

Environmental Technology Cost-Savings Analysis Project (ETCAP)

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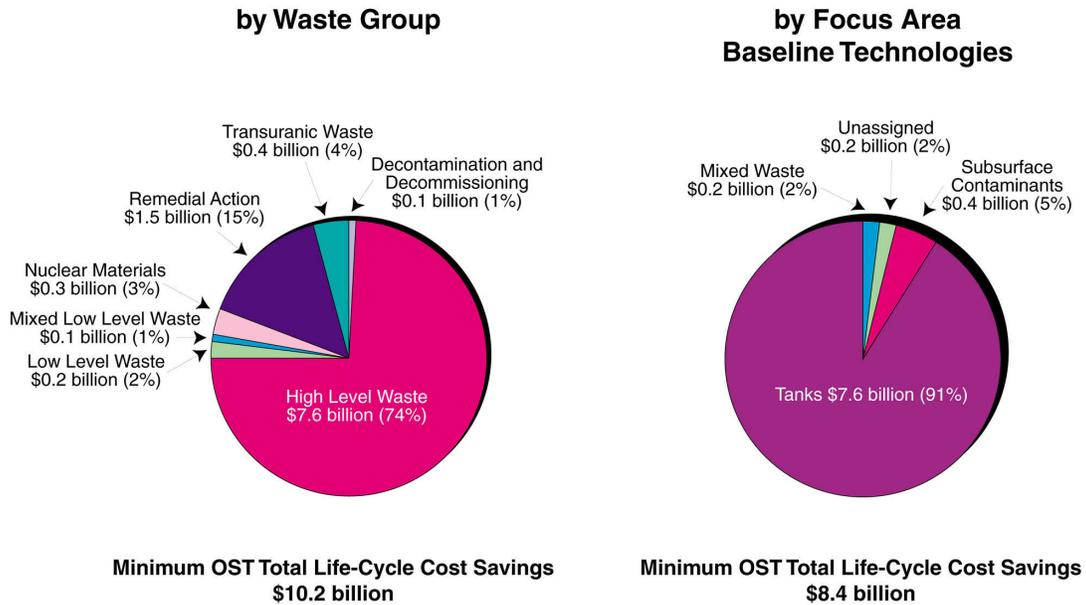
This poster highlights ETCAP's accomplishments during the past decade and summarizes the results of three recent case studies. These case studies include ETCAP's recent effort to summarize potential remediation cost savings due to the use of innovative technologies across the Department of Energy (DOE) complex. Additionally, case studies for the Decontamination and Volume Reduction System (DVRS) for efficient processing of oversized metallic transuranic waste at Los Alamos National Laboratory, and for the remediation of high-level waste in underground storage tanks at the Hanford site by way of enhanced sludge washing (ESW), are also included.

The Office of Science and Technology (EM-50) was established to develop and test new technologies in support of the environmental clean up of the weapons complex. From the beginning of EM-50, it was clear that a key evaluation criterion was the potential cost savings that could accrue to the nation due to technology development investments. ETCAP was established at Los Alamos National Laboratory in 1991 to aid in the cost-savings analysis for EM-50 with the help of engineers, economists and cost estimators. An early task for ETCAP was to support the cost savings analysis of EM-50's first five-year plan for the national program. Early work of ETCAP focused on methodology development. The goal was to establish a common or standard methodology for cost savings analysis across the DOE complex to encourage routine and consistent reporting. The conceptual methodology developed is shown in Figure 1. Through its ten-year history, ETCAP published approximately 100 studies and presented at approximately 30 various symposia around the country. It completed cost savings studies for EM-50's major focus areas at ten different sites, and also supported EM Headquarters in program analysis and evaluation. Additionally, ETCAP personnel were routinely invited to serve on expert panels at both the site and national levels.

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Discussed in the following are specific examples of case studies that include the overall DOE complex cost savings as estimated in 1998 (see Figure 1), Enhanced Sludge Washing of High-Level Waste at Hanford, and the Decontamination and Volume Reduction System (DVRS) at Los Alamos National Laboratory.

OST Heavy Hitter Cost Savings*



*from Paths to Closure data analysis of cost savings complex wide by Los Alamos National Laboratory for the EM Office of Science and Technology

Oct 1998

Figure 1. DOE complex savings estimated in 1998

It has been estimated that implementation of ESW in the Tank Waste Remediation System (TWRS) at the Hanford site can save approximately \$4.8B over the use of a simpler water wash as shown in Figure 2. It was further estimated that based on the water wash comparison, the \$4.8B savings was uncertain within \pm \$1.6B at the 95% confidence interval.

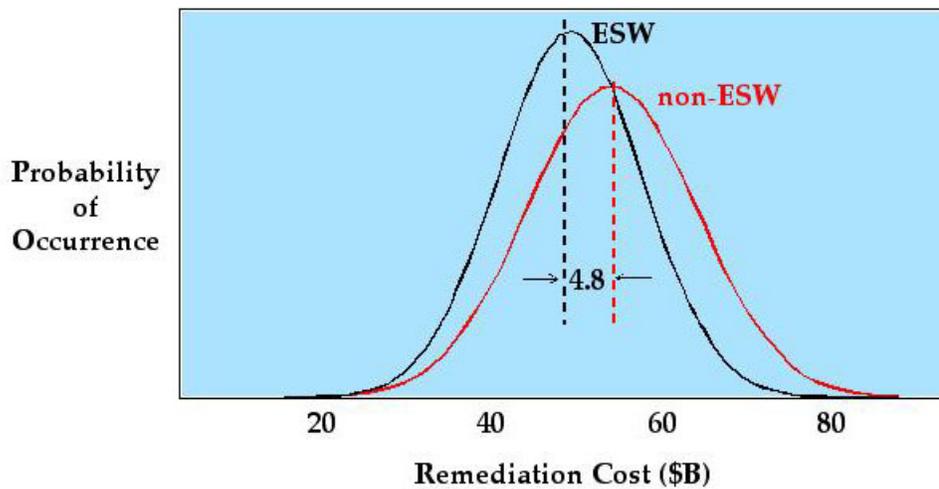


Figure 2. Enhanced sludge washing cost savings at Hanford

Decontamination and volume reduction of oversized metal transuranic (TRU) waste from legacy waste and facility upgrades will result in a life-cycle cost savings of \$102M. A metal lathe inside a wooden box shown in Figure 3 is a candidate example. The largest contribution to the \$102M cost savings will be approximately \$78M gained through the reduction of TRU waste sent to WIPP.

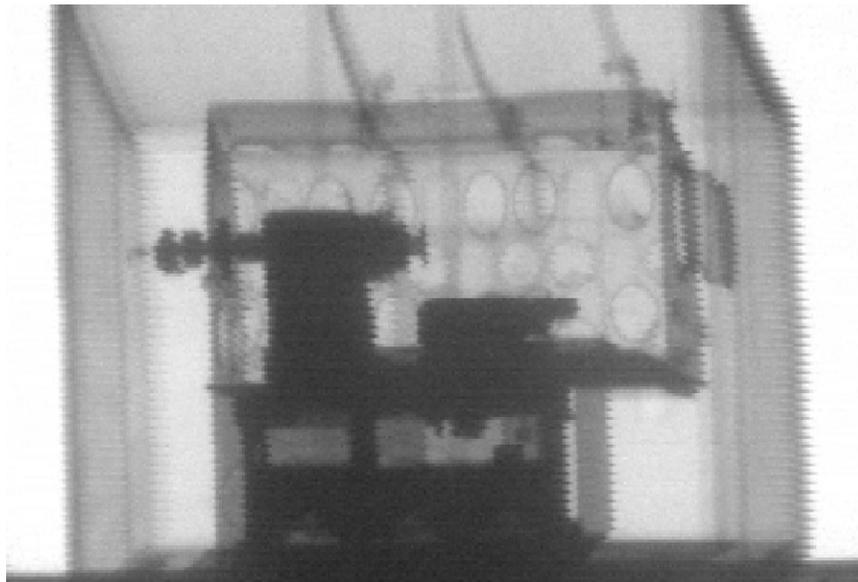


Figure 3. Metal lathe inside a wooden box