

LAKE MEAD WATER QUALITY FORUM
October 26, 2010
Meeting Summary

I. Introductions – Forum members and participating audience members introduced themselves.

Before introductions began Kathy Sertic wanted to recognize that the Metropolitan Water District of Southern California has signed on for the Lake Mead Water Quality Forum. Mickey Chowtery (spelling?) is the representative for that agency. Ms. Sertic welcomed them as new participants in the Forum. Ms. Sertic introduced Colleen Cripps as the Acting Administrator who was also in attendance.

When introductions were done, Kathy Sertic mentioned two members who will no longer be participating with the Lake Mead Water Quality Forum. The first member is Erick Orsak who accepted a position with the U.S. Fish and Wildlife in Arlington, Texas. Mr. Orsak's technical expertise will be greatly missed and especially his knowledge on the selenium issue. The second member is Ms. Becky Blasius with the Bureau of Reclamation (B.O.R.). Ms. Blasius has moved into a new position within B.O.R., so Janet Kirsch (spelling?) will be the new B.O.R. representative. Ms. Sertic welcomed Ms. Kirsch to the Forum.

Ms. Sertic mentioned that the Memorandum of Agreement has been signed by all of the agencies and that she e-mailed a copy to everyone, though some did not receive it because the document was probably too large. The fully executed copy is also available on the Forum web page on the NDEP website at www.ndep.nv.gov/forum .

II. Status Reports:

1. Perchlorate Update - (NDEP – Las Vegas)

The following perchlorate update was discussed by Todd Croft, NDEP, Las Vegas.

- The perchlorate mass loading passing Northshore Road for over the last two years has been shown to range between ~55 to ~90 lbs./day (October 2007 – April 2010). The perchlorate loading for April 2010 was ~70 lbs./day.
- This continues to be an approximate 90% reduction from pre-remediation values when the mass loading at Northshore Road was approximately 900 to 1,000 lbs./day.
- The Southern Nevada Water Authority (SNWA) began construction of two additional erosion control structures (Lower Narrows Weir and Homestead Weir) within the LV Wash during March 2010. Construction dewatering for both weirs is managed under the February 1, 2010 NPDES permit issued by the NDEP. Construction dewatering will be limited to a winter season (~December 1 through May 30 each season) when Lake Mead is fully mixed. Monitoring is occurring within the LV Wash, Lake Mead, and below Hoover Dam to help adjust the dewatering amount and season so the additional perchlorate load can be mixed with the least observable increase in perchlorate concentrations within Lake Mead and the Lower Colorado River.

The permit restricts the dewatering discharge to 80 lbs./day perchlorate and that the discharge is returned to the LV Wash. Monitoring conducted by the SNWA (or their contractor) since dewatering was initiated on March 12, 2010 has shown the combined project discharge has varied between ~ 10 and 62 lbs./day with an average of ~ 16 lbs/day for the period from March 12, 2010 through June 6, 2010.

Several other weirs are scheduled for construction in the LV Wash over the next 5 years. NPDES permits have been issued for six weirs including:

- The Demonstration Replacement Weir which is positioned down-stream of the perchlorate-impacted groundwater area; and
- Five other weirs (DU Wetlands #1, Archery, Silver Bowl, Tropicana Outfall, & D-14 Extension) which are positioned up-stream of the perchlorate-impacted groundwater area.

The NPDES permit for four other weirs (Historic Lateral Expansion, Sunrise Mountain, Upper Narrows, & Duck Creek Confluence) weirs is in the public comment period. These four weirs are also positioned down-stream of perchlorate-impacted groundwater.

The NPDES permits include discharge limitations and monitoring conditions designed to limit the perchlorate mass from all discharges to amounts that should not appreciably degrade water quality within Lake Mead and the Lower Colorado River [i.e., downstream concentrations should not increase by more than ~ 1 ug/L (1 ppb) above the existing range in perchlorate concentrations (~ 0.7 to 1.9 ppb)].

Willow Beach:

- The perchlorate concentrations measured at Willow Beach in the Colorado River system continue to remain at or less than 2 ppb since December 2008 and has been measured at ≤ 4 parts per billion (ppb) since June 2004. The perchlorate concentration at Willow Beach for September 2010 was 1.4 ppb.

Colorado River:

- MWD has reported perchlorate concentrations < 2.0 ppb for all samples collected between July 2008 and October 2010. The perchlorate concentration at Whitsett sampling point during October 2010 was 1.2 ppb.

Tronox LLC (formerly Kerr-McGee):

- The 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 ~ 1,600 lbs./day removal rate for September 2010.

- ~ 3,244 tons (total) of perchlorate have been removed from the environment through September 30, 2010 as follows:
 - 415 tons from the seep area;
 - 1,070 tons from the Athens Road Well Field; and
 - 1,759 tons from the On-site Well Field.
- Tronox is scheduled to submit Groundwater Evaluation Report in December 2010 that discusses the hydraulic capture at each of the three well fields associated with the Tronox ex-situ bioremediation system.
- Tronox has completed a column test for on-site soil flushing (no bench-scale or field-scale pilot testing have occurred yet).
- Work plan revisions are needed prior to Tronox proceeding w/ lab-scale; bench-scale; or pilot testing for edible oil substrate injection north (down-gradient) of the Athens Road Well Field.

AMPAC:

- The In-Situ Bioremediation (ISB) perchlorate treatment system continues to operate at approximately 140 - 150 gpm with a mass loading (destruction) of approximately 25 - 30 pounds per day via injection wells and an injection trench.
- AMPAC has completed their modeling efforts in the area south of Warm Springs Road and have determined that remediation is needed in the vicinity of their former plant.
- AMPAC is currently conducting pilot scale studies for remedial system selection. The technologies that are being considered include:
 - Gravel bed reactors;
 - Hall reactors; and
 - Fluidized bed reactors (FBRs).
- AMPAC continues with the ISB system until an ex-situ system is selected and constructed. NDEP expects an operational ex-situ system in ~ 12 – 18 months that will additionally tie in recently completed “source area” wells. The “source area” wells are designed to extract perchlorate-impacted groundwater from deeper water-bearing zones near Gibson Road and American Pacific Drive.

Nationally:

- The US EPA, Office of the Inspector General (OIG), issued a peer reviewed report on April 19, 2010 entitled “Scientific Analysis of Perchlorate”. The OIG report concludes:
 - EPA should use a “cumulative” risk assessment rather than a “single chemical” risk assessment approach. This would allow for an informed environmental decision to be made on how to mitigate the risk effectively;
 - There are three iodine uptake inhibitors (IUI); perchlorate, thiocyanate, and nitrate;

- A fourth Sodium-Iodide Symporter (NIS) stressor is low dietary iodide levels;
- Perchlorate is the weakest of these stressors;
- A cumulative risk assessment would consider the impact of all stressors on health;
- The EPA 0.007 mg/kg/day RfD (which corresponds to a 24.5 ppb Drinking Water Equivalent Level (DWEL) is conservative and protective of public health;
- Limiting perchlorate exposure, alone does not effectively address the underlying public health issue;
- A meaningful opportunity to lower the public's risk is better achieved by addressing moderate to mild iodide deficiency (which occurs in ~ 29 % of the pregnant and nursing population) than by lowering the drinking water limit for perchlorate from 24.5 to 6 ppb. Focusing on proper dietary iodide levels in pregnant and nursing women would be the most effective approach to increase total iodine uptake (TIU) to healthy levels during pregnancy and nursing. This can be achieved through using iodide fortified prenatal vitamins;
- Increasing TIU would reduce the frequency and severity of permanent mental deficits in children.

2. Quagga Mussels (NDOW)

Ms. Emily Austin of the National Parks Service (NPS) reported that there is some quagga mussel activity at Lake Mead and at the Greater Western Region. At Lake Mead they have been doing water research and monitoring by using scuba divers to collect samples. Their Interagency Monitoring Plan is known as IMAC which studies quagga mussels in various sizes from the surface to 380 feet deep. Samples are collected on a weekly, quarterly and annual basis at a variety of sites. The first year of collected samples has been completed and all samples are being tested and studied UNLV. Testing these samples is a long and tedious process however, Ms. Austin mentioned that they do have some samples processed in order to have some results to report. What they have assessed at Black Island is there is a greater density of mussels since 2007 and at around 80 feet there is a spike in density of slightly smaller mussels. If anyone has questions regarding the testing at UNLV contact David Wong. With quagga mussels being a problem not just at Leak Mead but in the Western Region they are working on programs for opening communication with other state agencies regarding this problem.

3. Selenium Subcommittee

Ms. Peggy Roefer of SNWA announced that the subcommittee has been anxiously waiting on the EPA's news line criterion. At the last meeting there were two projects discussed and for these SNWA was given funding by the Bureau of Reclamation. The first project is a modeling of the mass balance of selenium in and out of the system to see where the sources are. Second, SNWA also will be looking at selenium, infiltration rates and water use. A golf course will be used so SNWA can study their water use and can see how much selenium is exiting from that site. They want to find out if SNWA can do a better job with infiltration in selenium concentrations. Another issue that came up was the Ducks Unlimited ponds and how the water flows through those ponds and if there are any selenium concerns. A map of those ponds will be done at the next meeting.

4. Las Vegas Wash Coordination Committee (SNWA)

Mr. Seth Shanahan reported that overall there are two additional weirs in construction on the wash which brings the total number of weirs to 14. With the additional work they have been able to remove 80% of the salt peter that was historically in the area so 1500 acres was reduced to about 200 acres. Water quality monitoring activities continue to be done on the wash and in the tributaries. They are collecting data on these areas to develop a network of water quality sampling locations in order to develop a surface water quality monitoring plan. That plan should be coming out as early as January 2011. Through compliance activities they have identified no threatened endangered species in the wash.

5. SCOP Update (CWC)

Mr. Jim Devlin of the Clean Water Coalition (CWC) reported that due to the advancement of the changing wastewater treatment technologies, the population growth and financial constraints, it has been determined that constructing the SCOP project is not necessary in the foreseeable future. The CWC Board has suspended SCOP construction until January 2012. Sometime after the first of the year it is suspected the Board will terminate the project and therefore it will never be built. As a result, at the meeting on September 28th the CWC Board asked staff to prepare an outline on the steps necessary to dissolve the Clean Water Coalition (CWC). The Board recognizes that due to legal constraints and water quality commitments this process will take time. There is a memorandum of understanding with Metropolitan Water that will need to be terminated or re-negotiated.

The Board and member agencies are committed to the completion of the lawsuit against the State of Nevada. The State of Nevada attempted to take \$62 million dollars of funds that were generated for the SCOP project and then wanted to use those funds for other purposes. Legal and written arguments are due sometime around the beginning of November. All arguments will be heard around Thanksgiving or sometime shortly after. The lawsuit decision is to be made by Judge Barker possibly after the first of the year.

Mr. Devlin mentioned that there were still some environmental studies and projects the CWC intends to participate in and will see to completion. The CWC also plans to work with the Southern Nevada Water Authority to complete the Lake Mead Water Quality Model project.

6. Algae Task Force

Mr. Doug Drury of the Clark County Water Reclamation District (CCWRD) reported on the current status for the Algae Task Force. Mr. Drury stated that they have tried to collect as much data as possible. In looking at the “bathtub ring” of Lake Mead and the fact that it is still going down, the question is will there be any adverse reactions from algae. The last recommendations of the previous two task forces are being reviewed. The data collection still has not been finished so at this time they do not have enough data. Mr. Drury stated that they wanted to determine if there was any additional data that needed to be gathered and are doing that with phosphorus and storm water flows. As Lake Mead lowers, the Wash will be discharging into the Boulder Basin as the lake is down that low.

One of the recommendations from the previous task force is to apply for some federal grants for research. Another recommendation is to assess Nonpoint source nutrient loads. Nonpoint source basically is storm flow. Mr. Drury stated that Flood Control has done a good job measuring the concentrations during the first flush. The main issue is measuring the concentrations to see how much phosphorous is going out into the lake that will make algae blooms. The dischargers are down to 200 lbs. or less per day.

III. Presentations:

1. Long Term Limnological and Aquatic Resource Monitoring and Research Plan for Lakes Mead and Mohave
Kent Turner, National Park Service
Chief, Resource Management, Lake Mead NRA
2. Characterization of Lake Mead Water Quality Based on Data From Near-Continuous Monitoring Platforms, 2004-2010
Michael Moran, U.S. Geological Survey
Supervisory Hydrologist, Nevada Water Science Center, Southern Nevada Programs

Presentations and other information is available on the NDEP website at ndep.nv.gov/forum

IV. Other Items/Announcements

V. Next Forum Meeting

The next Lake Mead Water Quality Forum meeting was scheduled for January 25, 2011

VI. Adjourn

The meeting was adjourned at 12:57pm