Items of Interest

If you're interested in cleanup progress at the INL Site…
the following articles may be of interest to you.

INL Site Environmental Management
CITIZENS ADVISORY BOARD

PLEASE JOIN US: The next INL Site EM CAB Meeting will be Thursday, July 10, 8:00 a.m. –4:30 p.m. at the Hilton Garden Inn, 700 Lindsay Blvd, Idaho Falls, ID

From the Board Chair

Herb Bohrer, CAB Chair

Welcome to the second edition of the Idaho National Laboratory (INL) Environmental Management (EM) Citizen's Advisory Board (CAB) newsletter. Since the last issue, Harry Griffith (our Vice-Chairman) and I attended the semi-annual Environmental Management Advisory Board Chairs meeting in Pasco, Washington. We had the opportunity to hear from EM leadership about the funding outlook and were briefed on current activities across the country. It was an informative meeting.

The topic of greatest interest to me, personally, and I believe to the citizens of Idaho was the current status of the Waste Isolation Pilot Plant (WIPP) in New Mexico. The INL is a major source of the transuranic waste that is being received at WIPP, where it is placed in deep caverns in a stable salt formation. Since its opening in 1999 INL has shipped approximately 48,473 cubic feet of material to WIPP. Having WIPP available as a disposal location is an important factor in meeting the commitments the Department of Energy has made with the State of Idaho and the Environmental Protection Agency.

The waste being sent to WIPP from the INL comes from two major projects. The first is the Advanced Mixed Waste Treatment Project which is processing the waste received from the Rocky Flats Plant and storing it above ground. The second is the Accelerated Retrieval Project which is exhuming waste previously buried at the Radioactive Waste Management Complex. Both of these projects have schedules and production requirements in agreements with the State and the EPA.

Compliance with these agreements is a major issue of interest to the CAB and we are following events at WIPP closely. If you are interested in having more information on this subject, WIPP has an excellent web-site created for this purpose and provides daily updates on their recovery activities. http://www.wipp.energy.gov/wipprecovery/recovery.html .

The INL CAB at Work

Betsy McBride, CAB Member

The work of the INL EM CAB is advisory to the U.S. Department of Energy (DOE) and confined to EM matters identified in the national charter as "EM site-specific issues: clean-up standards and environmental restoration; waste management and disposition; stabilization and disposition of non-stockpile nuclear materials; excess facilities; future land use and long-term stewardship; risk assessment and management; and clean-up science and technology activities. The Board may also be asked to provide advice and recommendations on any other EM project or issue." (Environmental Management Site-Specific Advisory Board, U.S. Department of Energy, Advisory Board Charter)

Members of the CAB serve by appointment and agree to attend scheduled meetings to receive briefings, hear from other members of the public and discuss and consider advisory recommendations as a group.

Recommendations can originate from public comments, CAB member suggestions or DOE requests. For those unique to the Idaho project, our process is to have a CAB member draft a detailed written recommendation for review by the entire INL CAB. When finalized, the recommendation is sent to the appropriate DOE official who is usually located at headquarters in Washington D.C. Recent examples of recommendations from the INL CAB have concerned budget reductions for Idaho clean-up and changes to procurement practices.

Written recommendations receive official responses. Regarding site level budget reductions, DOE headquarters wrote, "Given all competing priorities, DOE considered activities with the greatest risk-reduction benefit, regulatory compliance obligations, and DOE's Strategic Plan* to maximize clean-up progress in a safe, cost effective manner."

Besides site specific recommendations, system-wide issues sometimes generate draft recommendations from one or more of the citizen advisory boards at DOE sites. In those instances, draft recommendations are circulated among the various CABs for discussion and potential joint endorsement. In some cases, but not all, the issue is clear and the recommendation is supported.

Recommendations from the INL CAB and the official responses can be viewed at:
http://inlcab.energy.gov/pages/recommendations-key-correspondence-and-board-documents.php

*DOE's Strategic Plan can be viewed at:
http://energy.gov/sites/prod/files/2014/04/f14/2014_dept_energy_strategic_plan.pdf

Operating Contractor and Employees Take Safety Seriously

Bob Bodell, CAB Member

The Department of Energy places a high premium on the safety records of its contractors. Under the Idaho Cleanup Project-I (ICP-1) contract, the DOE contributed money to the employees' end-of-contract financial incentive that was also based on CWI's safe work performance.

Since CWI assumed the primary Idaho Cleanup Project in 2005, the safety record continues to improve despite the contractor taking on significantly greater cleanup and demolition challenges than previous contractors. This year CWI under their Idaho Cleanup Project 2 (ICP-2) contract is on track to have its best year for safety with just two recordable injuries through May. That represents a 70-percent improvement from the Idaho ICP-I contracts already outstanding record.

Since assuming the cleanup contract nine years ago, CWI brought a concept with them called "step back." This encourages employees to temporarily halt work if conditions don't look right or if what is being encountered differs from what is documented in work procedures. This is less formal than a stop work but has averted more serious safety incidents.

Following holiday weekends, CWI management conducts safety stand-ups with all employees to re-emphasize safety before employees return to work. These informal meetings typically involve a presentation about a topic, such as electrical safety, avoiding hand injuries or precautions to take to avoid slips, trips and falls. Employees are encouraged to participate in these safety stand-up meetings by sharing stories or observations about safety.

Importantly, the unions and their respective workers have greatly contributed to continuous safety improvement as well. Idaho Building and Construction Trades workers complete a suite of safety related training prior to ever performing work at the INL Site.

The United Steel Workers union partners with CWI to have actual workers conduct safety training across the Site, with a focus on good safety practices and hazard identification.

Bonne Anderson, a consulting technical specialist at the Idaho Nuclear Technology and Engineering Center, said she worked for previous contractors who also had safety programs so when CWI rolled out another program she was, at first, a little skeptical. However the safety program has matured and become substantially better over time due to involvement by workers and managers alike.

"The management team, the labor unions, and the employees work together every day to create a safe workplace for all of us," she said. "We all look out for each other's safety. There is an environment of mutual respect that has been recognized by everyone visiting our site."

Employees are encouraged to complete COBRA observations if they observe unsafe behavior at work or home. COBRA is an acronym for Changing Our Behavior Reduces Accidents. CWI has statistics that show the more COBRA observations employees complete the fewer workplace injuries that occur.

Management insists that all meetings begin with a "safety share," which is either a safety-related presentation or a general forum that encourages employees to volunteer their observations about an unsafe act either at work or home or a cautionary warning (e.g., icy roadways, kids returning to school, etc.).

All of this attention placed on safety has created a safety culture within the company where there is a much greater emphasis on teamwork and implementing the "buddy system." Workers not only look out for one another, but they are also engaged in promoting safety within other companies and throughout the community in such events as household hazardous waste collection days, canal cleanups and attending safety fairs.

"We also have the opportunity for employees to participate in school safety assemblies where various safety topics are taught to children at our local schools," said Anderson. " Last, but certainly not least, CWI does safety service projects for disabled vets, deployed soldiers and their families, children of deployed soldiers, and local citizen soldiers which employees can be involved in at any time."

For Anderson, the safety culture at work has forever changed how she tackles tasks at home.

"Repair work at home always includes a pre-job type meeting with a discussion of hazards and how they are mitigated," she said.

Like at work, Anderson also employs the buddy system at home.

"I provide hearing protection for my neighbors if I catch them mowing their lawn without it," she said. "I go through about three large containers of hearing protection a year."

The efforts of all levels of workers and CWI have found a winning strategy for safety.

Bioremediation of Explosives

Teri Tyler, CAB Member

There are over two dozen sites across the United States that are contaminated with explosives. Idaho National Laboratory (INL) is one of them. Bioremediation is a waste management technique that scientists are using at INL's historical explosives testing areas to neutralize contaminants in soils. By inserting organisms between the top of the ground surface and the perforated perimeters of the water table, scientists plan to remove or neutralize pollutants in the confines of soil known as the vadose zone.

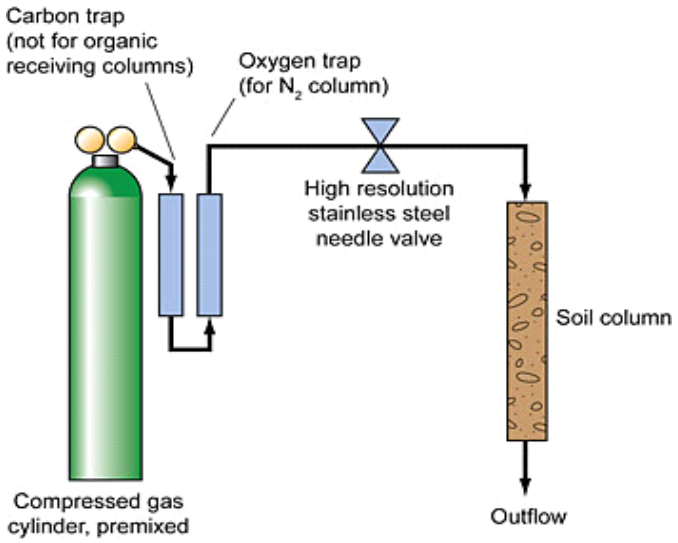
Many biotreatment strategies are known for remediating contaminated soils. Composting has proven effective in soils that have been screened with no large explosives particles remaining. A rather simple process, composting involves providing nutrients for naturally occurring bacteria, fungi, and other microorganisms native to the soils. These several organisms receive energy from carbon sources such as wood, fruits, vegetables, and other plant matter. They are also able to multiply by consuming nitrogen and phosphorus-rich materials like chicken manure.

Umatilla Army Depot, located in Oregon, was a site that used the composting technique to clean soil which was contaminated from a ten-year munitions wash out. This strategy proved cost effective as the operation saved approximately 2.75 million dollars more than the operation's initial projected costs. The U.S. Army Corps of Engineers estimates that composting would save the U.S. 200 million dollars at its remaining contaminated munitions sites.

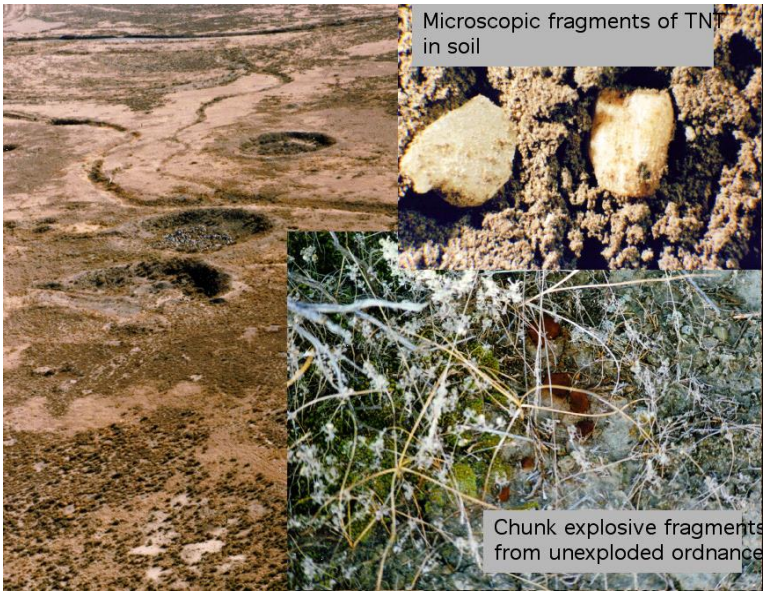
Although composting is highly effective in soils containing small explosives, a challenge presents itself when larger particulates of explosives are left after screening. Complete biodegradation, or the transformation of a substance into new compounds through biochemical reactions or the actions of microorganisms, such as with a solid chunk of TNT, is hard to achieve because the microorganisms cannot handle the large size of the fragment. The INL is developing a pretreatment process which will prepare the larger explosives in soils for composting.

In addition, INL has developed a bioreactor system to degrade the highly reactive and toxic yellow crystalline picric acid (Trinitrophenol or TNP) in a liquid waste stream. TNP is structurally similar to TNT

and used as a high explosive. The reactor completely degrades TNP into a nonhazardous substance. The system is currently being scaled up (increased proportionately in size) for use at a small remote hazardous waste site allowing the continued use of composting for bioremediation of explosives instead of incineration to clean the soil. By using this pretreatment process prior to composting or the bioreactor for liquid waste systems, costs to remediate the waste and environmental impacts are much lower than using the alternative, incineration which involves burning non-renewable fossil fuels, releasing toxic chemicals into the atmosphere, and producing hazardous waste.



Schematic of the treatment system used for laboratory studies.



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