

LAKE MEAD WATER QUALITY FORUM
February 5, 2008
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)

Todd Croft reported the following updates for perchlorate:

LV Wash:

- The perchlorate mass flux passing Northshore Road for the last 10 months has been shown to range between ~55 to ~90 lbs./day (Feb. thru Nov. 2007). The 10-month average is ~76 lbs./day.
- This continues to be about an 85 - 90 % reduction from pre-remediation values when the mass flux at Northshore Road was approximately 900 to 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 10 of the 12 months in 2005 and 2006 and all of 2007 (thru September 2007), Willow Beach concentrations have been reported at ≤ 3 ppb.
- Perchlorate concentrations at Willow Beach for 2007 have ranged between <1.0 to 3.0 ppb (Jan – December 2007).
- The July 2007 Sample results represent the lowest perchlorate concentration measured through NDEP/RP sampling which was initiated in Jan. 1999. The 07/17/07 concentration reported for Willow Beach is < 1.0 ppb (ND @ 1.0 ug/L).
- Sampling of Willow Beach and Northshore Road transitioned from NDEP to AMPAC & Tronox, respectively, in January 2007.
- The analytical method used for Willow Beach sample analyses transitioned to EPA Method 332.0 beginning w/ the September 2007 sample. A comparison of analytical results is planned for an ~ 6-month period beginning wherein replicate samples will be analyzed via both EPA Method 314.0 & EPA Method 332.0

Colorado River:

- Monthly perchlorate concentrations have been reported at < 4 ppb by the Metropolitan Water District (MWD) of Southern California water quality laboratory for all samples collected between June 2004 and July 2007.
- MWD reduced their reporting limit to 2 ppb in September 2003.
- MWD has reported perchlorate concentrations < 2 ppb for all samples collected between October 2005 and January 2008 except for the November 2005, April 2006, and May 2006 samples which were reported between 2.0 and 2.3 ppb.

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 now are typically reported between approximately 1,500 and 2,000 lbs. per day Tronox reported ~ 1,534 lbs/day removal rate for December 2007.
- Removal of perchlorate from the environment through December 31, 2007:

~2,450 tons total;

391 tons from the seep area;

737 tons from Athens Road; and

1,322 tons from the on-site system.

- A new UV assembly is currently operational at the effluent side of the sand filter. This unit replaced the original UV system; is designed to function similarly by sterilizing bacteria present in the effluent; and was chosen based upon reduced maintenance requirements.
- Tronox has submitted a Workplan for Capture Zone Analyses in response to an NDEP request to demonstrate the degree of mass capture provided by the existing three well fields. The referenced Workplan is under NDEP review.

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.

- 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 May 2007.
- Through the second half of 2007, 4 of the 9 extraction wells were operating and 6 of the 6 injection wells were in use. Flow through the system was approximately 235 gpm with an average influent perchlorate concentration of ~ 15 ppm and an average mass reduction of about 39 lbs/day.
- Currently, the ISB system is turned off while GAC (carbon) vessels are being installed at various locations within the influent lines. This follows a mid-January 2008 detection ~ 10 ppb PCE in both the influent & effluent. Analyses of ~ 50 monitoring wells through the area reveal concentrations of PCE between ~ 5 to 45 ppb in the vicinity of several of the Athens Road & Athens Pen Extraction wells. The source has not been determined at this time. Re-start of the ISB system w/ GAC installed to remove the PCE is planned for later this week.
- AMPAC has initiated initial discussions w/ NDEP & CC to expand the Injection Well Field farther to the east to allow for increased capacity and higher injection rates.

Perchlorate Modeling:

- McGinley & Associates, Inc. (MGA) initiated work in January 2007 and completed that work in June 2007 on perchlorate modeling efforts. This work resulted 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.
- The 2007 Modeling Report provides a review of the remediation efforts conducted by Tronox at the Athens Road Well Field. Tronox, AMPAC, and other interested parties have been invited to a project debriefing which is planned for 11/07/07. Conclusions in the report will support decision-making efforts regarding remediation effectiveness and guide optimization efforts to be implemented over the next several months.

SCOP:

Several meetings have been conducted with members of the Clean Water Coalition (CWC) to help guide future subsurface work in the vicinity of Pabco Road. The City of Henderson Wastewater Reclamation Facility (WRF) will be tied into the primary SCOP conveyance pipeline via a subsurface north/south trending Force Main. The Force main will be constructed roughly parallel to Pabco Road from the WRF to the vicinity of the Las Vegas Wash where it will then cross the Wash via a deep tunnel.

This pipeline has the potential to allow for contaminant migration through the backfill in areas close to the Las Vegas Wash due to shallow groundwater conditions. Discussions are on-going to: (1) mitigate preferential flow through design considerations (i.e. water stop features); (2) address water disposition generated through extensive excavation dewatering; and (3) address water disposition generated through possibly aquifer testing events (pump tests).

Nationally:

- The California Department of Health Services (CDHS) announced on September 19, 2007 that the California MCL for perchlorate was set at 6 ug/L with an effective date of October 18, 2007.

2. Quagga Mussels (NDOW)

Mr. Jon Sjoberg of the Nevada Division of Wildlife (NDOW) spoke in regards to their internal monitoring program which has been primarily focused on statewide waters off of Lake Mead and the Colorado River. There have been repeated samples taken through September of 2007. The testing on those samples has been ongoing by Portland State University and it has been a rather slow process. To date there have been no detections off of Colorado River system including any of the urban ponds. In Lake Huron they have seen a significant development of quagga and zebra mussels in addition to other invasive fish species. It has had some significant negative effects on the sport fishery. Mr. Sjoberg further stated that NDOW is still in the mode of trying to get set up with a better structured monitoring plan and some additional support in getting some projects done later in the spring.

3. Selenium Subcommittee

Kathy Sertic stated that the main purpose of the meeting was to provide the Clean Water Coalition with a detailed overview of all of the research that had been conducted or is currently being conducted to evaluate selenium levels in the Las Vegas Wash - the water, plants, wildlife and soil. The subcommittee is concerned about the impact that SCOP(?) may have on the selenium levels in the Wash. There are a number of agencies represented on the committees and there will be a lot of opportunity for coordination and interaction. The monitoring plan is still being implemented so samples continue to be collected on the Wash and tributaries. The next meeting will be after the forum at around 1:00pm.

4. Las Vegas Wash Coordination Committee

Mr. Siao Ping stated that construction activities in the Wash are still continuing. The monitoring programs for biological resource and water quality continue also. The upper diversion weir and bypass channel has been completed. The bridge is still under construction. MAC is changing to LWAC this year. The bioassessment study and all samples will be collected and they are receiving data from different labs. There are many activities going on at the Nature Preserve on the north side of the Wash. The updates from three study teams have been completed. The next Green Up event was scheduled for March 8th. They planned to plant about 2,000 plants and shrubs and there were enough volunteers. The next meeting of the Coordination Committee was scheduled for April 22, 2008.

5. SCOP Update:

Lynn Orphan with the Clean Water Coalition discussed that SCOP is a system of pipelines and tunnels that will be taking the effluent from all of the wastewater and the major wastewater facilities and discharging beyond Boulder Island. The current status is good news as they are ahead of schedule and below budget. All of the contracts for the pipelines are all in design. The first of the construction projects will go to bid around spring of 2008. Construction should be completed by 2012 and a system will be operational. The adaptive management process for operating the system is also underway. The adaptive management plan will discuss how to operate and manage the SCOP system. All of the technical advisory teams are now meeting the 4th Monday of every month. There are 4 technical advisory teams: water quality objectives, monitoring and modeling, plant operations, and selenium management. The water quality objectives team started discussing objectives for the Wash and Lake Mead beginning with the NAC standards and NPDES permits. They also discussed objectives for source water protection for SNWA and downstream users. The modeling and monitoring team have a monitoring plan for the baseline monitoring and the NPDES compliance monitoring. The Selenium Management Technical Advisory Team had their first meeting. They focused on the request for qualifications for the selenium management plan. A management plan will be completed by July 2009.

III. Presentations

1. Quagga Mussels – Leonard Willett (BOR)
2. Class Waters Water Quality Standards Changes – John Heggeness (NDEP)
3. Muddy River Water Quality Standards Revisions – Paul Comba (NDEP)

These presentations are available on the NDEP website at ndep.nv.gov/forum

IV. Other Issues

Mr. Tom Porta asked if there were any other issues to discuss. Mr. Jon Sjoberg stated he had handouts that discuss Lake Huron and the studies that have been done relative to the invasive species impact. The paper was published by the Michigan Fisheries Research Center. Mr. Sjoberg had 10 copies if anyone was interested. Mr. Porta said he would take a copy to scan and post on the NDEP web site.

V. Next Forum Meeting

The next Lake Mead Water Quality Forum meeting was scheduled for May 20, 2008.

VI. Adjourn

The meeting was adjourned at 12:50 pm