

February 26, 2017

TECHNICAL MEMORANDUM

To: Steve Clough
Nevada Environmental Response Trust

From: John Pekala, CEM#2347, Expires 9/20/2018, Ramboll
Jessica Donovan and Chris Stubbs, Ramboll

Re: **RI Phase 2 Modification No. 10**
Nevada Environmental Response Trust Site
Henderson, Nevada
Ramboll Project No. 1690006608-020

This Technical Memorandum presents Ramboll's recommended Modification No. 10 to the scope of work for the Remedial Investigation (RI) Phase 2 Investigation currently in progress at the Nevada Environmental Response Trust Site (the "Site") located in Henderson, Nevada. This recommended modification proposes additional surface water sampling for perchlorate at locations within Las Vegas Wash (the "Wash") to improve our understanding of perchlorate mass loading.

Monthly surface water sampling at locations in the Wash was previously proposed in RI Phase 2 Modification No. 3 dated June 7, 2017, which was approved by the Nevada Division of Environmental Protection (NDEP) with comments for the administrative record on June 9, 2017. The monthly sampling in the Wash began at the end of June 2017, incorporating changes in sampling locations requested by NDEP in their comments.¹ The current monthly sampling locations are shown on Figure 1 and are listed in Table 1. Semiannual sampling is performed at additional locations that are not shown, since no changes are proposed to the semiannual sample locations.

We propose monthly sampling at two additional locations shown on Figure 1 and Table 1:

- A sample at the Las Vegas Wasteway stream gage (LVW8.85) is proposed because this is the location that has historically been used to measure background concentrations of perchlorate in the Wash. This location was originally proposed in RI Phase 2 Modification No. 3, but was replaced by a location at the Duck Creek Confluence Weir (LVW7.2) in response to an NDEP comment. We recommend sampling both locations as they serve different purposes: the Las Vegas Wasteway location measures background concentrations in the Wash, while the Duck Creek Confluence location measures background concentrations in the combination of Duck Creek and the Wash. The Las Vegas Wasteway location has been used as a

¹ The additional sampling locations include a single sampling location at LVW7.2 upstream of the Duck Creek Confluence Weir and a three sample transect at LVW6.6 upstream of the Sunrise Mountain Weir.

background location for many years and is one of the locations used to evaluate the performance of the existing Groundwater Extract and Treatment System (GWETS). We recommend that it be maintained as a background location for the Wash so that long-term changes in background concentrations and GWETS performance can be evaluated. This location may be currently inaccessible due to property access issues, so sampling would begin once property access is granted.

- An additional sample transect location is proposed downstream of Calico Ridge Weir (LVW4.75). The purpose of this location is to better determine where perchlorate is entering the Wash between the existing locations near Bostick and Homestead Weirs. In the June 2017 sampling event, the average perchlorate concentration was 16 µg/L in samples collected above Bostick Weir, increasing to 47 µg/L in samples collected above Homestead Weir. AECOM also recommended additional sampling at this location in the Surface Water Investigation Technical Memorandum, dated October 2017. Transect samples collected in February 2017 by AECOM at this location showed significantly higher perchlorate concentrations in samples near the banks of the Wash than in the middle of the Wash, suggesting that groundwater discharge of perchlorate may be occurring near this location. A 5-sample transect is proposed in order to measure the change in concentration across the Wash.

Please contact us should you have any questions about the recommended surface water sampling.

Attachments

- Table 1 Surface Water Sampling at Stream Gages in Las Vegas Wash
Figure 1 Las Vegas Wash Proposed Surface Water Sampling Locations

Table 1. Monthly Surface Water Sampling in Las Vegas Wash
 RI Phase 2 Modification No. 10
 Nevada Environmental Response Trust Site; Henderson, Nevada

Location	USGS Stream Gage	Monthly Perchlorate Sampling Program		
		Location ID	Status	Note
Las Vegas Wasteway	9419679	LVW8.85 ¹	Proposed	single sample location
Duck Creek Confluence Weir	9419698	LVW7.2	Began Jun 2017	single sample location
Sunrise Mountain Weir (Proposed)	--	LVW6.6	Began Jun 2017	3 sample transect
Pabco Road	9419700	LVW6.05	Began Nov 2016	single sample location
Above Bostick Weir	9419747	LVW5.3	Began Jun 2017	3 sample transect
Below Calico Ridge Weir	--	LVW4.75	Proposed	5 sample transect
Above Homestead Weir	9419749	LVW4.2	Began Jun 2017	4 sample transect
Rainbow Gardens Weir	9419753	LVW3.5	Began Jun 2017	6 sample transect
Northshore Road	9419800	LVW0.55	Began Jun 2015	single sample location

Notes:

NERT = Nevada Environmental Response Trust

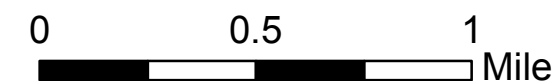
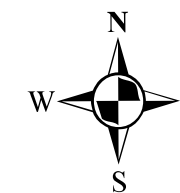
¹ Sampling location LVW8.85 is currently inaccessible due to property access issues. Sampling at this location will begin once property access is granted.

Additional surface water samples will be collected at approximately the same time as USGS streamflow measurements at supplemental locations, which are made on a semiannual basis through 2018, in consultation with the USGS.



Explanation

- NERT Surface Water Sampling Location
- NERT Surface Water Sampling Transect
- NERT Proposed Water Sampling Location
- NERT Proposed Water Sampling Transect
- ▲ USGS Continuous Gaging Station
- NERT/AMPAC/TIMET/COH Outfall Location



PROPOSED SURFACE WATER SAMPLING LOCATIONS IN LAS VEGAS WASH
 Nevada Environmental Response Trust Site
 Henderson, Nevada

Figure
1

RI Phase 2 Modification No. 10

**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: Jay A Steinberg, 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: 2/24/18



RI Phase 2 Modification No. 10

**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.



2/26/18

**John M. Pekala, PG
Senior Manager**

Date

Certified Environmental Manager
Ramboll US Corporation
CEM Certificate Number: 2347
CEM Expiration Date: September 20, 2018

