

SPECIAL EDITION - SPOTLIGHT ON LEVIATHAN

Message from Operations

Working in Remediation System Compounds – Good housekeeping practices of remediation compounds are critical to safe, reliable and efficient operations. System compounds enclosed by a trailer are usually very cramped spaces with significant **potential for slips, trips, falls, bumps, cuts, and pinch** points. Before beginning any type of O&M work make sure that the trailer is clear of any unnecessary tools and equipment such as ladders, hoses, generators, fans, etc. This will help ensure that technicians **have a clear path** while working inside and have egress to the trailer door. Systems compounds enclosed by a fence pose similar risks to those described above and also pose an even higher risk from unauthorized 3rd parties who can climb the fence and enter the compound. **Be aware of your surroundings and exercise caution when unlocking** the gate to enter the compound. Not only can there be someone inside but there is a high probability that these people will leave trash, body waste and drug paraphernalia. Let's be sure these and other best practices are built into your WRATs and TSEAs. – *Mary Wojciechowski, PM*

FROM THE FIELD . . .

Spotlight on Leviathan . . . The former Leviathan mine site is located near Lake Tahoe, CA. Originally a copper mine, the site developed into an open pit sulfur mine before being purchased by Atlantic Richfield Company. Remotely located at high altitude in California's Alpine County, the BP Leviathan Mine site remediation project has specific winterization procedures to prepare the site for winter. With long, narrow, access roads with steep drop-offs, heavy snows and freezing temperatures, one portion of the site is designated for complete shut down during winter, and the other portion is prepared for limited monthly access. See the *writeup on page 2 for more information.*

Consider This . . .

Over the past couple years we have seen an extraordinary number of **natural and manmade disasters** all over the globe – earthquakes, volcano, hurricanes, heat waves, large scale fire, alarming air quality, rainstorm and mudslides, oil spill, terrorist activity, extended worker strikes. We cannot always prevent the unexpected, but we can seek to **anticipate** it and work to **prepare** ourselves ahead of time so that the potential damage accrued can be mitigated as much as possible. With the fall-winter holiday season upon us, **many of us will find ourselves away from home**, in unusual situations, and travelling more – not to mention weather conditions will be colder, and may include rain, ice, or snow, as well as significantly reduced daylight hours. The American Red Cross, U.S. Department of Homeland Security, FEMA and other organizations offer **tip sheets on preparing** for emergencies ahead of time, including **emergency preparedness kits**, which can help you whether you are stuck on the road waiting for a winter accident to clear, or away from home when a large scale natural disaster occurs. Are you prepared? Visit www.redcross.org, www.fema.gov, & <http://www.dhs.gov/files/prepresprecovery.shtm>.

Additional Resources

HSSE Bi-weekly communication <http://rmhsse.bpglobal.com/communication/hsseweeklycommunication/2009/>

Shared Learning <http://rmhsse.bpglobal.com/communication/sharedlearninglessonslearnedsafetycommunicationsuccessstories/>

SOCs Minute Resource Site <http://socs.dataaccel.com/> (user ID: socs, Password: safety)

To comment, inquire, or obtain information on any item in this publication, or to submit an item for publication, please contact May Marcinek at mmarcinek@envirosolve.com, or 818.889.0090.

Contractor's

We have all heard the slogan, "**routine activity without thought**," and maybe we have all noticed even the most experienced, thoughtful field crew member **forget to stop work and re-analyze for risks** when something needs a minor tweak. Ingraining a constant risk assessment mindset is more than just knowing, or even being convinced of, the need to continually assess for risks. It is developing a way for this to **move from knowledge to become practice**. To this end, the Wood River former refinery team, led by BP PM Tom Tunncliff and contractor PM Ryan Hartley of URS, has implemented 4 additional mandatory **safety conversations throughout the day**. Rather than wait to hope they recognize a changing condition, teams stop work every couple hours to hold a 5 – 10 minute conversation to consider and document if conditions are still the same as when they started. As Ryan says, "it's not just, 'has anything changed,' but '**are things still the same?**'" And if they are not the same, how could they affect job performance? Whether it's a change in temperature from morning to afternoon, a bolt that seems stuck or a change in off-site traffic, these can all be discussed and documented. With holiday plans and travel looming, shorter daylight hours, site winterization prep and year end work, keeping safety as our focus can be a bit of a challenge, and our **safety conversations help encourage** that job-site risk assessing culture.

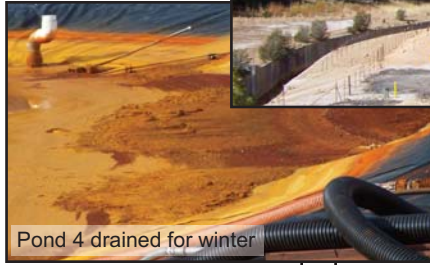
@Traction

During the month of October, **defective equipment played a role in roughly 1/3** of RM Traction incident reports, and **third parties were directly involved in 1/4**. All 4 of our material releases were related to defective equipment. Of our 4 first aid cases, 2 were **injuries to hands**, 1 was a hit by a golf ball and 1 was a bee sting. Near misses accounted for 55% of October RM incident reports; our 2010 average is 58%. This means we are catching things before they become injuries, loss, or damage; however, it still also means that 45% of our October events were not near misses. **Of our October non-near misses 5** were directly a result of **3rd party behavior** (including 1 first aid case), 7 were directly the result of failed or defective **equipment** (including all 4 material releases), and the others include our 2 **hand injuries** and bee sting, and a non-compliance reporting issue (due to system repairs and change in agency personnel).

Feeding off two acid rock drainage seeps, the **High Density Sludge (HDS) water treatment system** captures and pumps water from the seeps uphill about half a mile to the Pond 4 holding area, from where it is then drawn into the HDS treatment plant, mixed with lime for pH adjustment and metals precipitation/sludge formation. Treated water is discharged to Leviathan Creek and the sludge is discharged to sludge bins for later offsite disposal. This portion of the site is **completely shut down for the winter**, which involves anticipating the onset of winter weather and proactively eliminating or mitigating hazards that could occur while the system is not running. Personnel must consider not only how to **protect system equipment** during the cold, precipitous months, but how to **prevent potential pipe or equipment breakage** and how to prepare and store it so that in spring they can start it back up again. First, all of the water in Pond 4 is pumped through the treatment plant and the **pond drained as low as possible** to accommodate heavy winter precipitation without overflowing. Next all pipes and valves are drained, cleaned, sealed and deactivated from system service. **All tanks inside the treatment plant are emptied and cleaned**, flushing out all accumulated sludge with hundreds of gallons of water. All **pumps are removed from service**, tagged, and stored in the treatment facility. Motors that cannot be removed are **shrink-wrapped in place and protected** from condensation with desiccant during the winter months. **Office trailers are packed up** and all documents and office equipment shipped back to Sacramento for storage, office trailers are taken offsite, and all ancillary sheds, storage containers, and tanks are winterized as well. Winterization activities for this portion of the site alone take about 3 weeks, with 10 – 15 people involved.



Pond 4, HDS water treatment system, trailer offices



Pond 4 drained for winter

The Aspen Seep Bioreactor Treatment system, correlating with the Aspen Creek, treats captured acid rock drainage seeping from the hillside using a series of two bioreactor cells and two sludge settling ponds, and **remains operational through the winter**, with 8 – 10 personnel commuting in by snowmobile once a month for compliance sampling and system O&M. **Winterization activities consist of preparing the site for:**

- **Cold weather & limited supervision:** ensure power supply generators, and control system are operational, verify pipes gravity drain should pumps malfunction, ensure satellite system, remote access monitoring camera, control room, emergency shelter and tool shed door sensors are functioning properly for site security and remote communication (accessible via the internet), top off bulk chemical storage tanks (sodium hydroxide, ethanol and propane), and optimize the power plan to maximize battery usage and keep generator usage at a minimum, so that generator O&M requirements are never exceeded, should a trip be postponed.
- **Monthly sampling/O&M visits:** stock storage sheds with sampling coolers, extra pumps, generator and other supplies so that they do not need to be brought in via snowmobile.
- **Potential winter emergencies:** An emergency shelter with bunkbeds, sleeping bags, water, and enough supplies to sustain 10 people for 3 days must also be inspected and restocked as necessary.

Pre-planning is critical for each monthly trip. A winter access coordinator and hired backcountry outfitter visit the site via snowmobile in advance of the full O&M crew to check access roads and site conditions, shovel snow from the gate, and stage snowmobiles for the next day. The local sheriff's department is notified of all winter access trips and site crews check in and out at the beginning and end of the day.

All winter access personnel are trained on snowmobile, avalanche beacon, and personal locate beacon usage, and are assigned a partner and specific task for the O&M trip. Each task is preplanned to evaluate how much time will be needed to complete it, as shorter days and a one hour snowmobile commute each way to/from the parking area allow for only a few hours on site at a time. Snowmobiles (or trucks) and personal backpacks are stocked with emergency supplies/food/extra clothes/shelter, in addition to the fully stocked emergency shelter. However, it should be stressed that **personnel do not access the site if there appears to even be a chance of foul weather.**



Insulated fall/spring pipes; un-insulated summer pipes (pipes sealed for winter)



Checking sludge level in the clarifier



Shrink wrapped in place



Aspen Seep Bioreactors & ponds

Special thanks to all Leviathan site personnel!