

MEMO

Date **July 3, 2019**
To **Nevada Environmental Response Trust**
From **John Pekala, Scott Warner, and Chris Ritchie**
Copy to **Nevada Division of Environmental Protection
United States Environmental Protection Agency**
Subject **In-Situ Bioelectrochemical Laboratory-Scale
Treatability Study Monthly Progress Report**

TASK PROGRESS UPDATE: MAY 2019

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 May 2019 toward successfully implementing the In-Situ Bioelectrochemical Laboratory-Scale Treatability Study for the remediation of perchlorate in water.

TASK M24 – IN-SITU BIOELECTROCHEMICAL LABORATORY-SCALE TREATABILITY STUDY

- Task Leaders – Scott Warner / Chris Ritchie
- Current Status
 - The sand tank construction and installation of instrumentation (e.g. sampling ports, ORP electrodes) were completed in May 2019. The sand tank mixture of site soil and clean sand was inoculated with dewatered sludge obtained from the site groundwater treatment system's fluidized bed reactors (FBRs). After equilibration of the sand tank was completed, the sand tank was operated in recirculation mode, whereby effluent was re-introduced to the sand tank as influent; the initial influent perchlorate concentration was approximately 30 mg/L. Data collected after one week of recirculation operation indicated no detections of perchlorate in the sand tank effluent. Samples collected along the flow path are currently being analyzed, and the results will be presented in subsequent progress reports. Based on the preliminary findings of perchlorate removal during recirculation mode, the sand tank operation was switched to a flow-through system at the end of May to observe the effects on perchlorate removal performance. Data for the flow-through system will be collected and made available in subsequent progress reports.
 - The second stage of column testing outlined in the April 2019 progress update continues. On May 17, 2019, the soil columns were supplemented with nutrients (vitamin B12). No significant decrease in perchlorate effluent concentrations has been observed since the addition of nutrients, but monitoring is ongoing. Additional information will be provided in the June update.
 - The second round of microcosms outlined in the March 2019 progress update are still operating and continue to be monitored. Data will be provided in subsequent progress reports as they become available.

- Schedule and Progress Updates
 - Bench-scale testing is expected to continue through June 2019. A bench-scale treatability study report is anticipated to be submitted in Q3 2019. A work plan addendum proposing a field test will be provided as an attachment to the treatability study report.
- Health and Safety
 - There were no safety incidents during May 2019.

ATTACHMENTS

Figure 1: Photograph of Sand Tank

In-Situ Bioelectrochemical Laboratory-Scale Treatability Study Progress Update

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

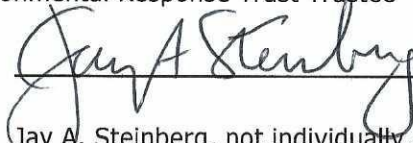
Nevada Environmental Response Trust (NERT) Representative Certification

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 system(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, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Signature:



Not Individually, but Solely
as President of the 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:

7/3/19

In-Situ Bioelectrochemical Laboratory-Scale 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 provided 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.

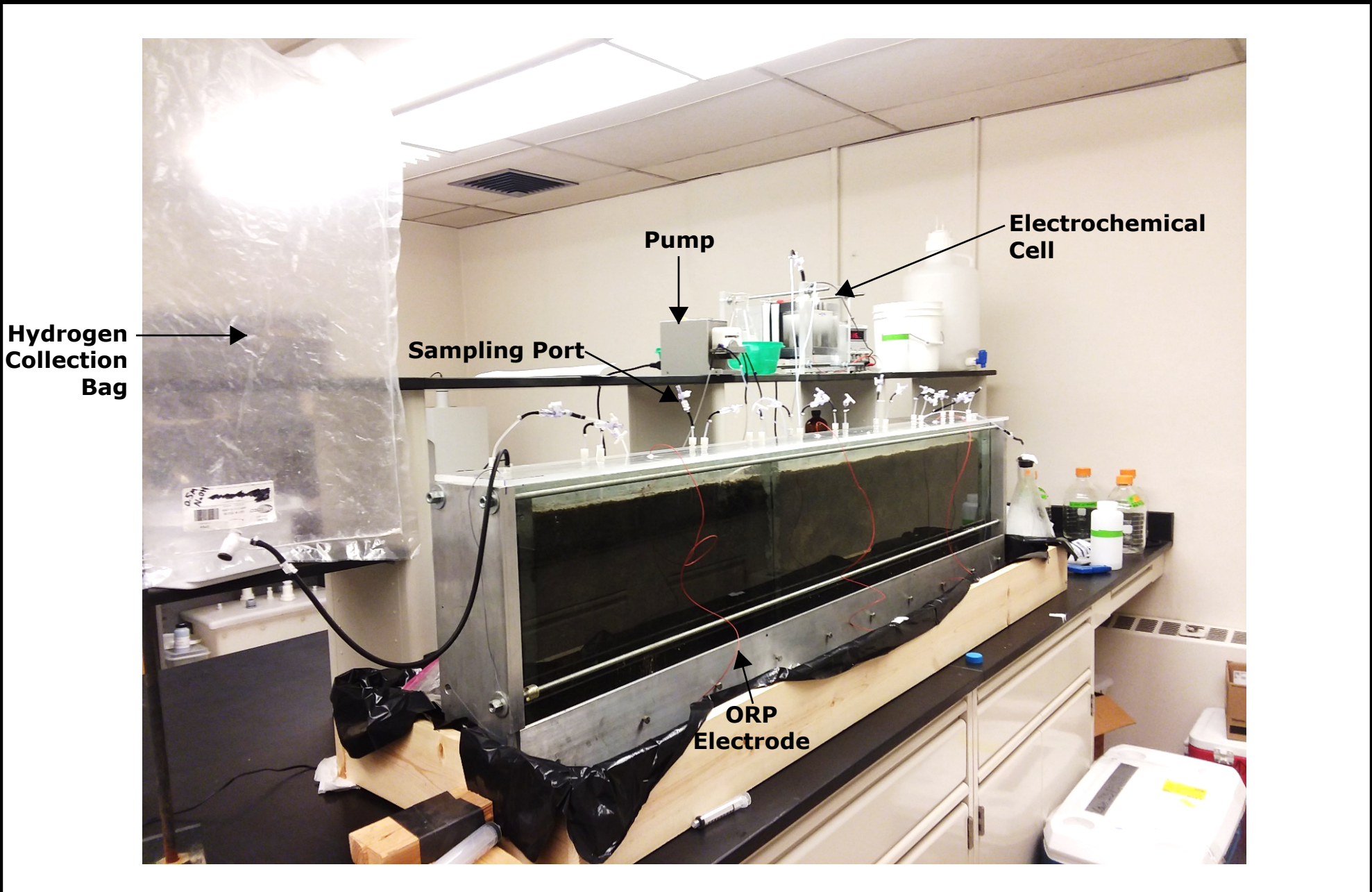


John M. Pekala, PG
Principal

7/3/2019

Date

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



Photograph of Sand Tank
Nevada Environmental Response Trust
Henderson, Nevada

Figure

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