

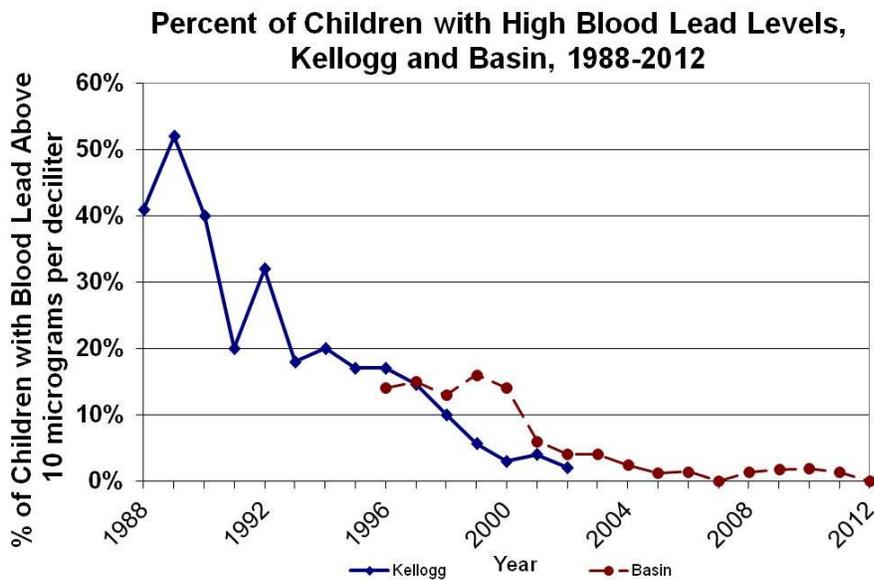
Superfund Straight Talk

Answering Citizens' Questions about the Coeur d'Alene River Basin Cleanup

December, 2012

Q: What's the good news?

Blood lead levels in children between Mullan and east of Harrison remain generally low. Free, summertime blood lead testing events provided by the Kellogg Panhandle Health District (PHD) show that children's blood lead levels continue to be low. This means that yard soil replacement, community health awareness, and the ICP rules (to keep clean areas clean during construction activities) are all working together to make a big difference! PHD continues free, annual screening for children living in the CDA River Basin between Mullan and east of Harrison.



Coeur d'Alene Basin Blood Lead Levels. Kellogg Panhandle Health District. 2012.

The majority of properties are now cleaned up. From Mullan to the Black Lake area, about 6,500 properties have been remediated. Sampling efforts continue to focus in the Lower Basin.

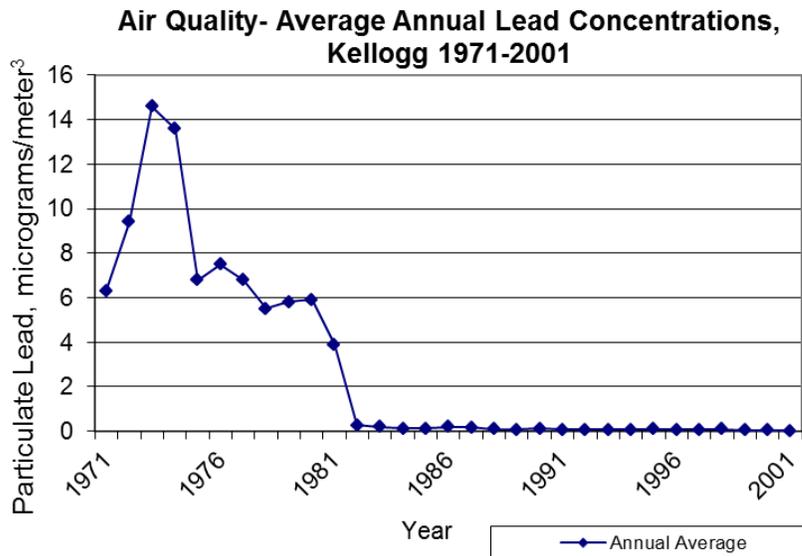
However, some places such as around boat launches and beaches along the chain lakes and Coeur d'Alene River have levels of lead that are *five times higher* than the amount that triggers yard cleanup! In all these areas, be attentive to cleanliness, particularly for toddlers who put everything in their mouths. Play in the grass, wash all recreation equipment before heading home, ride bikes on the paved trail, always wash up before meals, don't drink or use surface water for cooking water, and avoid bringing home dust and dirt. Also, take note of dirt that won't grow grass or streams that have orange-stained rocks.

Another piece of the good news is that industry has made many technological advancements over the last 100 years so that environmental problems of the past are not being recreated today.

Typical Amount of Lead in Soils	
measured in parts per million (ppm)	
<i>Natural CDA River Bed (over 100 years ago, pre-mining):</i>	<i>20-30 ppm</i>
<i>Lower Basin Floodplain concentrations:</i>	<i>3,000- 5,000 ppm</i>
<i>For comparison: Cleanup is needed for yards and recreation areas when the soil tests 700 ppm lead or more.</i>	

Public drinking water is safe. Public drinking water supplies (serving hotels, restaurants, and municipalities) are meeting EPA and state standards for lead, cadmium, and arsenic. A few private wells tested by the Superfund program exceeded drinking water standards and received tap water filters. See the March 2012 SST column for more about this topic.

Air quality has greatly improved. DEQ measured the amount of lead in the air until 2001. By 1982 no large industrial sources contributed lead concentrations and by 2001 lead concentrations had met state and federal standards for over a decade. Today, many technological advancements are available for new facilities.



DEQ Regional Air Quality Division. 2001.

Public gravel roads are being cleaned up. In addition to the properties cleanup, DEQ sampled most of the unpaved public roads in 2011 and 2012 in the CDA River Basin. Public roads can spread contamination by storm water runoff, tire tracking, or dust. DEQ resurfaced and improved drainage on five gravel roads in 2012. In 2013, DEQ will resume this one-time effort with local jurisdictions on contaminated unpaved public roads.



I welcome your questions about the Bunker Hill Superfund Site. Call Denna Grangaard at (208) 783-5781 or click on “Ask Us” by using the QR-Code for www.deq.idaho.gov/bunkerhillsuperfundsite.



Superfund Straight Talk

Answering Citizens' Questions about the Coeur d'Alene River Basin Cleanup

November, 2012

Happy Thanksgiving! We wanted to give a few highlights of our appreciation!

This has been an outstanding year in large part because the public participated in a big way! I estimate that outreach coordinators from DEQ, EPA, and the Basin Commission directly interacted with at least 4,000 community members this year. Based on the responses I have received, people seem to appreciate the information and our efforts to provide education and outreach.

Outreach coordinators kicked off the year by responding to presentation requests from chambers of commerce, realtor groups, student groups, and recreation and civic clubs. Community members engaged with us at community events like the Shoshone Medical Center's Children's Health Fair and the North Idaho Fair. Thank you for inviting us to talk about Basin cleanup, its progress, current health risks, and opportunities for project involvement.

More people are getting direct updates from our new Facebook pages ([CDAbasin](#) and [Idaho Department of Environmental Quality](#)) which have been a very popular. Many of you have already met the new EPA Community Liaison, Rene Gilbert, and discovered what a great resource she is.

Community members participated in open houses to talk about projects like the Lower Burke Canyon Repository and the West Page Wetlands creation. About 1,000 people commented on EPA's cleanup plan, which was recently finalized with those comments in mind. Thank you for your involvement! Your participation helps build better projects.

Thank you, Trail of the Coeur d'Alene's users, for using caution on the trail and being curious about the construction of wetlands near Smeltonville. Thank you, Superfund Job Training Initiative contractors, who provided certification courses preparing 17 graduates for the workforce. Thank you to those who participated in EPA's third-party community needs assessment.

DEQ sincerely appreciates the community's participation in the Basin Property Remediation Program. This year, DEQ's contractors replaced soils at about 180 properties, most of which were residential. Homeowners asked great questions about the process, drivers remained cautious near construction areas, and the local jurisdictions coordinated in so many helpful ways. We thank our local contractors who continue to show dedication to customer service, provide a quality product, and be involved in the community. Happy Thanksgiving, everyone!



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Superfund Straight Talk

Answering Citizens' Questions about Remedy Protection

October 2012

Q: What is remedy protection?

A: *Remedy protection* is about protecting cleaned up areas in the community from recontamination. A *remedy* is the action/s taken to protect human and environmental health. One of the remedies (selected in the 1995 and 2002 Records of Decision) replaces or covers contaminated soil with new soil, rock, asphalt, and grass. Cover soil is usually 6 to 12 inches deep. Remedy protection projects help protect the cover from washouts and/or contamination deposited by side-drainage flooding.

Q: What is being done to protect the remedy?

A: Protecting the cover material is critical to the long-term success of the remedy. To ensure that the remedy is protected the 2012 ROD Amendment includes a number of projects to control localized flooding and stormwater runoff in side drainages and along streets and roads in steep areas. Projects could involve culvert replacements, channel work, diversion structures, and asphalt ditches. This work will require significant coordination with local communities including obtaining access and maintenance agreements for new infrastructure. As each project's logistics are worked out with landowners and local jurisdictions, we anticipate starting construction on those projects. Planning and early design are ongoing, and some construction will begin next year.

Q: Do I need to have my child's blood lead tested if my yard was remediated?

A: It is your choice. Many health care officials and agencies encourage it, especially for children younger than age seven. It is true that yard remediation has helped local blood leads drop dramatically since the 1980s. Keep in mind, however, that exposure to lead is not limited to the front yard. There are many sources of lead such as Lower Coeur d'Alene River Basin recreation areas, hillsides near the old smelter, old paint and pipes, and sometimes even toys shipped from overseas locations.

So far, about 6,500 properties in the CDA River Basin have needed soil replacement because of high amounts of lead, but river beaches and hillsides have not been addressed in the same way. When kids play in these areas or track dust into the house, they are at greater risk, especially if they are at the age of putting their hands in their mouths. Blood lead testing is the only way to know your child's exposure.



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Superfund Straight Talk

Answering Citizens' Questions about the Coeur d'Alene River Basin Cleanup

Q: What is being constructed along I-90 between Smelterville and Pinehurst?

A: The Idaho Department of Environmental Quality (DEQ) is constructing and restoring wetlands. Trucks cross the Trail of the Coeur d'Alenes at milepost 49, where a flagger assists trail users through the crossing. Crews will be out through October excavating soil and creating wetland habitat.

We are creating wetlands to offset the wetlands that will be filled in as part of the Page Repository expansion. EPA and the Army Corps of Engineers administer the Clean Water Act, which requires that more wetlands be created or preserved than filled in. Expanding the Page Repository means that contaminated soil can be safely disposed of in a nearby, controlled repository. Give us a call if you have questions.

Q: I hear that EPA will replace paved roads. Will mine be replaced?

A: A new "Paved Roads Strategy" addresses worn-out paved public roads in Shoshone and Kootenai counties (as reported by the Shoshone News Press on 8/27/12). Eligible roads have been identified for one-time surface improvements. These roads are public, paved, worn out in part by remediation truck traffic, located inside the Institutional Controls Boundary in Shoshone and Kootenai counties, and contaminated or acting as a barrier to contamination underneath. A sealed surface (like a road) over contaminated soil helps prevent contamination from being tracked by dust or tires onto nearby places where people are.

Funding is available because the work helps fulfill the purpose of the Superfund project. For most of the roads, EPA and DEQ used the communities' third-party road survey to help determine how to divvy funds to local road jurisdictions. A Roads Board will evaluate city and county proposals for work on the eligible roads already listed in the strategy. Jurisdictions schedule the work, hire workers, and maintain the new surfaces. Your mayor, commissioner, and DEQ Kellogg office are great sources for more information.

Q: Your Facebook page said you had an educational booth at the North Idaho Fair. What type of education did you provide?

A: Over 1,600 people visited our educational booth where visitors answered fun trivia questions about the Coeur d'Alene (CDA) River Basin environment. Questions were about lake and river water quality, geography, aquatic plants and animals, minerals, and lead health education. People asked about the large CDA River Basin map in the backdrop, the bubbling water tube displaying Eurasian Water Milfoil, and the pH test-strip exercise. Each year DEQ partners with the Citizens Coordinating Council, Basin Commission, EPA, and Coeur d'Alene Tribe to provide this comprehensive educational booth. If you missed us this year, come and see us in 2013.



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Superfund Straight Talk ***Answering Citizens Questions about the Coeur d'Alene River Basin***

Q: Are there current mining operations in the Bunker Hill Superfund site? Do they meet current environmental regulations?

A: Yes, currently several mining companies work successfully in the Superfund site, which is a portion of Coeur d'Alene Mining District. Where current cleanup activities occur near active mining operations, these activities are coordinated.

Congress established Superfund to be able to take care of hazardous waste after-the-fact, but the Superfund law does not regulate current mining practices. Active mining operations are governed by federal and state environmental laws. The US EPA and Idaho Department of Environmental Quality each have duties to carry out for both "after-the-fact" cleanups and active mining.

Q: Is the EPA cleanup plan for the Upper Basin complete?

A: Yes. The ROD Amendment is in final stages before publication. The document includes technical information, cleanup decisions, and a summary of responses to about 6,000 formal public comments.

The ROD Amendment focuses on human health and includes water quality improvements for rivers and streams in the upper basin. It will address mine and mill waste left over from the early-to-mid 1900s. It also includes measures like controlling stormwater and side stream flooding to protect the remediation already in place. Stay tuned for EPA's fact sheet giving an overview of these and other activities in the ROD Amendment.

Q: How will ROD Amendment work proceed and what will be done first?

A: Work plans are developed annually through the Basin Commission. EPA will first develop a draft "Implementation Plan" to describe the process for identifying priority projects. The Implementation Plan will ultimately give details about when and where work will happen in the near term.

Watch for opportunities to provide input on this plan by staying tuned in to the Basin Commission, Citizens Coordinating Council (CCC), and EPA's new Facebook page at "cdabasin." See what's up at the next CCC meeting at the Wallace Inn on October 10. If only Lower Basin topics interest you, connect with the Lower Basin Collaborative at <http://lowerbasincollaborative.wordpress.com>.



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Superfund Straight Talk

Answering Citizens Questions on Soil Remediation

June, 2012

Q: Do homeowners get copies of results for metals in soil and water when their yards are tested for contamination? Can homeowners take samples to a private lab before cleanup happens?

A: Yes, DEQ shares soil and water testing results with landowners as part of the Basin Property Remediation Program. Yes, homeowners can commission their own soil testing for their own purposes. However, DEQ makes cleanup decisions based on the samples it collects under state procedures. Some local labs where homeowners can obtain soil and testing are American Analytical in Osburn, SVL Analytical Inc. in Smelterville, and Accurate Testing in Coeur d'Alene.

I'll share some good news:

- Landowners working with DEQ's program receive free remediation services: sampling, testing, *and* remediation.
- More than 6,000 contaminated properties have been cleaned up between Mullan and Medimont.
- Seven private well systems that tested high in lead, cadmium, or arsenic now have tap water filtration.
- Public water systems provide safe drinking water to customers such as hotels, restaurants, and city residences under a separate state program.

Q: What does DEQ test for in the soil used to remediate yards?

A: DEQ's contractor purchases soil and delivers it to a local processing area. Before the soil is used to replace the contaminated soil removed from yards, DEQ requires the contractor to test for lead, arsenic, and cadmium. We also require tests for soil particle size, texture, total organic content, pH, salinity, and the soil's ability to accept and utilize fertilizer. Contractors' soil products are also held to the standards set by the county's weed policy.

Q: Does DEQ follow up on weed growth after remediation?

A: Yes. DEQ inspects contractors' work after remediation. Contractors are required to provide weed-free sod and hydroseed. We warranty against excessive weed growth within 45 days after project completion. This applies to the projects DEQ conducts under the Basin Property Remediation Program, not projects remediated by others. The best way for a homeowner to keep weeds down is to weed, feed, and water. Be sure not to track weeds out of or onto your property. Weed seeds can be distributed in the community on tires, shoes, recreation equipment, lawn mowers, and even pets. Noxious weeds information and education is available through Shoshone County (208) 556-1029 and Kootenai County (208) 446-1290.



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Superfund Straight Talk

Responding to Citizen Questions about the

[Bunker Hill Superfund Site](#)

MAY 2012

Q: In my neighborhood why was soil cleanup done on homes without children when some homes with children were not cleaned up?

A: Properties where children (up to 7 years of age) or pregnant women live are the highest priority. However, not all properties with children require clean up. Property areas with soil sample results over 1,000 parts per million (ppm) lead or 100 ppm arsenic are remediated. Areas used for vegetable gardens are remediated if they contain lead at 700 ppm or above or arsenic at 100 ppm or above. Plus, landowner consent is needed before testing and remediation can begin.

Q: I didn't see test holes in my front yard. How do I know that soil sampling was done?

A: It is common that divots are not seen. When crews are finished taking soil samples from test pits and core sample tubes, they replace sod plugs on top. In gravel areas, crews finish test pits by raking out smooth surfaces. Both methods make the evidence of sampling less noticeable. Some homeowners choose to schedule a time with the sampling crews so they can be home during sampling. You can also review your property's maps and cleanup activity records at the DEQ office in Kellogg.

Q: How can two side-by-side properties or two areas within the same property test differently?

A: This is a common occurrence. Soil samples are taken from each area of the yard (such as gardens, driveways, play areas etc.) and sometimes only certain areas test high in metals. To keep costs down, only areas that test high in lead or arsenic are remediated. It used to be common to use free and available waste rock, tailings, or floodplain soils in home landscapes. Dirt tracked in from vehicles and recreation equipment can also increase lead concentration in driveways, walking paths, and yards.

Q: How do I know if soil test-holes were deep enough for a good sample? I heard that if an area was too hard to dig in it would not be sampled.

A: This is a great question to clarify. Soil samples are taken at a series of depths (called horizons) in each sample hole. The lab needs about a teaspoon of soil from each horizon to run a test. Some areas are more difficult to dig through, some hit bedrock, and some are very gravelly. If a particular horizon cannot yield a teaspoon of soil, then soil from adjacent test holes will be used to represent the area. At the end of the day, we base our decisions on our Sampling and Analysis Plan which is designed to meet our goal to protect human health.

What questions do you have? Do you know where to go for information? Do you feel informed? What would be helpful to know more about?



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Superfund Straight Talk

Responding to Citizen Questions about the

[Bunker Hill Superfund Site](#)

APRIL 2012

Q: When will property remediation work begin this year?

A: Soon! Phones are ringing and pencils are sharpened to plan property remediation work this summer. DEQ's primary contractors, North Wind Construction, Ferguson Contracting, and Stewart Construction and TerraGraphics Engineering, are planning for a busy year. Work will bump up from 250 property cleanups last year to about 300 properties this year (or 3.5 million square feet). Contractors estimate hiring an additional 75 workers, not including subcontractors. Estimates are being gathered to contract with local distributors and sub-contractors for labor and materials like sod, hydro seed, gravel, soil, soil amendments, and asphalt.

Homeowners slated to have their yards tested or cleaned up will receive phone calls and notices in the mail from TerraGraphics, DEQ, or North Wind about the remediation activities. Sampling, mapping, and construction coordination is on the horizon. Work will start when weather permits.

Q: Where will property remediation occur this year?

A: Remediation will begin in the Kingston and Cataldo areas of the Lower CDA Basin. North Wind Construction will open the East Mission Flats Repository for the season to accept contaminated soil removed from residential, commercial, and public rights-of-way in these areas. These properties will receive clean soil as part of the remediation program.

By mid-summer, remediation will occur on the south hill in Wallace, Osburn, and side gulches. North Wind will open Big Creek Repository to receive material from properties in those areas. Later in the season, work will refocus on Lower Basin property remediation.

More on Local Contractors

The majority of clean material purchased for property remediation is distributed by Zanetti Brothers, a long-standing family business in Osburn. Several other contracting companies, such as McGillivray Environmental, Jim's Bobcat Service, Greg Linja, B & L Excavation, Rohwer's Bobcat service, Orton Contractors, Cochran Excavating, Expert Exteriors, Natures Landscape and Design, are also owned by local families. Fuel sources for equipment are resourced through local dealers like the Carousel in Pinehurst and Bemis Oil distributors throughout the valley. The list of participating community resources goes on. Please shake a hand today and say "thank you."



Ask your questions: Email Denna Grangaard at denna.grangaard@deq.idaho.gov, click on "Ask Us" at our website at www.deq.idaho.gov/bunkerhillsuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue, Kellogg, (208) 783-5781.

Superfund Straight Talk **Responding to Citizen Questions about the** **[Bunker Hill Superfund Site](#)**

March 2012

Q: Is the tap water in the Silver Valley safe to drink?

A: Yes! All public water systems in the Silver Valley meet Safe Drinking Water Act standards for chemical contaminants including metals. I talked to Suzanne Scheidt, Idaho Department of Environmental Quality Regional Drinking Water Manager, to get this information. From the Montana border to Cataldo, Idaho, about 12,000 homes and establishments are served by public drinking water systems. Tap water is safe to drink from places like restaurants, campgrounds, hotels, and homes served by public water systems. Ms. Scheidt explained that public drinking water systems in the Silver Valley are supervised by licensed operators who are committed to ensuring the water supply is safe.

Some homes are not connected to the public water supply but have wells instead. Homes served by private wells could be eligible for Superfund dollars to test for lead, cadmium, and arsenic. About five percent of the community's private wells test high in metals and would benefit from filtration or connection to a public water supply. Call the DEQ Kellogg Office if you have questions about private well water.

Q: Are harmful amounts of contamination regularly found in our public water supply?

A: No. Over the years, sampling results have shown that public drinking water systems are not subject to metals contamination. Contamination of some water systems occurred in the past, due to microbial organisms. Since then, millions of dollars in state grants and low interest loan funds have been awarded for local treatment system upgrades. As a result, according to Ms. Scheidt, consumers are now assured of receiving consistently safe water.

Q: Can lead pipes affect drinking water quality?

A: Yes, they can. Water is suitable for drinking when it leaves the plant, but household drinking water in some older homes with plumbing made of lead solder or copper piping may contain these elements. If you have an older home, consider running the tap a few minutes each morning to flush out the water that rested in the old pipes overnight.

A big thank you goes out to Carl Scheel for the tour of the East Shoshone Water District plant and to Barney Norris for his time explaining the Central Shoshone Water District's system. Thank you to Pinehurst and Cataldo drinking water operators.



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Superfund Straight Talk

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February 2012

Q: What are the results of Panhandle Health District's 2011 children's blood lead screening in the Superfund site?

A: Great news! Children's blood lead testing shows decreasing blood lead levels. Eighty-nine children living in the Superfund site (Coeur d'Alene River Basin between Mullan and north of Harrison) had a free blood lead test from the Kellogg Panhandle Health District (PHD). The program identified one child with a blood lead over 10 micrograms per deciliter. Through the late 1980s and 1990s, between 14-56% of children living in the Superfund area who were tested each year had elevated blood lead levels.

Soil remediation, national efforts, and simple prevention methods have helped reduce children's blood lead levels over time. Since 1987, over 6,000 properties (which had high amounts of lead in soils) have been remediated. In addition, national programs aimed at reducing lead in the environment, as well as changes in consumer products like paint and gasoline, have helped reduce national blood lead levels.

The CDC recommends that families have a lead-prevention consultation to find ways to reduce lead exposure if a child has a blood lead over 10 micrograms per deciliter. The Kellogg PHD offers this service privately to families. Many lead-prevention methods are available. Local information is at <http://www.phd1.idaho.gov/institutional/lead.cfm>.

Q: Why is this program offered?

A: The program is a part of the state's commitment to support human health remedies in the Superfund site. This is why the program caters to kids living in the CDA River Basin and is not a statewide program. DEQ provides this blood lead testing program as a free public health service. The service has been provided since 1988. Kellogg PHD continues to operate the program. Idaho's statewide program is offered by Health and Welfare through Medicaid (208-364-1835). Family physicians are also a primary contact for lead screening and consultation.

Q: How will I know when the PHD will offer free blood lead testing?

A: A detailed invitation is sent to each address in the CDA River Basin each year. You could also watch for a flier to come home from your child's Silver Valley area elementary school, or catch the ads in regional newspapers and on local radio. You can also call Kellogg PHD directly at 208-783-0707. There is no fee for blood lead testing. Testing for children is offered over about a four-week period in various locations each July. National rules regarding the security and privacy of handling health data apply.

Thank you for submitting your questions. Email Denna Grangaard at denna.grangaard@deq.idaho.gov, click on "Ask Us" at our website: www.deq.idaho.gov/bunkerhillsuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue, Kellogg (208) 783-5781.



Superfund Straight Talk

January 2012

Q: Is a remediation plan developing for the East Fork of Ninemile?

A: Yes, during 2011 the Coeur d'Alene Trust (CDA Trust) began environmental investigations in the East Fork of Ninemile Creek North of Wallace so that cleanup planning could start in 2012. The CDA Trust uses funds from an Asarco settlement for cleanup work directed by EPA specifically for the CDA Basin.

Full-scale construction is planned for 2013. There will be some limited construction in 2012 to improve roads and stream crossings for better access during construction. Potential cleanup sites in the East Fork drainage were identified in the *2002 Interim Record of Decision*. The Upper Basin Project Focus Team Subcommittee comprised of Shoshone County representatives, state, Tribe, and federal agencies helped EPA identify the most important sites to address first. The overall goal for 2012 is to design cleanup at the Interstate Callahan mine and mill site, make plans for consolidating waste into one place onsite, and complete information gathering at the other identified sites in the East Fork drainage.

Q: Where should I look to follow this process?

For self-guided research, I recommend browsing the Upper Basin Project Focus Team Subcommittee meeting notes on EPA's website by searching "ROD Amendment for Upper Basin and Box, Meetings." You can also call Bill Adams at (206) 553-2806 or Andrea Lindsey (206) 553-1896 at EPA. Other resources include the CDA Basin Bulletin quarterly newsletter c/o Andrea Lindsay and the [Basin Commission's](#) Citizen Coordinating Council and their public meetings c/o Terry Harwood (208) 783-2528. DEQ and EPA are frequently out in the community giving presentations or hearing from citizens. Thanks again for contacting us and asking questions!

Keep up the good work! Send questions to Denna Grangaard at denna.grangaard@deq.idaho.gov, click on "Ask Us" at our website: www.deq.idaho.gov/bunkerhillssuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue, (208) 783-5781.



Superfund Straight Talk

Responding to Citizen Questions about the **Bunker Hill Superfund Site**

December, 2011

Thank you Silver Valley contractors, businesses, and community members for contributing to a successful Basin Property Remediation Program! During the summer of 2011, 240 properties were remediated; that's about 2.8 million square feet, which is equivalent to 58 football fields. Soil samples were gathered from 190 properties in the Basin. Thank you for your hard work and coordination!

Q: I live in the Lower Coeur d'Alene Basin and I hear that the property remediation program is going on. What can I expect? Will my property need remediation?

A: Upper Coeur d'Alene Basin soil sampling is nearly completed and the Idaho Department of Environmental Quality (DEQ) and its contractors continue to sample properties in your area. Your property may or may not need remediation, but having an idea of what to expect as the process proceeds will be helpful.

Homeowners' Guide to the Soil Sampling Process



1. Homeowners in the Bunker Hill Superfund Site receive Consent to Sample Forms; homeowners are asked to fill out, sign, and return the form.

2. Homeowners determine a time to meet DEQ's contractor on the property.

Homeowners show the property features to the contractor so a map can be created. Features include septic, utilities, play areas, easements, wellheads, and property pins. Homeowners retrieve a vacuum cleaner bag and sometimes a tap water sample. **This is a great time to ask questions about the process.**

Year	Month	Day	Hour	Time	File	Owner	
				1	2	3	4
5	6	X	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29				

3. When the map has been completed, the contractor schedules a time to take soil samples. This could be several weeks after the first visit. **Homeowners can choose to arrange a time when they can be home during sampling.** Homeowners can expect soil sampling to take one-to-three days on average. Sampling holes and divots are filled after samples are taken.



4. Homeowners receive an important letter from DEQ with soil sample results, which they should keep for future title or real estate transactions. Results may come a month or more after sampling. Results may recommend remediation in specific areas or may verify that no remedial action is necessary.

If remediation is recommended, homeowners will be contacted by DEQ or its contractor so a plan can be developed. Homeowners should keep a copy of the final construction plan. Homeowners would continue coordinating with the Kellogg Panhandle Health District Institutional Controls Program (ICP) to maintain records of earthwork, ceiling and attic work, and insulation removal.



Thank you to the community for asking questions! Write your SST questions to Denna Grangaard at denna.grangaard@deq.idaho.gov, click on "Ask Us" at our website: www.deq.idaho.gov/bunkerhillsuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue, (208) 783-5781.

Superfund Straight Talk

Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)

November, 2011.

This month, I am including Institutional Controls Program details by Jerry Cobb of the Panhandle Health District, the program's administrator. Jerry has specific information about the purpose of the ICP, how it started, what it means for commerce, and public responsibility for permits.

Overview of the Institutional Controls Program

The Institutional Controls Program (ICP) is a locally enforced set of rules and regulations designed to ensure the integrity of clean soil and other protective barriers placed over contaminants left throughout the Bunker Hill Superfund Site. The ICP regulates projects that involve excavation, grading and renovation projects associated with building interiors that require ceiling and attic work, insulation removal, and work in dirt basements and crawlspaces.

The fundamental purpose of the ICP is to protect public health and assist with local land transactions.

The property cleanup program addresses surface contamination only. To determine cleanup needs, the top 18-inches of each property in the Bunker Hill Superfund Site is sampled. If contaminated, up to the top one foot of material on residential, public and commercial property is removed and replaced with clean soil or gravel. This work has been done by the Upstream Mining Group (UMG) or the government, at no cost to the property owner. Partial removal requires management of barriers and caps in perpetuity. While barriers are originally installed by the UMG or the government, management of barriers falls to the property owner.

Partial removal was selected as the preferred cleanup alternative because a total removal wasn't possible. Contaminated material under buildings, roads and other structures isn't accessible. In addition, there wasn't enough readily available soil to replace contaminated materials removed, nor adequate disposal space to store it all.

One of the main advantages to conducting partial removal in the Box was the avoided cost of a complete removal. This approach saved the mining companies \$152 million for the Populated-Areas cleanup and the governments \$68 million for the Non-Populated Areas cleanup. These estimates are likely only one-half to a third of the actual savings realized. Partial removal was the selected remedy in the Basin as well as the Box.

The ICP was first developed as part of the cleanup in the Box . The Bunker Hill Superfund Task Force guided the development of the ICP. The Task Force was and is made up of local volunteers serving as the forum to represent local government and citizens in the Box during the cleanup. Prior to developing the ICP, the Task Force was asked to provide input regarding program structure and operation. They were asked to provide conditions upon which the program would be based. They provided three conditions:

1. Institutional Controls must minimize inconvenience, cost and loss of land use options to local residents,
2. Institutional Controls must utilize, to the maximum extent practicable, existing control mechanisms and local agencies, and
3. Institutional Controls must be self-sustaining and impose no additional cost on local government, residents, or property owners.

The ICP was developed over a seven-year period, working with the Task Force, local government, utility companies, citizens, and contractors. The ICP was adopted as part of Panhandle Health District's Environmental Health Code in the Box in 1995, and expanded into the Basin in 2007. Before implementing the program in the Basin, the project was presented to the mayors of Basin cities, Shoshone & Kootenai County Commissioners, the Coeur d'Alene Basin Commission, and others. The Box conditions were noted and contractors gave input.

As noted, the program was developed to protect public health and assist with local land transactions, and economic development. Simply put, it allows commerce to be conducted in spite of the fact that contamination

remains site-wide. By law, all projects that involve excavation or grading, and certain interior projects, must obtain an ICP permit. Failure to do so can result in a \$300.00 per day fine for each day of non-compliance and/or six months in jail.

Since 1995 in the Box and 2007 in the Basin, the ICP has not had to go to court to gain compliance. Project personnel work hard to educate permittees and provide direction on how to complete projects so that enforcement doesn't have to come into play. Local residents recognize the value of maintaining their barriers to protect their families and support land sales.

At present, over one thousand ICP permitted projects are being completed in the Box and Basin each year. Nearly 250 contractors per year are licensed and trained by Kellogg Panhandle Health District to work within the Superfund site. All permits and contractor licenses are free of charge. Homeowners who do projects on their own property do not need to be licensed. Disposal of contaminated material generated as part of ICP permitted projects may be taken to local soil repositories. This service is also free of charge.

All project permits and any other information generated as part of the ICP is placed on file and into a database that is maintained on every parcel of residential and commercial property within the site.

That information is used to support local land transactions, economic development and public works projects that require grants, loans, or bonding. Information packets provided to lenders include: sample data, the original plot plan created as part of property remediation, and all ICP permits. If the original plot plan does not match the condition of the property at the time of sale, the effectiveness of the barrier can be called into question. At that point, the property owner may be required to resample their property and if contaminated, clean it up again at their expense.

Exclusive of Superfund, there are two state laws that require both homeowners and realtors to disclose environmental hazards associated with property prior to its sale. Nationwide, EPA and the Department of Housing & Urban Development (HUD) also require sellers and their agents to disclose lead contaminated soil associated with certain residential land sales. In addition, banks, mortgage companies, and other lenders and underwriters also conduct due diligence as part of their involvement in land sales, purchases, and development projects.

Compliance with the ICP is required for most if not all of these activities. Compliance with the ICP is also necessary to meet Superfund law associated with "All Appropriate Inquiry" requirements for property acquired at the Bunker Hill Site after January 11, 2002.

At present, the ICP prepares 400 to 700 disclosure assistance packages each year to support land sales and development in the Box and in the Basin. Information is provided to buyers, sellers, banks, mortgage companies, federal underwriters, and bond counsel for local governmental entities issuing bonds for schools or other public works projects. In addition, countless hours are spent each year dealing with lenders who express concerns about being involved with projects in a Superfund site.

At some point, everyone who owns property will sell out and move or pass their property onto their heirs. Property located in the Superfund site can be passed on as a liability or an asset. The ICP remains available and committed to ensuring that local real estate is a valuable asset and not a liability.

ICP issues to consider:

- Projects completed in compliance with the ICP are considered to be in compliance with the cleanup requirements noted in the Records of Decision issued at the Bunker Hill Site. Program compliance satisfies both EPA and lenders.
- Projects initiated after obtaining an ICP permit can be completed simply and without compromising site barriers. Projects begun without ICP assistance can result in extensive barrier damage and the need to

complete expensive repairs that could have been easily avoided. All repairs must be made and paid for by property owners.

- ICP requirements involve simple, off the shelf soil management practices and common sense to implement. These same requirements and techniques are also required to meet state and federal agency requirements, as well as those necessary for area cities and counties.
- Each year the ICP surveys contractors and a number of homeowners who have obtained an ICP permit. Since its inception, the program is rated by over 90% of those who respond as good to excellent for availability, service, quality of assistance and education offered.
- If ICP requirements are not met, it is a violation of local law and may violate Superfund law. If we are not successful in obtaining compliance locally with the ICP, the EPA can issue a Unilateral Administrative Order (UAO). At that point, one is not dealing with local staff and local systems and \$300.00 fines, one must then deal with EPA in Seattle and risk fines of \$32,500 per day. As noted, since 1995 the ICP has not had to resort to a court action to gain compliance. Most people understand the need to maintain their protective barrier to protect their families and to qualify for bank financing.

If you have questions about this article, please call Jerry Cobb at 783-0707.

I welcome your SST questions for December! Write to Denna Grangaard: denna.grangaard@deq.idaho.gov, click on "Ask Us" at our website: www.deq.idaho.gov/bunkerhillssuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue (208) 783-5781.

Superfund Straight Talk

*Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)
October, 2011*

Q: If soil sample results show lead contamination on my property, does that mean my property is a part of the Superfund Site? Will my property always be considered “contaminated” if soil samples show high lead amounts?

A: Yes, properties with contaminated soils are in the Superfund Site, and so are properties that are within the Institutional Controls Program (ICP) Administrative Boundary. Yes, contamination will often be left below remediated surfaces; however, properties should not be encumbered with a “contamination” label if homeowners go through the yard sampling/remediation program, have a clean barrier installed and comply with the ICP. The ICP will document that your clean barrier has been maintained.

The Superfund Site does not have a described boundary because the site is defined as anywhere contaminants from old mining and ore-processing practices in the Coeur d’Alene Basin are found. The ICP Administrative Boundary, however, specifically describes the boundary where contamination is most likely. See last month’s article for more about the Administrative Boundary.

When necessary, remediation removes up to 12 inches of contaminated soil or covers the surface with clean gravel or asphalt. Many times contamination remains underneath this clean barrier. Clean barriers can easily become contaminated again if not properly managed. ICP permits for dirt-moving and renovation projects build records for sales or title loans that show properties are clean.

Q: Will a floodgate be installed on the Rose Creek Culvert near Rose Lake?

A: DEQ and the Basin Environmental Improvement Project Commission (BEIPC) are installing a new flood control gate on the new Rose Creek Culvert. The original Rose Creek culvert under the Highway-3 levee was installed in the 1930s. Nearby landowners historically operated a flood control gate to hold back Coeur d’Alene River floodwaters. When the culvert failed last season, the new culvert would not accept the old floodgate. DEQ agreed to provide a new floodgate if the local residents, as part of the Rose Lake Water Association, would operate and maintain it. DEQ and BEIPC were able to provide the gate because it prevents Coeur d’Alene River lead sediment from being transported up through Rose Creek.



How are we doing? We appreciate that you would take a moment to give feedback on the “SST Articles.” I also welcome your SST questions. Write to Denna Grangaard: denna.grangaard@deq.idaho.gov, click on “Ask Us” at our website: www.deq.idaho.gov/bunkerhillsuperfundsite, or stop by the DEQ Office, 1005 W. McKinley Avenue, (208) 783-5781.

Superfund Straight Talk

Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)

September, 2011

Q: Why is there an Institutional Controls Program?

A: I occasionally hear from citizens a belief that cleaned up areas cannot be disturbed or developed and are *off the market*. This is not true. Sometimes people who have used the Institutional Controls Program (ICP) do not fully understand why it is used. The ICP is a mechanism allowing the Kellogg Panhandle Health District (PHD) to assist people with normal land activities within a superfund cleanup area. PHD offers free education about how to keep cleaned areas clean, provides documentation needed for land transactions, and provides a system for earthwork and building construction that creates a record needed for sale or loans. The ICP ensures that cleanup remains functional and protective over the long term. Education, information, permits, and site visits are necessary but free. The ICP is a unique requirement as a part of this superfund area, but helps our communities co-exist with cleanup.

One example of a large-scale project made possible by the ICP was the land purchase and development of the gondola and Silver Mountain Resort. More recently, Smeltonville was able to bring in Wal-Mart by using the ICP. Each residential project and local business project is equally important. In 2010 alone, PHD assisted with nearly 500 land transactions, 936 permits in the Basin, and 1,241 permits in the Box.

PHD wrote and adopted the ICP, which can be found in the Idaho Administrative Rules (IDAPA §41.01.01) or obtained through the Kellogg PHD office. Visit 114 Riverside Avenue, Kellogg, or call 208-783-0707.

Q: What is the ICP Administrative Boundary and why is my property in the ICP Boundary if I am not in the floodplain?

A: The ICP Administrative Boundary in the Coeur d'Alene Basin (CDA) was determined by the 100-year floodplain of the CDA River. The ICP also took into account residential and commercial development areas outside of the floodplain. The first reason goes back to the purpose of the ICP; many driveways, landscaped areas, and building sites in the CDA Basin received mine waste as fill and show high content of lead and arsenic. The second reason could result from the fact that the boundary line was drawn using quarter sections. If a portion of the quarter section falls within the floodplain, that whole quarter is considered inside the ICP Administrative Boundary.

Sediment sampling found that most floodplain areas of the South Fork and main stem of the Coeur d'Alene River are contaminated. The North Fork of the CDA

River system is not designated within this superfund site. Only the first two road miles following the North Fork are inside the ICP boundary.

The ICP Administrative Boundary description was accomplished through the public process of the [Basin Environmental Improvement Project Commission](#) (BEIPC), which included review by the Citizens Coordinating Council and Technical Leadership Group, and discussion at Basin Commission meetings. Both the Panhandle Health District and BEIPC recommended the ICP Administrative Boundary to the Idaho Legislature for review and inclusion under the Idaho Administrative Procedures Act.

The ICP rule applies to every property in the ICP Administrative Boundary area and those outside of the boundary that had mining and smelting-related contamination brought onto the property. Submit your questions to get answers posted in the Superfund Straight Talk. Write to denna.grangaard@deq.idaho.gov or click on "Ask Us" at our website: www.deq.idaho.gov/bunkerhillssuperfundsite.



Superfund Straight Talk

Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)

August, 2011

Denna Grangaard

Public Outreach Analyst

Idaho Department of Environmental Quality

I recently experienced an enlightening and encouraging day with Idaho Department of Environmental Quality's technical contractor, TerraGraphics Environmental Engineering, the contractor responsible for part of the residential yard cleanup program. My goal was to better understand the homeowner's perspective, to see the program in action, and familiarize myself with the connection between technical crews and homeowners.

The day started early at the TerraGraphics Environmental Engineering office in Kellogg, Idaho. I stood shoulder-to-shoulder with about 25 field-crew members for a debriefing by crew boss Tarita Harju on the day's work ahead, the season's progress, and a daily health and safety message. Crews paired up and scattered in their familiar fashion while I dug out my itinerary and oriented myself toward the day's direction.

An Initial Site Visit Crew is the first team to approach a homeowner during the Basin Property Remediation Program (BPRP) to replace contaminated property soils with clean soils. At this point in the process, the homeowner had already received a letter requesting participation in the BPRP and had scheduled an appointment with the Initial Site Visit Crew. I met with experienced crew members, Taryn Massey, Mathew Pendergast, Debra Griffiths and Randie Melton, who said that spending time with homeowners, answering questions, and listening to concerns helps smooth make the process smooth. Taryn and Debra reported that many homeowners are nervous, but approachable, and just want to talk things over. The homeowner familiarizes the crew with the landscaping materials, play areas, locations of utilities, and property corners. Initial Site Visit Crews measure the property and request a vacuum bag sample (more on this below) and a water sample from private water system users. The water sample is collected to make sure the drinking water is safe. If the water exceeds standards for metals, the property owner is provided a filtration system. After the Initial Site Visit, TerraGraphics creates a map and schedules soil sampling.

The second TerraGraphics team to contact the homeowner is the Soil Sampling Crew. Soil sample team members Jim O'Connell and Pat Dawson described their interactions with homeowners and sampling procedures. Homeowners often schedule a time to review the sample location plan with TerraGraphics and set a time for sampling. Jim and Pat explained that most homeowners are cordial, want to be well informed, and are a pleasure to work with. Crews use hand tools to dig several 18 to 24-inch sample holes. They then package up small amounts of soil and place the remaining soil back in the hole. Crews label each sample with property identification numbers for the lab to analyze. Silver Valley Analytical Lab (SVL) in Smelterville, Idaho processes samples for DEQ. Samples are then analyzed at SVL or at another certified laboratory. Once DEQ receives sample results, DEQ sends the homeowner a letter indicating if remediation is needed.

If the sample results justify remediation, a Project Representative meets with the homeowner to walk through the areas in the yard needing remediation. Shawn Hollis, a seasoned TerraGraphics Project Representative, works with homeowners and construction contractors. I asked Shawn how most homeowners react when construction starts. Shawn explained that homeowners are familiar with what work needs to be done, but that it is different when the equipment arrives and digging starts. Many homeowners are just curious and want to know more about what is going on, so they ask questions. I asked Shawn how homeowners can get the best answers to questions about the construction on their property. Shawn indicated that Project Representatives assigned to each homeowner are the best initial checkpoint for questions.

DEQ often receives questions about the timing of this process. DEQ strives for customer service and a high quality product. Our procedures help standardize a remediation timeline; however, schedules can be impacted by priorities such as quality assurance checks, weather conditions, soil management, and prioritizing high-risk properties. We appreciate you, the homeowner, working with us. Our goal is to leave remediated areas in their original or better condition when we are done.

The Dust Mat Sampling Program is an additional way to help monitor lead levels in soil. I joined Dust Mat Sample Crew members Diane Albinola, Carrie Waldron, and Jason Williams to ask homeowners if we could place a floor mat inside their front door. This program identifies how much lead is tracked into the house, the most likely place where kids may be exposed. The floor mats are in place for about a month, until crews return to pick them up. Each homeowner receives a letter with test results. If high levels of lead are found, the Panhandle Health District offers free consultations with a homeowner to find ways to reduce the amount of lead entering the home. As I was out with the crew, I noted that many homeowners volunteer their doorsteps from year-to-year and people are very polite whether or not they choose to volunteer. The Dust Mat Crew also asks to take a vacuum cleaner bag to sample indoor dust. As mentioned earlier, the Initial Site Visit Crew asks for these bags as well. We want to gather as many samples as we can because the lead in vacuum dust is a good indicator of overall cleanup progress.

Shadowing field crews for the day helped me better understand the process. I met new people, talked with homeowners, and enjoyed a friendly day in the field. I witnessed person-to-person communication as supportive for homeowners and staff members alike. I recognized homeowners as gracious and curious. "Thank you, homeowners!" for asking questions, telling your story, and participating in these programs. "Thank you, TerraGraphics field crews!" for welcoming my questions and showing me how the process works at ground level. Thank you both for caring. I think we have a good thing going.

Submit your questions to get answers posted (anonymously if you wish) in the Superfund Straight Talk. Write to denna.grangaard@deq.idaho.gov or click on "Ask Us" at our *new* website: www.deq.idaho.gov/bunkerhillssuperfundsite.



Superfund Straight Talk

Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)

July, 2011

Q: What is planned for remediation of public roads with contaminated surfaces and shoulders?

A: EPA and DEQ have been working on a program to address potentially contaminated public road and street surfaces and shoulders. The proposed program will be discussed with the local public road jurisdictions during meetings in late August. In the mean time, DEQ's contractor TerraGraphics is sampling gravel and dirt public roads starting in the Upper Basin and working toward Harrison. Sampling and testing of surface materials will determine where contaminated roads and/or streets exist. The program will not include roads managed by the Forest Service, BLM, or federal and state routes. Gravel and dirt road sampling started the week of July 18th so be on the lookout for crews. Thanks for slowing down for them and the flaggers.

Q: What is all the activity at the Page Repository?

A: DEQ is composting wood waste to make re-vegetation successful at the repository. The portion of the repository which no longer accepts soil waste offers a 14-acre flat surface for the composting project. Shoshone County has been contracted by DEQ to truck their large woody and yard wastes previously destined for land fills to the Page Repository. DEQ is also collecting wood wastes generated by the yard cleanup program, highway projects, fire mitigation projects, and Waters Transfer Stations.

Later this summer, DEQ will select a contractor to manage ICP waste in the Box. The contractor will also keep a stockpile area open for ICP waste during winter months.

Community Time: I have really enjoyed outreach this summer. There are plenty of community events happening with summer celebrations. I recently attended the Wallace Mining Museum's ribbon cutting for the addition of the Sunshine Mine diorama. This is a great home for such a treasure! I am proud to be a part of a community that works together on important interests that define the meaning of the community.

In addition to the Sunshine diorama I also saw a diorama of the Bunker Hill mine at the Staff House Museum in Kellogg. I didn't know lighted boxes containing layers of mylar drawings were utilized for daily business operation and planning. How amazing and ingenious. Thank you, Bob Dunsmore for your gracious and informative tour of the Staff House Museum!

We hope to see you at the North Idaho Fair and Rodeo in August! EPA, DEQ, Coeur d'Alene Tribe and the Basin Commission are partnering again to provide fun interactive education about the CDA Basin. Come and see us inside Building #1 between Wednesday August 24th and Sunday August 28th!

Write up your questions to get answers posted in the Superfund Straight Talk.

Write to denna.grangaard@deq.idaho.gov or click on "Ask Us" at our *new* website: www.deq.idaho.gov/bunkerhillsuperfundsite. DEQ has made website address changes. Re-save old links so they will work! Let us know if the new webpage layout and content meet your needs.



Superfund Straight Talk

Responding to Citizen Questions about the [Bunker Hill Superfund Site](#)

We can't thank you enough! When it comes down to it, caring people make a huge difference. You might not enjoy traveling slowly through construction areas, nor delight in waiting your turn for one-lane travel, but you certainly show you care about the safety of the men and women working along the shoulder of the road. Thank you so much for slowing down, keeping your eyes peeled, and sharing the road! This spring, contractors working along Silver Valley Road and Riverview Drive, near Kingston and Cataldo took note of your patience.

“Thank You for Thinking about Safety!”

DEQ's contractors are now starting work in drier, Upper Basin communities like Placer Creek, Two-mile, Terror Gulch, Osburn, and Mullan. Construction this spring focused on Pine Creek, Kingston and Cataldo properties which were dry enough to work with. Most Lower Basin soils are not yet workable.

Q: What kind of construction is going on under the Interstate 90 viaduct in Wallace?

A: Soil replacement is taking place near the old Coeur d'Alene Foundry buildings on the east side of Wallace. Crews are removing surface material and placing clean gravel and asphalt in the area.

Landowners helped DEQ, North Wind, and TerraGraphics layout the construction plan in consideration of nearby uses. Considerations include existing drainage issues, local businesses using the area, and travelers on adjacent roadways and the Trail of the Coeur d'Alene's. Drainage issues are mended by controlling surface drainage and routing stormwater into the existing drainage system. A local business's active loading ramp is placed away from the activity on the trail, and temporary signs are placed along the trail and roadways during construction.

Q: What is Idaho Department of Environmental Quality's role in the cleanup?

A: DEQ's role in the cleanup includes three primary goals. First, we seek to protect the health of the people of Idaho. Next, we seek to protect the areas that have already been cleaned up. And finally, we seek to keep the community well-informed and engaged.

Some of the ways DEQ has worked to protect people's health include managing the property remediation efforts, conducting outreach on health risks and risk reduction, and supporting Panhandle Health District's blood-lead testing and education programs. Since 1986 almost 6,000 properties have received soil replacement, grass cover, or gravel and asphalt cover. On the remedy protection front, DEQ actively seeks to prevent damage to the remedy from, for example, stormwater that might wash away the clean soil layer.

As DEQ works to keep the public informed about our activities, risk reduction, and opportunities to be engaged, we need to hear from you. While part of my job is to offer timely, accurate information to as many people as possible, I also want to know what you are thinking. What issues do you care about? How does the cleanup affect you and the way you live your lives? What positive changes have you seen? I'd like to connect

with you, to have opportunities for us to learn from each other, and to understand how your voice can influence the decisions that are being made about the cleanup.

I recently spent a morning at Indelible Tidbits on Bank Street in Wallace where I watched a historical narrative by "May Hutton," acted by Vickie Allmann. I was captured by Vickie's depiction of May's passion and spirit. I learned volumes about this place where I live and the people who were a part of the Silver Valley's history. Thank you, Vickie and May! If you have a story to tell about living or working in the Coeur d'Alene Mining District, want to share what's important to you, or want to learn more about our agency, then let's get together. You can reach me at: Denna Grangaard, DEQ Kellogg, (208) 783-5781 or www.deq.idaho.gov/bunkerhillssuperfundsite.

Superfund Straight Talk

Responding to Citizen Questions about the *Bunker Hill Superfund Site*

Hot Topics and Bridging Communication:

Q: I noticed construction near Big Creek Road, what's going on?

A: The Big Creek soil waste repository is being expanded to allow capacity for soil clean up. Trees and brush have been removed from the side of the repository visible from I-90, the CDA Bike Trail, and Big Creek Road. Through [EPA Basin Bulletins](#), [CCC Meetings](#), and other [Basin Commission meetings](#) citizens responded that they were concerned with visual changes seen from the trail. As agreed, the strip of mature dogwood, alder, and conifers between the trail and the expanded area of the repository, will not be removed. You may call [Terry Harwood](#) about construction operations 208-783-2528. Vegetation cleared at Big Creek is being utilized for composting at the Page Repository.

Q: What happened at the Page Repository Open House?

A: The open house was hosted by the Bunker Hill Task Force, which is the local working group and citizen forum that provides council to the state and federal agencies about cleanup issues in the 'Box' (Kingston up to Elizabeth Park). The Page Repository is planned to be expanded westward in 2012. Citizens who came to the Open House shared ideas about enhancing or creating substitute wetlands. They also said that the bike trail should remain open during proposed construction, and that both new vegetation and variation of the repository shape could improve the scenery. [Bruce Schuld](#) is the point of contact for questions about finalizing a plan 208-373-0554.

Q: There is standing water in the Cataldo Flats and around the [East Mission Flats Repository](#). Can the repository be open for use?

A: Yes, contractors, citizens and governments can bring contaminated soil to the repository for disposal. The area currently used for disposal is not underwater. No contaminated material will be disposed of in the water at EMF. Using the repository will not contaminate the water and continued monitoring shows that the repository is not the source for metals in the river. The source of contamination is from the bed, banks, and floodplain of the Coeur d'Alene River because they are chock full of tailings from the old days.

Q: Is the Jack Waite Mine site going to be removed?

A: Yes, tailings are being cleaned up, although it's not a part of the Bunker Hill Superfund Site. The mine site included a mill, mine, railway, and two nearby creeks. Reclamation at the site dates back to 1979 when the US Forest Service diverted one creek around tailings piles. Since then, two tailings piles have been stabilized, pulled away from the creek, and contoured to keep tails from running off into the creek. The remainder of tailings cleanup is planned to be complete this year. In 2012 site restoration and stream work will be completed. When the project is finished the area will be greener, and the streams will benefit too.

Many local generations have worked at the Jack Waite, including my great-grandfather in the 1930's. EPA and Forest Service are working with the Idaho Historic Preservation Office and Wallace Mining Museum to collect extensive historical information, including oral histories of those who worked at the Jack Waite. While no large structures remain at the site, a rich history of information and artifacts will be preserved for future generations.

Submit your question at www.deq.idaho.gov/bunkerhillsuperfundsite or call me, *Denna Grangaard*, Idaho Department of Environmental Quality, Kellogg 208-783-5781.

Superfund Straight Talk

*Responding to Citizen Questions about the **Bunker Hill Superfund Site***

Coeur d'Alene Basin communities say they need options. In order to effectively gather feedback from multiple communities, they say multiple information methods are needed.

Q: What options are offered to be informed and engaged in cleanup planning? Who are my direct resources?

A: Three primary sources provide information about the Bunker Hill Superfund Site: Basin Environmental Improvement Project Commission (BEIPC), EPA, and DEQ. These agencies have direct responsibility and influence on cleanup actions; that's why they offer information and public engagement opportunities. Here are examples for general-citizen involvement (technical involvement opportunities will be another article!):

1) The BEIPC develops cleanup work plans, sets work priorities, and coordinates environmental restoration. The BEIPC consists of seven governments that each have responsibilities within the cleanup site. BEIPC offers Basin Commission meetings, which are formal public meetings in a council setting where public comment is taken. Some citizens prefer to attend the **Citizens Coordinating Council (CCC)** meetings because the CCC is the main avenue for public input into BEIPC activities. Meetings are a good mix of casual and informative. Current issues are discussed and citizens bring discussion topics. Project managers give updates and engage in the citizen dialogue. The CCC offers e-mail and postal mail meeting updates. The CCC just voted Troy Lambert to serve as Vice Chair. Troy is an author and provides historic research and documentation for the Wallace Mining Museum. Welcome, Troy! Troy will assist Jerry Boyd, CCC Chair. Check out meeting times, request notification, and get to know the people. Visit: <http://www.basincommission.com/Calendar/>.

2) EPA leads the effort in providing information to citizens about all aspects of the cleanup. Over twelve hundred citizens receive the Basin Bulletin directly at their door (or email inbox) three times a year. The newsletter gives thorough information without overloading technical aspects. The EPA outreach team also hosts community open houses, develops quick-reference fact sheets, and maintains an updated website. See if the Basin Bulletin is right for you, and check out related fact sheets at:

<http://yosemite.epa.gov/r10/cleanup.nsf/sites/bh>.

EPA relies on help from BEIPC and DEQ to provide additional, direct, and frequent community connections. In addition EPA recently hired Community Information Specialist Carol Young, who will have an office in the Silver Valley. Carol is a 20-year Kingston resident with a diverse background in communication, customer service, and community patronage. Welcome, Carol! You are a valuable addition to the team!

3) DEQ assists both EPA and BEIPC with outreach. DEQ has an office in Kellogg which focuses on the **Basin Property Remediation Program**, and public outreach. As a part of local public outreach, I help with community connection. I visit with citizens, go to both technical and citizen meetings, attend Chamber events, and participate in community events. Both Carol at EPA and I at DEQ welcome you to connect with us.

Each group strives to be accessible, responsive, and open to options. Are the available options working for you? Have you tried the options? We hope you find us as valuable as we find you. Please let us know how we can better reach out to you. Contact me by phone in DEQ's Kellogg Office at (208) 783-5781 or send me an email from our website at: www.deq.idaho.gov/BunkerHillSuperfundSite.

Superfund Straight Talk

Responding to Citizen Questions about the *Bunker Hill Superfund Site*

March 2011: Approaching Cleanup in the Lower Coeur d'Alene River Area

The Idaho Department of Environmental Quality (DEQ) tests then if necessary, removes contaminated soils from areas with human activity. Because we are going to be soil sampling in the general vicinity of the Coeur d'Alene (CDA) River between Cataldo and Harrison, we want to answer common questions and address different considerations at play. Many Lower Basin residents' properties are larger rural acreage utilized for forest products, farming, ranching, and recreation. Additionally, historic mining practices which deposited contamination were generally located in the upper CDA River drainage.

Q: How could contamination get on my property in the Lower Basin? All the mining activities are further up the River.

A: Some main ways contamination might occur on Lower Basin properties are: by flooding, using soil or gravel from untested sources, and tracking soil in from contaminated areas.

- 1). Flooding: Rising flood waters pick up contaminated sediment from the river bottom, banks and floodplain. When the flood recedes, the fine sediments are left on the river valley floor. Each year, the CDA River carries many tons of high-lead sediment all the way to Coeur d'Alene Lake.
- 2). Untested Material Sources: Lead and arsenic particles in soils are not visible to the eye. Soil or gravel from an untested source (even a neighbor) may have been brought onto your property at some point in time. *It may have been contaminated without anyone knowing that it was.* Testing is the only way to know for sure.
- 3). Tracking: When people work or recreate in contaminated areas (like on the CDA River valley floor) they are likely bringing home dirt on trucks, trailers, and equipment. *If your yard was clean before hosing mud off the equipment; it may not be clean anymore!*

Q: Why should I agree to have my yard sampled?

A: Eventually, all properties within the Site will need to be sampled and if required, cleaned up so that the contamination can be managed. If you decline sampling, we will contact you to ask why. Many people have different reasons. There are many benefits to have sampling done now:

- 1). Sampling is free and disturbs the soil very little. Soil samples are taken at different locations, depending on the use of the area. Only those areas testing over 700 parts per million (ppm) lead, or 100 ppm arsenic would be cleaned up. Private well water is also tested, but the resident takes the tap water samples from inside the home, and sends it to DEQ.
- 2). Cleanup is shown to reduce heavy metals exposure of children, expectant mothers, and others living in the home. Because exposure is through hand-to-mouth contact, young children have the highest exposure.
- 3). Test results give you information about your property. Results are essential for home loans and land ownership transactions. This is critical because prospective buyers will want to know what issues exist with the property since the property is within a Superfund site.

Q: What areas of my property need sampling? What about agricultural areas?

A: DEQ's first concern is public health, so samples need to be taken where people (especially children) use the area. Typical areas include: the yard, flower bed, garden, driveway, play house and sandbox, and the path to the well house. Each property is different; *one size does not fit all.* Pastures and agricultural fields are not typically tested or remediated. There have been cases where horse riding arenas are tested because children use them. So far, the most visible cleanup areas are within the cities, so the program has mistakenly come to be known as a "yard" cleanup only.

Q: Who will come on my property and why?

A: Most often, DEQ and TerraGraphics Engineering will work with you. When you receive a *Sampling Consent Form*, indicate that you would like DEQ and TerraGraphics to contact you before samples are taken. After 2011, the CDA Work Trust will manage the property cleanup program. You should expect utility companies to locate utility lines before samples are taken. DEQ construction contractors would be on site if cleanup is needed. We have more information available about this process.

We understand that people have many questions and concerns. We want to be responsive to you. Contact me by phone or send an email from our website www.deq.idaho.gov/BunkerHillSuperfundSite. Denna Grangaard, DEQ Kellogg (208)783-5781.

Superfund Straight Talk

Responding to Citizen Questions about the *Bunker Hill Superfund Site*

February 2011: How Agencies Work Together When Disaster Strikes

Flooding of the Coeur d'Alene River system is common and road closures are an ordinary consequence of high-water events. However, State Highway 3 (SH-3), a major commuter route, had to be closed in the middle of freezing holiday weather due to damage caused by a failed culvert.

Q: Did "Superfund" stifle emergency response to the SH-3 culvert repair at Rose Lake?

Superfund did not stifle the response to repair the SH-3 Rose Lake culvert. A communication network has been established to make responses quick and well-coordinated. The Rose Lake area in Kootenai County is within the boundary of Idaho's Institutional Controls Program (ICP) rules for contaminated soil handling. The ICP rules give a way to safely handle and dispose of lead-contaminated soil. The ICP program is run through the Panhandle Health District (PHD) in Kellogg.

During five-degree December weather, the Idaho Transportation Department (ITD) responded to a report of a failed culvert and damaged roadway near Rose Lake. Bill Kauffman, ITD Maintenance Foreman, knew that special handling of potentially lead-contaminated soil would be needed.

A communication network sparked between agencies and contractors. Sandi Lockhart and Mike Dancer of PHD were onsite daily to assist ITD with handling and securing contaminated soils. Terry Harwood represented DEQ and arranged for the East Mission Flats Repository to be opened for the emergency. This allowed ITD excavation contractor, Peck and Peck Excavating from Post Falls, to begin road repair. Local repository manager Kevin Yrjana from Northwind's Big Creek office kept the repository open from December 30 until road repair was complete.

Q. Were the soils contaminated at the State Highway 3 culvert?

Yes. Gravel and soil around the collapsed culvert tested from 2,300 parts-per-million (ppm) to over 7,000 ppm for lead. By comparison, the yard cleanup threshold is 1,000 ppm for lead, according to the 2002 ROD which guides the human health remedy. Over 2,300 cubic yards of material were removed for culvert repair and taken to the nearest soil repository at East Mission Flats.

In emergency cases like this, it's a relief to responders that a controlled disposal site is located nearby which can be opened in any weather condition to safely contain large amounts of soil.

Keep the pages turning until March when I uncover more answers for concerned people in the Lower Basin. In the meantime, drop me a line! *Denna Grangaard at www.deq.idaho.gov/bunkerhillsuperfundsite or the Idaho Department of Environmental Quality Kellogg Superfund Office at 208-783-5781.*

Superfund Straight Talk
Column # 14. December, 2010

Q: Residential property cleanup is nearly complete and the Upper Basin proposed Record of Decision Amendment is not yet out. Will cleanup work continue for now?

A: Yes. The residential property cleanup portion of the human health remedy will continue and is forecasted to be complete in 2013 or 2014. The 2011 residential cleanup program will focus on the Lower Basin area between Kingston and Black Lake. EPA is working with Idaho DEQ, the Basin Commission, and other stakeholders to prioritize and select additional cleanup projects in the Upper Basin. Priorities include taking steps toward remediation of abandoned mine and mill sites along the East Fork of Ninemile Creek. In 2011, the Successor Coeur d'Alene Custodial and Work Trust (CDA Trust) will begin implementing Upper Basin cleanup work selected by EPA.

Q: How will residential property cleanups under the 2002 ROD be funded in 2011?

A: Through many resources, some different than in 2010. In 2010, EPA Region 10 provided Idaho DEQ with federal and ASARCO bankruptcy settlement dollars for property cleanup. A portion also included monies from the American Recovery and Reinvestment Act (ARRA). Since the ARRA funds have been fully utilized in 2010, EPA Region 10 will fund the 2011 program with settlement funds.

Q: What is the CDA Trust?

A: The CDA Trust manages assets previously owned by ASARCO which include settlement dollars and land ownership. The CDA Trust is a private entity, not a governmental entity. It was set up by a bankruptcy court to manage funds and perform cleanup in the Coeur d'Alene Basin, outside of the Bunker Hill Box. The Trust can be compared to a private company whose job is to perform the cleanup. The CDA Trust will manage its properties, hire contractors, and implement work defined in EPA decision documents.

Thank You!!

The Idaho Department of Environmental Quality would like to thank the Communities of the Silver Valley and Lower Basin, local elected officials, business owners, agencies, Stewart Contracting Inc., Ferguson Contracting, Northwind, TerraGraphics, and each of their subcontractors at work in the Silver Valley.

316 PROPERTY ADDRESSES WERE COMPLETED IN 2010

**Citizens and local resources help make cleanup successful!
Thank you from Kellogg and Boise DEQ Staff!**

For details about the programs or to contact staff, please visit our Web site at <http://www.deq.idaho.gov/bunkerhillsuperfundsite> or contact Denna Grangaard, Public Outreach Analyst, DEQ Kellogg, 783-5781.

Superfund Straight Talk
C.13, October/November, 2010

Idaho Experts Called to Address Global Lead Issue

Lead contamination is a global issue, not just a local or national one. While Superfund Straight Talk usually focuses on public health and environmental cleanup in the Silver Valley, this edition focuses on how lessons learned at the Bunker Hill Superfund site can benefit communities around the world.

For more than thirty years in the Silver Valley, local, state, and federal agencies have worked with experts from TerraGraphics Environmental Engineering Inc. (TerraGraphics) to implement a cleanup that has significantly reduced blood lead levels in children in the area. So when a non-profit humanitarian organization named Blacksmith Institute responded to a rising death toll in Nigeria, Africa, due to lead poisoning, it called upon several local experts from TerraGraphics. Coeur d'Alene resident and TerraGraphics employee Dan McCracken tells his story of his mission in Africa and how he witnessed universal concern for human health and welfare.

Dan McCracken's story takes place in Daretta, a remote farming village in Zamfara State, Nigeria, Africa. To supplement a meager farming income, Daretta villagers retrieved hundreds of sacks of ore from nearby mines and brought it back home to process and recover gold. Typically, women and children fine-ground the ore in the household grain-grinder, generating a fine powder with extremely high concentrations of lead carbonate.

McCracken reports that his crew of six to eight TerraGraphics employees found lead levels registering from 30,000 to over 100,000 parts-per-million on floors of the homes. Blood lead levels were 200 to 300 micrograms per deciliter ($\mu\text{g}/\text{dL}$). Kids were having seizures and becoming unresponsive. The Centers for Disease Control (CDC) reports that blood lead levels as low as 10 ($\mu\text{g}/\text{dL}$) are associated with harmful effects on children's learning and behavior. The United Nations reported that at least 400 children have died from lead poisoning in northern Nigeria this year.

"Before we responded, villagers didn't know why children were sick or dying," McCracken explains.

As help arrived, some children underwent chelation therapy, a medical treatment that reduces lead toxicity in the body, offered by the CDC and the French Doctors without Borders (Médecins Sans Frontières).

TerraGraphics carried out education and cleanup for the Blacksmith Institute under the direction of its technical expert, Dr. Ian von Lindern, a lead health expert who has been working on the Bunker Hill cleanup since the 1970s. The Idaho team worked in partnership with the State of Zamfara in Nigeria.

Similar to the Bunker Hill Superfund cleanup, toxic soils are removed from homes in Daretta and taken to a repository outside the village. Homes of children receiving chelation therapy in Daretta are cleaned up first so children can return to clean homes.

According to McCracken, Terragraphics was chosen to work with Blacksmith Institute in Africa because of its experience with contaminated sites all around the world, including the cleanup in the Silver Valley area.

“The scale of the problems and the circumstances are obviously different [between Daretta and the Silver Valley],” said McCracken, “but many issues which must be addressed to complete the remediation are the same.”

Similar issues include the priority placed on children’s health and the positive impact that contaminated soil cleanup and lead awareness can have on health.

This year, National Lead Awareness Week took place in October. The CDC sponsors this event to further lead awareness and promote public health. Children in Idaho who are eligible for Medicaid may be reimbursed for the cost of lead screening (www.healthandwelfare.idaho.gov). Locally, the Kellogg Health Department offers free annual testing for kids and free confidential consultations for families with children or pregnant mothers with elevated blood lead levels. Call to ask if your family is eligible: (208) 783-0707.

The CDC “Facts on Lead” reports that overall rates of childhood lead exposure in the U.S. are coming down because of comprehensive prevention strategies (www.cdc.gov).

Questions, requests, and comments can be sent to Denna Grangaard at www.deq.idaho.gov/bunkerhillssuperfundsite or by contacting the Idaho Department of Environmental Quality, Kellogg, Idaho, 208-783-5781.

Superfund Straight Talk
C. 12, September 2010

Q: Will my testimony at the public hearings have any effect?

A: EPA extended the public comment period to November 23 based on public testimony that more time was needed to understand such a large and complex proposal. We'll know more about changes EPA will make to its plan after they've considered all of the comments.

The extension gives you more time to write your comments and more opportunity to learn about proposed mine and mill site cleanup, protection of areas already cleaned up, and the potential impact of cleanup actions. The more you know, the more effective your comments can be.

Q: How do I prepare for writing my comments?

A: It starts with getting a good handle on what is actually proposed in the document. I suggest starting with an overview. Choose your method: read the website overview for *quick facts and summaries*, ask a project manager to point you in the direction of the topics which interest you, go down to the EPA open houses on October 5th and 6th, sign up for a field day bus tour, and attend citizen meetings. Talk with your Commissioners and local agency.

When you are ready to review the actual Proposed Cleanup Plan (ROD-Amendment), start with the *Summary* and then browse the *Table of Contents*. Find what interests you, read that section, and take it from there!

Citizens need to know what is proposed. The ROD-Amendment (and supporting information) is available in most local libraries or on your home computer.

Q: What do other people say about the Cleanup?

A: Nearly 300 people came to the public hearings and about 60 people gave public testimony that they oppose all or parts of the proposed cleanup plan. There are about 9,000 adults in Shoshone County. It's likely that there are a range of views among remaining citizens; the same goes for Kootenai County citizens.

I know some people who strongly support portions of the plan, but are reluctant to speak. EPA needs to hear what people think about the plan – the good, bad, and the ugly. EPA's proposed work will have a big impact on the future of our community. They need to hear "officially" (by written public comment) what you think will and won't work, and why.

Q: I don't know if my comments would be helpful. What makes a good public comment?

A: Any comment is good, but some comments are more beneficial than others. Comments explaining *what you don't like and why* are more helpful than only saying something general like, "I don't care what is proposed; I don't want this project in my town anymore."

Specific comments expressing your values, needs, and concerns would be more beneficial, such as, "The ABC mill dump next to the playground should be a cleaned up first" or "The XYZ mine dump was capped and revegetated; so why is it on the cleanup list?"

Comments about how you would like to be involved as a citizen, questions/concerns about impacts to your life and neighborhood, or even questions about how something is supposed to work are beneficial, too.

More information about this topic will be presented at the next EPA "Proposed Plan for the Cleanup for the Upper Basin" Open Houses (October 5 and 6). Members of the BEIPC Communication Project Focus Team will provide more information on opportunities to learn about how to make informed comments.

- - - - -
- **Clip and Go** -

- Overview at DEQ's new Web site: www.deq.idaho.gov/bunkerhillssuperfundsite
- FAQs, Fact Sheets, & Proposed Plan at EPA: <http://go.usa.gov/igD>
- Basin Commission and CCC meetings on BEIPC calendar: www.basincommission.com
- Submit Proposed Plan comments online: cdabasin@epa.gov
- Mail in your comments: Coeur d'Alene Basin Team, EPA, 1200 6th Avenue, Suite 900, ECL-113, Seattle, WA 98101
- Ask a manager: Rob Hanson DEQ (208) 761-4480, Bill Adams EPA (206) 553-2806
- Sign up [now] for a field tour: Debra Sherbina 206-553-0247
- October 5th, and 6th Open Houses: Contact Andrea Lindsay (206) 553-1896

Please send your *SST questions* to Denna Grangaard, denna.grangaard@deq.idaho.gov, or 1005 West McKinley, Kellogg, ID 83837, or call (208) 783-5781.

Superfund Straight Talk C.11, August 2010

Exciting summer! Activities abound! The DEQ public outreach team wants to update you on recent events: EPA Proposed Plan meetings, website changes, North Idaho Fair, and utility company maintenance near East Mission Flats.

The community has been buzzing with summer activities. Among all the fun, over 200 community members participated in recent meetings, and nearly 50 testified about their perspective on EPA's *Proposed Plan*. I also recently attended a few civic meetings where EPA presented and responded to great questions from the audience. Please keep in touch, and follow up with your concerns. As a local DEQ employee, I am here to take your questions and connect you with the right person. Send written comments about EPA's Proposed Plan to cdabasin@epa.gov.

What do people think about cleanup? As I talk with people about cleanup issues in general, I hear many points of view: *the yard program cleaned up the town; construction can be a pain; communities should be cleaned up; cleanup should be done by now. Some people say they choose to not be involved; some like the local job availability; some would rather talk with someone in person rather than attend meetings to get information; some seek information on the internet and some rely on the local buzz for information; some say they don't get enough information; some say they know that there are health risks in certain areas and they don't need reminders; some say there isn't enough information for visitors and new residents about health risks.*

How can we best serve your information needs? We are working on a new DEQ Web site feature so you can ask questions and make requests and comments directly to DEQ's public outreach team! How can we help you stay informed? What information do you want to know? *Superfund Straight Talk* is just one way; what are some other ways to stay informed with the issues you care about? Look for this web feature appearing soon!

DEQ public outreach is participating in the North Idaho Fair and Rodeo this year! Stop by Building 1 between August 25 and 29 in Coeur d'Alene at the Fairgrounds. The Kellogg Office will feature the yard program (also known as the Basin Property Remediation Program) and soil repositories along with many other local environmental programs.

Why are some trees being cleared near the East Mission Flats soil repository? The East Mission Flats property, which the State of Idaho purchased for disposal of contaminated soil, sits between the rights-of-way of Canyon Road, Dredge Road, and I-90. Avista utility company's above-ground power lines are located within a utility corridor on the repository property. The utility corridor allows Avista to maintain the power lines. As a part of routine maintenance, Avista recently cleared trees and vegetation within the utility corridor at the east end of the property.

Visual screening on the property remains an important priority. The state is not depending on public rights-of-way or utility corridors to be vegetated to provide a visual screen; however, the tree screen is now less dense on the east end. Trees on the property which the state has control over will remain protected so that a visual screen can be provided.

For quick updates, on-demand information, and scheduled citizen-invited meetings, visit the BEIPC calendar (<http://www.basincommission.com>), DEQ Straight Talk columns (www.deq.idaho.gov/bunkerhillssuperfundsite), and EPA's ROD Amendment page (<http://go.usa.gov/igD>).

Send comments by calling, clicking, or stopping by! Denna Grangaard, DEQ Public Outreach Analyst, 1005 West McKinley, Kellogg, ID 83837, Denna.grangaard@deq.idaho.gov or (208) 783-5781.

Superfund Straight Talk C. 10, July, 2010

Thank you, Tina Elayer, for introducing me as an additional author of "SST." I contribute to this column because it is clear to me that my community is interested and engaged with the cleanup. I am in Kellogg and eager to listen to your concerns and questions and to learn about your personal history in the Silver Valley and Coeur d'Alene Mining District. I would like to share my history as well.

I am the fourth generation to call the Silver Valley "home." My sister was the fourth generation to work at the Sunshine Mine, a legacy which started with my *great* grandfather Austin. My *great* grandfather Elmer worked at the Jack Waite Mine and my grandma attended grade school in Duthie as a youngster. Dad went to school in Wallace and met Mom, a Kellogg Wildcat. Mom's family has operated successful, local businesses for over 50 years. After my dad left the Sunshine in the early 80s we made a living in mining exploration and feasibility throughout Nevada and Montana. We returned to Wallace where sis and I graduated. I now live over the hill with my own family.

The community is at a time when plenty of new information is coming in; EPA's ROD-Amendment (ROD-A) process is asking for your attention and involvement. ROD-A information is at <http://go.usa.gov/igD>. This column addresses a current, yet familiar subject: sporadic property cleanup.

How can only some houses on a block be remediated; why not all the properties? Only the properties that test within the action level are cleaned up. A property will only be remediated if it is warranted by testing.

Can this be a result of an error in sampling and testing?

We've sampled thousands of properties over the years with a firm and explicit sampling and analysis plan. This program has been audited to ensure that the procedures are correctly followed. Sampling takes place through the state's consultants who train samplers. The tests are conducted in the lab at SVL Analytical and EPA's Certified Contract Laboratory. It is very unlikely that sampling and testing are inaccurate, but inaccuracies can be identified through the record and results. If errors are found, samples are reanalyzed or properties re-sampled. DEQ also reanalyzes soil samples when results are close to the action level. For example, soils that test from 900 to 1000 ppm for lead are retested to make sure they are truly below the 1000 ppm action level.

How can two properties side-by-side test differently?

It does seem strange. It has to do with how our community utilized tailings, waste rock, and floodplain soil for building our landscape and our town. It seemed like a fine idea at first to use the left-overs. But we've since learned that the remaining minerals left in tailings, waste rock, and soils washed onto the floodplain contain enough metals to cause harm with regular exposure. If these soils are used to develop roads, homes, parks, utility lines, and yards, then the properties may test high enough to warrant remedial action. Alternatively, 'clean' soil may have been used to landscape a yard and may act as a clean cap over deeper soil that may be contaminated by airborne contamination. In addition to people using mine materials for construction, airborne residue from old smelter emission was deposited on hillsides and yards in the area.

Reusing soils with an unknown metal content potentially re-exposes people, streams, and animals to unknown metals contamination. Testing and sampling performed by DEQ under the Basin Property Remediation Program (BPRP) is free to homeowners. Today, the

Institutional Controls Program provides guidelines for handling soils in your yard Private actions like bringing in new gravel for a driveway or digging a foundation for a new garage are not covered under the BPRP. For soil-moving and household construction, call the Panhandle Health District at 783-0707 and visit <http://www.phd1.idaho.gov/institutional/about.cfm> A community policy is also being worked on to help homeowners and contractors continue to build with clean soils in mind.

Your *Superfund Straight Talk* questions are welcome. Submit them to Denna Grangaard 208-783-5781, denna.grangaard@deq.idaho.gov or 1005 West McKinley, Kellogg next to City Hall.

Superfund Straight Talk C.7, June 2010 (Part 2)

The Panhandle Health District (PHD) provides blood lead testing annually in July for children in the Box and Basin. This is the second of two columns responding to frequently asked questions from parents about the blood lead testing program.

The first column explained that continued testing is necessary because even very small amounts of lead in fetuses' and children's blood can cause developmental problems. While significant progress has been made to reduce the amount of lead that children and pregnant women are exposed to within the Superfund site, opportunities for exposure still exist. As such, when more children are tested, agencies are able to better understand the current risk of exposure and determine how best to direct the cleanup to help reduce those risks. The blood lead testing program is a public health service to help identify children who may be subjected to lead exposure and to provide information to their families on ways to reduce their exposure. An incentive of \$20 per child tested in the Basin is provided.

Why is PHD the only agency providing blood lead testing?

PHD is a public health agency and has provided blood testing on behalf of EPA and the state since the mid 1970s. It is staffed by public health professionals with in-depth knowledge about the health impacts of lead exposure. PHD has operated its blood lead testing program for more than 30 years and has been instrumental in reducing blood lead levels in young children from an average of 40 ug/dL to 3 ug/dL (micrograms per deciliter). It is used to handling confidential information and complying with government regulations. This is why the Idaho Department of Environmental Quality (DEQ) provides funding for the PHD to perform the annual screenings.

Here's a way to visualize what 10 micrograms per deciliter (ug/dL) looks like:

A deciliter is about 1/2 of a cup.

A packet of sweetener (either the pink or blue stuff) is one gram.

There are one million micrograms in a gram.

So, divide the stuff from one packet into one million piles. (Pretend!)

Now, discard 999,990 of those "piles."

Take the remaining 10 piles and mix them into half a cup of liquid.

http://www.leadpro.com/faq.html#effects_on_body

What do the agencies do with the blood lead testing information?

All test results are confidential. When blood lead levels test high in a child, the PHD works with the affected family to find ways to reduce exposure. Blood lead data is also reviewed in context with soil and house dust data to support the yard remediation program.

The results from the blood lead testing are also presented to the Basin Commission on a yearly basis as part of the reporting of progress of cleanup efforts. No personal identifiers are used. The Basin Commission is comprised of representatives of agencies and the Coeur d'Alene Tribe and County Commissioners. They serve as a sounding board for citizen and agency interaction. PHD, DEQ and EPA also use this information to understand where risks to children and pregnant mothers still exist.

How can I give the agencies my input on ways to increase participation?

DEQ and EPA welcome your comments and are working with federal, state and local health agencies and the public to plan a workshop at which parents can learn more about why

blood lead testing for their children is needed and discuss this program with agency representatives. Here are the details on the workshop:

- What:** How to Increase Participation of Blood Lead Testing Workshop
When: Tuesday, June 29, 11 a.m.-2 p.m.
Where: Silver Mountain Resort, Shoshone Meeting Room, Kellogg

Denna Grangaard is coordinating the workshop. She is always open to receiving questions and comments. Denna is located in the Kellogg Superfund Project Office, 1005 West McKinley, Kellogg, ID 83837. Contact her at denna.grangaard@deq.idaho.gov or (208) 783-5781. Recently she started a blog on the NW MOMS website at <http://nwmomsonline.com/members/dgkso/>.

Denna will take over writing these columns for me as she is directly connected to the communities. Please send comments on this column to denna.grangaard@deq.idaho.gov or, 1005 West McKinley, Kellogg, ID 83837, or call (208) 783-5781.

Panhandle Health District is the agency in charge of the annual blood lead screening and can be contacted at (208) 783-0707.

If you would like to receive the Bunker Hill Superfund Site Basin Bulletin quarterly or would like more frequent email updates from EPA, contact Andrea Lindsay at lindsay.andrea@epa.gov or (800) 424-4372.

Superfund Straight Talk C. 7, June 2010 (Part 1)

The Panhandle Health District (PHD) provides blood lead testing annually each July for children in the Box and Basin. This is the first of two columns that will address questions people are asking about why they should bring their children in for blood lead testing.

Why should I get my child's blood tested for lead?

Children are more vulnerable to lead poisoning than adults. When ingested, lead is known to cause developmental problems in fetuses and young children. Children's bodies are growing so they quickly take in and utilize everything they eat. Secondly, young children, especially crawling tots, continually put their hands and toys in their mouths. Lead particles are tiny and can be found in soil and in your home as dust in carpets and on flooring, on furniture, in your car and truck interiors, and on pets. Crawling tots are most at risk. Testing helps identify children with elevated blood lead levels and determine sources of lead so exposure can be reduced. All test results are confidential.

How much lead does it take to have an effect?

Swallowing relatively small amounts of lead –less than a quarter teaspoon of contaminated dust or soil - can affect a child's mental and physical growth.

The cleanup has been around since 1985 in the Box and 1997 in the Basin. As a result, aren't children's lead levels dropping? Yes, blood-lead levels are going down due to the property (yard) cleanup. However, there are still contaminated areas throughout the Coeur d'Alene River Basin where people can be exposed to high levels of lead in soil and dust. Some of these places may never be able to be cleaned up, or may take decades before they are. Just think of normal river flooding...the river continues to carry tailings and deposit them along the shoreline. Sadly, this isn't just a temporary concern.

Some people have had their children tested before and didn't have elevated blood lead levels, so why should they continue to bring them in? Because risk of exposure still exists throughout the Basin, annual blood testing is the only way to verify if lead is in the body. For example, even if a family's children have been tested for years with no elevated levels of lead, they could encounter lead on a camping trip somewhere in the floodplains of the Basin. The children could swallow 'less than a quarter teaspoon' of lead-contaminated dirt either by riding on dusty ATV trails, playing trucks in dirt, building sand castles, or by repeatedly putting unwashed hands into their mouths. When the family packs up and heads home, they will also be taking contaminated dirt with them, and when they spray down their gear with the hose at home, they will spread potentially contaminated mud, dirt and dust. This seemingly "small" amount of lead can and has resulted in elevated lead levels where there weren't any prior to recreating.

Simple ways to keep blood lead levels down in this scenario are to wash hands often, eat on clean surfaces, cover food that sits out, limit exposure to dust, and wash off vehicles and ATVs. Camping equipment, tents, coolers, sleeping bags, etc. should be cleaned as well. Clothing and other items to be washed should be stored in a plastic bag and laundered separately from household laundry. The yard and driveway at home is not the place to wash contaminated material off your vehicles. Do that at the car wash! Blood lead testing each year is the only way to verify that you and your family are effectively using the rule of thumb: Keep Clean, Eat Clean, and Play Clean.

The second part of this column, which will be printed later this month, will explain what happens to blood lead testing information and respond to other questions. In the meantime, parents are encouraged to mark their calendars for an upcoming workshop that will provide them with an opportunity to learn more about why blood lead testing for their children is needed and discuss this program with agency representatives. The Idaho Department of Environmental Quality and U.S. Environmental Protection Agency are working with state and local health agencies, the medical community, and the public to plan the workshop.

What: How to Increase Participation of Blood Lead Testing Workshop
When: Tuesday, June 29, 11 a.m.-2 p.m.
Where: Silver Mountain Resort, Shoshone Meeting Room, Kellogg

Denna Grangaard is coordinating the workshop. She is always open to receiving questions and comments. Denna is located in the Kellogg Superfund Project Office, 1005 West McKinley, Kellogg, ID 83837. Contact her at denna.grangaard@deq.idaho.gov or (208) 783-5781. Recently she started a blog on the NW MOMS website at <http://nwmomsonline.com/members/dgkso/>.

Send comments on this column to tina.elayer@deq.idaho.gov or Tina Elayer, 1005 West McKinley, Kellogg, ID 83837, or call (208) 373-0563.

If you would like to receive the Bunker Hill Superfund Site Basin Bulletin quarterly or would like more frequent email updates from EPA, contact Andrea Lindsay at lindsay.andrea@epa.gov or (800) 424-4372.

Superfund Straight Talk May 2010

There's been a lot of talk recently about a new plan for cleanup in the Basin. People want to know how the plan will affect them and their families and when they can get involved in the decision-making process. This column provides information on the plan in plain language and answers various questions.

Q. Why is EPA designing a new cleanup plan for the Upper Basin?

The last cleanup plan was issued in 2002, and new information has become available since then. The goal of the new plan is to protect human health and the environment in the following two major ways:

- *Ensure water quality standards are met.* These standards are designed to protect the water bodies' beneficial uses, such as drinking water, aquatic life support, contact recreation (swimming), and agriculture.
- *Prevent recontamination of clean soil and destruction of existing soil and gravel barriers.* Controlling erosion from big rain and local flood events is the key here.

Although immediate results are unlikely, the next generation can look forward to cleaner areas in which to live and play. As stated in this Native American proverb, "We do not inherit the Earth from our Ancestors; we borrow it from our Children."

Q. What is the Focused Feasibility Study (FFS) and where did the information in it come from?

The draft FFS is a report compiled by EPA outlining various options for cleaning up more mining-related contamination in the Upper Coeur d'Alene Basin. The FFS is a key part of the Record of Decision (ROD) Amendment development. The report is based on input EPA received during the past year at several meetings and public workshops with Basin stakeholders including Idaho DEQ, the Coeur d'Alene Tribe, local governments, the Coeur d'Alene Basin Natural Resource Trustees, and other members of the Basin Environmental Improvement Project Commission (BEIPC). It was made available to the public in February 2010. It's a large four-volume document, but the meat of the information is contained in the first volume.

Q. What is the review process for the plan and when can I get involved?

Now is the time to get involved! EPA will soon publish a Proposed Plan specifying the agency's preferred cleanup method from among those outlined in the FFS. The public will be invited to comment on the proposed plan and a public meeting will be held. After the public comment period ends, EPA will review all comments, prepare a response to each, and modify the Proposed Plan as appropriate. EPA's final decision on an Upper Basin cleanup plan will be issued in a Record of Decision (ROD) Amendment. EPA's Anne Dailey and Bill Adams would be happy to discuss the process further and answer questions (see contact information below).

Q. What is the difference between the FFS, Proposed Plan, ROD Amendment, and the Five Year Review? Do they all tie together?

The FFS identifies and compares alternatives for the Upper Basin cleanup. The Proposed Plan presents EPA's preferred cleanup option for public review and comment. The ROD Amendment will finalize the cleanup decision and set the stage for start of the next cleanup effort. Five Year Reviews are conducted in five-year intervals at Superfund sites where contamination remains in place. Think of these reviews as report cards on EPA decisions and

actions. They help ensure the cleanup continues to protect people's health and environment.

Q. Where can I get more information about the Upper Basin cleanup plan?

- Check out EPA's ROD Amendment web page at <http://yosemite.epa.gov/R10/CLEANUP.NSF/sites/bh+rod+amendment>.
- Contact Anne Dailey at dailey.anne@epa.gov or 800-424-4372, x2110, or Bill Adams at adams.bill@epa.gov or 800-424-4372, x2806. *TTY users call the Federal Relay Service at 800-877-8339 and give Anne Dailey's or Bill Adams' phone number.*

If you would like to be on the Bunker Hill Superfund site (Basin Bulletin) mailing list or email list to get updates, contact Andrea Lindsay at lindsay.andrea@epa.gov or 800-424-4372.

I love your questions! Keep sending them for this column to tina.elayer@deq.idaho.gov or Tina Elayer, 1005 West McKinley, Kellogg, ID 83837. You can also call me at (208) 373-0563.

Superfund Straight Talk March 2010

This month's column will answer questions about the Upper Basin Future Repository Siting process now underway at the Bunker Hill Superfund site. The following questions were among those asked by the public in May and June 2009 workshops hosted by the Idaho Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA).

Q. Are the criteria for choosing Upper Basin waste repository sites set in stone? If the criteria don't work for a site, will the government just ignore them and move forward with siting anyway?

The public has been closely involved in the details of the Upper Basin site selection process from the beginning. Citizens created a set of criteria that represents their values and needs and the agencies incorporated them into one set of siting criteria. Now the agencies are considering the siting criteria and other factors, like property owner issues, to select repositories in the Upper Basin.

And the agencies are asking for another round of public input on the top two potential sites starting with a March 25 Open House that is open to the public, 4:30-7:30 p.m., at the Wallace Inn. Essentially the train has left the station, but it's not veering off-course because the track is being built from the values, needs, and desires of the affected communities.

For the second part of the question, the answer is no. The government has taken all of these steps to include the public in this process and be transparent about how decisions are made. It would be irresponsible for the agencies to ignore the criteria after investing this time and effort. If, for some reason, they do decide that the criteria will no longer work for the project, then they will work with the public to modify them again.

Q. Regarding the Star Tailings Impoundment, are the agencies looking at the upper tailings impoundments?

Yes, DEQ and EPA are looking at the property north of Gray's Bridge Road. They aren't proposing to store waste on the tailings piles south of Gray's Bridge Road. The proposed repository site north of Gray's Bridge Road is made up of two parcels, one owned by Hecla Mining Company and a second owned by the U.S. Bureau of Land Management. If this turns out to be a suitable spot for a repository, they will start negotiations to acquire the parcels.

Q. Did DEQ and EPA rule out clean sites for consideration, even though they may have ranked high using the citizen criteria?

No, DEQ and EPA did not rule out clean sites in looking for the next repositories. The agencies would clearly prefer to use already-contaminated ground because (1) they do not want to increase the extent of contaminated ground; (2) clean ground is most desirable for development; and (3) most of the clean ground is far away from the areas where repositories are needed. However, if a clean site ranks higher than the contaminated sites on all of the criteria, it will be considered.

Q. How much contaminated soil could the Osburn Tailings Impoundment hold?

DEQ and EPA estimate the Osburn Tailings Impoundment could hold between two and three million cubic yards of contaminated soil. This number will be refined as more information is gathered and site stability is determined.

Comments about this column can be sent to tina.elayer@deq.idaho.gov or Tina Elayer, 1005 West McKinley, Kellogg, Idaho 83837. You can also call me at 208-373-0563.

If you would like to receive the Bunker Hill Superfund Site Basin Bulletin quarterly or would like more frequent email updates from EPA, contact Andrea Lindsay at lindsay.andrea@epa.gov or 800-424-4372.

Superfund Straight Talk
C. 4, February 2010

In the last column I described the alternatives that have been considered to dispose of contaminated soils and then explained whether those alternatives would meet cleanup goals. This column is a continuation of that discussion. Here I will discuss the following waste soil disposal options: phytoremediation, vitrification, making soil into concrete, and “Filling the Holes,” also known as a “Community Fill Policy (CFP).” I will also address a question that came up from the last column.

Phytoremediation: Phytoremediation is a way to treat contaminated soil by using plants to absorb contaminants from the soil and then harvesting the plants and hauling them to an appropriate disposal location. One of the challenges with this approach is that few plants like to absorb lead or arsenic, and when they do, they don’t absorb very much. So it can take many growing seasons to reduce lead and arsenic levels to safe levels. Also, phytoremediation is difficult to do on a large scale because the contaminated soil is extremely widespread. For example, in the Lower Basin, over 28 square miles are contaminated; this ground would need to be seeded with lead and arsenic-loving plants. Growing these plants also may not fit with current land uses employed by landowners. For example, the plants needed for successful phytoremediation may not be a suitable replacement for grass crops such as alfalfa or grass hay, small grains, timber, or orchards.

Vitrification: Vitrification permanently traps harmful chemicals in a solid block of glass-like material. The process uses electric power to melt the soil and trap the contaminants. Vitrification doesn’t make economic sense for large-scale applications that would be needed at this site. In-place vitrification results in a sterile, impermeable soil on which nothing can be grown and no water can infiltrate. The result would be ponded water in places where it never did before, increased runoff into storm drains, increased runoff water temperatures, potentially more polluted storm water without the filtering effects of vegetation, and more. At the yard-soil level, electrical currents coursing through the soil would pose a significant risk to the landowner’s water and sewer pipes, wells, fences and foundations. Vitrification is a risky choice for landowners and agencies.

Make Soil into Concrete: Concrete is a blend of cement (powdered limestone), gravel and sand. The idea behind this approach would be to use the contaminated soil to help make concrete, turning a waste into a useable product. Including soil in a concrete mix would decrease the strength of the concrete, however, and make the concrete unsuitable for most typical uses.

Fill in the Holes, a.k.a. Community Fill Policy: The “Fill in the Holes” or “Community Fill Policy” is an idea being worked on in response to requests from the community. Its purpose would be to allow moving contaminated soil from a borrow area on one person’s property to a low spot elsewhere in the Superfund site on someone else’s property. The Institutional Controls Program (ICP) regulates contaminant migration off properties and makes sure appropriate barriers are installed over contaminated soil. As this concept is further developed, it will be discussed at meetings with local officials and to share with the public via the Basin Commission process (Project Focus Teams).

And, now to address another recent question . . .

What is the life of a capped repository? How many years before it degrades and the contained waste begins leaching into the environment?

Repositories are engineered to withstand the effects of floods, earthquakes, and erosion from wind and water. After a repository is filled to capacity, it will be capped with clean soil and re-vegetated. Repositories are monitored regularly, including water quality monitoring during their construction as well as after they are completely filled and capped. An Operations and Monitoring (O & M) Plan is created and implemented at the time of closure. The purpose of the plan is to monitor, inspect, and make repairs to avoid releases of contaminated materials back into the environment. Thus, the repositories will be inspected regularly, water quality will be monitored, and the repositories maintained as needed to prevent releases of contaminated soil and metals. Monitoring will continue for decades after filling is complete. In sum, repositories will not be allowed to degrade, and if a problem arose, repairs would be made to prevent releases into the environment.

If you would like to be on the Bunker Hill Superfund site (Basin Bulletin) mailing list or email list to get updates, contact Andrea Lindsay at lindsay.andrea@epa.gov or 800-424-4372.

I would also like to report that Denna Grangaard was recently hired by DEQ as a Community Involvement Coordinator in the Kellogg Superfund Office. She grew up in the Kellogg area and is very involved with the community. Denna looks forward to meeting with people and their groups to provide information about the projects happening at this Superfund site. She is

located in the Kellogg Superfund Project Office, 1005 West McKinley, Kellogg, Idaho 83837. Contact her at denna.grangaard@deq.idaho.gov or 208-783-5781 if you have questions about the Superfund or if you would like to have staff from EPA/DEQ present information about projects at your next meeting.

Send questions for this column to tina.elayer@deq.idaho.gov or Tina Elayer, 1005 West McKinley, Kellogg, Idaho 83837. You can also call me at 208-373-0563.

Superfund Straight Talk

December 2009

Why are repositories used to dispose of heavy metals contaminated soil?

Agencies use repositories because they are a safe and efficient way to stabilize contaminated soil through consolidation and capping. The 2002 Record of Decision (ROD) calls for using repositories to dispose of contaminated soil. Contaminated soils can also be consolidated at mine and mill sites like the Forest Service's work at Moon Gulch. Sites like Moon Gulch are different from repositories because they are located at the place where the waste originated and do not take in waste from the local Institutional Controls Program (ICP). On the other hand, a regional repository like Big Creek will take in contaminated soils from yards and the ICP.

In the Basin, are there other ways to dispose of heavy metals-contaminated soil?

Just because the ROD states that repositories are the preferred method of containing contaminated soils doesn't mean agencies are not listening to other options suggested by the public. Many people have suggested interesting and creative ways to make the waste disappear. An article in EPA's latest Basin Bulletin newsletter discusses some of the options presented and why most of them won't work for this large and complex site. I would like to take the opportunity in this column to reach people who don't subscribe to the Basin Bulletin. I will describe various options that have been considered and explain if they will work or not for the cleanup. This will take two columns to explain, so stay tuned for the January edition if you don't see something you brought up at one of the meetings.

Here are some of the ideas considered:

- 1. Leaving Contaminants in Place:** Why can't agencies just leave contaminated soils in place? The agencies do to a large extent. However, because agencies have a public mandate to protect public health and the environment, they remove contaminated soils at the surface where people can be exposed. It would be irresponsible for agencies to leave contaminants in place where there is serious risk of exposure. However, the cleanup does not call for complete removal of all contaminated soils. For example, it calls for stabilization, excavation, and capping to minimize the risk of exposure to contaminated soil.
- 2. Shipping Off-Site:** Agencies have heard some interesting ideas related to this alternative, such as shipping the waste to Yucca Mountain or sending it off the earth completely. Agencies have a responsibility to manage the contaminants within the site if this can be done safely. They have safely stored and contained the waste soil in on-site repositories at the Bunker Hill site for twenty years. Therefore, it would be irresponsible and much more expensive to move the waste to other communities.
- 3. Putting Soil Down Mine Shafts:** Although this may seem like the most obvious alternative, mine-shaft disposal will not work for many reasons. A partial list of the reasons discouraging this method includes:
 - **Volume Constraints** – Although the contaminants came out of the mines, they have been mixed a hundred-fold or more with river sediment and native soil. One cubic yard of rock removed from the mines may require more than 100 yards of waste storage. There is not enough room available in all the Silver Valley mines combined to hold this much waste material.

- Water Quality – Most of the old mines are filled with water. Before anyone could re-enter the underground workings, an expensive system of dewatering pumps would need to be operated at each mine. The water produced from dewatering may be contaminated to the point where dumping it into the creeks and rivers would seriously degrade surface water quality.
- Safety – Many of the old workings have not been occupied for years. To enter the old mines to estimate how much waste they could store would require extensive safety studies. Many of the old workings would require very expensive rehabilitation just to enter them to calculate potential storage volumes, let alone use them to store waste soil.
- Logistics - The Bunker Hill cleanup operation is performed on a large scale. The repositories commonly receive over 100 20-ton dump trucks per day. This type of operation would require big, heavy-duty roads for safe transport. The mines are scattered all over the Silver Valley, so extensive road improvement or construction in the mountains would be needed to support increased truck traffic.
- Operational Constraints – Many of the old mines would need extensive surface improvements to handle the truck volume. Additional space would be needed to receive waste soil from trucks and transfer it to underground ore cars. A very large underground material conveyance system would be necessary at each mine to then place the waste soil deep in the old mine shafts.
- Future Mining Concerns – Mining activity waxes and wanes through the years depending on commodity prices. Currently inactive mines may someday be opportunities for renewed mining activity. Backfilling the mines with waste soil would make it very difficult to re-occupy the mines to start mining activity again.
- Costs – Underground operations are very costly to move even relatively small amounts of material. Costs to safely develop an old mine to receive waste soil, including dewatering, safety studies, shaft rehabilitation, ventilation system installation, road building, and other underground improvements would be huge in comparison to costs to build large surface repositories.

In the next column I will discuss the following waste soil disposal options: phytoremediation, vitrification, making soil into concrete, and “Filling in the Holes” also known as “Community Fill.”

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