

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION  
MEETING OF MARCH 8-9, 2017  
SOUTH LAKE TAHOE**

<b>ITEM 3</b>
<b>LEVIATHAN MINE PROJECT UPDATE</b>

<b>CHRONOLOGY</b>	
<b>1984</b>	State of California acquires ownership of Leviathan Mine.
<b>Mid 1980s</b>	Lahontan Water Board oversees construction of the Leviathan Mine Pollution Abatement Project. The project's key feature is a series of lined ponds that capture and evaporate acid mine drainage (AMD) from two of Leviathan Mine's five primary AMD sources.
<b>1999</b>	Lahontan Water Board implements Pilot Pond Water Treatment Project.
<b>2000</b>	Leviathan Mine is placed on the National Priorities List (Superfund Site). United States Environmental Protection Agency (USEPA) establishes discharge quality standards for the Lahontan Water Board.  Lahontan Water Board implements full-scale Pond Water Treatment System to begin treating and discharging treated AMD to Leviathan Creek during summer months and in compliance with USEPA discharge quality standards.
<b>2007</b>	Atlantic Richfield Company (ARCO) files a lawsuit against the Lahontan Water Board and other state agencies, arguing that a 1983 settlement agreement released ARCO from liability and made the State of California responsible for all future cleanup costs.
<b>March 2015</b>	The Lahontan Water Board, other state agencies, and ARCO sign a new settlement agreement, settling the 2007 lawsuit. The 2015 Settlement Agreement clearly identifies cleanup responsibilities and establishes a cost-sharing program.

## BACKGROUND

In 1984, the State of California acquired the Leviathan Mine site, a historic sulfur mine located approximately five miles east of Markleeville, CA in Alpine County. The mine site has and continues to produce acid mine drainage (AMD) that has been discharging to Leviathan Creek within the East Fork Carson River watershed. Since acquiring the mine site, the Lahontan Water Board has been engaged in numerous projects, studies, and other activities intended to address the mine site's continuous release of acid mine drainage. ARCO, as the former mine site owner, has also been engaged in similar activities. The mine site was also placed on the National Priorities List (Superfund Site List) in 2000, and both the Lahontan Water Board and ARCO are operating under USEPA orders.

In 2007, ARCO filed a lawsuit against the Lahontan Water Board and other state agencies over disputes regarding liability for cleanup costs. In 2015, the parties to the lawsuit settled. The 2015 Settlement Agreement clearly identified responsibilities moving forward, established a schedule for the Lahontan Water Board to potentially take over operations of ARCO's AMD treatment operations, and established a cost-sharing system. The Lahontan Water Board and ARCO are currently implementing the provisions of the 2015 Settlement Agreement.

There has been significant activity occurring both at the mine site and between the Lahontan Water Board and ARCO staffs, since the Settlement Agreement was signed in March 2015. The Water Board has been receiving updates regarding staff's Leviathan Mine work through the Executive Officer's Reports. This item will give the Board a more thorough review of the 2015 Settlement Agreement, its current and future implementation, progress with the Superfund Site process, this past year's operations, and this year's operations, which will likely include spring treatment operations.

## ISSUES

None

## DISCUSSION

Lahontan Water Board staff was busy prior to signing the 2015 Settlement Agreement, but the activity level has significantly increased for staff since then. The 2015 Settlement Agreement set in motion an aggressive schedule of activities that staff has been responding to and fulfilling. The primary elements of the Settlement Agreement include:

- Establishing a cost-sharing program for costs associated with remedial investigation/feasibility study activities, final remedy design construction, and final remedy operations and maintenance.
- Quarterly review of ARCO remedial investigation/feasibility cost, which will soon expand to more complex cost estimation, tracking, and resolution activities.

- Conditions and schedule, under which, the Lahontan Water Board may take over operations of ARCO's High Density Sludge Treatment System (HDS) for purposes of treating AMD sources that both the Lahontan Water Board and ARCO are responsible for treating under USEPA orders Interim Combined Treatment (ICT) System.

These three elements are very complex and require substantial resources to manage. In the case of implementing the ICT provisions, additional and substantial discussions to further define the terms of the Settlement Agreement have been necessary on two occasions. Additionally, ARCO has had to construct a new AMD conveyance system that will upon completion, allow water for the Lahontan Water Board's AMD ponds to be delivered to ARCO's HDS Treatment System. ARCO will also need to successfully demonstrate its HDS Treatment System can adequately treat both ARCO's and the Lahontan Water Board's AMD sources, and then state contracts will need to be developed and awarded before the Lahontan Water Board takes over operations of the ICT System.

While Lahontan Water Board staff has been addressing these additional responsibilities related to the 2015 Settlement Agreement, it has also been meeting its responsibilities regarding compliance with USEPA orders through its Pond Water Treatment System Operations, reviewing numerous work plans and reports, and preparing its own reports, all associated with the Superfund Site process.

This year (2017) is now presenting another challenge for Lahontan Water Board staff. The above-average precipitation the region is experiencing is increasing AMD flow rates into the pond system. Lahontan Water Board staff has been monitoring the pond levels at Leviathan Mine and has initiated the first steps necessary to begin Spring Pond Water Treatment Operations (Spring Treatment Operations). Spring Treatment Operations have been initiated three times (2005, 2006, and 2011), and are necessary when pond levels are increasing at a rate that would result in a discharge of untreated AMD to Leviathan Creek before routine summertime Pond Water Treatment Operations begin in June/July and prevent such a discharge from occurring. The remote nature of the Leviathan Mine site and snowpack conditions are just some of the additional challenges that come with Spring Treatment Operations.

So 2017 is off to a busy start, and the summer season will be no different. This summer season will include close oversight and review of the ICT System Demonstration Project, which will, in part, determine if the Lahontan Water Board will be taking over operations of the ICT System in 2018. Lahontan Water Board staff will also be working on developing the ICT System Operations contract in preparation for taking over operations in 2018. Staff will also be expected to review an increasing number of reports from ARCO and USEPA, as the Remedial Investigation/Feasibility Study phase of the Superfund process is nearing completion over the next two years.

The activity level will remain high in the upcoming years as the Superfund Site process continues and proceeds into the Final Remedy selection, design, construction phases, followed by operations and maintenance. The Leviathan Mine Project is like no other in the Lahontan Region, in responsibility and complexity.

**PUBLIC OUTREACH/INPUT**

Lahontan Water Board staff presented “Tasks Accomplished in 2016” to all interested stakeholders and public (including Washoe Tribe, state of Nevada representatives) at the annual technical update meeting hosted by USEPA on January 26, 2017.

**RECOMMENDATION**

This is an informational item. No Water Board action will be taken, but the Water Board may provide guidance to staff.

ENCLOSURE	ITEM	BATES NUMBER
1	Water Board Staff's Presentation	3-7

# **ENCLOSURE 1**

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## Presentation Overview

- \* Mine Site Overview
- \* History
- \* 2015 Settlement Agreement
- \* 2016 Operations
- \* 2017 Operations
- \* Future Activities

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## History

- \* 1860s - Leviathan Mine Opens
- \* 1960s - Leviathan Mine Closes
- \* 1984 - State Acquires Leviathan
- \* 1985 - Pollution Abatement Project Constructed

## History (cont.)

- \* 2000 - Superfund Site
  - Pond Water Treatment System
- \* 2007 - Lawsuit
- \* 2015 - Lawsuit Settled

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## 2015 Settlement Agreement

- \* Responsibilities
- \* Cost Sharing
- \* Interim Combined Treatment

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## SA Responsibilities

- \* ARCO
  - \* Remedial Investigation/Feasibility Study
- \* Lahontan
  - \* ICT Operations - Potentially
  - \* Final Remedy - Design, Construction, Operations

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## SA - Cost Sharing

- \* Remedial Investigation/Feasibility Study
- \* Final Remedy Design/Construction
- \* Final Remedy Operations

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## Interim Combined Treatment

- \* Seasonally Treats Combined AMD Sources
- \* 2017 - ICT Demonstration
  - \* Potentially 2018
  - \* Potentially 2019
  - \* Potentially No Takeover

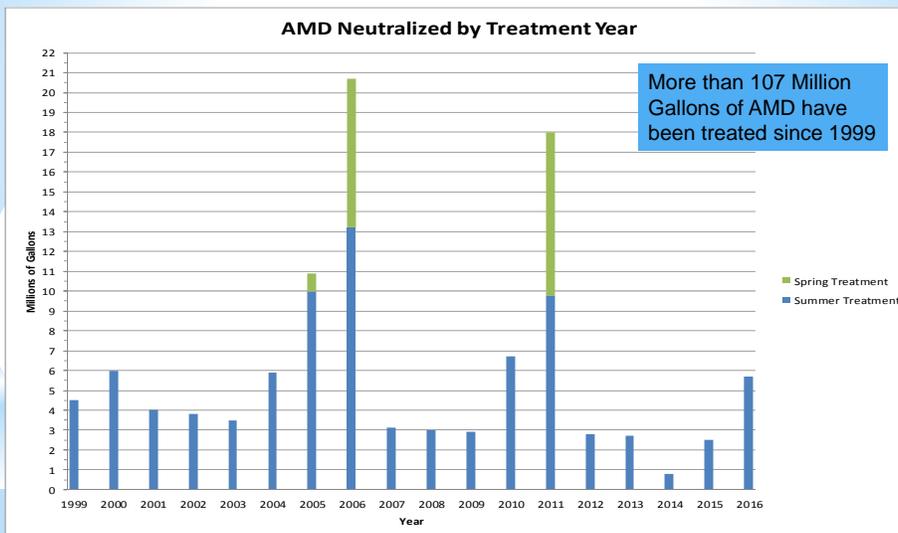
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## 2016 Operations

- \* Pond Water Treatment Operations
  - \* 163 Tons of Sludge Removed
  - \* 5.7 Million Gallons AMD Treated and Discharged
  - \* Satisfied USEPA Discharge Criteria
- \* Monitoring
- \* Maintenance

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# Annual Treatment Volumes



## 2017

- \* Spring Treatment Operations
- \* ICT Demonstration
- \* Pond Water Treatment Operations
- \* Monitoring
- \* Maintenance

# The Future

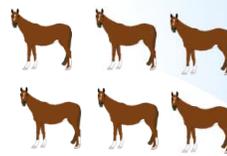
- \* Complete Remedial Invest./Feasibility Study
- \* Record of Decision - Final Remedy
- \* Final Remedy - Construction/ Operations and Maintenance

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Approximation of Some of the Metals Removed By the Pond Water Treatment Plant Since 1999



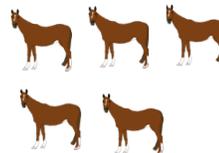
405,000 pounds of aluminum removed



6,400 pounds of nickel removed



590,000 pounds of iron removed



5,500 pounds of arsenic removed

