

# 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:** Katie Hendrickson

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**Date:** August 26, 2020

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**Subject:** Hydrogen-Based Gas Permeable Membrane Pilot Study Monthly Progress Report

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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 during July 2020 toward successfully implementing the Hydrogen-Based Gas Permeable Membrane Pilot Study.

## Task Progress Update: July 2020

### Task M26 – Hydrogen-Based Gas Permeable Membrane Pilot Study

- Current Status
  - The Pilot Unit consisting of two (2) 8-foot by 20-foot shipping containers housing the hydrogen-based gas permeable pilot treatment unit and the post-treatment solids separation unit was delivered to the site on July 7, 2020. The following provides a summary of site activities since delivery:
    - The Pilot Unit was installed inside the secondary containment area and electrical, water and piping connections were completed shortly after delivery.
    - Wet testing and programming of the system was completed by July 22, 2020 using Stabilized Lake Mead water (SLMW).
    - On July 21, 2020, impacted groundwater was first transported from the EQ Area Tank 101A to the Pilot Unit's 20,000 gallon holding tanks using a 5,000-gallon vac-truck in preparation for initial startup. System start-up and shakedown was initiated on July 22, 2020 and is currently ongoing. The reactors were inoculated with biomass from the fluidized bed reactor sludge holding tank on July 22 and July 29, 2020 to initiate biomass growth and acclimation in the Pilot Unit.
  - The System Operation Manual was submitted to NDEP on July 29, 2020.
- Schedule and Progress Updates
  - Test Scenario #1, which involves treatment of the existing FBR influent, will begin once all systems are tested and confirmed operational and the system operations have stabilized. This scenario is currently anticipated to continue for up to 12 weeks.

- Health and Safety
  - There were no health and safety incidents related to Task M26 during July 2020. Safety measures continue to be implemented to minimize potential exposure to COVID-19, including the use of face coverings, gloves, and hand sanitizer, as well as protocols for monitoring temperatures, minimizing the number of people on site at one time, and evaluating tasks to increase physical distance between personnel.

## CERTIFICATION

### Hydrogen-Based Gas Permeable Membrane Pilot Study Monthly Progress Report

**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:** Jay A. Steinberg Not Individually, but Solely as President of the Trustee, 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

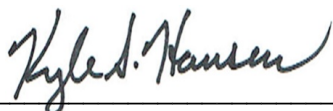
**Date:** 8/26/2020

## 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 Hydrogen-Based Gas Permeable Pilot Study Monthly Progress Report.



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

August 26, 2020

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Date

Nevada CEM Certificate Number: 2167  
Nevada CEM Expiration Date: September 18, 2022