Message

From: Weiquan Dong [wdong@ndep.nv.gov]
Sent: 8/20/2015 6:04:29 PM
To: 'Andrew Steinberg' [andrew.steinberg@lepetomaneinc.com]; James Dotchin [jdotchin@ndep.nv.gov]; Tanya O'Neill [toneill@foley.com]; Jay A. Steinberg [custodialtrust@lepetomaneinctrustee.com]; LThorson@foley.com; Greg Lovato [glovato@ndep.nv.gov]; Fong, Alison [fong.alison@epa.gov]; Steve Clough [steve.clough@nert-trust.com]; Moore, Letitia [Moore.Letitia@epa.gov]; Jasmine K. Mehta [jmehta@ag.nv.gov]
Subject: RE: NERT Technical and Legal Committee Meeting
Attachments: SunriseMountain_weir.pdf

Andy,
I have expressed my opinion on the evaluation of water treatment options for the two weir construction dewatering at the Las Vegas Wash in my previous emails to Steve. It seems good for me to state some information I observed here because this is very complicated issue and many of you want to know more information about this issue.

1. Two weirs (Sunrise Mountain and Historic Lateral) are located within 1 ppm contour of the NERT perchlorate plume. The latest perchlorate concentration (2015) of from the 6 new NERT wash wells ranges from 470 to 3400 ppb. The lower perchlorate concentration (470 to 1,300 ppb) is from three shallow screen intervals. Therefore, the perchlorate concentration of the groundwater in the southern bank of the wash is likely about 3 ppm;
2. The Sunrise Mountain Weir construction site is within 1,000 ft radius of these 6 wells, so the dewatering water should have similar perchlorate concentration of 3 ppm perchlorate at this site. The perchlorate concentration was very high (57 ppm) in 2,000 seep samples. Two SNWA groundwater wells close to this site had the perchlorate concentration of 1,800 and 4,000 ppb in 2012. Therefore, it is unlikely that the dewatering water will be less 3 ppm;
3. The discharge permit of the dewatering has three limits: 1) Perchlorate mass loading must be less than 80 lb/day in winter months (Dec 1-May 31) and 25 lb/day in summer months (June 1-Nov 30); 2) The flow rate <=6,900 gpm; 3) Notice BCA (now BISC) if the Lake Mead water elevation below 1060 ft. Daily perchlorate mass loading = flow rate x perchlorate concentration (3 ppm), so the flow rate they can discharge should less than 2,224 gpm for winter months and 695 gpm for summer months. Therefore, there is no much reason to design a treatment system to handle 7,000 gpm; Furthermore, if the perchlorate concentration is less than 1 ppm, the discharge flow rate may be 6,900 gpm but the perchlorate mass loading in that situation is proportional less significant for letting 4,000 gpm of the discharge water go. The historical dewatering discharge flow rate for all weirs completed is generally less than 2,000 gpm. It is reasonable to evaluate a treatment system for the 2,000 gpm of capacity, because the NERT almost decided to have a 1000 gpm of IX system at the Lift Station 1 and that may not be always running at full capacity;
4. Historic Later weir is about 1,500 ft upper gradient of the Bostic Weir that was built in 2003. The perchlorate mass loading ranges from 6.2 to 160 lb/day. The high mass loading was in first three months of dewatering. The dewatering flow rate ranges from 600 to 3,992 gpm with average of 2,300 gpm. However, the dewatering didn't have the permit at that time. It is likely that the perchlorate mass loading from the dewatering water at the Historical Lateral Weir will have about same range of the Bostic perchlorate mass loading because it is closer to the perchlorate plume;
5. The most dewatering for the Three Kids weir was done in 2014. The perchlorate mass loading ranges 4 to 30 lbs/day with average of 14 lbs/day. The discharge rate ranges from 348 to 2,472 gpm with average of 1,165 gpm. The average mass perchlorate mass loading at the Northshore Rd in 2014 was 74 lbs/day, so the perchlorate from the Three Kids dewatering accounts for 19%.
6. The perchlorate of the SNWA intake, USGS gage below Hoover Dam, the MWD intake at Havasu Lake all show the highest perchlorate concentration for the period back to 2010. I am not sure that if the high perchlorate concentration for these sites is caused purely by dewatering , but it did contribute 19% of the total perchlorate mass loading to the Lake Mead;
7. The water level elevation of the Lake Mead is 1075 ft. The SNWA dewatering discharge permits is based on the modeling results of the 1,100 ft of the lake water elevation. The low lake water elevation means less dilution and quick traveling time to the MWD intake. Therefore, the perchlorate mass loading from the dewatering will have more impact to the Lake Mead Water quality than the high water elevation before;

8. The perchlorate of groundwater in the wash has more than one sources but most of it is from the Kerr-McGee (now NERT plume) perchlorate plume. This can be supported that the perchlorate concentration was 1,013 ppb on 1/30/1998 and it was 129 ppb on 12/27/2005 at the Northshore Rd. The AMPAC didn't have any remediation on their groundwater perchlorate plume, so the perchlorate concentration reduction is 87% just with the groundwater perchlorate remediation at the NERT perchlorate plume. The 2000 Kerr-McGee Seep characterization sampling shows that the perchlorate concentration dramatically increase at sampling location KM 71 and reaches peak of 57000 ppb at KM70 that is corresponding to the center of the NERT perchlorate plume. The perchlorate concentration of the seep water in the west of KM71 where the AMPAC perchlorate plume is corresponded ranges from below detection to 77 ppb (See attached map).
9. The cost to treat the perchlorate of the dewatering discharge from the weir construction is very high no matter which way to do it. I feel that we should do something for the known perchlorate mass loading especially at the time we have capability to do it in that way showing our attitude to take care of potential impact to the downstream water quality. This issue becomes more important once the lake water elevation further drops. It seems to me that every party to involve this project should cooperate each other to do something at reasonable cost. It is not good excuse to use that the SNWA has legal permit to discharge it so we just let the know perchlorate mass go to the Lake Mead. I suggest that the evaluation should be based on better data such as practical dewatering flow rates (aquifer test data, dewatering depth), groundwater perchlorate data and communicate with SNWA if the dewatering water will be treated they should be control their discharge flow rate to the treatment capacity at least strictly following the permit.

Thanks,
Weiquan

NDEP

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From: Andrew Steinberg [mailto:andrew.steinberg@lepetomaneinc.com]
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Subject: Re: NERT Technical and Legal Committee Meeting

Good morning.

Following up on our call, I have attached a scope of work for the evaluation of water treatment options at the Las Vegas Wash. As indicated, Tetra Tech is in the process of assembling a proposal to complete this effort. At this time, no funds have been allocated or approved for any external effort related to this initiative.

Thank you,

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