



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
(801) 538-5340 telephone  
(801) 359-3940 fax  
(801) 538-7223 TTY  
www.nr.utah.gov

Michael O. Leavitt  
Governor  
Robert L. Morgan  
Executive Director  
Lowell P. Braxton  
Division Director

cc: Pam OK

July 29, 2002

TO: Internal File

THRU: Daron R. Haddock, Permit Supervisor *DRH*

FROM: Gregg A. Galecki, Sr. Reclamation Specialist/Hydrology *GA*

RE: Technical Field Visit, Blazon #1 Bond Forfeiture, North American Equities, Blazon Mine Reclamation, C/007021

**Attendees:** Gregg A. Galecki

**Date & Time:** July 16, 2002; 07:00 – 14:00

**PURPOSE:**

Primary objective of the field visit was to evaluate off-site impacts from reclamation activities conducted in late summer and fall 2000, for bond forfeiture. Photo documentation of the reconstructed slopes and stream channel was conducted.

**OBSERVATIONS:**

Photo locations were selected based on pre-construction and during-construction photo locations on file at the Division. Both photos and photo descriptions are located in O:\007021.BLA\IMAGES\07162002.

A key marker in the majority of photos is a lone pine tree located adjacent to the stream and approximately the center of the reclamation project. It is present in both pre-, and post-construction photos. A significant factor in evaluating the success of re-vegetation at the site is the amount of precipitation the site has received since reclamation was completed in fall 2000. Since the completion of the project, the area has experienced a moderate drought (averaging a – 2.0 PHDI value) as defined by the Palmer Hydrologic Drought Index (PHDI).

**TECHNICAL FIELD VISIT**

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The site overall is experiencing moderate to good re-vegetation success. No measured 'success standards' were evaluated, but as the photos indicate, the site is being re-vegetated. The extreme roughening or 'pocking' has been successful in eliminating soil erosion and capturing moisture for vegetation establishment. Although no large bare/non-vegetated spots were noted, additional native plant germination is desirable. Moderate musk thistle germination is present throughout the site. Selective treatment of the musk thistle at this time would be beneficial in the long run, giving native species additional time to become established. Re-vegetation on the steep slope along the highwall area is doing well. The extreme surface roughening has stabilized the slope; no slumping or channeling/concentration of runoff was noted. The contact of the reconstructed/undisturbed slope was observed to be lacking a rough surface. Slight channeling of water/run off was noted in this area. Although rills were not formed, minor handwork in the area would reduce the potential of any rills forming. Grasses, sagebrush, and other woody plants were being established throughout the steep-sloped area.

Establishment of vegetation along the reconstructed stream channel continues to progress. The channel was reconstructed with meanders, drop structures, and a two-tiered stream bank. The banks were constructed using a degradable, coconut-burlap fabric, and vegetated with native seed and willow cuttings. Vegetation along the stream bank is being established predominantly along the lower tier, with willow success at approximately 20 percent. Ideally, the fabric will remain in-place until native vegetation is fully established. The majority of fabric is still functioning. Some fabric, located predominantly in areas having southern and southwestern exposure, appears to be degrading or is being eroded creating some vertical banks. Although not contributing to off-site impacts, the steep vertical banks will take a long time to establish vegetation. Additional installation of willow cuttings or other hand-stabilization techniques would accelerate vegetation establishment in these areas.

With the exception of two drop-structures possibly requiring minor work, all the drop structures are performing as designed. The second drop structure located below the 'Pine tree' exhibited a bank failure approximately 2 feet upstream of the drop structure (see photos P0003648 – P0003653 in O:\007021.BLA\Images\07162002). This newly formed braid in the channel appears to be used only during high-water flow, with the current flow passing over the structure. The associated 'natural' drop is poorly sorted, and being stabilized with vegetation. The other structure not performing as designed is the first drop structure located below the 'Pine tree' and exhibited some bank failure immediately below the structure. Although not producing any off-site impacts, the remaining vertical bank will take a considerable amount of time to establish vegetation. Under the current low-flow conditions, flow is also 'piping' through the structure and not over as designed. Although currently armored/keyed-in with large rocks, minimal handwork to get the water flowing over the structure would reduce the potential of future flow diverting around the current structure. Work is not mandatory at either structure mentioned.

**RECOMMENDATIONS/CONCLUSIONS:**

No off-site impacts were noted or anticipated. Although not mandatory, treatment of the musk thistle at this point would only enhance the success of the native plant species. The contact of the reconstructed/undisturbed slope does not require any roughening, but some timely handwork would ensure water is directed to the extremely roughened or undisturbed areas until vegetation is further established. Adding bentonite to the first drop structure below the 'Pine tree' during the current low-flow conditions would direct flow over the structure and help eliminate future 'piping' around the structure. The last recommendation would be to place additional willow cutting and possibly other bank stabilization techniques to armor the vertical banks until vegetation is reestablished.