

Executive Summary

Interim Effectiveness Monitoring Report (October 2008) for the Pole Canyon Removal Action

The J.R. Simplot Company (Simplot) completed construction of the first Removal Action (RA) elements to decrease selenium transport from the Pole Canyon Overburden Disposal Area (ODA) during the late summer of 2007. The RA included diversion of Pole Canyon Creek around the ODA and infiltration of any remaining Creek water to the Wells Formation aquifer, upstream of the ODA. A third element of the RA, the run-on control channel, was completed in the fall of 2008.

Simplot initiated monitoring of Pole Canyon Creek, the associated shallow alluvial aquifer, and the underlying Wells Formation aquifer in 2007 to track and document environmental conditions during and immediately following completion of the RA elements. Monitoring data collected at these locations in Spring 2008 provided the first opportunity to evaluate the initial effectiveness of the diversion and infiltration basin. The 2008 Interim Effectiveness Monitoring Report presents estimates of initial effectiveness based on the 2008 surface and groundwater data collected immediately downstream and downgradient of the ODA. Given the short period of time since implementation of the RA, a number of factors make these initial estimates conservative. Continued equilibration of the surface water and groundwater systems, along with implementation of the run-on control ditch, are expected to increase the effectiveness of the RA over time.

With this in mind, preliminary findings related to the effectiveness monitoring results available through September 2008 can be summarized as follows:

- Surface water quality has substantially improved in lower Pole Canyon Creek, downstream of the diversion outfall (monitoring station LP), compared to pre-diversion conditions. Initial estimates of the reduction in the annual selenium mass loads in Pole Canyon Creek below the diversion (monitoring station LP) ranged from 88% to 95%.
- Alluvial groundwater quality has improved downgradient of the ODA (at GW-15) since implementation of the RA; this includes the alluvial groundwater flow system in lower Pole Canyon (at GW-15) and into upper Sage Valley (at GW-22).

- At this time, the data available for evaluating transport to the Wells Formation aquifer are the water levels and selenium concentrations observed at the monitoring well located immediately downgradient of the ODA, GW-16. The water level measured in the Wells Formation at GW-16 in Spring 2008 remains consistent with water levels measured in prior years, but the selenium concentration in groundwater has increased slightly. Based on records of flow and selenium concentrations in seepage from the toe of the ODA (at monitoring station LP-1), the Wells Formation below the ODA appears to have received a smaller flow of higher concentration water in 2008. However, given the time lag for infiltration to pass through the substantial unsaturated thickness under the ODA (at least 150 feet), it is not known at this time whether the local concentration increase in the Wells Formation groundwater reflects selenium mass transport in prior years or is reflective of more recent conditions.

Continued monitoring of surface water and groundwater flow systems at these key locations, as well as at more distant locations, is planned for 2009. Additional information on water quality, stream flow rates, and groundwater levels collected through the planned monitoring program will allow for improved estimates of the overall effectiveness of the Pole Canyon RA over time.