



INEEL/CON-99-01224
PREPRINT

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April 2, 2000 – April 6, 2000

8th International Conference on Nuclear Engineering

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KEYS TO SUCCESSFUL D&D TECHNOLOGY DEPLOYMENTS AT THE INEEL

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Key words: Decontamination, Decommissioning, Deployment

ABSTRACT

Seven improved decontamination and decommissioning (D&D) technologies were successfully deployed at the Idaho National Engineering and Environmental Laboratory (INEEL) during the Accelerated Site Technology Deployment (ASTD) Integrated Decontamination and Decommissioning (ID&D) project. The use of these improved technologies saved the INEEL \$462K in fiscal year 1999, and is projected to save about \$14M over the next ten years. Since deploying new technologies on D&D projects shows great potential for cost-savings, factors that led to successful deployment have been documented. These factors are described here as they apply to the seven deployments at the INEEL to assist with deployments at other DOE sites.

FACTORS FOR SUCCESSFUL DEPLOYMENT OF NEW D&D TECHNOLOGIES

Deployment of innovative D&D technologies is often difficult. Technologies and methods used in the past are employed on new projects because they are familiar and proven even though often more labor intensive and cumbersome. The desire to try new, better approaches is often hampered by the inherent risks of the work, the uncertainty of estimating budgets and schedules using unfamiliar technologies, and the lack of time to consider alternatives. The National Energy Technology Laboratory-sponsored ASTD ID&D project was able to overcome these concerns and was successful in deploying seven new technologies at numerous facilities at the INEEL. The factors that contributed to this success are discussed in the following sections.

LISTEN TO THE D&D OPERATIONS TEAM

The overriding factor in the success of this project was listening to and communicating with the on-site D&D Operations team. A deployment team hoping to introduce new technologies must listen and communicate with those who will be implementing them. It sounds simple and obvious, but is rarely done to the level required. A good way to initiate open communication is to attend the site D&D Operations team staff meetings, which provides an opportunity to become a part of their team. Participating in these meetings is the key to selecting the technologies that are needed most, resolving training issues, and finding out how the technologies can be modified to best meet the requirements of the project.

WORK WITH D&D OPERATIONS TEAM TO IDENTIFY NEEDS AND SELECT NEW TECHNOLOGIES

Asking the D&D Operations team to identify their needs is the first step to helping them solve their problems using new approaches. Talking with the team and listening to their concerns about their tasks or existing technologies assists the deployment team in identifying improved technologies that apply directly to the needs identified by the individuals who perform the work. It also builds a team approach and increases the likelihood that the D&D Operations team will support the new technologies when they are deployed. Also, since many D&D Operations are the same throughout the DOE complex, these technologies should have wide applicability.

Although the deployment team may be more familiar with the details of the available innovative technologies, the members of the D&D Operations team are experts regarding what they need, and how well a new technology will meet those needs. Technologies selected with the help of the D&D Operations team are sure to match their requirements and are much more likely to be used when deployed: that is, become the new baseline. For example, at the INEEL, the D&D Operations team identified needs and helped select all of the deployed technologies. They selected what size equipment to buy, as well as details such as which end effectors, scaffolding pieces, or torch cutting tips were best for their needs.

ENSURE THAT NEW TECHNOLOGIES ARE AN IMPROVEMENT OVER BASELINE TECHNOLOGIES

The new technologies selected for deployment must be proven to perform better and cost less than the baseline technologies. The over 80 technologies that have been tested and proven in actual D&D operations as part of the Department of Energy's Large Scale Demonstration and Deployment Program provide a wide field to choose from. The data resulting from this program helps to build confidence in the new technology and shows that they are widely applicable. In addition, reviewing the previous application can help identify differences from the current application so that the technology can be modified for the current application if needed.

At the INEEL, the deployment team tried to select technologies that had the highest payback on the investment. With this approach, the INEEL saved \$462K in Fiscal Year 1999 by deploying seven improved technologies.

PURCHASE THE TECHNOLOGIES

Whenever possible, the technologies should be purchased for the D&D Operations team since it may not be feasible for the D&D group to make these purchases. Providing equipment accelerates the deployment of new technologies because when people are able to try something out, they usually like it and will use it in the future. Furnishing these new technologies removes one more obstacle to their use, and contributes to successful deployment.

PROVIDE TRAINING ON THE NEW TECHNOLOGIES

Proper training in the use of the new technology increases the D&D Operations team's confidence in the product, as well as improving safety and ensuring proper implementation. In addition, the more information the team receives about the technology, the more likely they are to find new places or ways to use it. At the INEEL, in addition to user training, maintenance training was provided to ensure proper upkeep and safe use of the equipment in the future.

TRANSFER EQUIPMENT OWNERSHIP

Ownership and responsibility for the equipment should be transferred to the D&D Operations team. Safe and effective use of the technologies is more likely to occur if the people using the technology own the equipment. In one case at the INEEL, ownership by the D&D Operations team led them to design improved carts to transport the equipment. In another case, an existing scabbler head was modified to work with the new BROKK demolition equipment, allowing scabbling in smaller areas with improved dust control. In both of these cases, a sense of ownership empowered the team to improve the technologies to better meet their needs.

PROVIDE ASSISTANCE

Once the new technologies are in place, the goal for the deployment team should be to support the D&D Operations team as they use the new processes. Unsolved application problems or questions about technique have resulted in the failure of many promising technologies. However, with the deployment team acting as the vendor interface, issues can be resolved, and successful technology deployments will result. Another way to assist the D&D Operations team is to minimize the impact of data collection. At the INEEL, minimal information for the cost-benefit analysis was taken, and innovative ways of estimating the cost-savings were employed.

For example, rather than recording the number of hours of cutting with the Oxy-gasoline torch, its fuel consumption was monitored to estimate torch usage. This type of approach led to less interference with D&D Operations work, and more efficient use of the deployment team's time. Another important way to assist is to find subsequent deployment sites. D&D project managers sometimes change positions at the INEEL, and different project managers may not be as familiar with the equipment and therefore not as likely to use it. The deployment team can ensure that the successes are communicated so the technologies are widely deployed at the originating site and throughout the DOE complex.

always, communicate the results. As others see the positive results in cost and schedule savings from the use of these new and improved technologies, they too will want to integrate them into their decommissioning work.

LISTEN AGAIN

At the conclusion of the deployment, the first step is repeated: listen. Once the technologies are successfully in place and the benefits are obvious, the D&D Operations team often sees other areas for improvement and will suggest new technologies that could solve other problems. This starts the cycle again, with new deployment opportunities resulting in increased cost-savings, improved worker safety, and a happier work force.

CONCLUSION

The INEEL ASTD ID&D project was very successful, having saved over \$460K in FY-1999 alone, with a ten year projected savings on INEEL D&D projects of about \$14M. This success can be attributed to several things, the first of which is the planning, organization, oversight, support, and funding provided by the National Energy Technology Laboratory. This support allows the technologies to become the D&D baseline. To assure success it is also necessary to select technologies that meet the needs of the D&D Operations team and produce large savings over baseline technologies for the work performed. It is also important to select technologies which are widely applicable not only at an individual deployment site, but throughout the DOE Complex.

Because D&D operations projects often do not have the resources to procure new technologies, is important to be able to provide the new technologies for them initially. Then training must be provided to the workers so they can safely and efficiently operate the equipment. Much support and encouragement is necessary during this phase of the deployment activity to insure follow up and actual use of the new technology.

As D&D Operations personnel are very busy with their own projects, they usually do not have time to look for further deployments at other projects or sites. Thus, it is necessary to assist in this area also, by identifying and arranging for further deployments of the technology at other sites or projects. And