

TECHNICAL MEMORANDUM

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

From: Arul Ayyaswami and Dan Pastor

Date: January 26, 2018

Subject: Vacuum Enhanced Recovery Treatability Study Monthly 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 December 2017 toward successfully implementing the Vacuum Enhanced Recovery (VER) Treatability Study as outlined in the VER Treatability Study Work Plan (Work Plan).

Task Progress Update: December 2017

Task M16 – Vacuum Enhanced Recovery Treatability Study

- Task Leader – Arul Ayyaswami
- Current Status
 - Installation of the VER system and associated piping were completed in December 2017. The system includes a VER trailer, 21,000-gallon frac tank, portable diesel generator, and secondary containment were mobilized and installed within the VER treatability study area. VER extraction wellheads, monitoring wellheads, and conveyance piping were also installed.
 - Pressure transducers were installed in monitoring wells VMW-01I, VMW-01D, VMW-02I, VMW-02D, and VER extraction well VER-01I on December 11, 2017 to evaluate variations in background groundwater elevations prior to performing the VER testing. Groundwater elevations in the monitoring wells generally fluctuated by approximately 0.02 feet over 15 minutes with a maximum observed fluctuation of approximately 0.1 feet over 15 minutes. On January 5, 2018, NDEP verbally approved revising the “near equilibrium criteria” for ending the test to be water level fluctuations of 0.02 feet or less over 15 minutes. The results of the constant rate pump test for VER-01I will be evaluated with respect to the “near equilibrium criteria” and background groundwater elevation fluctuations to determine if this criteria remains appropriate.
- Schedule and Progress Updates
 - The VER testing is scheduled to begin in January 2018. Pump testing for VER-01I is scheduled to start on January 5, 2018, followed by the VER test in mid-January.

- Health and Safety
 - There have been no health and safety incidents related to Task M16 through December 2017.

CERTIFICATION

VER Treatability Study Monthly 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 as Pres*
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: 1/26/18

CERTIFICATION

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 Vacuum Enhanced Recovery Treatability Study Monthly Progress Update.



January 26, 2018

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

Date

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