

TECHNICAL MEMORANDUM

To: Nevada Environmental Response Trust

Cc: Nevada Division of Environmental Protection
United States Environmental Protection Agency

From: Dan Pastor and Arul Ayyaswami

Date: June 20, 2017

Subject: **In-Situ Chromium Treatability Study Progress Update**

At the direction of the Nevada Environmental Response Trust (NERT or Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this memorandum that summarizes Tetra Tech's progress made through May 2017 toward successfully implementing the In-Situ Chromium Treatability Study as outlined in the In-Situ Chromium Treatability Study Work Plan (Work Plan).

Task Progress Update: May 2017

Task M12 – In-Situ Chromium Treatability Study

- Task Leader – Arul Ayyaswami
- Current Status
 - Bench-scale testing by University of Nevada Las Vegas (UNLV) has been completed. Preliminary results of seventeen batch and three column tests have shown hexavalent chromium reduction utilizing various chemical and carbon substrates. Column tests indicate that hexavalent chromium has been reduced along with nitrate and chlorate; however, perchlorate degradation had not yet started by the end of May 2017 but is anticipated before the end of the testing.
 - Three performance groundwater monitoring events were performed in May 2017. The first performance groundwater monitoring event was performed from May 2 through May 5, 2017, one week following the initial injection event. The second performance groundwater monitoring event was performed from May 17 through May 19, three weeks following the initial injection event. The

third performance groundwater monitoring event was performed from May 31 through June 2, five weeks following the initial injection event. Evaluation of the laboratory results is ongoing.

- No field activities were conducted in May 2017 with regard to the chemical testing. Additional injections and groundwater monitoring will be performed to evaluate the effectiveness of chemical reduction.
- Schedule and Progress Updates
 - A second round of injections is planned for June 6 through 9, 2017. The injections will consist of adding carbon substrates and nutrient amendments into the injection wells.
 - The fourth performance monitoring event for the biological reduction test area will be conducted from June 21 through June 23, 2017. A total of eight performance monitoring events will be conducted on a monthly schedule. Performance monitoring results will be used to evaluate the effects of the substrate injections and the need for additional carbon substrate injection events.
 - Two additional dual-nested monitoring wells (CTMW-05S/D and CTMW-06S/D) will be installed in the biological reduction test area to provide additional downgradient coverage.
- Health and Safety
 - There have been no health and safety incidents related to Task M12 during May.