

# MEMO

Date **December 21, 2018**  
To **Nevada Environmental Response Trust**  
From **John Pekala, Scott Warner, and Chris Ritchie**  
Copy to **Nevada Division of Environmental Protection**  
Subject **United States Environmental Protection Agency**  
**Galleria Drive ZVI-Enhanced Bioremediation Treatability**  
**Study Monthly Progress Report**

## **TASK PROGRESS UPDATE: OCTOBER 2018**

At the direction of the Nevada Environmental Response Trust (NERT or Trust), Ramboll US Corporation (Ramboll) has prepared this memorandum which summarizes Ramboll's progress during October 2018 toward successfully implementing the Galleria Drive ZVI-Enhanced Bioremediation Treatability Study.

## **TASK M18 – GALLERIA DRIVE ZVI-ENHANCED BIOREMEDIATION TREATABILITY STUDY.**

- Task Leaders – Scott Warner / Chris Ritchie
- Current Status
  - Phase 1 of the treatability study is underway. The pre-design field investigation as specified in the work plan is complete; bench-scale testing is in progress. Phase 2 (design and implementation of a field test) will be proposed in early 2019 as part of a forthcoming Work Plan Addendum.
  - Column testing continues. Two test columns have been packed and are currently operating to test reduction of nitrate, chlorate, and perchlorate under dynamic, site-simulated conditions. One column is filled with ZVI only as the reactive media; the second column is composed of ZVI with added organic carbon. Data collection is ongoing.
  - The two test columns were designed for concentrations of nitrate, chlorate, and perchlorate from data collected during the field investigation. However, groundwater currently being collected from monitoring wells located within the field test area contains higher concentration of these contaminants than previously measured. To better assess likely field conditions, four new, longer columns (five feet long) have been built with ports along the side (see attached photolog). These columns will be used to determine degradation of varying concentrations of contaminants.
- Schedule and Progress Updates

- Field work related to the pre-design field investigation as specified in the work plan is complete. Additional deeper investigation is planned for early December in accordance with Treatability/Pilot Study Modification No. 5 dated November 5, 2018 (approved by NDEP on November 14, 2018).
- Bench-scale testing is expected to continue through December 2018.
- This task initially had a work plan addendum scheduled for submittal at the end of August 2018. Because of analytical interferences encountered during the batch test phase and the time needed to solve the analytical matter, additional time is necessary for the completion of column tests. We now anticipate submittal of a work plan addendum in early 2019.
- Health and Safety
  - There were no safety incidents during October 2018.

## **ATTACHMENT**

Photolog For Galleria Drive ZVI-Enhanced Bioremediation Treatability Study – October 2018

## **Galleria Drive ZVI-Enhanced 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:** *Jay A. Steinberg*, *not individually, but solely as President*, 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:** 12/20/18

## Galleria Drive ZVI-Enhanced Bioremediation Treatability Study Progress Update

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

### Responsible Certified Environmental Manager (CEM) for this project

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 Galleria Drive ZVI-Enhanced Bioremediation Treatability Study Progress Update, Nevada Environmental Response Trust Site, Henderson, Nevada



December 21, 2018

\_\_\_\_\_  
**John M. Pekala, PG**  
**Principal**

\_\_\_\_\_  
Date

Certified Environmental Manager  
Ramboll US Corporation  
CEM Certificate Number: 2347  
CEM Expiration Date: September 20, 2020

**PHOTOLOG FOR GALLERIA DRIVE ZVI-ENHANCED BIOREMEDIATION  
TREATABILITY STUDY  
OCTOBER 2018**



**Photo 1. Flow-through column tests with site soils.** Four new, longer columns (5 feet long) have been built with ports along the side. These columns will be used to determine degradation of varying concentrations of contaminants and also to measure head loss. One of these columns has been fitted differently to test the Peroxychem EHC, a commercially-available ZVI/organics mixture. The set up contains two settling bottles (left side of photo) to settle the fine material generated with the Peroxychem EHC.