Table 1 Storm Runoff Response Activities

Updated: 13-April 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