Bec Gawtry

From: Greg Williams
Sent: Monday, December 10, 2012 10:43 AM
To: 'Liljegren, Michael W (DNR) (michael.liljegren@state.mn.us)'
Cc: 'jscott@polymetmining.com'; Tina Pint; John Borovsky; 'John L. Adams (John.Adams2@erm.com)'
Subject: Partridge River Hydrologic Impacts - XP-SWMM Results
Attachments: Partridge_SWMM_Results_DNR_12102012.xlsx

Hi Mike,

The revised XP-SWMM models for the Mine Site/Partridge River watershed have been rerun and the Richter statistics calculated. As previously described, Richter statistics were calculated for the following periods:

- Existing Conditions (unchanged)
- Year01
- Year02
- Year11
- Year20
- West Pit Filling
- Closure (after West Pit is filled)

Statistics are provided for the following locations

- SW-002/PM-2
- SW-003/PM-3
- SW-004/PM-16
- SW-004a
- SW-004b
- SW-005/PM-4
- SW-006

The attached file includes the raw output from SWMM as well as the SWMM results multiplied by an "adjustment factor" for comparison to USGS gage results (as described in the Water Modeling Data Package). The factored results are referred to in the spreadsheet as "Adjusted". Percent impacts are assessed based on the raw SWMM results, but are identical for the adjusted results (as the adjustment factor for a given statistic is constant).

The spreadsheet includes a "Plot Control" tab for viewing the data, much like the GoldSim results files. The user can select the Richter statistic to be viewed, a location, and a time-period. The location is used to generate a time-series plot of the statistic through time at a given location (e.g., average annual flow at SW006 throughout the project). The time period is used to generate a spatial distribution of impacts (e.g., average annual flow during pit filling throughout the river). Data is presented on the primary Y-axis as absolute values (e.g., flow in cfs), and as a percent of existing conditions on the secondary y-axis.

The primary difference between these results and previous results is the increase in low flow at SW-004a and downstream locations in closure, due to the discharge from the WWTF. For example, at SW-004a the 30-day low flow increases from 2.5 cfs in existing conditions to 3.1 cfs in closure, an increase of about 20%.

Please let me know if you want to meet to discuss the results, or call me if you have any issues with the spreadsheet.

Thanks,

Greg

Greg Williams, PE

Water Resources Engineer
Minneapolis office: 952.832.2945
gwilliams@barr.com
www.barr.com