

**VALUE STUDY SYNOPSIS
And
IMPLEMENTATION PLAN**

BACKGROUND

The Miamisburg Environmental Management Project (MEMP) requested technical assistance from the Office of Science and Technology (EM-50) Site Closure Program. In response, the National Energy Technology Laboratory (NETL) provided a seven-person team of technical experts to examine the problem of ***“Mitigation of Fugitive Emissions During Building D & D.”*** The team met in Miamisburg from Monday afternoon on July 29, 2002 through Thursday morning, August 1, 2002.

The objective of the three-day technical effort was to conduct a formal Value Study of the present plan to remove five contaminated / non-transferable buildings from the MEMP site. The Study Team concentrated on the decontamination and decommissioning (D & D) of SW and R Buildings which is to be performed by the site contractor (BWXTO). It was assumed that any recommendations adopted by BWXTO for use in SW and R would be made available to the subcontractors responsible for the D & D of the other three buildings (WD, HH, and 38). In addition, the results can also be used at other OH projects such as the JN-1 Building at the Columbus Environmental Management Project (CEMP).

In general, the Team found no reason to conclude that the present technical approach will not produce the desired results of performing the D & D well within the regulatory and DOE imposed limits for airborne emissions of radioactive contaminants. However, insufficient time and information was available to form any conclusions concerning the cost and schedule risks to Closure by 2006.

The Team concentrated its initial efforts on validating the modeling of projected airborne releases since they appear to be driving the planning and execution of the site closure. After an understanding of the modeling assumptions and execution was achieved, methods for reducing the impact of the emissions were discussed in detail. Next, the Team focus turned toward identifying alternative equipment and processes to perform the actual D &D using less time and money.

A condensed description of each of the five Alternative Proposals developed by the Value Study Team has been extracted from the full report and follows.

ALTERNATIVE PROPOSALS

After receiving a detailed initial briefing by BWXTO Project Personnel, and a walk-through of Buildings SW and R, the Team independently developed ideas and concepts based almost entirely on the collective knowledge and experience of the team members. Limited information concerning the present technical approach or the baseline cost and schedule could be made available to the Team due to the contract re-bid currently underway at MEMP.

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The team believes BWXTO is currently considering or has already investigated implementation of most of these proposals. This limited outside evaluation of the technical approach being taken should provide enhancement as well as validation at MEMP.

Proposal 1 – Re-evaluate the Conservative Assumptions Used in Modeling the Site Airborne Emissions

Due to limited characterization data currently available, the assumptions used to predict the airborne emissions during site remediation are believed to be overly conservative. Several specific recommendations are presented which the Team believes will produce a large reduction in the dose estimates. For instance, if the emissions during the D & D of SW and R can continue to be filtered and vented through the 61-meter-high stack, the off-site dose to the maximally exposed individual will drop by a factor of 100 or more.

Use of more realistic assumptions in predictive modeling could allow more work to be scheduled in a given period resulting in potential closure schedule pull back.

Proposal 2 – Use Improved Tools and Techniques to Secure Needed Characterization Data and Then Use the Data More Effectively

Insufficient data is currently available to optimize the modeling of site wide emissions using CAP-88. Extensive characterization is now being planned to allow for open-air D & D. The team also believes the air monitoring data currently being collected could be used in a more timely manner to take maximum advantage of lower than predicted emissions as they occur.

The Team has listed a number of proven characterization technologies that should be considered for use at MEMP if they are not currently being used at the site. It is also recommended that a program to collect and use the existing air sampling data be developed to allow quicker response to lower than predicted emissions. The combination of better data used in a more timely manner should produce a more realistic schedule to closure.

Proposal 3 – Use Proven Large Scale Enclosures with Currently Available Venting to Expedite Closure

The potential schedule reductions resulting from using tent type structures to completely or partially enclose buildings being taken down should be more fully evaluated. Large-scale partial building enclosures are being successfully used at INEEL and either partial or full building enclosures will be used at Rocky Flats.

The Team recommends the concept of using these proven approaches to either replace or augment the present open-air D & D approach be fully evaluated for schedule impact. Proper use of tent enclosures along with continuing the use of the existing filters and vent stack for the SW /R Buildings might allow deferring the removal of the “Old-Cave” until after the building shell has been taken down. It is believed taking this structure out later with the slab and soil using large equipment under cover would potentially result in a significant schedule reduction for this critical path project.

Proposal 4 – Utilize Proven New Technologies to Dismantle, Size Reduce, and then Pack and Ship the Waste.

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The team cited examples of improved technologies that have been proven and are being used elsewhere at other DOE or commercial sites but may not be in use at MEMP. They range from new linseed oil based fixatives used at Hanford to a new safety device to quickly locate energized electric lines used at INEEL.

The Team recommends a detailed evaluation of existing technologies being used at MEMP compared to the newer ones currently being used elsewhere for the purpose of reducing cost and schedule.

Proposal 5- D & D Strategies and Applicable Experience

The team recommends an independent review of the over-all D & D technical approach and final closure plan. The objective of the review would be to compare the MEMP strategy with those used at other sites and the commercial nuclear industry to take full advantage of lessons learned.

IMPLEMENTATION PLAN

If DOE and BWXTO Management agree to pursue any or all of the alternatives recommended, MEMP should request that EM-50 provide continuing support as part of its commitments described in the *Closure Sites – Thrust 1 Program*.

An element in the continuing EM-50 technical assistance will be provision of sustained support to assure that any appropriate recommendations can be successfully implemented. As MEMP personnel review this report and select their implementation strategies, the technical experts on this team will be made available for general consulting support (e.g., clarification of initial recommendations, and assistance in overcoming barriers to implementation).

In addition, upon receipt of specific requests from MEMP resulting from this study, EM-50 has agreed to provide additional technical support for the closure of the site. Examples of continuing EM-50 assistance which could be made as a result of this study are:

1. Provide continuing consultation on emission modeling and provide independent support for any regulatory or stakeholder issues deriving from this issue.
2. Provide assistance in developing and/or reviewing the overall characterization planning and execution. The objective is to insure state-of-the-art instruments and processes are used. Also, assist in developing the program to incorporate air-monitoring data on a more “real-time” basis.
3. Provide detailed cost and schedule information on the different tenting schemes being used and/or evaluated at INEEL, Rocky Flats, and other locations. If the decision is made to use this approach to augment the planned D & D, provide direct assistance to MEMP in implementation. (**Note:** EM-50 experience in this area could easily be leveraged with the BWTX Corporate assistance program for MEMP).
4. Experienced “hands-on” D & D technical experts could be made available to spend time at MEMP reviewing the present equipment and processes being used. The experts would be expected to spend time with the project managers and perhaps workers to become intimately familiar with present the D & D.

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Based on these extended on-site visits, recommendation for specific improvements being used elsewhere in the complex and at commercial nuclear facilities would be made. Within reason, EM-50 and/or the BWXT Corporate program would be expected to support deployment of proven technologies being used elsewhere but not at MEMP.

5. Provide expert technical review of the present overall D & D approach and final exit strategy and then compare the higher level planning to other experience at other sites.

In carrying out this implementation plan, it is recommended MEMP request EM-50 to fully utilize the combined team approach fully utilizing the Ohio Closure Support Group (OCSG) to maximize the benefits across OH. As an example, personnel from the Columbus Environmental Management Project (CEMP) fully participated in this study and intends to take full advantage of this technical assistance opportunity in their “open-air” D & D of buildings.