To: lily tavassoli (tavassoli.lily@epa.gov)[tavassoli.lily@epa.gov]
Cc: Dana Barton[Barton.Dana@epa.gov]; Wirtschafter, Joshua[Wirtschafter.Joshua@epa.gov]; Greg Reller[gr@burlesonconsulting.com]; Patty Cubanski[pc@burlesonconsulting.com]; Cory Koger[Cory.S.Koger@usace.army.mil]; Brown, Anthony R (RM)[anthony.brown@bp.com]; Doug Carey[douglas.carey@waterboards.ca.gov]; Gary Riley[Riley.Gary@epa.gov]
From: Deschambault, Lynda
Sent: Fri 4/14/2017 5:55:17 PM
Subject: FW: Leviathan Weekly Update
170407_table_1_170413_response.pdf
170320_compliance Results.pdf

Lily, using the data I have available I've updated a summary to Dana to consider and submit to the stakeholders this afternoon.

Feel free to edit/ ask questions. I've asked ARC to provide a full report yesterday. Not yet received.

I've pulled some of the pieces of info I have together, and I estimate approx. 325,000 gallons were released

(I've asked ARC and Waterboard to put that into some perspective): 2006 was the only spring treatment year when some pond water released/discharged out of Pond 3 did not receive treatment or only received partial treatment. The untreated/partially treated portion of the 2006 Pond 3 discharge was primarily snow melt and was less than 100,000 gallons. 2005 and 2011 had a lot of treatment; but no untreated pond overflow.

ARC has not provided a complete report but I attach here the chemistry results that ARC provided yesterday. Notably:

--At ASB **Iron was released at 7.9** vs 2.0 is the discharge criteria

--at Pond 4 HDS: **Copper was released at .27** vs. .026. and **Iron 2.4** vs 2.0

(compare this to the One exceedence we reported to stakeholders for the upper ponds – which -was Copper at .047 vs .026)

Copying both ARC and Waterboard to ensure accuracy (and prodding to get any additional detail info :-))

I've asked Patty at Burleson to look at the downgradient data to see if any impacts are identified in the water quality/sondes data during that time.

1) Approximately 325,000 gallons was accidentally discharged from Pond 4 near the HDS plant: Equipment Damage. On April 6th EPA received notification that approximately 40 to 50

gpm of discharge was occurring through a broken standpipe (near the HDS plant) to Leviathan Creek. ARC partially repaired the pipe on April 7th and discharge continued at a more accelerated rate. ARC returned to complete the repair on Tuesday April 11h. ARC has provided some details that estimate 325,000 gallons of untreated water was released directly to leviathan Creek. EPA has received preliminary laboratory data showing that Iron and copper were at levels above the discharge values. This was a one-time discharge that has now been repaired. The repair was fully completed and on site monitoring continues. ARC is finalizing an incident report. ARC is monitoring the situation and providing EPA with weekly reports. EPA will be notified of any additional problems.

2) High Flow rates result in exceedance of discharge levels at the Aspen Seep Bioreactor (ASBR) : Beginning on April 5th ARC informed EPA that the Aspen Seep Bioreactor was experiencing historical high flow rates. ARC conducted maintenance, increased pipe size, and bypassed to the aeration channel to ensure that the flow thru continued without episodic releases or sudden erosion. This resulted in some water discharged and high flow volumes reduced the residence time and the full functionality of the ASBR. EPA has received preliminary laboratory data showing that Iron was at levels above the discharge values. ARC is monitoring the situation and providing EPA with weekly reports. In addition, EPA has asked ARC to provide a full assessment of the long term impacts of the increased influent flows on the functionality of the bioreactor, and the ability of the ASBR to successfully treat sustained increased flows anticipated to occur through this Spring and to ensure monitoring to assess the ASBR meets all discharge criteria.

3) Treatment of Pond 1, 2N and 2S continues: No discharges : Nearly 7 million gallons of water have been treated since early spring treatment began on March 3, 2017. Less than 1 inch of freeboard remains in Pond 1 --and in Ponds 2 North and 2 South. The combined flow of AMD from the Adit and Pit Underdrain (PUD) has increased to 112 gallons per minute which is an increase of approximately 27 gallons per minute from the combined flow observed one week ago. There is still a possibility of any overflow within days or weeks. Any overflow from the Upper Ponds would pass through Pond 3 and be partially treated before discharge to Leviathan Creek. In the event of an overflow, samples would be taken and analyzed.

EPA is receiving weekly reports and daily updates from Atlantic Richfield and the Water Board and will be notified of any changes. As the case was when we first reached out to you, we will provide notification in the event of an overflow.

EPA maintains data sondes at the confluence of 4L Creek with Leviathan Creek and at Station 15 in Leviathan Creek. Sonde measurements occur every 15 minutes and are accessible online at https://stormcentral.waterlog.com/SiteDetails.php?a=116&site=351&pa=usepar9, Both locations are downstream from where the Pond 4 discharge enters Leviathan Creek. EPA will continue to monitor the situation remotely, ARC is to provide daily updates, and EPA will share data as it becomes available.

Best Regards,

Lynda Deschambault

Environmental Scientist

USEPA Region 09

(415) 947-4183

Please be advised I may have limited access to email , therefore please be patient with any communication delays.

From: Barton, Dana
Sent: Friday, April 07, 2017 1:30 PM
To: Michelle Hochrein <michelle.hochrein@washoetribe.us>; Doug Carey <douglas.carey@waterboards.ca.gov>; David.Coupe@waterboards.ca.gov; David Friedman <dfriedman@ndep.nv.gov>; Rebecca Bodnar <rebecca.bodnar@ndep.nv.gov>; Ken Maas <kmaas@fs.fed.us>; Thomas Maurer <thomas_maurer@fws.gov>; Toby McBride <toby_mcbride@fws.gov>; Steve Hampton <Steve.Hampton@wildlife.ca.gov>; 'Ed James' <edjames@cwsd.org>; Anthony.brown@bp.com; Noah Perch-Ahern

<nperchahern@glaserweil.com>; david@parklivestock.com; Jeff Dagdigian, <jdagdigian@waterstone-env.com>; Jane Long <Jane.Long@washoetribe.us>
Cc: tavassoli, lily <tavassoli.lily@epa.gov>; Deschambault, Lynda <Deschambault.Lynda@epa.gov>; Black, Ned <Black.Ned@epa.gov>; Adan.cohen@dgslaw.com; Greg Reller <gr@burlesonconsulting.com>; Cory.S.Koger@usace.army.mil; Darrel.Cruz@washoetribe.us; fredk@aeseinc.com; Wirtschafter, Joshua <Wirtschafter.Joshua@epa.gov>; marc.lombardi@amecfw.com; pc@burlesonconsulting.com; Serda, Sophia <Serda.Sophia@epa.gov>; Yogi, David <Yogi.David@epa.gov>; Harris-Bishop, Rusty <Harris-Bishop.Rusty@epa.gov>; Sarah Green <awg.sarah@gmail.com>
Subject: the Leviathan Mine Superfund Site Update

Dear Colleagues,

I'm writing to provide an update on winter operations at the Leviathan Mine Superfund Site. The early spring treatment area continues to keep up with the flows, however there is now one other area of possible concern, and a separate discharge has occurred relative to broken equipment. Please find an update on all activities below:

1) On March 3rd, early spring treatment began in Pond 1, 2 North and 2 South (Upper Ponds) in order to treat and discharge water accumulated in the three on-site holding ponds (a total of 13 million gallons of capacity) using a Rotating Cylinder Lime Treatment System. Despite the Water Board treating more than 5 million gallons of water to date, less than 1 inch of freeboard remains in Pond 1 and less than 4 inches of freeboard still remain in Ponds 2 North and 2 South. Any overflow from the Upper Ponds would pass through Pond 3 and be partially treated before discharge to Leviathan Creek. In the event of an overflow, samples would be taken and analyzed. To date, laboratory analysis of the treated water discharges shows that all discharge criteria were met except for one release that had a minor exceedance of copper values. EPA is receiving weekly reports and daily updates from the W ater Board and will be notified of any changes. As the case was when we first reached out to you, we will provide notification in the event of an overflow.

2) On April 5th EPA received notification of an issue at the Aspen Seep Bioreactor (ASBR). Atlantic Richfield's (ARC's) remote monitoring at the ASBR showed a slight increase in the water elevation in the 4th pond, indicating that the Aspen Seep influent flow rate was outpacing the treated effluent flow rate. ARC accessed the site on April 6th and the Aspen Seep 4th Pond outlet was cleared of debris, the 1-inch diameter outlet pipe was replaced with a 2-inch diameter pipe, and the pond water level was lowered by pumping treated water to the discharge aeration channel. EPA has requested that ARC take samples of the ASBR discharge in order to assess if the ASBR is fully functioning at the high flow rates and continues to meet the discharge criteria.

Since this 4th pond is a settling pond to remove solids from the ASBR treated water, EPA does not anticipate significant impacts to the water quality. While a discharge of untreated Aspen Seep acid mine drainage has not occurred to date, EPA is communicating with ARC and monitoring the situation. EPA has asked ARC to provide a full assessment of long term impacts of the increased influent flows on the functionality of the bioreactor, and the ability of the ASBR to successfully treat increased flows anticipated to occur through this Spring and meet all discharge criteria.

3) On April 6th EPA received notification of an issue at Pond 4 near the High Density Sludge Treatment system (HDS Plant). At Pond 4, the overflow standpipe is broken and a discharge is currently taking place through the Pond 4 overflow standpipe (near the HDS plant) to Leviathan Creek. Approximately 40-50 gpm is flowing through the 4-inch PVC Pond 4 overflow pipe (Pond 4 near the HDS plant) into Leviathan creek. Today, April 7, 2017, Atlantic Richfield has accessed the site and contractors are repairing the broken overflow pipe. However, a significant winter storm is forecast at the Site and ARC cannot ensure that work crews will be able to complete the repair. ARC will provide an update this evening with more details including an estimate of the quantity of water discharged and flow rates. EPA has requested that ARC also collect samples for laboratory analysis to provide a direct measurement of metal contents in the pond water being discharged. The water in Pond 4 consists mostly of melted snow and is believed to be dilute, though likely acidic.

EPA maintains data sondes at the confluence of 4L Creek with Leviathan Creek and at Station 15 in Leviathan Creek. Sonde measurements occur every 15 minutes and are accessible online at https://stormcentral.waterlog.com/SiteDetails.php?a=116&site=351&pa=usepar9, Both locations are downstream from where the Pond 4 discharge enters Leviathan Creek. . EPA is monitoring the water quality parameters measured by these sondes including pH and specific conductance. The data over the last seven days at both stations do not show impacts of a release from Pond 4. EPA will continue to monitor the situation remotely, ARC is to provide daily updates, and EPA will share data as it becomes available.

If you have any questions, or would like additional details, please feel free to contact me or Lynda Deschambault, who can be reached via phone at (415) 947-4183 or email at Deschambault.lynda@epa.gov.

Sincerely,

Dana Barton

Dana Barton

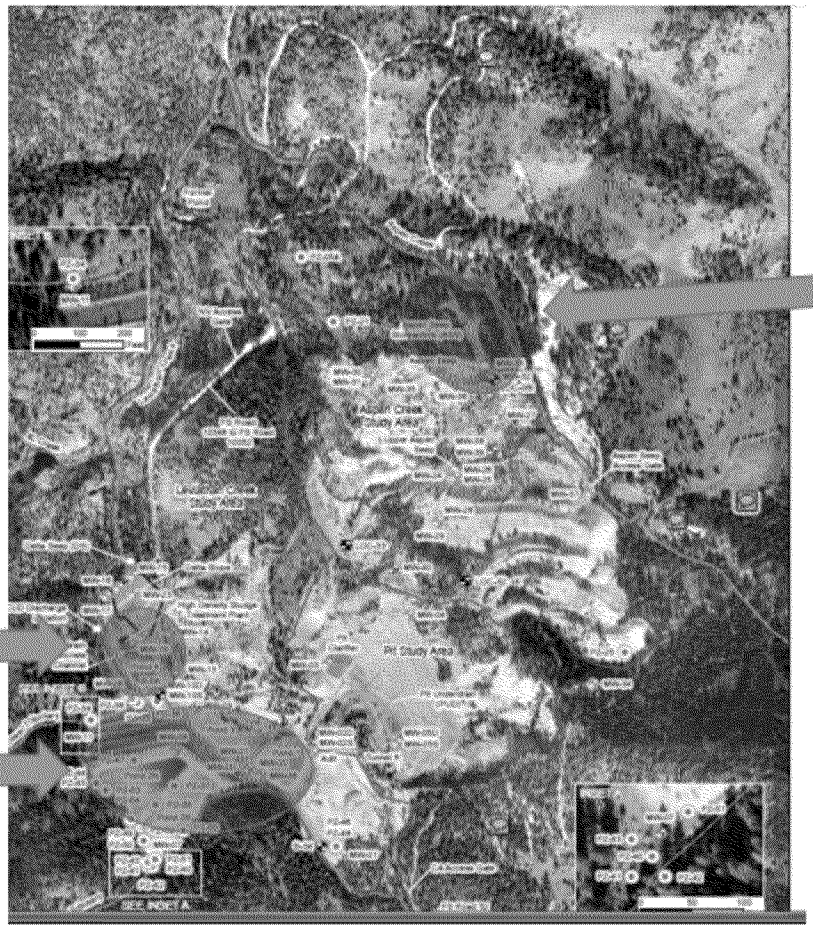
Acting Assistant Director

California Site Cleanup and Enforcement Branch (SFD 7)

Superfund Division

U.S. EPA, Region 9

415.972.3087



Aspen Seep
4th pond is

Pond 4
Discharge detected
April 6, 2017 broken standpipe

Upper Ponds
Ponds 1, 2N, 2S, 3
Early Spring treatment
Since March 3rd;
nearing capacity

From: Mike Johnson [mailto:mike.johnson@copperenv.com]
Sent: Thursday, April 13, 2017 5:10 PM
To: 'Deschambault, Lynda'
Cc: 'Doug Carey'; 'Greg Reller'; 'Cohen, Adam'; 'Lombardi, Marc (marc.lombardi@amecfw.com)'; 'Stetler, Chris@Waterboards'; anthony.brown@bp.com; Dave McCarthy
Subject: RE: Leviathan Weekly Update

Lynda,

Atlantic Richfield is working diligently to respond to the high-flow conditions occurring at the

Leviathan site, and we are doing our best to address your numerous requests for on-site activities, sampling results, other information, and communications. Please keep in mind, however, that we are still within the Limited Access Season, as defined by the AOC, and Atlantic Richfield's obligations with respect to early response actions are accordingly limited. Although the site is experiencing historically high winter precipitation levels, sampling data and other observations continue to indicate that water quality conditions in Leviathan Creek and Bryant Creek remain consistent with what is typically observed during spring runoff.

You have questioned Atlantic Richfield's decisions about the safety of traveling to the site at times when the Water Board's contractor is performing spring treatment at Pond 1. Atlantic Richfield does not know what factors the Water Board or its contractor consider in deciding whether it is safe to access the site. Atlantic Richfield's considerations are clearly stated in its site-wide Health and Safety Plan and Winter Access and Operations Plan, which have been reviewed and approved by EPA. As stated in numerous documents submitted to EPA regarding site activities, "Atlantic Richfield is fully committed to its health, safety, security, and environment (HSSE) goals, which are no accidents, no harm to people, and no damage to the environment." We assume EPA shares those goals. Personnel did not access the site April 5 because no activities were planned. As for April 8 and 9, a major storm was forecasted and field observations made on April 7 indicated that conditions would be unsafe.

In response to some of the other questions and requests in your multiple emails sent earlier today:

•□□□□□□□□ Atlantic Richfield personnel had walked into Aspen Seep and were not present when the Water Board took the photos on April 6, 2017.

•□□□□□□□□ Atlantic Richfield did not collect flow measurements from the Pond 4 overflow discharge pipe on April 7, 2017. Water Board personnel provided estimates of flow observed on April 6, but we don't know how those estimates were determined. As we reported, flows were substantially reduced following the repairs made to the discharge pipe on April 7. No flow was observed after the additional repairs were made on April 11, 2017.

•□□□□□□□□ We do not believe metals concentrations in the Pond 4 discharge should be highlighted as "exceedances." Under the EPA action memorandum for the removal action (MRAM), the Discharge Criteria apply only to effluent from a treatment system; and as stated in the MRAM, EPA determined that discharges should meet the Discharge Criteria only "during periods when the Site typically is fully accessible from June 1 through September 30, except during the initial implementation of the treatment (start-up period) or during optimization trials intended to ultimately improve treatment performance." As further stated in the MRAM, "EPA recognizes that it currently may not be practicable to attain these Discharge Criteria at other

times and during cold weather." Constituent concentrations in the discharge from Pond 4 should not be highlighted as "exceedances" at a time when (i) the HDS system is not operating, (ii) CUD and Delta Seep flows are not being collected and treated, and (iii) the site is not fully accessible, because the Discharge Criteria are not applicable requirements under these circumstances.

•□□□□□□□□ More complete analytical results for samples collected from Pond 4 on April 7 are provided in the attached Table 1. Additional samples were collected April 10, 2017 and we expect to see results in the next few days.

•□□□□□□□□ No additional sampling data are available for the Aspen Seep Bioreactor effluent since we reported the results for samples collected on March 20, 2017. The table summarizing those results (including pH measurement) is attached again (previously sent on April 7) here. Additional effluent compliance samples were collected on April 10, 2017. We expect to see results for those samples sometime in the next few days.

If data are readily available, we can try to provide a historical flow comparison for the Aspen Seep Bioreactor in the April monthly progress report (due May 10, 2017).

Thanks,

Mike Johnson, PE

Senior Engineer

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Anaconda, MT 59711

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From: Deschambault, Lynda [mailto:Deschambault.Lynda@epa.gov]
Sent: Thursday, April 13, 2017 1:06 PM
To: Brown, Anthony R (RM
Cc: Doug Carey; Greg Reller; Cory Koger; Wirtschafter, Joshua; Cohen, Adam; 'Mike Johnson'; Lombardi, Marc (marc.lombardi@amecfw.com); Stetler, Chris@Waterboards
Subject: RE: Leviathan Weekly Update

Dear Mr. Brown:

A few more followup questions and clarification to those attached below.

- Site Access. Per an email from Taylor, I understand that TKT has had site access, and *has been "on site" every day (7 days a week) since February 24th*. ARC, please revise "no site access" to be consistent and add clarity. Waterboard and TKT: Thanks for being on site to ensure Pond 3 is treated, despite the battle with the snowstorms. (Again today!)

- Flow Rates. While ARC prepares its response and revised weekly Update-----Doug, Did your field team take any additional flow rates or take any additional field assessments/ notes on the estimated flows during the Pond4 HDS discharge –estimated to be between the days of April 6 to April 11th (The time between when Waterboard noted the problem, ARC did their first repair-- and their final repairs? i.e. when the waterboard first detected flows and then when you may have found the flows had stopped?) Photos etc would be helpful as well.

- ARC please revise' complete and update your Weekly report by end of day today--- response to my earlier email (April 13, 2017 8:30 AM) and also clearly add both ASB and Pond4HDS data. Please incorporate all of the ASB information, including the charts and figures from the email from Mike Johnson dated Friday, April 07, 2017 12:00 PM and the mike Johnson email dated Wednesday, April 12, 2017 8:04 PM.

- ARC shall insert a table similar to the pond4HDS table 1---for the available ASB data. Please list all results alongside the discharge levels and shade/highlight any exceedences. i.e. Mike Johnson notes that that the 3/20/17 sampling event "indicated that all discharge standards were met with the exception of dissolved iron (7.9 mg/L)" Please include water quality parameters such as pH etc

EPA is preparing an update for managers to send out to stakeholders and appreciates a timely turnaround on this matter.

In addition to an updated report to be received by end of day today….EPA looks forward to receiving the rush turnaround time laboratory samples and any other recent results and chemistry data collected for the discharges at both ASB and Pond 4 HDS as soon as data is available.

Lynda

From: Deschambault, Lynda
Sent: Thursday, April 13, 2017 8:30 AM
To: 'Mike Johnson' <mike.johnson@copperenv.com>; Brown, Anthony R (RM) <anthony.brown@bp.com>
Cc: Doug Carey <douglas.carey@waterboards.ca.gov>; Stetler, Chris@Waterboards <Chris.Stetler@waterboards.ca.gov>; Greg Reller <gr@burlesonconsulting.com>; Cory Koger <Cory.S.Koger@usace.army.mil>; Lombardi, Marc (marc.lombardi@amecfw.com) <marc.lombardi@amecfw.com>; Wirtschafter, Joshua <Wirtschafter.Joshua@epa.gov>; Cohen, Adam <Adam.Cohen@dgslaw.com>
Subject: RE: Leviathan Weekly Update

Thanks Mike/Tony!

Please copy the the waterboard. As noted, it is important for consistency.

- April 5th--Doug, could you let me know if waterboard and/or TKT worked on site that day? If so ARC's "no site access" should be better clarified and consistent. Ditto on April 8 and 9.

- Please reference and include or attach the waterboard photos provided on April 6, 2017. Below and attached.

- April 7th- ARC provides a photo of the pond 4 HDS discharge, did you take flow measurements? Waterboard and EPA weeklies estimated approximately 40 to 50 gpm? Please confirm.

Please clarify if a discharge sample taken as EPA requested--- Or is ARC assuming pond sample = discharge sample?

- April 11th—is this the date repair was completed and discharge was stopped. Please confirm?

- EPA looks forward to receiving the other chemistry data for the discharge as soon as available. (Please do not wait for next weekly report)

Also, On Charts, as requested, please shade/highlight any exceedences. i.e. Copper?

Lynda

From: Mike Johnson [mailto:mike.johnson@copperenv.com]
Sent: Wednesday, April 12, 2017 6:47 PM
To: Deschambault, Lynda <Deschambault.Lynda@epa.gov>
Cc: anthony.brown@bp.com; gr@burlesonconsulting.com; Andy Slavik <andy.slavik@copperenv.com>; Abby Cazier <abby.cazier@copperenv.com>; Cohen, Adam <Adam.Cohen@dgslaw.com>; Dave McCarthy <dave.mccarthy@copperenv.com>; tavassoli, lily <tavassoli.lily@epa.gov>; douglas.carey@waterboard.ca.gov; Barton, Dana <Barton.Dana@epa.gov>; Marc Lombardi <Marc.Lombardi@amecfw.com>; 'Jef Peake' <jpeake@broadbentinc.com>
Subject: Leviathan Weekly Update

Lynda,

Please find attached the weekly update for April 5, 2017 through April 12, 2017. Snow removal efforts helped us improve access to the Aspen Seep Bioreactor for routine Maintenance today.

Please let us know if you have any questions.

Mike Johnson, PE

Senior Engineer

406 East Park Avenue, Suite 2

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From: Carey, Douglas@Waterboards [mailto:douglas.carey@waterboards.ca.gov]
Sent: Thursday, April 06, 2017 3:45 PM
To: Deschambault, Lynda <Deschambault.Lynda@epa.gov>
Cc: Brown, Anthony R (RM) (anthony.brown@bp.com) <anthony.brown@bp.com>; gr@burlesonconsulting.com; Cory.s.koger@usace.army.mil; Ferguson, Scott@Waterboards <scott.ferguson@waterboards.ca.gov>; Stetler, Chris@Waterboards <Chris.Stetler@waterboards.ca.gov>; Zentner, Taylor@Waterboards

<taylor.zentner@waterboards.ca.gov>; Tom Bloomfield (tbloomfield@thegallaghergroup.com) (tbloomfield@thegallaghergroup.com) <tbloomfield@thegallaghergroup.com>; Lombardi, Marc (marc.lombardi@amecfw.com) <marc.lombardi@amecfw.com>
Subject: Leviathan Mine Observation - Pond 4 near HDS

Hi Lynda,

I am forwarding to you a brief field observation from today's visit to Leviathan Mine by Water Board staff (see below and attached photos). It appears there is a discharge currently taking place from the Pond 4 overflow standpipe (near the HDS plant) to Leviathan Creek.

Please let me know if you have any questions,

Douglas Carey, P.G.

Senior Engineering Geologist

Leviathan Mine

Regional Water Quality Control Board, Lahontan Region

2501 Lake Tahoe Blvd.

South Lake Tahoe, CA 96150

(530) 542-5468

douglas.carey@waterboards.ca.gov

From: Zentner, Taylor@Waterboards
Sent: Thursday, April 06, 2017 3:07 PM
To: Carey, Douglas@Waterboards
Cc: Ferguson, Scott@Waterboards

Subject: Leviathan Mine Observation - Pond 4 near HDS

Doug,

While performing routine site observations today in the vicinity of the bottom of the Leviathan Creek concrete channel Darin and I noticed an unusually high flow of approximately 40-50 gpm coming from the 4-inch PVC Pond 4 overflow pipe (Pond 4 near the HDS plant), see photo 009a. This caused us to investigate the Pond 4 overflow structure in an effort to determine the source of the unusually high flow. As can be seen in photos 011 and 012 the Pond 4 overflow pipe appears to be compromised and flow could be heard entering the overflow pipe. Pond 4 is currently discharging to Leviathan Creek as seen in photo 009a.

If you have any questions please let us know.

Thanks

Taylor

Taylor Zentner

Engineering Geologist

Leviathan Mine

Regional Water Quality Control Board, Lahontan Region

2501 Lake Tahoe Blvd.

South Lake Tahoe, CA 96150

530-542-5469