

## **FUTURE ISSUES FOR SITE REMEDIATION**

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Good afternoon and thank you for this opportunity to address the Conference. I was able to sit through a few presentations today and I could see the many different remediation techniques that the conference is reflecting. It seems that it has been an excellent week and a great meeting.

I have been involved with the Superfund Program since the early 1980's and have seen a lot of changes. We have learned that our work is not over when the remedy is in place. There have been some significant changes at EPA over the past few months. I have had the privilege of meeting with Governor Whitman, our new administrator, several times. She is very interested in the Brownfields programs and a number of our cleanup programs, coming from New Jersey, which has the most sites on the Superfund priorities list. While she was Governor, she made the most requests of EPA to put sites on the Superfund list. The second in that list was New York and the third was Texas. Then-Governor Bush made the third most requests of EPA for Superfund sites.

Governor Whitman has stressed partnerships, cooperation among all stakeholders, federal, state, tribal and community in her first few months on the job. She has done this in meetings with her staff and in testimony at her confirmation hearings. If you work in the hazardous waste business you know how important that has been to us. She has stressed a strong federal role with increased flexibility for states and local communities.

These are some themes you should be looking for as EPA's budgets are developed for the next few years. You should expect greater respect for state and local authority and expertise, particularly in hazardous waste programs at the state and local levels. Scientific analysis should drive policy - policy and politics should not drive scientific results. We will see more peer review. If you work in the Superfund program you know that we implemented a national remedy review board for reviewing our large remedies. Governor Whitman said that we should continue to promote effective compliance with environmental standards without weakening commitment to vigorous enforcement of laws and regulations. Perhaps you read about the Yucca Mountain

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decision that EPA made in recent weeks - a very stringent groundwater protection standard, as well as an overall rad standard should Yucca Mountain come into place in the future. And, finally, greater use of market based incentives to achieve our goals. And if you work in the hazardous waste business, you are seeing the idea of reusing contaminated sites once they are cleaned up, either in the Superfund program, the RCRA Program and, certainly, in the Brownfields Program. These are hints of where we are going, and it seems that we are traveling on some good roads.

I wanted to summarize our Superfund progress to date and then go into some of where we seem to be going with our sites. There are 43,445 sites that the states and EPA have assessed as part of the Superfund Program; we are down to about 11,000. We have thrown over 30,000 out of the Superfund federal net. This leaves us with about 1,458 for our National Priorities List (NPL) of which the most recent number (766) are construction completion. About 225 have been deleted from the NPL. They are complete and all the cleanup requirements have been met.

For those who ask, “is Superfund going away soon?” - we are adding over 500 sites a year to our inventory for assessment. These sites come to us from the public, states and tribes. If you look at that National Priorities List, over 80% are either completed or have their remedy under construction.

The cleanup has really accelerated in recent years. Sixty-one sites were finished in the first eleven years of the program. Seven hundred sites have been completed in the last ten or eleven years. We have learned how to do it. As of September 30th, we had 757 sites that had been completed in the last ten years and it's getting tougher to finish Superfund sites. An interesting statistic is that of the 757 completed only, 29.4% are federal facilities. Of the 692 sites remaining on the NPL, 169 are federal facilities. We need to push to continue the high pace of cleanups even though we are now into some of the bigger, more complex Superfund sites.

We also have made progress in our Brownfields Program, our RCRA corrective action program and our underground storage tank program. We continue to assist in the development of technology. We have been working through the Federal Remediation Technologies Round Table and, as a result, EPA will soon be putting out a cost comparison guidance that will look at six

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technologies: bioremediation, on-site incineration, thermal desorption, soil vapor extraction, groundwater pump and treat, and permeable reactive barriers. We will show cost versus performance versus amount of pollutant removed versus volume of soil treated. Those are going to be out by the end of June or during July, and I think they will lend a lot to our remedies selection process.

How can we ensure that our remediation efforts provide for long-term protection of human health in the environment? We leave a lot of waste in place after cleanup. Section 121(B) of CERCLA, which governs Superfund sites says, “prefer remedies that use treatment, which permanently and significantly reduces mobility, volume, toxicity to the maximum extent practicable”. Still, only the principle threats at the site can be treated. All the waste cannot be treated. Approximately 75% of the Superfund sites have had at least one active treatment remedy (something other than no action). When we pick remedies these days it’s about 50/50 treatment to containment or 40/40 with 20% in the “other” category. We are not predominantly using treatment - we leave waste in place. Of all the construction completed, only 225 sites were deleted, i.e., had met all the cleanup criteria. So there is still a lot of work left at the remaining sites.

What should we do with our remedies in place? Here are five goals we have come up with to maintain the integrity of the remedies over time:

1. provide information on performance to the community and to all stakeholders,
2. strive for efficient operation,
3. achieve our cleanup goals,
4. identify reuse options, and
5. force reuse of sites.

This is not the sexy part of site remediation. Everybody loves looking at data on groundwater plume migration and analyzing remedial options and even constructing the remedy. But once it is in place there is still a lot of work left to be done.

The Senate has been asking, “When will you ramp the Superfund Program down? If you have finished 700-plus sites and you have 700 remaining, should we cut your budget in half? If you are only listing 40 sites a year and finishing 80 or 85, should we cut your budget in half?” We have said “No, there is still a lot of work to be done at sites after the remedy is in place and there

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are those other 700 still moving through the pipeline, many of which are very large and costly sites.” Congress did not believe our answers so they told us, in appropriation language, to task a Washington think tank, Resources for the Future (RFF), to do a study of Superfund costs for the years 2000 through 2009. That report will be coming out in mid-July.

We have given RFF a lot of data on what happens after cleanup, as well as data on the sites that are in the cleanup pipeline now. We do not know what their results will be, but I suspect that our budget is going to need to be robust over the coming years. That is, if there is a Superfund ramp-down it probably is not going to happen tomorrow, considering the work before us.

The following are seven considerations that are important after we have a remedy in place:

1. Operation and maintenance;
2. Long-term response action;
3. Managing mandated institutional controls;
4. Conducting five year reviews to determine if the remedies are still protective;
5. Optimizing remedies in place;
6. Deleting sites from the NPL when they have met their cleanup criteria; and
7. Focusing on the end product.

When we focus on the end product, whether it is a shopping center or wetlands, we get there smoother and we ensure, by managing that end product, that the remedy gets managed as well. At least that has happened in the 150 or so Superfund sites where we have gotten a very productive environmental or economic end use in place.

The first consideration, operation and maintenance, is the responsibility of states and responsible parties in federal facilities, not the EPA. It includes cutting the grass on the landfill and making sure the pipes do not freeze in winter. But it also includes collecting the data and analyzing it, which can be costly. This is something that we need to consider earlier in the process, just as we consider plume migration and soil treatment capabilities. We should be looking at the final product.

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We just recently put out a thirteen page “fact sheet”; more like a small novel about operation and maintenance. Our Superfund website, which is hit more often than the EPA home page, has a lot of guidance documents and statistics about the program. The address is <http://www.epa.gov/superfund/>. If you add “/pubs.htm” (for publications), you have access to all of our guidance documents and fact sheets.

When is operation and maintenance not operation and maintenance? The statute says that if we are going to be cleaning up groundwater or surface water, not just preventing its migration, it is called long-term response action. EPA can pay for that for up to ten years. After ten years the states are supposed to pick up the cost of all of this long-term response action for surface and groundwater - and the bill is coming due. I do not think many states have planned for the cost of what could be multimillion dollar annual system management. That crossing over does not happen until the year 2009 or 2010 so we have time to address this issue. When that time comes, the costs increase from what is now approximately \$5 million annually borne by states to the \$20-\$30 million and higher mark over the next decade. This happens as states pick up these long-term groundwater management, groundwater treatment and surface water treatment systems. One of our guidance documents provides information to our regional offices for coping with this issue.

In the early days of Superfund, we wrote records of decision that said we would put a remedy in place and then there would be institutional controls – that was about all that we wrote. Love Canal is a good example of this type of institutional control. It was sold for \$1.00 to the City of Niagara Falls with the following warning in the exchanged papers: “Do not build on this waste dump” (that is why the site cost \$1.00). However, they went ahead and built homes and schools and streets and this became a terrible situation. Since that time, we have invested a lot effort in the development of institutional controls. We asked for model language for municipalities to use in their statutes to prevent digging in the wrong place. Today institutional controls are more like the ones we have in Kellogg, Idaho, at the Bunker Hill site. Rather than excavate lead contaminated soil down to the center of the earth, EPA, the State of Idaho, the Idaho Panhandle Health Department and the local community put in place an institutional control system. We placed a geotextile marker several feet below the surface of people’s yards. This system is managed locally and it works. Such systems are not free, but they can be used effectively and we

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are learning a lot more about them. We are putting model guidance in place on how to write and use institutional controls.

We do five year reviews of our remedies in place, beginning five years from the time construction begins. We are finding that almost 90% of our remedies in place are continuing to protect human health. When they are not, it is typically a small problem like a lack of institutional controls. We have a program in place to optimize our remedies. Kathleen Yeager is here from our Technology Innovation Office. She has saved enough money in the last year to pay all your tax rebates. By looking at our groundwater systems, moving pumps that do not need to be there, eliminating unnecessary treatment, and “smartening up” a lot of our treatment programs, we can benefit both the federal, state and private programs. When we meet our requirements we can delete sites from the NPL.

And, finally, we come to redevelopment of sites. And let me leave you with thoughts of what can happen at our contaminated sites. The first is the Anaconda Smelter and mining waste. Jack Nicklaus plays on the golf course he designed that is really a RCRA cap. The golf course winds around historic mining ruins and has really been a boom to Anaconda, Montana. This was a wonderful thing to do with a Superfund site. The second example is a hundred years of waste dumping in Wellborn, Massachusetts where the land now sells for half a million dollars an acre, because we have built a complex of transportation, shopping center and wetlands. The last example is what we expect all hazardous waste sites to look like in the future. The Bowers Landfill, a chemical waste dump in Ohio, and now a wonderfully reworked, restored, preserved wetland.

Thank you all very much.