

**LAKE MEAD WATER QUALITY FORUM**  
**July 26, 2007**  
**Meeting Summary**

**I. Introductions - Forum members and participating audience members introduced themselves.**

See attached sign-in sheet.

Tom Porta mentioned that the presentation to be given by the Bureau of Reclamation under Item #2 had to be rescheduled for the next meeting.

**II. Status Reports:**

**1. Perchlorate Update - Todd Croft (NDEP - Las Vegas)**

**LV Wash:**

- The perchlorate mass flux passing Northshore Road for the past 5 months ranges between 60 to 90 lbs/day (February thru June 2007).
- This continues to be about a 90% reduction from pre-remediation values when the mass flux at Northshore Road was approximately 900-1,000 lbs/day.

**Willow Beach:**

- The perchlorate concentrations measured at Willow Beach in the Colorado River system continue to remain low and have been measured at < 4 parts per billion (ppb) since June 2004. For the 10 of the 12 months in 2005, 2006 and all of 2007, Willow Beach concentrations were reported below 3 ppb.
- Perchlorate concentrations at Willow Beach for 2007 have ranged between 1.4 and 3.0 ppb (Jan-Jun 2007).
- Sampling of Willow Beach and Northshore Road transitioned from NDEP to AMPAC & Tronox in January 2007.

**Colorado River:**

- Monthly perchlorate concentrations have been reported at < the 4 ppb detection limit provided by the Metropolitan Water District (MWD) of Southern California water quality laboratory for all samples collected between June 2004 and October 2005.

- MWD reported a perchlorate concentration of 2 ppb for November 2005 and 2.3 ppb for April 2006 after lowering the detection limit to 2 ppb in November 2005.
- MWD has reported concentrations < 2 ppb for all other samples collected between November 2005 and April 2007.

#### Tronox LLC (formerly Kerr-McGee):

- Tronox' Fluidized Bed Reactor (FBR) perchlorate treatment system continues to operate. Perchlorate concentrations in the treated water discharge are routinely < 18 ppb.
- Perchlorate removal rates for the Tronox remediation system are typically reported between 1,700 and 2,000 lbs. per day. Tronox reported 1582 lbs/per day removal rate for June 2007.
- Removal of perchlorate from the environment through March 2007: 2,306 tons total; 385 tons from the seep area; 677 tons from Athens Road; and 1,244 tons from the on-site system.
- The additional FBR added late last year continues to perform well allowing an additional 25% perchlorate and chlorate mass to be destroyed from dewatering of the on-site AP-5 pond.
- The sand filter which was added to the effluent filtration system last August continues to perform well allowing discharge of a more clear treated water to the Las Vegas Wash.

#### AMPAC:

- Start-up of the Interim ISB System was initiated on June 12, 2006. Degradation of perchlorate to non-detectable concentrations (<6ppb) was achieved in the lead (first/closest) performance monitoring well by July 24, 2006.
- Activation of the second phase occurred in late December 2006 with the transfer of operations to the long-term ISB building, decommissioning of the interim ISB System, and activation of the Athens Road & Athens Pen Well Fields.
- Shakedown of the permanent ISB System continued throughout March 2007. Currently, 6 of the 9 extraction wells are currently operating. Six of the 6 injection wells are in use. Flow through the system is approximately 200gpm with an average perchlorate mass reduction of about 40 lbs/day.

- The current schedule calls for the full system to be operating at about 220-400gpm with an expected mass reduction rate of about 50 lbs/day by the end of July 2007. A detailed performance review is planned for submission by mid August 2007.

### Perchlorate Modeling:

- McGinley & Associates, Inc. (MGA) initiated work during the 3rd Quarter of FY07 on perchlorate modeling efforts. This work will result in development of a detailed two-dimensional groundwater flow and particle tracking model of the Athens Road Well Field area within a portion of the Tronox Perchlorate Plume.
- This model approach was selected as a result of several project advancements that have occurred in the Henderson area since the "Refined Las Vegas Wash Initial Perchlorate Model Project" was placed on hold in 2005 pending continued funding from U.S. EPA Region 9. The FY07 modeling approach is anticipated to yield a greater understanding of remedial efforts and conditions in the Athens Road vicinity, and support decision-making efforts regarding remediation effectiveness and optimization.
- The FY07 model constructed with U.S. EPA Grant Funds, and an existing detailed AMPAC model prepared by AMPAC's consultant for an area coincident with Athens Road farther to the west of the Tronox Athens Road Well Field, may be used at a later date in conjunction with a larger, coarser numerical model of the region currently under development by other entities.
- A degree of discrepancy exists between predicted and observed mass flux within Las Vegas Wash. The results of FY07 modeling for the vicinity of Athens Road may also provide insight into the reasons for the discrepancy and thereby improve the overall perchlorate monitoring and remediation efforts.

### Nationally:

- The Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA) published a 6 ppb public health goal (PHG) for perchlorate in March 2004. A California based drinking water standard [Maximum Contaminant Level (MCL)] of 6 ppb was recently proposed in August 2006. The state of California held a hearing regarding the proposed legislation for a California MCL for perchlorate on October 30, 2006. The public comment period closed on November 3, 2006. The California MCL is to be set as close to the PHG as economically and technically feasible.
- The National Academy of Sciences' (NAS) National Research Council (NRC) issued their report in January 2005. The NAS NRC concluded that an oral reference dose

(RfD) of 0.0007 milligrams per kilogram per day (mg/kg/day) would be a health protective reference dose.

- The U.S. EPA adopted this RfD in February 2005.
- In January 2006, the U.S. EPA Office of Solid Waste and Emergency Response (OSWER) released new guidance of states, regions, and stake holders entitled *Assessment Guidance for Perchlorate*. The January 2006 guidance replaces earlier interim guidance issued by the U.S. EPA in June 1999 and January 2003.
- The NDEP is evaluating this new guidance and will continue to use the Provisional Action Level of 18 ppb for the foreseeable future. The 18 ppb Provisional Action Level is incorporated into both the Tronox NPDES permit and the AMPAC UIC permit.

\* Peggy Roefer reported that the current drinking water concentration report showed  
2 micrograms per liter at the intake.

## 2. Quagga Mussels (NDOW)

Tom Porta asked if anyone from Wildlife or the Parks Service was at the meeting to report on the quagga mussel status. Peggy Roefer said there was an interagency meeting scheduled for August 2<sup>nd</sup> at 9:00am. This meeting, sponsored by the Parks Service, will be held at the River Mountain Water Treatment Facility. They will then discuss with other agencies attending the status of the quagga mussel issue.

## 3. Selenium Subcommittee

Kathy Sertic reported the water quality data collected in early 2007 in the Las Vegas Wash and the tributaries shows the levels in the wash above the City of Las Vegas Waste Water Treatment Plant are running 13-14 micrograms per liter. Downstream of all of the wastewater discharges the levels show about 4 micrograms per liter. The tributaries are above 5 micrograms per liter which is the Aquatic Life Beneficial Use Standard. The highest values are seen in the Munson Channel running at 20 micrograms per liter.

Clark County Water Reclamation District is evaluating the removal of selenium through their treatment process. In their preliminary data it is showing there are 4 different stages in the treatment process where selenium is being removed. They are still evaluating which is the most efficient method that has the most removal. Data collected from August 2006 through February of 2007 showed a 25 to 60 percent decrease between the influent and the effluent.

At the last meeting, Dr. Debra Soukup of the University of Nevada Las Vegas, gave a presentation on the behavior of arsenic and selenium in sediments and soils. Kathy informed everyone that Dr. Soukup's presentation is available on the Lake Mead Water Quality Forum (LMWQF) website if anyone was interested in looking at it.

Kathy also mentioned that Peggy Roefer presented some additional information on the research being conducted by SNWA on selenium in a number of different media soils, shallow groundwater, nesting success and water quality to continue to evaluate the selenium problem.

Peggy's presentation is also available on the LMWQF website.

Jim Pollard of the Harry Reid Center gave an update on his research on selenium in the food chain in the Clark County Wetlands Park Nature Preserve. His research shows that selenium in most of the aquatic community has decreased after the shut off of the Munson Channel into the Nature Preserve.

Kathy informed everyone that the Selenium Subcommittee was meeting after the Forum at 1:00 in the River Mountain Room.

#### 4. Las Vegas Wash Coordination Committee

Mr. Xiaoping Zhou of SNWA presented an update on the variety of activities since the last meeting which was held July 24, 2007. He mentioned the following engineering projects in the Las Vegas Wash are almost fully designed: the upward diversion weir, the bypass channel, the structure, including the lower structure.

The biological monitoring project and the bird egg collection are currently ongoing for the third round bioassessment study. Fish samples will be collected in the fall of 2007.

As part of the third-round bioassessment study, SNWA collected selenium samples from three different tributaries. Mr. Zhou further stated that their goal was to finish the first round of selenium sampling from the proposed tributaries in August 2007. The second round of tributary selenium sampling would be completed by winter of 2007. SNWA is planning to collect sediment samples from the Wash and tributaries for the bioassessment study at eight different locations.

Mr. Zhou stated that SNWA would be doing biological monitoring for the threatened and endangered bird species survey on the birds nesting in the Wash.

A biological group completed a Wildlife Management Plan and a copy of that will be sent out in the next few weeks

The Las Vegas Wash Coordination Committee will continue to host more public outreach events during fall 2007.

The Demonstration Wetland project reports with 2 years of study results have been completed. The Wetland is located in the City of Henderson Wastewater Treatment Facility. The report is available if anyone would like to obtain a copy. Contact Mr. Zhou to get that report.

### III. Presentations

1. Pharmaceutical Compounds in the Environment - Christian Daughton, Ph.D. (U.S. Environmental Protection Agency)
2. Biological Opinion for SCOP; Impacts of Low Lake Levels on SCOP - Lynn Orphan, P.E. (Clean Water Coalition).

These presentations are available on the NDEP website at [ndep.nv.gov/forum](http://ndep.nv.gov/forum)

### IV. Other Issues

Nothing discussed in this area

### V. Next Forum Meeting

The next Lake Mead Water Quality Forum meeting was scheduled for October 30, 2007.

### VI. Adjourn

The meeting was adjourned at 12.00 p.m