

TECHNICAL MEMORANDUM

To: Nevada Environmental Response Trust

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

From: Arul Ayyaswami and Dan Pastor

Date: September 25, 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 August 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: August 2017

Task M12 – In-Situ Chromium Treatability Study

- Task Leader – Arul Ayyaswami
- Current Status
 - The third round of carbon substrate injections for the biological testing component of the In-Situ Chromium Treatability Study was completed from August 9 to August 11, 2017. A total of 16,425 gallons of solution containing carbon substrate (molasses and emulsified vegetable oil), nutrient amendments (urea/diammonium phosphate, ascorbic acid, vitamin B12, and sodium bicarbonate), and chase water (stabilized Lake Mead water) was injected.
 - The sixth performance groundwater monitoring event was performed for the biological testing portion of the treatability test from August 22 through August 24. This monitoring event was seventeen weeks after the initial injection event, ten weeks after the second injection event, and two weeks after the third injection event. Evaluation of the laboratory results is ongoing; however, preliminary analysis shows that hexavalent chromium has been reduced up to 99 percent and perchlorate degradation has started in five downgradient shallow monitoring wells (CTMW-01S through CTMW-04S and CTMW-06S).
 - Chemical injections were completed into injection wells associated with the AP Area Treatability Study from August 7 to August 8, 2017, to support the chemical testing component of the In-Situ Chromium Treatability Study. A total of 60 gallons of 29% calcium polysulfide solution and 4,450

- gallons of stabilized Lake Mead water was injected across the injection wells in Plot 1 and Plot 2 of the AP Area Treatability Study area.
- The first performance groundwater monitoring event for the chemical reduction test was performed from August 15 through August 17. This monitoring event was one week after the chemical injection event. Evaluation of the laboratory results is ongoing.
 - Schedule and Progress Updates
 - The seventh performance monitoring event for the biological reduction test is planned for September 19 through September 21, 2017.
 - The second performance monitoring event for the chemical reduction test is planned for October 3 through October 5, 2017.
 - Health and Safety
 - There have been no health and safety incidents related to Task M12 during August.