



April 20, 2015

Weather: Cloudy  
Light Wind  
Temp: Upper 40's  
No Precipitation

## The April 8, 2015 Inspection of the Greens Creek Mine

This report covers the April 8, 2015 inspection of the Greens Creek Mine. The inspection team (team) consisted of Matthew Reece and Curtis Caton from the United States Forest Service (USFS), Will Collingwood and Gretchen Pikul from the Alaska Department of Environmental Conservation (ADEC), David Wilfong from the Alaska Department of Natural Resources (ADNR), and was accompanied for the duration of the inspection by Christopher Wallace (Chris) from the Hecla Greens Creek Mining Company (HGCMC). Transportation to and from the remote mine site was provided by a USFS chartered de Havilland Beaver floatplane owned and operated by Ward Air.

### Action Items: None noted.

The team was met at the dock by Chris, and was escorted to the Environmental Building to gather some personal protective equipment and watch a short safety video. The team then loaded into the Ford Excursion owned by the USFS and drove about 5 miles out the A Road to the Young Bay Marine Terminal. HGCMC has begun installing lighting along the A Road for increased safety during the dark winter months (Figure 1). The light poles were installed and the rock cut had been laid back from a near vertical orientation, but electricity had not yet been run. Sediment controls were in place, but no standing or flowing water was present. The lighting project is temporarily on hold because there is no need for artificial lighting during the summer.



Figure 1 Newly constructed infrastructure for lighting



Figure 2 Logs awaiting removal

The team turned around and drove back down the A Road to the Sand Pit at Mile 1.4. Some trees had been felled at the top edge of the pit so that more sand and gravel may be removed (Figure 2). The material will have various uses during the construction of the Tailings Disposal Facility (TDF) expansion in the summer of 2015. The logs will be hauled or flown to the Hawk Inlet Marine Facility and shipped to a mill to offset some of the cost of removing the trees. After the logs and gravel have been removed, the Sand Pit may be used to store reclamation material.

currently used to store topsoil and woody debris for use as reclamation material, and also for the storage of emulsion explosive for blasting in the mine. Chris stated during the inspection that there was enough room for about 5,000 cubic yards of additional reclamation material storage. However, between the inspection and the writing of this report, the volume was recalculated and was estimated to be about 50,000 cubic yards. The water collection ditches at the base of the topsoil pile were noticeably stained orange. The orange color is most likely the work of iron bacteria, due to the decomposing organic material in the pile, and water quality samples taken in the area are consistently good, showing no exceedances. Several rough-skinned newts were seen in a nearby pond (Figure 3). The amphibians typically hibernate during the winter, and their emergence is a sign of warmer weather. The inlet of the culvert under the Pit 7 access road was clear of debris. Beavers have been known to install a dam across the culvert and cause flooding. HGCMC regularly inspects the culvert's inlet, and clears debris

The team moved on to Pit 7. The pit is

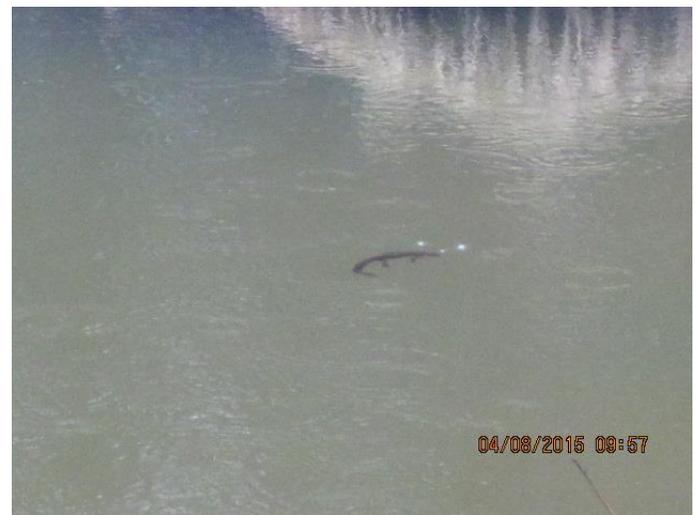


Figure 3 The elusive rough-skinned newt

as necessary. Chris mentioned that he researched some literature, and that a special wedge shaped structure may be installed to deter the beavers from instinctually placing sticks perpendicular to the flow of water.



Figure 4 Proposed staging area

The team left Pit 7, traveled back past the camp area to the B Road, and stopped near the northeast end of the tailings facility. Across the road from the TDF, a small gravel parking area exists where a small pile of gravel is stored (Figure 4). Chris asked about the permitting procedures that may be required to expand the gravel lot by a small amount, upgrade the drainage and stormwater system related to the

pad, and use it as a parking and staging area during construction of the tailings facility expansion. ADNR would likely require a minor amendment to the Reclamation Plan, and permits may be required by other agencies.

After leaving the gravel pad, the team was shuttled around the south end of TDF, and stopped near the reclamation material stockpile close to Pond 7. The larger trees that remained in the southern expansion area have been felled, but still needed to be removed (Figure 5). The geotechnical drilling program was near completion and at the time of the inspection. Secon, a local construction company, had been contracted to perform the construction for Phase 1 of the Stage 3 Expansion. Construction is expected to begin in May 2015.



Figure 5 Trees awaiting removal



Figure 6 A shovel and container near Site 9 on Tributary Creek

The team walked around Pond 7, stopped at a wet well used to monitor water quality, and then hiked down the trail leading to water monitoring Site 60 on Althea Creek. The creek was very small and Chris stated that it dries up in spots during times of low precipitation. After returning to the Excursion, the team continued along the B Road to the access trail leading to Site 9 on Tributary Creek. The trail was steep, wet and slippery. After trekking down the trail for several minutes, we emerged into a secluded glade containing a shovel and a container (Figure 6), along with Tributary

Creek.

Tributary Creek, while much larger than Althea Creek, was still small by Southeast Alaskan Standards. The slow moving water in the channel seemed obstructed in many spots by fallen trees, stump roots and other natural features. However, Tributary Creek is important spawning habitat, and Chris stated that the Creek has many spawning salmon in the late summer and fall. The team carefully hiked back up the trail to the waiting SUV and continued along the B Road to the Zinc Creek Bridge. Climbing down the slippery slope, the team reached the sediment controls under the well traveled bridge. The deck of the Zinc Creek Bridge is made from steel supported timbers. The narrow gaps between the timbers allow small amounts of sediment to fall beneath the bridge, into and around the creek below. During heavy rain events, the sediment can flow downhill into the creek. Sediment controls (Figure 7) have been in place for many years, but like so many other artificial materials around the mine site, the abundant brown bears find them irresistible and frequently damage them, often beyond repair. Hecla invested a substantial amount of time and effort into the sediment controls during the last repair attempt. The silt fence and straw wattles had no bear damage, were in good condition and appeared to have lasted through the wet but mild winter.

Continuing up the B Road, the team quickly stopped by Site E. The former wasterock dump still contains potentially acid generating material. HGCMC began removing the material to co-dispose of it in the tailings facility. Concerned with running out of room in the facility, Hecla stopped removing the wasterock until after the expansion is built. HGCMC has asked if it is possible to use Site E as a potential area to store aggregate and/or reclamation material. The agencies will evaluate the plan if it is proposed.



Figure 7 Sediment controls under the Zinc Creek Bridge

The team moved on to Site D where HGCMC has proposed to store cores from the underground drilling program (Figure 8). Some of the cores may be potentially acid generating, but runoff from the area flows to D Pond, where it would be collected and eventually pumped to the water treatment plant. The agencies are evaluating the proposal. The team then traveled around the 920 area, and then drove back to the camp to end the inspection. On a closing note, as the inspectors traveled back to camp, a very large Brown Bear was spotted near Zinc Creek. Undoubtedly, the newly awoken Brown Bear had mischief on its mind, and to pass up the sediment traps under the bridge would be unbearable ....



Figure 8 Proposed core storage area

The ADNR would like to thank the USFS for providing travel by float plane to and from the mine site, and the Hecla Greens Creek Mining Company for providing a safe and informative inspection.



Figure 9 A Brown Bear. Unbearable.... Hah!