

Field Monitoring Report -- Pebble Copper/Gold Exploration Project --

Personnel: Bill Cole (DNR/MLW), Melissa Hill (DNR/MLW), Jeff Norberg (Manager, Site Compliance & Reclamation, PLP)	Inspection Date: 06/19/2012
	Site Contact: Jeff Norberg
	APMA #: A126118
■ Inspection Type: <ul style="list-style-type: none"> • Complete: X ○ Partial: ○ Follow-up: ○ Response to Public Complaint: 	■ Wildlife Observed: <ul style="list-style-type: none"> ○ Bear: 1 grizzly ○ Caribou: ○ Moose: ○ Waterfowl: ~ 12 ducks, 3 swans ○ Fish: ○ Other:
■ Weather Conditions: <ul style="list-style-type: none"> ○ Temperature: 46°F ○ Wind: very light wind ○ Precipitation: none ○ Visibility: 10-15 miles ○ Sky Conditions: overcast ○ Ground Conditions: thawed 	
■ Comments: Overall, everything appears to be in compliance. We visited one drilling geotechnical hole (CH12-297) and a problem artesian well (site # 09462). Grouting has stopped the artesian flow, but the drill hole has not yet been reclaimed. Additionally, we visited three reclaimed drill sites and conducted a flyover of monitoring sites associated with TWUPs A2012-20 and A2012-22.	
■ Recommendations: Suggest follow-up inspections at site # 09462 to evaluate the efficacy of recent grouting efforts to resolve artesian upwelling.	
■ Actions Needed: Jeff Norberg requested additional clarification/status updates regarding several TWUPs. M. Hill forwarded these questions to M. Walton and he responded to J. Norberg on 06/21/2012.	

Drill Hole/Site No.: CH12-297	Date: 06/19/2012
Rig No.: 4	Time: 13:00
Activity: Active drilling	
<ul style="list-style-type: none"> ■ Condition of Drilling Site: 	<ul style="list-style-type: none"> ■ Sump Pit (continued):
<ul style="list-style-type: none"> ○ Distance from waterbody: ~ 200 ft. 	<ul style="list-style-type: none"> ○ Location and extent of discharged material: None at time of inspection
<ul style="list-style-type: none"> ○ Location of fuel storage: SE side of drill rig 	<ul style="list-style-type: none"> ○ Topsoil, muck, tundra stockpiled: yes
<ul style="list-style-type: none"> ○ Sorbent pads present: yes, 1 barrel 	<ul style="list-style-type: none"> ○ Hose color: black
<ul style="list-style-type: none"> ○ Tundra mat: yes 	
<ul style="list-style-type: none"> ○ Pipe off tundra: yes 	<ul style="list-style-type: none"> ■ Drill Water Supply:
<ul style="list-style-type: none"> • Litter: 1 water bottle near water intake 	<ul style="list-style-type: none"> • Stream, lake/pond: Frying Pan Lake
<ul style="list-style-type: none"> ○ Trash containment: yes 	<ul style="list-style-type: none"> ○ Location: 780' north of drill
Sanitary facilities: yes, wooden privy with wings for aerodynamic stabilization during sling transport	<ul style="list-style-type: none"> ○ Adequate water flow and depth for fish passage in streams: NA
<ul style="list-style-type: none"> ○ Any spills or staining: no 	<ul style="list-style-type: none"> ○ Evidence of significant impacts to riparian vegetation or stream banks: No
<ul style="list-style-type: none"> ○ General impression: orderly, in-compliance 	<ul style="list-style-type: none"> ○ General impression of water body (i.e. clear, turbid, tannic): clear
	<ul style="list-style-type: none"> ○ Intake description: Submersible pump with 1x10 mm slotted sand screen.
<ul style="list-style-type: none"> ■ Drilling Activity: 	<ul style="list-style-type: none"> ○ Structure clear of debris: Yes
<ul style="list-style-type: none"> ○ Drill additives in use: Water only 	<ul style="list-style-type: none"> ○ Mesh size: 1X10 mm
<ul style="list-style-type: none"> ○ Recirculation tank: No 	<ul style="list-style-type: none"> ○ Submerged: Yes
<ul style="list-style-type: none"> ○ Water discharged: No discharge at time of inspection. Black hose was laid out to discharge site up hill. 	<ul style="list-style-type: none"> ○ Fuel/generator location to source: 100'
<ul style="list-style-type: none"> ○ Artesian zone encountered: no 	<ul style="list-style-type: none"> ○ Catch basin for fuel supply: Yes
	<ul style="list-style-type: none"> ○ Sorbent pads: Yes
<ul style="list-style-type: none"> ■ Sump Pit: 	<ul style="list-style-type: none"> ○ Hose color: yellow
<ul style="list-style-type: none"> ○ Location: 20 ft NW of drill 	
<ul style="list-style-type: none"> ○ Discharge trench: Yes 	<ul style="list-style-type: none"> ■ Other Comments:
<ul style="list-style-type: none"> ○ Dimensions of pit: One pit, 4'X6' 	
<ul style="list-style-type: none"> ○ In use: Yes 	



Photo #1. Drill Rig #4 on CH12-297. Note Blue hydrocarbon scrubber barrel and blue sorbent pad barrel, both in aluminum secondary fuel containment.



Photo #2. Tundra mat with drill rods.



Photo #3. Fuel containment and spill materials, on tundra mat.



Photo #4. Mud sump.



Photo #5. Generator and fuel for submersible water pump. Blue barrels are sorbent pads and scrubber barrel.



Photo #6. Submersible pump in Frying Pan Lake.

Abandoned Drill Hole/Site No.: DDH 09462	Date: 06/19/2012
	Time: 13:30
■ Plugged: Yes	
■ Cemented: yes	
■ Standing pipe: yes	
■ Sump pit filled in: yes	
■ Water discharge trench filled in: yes	
■ Site revegetated: no	
■ Date revegetated/reclaimed: not reclaimed	
■ Artesian water present: not during site inspection	
<p>Any spills or staining: Yes, iron staining and remnants of materials discharged from previous artesian upwelling were observed. Staining covered an area approximately 15' X 60-80' to the east of the drill hole. This artesian flow was described by Roger Allely, of DNR, Mining Section during an inspection on October 20,2011. Mr. Allely described the situation as follows:</p> <p style="padding-left: 40px;">“Artesian flow issues began at about 65 ft. depth, where a few feet of drilling encountered a flow increase from 10 to 90 gpm. Lots of water issued from the hole. It was producing 55-70 gpm; presently flow is about 35-40 gpm due to partially successful efforts to stem & seal off producing zones around 40 feet below grade.</p> <p style="padding-left: 40px;">Approximately 20 ft. of casing remain in the hole; the driller thinks there's a break in the casing around the 15 ft. depth.</p> <p style="padding-left: 40px;">Water is upflowing through subsurface materials, discharging to the ground surface in an area 10-20 feet wide, extending 40-80 ft. east of the drill rig. Freezing conditions are creating ice buildup in the discharge zone. Stake and flagging mark a point approximately 70 ft. east of the rig. Some groundwater is discharging into the filled sump pits.</p> <p style="padding-left: 40px;">Overland flow has created discolored, possibly iron stained zones on the surface 10-15 feet wide. One extends from the rig pad approximately 20 feet, the other extends from approximately 30 to 100 feet east of the rig pad. Overland water flow disappears into tundra approx. 150 ft. E of the drill hole.”</p> <p>In addition to the above, Jeff Norberg has indicated that flow was intermittent, and that it sometimes came up around the drill hole casing, and at other times seeped up some distance from the drill hole. Mr. Norberg said that the artesian flow never entered any surface waters. PLP drillers attempted to stem the flow last fall, but were unsuccessful.</p> <p>This June a grout specialist with Bandimere Grout Consulting Services was brought in to help Foundex Drilling abandon the hole. The companies grouted a washout zone in the overburden, stopping the artesian flow as of June 11, 2012. PLP personnel are optimistic that the problem has been resolved, but are monitoring the site should renewed seepage occur. Reclamation is pending per the efficacy of recent grouting efforts, and drier ground conditions.</p>	
■ Comments/General impression: Continue to monitor.	



Photo #7. Remnants of discharged fluids and iron staining from previous artesian upwelling.



Photo #8. Staining from previous artesian upwelling



Photo #9. Desiccation cracks in remnants of discharged materials from previous artesian upwelling. No active upwelling has been detected since grouting. The site has not been remediated. Monitoring is ongoing to evaluate the efficacy of recent grouting efforts.

Abandoned Drill Hole/Site No.: DDH 11534	Date: 06/19/2012
	Time: 14:00
■ Plugged: Yes	
■ Cemented: yes	
■ Standing pipe: No	
■ Sump pit filled in: yes	
■ Water discharge trench filled in: yes	
■ Site revegetated: yes	
■ Date revegetated/reclaimed: 2011	
■ Artesian water present: no	
■ Any spills or staining: no	
■ Comments/General impression: Trenches and sumps mounded as subsidence will occur. Replaced tundra is at least partially alive, but not doing very well.	

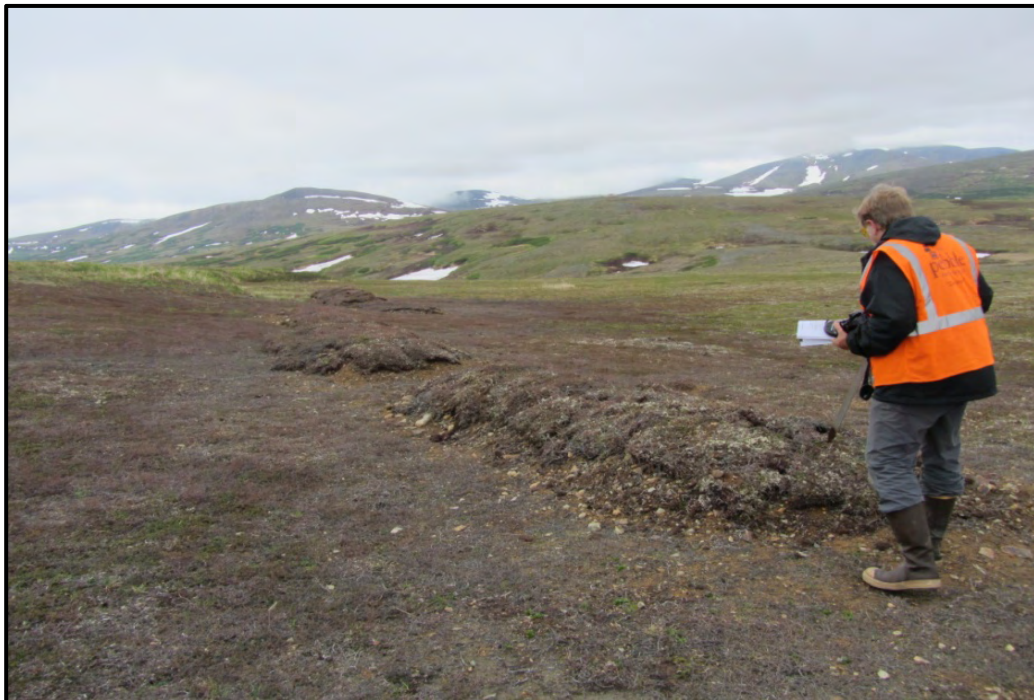


Photo #10. Trenches and sumps mounded as subsidence will occur during reclamation.



Photo #11. Pits filled and tundra replaced.



Photo #12. Fill and replaced tundra on discharge trench.

Abandoned Drill Hole/Site No.: DDH 11533	Date: 06/19/2012
	Time: 14:30
■ Plugged: Yes	
■ Cemented: yes	
■ Standing pipe: No	
■ Sump pit filled in: yes	
■ Water discharge trench filled in: yes	
■ Site revegetated: yes	
■ Date revegetated/reclaimed: 2011	
■ Artesian water present: no	
■ Any spills or staining: no	
<p>■ Comments/General impression: Tundra has been replaced. Some of the replaced tundra is doing well, while some is regenerating slowly. Trenches and sumps are mounded as subsidence will occur. A bare, disturbed area of approximately 150 square feet was observed next to the drill hole. Jeff Norberg said that there had been a spill of hydraulic fluid at the site. The spill was timely reported to the DEC on June 26, 2011 (See ADEC No. 1126997701), and the contaminated vegetation and soil were removed. Iron bacteria sheen noted on water surface at reclamation site.</p>	



Photo #13. Sumps mounded as subsidence will occur during reclamation.



Photo #14. Replaced tundra on mud pit. Note that some tundra is doing well, while other pieces are somewhat slow to rejuvenate.



Photo #15. Reclaimed mud pit. Material is mounded in anticipation of subsidence. Tundra has been replaced.



Photo #16. Disturbed area where hydraulic fluid was spilled. Contaminated soil and vegetation were removed and disposed of.



Photo #17. Iron bacteria sheen on water surface. Sheen disseminated when disturbed, which suggests that the source is not from a petroleum product.

Abandoned Drill Hole/Site No.: DDH 10515	Date: 06/19/2012
	Time: 15:15
■ Plugged: Yes	
■ Cemented: yes	
■ Standing pipe: No	
■ Sump pit filled in: yes	
■ Water discharge trench filled in: yes	
■ Site revegetated: yes	
■ Date revegetated/reclaimed: 2010	
■ Artesian water present: no	
■ Any spills or staining: no	
■ Comments/General impression: Trenches and sumps less recognizable at this location as site returns to natural state. Replaced tundra mats that bears have dug up and flipped over. Replaced tundra is doing well.	



Photo #18. Sumps less recognizable as site returns to natural state.



Photo #19. Replacing tundra mats that have been dug up and flipped over by bears.



Photo #20. Replaced tundra is doing well.



Photo #21. Reclaimed discharge trench.

We conducted a flyover of the water sources (lakes and ponds) associated with TWUP A2012-22. No active drilling or water withdrawals were occurring at these specific ponds during the site inspection. Lakes and ponds in the general area appeared to be hydraulically well-connected to the surrounding wetlands.



Photo #22. Ponds and lakes in this area appear to be hydraulically well-connected to the surrounding wetlands.

We also conducted a flyover of the water sources (streams) associated with TWUP A2012-20. No active drilling or water withdrawals were occurring at these specific stream segments during the site inspection. ADNR/MLW staff requested that Jeff Norberg: 1) point out example stream segments in the general area that are similar to those he intended to withdraw from, and 2) specify the type of method (i.e. measurement using flowmeter versus estimate using the float method) he would use to record streamflows as required by TWUP A2012-20. This information was requested so that ADNR/MLW staff could visually evaluate if they were in consensus with the intended method for monitoring streamflows.



Photo #23. Image displays an example type of channel where transects for streamflow measurements would be conducted upstream from the withdrawal point (pump) using a Marsh-McBirney flowmeter.



Photo #24. Image displays an example type of channel where streamflows would be calculated/estimated upstream from the withdrawal point (pump) using the float method. Note relatively deeper areas in thalweg.



Photo #25. Image displays an example type of channel where streamflows would be calculated/estimated upstream from the withdrawal point (pump) using the float method.