ENGINEER'S INSPECTION REPORT

INSPECTOR: MP3

OFFICE OF THE STATE ENGINEER - DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH 1313 SHERMAN STREET, ROOM 818, DENVER, CO 80203. (303) 866-3581

DAM NAME:	BATTLE MOUNTAIN SAN LUIS TAILINGS	T: 0	R: 0	S:	COUNTY:	COSTILLA		DATE OF INSPECTION:	5/13/2013
DAM ID:	240109	YRCompl:	1991	DAM HEIGHT(FT):	140.0	SPILLWAY WIDTH(FT):	4.0	PREVIOUS INSPECTION:	
CLASS:	N hazard			DAM LENGTH(FT):	1640.0	SPILLWAY CAPACITY(CFS):	170.0	NORMAL STORAGE (AF):	750.0
DIV:	3	WD:	24	CRESTWIDTH(FT):	30.0	FREEBOARD (FT):	10.0	SURFACE AREA(AC):	150.0
EAP:	Not Required			CRESTELEV(FT):	8620.0	DRAINAGE AREA (AC.):	896.0	OUTLET INSPECTED:	

CURRENT RESTRICTION: -- NONE --

OWNER:	BATTLE MOUNTAIN RESOURCES INC.	OWNER REP.:	JULIO MARDRID
ADDRESS:	P.O. BOX 310	CONTACT NAME:	JULIO MARDRID
	SAN LUIS CO 81152-	CONTACT PHONE:	(719) 379-0059X

INSPECTION PARTY :	Wally Erickson, Russ Means	Julio Madrid	Mark Perry
REPRESENTING :	DNR, Division of Reclamation, Mining & S	Battle Mountain Resources Inc.	State Engineers Office, Dam Safety Branc

FIELD CONDITIONS OBSERVED

WATER LEVEL: BELOW DAM CREST ~10-12 FT. Above Spillway FT. GAGE ROD READING None

GROUND MOISTURE CONDITION: ☑ DRY ☐ WET ☐ SNOWCOVER OTHER

DIRECTIONS: MARK AN X FOR CONDITIONS FOUND AND UNDERLINE WORDS THAT APPLY

UPSTREAM SLOPE

PROBLEMS NOTED: ☐ (0)NONE ☑ (1)RIPRAP - MISSING, SPARSE, DISPLACED, WEATHERED ☐ (2) WAVE EROSION - WITH SCARPS

☐ (3) CRACKS WITH DISPLACEMENT ☐ (4) SINKHOLE ☐ (5) APPEARS TOO STEEP ☐ (6) DEPRESSIONS OR BULGES ☐ (7) SLIDES

☐ (8) CONCRETE FACING - HOLES, CRACKS, DISPLACED, UNDERMINED ☑ (9) OTHER excavation into slope (see below)

•There is not riprap protection on the upstream slope, but no erosion damage was observed. During normal operations the facility's water surface is several hundred feet (horz.) away from the crest; the only potential for slope erosion would be from a large flood event
•The upstream slope was excavated at the location of the old seepage recovery pipeline. The excavation should be backfilled with compacted fill to match the adjacent upstream slope.
•No signs of instability were observed.

NOTE: This dam is Exempt from State Engineers Office Dam Safety Rules and Regulations, and is regulated by the DNR Division of Reclamation, Mining & Safety. Where Good, Acceptable, or Poor conditions are assigned herein (see below), these ratings are solely intended to provide technical support to DRMS subject to the limitations discussed in the "Overall Conditions" Section of this report.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

CREST

PROBLEMS NOTED: ☐ (10) NONE ☐ (11 RUTS OR PUDDLES ☐ (12) EROSION ☐ (13) CRACKS - WITH DISPLACEMENT ☐ (14) SINKHOLES

☐ (15) NOT WIDE ENOUGH ☐ (16) LOW AREA ☐ (17) MISALIGNMENT ☑ (18) IMPROPER SURFACE DRAINAGE ☑ (19) OTHER See below

•No signs of distress were observed
•The owner recently had a stage capacity and dam crest survey performed. As part of the TR-33 inspection report, we recommend that the dam owner's engineer should verify that the dam crest elevation is maintained for the original design criteria (ex. for PMF storage) around the facility. We specifically discussed that the dam crest profile of the embankment along the 100-YR diversion ditch should be checked.
•Maintenance grading has resulted in a windrow of soil along the upstream shoulder, which could inhibit proper surface drainage. We recommend that the crest be graded to drain freely toward the upstream slope to prevent water from ponding on the embankment.
•There is a high area on the crest near the right dam abutment where the old seepage recovery pipeline crosses the dam crest. Soil was reportedly added here to provide pipe cover.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

DOWNSTREAM SLOPE

PROBLEMS NOTED: ☐ (20) NONE ☐ (21) LIVESTOCK DAMAGE ☐ (22) EROSION OR GULLIES ☐ (23) CRACKS - WITH DISPLACEMENT ☐ (24) SINKHOLE

☐ (25) APPEARS TOO STEEP ☐ (26) DEPRESSIONS OR BULGES ☐ (27) SLIDE ☐ (28) SOFT AREAS ☑ (29) OTHER See below.

•The Phase I as-built plans show a 3H:1V downstream slope. The existing slope appears to be that or flatter. There are also 2 benches (~10-ft wide each) on top half of the slope.
•Vegetation cover is typically sage brush, which is typical for the San Luis Valley climate. No significant surface erosion was observed on the slope. Spot repairs of erosion damage have been made at the right and left groins (see below).
•Recent repairs to erosion damage and the liner were made at the right groin on the downstream slope (surface area of repair ~200' x 50'). A small diversion ditch was added on the right abutment to attempt to keep surface water off of the groin and liner. A similar repair was made at the left groin.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

SEEPAGE

PROBLEMS NOTED: ☐ (30) NONE ☐ (31) SATURATED EMBANKMENT AREA ☑ (32) SEEPAGE EXITS ON EMBANKMENT

☑ (33) SEEPAGE EXITS AT POINT SOURCE ☐ (34) SEEPAGE AREA AT TOE ☐ (35) FLOW ADJACENT TO OUTLET ☐ (36) SEEPAGE INCREASED / MUDDY

DRAIN OUTFALLS SEEN ☐ No ☑ Yes Show location of drains on sketch and indicate amount and quality of discharge. ☐ (37) FLOW INCREASED / MUDDY ☐ (38) DRAIN DRY / OBSTRUCTED

☑ (39) OTHER See below. We recommend additional investigations

•There is reportedly a drainage pipe system under the embankment, above the geosynthetic liner. The Phase I as-built plans show a 3-ft thick "Drainage Blanket" under the Type 1 material, above the liner, in the upstream shell of the embankment; however, we do not find details for an underdrain pipe system.
•Three 12" diameter HDPE pipes outfall at the downstream toe of the main embankment into an open channel to the seepage collection pond. The owner reports that the three pipes may be short extensions of what they believe is a larger (36"-48" dia.) HPDE seepage collection pipe under the main embankment. Again, no details of the collection pipe system were found by us on the Phase I as-built plans.
•Uncontrolled seepage was observed exiting ~6-ft above the 12" HDPE drain outfalls on the downstream slope of the main embankment.
•Based on the above observations, we recommend:
(1) research to determine the design of the seepage collection pipe system under the embankment, and (2) after determining the design of the pipe collection system, determine if it is feasible to video inspect the pipes. The SEO recommends that internal outlet conduit video inspections be performed at least every 10 years for SEO-regulated High and Significant Hazard dams.

•According to the Phase I as-built plans, the Seepage Collection Pond, located at the downstream toe of the main tailings dam, has an embankment with a structural height of ~15-ft. We recommend that the Seepage Collection Pond dam should be inspected annually as part of the TR-33 dam safety inspections.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

OUTLET

PROBLEMS NOTED: ☐ (40) NONE ☐ (41) NO OUTLET FOUND ☐ (42) POOR OPERATING ACCESS ☐ (43) INOPERABLE

☐ (44) UPSTREAM OR DOWNSTREAM STRUCTURE DETERIORATED (45) OUTLET OPERATED DURING INSPECTION ☐ YES ☐ NO

INTERIOR INSPECTED ☐ (120) NO ☐ (121) YES ☐ (46) CONDUIT DETERIORATED OR COLLAPSED ☐ (47) JOINTS DISPLACED ☐ (48) VALVE LEAKAGE

☑ (49) OTHER see below

•There is no controllable outlet works. During the normal operations the facility holds only a small amount of surface water. NOTE: There is reportedly a seepage collection pipe system through the embankment; see Seepage section of the report for more information. NOT RATED.

CONDITIONS OBSERVED: ☐ Good ☐ Acceptable ☐ Poor

SPILLWAY

PROBLEMS NOTED: ☐ (50) NONE ☐ (51) NO EMERGENCY SPILLWAY FOUND ☐ (52) EROSION WITH BACKCUTTING ☐ (53) CRACK - WITH DISPLACEMENT

☐ (54) APPEARS TO BE STRUCTURALLY INADEQUATE ☐ (55) APPEARS TOO SMALL ☐ (56) INADEQUATE FREEBOARD ☐ (57) FLOW OBSTRUCTED

☐ (58) CONCRETE DETERIORATED / UNDERMINED ☑ (59) OTHER See below.

•The facility is reportedly designed to contain the full Probable Maximum Flood (PMF), along with a diversion ditch to bypass surface runoff from the south drainage area around the tailings facility and through a 48-inch diameter CMP culvert drop structure. The Phase I construction plans indicate that the diversion ditch is designed to carry 100-YR frequency flows, which agrees with the owner and DRMS comments during the inspection. It is not clear to us how the ditch and adjacent tailings embankment would perform in larger floods, up to the PMF. In other words, could the drop structure overtop, fail and lead to head-cutting erosion on the south side of the facility? We believe this question should be addressed during the Potential Failure Modes portion of the TR-33 process.
•We observed that there is no trash rack on the drop structure intake. The SEO typically recommends a self-cleaning type trash rack for the intake of a closed conduit spillway in order to prevent clogging.
•We recommend performing an internal inspection (possibly remote video due to steep grade) of the drop structure's 48" diameter CMP.
•We discussed how the maximum normal reservoir level is controlled. It was reported that there is an operational restriction. We discussed that the State Engineer's Office typically requires a passive level control spillway at the design maximum normal water level to ensure that the reservoir is not accidently overfilled or overtopped. We recommend that this aspect of the project be reviewed as part of the TR-33 process. We note that the same comment appears to apply to the Seepage Collection Pond below the main tailings dam.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MONITORING

EXISTING INSTRUMENTATION FOUND ☐ (110) NONE ☐ (111) GAGE ROD ☑ (112) PIEZOMETERS ☑ (113) SEEPAGE WEIRS / FLUMES

☐ (114) SURVEY MONUMENTS ☐ (115) OTHER

MONITORING OF INSTRUMENTATION ☐ (116) NO ☑ (117) YES PERIODIC INSPECTIONS BY: ☑ (118) OWNER ☑ (119) ENGINEER

•The owner has full time staff on-site. They perform regular monitoring. Specifically, the owner monitors piezometers and seepage flows and submits data to DRMS. Traditionally the monitoring has been directed towards water quality more than dam safety, but the TR-33 process may be able to utilize some of the same data to help evaluate the safety of the dam.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MAINTENANCE AND REPAIRS

PROBLEMS NOTED: ☐ (60 NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) LIVESTOCK DAMAGE
☐ (63) BRUSH ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (64) TREES ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE
☐ (65) RODENT ACTIVITY ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (66) DETERIORATED CONCRETE - FACING, OUTLET, SPILLWAY
☐ (67) GATE AND OPERATING MECHANISM NEED MAINTENANCE ☑ (68) OTHER See below

•The dam owner performs routine maintenance. We observed where they completed recent repairs of erosion damage along the right and left groins of the downstream slope and at the south diversion drop structure outfall.

•We recommend the following additional maintenance:
- the excavation into the upstream slope at the old seepage recovery pipeline should be rebuilt with compacted fill.
- The crest should be graded to promote positive drainage off of the embankment and toward the upstream slope. Remove the windrow along the upstream shoulder.
- Control large brush on the embankment in order to allow good routine visual inspection of the slopes

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

Go to next page for Overall Conditions and Items Requiring Actions

OVERALL CONDITIONS

The Battle Mountain San Luis Project Tailings Dam is regulated by the DNR Division of Reclamation, Mining & Safety (DRMS) and is a State Engineer's Office (SEO) Exempt structure in accordance with Rule 17.2 of the State of Colorado's Rules and Regulations for Dam Safety and Dam Construction. Rule 17.2 exempts Mine Tailings impoundments permitted under the State Mined Land Reclamation Act. In addition, the Seepage Collection Pond dam at the toe of the main tailings dam is considered to be an SEO Exempt structure in accordance with the same Rule, which also exempts solution process impoundments that are permitted under the State Mined Land Reclamation Act.

The SEO performed the current dam safety inspection solely to provide technical assistance to DRMS as part of their Technical Revision (TR) 33 regarding a dam safety inspection program for the facility.

The SEO does not have expertise or experience specific to tailings dams. Our recommendations and observations are provided based on Dam Safety experience with dams and associated facilities designed to impound water. Subject to this limitation, we did not observe signs of distress or patent problems with the design that would lead us to believe the facility is unsafe. We do have several recommendations for improving the safety of the structure: The following Maintenance and Engineering Actions should be regarded as technical recommendations from the SEO to DRMS, the project regulator, and NOT as requirements from the SEO to the dam owner.

Because the facility is an Exempt Structure, the State Engineer has not assigned an Overall Condition rating.

Based on this Safety Inspection and recent file review, the overall condition is determined to be:

☐ (71) SATISFACTORY ☐ (72) CONDITIONALLY SATISFACTORY ☐ (73) UNSATISFACTORY

ITEMS REQUIRING ACTION BY OWNER TO IMPROVE THE SAFETY OF THE DAM

The State Engineer, by providing this dam safety inspection report, does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner or operator, who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam.

MAINTENANCE - MINOR REPAIR - MONITORING

☐ (80) PROVIDE ADDITIONAL RIPRAP:

☐ (81) LUBRICATE AND OPERATE OUTLET GATES THROUGH FULL CYCLE

☑ (82) CLEAR TREES AND/OR BRUSH FROM: **Control height of brush to allow good routine visual inspection of the embankment slopes**

☐ (83) INITIATE RODENT CONTROL PROGRAM AND PROPERLY BACKFILL EXISTING HOLES:

☑ (84) GRADE CREST TO A UNIFORM ELEVATION WITH DRAINAGE TO THE UPSTREAM SLOPE: **AND remove windrow of soil on upstream shoulder**

☐ (85) PROVIDE SURFACE DRAINAGE FOR:

☐ (86) MONITOR:

☑ (87) DEVELOP AND SUBMIT AN EMERGENCY ACTION PLAN: **We provided an example SEO Emegency Action Plan to DRMS. DRMS will determine EAP requirements, if any, for the dam owner.**

☑ (88) OTHER **Repair upstream slope with compacted fill at the excavation along the old seepage recovery pipeline**

☑ (89) OTHER **We recommend inspecting the Seepage Collection Pond embankment as part of the TR-33 process.**

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO: (Plans and Specifications must be approved by State Engineer prior to construction.

☐ (90) PREPARE PLANS AND SPECIFICATIONS FOR REHABILITATION OF THE DAM:

☐ (91) PREPARE AS -BUILT DRAWINGS OF:

☐ (92) PERFORM A GEOTECHNICAL INVESTIGATION TO EVALUATE THE STABILITY OF THE DAM:

☐ (93) PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE:

☐ (94) PREPARE PLANS AND SPECIFICATIONS FOR AN ADEQUATE SPILLWAY:

☐ (95) SET UP A MONITORING SYSTEM INCLUDING WORK SHEETS, REDUCED DATA AND GRAPHED RESULTS:

☑ (96) PERFORM AN INTERNAL INSPECTION OF THE OUTLET: **Determine the design of the seepage collection pipe system under the embankment. If possible video inspect the pipes. Determine source of uncontrolled seepage exiting on downstream slope above collection drain outfalls**

☑ (97) OTHER: **Consider installing a trash rack at the south diversion drop structure inlet.**

☑ (98) OTHER: **Perform an internal inspection of the south diversion drop structure conduit. ALSO we recommend evaluating how the Maximum Normal water level is controlled in both the main tailings dam and the seepage collection pond (See spillway sect. of this report).**

☑ (99) OTHER: **As part of TR-33 reporting, evaluate dam crest elevations around perimeter of the facility (see recent survey) against design criteria. ALSO evaluate whether performance of the south diversion during large flood events is a failure mode.**

SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

☐ (101) FULL STORAGE

☐ (102) CONDITIONAL FULL STORAGE

☐ (103) RECOMMENDED RESTRICTION

☐ (104) CONTINUE EXISTING RESTRICTION

RESTRICTED LEVEL OFFICIAL ORDER TO FOLLOW →

FT. BELOW DAM CREST
FT. BELOW SPILLWAY CREST
FT. GAGE HEIGHT
NO STORAGE-MAINTAIN OUTLET FULLY OPEN

REASON FOR RESTRICTION

Safe storage level is NOT assigned by the SEO because the structure is Exempt per Rule 17.2 of the State of Colorado Rules and Regulations for Dam Safety and Dam Construction.

ACTIONS REQUIRED FOR CONDITIONAL FULL STORAGE OR CONTINUED STORAGE AT THE RESTRICTED LEVEL:

ENGINEER'S INSPECTION REPORT

DATE: 5/13/2013

DAM NAME: BATTLE MOUNTAIN SAN LUIS TAILIN

DAM I.D.: 240109

Engineer's Signature _____ INSPECTED BY

Mark A. Perry, P.E.

6/3/13

Owner's Signature _____ OWNER/OWNER'S REPRESENTATIVE

DATE: _____

GUIDELINES FOR DETERMINING CONDITIONS

CONDITIONS OBSERVED - APPLIES TO UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, OUTLET, SPILLWAY

GOOD
In general, this part of the structure has a near new appearance, and conditions observed in this area do not appear to threaten the safety of the dam.

ACCEPTABLE
Although general cross-section is maintained, surfaces may be irregular, eroded, rutted, spalled, or otherwise not in new condition. Conditions in this area do not currently appear to threaten the safety of the dam.

POOR
Conditions observed in this area appear to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO SEEPAGE

GOOD
No evidence of uncontrolled seepage. No unexplained increase in flows from designed drains. All seepage is clear. Seepage conditions do not appear to threaten the safety of the dam.

ACCEPTABLE
Some seepage exists at areas other than the drain outfalls, or other designed drains. No unexplained increase in seepage. All seepage is clear. Seepage conditions observed do not currently appear to threaten the safety of the dam.

POOR
Seepage conditions observed appear to threaten the safety of the dam. Examples:
1) Designed drain or seepage flows have increased without increase in reservoir level.
2) Drain or seepage flows contain sediment, i.e., muddy water or particles in jar samples.
3) Widespread seepage, concentrated seepage, or ponding appears to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO MONITORING

GOOD
Monitoring includes movement surveys and leakage measurements for all dams, and piezometer readings for High hazard dams. Instrumentation is in reliable, working condition. A plan for monitoring the instrumentation and analyzing results by the owner's engineer is in effect. Periodic inspections by owner's engineer.

ACCEPTABLE
Monitoring includes movement surveys and leakage measurements for High and Significant hazard dams; leakage measurements for Low hazard dams. Instrumentation is in serviceable condition. A plan for monitoring instrumentation is in effect by owner. Periodic inspections by owner or representative. OR, NO MONITORING REQUIRED.

POOR
All instrumentation and monitoring described under "ACCEPTABLE" here for each class of dam, are not provided, or required periodic readings are not being made, or unexplained changes in readings are not reacted to by the owner.

CONDITIONS OBSERVED - APPLIES TO MAINTENANCE AND REPAIR

GOOD
Dam appears to receive effective on-going maintenance and repair, and only a few minor items may need to be addressed.

ACCEPTABLE
Dam appears to receive maintenance, but some maintenance items need to be addressed. No major repairs are requirecl

POOR
Dam does not appear to receive adequate maintenance. One or more items needing maintenance or repair has begun to threaten the safety of the dam.

OVERALL CONDITIONS

SATISFACTORY
The safety inspection indicates no conditions that appear to threaten the safety of the dam, and the dam is expected to perform satisfactorily under all design loading conditions. Most of the required monitoring is being performed.

CONDITIONALLY SATISFACTORY
The safety inspection indicates symptoms of structural distress (seepage, evidence of minor displacements, etc.), which, if conditions worsen, could lead to the failure of the dam. Essential monitoring, inspection, and maintenance must be performed as a requirement for continued full storage in the reservoir.

UNSATISFACTORY
The safety inspection indicates definite signs of structural distress (excessive seepage, cracks, slides, sinkholes, severe deterioration, etc.), which could lead to the failure of the dam if the reservoir is used to full capacity. The dam is judged unsafe for full storage of water.

SAFE STORAGE LEVEL

FULL STORAGE
Dam may be used to full capacity with no conditions attached.

CONDITIONAL FULL STORAGE
Dam may be used to full storage if certain monitoring, maintenance, or operational conditions are met.

RESTRICTION
Dam may not be used to full capacity, but must be operated at some reduced level in the interest of public safety.

HAZARD CLASSIFICATION OF DAMS

High hazard
Loss of human life is expected in the event of failure of the dam, while the reservoir is at the high water line.

Significant hazard
Significant damage to improved property is expected in the event of failure of the dam while the reservoir is at the high water line, but no loss of human life is expected.

Low hazard
Loss of human life is not expected, and damage to improved property is expected to be small, in the event of failure of the dam while the reservoir is at high water line.

NPH hazard - No loss of life or damage to improved property, or loss of downstream resource is expected in the event of failure of the dam while the reservoir is at the high water line.

STATE OF COLORADO

Battle Mountain San Luis Project Tailings Dam: 5/13/13 Dam Safety Inspection Report

Perry - DNR, Mark <mark.perry@state.co.us> Mon, Jun 3, 2013 at 2:10 PM
To: Wally Erickson - DNR <wally.erickson@state.co.us>
Cc: Russ Means - DNR <russ.means@state.co.us>, Bill McCormick - DNR <bill.mccormick@state.co.us>, Craig Cotten - DNR <craig.cotten@state.co.us>

Hi Wally,

Please see the attached SEO Engineer's Inspection Report (EIR) for the subject dam safety inspection. As we discussed previously, our office is providing the EIR solely for technical support of the Division of Reclamation, Mining & Safety. We have not assigned an overall rating or a safe storage level, as the dam is an Exempt Structure per SEO Rules & Regulations. The Required Actions at the end of the report should be taken as recommendations to DRMS for consideration as part of your TR-33 dam safety effort.

It was a pleasure to meet you and join you for the inspection. I hope our participation provided value to DRMS. Please do not hesitate to contact me with questions about the attached EIR or with any other dam safety questions for the Battle Mountain San Luis project.

Best Regards,
Mark

Mark A. Perry, P.E.
Dam Safety Engineer, Divisions 2/3
Colorado Division of Water Resources
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Pueblo, CO 81004
719-542-3368 x2109 (office)
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Battle Mountain San Luis Tailings Dam (DAMID 240109)_2013_05_13 DamSafetyInspectionReport.pdf
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Photo 1- Looking upstream at the tailings containment area from the left abutment of the main dam. During normal operations there is only a small pool of water.

Photo 2 – Dam crest looking right from the left abutment.

Photo 3 – Downstream slope looking right from the left abutment.

Photo 4 – Looking across one of two benches on the downstream slope.

Photo 5 – Foreground shows right groin where liner and erosion damage was recently repaired. Background: seepage collection pond at the downstream toe of the main dam.

Photo 6 – South diversion ditch and drop structure inlet located on the left side (south) of the main dam.

Photo 7 – Recent erosion repairs performed around the south diversion drop structure outfall.

Photo 8 – Seepage at toe of the main dam. Majority of seepage comes through collection drain, but some seepage appears to be uncontrolled (see Photo 9).

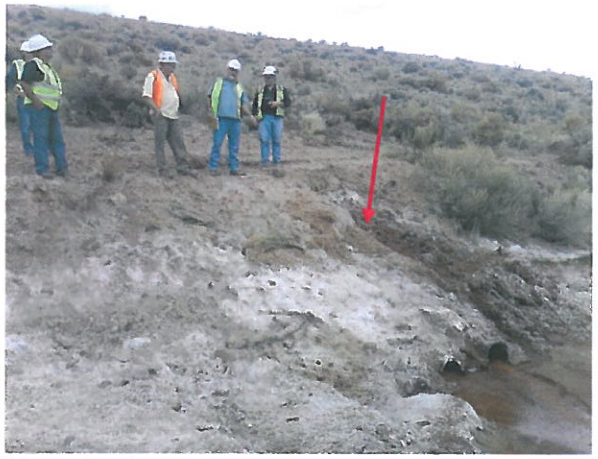

Photo 9 – Seepage drain outfall at the downstream toe (3x12" HDPE pipes). There is reportedly a large seepage collection pipe under the dam. NOTE: Uncontrolled seepage exiting higher on the slope above the drain outfalls (red arrow).