

# TECHNICAL MEMORANDUM

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**To:** Nevada Environmental Response Trust

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

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**From:** Arul Ayyaswami and Dan Pastor, Tetra Tech, Inc.

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**Date:** October 20, 2017

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

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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 September 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: September 2017

### Task M12 – In-Situ Chromium Treatability Study

- Task Leader – Arul Ayyaswami
- Current Status
  - The seventh performance groundwater monitoring event was performed for the biological testing portion of the treatability test from September 19 through September 21, 2017. This monitoring event was conducted twenty-one weeks after the initial injection event. Evaluation of the laboratory results is ongoing. Preliminary analysis indicates that:
    - Hexavalent chromium concentrations in groundwater within the Quaternary Alluvium (Qal) have been reduced by up to 99 percent in five downgradient shallow monitoring wells (CTMW-01S through CTMW-04S and CTMW-06S);
    - Perchlorate degradation is occurring in five downgradient Qal shallow monitoring wells (CTMW-01S through CTMW-04S and CTMW-06S); and
    - Hexavalent chromium reduction is occurring in two downgradient Upper Muddy Creek Formation deep monitoring wells (CTMW-01D and CTMW-02D).
  - One shallow monitoring well (CTMW-07S), screened from approximately 20-25 feet below ground surface (bgs), and one deep monitoring well (CTMW-07D), screened from approximately 110-115 feet bgs, were installed adjacent to the existing In-Situ Chromium Treatability Study wells. The new wells, constructed from September 21-23, were installed to better understand the vertical

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distribution of perchlorate and other chemicals of potential concern within the Central Retention Basin. This work was completed as part of Modification No. 7 to the scope of work for the Remedial Investigation Phase 2 currently in progress. The scope of work and details regarding the well installations were proposed in a Technical Memorandum dated July 26, 2017 and subsequently approved by NDEP on July 27, 2017.

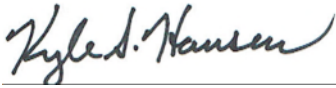
- Schedule and Progress Updates
  - The eighth and final performance monitoring event for the biological reduction test is planned for October 3 through October 4, 2017.
  - The second and final performance monitoring event for the chemical reduction test is planned for October 5 through October 6, 2017.
  - Tetra Tech has started preparing the In-Situ Chromium Treatability Study Report, scheduled to be submitted to NDEP in December 2017.
- Health and Safety
  - There have been no health and safety incidents related to Task M12 during September.

## CERTIFICATION

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I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared in a manner consistent with the current standards of the profession, and to the best of my knowledge, comply with all applicable federal, state, and local statutes, regulations, and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

**Description of Services Provided:** In-Situ Chromium Treatability Study Monthly Progress Update.



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**Kyle Hansen, CEM**  
Field Operations Manager/Geologist  
Tetra Tech, Inc.

10/20/2017

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Date

Nevada CEM Certificate Number: 2167  
Nevada CEM Expiration Date: September 18, 2018