

# TECHNICAL MEMORANDUM

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**To:** Nevada Environmental Response Trust

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**Cc:** Nevada Division of Environmental Protection

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**From:** Dan Pastor and Dana Grady

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**Date:** November 27, 2017

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**Subject:** Seep Well Field Area Bioremediation Treatability Study 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 which summarizes Tetra Tech's progress during October 2017 toward successfully implementing the Seep Well Field (SWF) Area Bioremediation Treatability Study.

## Task Progress Update: October 2017

### Task M11 – Seep Well Field Area Bioremediation Treatability Study (SWFTS)

- Task Leader – Dana Grady/Dan Pastor
- Current Status
  - Final column tests are now being completed at the UNLV laboratory for both the alluvium and UMCf. Results of the testing will be finalized by UNLV in November 2017.
  - Weekly groundwater sampling began on September 18, 2017, which was the first week after completion of the first injection event. The weekly groundwater sampling program continued for four weeks and was completed on October 13, 2017.
  - Preliminary results from weekly groundwater sampling show a majority of the downgradient monitoring wells had at least a 50% reduction in perchlorate mass following completion of the first injection event. In addition, a reduction of perchlorate to non-detect values has been observed at four monitoring wells.
  - The first of two biweekly groundwater sampling events was completed on October 27, 2017. During this sampling event, a second round of Bio-Traps<sup>®</sup> was installed to monitor the microbial response following the first injection event.
- Schedule and Progress Updates
  - This task remains on schedule.
  - The next biweekly groundwater sampling event is scheduled to be performed the week of November 13, 2017.

- Bio-Traps® will be removed the week of November 27, 2016 and sent to Microbial Insights for analysis.
- As noted in the Seep Well Field Area Bioremediation Treatability Study Work Plan, the timing for the second injection event will be determined based on observations from the effectiveness monitoring results.
- Health and Safety
  - There were no safety incidents related to Task M11 during October 2017.

## CERTIFICATION

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### Seep Well Field Area Bioremediation Treatability Study Progress Update

**Nevada Environmental Response Trust Site  
(Former Tronox LLC Site)  
Henderson, Nevada**

**Nevada Environmental Response Trust (NERT) Representative Certification**

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of NERT. Based on my own involvement and/or my inquiry of the person or persons who manage the systems(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

**Signature:** \_\_\_\_\_, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**Name:** Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**Title:** Solely as President and not individually

**Company:** Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

**Date:** \_\_\_\_\_

## 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:** Prepared Seep Well Field Area Bioremediation Treatability Study Progress Update.



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

November 27, 2017

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Date

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