

OFFICE OF THE NEVADA ENVIRONMENTAL RESPONSE TRUST TRUSTEE

Le Petomane XXVII, Inc., Not Individually, But Solely as the Nevada Environmental Response Trust Trustee
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May 27, 2022

Dr. Weiquan Dong, P.E.
Bureau of Industrial Site Cleanup
Nevada Division of Environmental Protection
375 E. Warm Springs Road, Suite 200
Las Vegas, Nevada 89119

RE: Annual Groundwater Monitoring and GWETS Performance Report
Nevada Environmental Response Trust
Henderson, Nevada

Dear Dr. Dong:

The Nevada Environmental Response Trust (NERT) is pleased to present the Annual Groundwater Monitoring and GWETS Performance Report for Nevada Division of Environmental Protection (NDEP) review. This report summarizes groundwater monitoring data and operation of the Groundwater Extraction and Treatment System for the period of July 2020 through June 2021. Also attached is an annotated response to comments describing how the comments on last year's report.

If you have any questions or concerns regarding this matter, feel to contact me at (702) 960-4309 or at steve.clough@nert-trust.com.

Office of the Nevada Environmental Response Trust



Stephen R. Clough, P.G., CEM
Remediation Director
CEM Certification Number: 2399, exp. 3/24/23

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Number	Comments	Responses
1.	<p>There is a statement on Page 74 indicating that "The shutdown of the three extraction wells in the vicinity of the Eastgate Storm Drain would have caused an immediate increase in the seepage rate of contaminated groundwater into the storm drain as groundwater levels recovered." Based on the groundwater gradient and the location of the Athens Road Extraction Wells (AREW), it is more plausible for AREW shutdowns to result in increased seepage rate into the Athens Drainage Channel rather than into the Eastgate Storm Drain.</p>	<p>The Eastgate Storm Drain (ESD) is a buried concrete pipe that was identified by Endeavour as the primary point where the AMPAC plume enters the storm drain system. The Athens Drainage Channel (ADC) is an aboveground channel that receives flow from the ESD. Because the ESD is buried below the groundwater level, it is under significantly higher hydraulic head than the ADC. Therefore, seepage of the AMPAC plume into the ESD is expected to be significantly higher than into the ADC, both during AREW shutdowns and during normal operations. This is generally confirmed by the sampling conducted by Endeavour in the ESD and ADC.</p>
2.	<p>Page 75 states that "this shut down [of Auto Mall Extraction Wells (AMEW) due to effluent tank replacement] would have caused an increase in the seepage rate of contaminated groundwater into the Pioneer Detention Basin." Based on groundwater equipotentials, it appears unlikely that groundwater from the AMEW area travels into the Pioneer Detention Basin during AMEW shutdown. Page 75 also states that this event resulted in accelerated travel of perchlorate into the downstream Eastgate Storm Drain, Athens Drainage Channel, and ultimately the Las Vegas Wash. The average perchlorate loading in the Eastgate Storm Drain during the 1H2020 reporting period, as well as during the individual months that make up the reporting period, was within the typical and expected range observed in recent years (15.8 lbs/day). Therefore, NDEP suspects that the higher than usual average perchlorate mass loading between Sunrise Mountain and Pabco Road during the latest NERT</p>	<p>According to Endeavour's Work Plan for the Eastgate Drain Surface Water Mitigation System dated August 1, 2019, it was first observed in November 2018 that groundwater was infiltrating into the low section of the Pioneer Detention Basin and migrating into its low-flow channel that connects to the ESD. This groundwater infiltration was sampled in 2018 and 2019 with results showing perchlorate concentrations in the range of 150 – 164 mg/L. The only known source of groundwater with perchlorate concentrations at this level in the vicinity of the Pioneer Detention Basin is the AMPAC plume. Based on prior conversations with NDEP, NERT understands that historical operation of a production well at the concrete plant just west of the Pioneer Detention Basin pulled AMPACs perchlorate plume eastward toward the basin.</p> <p>NERT agrees that the higher-than-average mass loading between the Sunrise Mountain and Pabco Road weirs during the performance period could have been influenced by multiple factors. However,</p>

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	<p>annual reporting period (19.8 lbs/day) could have been influenced by multiple factors.</p>	<p>the AMPAC plume is adjacent to this reach of Las Vegas Wash and an evaluation of particle tracking using the groundwater model shows that mass loading in this reach is primarily due to the AMPAC plume. It is therefore reasonable to conclude that the primary cause of the increase is related to increased discharge of the AMPAC plume. It is also important to note that in the annual performance reports prepared by Endeavour, the perchlorate loading estimates do not take into account any changes in mass loading that occur between the single day of the month when a sample is collected. Thus, the mass loading estimates presented by Endeavour would not necessarily reflect increases in mass loading with a duration of less than one month.</p>
<p>3.</p>	<p>Plate 7 Groundwater Chloroform Map Shallow Water-bearing Zone Second Quarter 2020 shows the chloroform contour value of 500 µg/L. There are 19 shallow wells with their chloroform value greater than 500 µg/L (510 to 7,800 µg/L) in the Unit Building #4 area and they are not contoured. NDEP understood that the Annual Groundwater Monitoring and GWETS Performance Report was intended to report the data from regular GWETS monitoring programs, but NDEP suggests that the report should utilize all existing data for constructing the contaminant plume map. This suggestion is also applicable for perchlorate, chromium and TDS.</p>	<p>The isoconcentration contours are developed using all available data, taking into account the reliability and relevance of the data. Not all data points used to inform the contours are shown on the plates.</p> <p>The specific data referred to in the comment are from the Unit 4/Unit 5 Investigation and were obtained in 2016 using temporary well casings during advancement of soil borings. In addition, the majority of these data were obtained at 82 feet below ground surface, which is regarded as too deep to characterize the water table (see Lower Shallow WBZ data from 2019-2020 on Figure 8a). Because of the spatial coverage of permanent water table wells and age of these samples, the decision was made to prioritize the data from permanent wells when drawing contours.</p>

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4.	The NERT is still investigating the OU-3, so NDEP reserves its comments on the sources to the perchlorate mass loading to the Las Vegas Wash until the completion of all remediation investigations.	Comment noted.
5.	The perchlorate mass fluxes crossing the boundaries between the operation units, model layers and southern bank of the Las Vegas Wash are heavily dependent on the NERT groundwater model that is still in developing, so NDEP also reserves its comments on these fluxes until the NERT groundwater model is finalized and approved.	Comment noted.