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, except on weekends when the Shift Foreman will perform the weekend 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 observation are made, the Mill Manager should be notified immediately and the leak detection system pump started.

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 on a timed system, under which it pumps

for 15 minutes each hour, thereby allowing the slimes wastewater to recharge for 45 minutes before being pumped again. Based on measurements taken in August 2006, the water level in the Cell 2 slimes drain recharges to a depth of about 28.50 feet before each pumping and is pumped to a depth of 38 feet after each pumping, in each case measured below the water level measuring point on the slimes drain access pipe. The average wastewater head in the Cell 2 slimes drain is therefore about 5 feet. The depth to water of about 28.50 feet after recharge is below the phreatic surface of tailings Cell 2, which is at a depth of 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 at these intervals is satisfactory and is as low as reasonably achievable. Based on past experience, cycling the pump more than 15 minutes every hour can result in more replacement costs for pumps and more resulting system downtime;

(iv) The Cell 2 slimes drain pump is checked weekly to observe that it is operating and that the timer is 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 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 1, 3 and 4A and Roberts Pond are to be taken by survey on a weekly 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 1, 3 and 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 3 and 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 3 and 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 3 and 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 or Roberts Pond, 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. Cell 3

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;

B. 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.

C. 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

D 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 3	320,508	2,577,760
Cell 4A	320,300	2,579,360

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

(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) 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; and

b) 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 September 1st 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

a) 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:

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

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

b) Tailings Cell 3

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

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

(ii) 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.

(iii) 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.

(iv) 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.

(v) 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.

c) 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.

d) 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.

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 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.

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

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: _____	

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 Activites: _____
_____
_____
_____
_____
_____

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):_____
_____
_____

Conditions of storage areas for materials:
_____
_____
_____
_____

Other comments:
_____
_____

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