feet equals 2.85 feet. The freeboard limit is then 5,618.2 FMSL minus 2.85 feet equals 5,615.4 FMSL. Under Radioactive Materials License condition 10.3, this freeboard limit is set and is not recalculated annually.

6.3.2. Cell 2

The freeboard limit for Cell 2 is inapplicable, since Cell 2 is filled with solids. All of the PMP volume associated with Cell 2 will be attributed to Cell 4A (and/or any future tailings cells).

6.3.3. Cell 3

The freeboard limit for Cell 3 is inapplicable, since Cell 3 is close to being filled with solids, and all of the PMP flood volume associated with Cell 3 will be attributed to Cell 4A (and/or any future tailings cells).

6.3.4. Cell 4A

The freeboard limit for Cell 4A will be set assuming that the total PMP volume for Cells 2, 3 and 4A of 159.4 acre feet will be accommodated in Cell 4A. The procedure for calculating the freeboard limit for Cell 4A is as follows:

(a) When the Pool Surface Area is 40 Acres

When the pool surface area in Cell 4A is 40 acres (i.e., when there are no beaches), the freeboard limit for Cell 4A will be 5,593.7 FMSL, which is 4.76 feet below the FML (being the quotient of 159.4 acre feet divided by 40 acres, which equals 3.99 feet, plus the wave run up factor for Cell 4A of 0.77 feet, rounded to the nearest one-tenth of a foot);

(b) When the Maximum Elevation of the Beach Area is 5,593 FMSL or Less

When the maximum elevation of the beach area in Cell 4A is 5593 FMSL or less, then the freeboard limit will be 5,593.7 FMSL, which is the same as in (a) above. This allows for the situation where there may be beaches, but these beaches are at a lower elevation than the freeboard limit established in (a) above, and there is therefore ample freeboard above the beaches to hold the maximum PMP volume. The maximum elevation of the beach area will be determined by monthly surveys performed by Mill personnel in accordance with the Mill's DMT Plan.

(c) When the Maximum Elevation of the Beach Area First Exceeds 5,593 FMSL

When the maximum elevation of the beach area in Cell 4A first exceeds 5,593 FMSL, then the freeboard limit for the remainder of the ensuing year (period t=0) (until the next November 1) will be calculated when that elevation is first exceeded (the "Initial Calculation Date"), as follows:

i) The total number of dry tons of tailings that have historically been deposited into Cell 4A prior to the Initial Calculation Date ("T_0") will be determined;
ii) The expected number of dry tons to be deposited into Cell 4A for the remainder of the ensuing year (up to the next November 1), based on production estimates for that period ("Δ_0*"), will be determined;
iii) Δ_0* will be grossed up by a safety factor of 150% to allow for a potential underestimation of the number of tons that will be deposited in the cell during the remainder of the ensuing year. This grossed up number can be referred to as the "modeled tonnage" for the period;
iv) The total design tailings solid storage capacity of Cell 4A will be accepted as 2,094,000 dry tons of tailings;
v) The available remaining space in Cell 4A for solids as at the Initial Calculation Date will be calculated as 2,094,000 dry tons minus T_0;
vi) The reduction in the pool surface area for the remainder of the ensuing year will be assumed to be directly proportional to the reduction in the available space in Cell 4A for solids. That is, the reduced pool surface area for period t=0 ("RPA_0"), after the reduction, will be calculated to be:

$$(1 - (\Delta_0 * \text{ x } 1.5) / (2{,}094{,}000 - T_0)) \text{ x } 40 \text{ acres} = RPA_0$$

vii) The required freeboard for Cell 4A for the remainder of the period t=0 can be calculated in feet to be the wave run up factor for Cell 4A of 0.77 feet plus the quotient of 159.4 acre feet divided by the RPA_0. The freeboard limit for Cell 4A for the remainder of period t=0 would then be the elevation of the FML for Cell 4A of 5598.5 FMSL less this required freeboard amount, rounded to the nearest one-tenth of a foot; and
viii) The foregoing calculations will be performed at the Initial Calculation Date and the resulting freeboard limit will persist until the next November 1.

An example of this calculation is set out in Appendix F.

(d) Annual Freeboard Calculation When the Maximum Elevation of the Beach Area Exceeds 5,593 FMSL

On November 1 of each year (the "Annual Calculation Date"), the reduction in pool area for the ensuing year (referred to as period t) will be calculated by:

i) First, calculating the Adjusted Reduced Pool Area for the previous period ($ARPA_{t-1}$) to reflect actual tonnages deposited in Cell 4A for the previous period (period t-1). The RPA_{t-1} used for the previous period was based on expected tonnages for period t-1, grossed up by a safety factor. The $ARPA_{t-1}$ is merely the RPA that would have been used for period t-1 had the actual tonnages for year t-1 been known at the outset of period t-1 and had the RPA been calculated based on the actual tonnages for period t-1. This allows the freeboard calculations to be corrected each year to take into account actual tonnages deposited in the cell as of the date of the calculation. The $ARPA_{t-1}$ can be calculated using the following formula:

$$(1 - \Delta_{t-1} / (2{,}094{,}000 - T_{t-1})) \times ARPA_{t-2} = ARPA_{t-1}$$

Where:

- Δ_{t-1} is the actual number of dry tons of tailings solids deposited in Cell 4A during period t-1;
- T_{t-1} is the actual number of dry tons of tailings solids historically deposited in Cell 4A prior to the beginning of period t-1; and
- $ARPA_{t-2}$ is the Adjusted Reduced Pool Area for period t-2. If period t-2 started at the Initial Calculation Date, then $ARPA_{t-2}$ is 40 acres;

ii) Once the $ARPA_{t-1}$ for the previous period (period t-1) has been calculated, the RPA for the subject period (period t) can be calculated as follows:

$$(1 - (\Delta_t^* \times 1.5) / (2{,}094{,}000 - T_t)) \times ARPA_{t-1} = RPA_t$$

Where:

- Δ_t^* is the expected number of dry tons of tailings to be deposited into Cell 4A for the ensuing year (period t), based on production estimates for the year (as can be seen from the foregoing formula, this expected number is grossed up by a safety factor of 1.5);
- T_t is the actual number of dry tons of tailings solids historically deposited in Cell 4A prior to the beginning of period t; and
- $ARPA_{t-1}$ is the Adjusted Reduced Pool Area for period t-1, which is the pool surface area for the previous period (period t-1) that should have applied during that period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period;

iii) The required freeboard for period t can be calculated in feet to be the wave run up factor for Cell 4A of 0.77 feet plus the quotient of 159.4 acre feet divided by the RPA_t. The freeboard limit for Cell 4A for period t would then be the elevation of the FML for Cell 4A of 5598.5 FMSL less this required freeboard amount, rounded to the nearest one-tenth of a foot; and

iv) The foregoing calculations will be performed at the Annual Calculation Date for period t and the resulting freeboard limit will persist until the next Annual Calculation Date for period t+1.

An example of this calculation is set out in Appendix F.

(e) When a Spillway is Added to Cell 4A that Allows Overflow Into a New Tailings Cell

When a spillway is added between Cell 4A and a new tailings cell (Cell 4B), then, if an approved freeboard limit calculation method for the new cell is set to cover the entire PMP event for Cells 2, 3, 4A and 4B, the freeboard limit for Cell 4A will be inapplicable, except for approved provisions to prevent storm water runoff from overtopping dikes.

6.3.5. Roberts Pond

The freeboard limit for Roberts Pond is a liquid maximum elevation of 5,624.0 feet above mean sea level, as specified in the GWDP.

6.4. Annual Leak Detection Fluid Samples

In the event solution has been detected in a leak detection system, a sample will be collected on an annual basis. This sample will be analyzed according to the conditions set forth in License Condition 11.3.C. The results of the analysis will be reviewed to determine the origin of the solution.

6.5. Annual Inspection of the Decontamination Pads

a) New Decontamination Pad

During the second quarter of each year, the New Decontamination Pad will be taken out of service and inspected to ensure the integrity of the wash pad's exposed concrete surface. If any abnormalities are identified, i.e. cracks in the concrete with greater than 1/8 inch separation (width) or any significant deterioration or damage of the pad surface, repairs will be made prior to resuming the use of the facility. All inspection findings and any repairs required shall be documented on the Annual Decontamination Pad Inspection form. The inspection findings, any repairs required and repairs completed shall be summarized in the 2nd Quarter DMT Monitoring Report due September 1 of each calendar year.

b) Existing Decontamination Pad

During the second quarter of each year, the Existing Decontamination Pad will be taken out of service and inspected to ensure the integrity of the steel tank. If any abnormalities are identified, repairs will be made prior to resuming the use of the facility. All inspection findings and any repairs required shall be documented on the Annual Decontamination Pad Inspection form. The inspection findings, any repairs required and repairs completed shall be summarized in the 2nd Quarter DMT Monitoring Report due September 1 of each calendar year.

7. OTHER INSPECTIONS

All daily, weekly, monthly, quarterly and annual inspections and evaluations should be performed as specified in Sections 2, 3, 4, 5 and 6 above. However, additional inspections should be conducted after any significant storm or significant natural or man-made event occurs.

8. REPORTING REQUIREMENTS

In addition to the *Daily Inspection Data*, *Weekly Tailings Inspection, Monthly Inspection Data* and

Q*uarterly Inspection Data* forms included as Appendix A and described in Sections 2, 3, 4 and 5 respectively, and the *Operating Foreman's Daily Inspection* and *Weekly Mill Inspection* forms described in Sections 2 and 3, respectively, the following additional reports shall also be prepared:

8.1. Monthly Tailings Reports

Monthly tailings reports are prepared every month and summarize the previous month's activities around the tailings area. If not prepared by the Radiation Safety Officer, the report shall be submitted to the Radiation Safety Officer for review. The Mill Manager will review the report as well before the report is filed in the Mill Central File. The report will contain a summary of observations of concern noted on the daily and weekly tailings inspections. Corrective measures taken during the month will be documented along with the observations where appropriate. All daily and weekly tailings inspection forms will be attached to the report. A monthly inspection form will also be attached. Quarterly inspection forms will accompany the report when applicable. The report will be signed and dated by the preparer in addition to the Radiation Safety Officer and the Mill Manager.

8.2. DMT Reports

Quarterly reports of DMT monitoring activities, which will include the following information, will be provided to the Executive Secretary on the schedule provided in Table 5 of the GWDP:

a) On a quarterly basis, all required information required by Part 1.F.2 of the GWDP relating to the inspections described in Section 3.1(b) (Slimes Drain Water Level Monitoring), 3.1(d) (Tailings Wastewater Pool and Beach Area Elevation Monitoring), 3.2 (Weekly Inspection of Solution Levels in Roberts Pond) and 3.3 (Weekly Feedstock Storage Area Inspections);

b) On a quarterly basis, a summary of the daily water level (depth) inspections for the quarter for the presence of fluid in all three vertical inspection portals for each of the three chambers in the concrete settling tank system for the New Decontamination Pad, which will include a table indicating the water level measurements in each portal during the quarter;

c) With respect to the annual inspection of the New Decontamination Pad described in Section 6.5(a), the inspection findings, any repairs required, and repairs completed shall be summarized in the 2nd Quarter report, due September 1 of each calendar year;

d) With respect to the annual inspection of the Existing Decontamination Pad described in Section 6.5(b), the inspection findings, any repairs required, and repairs completed shall be summarized in the 2nd Quarter report, due September 1

of each calendar year; and

e) An annual summary and graph for each calendar year of the depth to wastewater in the Cell 2 slimes drain must be included in the fourth quarter report. After the first year, and beginning in 2008, quarterly reports shall include both the current year monthly values and a graphic comparison to the previous year.

APPENDIX A

FORMS

APPENDIX A (CONT.)
DAILY INSPECTION DATA

Inspector:_____
Date;_____
Accompanied by:_____
Time:_____

Any Item not "OK" must be documented. A check mark = OK, X = Action Required

I. TAILINGS SLURRY TRANSPORT SYSTEM					
Inspection Items	Conditions of Potential Concern	Cell 1	Cell 2	Cell 3	Cell 4A
Slurry Pipeline	Leaks, Damage, Blockage, Sharp Bends				
Pipeline Joints	Leaks, Loose Connections				
Pipeline Supports	Damage, Loss of Support				
Valves	Leaks, Blocked, Closed				
Point(s) of Discharge	Improper Location or Orientation				

II. OPERATIONAL SYSTEMS					
Inspection Items	Conditions of Potential Concern	Cell 1	Cell 2	Cell 3	Cell 4A
Water Level	Greater Than Operating Level, Large Change Since Previous Inspection				
Beach	Cracks, Severe Erosion, Subsidence				
Liner and Cover	Erosion of cover, Exposure of Liner				

III. DIKES AND EMBANKMENTS							
Inspection Items	Conditions of Potential Concern	Dike 1-I	Dike 1-1A	Dike 2	Dike 3	Dike 4A-S	Dike 4A-W
Slopes	Sloughs or Sliding Cracks, Bulges, Subsidence, Severe Erosion, Moist Areas, Areas of Seepage Outbreak						
Crest	Cracks, Subsidence, Severe Erosion						

IV. FLOW RATES				
	Slurry Line(s)	Pond Return	S-X Tails	Spray System
GPM				

V. PHYSICAL INSPECTION OF SLURRY LINES(S)

Walked to Discharge Point _____Yes _____No
Observed Entire Discharge Line _____Yes _____No

VI. DUST CONTROL			
	Cell 2	Cell 3	Cell 4A
Dusting			
Wind Movement of Tailings			
Precipitation: _____ inches liquid			
General Meteorological conditions:_____ _____ _____			

VII. DAILY LEAK DETECTION CHECK			

	Cell 1	Cell 2	Cell 3	Cell 4A
Leak Detection System Checked	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____	_____Checked _____Wet_____Dry Initial level_____ Final level_____ Gal. pumped_____

VIII OBSERVATIONS OF POTENTIAL CONCERN	**Action Required**

[MAP OF TAILINGS AREA]

APPENDIX A (CONT)

DENISON MINES (USA) CORP.
WEEKLY TAILINGS INSPECTION

Date:_____ Inspectors: _____

1. Pond elevations (msl, ft)

Cell 1: (a) Pond Solution Elevation
_____
(b) FML Bottom Elevation
_____5597_____
(c) Depth of Water above FML ((a)-(b)) _____

Cell 3: (a)Pond Solution Elevation
_____
(b)FML Bottom Elevation
_____5570_____
(c)Depth of Water above FML ((a)-(b)) _____

Cell 4A: (a)Pond Solution Elevation
_____
(b)FML Bottom Elevation _____ 5564_____
(c)Depth of Water above FML ((a)-(b)) _____

Roberts
Pond: (a)Pond Solution Elevation _____
(b)FML Bottom Elevation
_____5612.34___
(c)Depth of Water above FML ((a)-(b)) _____

2. Slimes Drain Liquid Levels Cell 2

Pump functioning properly _____
Pump Timer set at 15min on 45 min off _____

_____Depth to Liquid pre-pump
_____Depth to Liquid Post-pump

(all measurements are depth-in-pipe)

Pre-pump head is 38'-Depth to Liquid Pre-pump = _____
Post-pump head is 38' –Depth to Liquid Post-pump = _____

3. Leak Detection Systems

Observation:				
	Cell 1	Cell 2	Cell 3	Cell 4A
Is LDS wet or dry?	_____wet____dry	_____wet____dry	_____wet____dry	_____wet____dry
If wet, Record liquid level:	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid *
If sufficient fluid is present, record volume of fluid pumped and flow rate:	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____	Volume _____ Flow Rate_____
Was fluid sample collected?	____yes____no	____yes____no	____yes____no	____yes____no

Observation:			
	New Decon Pad, Portal 1	New Decon Pad, Portal 2	New Decon Pad Portal 3
Is LDS (Portal) wet or dry?	_____wet____dry	_____wet____dry	_____wet____dry
If wet, Record liquid level:	_____Ft to Liquid	_____Ft to Liquid	_____Ft to Liquid
If wet, Report to RSO			

4. Tailings Area Inspection (Note dispersal of blowing tailings):
_____
_____

5. Control Methods Implemented:_____
_____
_____

6. Remarks:_____
_____

7. Contaminated Waste Dump:_____

* Does Level exceed 12 inches above the lowest point on the bottom flexible membrane liner (elevation 5556.14 amsl)? _____ no _____ yes

If Cell 4A leak detection system level exceeds 12 inches above the lowest point on the bottom flexible membrane liner (elevation 5556.14 amsl), notify supervisor or Mill manager immediately.

APPENDIX A (CONT.)

MONTHLY INSPECTION DATA

Inspector: _____

Date: _____

1. Slurry Pipeline: _____

_____

_____

_____

_____

Pipe Thickness:_____(To be measured only during periods when the Mill is operating)

2. Diversion Ditches and Diversion Berm:

Observation:

	Diversion Ditch 1	Diversion Ditch 2	Diversion Ditch 3	Diversion Berm 2
Diversion Ditches:				
Sloughing	_____yes_____no	_____yes_____no	_____yes_____no	
Erosion	_____yes_____no	_____yes_____no	_____yes_____no	
Undesirable Vegetation	_____yes_____no	_____yes_____no	_____yes_____no	
Obstruction of Flow	_____yes_____no	_____yes_____no	_____yes_____no	
Diversion Berm:				
Stability Issues				_____yes_____no
Signs of Distress				_____yes_____no

Comments:_____

_____

_____

_____

_____

_____

3. Summary of Activities Around Sedimentation Pond: _____

_____

_____

_____

_____
_____

4. Overspray Dust Minimization:

Overspray system functioning properly: _____yes_____no

Overspray carried more than 50 feet from the cell: _____yes_____no
If "yes", was system immediately shut off? _____yes_____no

Comments:_____
_____
_____
_____
_____
_____

5. Remarks: _____
_____
_____
_____
_____
_____

6. Settlement Monitors

Cell 2 W1: _____	Cell 2W3-S: _____	Cell 3-1N: _____
Cell 2 W2: _____	Cell 2E1-N: _____	Cell 3-1C: _____
Cell 2 W3: _____	Cell 2E1-1S: _____	Cell 3-1S: _____
Cell 2 W4: _____	Cell 2E1-2S: _____	Cell 3-2N: _____
Cell 2W7-C: _____	Cell 2 East: _____	Cell 2W5-N: _____
Cell 2 W7N: _____	Cell 2 W7S: _____	Cell 2 W6N: _____
Cell 2 W6C: _____	Cell 2 W6S: _____	Cell 2 W4N: _____
Cell 4A-Toe: _____	Cell 2 W4S: _____	Cell 2 W5C: _____
Cell 3-2C: _____	Cell 3-2S: _____	Cell 2 W5S: _____

7. Summary of Daily, Weekly and Quarterly Inspections: _____
_____
_____
_____
_____
_____

8. Monthly Slimes Drain Static Head Measurement for Cell 2 (Depth-in-Pipe Water Level Reading): _____

APPENDIX A (CONT.)

WHITE MESA MILL
TAILINGS MANAGEMENT SYSTEM

QUARTERLY INSPECTION DATA

Inspector: _____

Date: _____

1. Embankment Inspection: _____

2. Operations/Maintenance Review: _____

3. Construction Activities: _____

4. Summary: _____

APPENDIX A (CONT.)

ORE STORAGE/SAMPLE PLANT WEEKLY INSPECTION REPORT

Week of _____ through _____ Date of Inspection:_____

Inspector:_____

Weather conditions for the week:
_____
_____
_____

Blowing dust conditions for the week:
_____
_____
_____
_____

Corrective actions needed or taken for the week:
_____
_____
_____
_____

Are all bulk feedstock materials stored in the area indicated on the attached diagram:
yes:_____ no:_____
comments:_____
_____

Are all alternate feedstock materials located outside the area indicated on the attached diagram maintained within water-tight containers:
yes:_____ no:_____
comments (e.g., conditions of containers):_____
_____
_____

Are all sumps and low lying areas free of standing solutions?
Yes: _____ No: _____
If "No", how was the situation corrected, supervisor contacted and correction date?
_____
_____

Is there free standing water or water running off of the feedstock stockpiles?
Yes: _____ No: _____
Comments:_____
_____

_____
_____

Other comments:

_____
_____

APPENDIX A (CONT.)

ANNUAL DECONTAMINATION PAD INSPECTION

Date of Inspection: _____

Inspector: _____

New Decontamination Pad:

Are there any cracks on the wash pad surface greater than 1/8 inch of separation? __Yes ___No

Is there any significant deterioration or damage of the pad surface? ____Yes ____No

Findings:

_____
_____
_____

Repair Work Required:

_____
_____
_____

Existing Decontamination Pad:

Were there any observed problems with the steel tank? ____Yes ____No

Findings:

_____
_____
_____

Repair Work Required:

_____
_____
_____

APPENDIX B

TAILINGS INSPECTOR TRAINING

This document provides the training necessary for qualifying management-designated individuals for conducting daily tailings inspections. Training information is presented by the Radiation Safety Officer or designee from the Environmental Department. Daily tailings inspections are conducted in accordance with the White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan. The Radiation Safety Officer or designee from the Radiation Safety Department is responsible for performing monthly and quarterly tailings inspections. Tailings inspection forms will be included in the monthly tailings inspection reports, which summarize the conditions, activities, and areas of concern regarding the tailings areas.

Notifications:

The inspector is required to record whether all inspection items are normal (satisfactory, requiring no action) or that conditions of potential concern exist (requiring action). A "check" mark indicates no action required. If conditions of potential concern exist the inspector should mark an "X" in the area the condition pertains to, note the condition, and specify the corrective action to be taken. If an observable concern is made, it should be noted on the tailings report until the corrective action is taken and the concern is remedied. The dates of all corrective actions should be noted on the reports as well.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

Inspections:

All areas of the tailings disposal system are routinely patrolled and visible observations are to be noted on a daily tailings inspection form. Refer to Appendix A for an example of the daily tailings inspection form. The inspection form consists of three pages and is summarized as follows:

1. Tailings Slurry Transport System:

The slurry pipeline is to be inspected for leaks, damage, and sharp bends. The pipeline joints are to be monitored for leaks, and loose connections. The pipeline supports are to be

inspected for damage and loss of support. Valves are also to be inspected particularly for leaks, blocked valves, and closed valves. Points of discharge need to be inspected for improper location and orientation.

2. Operational Systems:

Operating systems including water levels, beach liners, and covered areas are items to be inspected and noted on the daily inspection forms. Sudden changes in water levels previously observed or water levels exceeding the operating level of a pond are potential areas of concern and should be noted. Beach areas that are observed as having cracks, severe erosion or cavities are also items that require investigation and notation on daily forms. Exposed liner or absence of cover from erosion are potential items of concern for ponds and covered areas. These should also be noted on the daily inspection form.

Cells 1, 3 and 4A solution levels are to be monitored closely for conditions nearing maximum operating level and for large changes in the water level since the last inspection. All pumping activities affecting the water level will be documented. In Cells 1 and 3, the PVC liner needs to be monitored closely for exposed liner, especially after storm events. It is important to cover exposed liner immediately as exposure to sunlight will cause degradation of the PVC liner. Small areas of exposed liner should be covered by hand. Large sections of exposed liner will require the use of heavy equipment

These conditions are considered serious and require immediate action. After these conditions have been noted to the Radiation Safety Officer, a work order will be written by the Radiation Safety Officer and turned into the Maintenance Department. All such repairs should be noted in the report and should contain the start and finish date of the repairs.

3. Dikes and Embankments:

Inspection items include the slopes and the crests of each dike. For slopes, areas of concern are sloughs or sliding cracks, bulges, subsidence, severe erosion, moist areas, and areas of seepage outbreak. For crests, areas of concern are cracks, subsidence, and severe erosion. When any of these conditions are noted, an "X" mark should be placed in the section marked for that dike.

In addition, the dikes, in particular dikes 3, 4A-S and 4A-W, should be inspected closely for mice holes and more importantly for prairie dog holes, as the prairie dogs are likely to burrow in deep, possibly to the liner. If any of these conditions exist, the inspection report should be marked accordingly.

4. Flow Rates:

Presence of all flows in and out of the cells should be noted. Flow rates are to be estimated in gallons per minute (GPM). Rates need to be determined for slurry lines, pond return, SX-tails, and the spray system. During non-operational modes, the flow rate column should be marked as "0". The same holds true when the spray system is not utilized.

5. Physical Inspection of Slurry Line(s):

A physical inspection of all slurry lines has to be made every 4 hours during operation of the mill. If possible, the inspection should include observation of the entire discharge line and discharge spill point into the cell. If "fill to elevation" flags are in place, the tailings and build-up is to be monitored and controlled so as to not cover the flags.

6. Dust Control:

Dusting and wind movement of tailings should be noted for Cells 2, 3, and 4A. Other observations to be noted include a brief description of present weather conditions, and a record of any precipitation received. Any dusting or wind movement of tailings should be documented. In addition, an estimate should be made for wind speed at the time of the observed dusting or wind movement of tailings.

The Radiation Safety Department measures precipitation on a daily basis. Daily measurements should be made as near to 8:00 a.m. as possible every day. Weekend measurements will be taken by the Shifter as close to 8:00 a.m. as possible. All snow or ice should be melted before a reading is taken.

7. Observations of Potential Concern:

All observations of concern during the inspection should be noted in this section. Corrective action should follow each area of concern noted. All work orders issued, contacts, or notifications made should be noted in this section as well. It is important to document all these items in order to assure that the tailings management system records are complete and accurate.

8. Map of Tailings Cells:

The last section of the inspection involves drawing, as accurately as possible, the following items where applicable.

1. Cover area
2. Beach/tailing sands area
3. Solution as it exists
4. Pump lines
5. Activities around tailings cell (i.e. hauling trash to the dump, liner repairs, etc.)
6. Slurry discharge when operating
7. Over spray system when operating

9. Safety Rules:

All safety rules applicable to the mill are applicable when in the tailings area. These rules meet the required MSHA regulations for the tailings area. Please pay particular notice to the following rules:

1. The posted speed limit for the tailings area is 15 mph and should not be exceeded.
2. No food or drink is permitted in the area.
3. All personnel entering the tailings area must have access to a two-way radio.
4. Horseplay is not permitted at any time.
5. Only those specifically authorized may operate motor vehicles in the restricted area.
6. When road conditions are muddy or slick, a four-wheel drive vehicle is required in the area.
7. Any work performed in which there is a danger of falling or slipping in the cell will require the use of a safety belt or harness with attended life line and an approved life jacket. A portable eyewash must be present on site as well.
8. Anytime the boat is used to perform any work; an approved life jacket and goggles must be worn at all times. There must also be an approved safety watch with a two-way hand-held radio on shore. A portable eyewash must be present on site as well.

10. Preservation of Wildlife:

Every effort should be made to prevent wildlife and domesticated animals from entering the tailings area. All wildlife observed should be reported on the Wildlife Report Worksheet during each shift. Waterfowl seen near the tailings cells should be discouraged from landing by the use of noisemakers.

11. Certification:

Following the review of this document and on-site instruction on the tailings system inspection program, designated individuals will be certified to perform daily tailings inspections. The Radiation Safety Officer authorizes certification. Refer to the Certification Form, Appendix C. This form should be signed and dated only after a thorough review of the tailings information previously presented. The form will then be signed by the Radiation

Safety Officer and filed.

APPENDIX C

CERTIFICATION FORM

Date: _____

Name: _____

I have read the document titled "Tailings Management System, White Mesa Mill Tailings Inspector Training" and have received on-site instruction at the tailings system. This instruction included documentation of daily tailings inspections, analysis of potential problems (dike failures, unusual flows), notification procedures and safety.

_____
Signature

I certify that the above-named person is qualified to perform the daily inspection of the tailings system at the White Mesa Mill.

_____
Radiation Safety Personnel/ Tailings System Supervisor

APPENDIX D
FEEDSTOCK STORAGE AREA

APPENDIX E

TABLES

Table 1

Calculated Action leakage Rates
for Various head Conditions
Cell 4A White mesa Mill
Blanding, Utah

Head above Liner System (feet)	Calculated Action leakage Rate (gallons / acre / day)
5	222.04
10	314.01
15	384.58
20	444.08
25	496.50
30	543.88
35	587.46
37	604.01

APPENDIX F

Example of Freeboard Calculations For Cell 4A

Assumptions and Factors:

- Total PMP volume to be stored in Cell 4A – 159.4 acre feet
- Wave runup factor for Cell 4A – 0.77 feet
- Total capacity of Cell 4A – 2,094,000 dry tons
- Elevation of FML of Cell 4A – 5,598.5 FMSL
- Maximum pool surface area of Cell 4A – 40 acres
- Total tailings solids deposited into Cell 4A at time beach area first exceeds 5,593 FMSL – 1,000,000 dry tons*
- Date beach area first exceeds 5,593, FMSL – March 1, 2009*
- Expected and actual production is as set forth in the following table:

Time Period	**Expected Tailings Solids Disposition into Cell 4A Determined at the beginning of the period (dry tons)***	**Expected Tailings Solids Disposition into Cell 4A at the beginning of the period, multiplied by 150% Safety Factor (dry tons)**	**Actual Tailings Solids Disposition into Cell 4A determined at end of the period (dry tons)***
March 1, 2009 to November 1, 2009	150,000	225,000	225,000
November 1, 2009 to November 1, 2010	300,000	450,000	275,000
November 1, 2010 to November 1, 2011	200,000	300,000	250,000

*These expected and actual tailings and production numbers and dates are fictional and have been assumed for illustrative purposes only.

Based on these assumptions and factors, the freeboard limits for Cell 4A would be calculated as follows:

1. Prior to March 1, 2009

Prior to March 1, 2009, the maximum elevation of the beach area in Cell 4 is less than or equal to 5,593 FMSL, therefore the freeboard limit is set at 5,593.7 FMSL.

2. March 1, 2009 to November 1, 2009

The pool surface area would be reduced to the following amount

$$(1 - 225{,}000 / (2{,}094{,}000 - 1{,}000{,}000)) \times 40 \text{ acres} = 31.77 \text{ acres}$$

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 31.77 acres equals 5.02 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 5.79 feet. This means that the freeboard limit for Cell 4A would be reduced from 5593.7 FMSL to 5592.7 FMSL (5598.5 FMSL minus 5.79 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at March 1, 2009, and this freeboard limit would persist until November 1, 2009.

3. November 1, 2009 to November 1, 2010

The pool surface area would be reduced to the following amount:

First, recalculate the pool surface area that should have applied during the previous period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period. Since the actual tonnage of 225,000 dry tons was the same as the modeled tonnage of 225,000 dry tons, the recalculated pool surface area is the same as the modeled pool surface area for the previous period, which is 31.77 acres.

Then, calculate the modeled pool surface area to be used for the period:

$$(1 - 450{,}000 / (2{,}094{,}000 - 1{,}000{,}000 - 225{,}000)) \times 31.77 \text{ acres} = 15.32 \text{ acres}$$

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 15.32 acres equals 10.40 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 11.17 feet. This means that the freeboard limit for Cell 4A would be reduced from 5592.7 FMSL to 5587.3 FMSL (5598.5 FMSL minus 11.17 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at November 1, 2009, and this freeboard limit would persist until November 1, 2010.

4. November 1, 2010 to November 1, 2011

The pool surface area would be reduced to the following amount:

First, recalculate the pool surface area that should have applied during the previous period, had modeled tonnages (i.e., expected tonnages grossed up by the 150% safety factor) equaled actual tonnages for the period. Since modeled tonnages exceeded actual tonnages, the pool area was reduced too much during the previous period, and must be adjusted. The recalculated pool area for the previous period is:

(1 – 275,000 / (2,094,000 – 1,000,000 - 225,000) x 31.77 acres = 21.72 acres.

This recalculated pool surface area will be used as the starting point for the freeboard calculation to be performed at November 1, 2010.

Then, calculate the modeled pool surface area to be used for the period:

(1 – 300,000 / (2,094,000 – 1,000,000 - 225,000 – 275,000)) x 21.72 acres = 10.75 acres

Based on this reduced pool area, the amount of freeboard would be 159.4 acre feet divided by 10.75 acres equals 14.83 feet. When the wave run up factor for Cell 4A of 0.77 feet is added to this, the total freeboard required is 15.60 feet. This means that the freeboard limit for Cell 4A would be reduced from 5587.3 FMSL to 5582.9 FMSL (5598.5 FMSL minus 15.60 feet, rounded to the nearest one-tenth of a foot). This calculation would be performed at November 1, 2010, and this freeboard limit would persist until November 1, 2011.

Cell 4A BAT Monitoring, Operations and Maintenance Plan.

Introduction

Construction of Cell 4A was authorized by the Utah Department of Environmental Quality, Division of Radiation Control ("DRC) on June 25, 2007. The construction authorization provided that Cell 4A shall not be in operation until after a BAT Monitoring, Operations and Maintenance Plan is submitted for Executive Secretary review and approval. The Plan shall include requirements in Part F.3 of the Groundwater Discharge Permit No. UGW370004 ("GWDP") and full fill the requirements of Parts I.D.6, I.E.8, and I.F.8 of the GWDP.

Cell Design

Tailings Cell 4A consists of the following major elements:

a) Dikes – consisting of earthen embankments of compacted soil, constructed between 1989-1990, and composed of four dikes, each including a 15-foot wide road at the top (minimum). On the north, east, and south margins these dikes have slopes of 3H to 1V. The west dike has a interior slope of 2H to 1V. Width of these dikes varies; each has a minimum crest width of at least 15 feet to support an access road. Base width also varies from 89-feet on the east dike (with no exterior embankment), to 211-feet at the west dike.

b) Foundation – including subgrade soils over bedrock materials. Foundation preparation included excavation and removal of contaminated soils, compaction of imported soils to a maximum dry density of 90%. Floor of Cell 4A has an average slope of 1% that grades from the northeast to the southwest corners.

c) Tailings Capacity – the floor and inside slopes of Cell 4A encompass about 40 acres and have a maximum capacity of about 1.6 million cubic yards of tailings material storage (as measured below the required 3-foot freeboard).

d) Liner and Leak Detection Systems – including the following layers, in descending order:

    1) Primary Flexible Membrane Liner (FML) – consisting of impermeable 60 mil high density polyethylene (HDPE) membrane that extends across both the entire cell floor and the inside side-slopes, and is anchored in a trench at the top of the dikes on all four sides. The primary FML will be in direct physical contact with the tailings material over most of the Cell 4A floor area. In other locations, the primary FML will be in contact with the slimes drain collection system (discussed below).

2) Leak Detection System – includes a permeable HDPE geonet fabric that extends across the entire area under the primary FML in Cell 4A, and drains to a leak detection sump in the southwest corner. Access to the leak detection sump is via an 18-inch inside diameter (ID) PVC pipe placed down the inside slope, located between the primary and secondary FML liners. At its base this pipe will be surrounded with a gravel filter set in the leak detection sump, having dimensions of 10 feet by 10 feet by 2 feet deep. In turn, the gravel filter layer will be enclosed in an envelope of geotextile fabric. The purpose of both the gravel and geotextile fabric is to serve as a filter.

3) Secondary FML – consisting of an impermeable 60-mil HDPE membrane found immediately below the leak detection geonet. Said FML also extends across the entire Cell 4A floor, up the inside side-slopes and is also anchored in a trench at the top of all four dikes.

4) Geosynthetic Clay Liner – consisting of a manufactured geosynthetic clay liner (GCL) composed of 0.2-inch of low permeability bentonite clay centered and stitched between two layers of geotextile. Prior to disposal of any wastewater in Cell 4A, the Permittee shall demonstrate that the GCL has achieved a moisture content of at least 50% by weight. This item is a revised requirement per DRC letter to DUSA dated September 28, 2007

e) Slimes Drain Collection System – including a two-part system of strip drains and perforated collection pipes both installed immediately above the primary FML, as follows:

1) Horizontal Strip Drain System – is installed in a herringbone pattern across the floor of Cell 4A that drain to a “backbone” of perforated collection pipes. These strip drains are made of a prefabricated two-part geo-composite drain material (solid polymer drainage strip) core surrounded by an envelope of non-woven geotextile filter fabric. The strip drains are placed immediately over the primary FML on 50-foot centers, where they conduct fluids downgradient in a southwesterly direction to a physical and hydraulic connection to the perforated slimes drain collection pipe. A series of continuous sand bags, filled with filter sand cover the strip drains. The sand bags are composed of a woven polyester fabric filled with well graded filter sand to protect the drainage system from plugging.

2) Horizontal Slimes Drain Collection Pipe System – includes a “backbone” piping system of 4-inch ID Schedule 40 perforated PVC slimes drain collection (SDC) pipe found at the downgradient end of the strip drain lines. This pipe is in turn overlain by a berm of gravel that runs the entire diagonal length of the cell, surrounded by a geotextile fabric cushion in immediate contact with the primary FML. In turn, the gravel is overlain

by a layer of non-woven geotextile to serve as an additional filter material. This perforated collection pipe serves as the "backbone" to the slimes drain system and runs from the far northeast corner downhill to the far southwest corner of Cell 4A where it joins the slimes drain access pipe.

3) Slimes Drain Access Pipe – consisting of an 18-inch ID Schedule 40 PVC pipe placed down the inside slope of Cell 4A at the southwest corner, above the primary FML. Said pipe then merges with another horizontal pipe of equivalent diameter and material, where it is enveloped by gravel and woven geotextile that serves as a cushion to protect the primary FML. A reducer connects the horizontal 18-inch pipe with the 4-inch SDC pipe. At some future time, a pump will be set in this 18-inch pipe and used to remove tailings wastewaters for purposes of de-watering the tailings cell.

f) Dike Splash Pads – A minimum of eight (8) 10-foot wide splash pads are installed on the interior dike slopes to protect the primary FML from abrasion and scouring by tailings slurry. These pads will consist of an extra layer of 60 mil HDPE membrane that will be placed down the inside slope of Cell 4A, from the top of the dike and down the inside slope. The pads on the north side of the Cell will extend to a point 5-feet beyond the toe of the slope to protect the liner bottom during initial startup of the Cell. The exact location of the splash pads is detailed on the As-Built Plans and Specifications.

g) Rub Protection Sheets – In addition to the splash pads described in f) above, rub sheets are installed beneath all piping entering or exiting Cell 4A that is not located directly on the splash pads.

h) Emergency Spillway – a concrete lined spillway constructed near the western corner of the north dike to allow emergency runoff from Cell 3 into Cell 4A. This spillway will be limited to a 6-inch reinforced concrete slab set directly over the primary FML in a 4-foot deep trapezoidal channel. No other spillway or overflow structure will be constructed at Cell 4A. All stormwater runoff and tailings wastewaters not retained in Cells 2 and 3, will be managed and contained in Cell 4A, including the Probable Maximum Precipitation and flood event.

Cell Operation

Solution Discharge

Cell 4A will initially be used for storage and evaporation of process solutions from the Mill operations. These process solutions will be from the uranium/vanadium solvent extraction circuit, or transferred from Cell 1 evaporation pond or the free water surface from Cell 3. The solution will be pumped to Cell 4A through 6 inch or 8 inch diameter HDPE pipelines. The initial solution discharge will be in the southwest corner of the Cell. The discharge pipe will be routed down the Splash Pad provided in the corner of the Cell to protect

the pipeline running from the solution reclaim barge. The solution will be discharged in the bottom of the Cell, away from any sand bags or other installation on the top of the FML. Building the solution pool from the low end of the Cell will allow the solution pool to gradually rise around the slimes drain strips, eliminating any damage to the strip drains or the sand bag cover due to solution flowing past the drainage strips. The solution will eventually be discharged along the dike between Cell 3 and Cell 4A, utilizing the Splash Pads described above. The subsequent discharge of process solutions will be near the floor of the pond, through a discharge header designed to discharge through multiple points, thereby reducing the potential to damage the Splash Pads or the Slimes Drain system. At no time will the solution be discharged into less than 2 feet of solution. As the cell begin to fill with solution the discharge point will be pull back up the Splash Pad and allowed to continue discharging at or near the solution level.

Initial Solids Discharge

Once Cell 4A is needed for storage for tailings solids the slurry discharge from No. 8 CCD thickener will be pumped to the cell through 6 inch or 8 inch diameter HDPE pipelines. The pipelines will be routed along the dike between Cell 3 and Cell 4A, with discharge valves and drop pipes extending down the Splash Pads to the solution level. One or all of the discharge points can be used depending on operational considerations. Solids will settle into a cone, or mound, of material under the solution level, with the courser fraction settling out closer to the discharge point. The initial discharge locations are shown on Figure 1. Figure 2 illustrates the general location of the solution and slurry discharge pipelines and control valve locations. The valves are 6” or 8” stainless steel knife-gate valves. The initial discharge of slurry will be at or near the toe of the Cell slope and then gradually moved up the slope, continuing to discharge at or near the water surface. This is illustrated in Section A-A on Figure 2. Because of the depth of Cell 4A, each of the discharge points will be utilized for an extended period of time before the cone of material is above the maximum level of the solution. The discharge location will then moved further to the interior of the cell allowing for additional volume of solids to be placed under the solution level. The solution level in the cell will vary depending on the operating schedule of the Mill and the seasonal evaporation rates. The tailings slurry will not be allowed to discharge directly on to the Splash Pads, in order to further protect the FML. The tailings slurry will discharge directly in to the solution contained in the Cell, onto an additional protective sheet, or on to previously deposited tailings sand.

Equipment Access

Access will be restricted to the interior portion of the cell due to the potential to damage the flexible membrane liner. Only rubber tired all terrain vehicles or foot traffic will be allowed on the flexible membrane liner. Personnel are also cautioned on the potential damage to the flexible membrane liner through the use

and handling of hand tools and maintenance materials.

Reclaim Water System

A pump barge and solution recovery system will be installed in the southwest corner of the cell to pump solution from the cell for water balance purposes or for re-use in the Mill process. Figure 3 illustrates the routing of the solution return pipeline and the location of the pump barge. The pump barge will be constructed and maintained to ensure that the flexible membrane liner is not damaged during the initial filling of the cell or subsequent operation and maintenance activities. The condition of the pump barge and access walkway will be noted during the weekly Cell inspections.

Interim Solids Discharge

Figure 4 illustrates the progression of the slurry discharge points around the east side of Cell 4A. Once the tailings solids have been deposited along the north and east sides of the Cell, the discharges points will subsequently be moved to the sand beaches, which will eliminate any potential for damage to the liner system.

Liner Maintenance and QA/QC

Any construction defects or operational damage discovered during observation of the flexible membrane liner will be repaired, tested and documented according to the procedures detailed in the approved **Revised construction Quality Assurance Plan for the Construction of the Cell 4A Lining System, May 2007, by GeoSyntec Consultants.**

BAT Performance Standards for Tailings Cell 4A

DUSA will operate and maintain Tailings Cell 4A so as to prevent release of wastewater to groundwater and the environment in accordance with this BAT Monitoring Operations and Maintenance Plan, pursuant to Part I.H.19 of the GWDP. These performance standards shall include:

1) Leak Detection System Pumping and Monitoring Equipment – the leak detection system pumping and monitoring equipment, includes a submersible pump, pump controller, water level indicator (head monitoring), and flow meter with volume totalizer. The pump controller is set to maintain the maximum level in the leak detection system at no more than 1 foot above the lowest level of the secondary flexible menbrane. A second leak detection pump with pressure transducer, flow meter, and manufacturer recommended spare parts for the pump controller and water level data collector is maintained in the Mill warehouse to

ensure that the pump and controller can be replaced and operational within 24 hours of detection of a failure of the pumping system. The root cause of the equipment failure will be documented in a report to Mill management with recommendations for prevention of a re-occurrence.

2) Maximum Allowable Head – the Permittee shall measure the fluid head above the lowest point on the secondary flexible membrane by the use of procedures and equipment specified in the **White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, 08/10 Revision: Denison-7,** or the currently approved DMT Plan. Under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner.

3) Maximum Allowable Daily LDS Flow Rates - the Permittee shall measure the volume of all fluids pumped from the LDS on a weekly basis, and use that information to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on the attached Table 1 to determine the maximum daily allowable LDS flow volume for varying head conditions in the cell. .

4) 3-foot Minimum Vertical Freeboard Criteria – the Permittee shall operate and maintain wastewater levels to provide a 3-foot Minimum of vertical freeboard in Tailings Cell 4A. Said measurements shall be made to the nearest 0.1 foot.

5) Slimes Drain Recovery Head Monitoring – immediately after the Permittee initiates pumping conditions in the Tailings Cell 4A slimes drain system, monthly recovery head tests and fluid level measurements will be made in accordance with a plan approved by the DRC Executive Secretary. The slimes drain system will pumping and monitoring equipment, includes a submersible pump, pump controller, water level indicator (head monitoring), and flow meter with volume totalizer.

Routine Maintenance and Monitoring

Trained personnel inspect the White Mesa tailings system on a once per day basis. Any abnormal occurrences or changes in the system will be immediately reported to Mill management and maintenance personnel. The inspectors are trained to look for events involving the routine placement of tailings material as well as events that could affect the integrity of the tailings cell dikes or lining systems. The daily inspection reports are summarized on a monthly basis and reviewed and signed by the Mill Manager.

Solution Elevation

Measurements of solution elevation in Cell 4A are to be taken by survey on a weekly basis, and measurements of the beach area in Cell 4A with the highest elevation are to be taken by survey on a monthly basis, by the use of the procedures and equipment specified in the latest approved edition of the DMT Plan.

Leak Detection System

The Leak Detection System is monitored on a continuous basis by use of a pressure transducer that feeds water level information to an electronic data collector. The water levels are measured every hour and the information is stored for later retrieval. The water levels are measured to the nearest 0.10 inch. The data collector is currently programmed to store 7 days of water level information. The number of days of stored data can be increased beyond 7 days if needed. The water level data is downloaded to a laptop computer on a weekly basis and incorporated into the Mill's environmental monitoring data base, and into the files for weekly inspection reports of the tailings cell leak detection systems. Within 24 hours after collection of the weekly water level data, the information will be evaluated to ensure that: 1) the water level in the leak detection sump did not exceed the allowable level (5556.14 feet amsl), and 2) the average daily flow rate from the LDS did not exceed the maximum daily allowable flow rate at any time during the reporting period. For Cell 4A, under no circumstance shall fluid head in the leak detection system sump exceed a 1-foot level above the lowest point in the lower flexible membrane liner. To determine the Maximum Allowable Daily LDS Flow Rates in the Cell 4A leak detection system, the total volume of all fluids pumped from the LDS on a weekly basis shall be recovered from the data collector, and that information will be used to calculate an average volume pumped per day. Under no circumstances shall the daily LDS flow volume exceed 24,160 gallons/day. The maximum daily LDS flow volume will be compared against the measured cell solution levels detailed on the attached Table 1, to determine the maximum daily allowable LDS flow volume for varying head conditions in Cell 4A. Any abnormal or out of compliance water levels must be immediately reported to Mill management. The data collector is also equipped with an audible alarm that sounds if the water level in the leak detection sump exceeds the allowable level (5556.14 feet amsl). The current water level is displayed at all times on the data collector and available for recording on the daily inspection form. The leak detection system is also equipped with a leak detection pump, EPS Model # 25S05-3 stainless steel, or equal. The pump is capable of pumping in excess of 25 gallons per minute at a total dynamic head of 50 feet. The pump has a 1.5 inch diameter discharge, and operates on 460 volt 3 phase power. The pump is equipped with a pressure sensing

transducer to start the pump once the level of solution in the leak detection sump is approximately 2.25 feet (elevation 5555.89) above the lowest level of the leak detection sump (9 inches above the lowest point on the lower flexible membrane liner, to ensure the allowable 1.0 foot (5556.14 feet amsl) above the lowest point on the lower flexible membrane liner is not exceeded). The attached Figure 6, Leak Detection Sump Operating Elevations, illustrates the relationship between the sump elevation, the lowest point on the lower flexible membrane liner and the pump-on solution elevation for the leak detection pump. The pump also has manual start and stop controls. The pump will operate until the solution is drawn down to the lowest level possible, expected to be approximately 4 inches above the lowest level of the sump (approximate elevation 5554.0). The pump discharge is equipped with a 1.5 inch flow meter, EPS Paddle Wheel Flowsensor, or equal, that reads the pump discharge in gallons per minute, and records total gallons pumped. The flow rate and total gallons is recorded by the Inspector on the weekly inspection form. The leak detection pump is installed in the horizontal section of the 18 inch, horizontal, perforated section of the PVC collection pipe. The distance from the top flange face, at the collection pipe invert, to the centerline of the 22.5 degree elbow is 133.4 feet, and the vertical height is approximately 45 feet. The pump is installed at least 2 feet beyond the centerline of the elbow. The bottom of the pump will be installed in the leak detection sump at least 135.4 feet or more from the top of the flange invert. A pressure transducer installed with the pump continuously measures the solution head and is programmed to start and stop the pump within the ranges specified above. The attached Figure 5 illustrates the general configuration of the pump installation.

A second leak detection pump with pressure transducer, flow meter, and manufacturer recommended spare parts for the pump controller and water level data collector will be maintained in the Mill warehouse to ensure that the pump and controller can be replaced and operational within 24 hours of detection of a failure of the pumping system. The root cause of the equipment failure will be documented in a report to Mill management with recommendations for prevention of a re-occurrence.

Slimes Drain System

(i) A pump, Tsurumi Model # KTZ23.7-62 stainless steel, or equal, will be placed inside of the slimes drain access riser pipe and a near as possible to the bottom of the slimes drain sump. The bottom of the slimes drain sump is 38 feet below a water level measuring point at the centerline of the slimes drain access pipe, near the ground surface level. The pump discharge will be equipped with a 2 inch flow meter, E/H Model #33, or

equal, that reads the pump discharge in gallons per minute, and records total gallons pumped. The flow rate and total gallons will be recorded by the Inspector on the weekly inspection form.

(ii) The slimes drain pump will be on adjustable probes that allow the pump to be set to start and stop on intervals determined by Mill management.

(iii) The Cell 4A slimes drain pump will be checked weekly to observe that it is operating and that the level probes are set properly, which is noted on the Weekly Tailings Inspection Form. If at any time the pump is observed to be not working properly, it will be repaired or replaced within 15 days;

(iv) Depth to wastewater in the Cell 4A slimes drain access riser pipe shall be monitored and recorded weekly to determine maximum and minimum fluid head before and after a pumping cycle, respectively. All head measurements must be made from the same measuring point, to the nearest 0.01 foot. The results will be recorded as depth-in-pipe measurements on the Weekly Tailings Inspection Form;

(v) On a monthly basis, the slimes drain pump will be turned off and the wastewater in the slimes drain access pipe will be allowed to stabilize for at least 90 hours. Once the water level has stabilized (based on no change in water level for three (3) successive readings taken no less than one (1) hour apart) the water level of the wastewater will be measured and recorded as a depth-in-pipe measurement on the Monthly Inspection Data form, by measuring the depth to water below the water level measuring point on the slimes drain access pipe;

The slimes drain pump will not be operated until Mill management has determined that no additional process solutions will be discharged to Cell 4A, and the Cell has been partially covered with the first phase of the reclamation cap. The long term effectiveness and performance of the slimes drain dewatering will be evaluated on the same basis as the currently operating slimes drain system for Cell 2.

Tailings Emergencies

Inspectors will notify the Radiation Safety Officer and/or Mill management immediately if, during their inspection, they discover that an abnormal condition exists or an event has occurred that could cause a tailings emergency. Until relieved by the Environmental or Radiation Technician or Radiation Safety Officer, inspectors will have the authority to direct resources during tailings emergencies.

Any major catastrophic events or conditions pertaining to the tailings area should be reported immediately to the Mill Manager or the Radiation Safety Officer, one of whom will notify Corporate Management. If dam failure occurs, notify your supervisor and the Mill Manager immediately. The Mill Manager will then notify Corporate Management, MSHA (303-231-5465), and the State of Utah, Division of Dam Safety (801-538-7200).

Cell 4A Solution Freeboard Calculation

The maximum tailings cell pond wastewater levels in Cells 1-I, Cell 2, Cell 3 and Cell 4A are regulated by condition 10.3 of the White Mesa Mill 11e.(2) Materials License.

Condition 10.3 states that "The **Freeboard limit for Cells 1shall be 5615.4 feet above mean seal level, and the freeboard limit for Cell 4A shall be set annually in accordance with the procedures set out in the latest edition of the White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, which is included as a section of the Mill's Environmental Protection Manual. Said calculations shall be submitted as part of the Annual Technical Evaluation Report. Said report shall be submitted for Executive Secretary approval no later than November 15 of each year.**"

The freeboard limits set out in Section 6.3 of the DMT Plan are intended to capture the Local 6-hour Probable Maximum Precipitation (PMP) event, which was determined in the January 10, 1990 Drainage Report for the White Mesa site to be 10 inches.

Based on the PMP storm event, the freeboard requirement for Cell 1 is a maximum operating water level of 5615.4 feet above mean sea level (amsl). The Cell 1 freeboard limit is not affected by operations or conditions in Cells 2, 3 or 4A.

Cells 2 and 3 have no freeboard limit because those Cells are full or near full of tailings solids and all precipitation falling on Cell 2 and 3 and the adjacent drainage area must be contained in Cell 4A. The flood volume from the PMP event over the Cell 2 and Cell 3 pond areas, plus the adjacent drainage areas, which must be contained in Cell 4A, is 123.4 acre-feet of water.
The flood volume from the PMP event over the Cell 4A area is 36 acre-feet of water (40 acres, plus the adjacent drainage area of 3.25 acres, times the PMP of 10 inches). This would result in a total flood volume of 159.4 acre-feet, including the 123.4 acre-feet of solution from Cells 2 and 3, that must be contained in Cell 4A. The procedure for calculating the freeboard limit for Cell 4A is set out in the DMT Plan.

The Groundwater Quality Discharge Permit, No. UGW370004, for the White Mesa Mill requires that the minimum freeboard be no less than 3.0 feet for Cells 1 and 4A, but based on License condition 10.3 and the procedure set out in the DMT Plan, the freeboard limits for Cells 1 and 4A will be at least three feet.

Figure 7, Hydraulic Profile Schematic, shows the relationship between the Cells, and the relative elevations of the solution pools and the spillway elevations.

The required freeboard for Cell 4A will be recalculated annually.

Attachments

1) Figure 1, Initial Filling Plan, GeoSyntec Consultants

2) Figure 2, Initial Filling Plan, Details and Sections, GeoSyntec Consultants

3) Figure 3, Initial Filling Plan, Solution and Slurry Pipeline Routes, GeoSyntec Consultants

4) Figure 4, Interim Filling Plan, GeoSyntec Consultants

5) Figure 5, Leak Detection System Sump, GeoSyntec Consultants

6) Figure 6, Leak Detection Sump Operating Elevations

7) Figure 7, Hydraulic Profile Schematic

8) Cell 3 and Cell 4A Freeboard Calculation

9) Table 1, Calculated Action leakage Rates for Various Head Conditions, Cell 4A, White Mesa Mill, Blanding, Utah, GeoSyntec Consultants

10) White Mesa Mill Tailings Management System and Discharge Minimization Technology (DMT) Monitoring Plan, 3/07 Revision: DUSA-2, 32 pages, or currently approved version of the DMT