 M/035/0002

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Mike

# Kennecott Monthly Flood Remediation Update

1 message

**Heaton, Trevor (RTKC)** <Trevor.Heaton@riotinto.com> Thu, Aug 13, 2015 at 9:53 AM
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Please find attached the Rio Tinto Kennecott monthly flood remediation update associated with the September 13, 2013 storm event. There are no significant updates to the Work Scope Table since last month.

The final item to be completed on this update table is related to planned storm water basin modifications at the base of the South Dumps. These planned storm water basin modifications are tied to larger reclamation projects. As these projects progress, the associated changes to the storm water basins will be reflected in future monthly flood remediation updates. Please feel free to contact me if you have any questions.

Regards,

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**Work Scope Table August 13 2015.pdf**
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## Table 1 Storm Runoff Response Activities

Updated: 13-August 2015

| ID | Work Area | Work Scope | Completion Target | Status | Comments |
|---|---|---|---|---|---|
| 1A | Cutoff Walls | Restore water collection (expose cutoff walls, water collection boxes, clean debris from pipelines) | 15-Oct-13 | Completed Oct 1 2013 | Initial step in the restoration process was to restore water collection to the cutoff walls, and clean collection boxes and pipelines to reestablish flow to the Eastside collection system. In addition, Kennecott has established additional storm water capacity above cutoff walls for the Saints Rest to Castro drainages as part of the South Dump reclamation work during the August-December, 2014 time period. |
| 2A | Upper Basin | Establish minimum 10-year/24-Hour storm capacity | 1-Dec-13 | Completed Mid Nov 2013 | URS provided 10yr 24hr event capacities for the affected basins in cubic yards. Material in excess of these volumes was removed from all the basins. An aerial survey conducted on the 24th of Nov. will be used to verify capacities. |
| 2B | Upper Basin | Re-establish stormwater management capacity to pre-storm levels (See URS report, Feb 24, 2009 Hydrologic assessment of the South End Drainages) | TBD | In process | Included in the preparatory activities for waste rock placement at the base of the south dumps is the modification of stormwater basins at the base of the south dumps. Current modification of stormwater basins is complete in the Castro, South Saints Rest, and Saints Rest drainages, with the exception of an additional basin to be completed in the South Saints Rest Drainage. As-built drawings depicting the final survey of these modified basins have been provided to DOGM, DWQ, and Dam Safety (see Appendix B of the "South Waste Rock Reclamation Project Basis of Design for the Hydrologic Assessment of the South End Drainage Collection System" dated March 17, 2015). As work progresses, applicable information for the remaining drainages will be provided to the appropriate agencies. |

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| 2C | Upper Basin | Repair breeches in mine waste dump top berms | 1-Nov-13 | Completed Mid Oct 2013 | Visual survey of berms on top of dumps was conducted, areas of concerns were identified and corrective actions assigned. Corrective actions included grading and berm construction to keep stormwater from the mine from concentrating and running down faces of dumps. Monthly inspections are ongoing to insure that berms are in place and functioning, slope is directed away from dump edges and no water is ponded behind berms. |
| 3A | Debris Flow | Remove debris flow material | TBD | Completed Dec 20, 2013 | Debris flows down gradient of cut-off-walls were removed and placed up gradient of cut-off-walls in Copper Notch area. |
| 3B | Debris Flow | Re-establish down gradient secondary containment to pre-storm levels (See URS report, Feb 24, 2009 Hydrologic Assessment of the South End Drainages) | 1-Dec-13 | Completed Dec 20, 2013 | All basins down gradient of cut-off-walls have been cleaned (Yosemite, Saints Rest and South Saints Rest). Culverts have been cleaned as needed and standpipes reinstalled with rock re-enforcement surrounding them. |
| 3C | Debris Flow | Re-seed impacted areas | Fall 2014 | Completed Oct 2014 | Reclamation seed mix has been applied (Upland and Riparian). |
| 4A | Stormwater Canals | Clean sediment from Upper Lined Canal | 1-Dec-13 | Completed Mid Dec 2013 | Visual inspection of canal occurred and areas impacted by flood debris were identified. These areas were cleaned in Dec. 2013. |
| 4B | Stormwater Canals | Clean sediment from Lower Lined Canal | 1-Dec-13 | Completed Mid Dec 2013 | Visual inspection of canal occurred and areas impacted by flood debris were identified. These areas were cleaned in Dec. 2013. |
| 5A | Butterfield Creek | Map and sample mine waste sediment deposition in riparian areas | 1-Nov-13 | Completed Sept 2013 | In addition to the sediment sampling completed in September, continued every other week samples are collected from Butterfield Creek water. The past month's data for sample site at the Horse/Burro gate indicate clean water and it is available for irrigation purposes. A second sample site was added for every other week sampling at the beginning of the Herriman Irrigation Company pipeline. Lead and arsenic concentrations measured at both sites are low to non-detect. When sediment removal began this spring, water sampling frequency was increased to daily. Lead concentrations upstream from the desilting basins was elevated during removal work and the concentrations were significantly less downstream of the basins. |

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| 5B | Butterfield Creek | Evaluate options for management of mine waste material in riparian areas | 15-Dec-13 | Completed (see comments) | Addressed in State DNR Steam Alteration as received by DNR on Nov. 22, 2013. SL County also required a permit for any "in and outs" of water diversion and this permit was approved on 4/29/14 to enable the use of the desilting basins. |
| 5C | Butterfield Creek | Secure regulatory approvals, as necessary, for riparian area response | ASAP | Acquired 11/15/2013 | Approval was received from the USACOE on Nov. 15, 2013. USACOE has numerous criteria that KUC must meet and this criteria was listed and Work Plan was attached. Once this information was provided by Kennecott, then USACOE did not require a permit and the conditions criteria could be passed to DNR. See comments 5B |
| 5D | Butterfield Creek | Implement riparian area response, as necessary | 5/9/2014 | Completed June 2014 | Riparian response was submitted to the DNR and SL Co on 5/9/2014 and riparian reclamation was started on 5/12/14. Sediment control features have been placed to minimize erosion from disturbed areas and reseeding has been accomplished. Down stream desilting basin has been reclaimed. An updated stabilization plan was submitted to UDNR on 6-11-14. Inspection of the cleaned area occurred in August 2014 and several areas were called out as requiring additional seeding and the re-seeding work was completed in October, 2014. |
| 5E | Butterfield Creek | Work area assessments | NA | Completed second week of April 2014 | No longer occurring as work has been completed. |
| 6A | Third Party | Identify and map possible mine waste sediment deposition on third party properties | 15-Oct-13 | Completed Sept 2013 | Within a week after the mine sediment deposition, all third parties mapped. |
| 6B | Third Party | Sample possible mine waste sediment on third party properties | 1-Nov-13 | Completed Sept 2013 | Within a week after the mine sediment deposition, all third parties were sampled. |
| 6C | Third Party | Determine appropriate response actions for third parties through discussions with third parties | 9-Sep-14 | Completed Oct 2014 | Appropriate response action agreement is completed with all five of the third party groups. Response action is in progress with one of the five third party groups. |

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| 6D | Third Party | Implement third party property response actions | TBD | Completed Dec 2014 | There are five third party groups, with response actions and field work now completed for all five groups. The work for the fifth and final group's property targeted storm event sediments from three storm events that occurred in 1997, 2007 and 2013 respectively and all sediments related to these events were removed and removal areas were reclaimed and seeded per Owners instruction. This final property work commenced on October 13 and was completed on December 12, 2014. |
| 6E | Third Party | Work area assessments | NA | Completed second week of April 2014 | No longer occurring as work has been completed. |

TBD = To Be Determined
ASAP = As Soon As Possible
NA = Not Applicable

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