

ENVIRONMENTAL MEMORANDUM

Red Chris Development Company Ltd.
200–580 Hornby Street, Vancouver, BC V6C 3B6

Date: December 2015

Distribution: Red Chris Monitoring Committee
Chantel Quock, Environmental Technician;
Jason Nole, Environmental Technician;
From: Cory Koenig, Environmental Advisor;
Mike Polywkan, Environmental Scientist;
Jack Love, Environmental Superintendent.

Re: Red Chris Monitoring Committee Environmental Report Dec 1, 2015 – Dec 22nd, 2015

Weather:

Temperatures ranged from -3°C to -20°C. Mainly sunny skies with little cloud cover. No major snow fall occurred, just snow flurries.

General Activities:

- Daily water sampling in South TIA.
- Drilling, blasting, and mining in the pit.
 - Repeater station: flagged for new location near the pit, for better radio signal.
- Extending the footprint of the Rock Storage Area (RSA).
- Placement of cyclone sands across the dam is currently not in operation, due to freezing of pipes.

Spills and Incidents:

- **December 10, 2015** there was a bypass of the works when the pit sump overflowed. The overflow was low volume (< 1 l/s) but did reach Camp Creek to the south. An incident specific report and monitoring program was developed for the spill. Based on preliminary monitoring and lab results it is not expected to cause and environmental impact.
- **December 18, 2015** Gear oil spill: 1,100L tote of gear oil was spilt in the back of a Bandstra trailer oil was contained in trailer and did not cause contamination.
- December 18, 2015 NAG tailings spill: HDPE pipe had a leak, caused by wear and tear at choke station (1 km). NAG tailings seeped into TIA ditch. Immediate action taken – mill shut down.
- **December 16, 2015** Process water spill: mechanical failure with the process water tank system, causing it to overflow. Control room was notified immediately, and pumps were ceased. Environmental department was contacted right after the incident occurred and a follow up was done.
- **December 13, 2015** coolant spill: the light plant at the gatehouse had a leak causing coolant spill onto the ground. Roughly 10L of coolant spilled. The spill was contained with spill pads and secondary containment. Corrective action taken immediately, Mine Maintenance informed Environmental Department immediately.

Water Management:

- Pit sump incident: involved the team doing a daily sampling regime in south TIA. Sampling included a full chemistry set and RBT. Daily sampling sites include: CC1 (camp creek one), CC2, CC3, CC4, TC1 (Trail Creek One), TC2, and TC3. Other sampling sites that were included W65, W64, W63 and TC4. Environmental Department will continue to do daily sampling until further notice.
 - Most of our time has been spent battling the elements to comply with mitigation procedures imposed due to the bypass of the works at the pit sump

- A couple water lines located in sumps have frozen up; site service mitigated the situation to thaw lines out. Therefore, the water buffalo was hauling water from sumps to tailings pond in order for the sumps to not overflow.
- Monthly drinking water, biweekly and monthly surface water sampling regime continues. Some sampling sites are frozen and/or depleted of water, resulting in no sample taken.
- Water sample preparation lab is still in the works.
- Geochem mill sampling is completed for December month.
- The quarterly ground water sampling is still in commence, south TIA water samples will need to be collected to finish off the quarter. Cold weather may make it challenging.
- TIA biweekly water and sediment sampling-ABA, metals and pore water sampling continues with Engineering department to establish ongoing historical documentation of these materials.
- Drinking water permitting for the Mill, Crusher, Truck shop, main office and "O" Bunk water systems is expected to be finalized in 2016 by Northern Health's newly appointed regional Officer. Most monthly results have been promising, and expectations are high to receive these permits in short time.

Waste Management:

- Waste management guidelines have been added to the General Policies and Procedures Sign-off from Health and Safety Department as per Wally Rennie. Each department and contractor will need to sign off, this will state that every personnel onsite has read and fully understand the policies/procedures for dealing with their departments waste in a correct manner.
- Lagoon blowers haven't been tripping, so far! Daily monitoring continues. Lagoon two has no aeration and won't be in operation until spring time. Lagoon two is still in operation with minimum aeration. Spring time lagoon two will be in full operation, when the weather warms up for now lagoon one will continue to be aerated.
- There continues to be small improvements in organization at the waste area. However, occasional non-compliances with established rules remain.
- PAX bags still remain at General Waste Area. PAX bag need to be moved to the mill for safer storage.
- Potassium Permanganate, a water softener in water treatment plants, is used based on volume of water used at one of the water treatment plants on site. Due to the high amount of water being used by the water truck a large volume of Potassium Permanganate had to be used as well. This has caused a large overflow which is why the Permanganate had been spilling out in large quantities. The water truck now fills up at a different treatment plant that actually fills faster and is more suitable for the truck.

Wildlife Management:

- Two moose, cow and calf have been spotted near H-bunk eating the little grass left on the mounds. The same two moose have been living close to camp; their bedding seems to be located in the septic fields past the lagoon. A moose/human interaction memo was sent to all RC staff via email to ensure all staff members keep their distance from wildlife.
- A lot of wildlife activity in the south TIA, numerous amounts of different tracks between South TIA and Kluea Lake.

Photos:



Figure 1: W40 surface water sampling by Cory and Jason



Figure 3: Cory taking W76 (crusher sump) water sample.



Figure 4: measurements taken at Weir 4 by Jason Nole



Figure 5: numerous amounts of fly-bags from the mill, which will need to be placed in construction waste bin.



Figure 6: cardboard still a challenge to get employees/contractors to dispose of properly.



Figure 7: due to pit sump spill, quality/control samples needed to be taken and analyzed in Trail Creek.



Figure 8: W63 water sample.



Figure 9: rough draft of Camp Creek and the area affected by pit sump incident.



Figure 9: W75 (pit sump). There was a berm put in place after pit sump incident.



Figure 9: ice chunks at W75 (Pit Sump), cleaned up and disposed of properly from Site Services.



Figure 10: crusher sump.



Figure 11: enviro's new filter press, thanks to Mike Polywkan. It's amazing! ☺

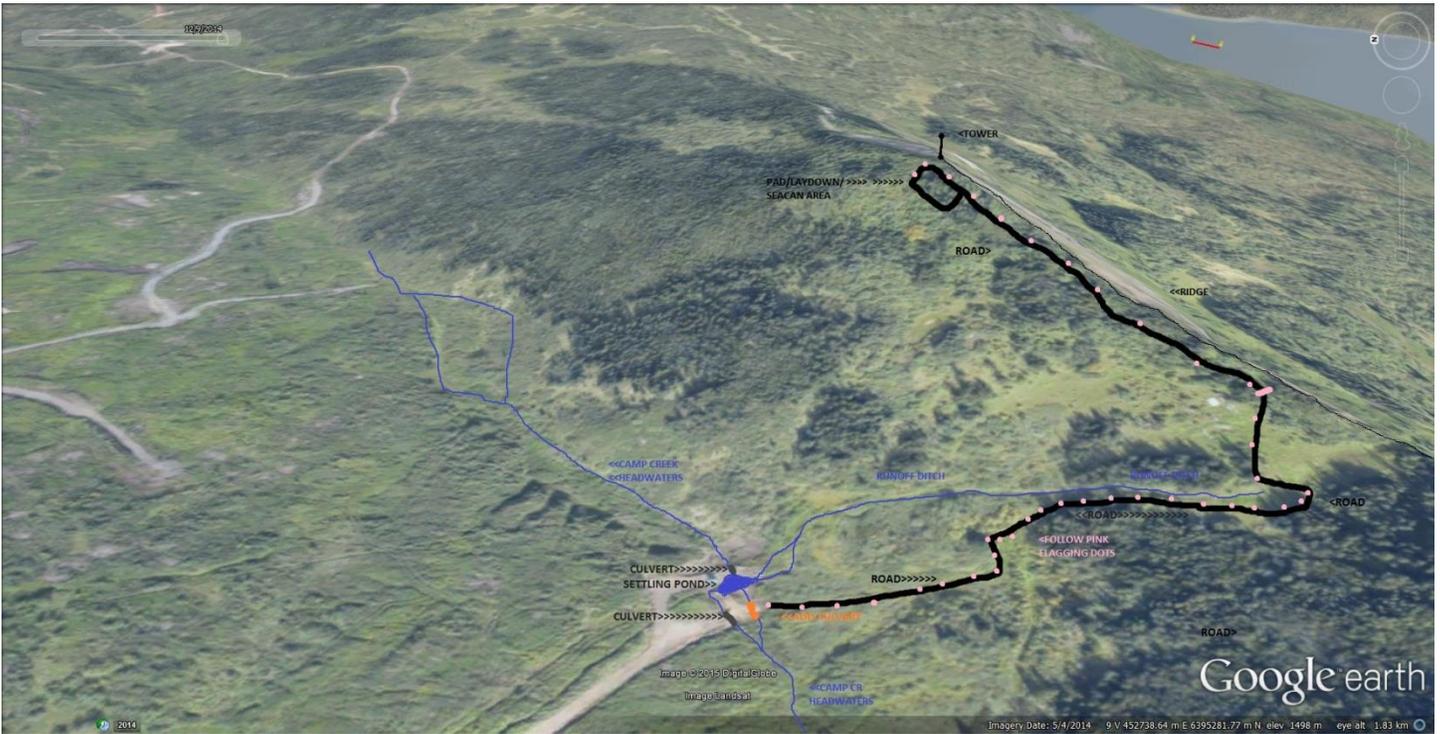


Figure 12: rough draft of the where the new repeater station will be located near the pit for clearer radio signal.



Figure 13: Bandstra trailer gear oil spill, not the clearest picture but you can see the glare of the oil on the floor (1,100L tote of oil spilt onto the trailer floor) spill contained and pumped to waste oil storage.



HAPPY HOLIDAYS ☺