

LAKE MEAD WATER QUALITY FORUM
April 10, 2007
Meeting Summary

I. Introductions – Forum members and participating audience members introduced themselves.
See attached sign-in sheet.

II. Status Reports:

1. Perchlorate Update – Todd Croft (NDEP – Las Vegas)

LV Wash:

- The perchlorate mass flux passing Northshore Road for the past year has continued to range between 100 and 175 lbs/day through the end of January 2007.
- This continued to be about an 80-85% 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. For the 10 of the 12 months in 2005 and 2006 and the first three months of 2007, Willow Beach concentrations were reported below 3 ppb.
- Perchlorate concentrations at Willow Beach for 2007 were reported at 1.8, 2.6, 2.5, and 1.4 ppb for early January, late January, February and March 2007 respectively.

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 December 2006.

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.
- Removal of perchlorate from the environment through March 2007: 2,230 tons total; 381 tons from the seep area; 646 tons from Athens Road; and 1,203 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. Seven of the 9 extraction wells are currently operating. Four of the 6 injection wells are in use. Flow through the system is approximately 200gpm with an average perchlorate mass reduction of about 12-15lbs/day.

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.

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.

2. Quagga Mussels (NDOW)

Kent Turner stated that in terms of assessment and monitoring the National Parks Service has performed over 50 dives since its original discovery. As of the last quarterly meeting there were some new areas of discovery. There have been dives in the Boulder Canyon where they found adult mussels about 100 feet down. Mussels were discovered on dives in the west side of the Virgin Basin out to east of the Boulder Wash and almost to the gypsum beds that are west of Temple Bar. Quagga Mussels are being found routinely on dives around the Boulder Basin. There have been recreational diver reports finding mussels around 200 feet. Discoveries on Sentinel Island found mussels at 150 feet. Sentinel Island seems to be a location for adult quagga mussel concentrations. Mr. Turner stated that they were beginning a partnership with the Bureau of Reclamation and with SNWA for monitoring at surface and at depths at 8 locations around Lake Mead and Lake Mohave from the Great Basin, Temple Basin, Virgin Basin and Boulder Basin and also a mile below the Hoover Dam. The site of the Boulder Basin near the Hoover Dam will be monitored at surface and at depth to try to correlate the presence and density of larvae to temperatures being seen within the lake. This will involve samples of the plankton.

Mr. Turner stated that containment strategies are being done on a “two-phase” basis. There is a science advisory committee that has been working with the interagency core team established within SNWA, NDOW, the Arizona Game and Fish Department and the US Fish and Wildlife Service. It was recommended by the science advisory committee that the best thing for containment was to pay attention to boats that may have been slipped elsewhere with adult mussel populations on them. NDOW has also been working with contracted concessioners to the National Parks Service at the marinas. Slip renters have been notified about the mussel issue. There are signs at the marinas stating that slip renters are placing a notification within slip rental agreements. This will notify people that boats moored and slipped at the marinas have to be inspected in washes as they leave any of the the lakes. Boat washing stations have been ordered and they are working to get things in place. Another phase for containment strategy is regarding recreational boats that may launch for a day or two and then go elsewhere. NDOW is getting ready to hire additional staff for peak hours and high visitation periods throughout the summer. Beginning in early May, for the peak boating season, the strategy is to contact boaters at the ramps to make them aware of the issue and encourage their compliance to leave the lake with their vessel clean and dry before going elsewhere. There will be a draft response plan that outlines all of NDOW’s assessment and monitoring activities. A draft monitoring protocol should be finalized by around April 20th which will be available to anyone who is interested.

3. Selenium Subcommittee

Kathy Sertic was not available for the update on the subcommittee meeting. Pam Willard notified that the current meeting is being held after the Lake Mead Water Quality Forum.

4. Las Vegas Wash Coordination Committee

Seth Shanahan stated there have been a variety of activities going on since the last Coordination Committee meeting. The last meeting was at the end of January. One item of discussion was regarding the temporary control structure built along the wash. The construction on the upper diversion weir will be going on. At the last LVWCC meeting, there was a presentation from Heidi Roberts who is an archaeologist. She has done extensive research along the Clark County Wetland Park. Heidi listed some of the major finds they had excavated within that area. She had found some pollens dating as far back as 100 BC to 110 AD.

Mr. Shanahan also mentioned that in early March there was a special LVWCC meeting to discuss some Duck Creek erosion control issues.

The 10th Las Vegas Wash Green-up was just held in March. There were more than 500 volunteers planting 15 acres. In early April there was a Research and Environmental Monitoring Study Team meeting. Various drafts were distributed for review by the study team. One draft was a Las Vegas Wash Wildlife Management Plan summarizing all of the wildlife studies that have been done in that area. The Demonstration Wetlands project draft was also submitted for review. If anyone is interested to see any of the drafts Mr. Shanahan said that he could get them a copy.

III. Presentations

- 1. Virtual tour of SNWA's River Mountains Laboratory/Perchlorate Detection Methods/EDC Detection Methods – Stan Vanwagenen, Principle Chemist and Brett Vanderford Research Chemist SNWA**
- 2. NDEP Preliminary Evaluation of Muddy River Water Quality Standards—Sam Stegeman**

These presentations are available on the NDEP website at 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 July 26, 2007.

VI. Adjourn

The meeting was adjourned at 12.00 p.m.