

June 9, 2020

Dr. Weiquan Dong, PE
Bureau of Industrial Site Cleanup
Nevada Division of Environmental Protection
2030 E. Flamingo Rd., Suite 230
Las Vegas, Nevada 89119

Subject: Contingency Plan for Hydrogen-Based Gas Permeable Membrane Pilot Test

Dear Dr. Dong:

At the direction of the Nevada Environmental Response Trust (NERT or Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this Contingency Plan for the Hydrogen-Based Gas Permeable Membrane Pilot Test (pilot test). The scope of work for this pilot test is detailed in the Hydrogen-Based Gas Permeable Membrane Technology Pilot Test Work Plan, dated February 15, 2020 and approved by the Nevada Division of Environmental Protection (NDEP) on March 27, 2020. This work includes installing a pilot treatment system, obtaining water to treat from the Groundwater Extraction and Treatment System (GWETS), and operating the pilot treatment system. This work will occur within 50 feet of GWETS components.

Tetra Tech will oversee all aspects of on-site installation and operation activities related to this pilot test, to provide protection measures to mitigate risk to existing GWETS components. This Contingency Plan summarizes the pilot test scope of work, identifies actions that will be followed to protect GWETS components, and identifies response procedures that will be followed in the event of a release of groundwater. The activities will be performed in accordance with Section 5.7 of the NERT Site Management Plan, Revision 5, dated December 31, 2019 to prevent damage to any GWETS components.

Pilot Test Scope of Work Summary

The pilot unit will be installed and operated within 50 feet of the GWETS. Operation of the pilot test involves transferring GWETS water from different locations to the pilot unit. A summary of the pilot test scope of work is provided below:

- Pilot treatment system installation: The pilot unit, two wastewater influent tanks and solids holding tank, will be located within a secondary containment area that will be constructed for the pilot unit.
- Obtaining GWETS water for testing: The pilot test will treat water with a range of contaminant concentrations to evaluate the applicability of the technology under various conditions, including:
 - Test Scenario #1: Existing Fluidized Bed Reactor (FBR) Influent:
 - A water truck will collect water from FBR Equalization (EQ) Tank 101A and transport the water to the influent tanks inside secondary containment.
 - Test Scenario #2: Blend Athens Well Field (AWF) and Interceptor Well Field (IWF) after chromium pre-treatment:
 - AWF water will be collected in a 5,000-gallon holding tank installed in the vicinity of the Lift Station 3 wet well. A truck will collect water from the holding tank and transport the water to the pilot treatment system influent tanks in secondary containment.
 - IWF water will be collected in a 500-gallon holding tank in the FBR EQ secondary containment after chromium pre-treatment. A truck will transfer the water from the holding tank to the pilot treatment system influent tanks in secondary containment.

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- Test Scenario #3: Blend AWF and IWF without chromium removal:
 - AWF water will be collected as described above.
 - IWF water will be collected without chromium pre-treatment in a 500- gallon holding tank installed near the Groundwater Influent Tank. A water truck will transfer the water from the holding tank to the pilot treatment system influent tanks in secondary containment.
- System operations: The pilot study operations will include:
 - Daily inspections and pilot treatment system optimization;
 - Sampling;
 - Treated water discharge to GW-11; and
 - Transport and off-site disposal of solids.

Protection Measures

Personnel and subcontractors will protect the GWETS components by using the following precautions and procedures during field activities:

- Cones, caution tape, or safety fence will be installed as a visual indicator and protective barrier around the GWETS components before activities involving heavy equipment are performed in the proximity of the components.
- Notify the GWETS operator prior to beginning installation and operations.
- Daily health and safety “tailgate” meetings will be held prior to the start of the field work. During that time, the Health and Safety Plan (HASP) will be reviewed. Discussions of health and safety hazards and preventions will also be held at that time. The names and contact numbers for all Tetra Tech field staff and Tetra Tech subcontractors will be confirmed. Clear lines of communication will be established to ensure a swift and coordinated response to a potential release.
- A task-specific Activity Hazard Analysis (AHA) will be prepared and reviewed prior to the pilot installation and water transportation work.
- Water transport routes will be established to avoid an encounter with exposed GWETS components. Drivers and operators will be well-informed of the hazards prior to operating equipment at the pilot unit site and at the AWF and IWF water collection locations.
- Contractors transporting water to the pilot treatment system influent tanks will confirm that all valves connected to the GWETS, transport trucks, and influent tanks are closed appropriately after transfers are complete to prevent spills. Small spill guards will be placed under the hose connection to the truck.
- Work areas will be delineated as necessary to avoid unauthorized entry into the work area.
- During installation, a designated spotter will be used during movement of heavy machinery. A policy of no vehicle backing without performing a 360-degree inspection and spotter guidance will be enforced.

Response Procedures

Personnel will be informed of the following response procedures in the event of a release:

- The immediate action taken in response of a release of untreated groundwater during the pilot test activities will be to notify the GWETS operator to shut down the affected pipeline(s) necessary to control the release and contain any uncontrolled flow.
- If Tetra Tech’s activities result in the release of treated or untreated groundwater, such as influent water collection and transport or pilot system operations, Tetra Tech will immediately notify the GWETS operator and the Trust, who will in turn notify NDEP if the leaks exceed the notification thresholds. The notification thresholds are as follows:
 - On-site influent leak/release outside of secondary containment: greater than 10 gallons
 - On-site effluent leak/release outside of secondary containment: greater than 100 gallons
 - Any off-site leak/release.

Please contact us at (303) 447-1823 if you have any questions.

Sincerely,

Tetra Tech, Inc.



Dan Pastor
Project Manager



Kyle Hansen
Field Operations Manager

ec: James Dotchin, NDEP
James Carlton Parker, NDEP
Brian Loffman, NERT
Tanya O'Neill, Foley & Lardner LLP
John Pekala, Ramboll Environ

CERTIFICATION

Contingency Plan for Hydrogen-Based Gas Permeable Membrane Pilot Test in the Vicinity of the GWETS Components

**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 in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**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: 6/9/2020

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 Contingency Plan for Hydrogen-Based Gas Permeable Membrane Pilot Test in the Vicinity of the GWETS Components.



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

June 9, 2020

Date

Nevada CEM Certificate Number: 2167
Nevada CEM Expiration Date: September 18, 2020