SAVING THROUGH SHARING: HOW IT BENEFITS OPERATIONS

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ABSTRACT

In Fiscal Year 1992 alone, Westinghouse Electric Corporation saved the U.S. Department of Energy (DOE) more than $122 million through an innovative program, called "Saving Through Sharing." This program has recently been implemented at five DOE sites which Westinghouse manages. The purpose is to transfer the best practices throughout the DOE complex. The program represents a philosophy of teamwork and innovation in operations. Most savings result from the sharing of expertise, ideas, training, designs, practices, manuals, acceptance criteria, oversight activities, and new technologies.

INTRODUCTION

Westinghouse Electric Corporation has five subsidiaries with management and operations (M&O) contracts at Department of Energy sites. These sites include: Hanford in Richland, Washington; the Westinghouse Idaho Nuclear Company in Idaho Falls, Idaho; West Valley Nuclear Services in West Valley, New York; the Waste Isolation Division in Carlsbad, New Mexico, and a previous M&O contract with Westinghouse Environmental Management Company in Fernald, Ohio.

In 1992, these five sites saved American taxpayers more than $122 million. The concept of sharing is very simple. Management encourages employees to communicate with each other on a regular basis through meetings, publications, videotapes and brochures. They are encouraged to put their heads together, talk to each other, share their ideas and discuss solutions.

The benefits of sharing are far reaching. By sharing technology, time is saved. By sharing procedures, lives are saved. By sharing manpower, expertise is multiplied. By sharing training, consistency in operations is established. By sharing ideas, duplication of effort is significantly reduced.

HISTORY OF SAVING THROUGH SHARING

A revolution began at DOE weapons sites over the past few years -- a revolution as profound and complex as it was gradual and subtle. Today, the revolution is raging. It began as media attention over Three Mile Island was fading. That event, coupled with simple economics, made commercial nuclear power unfeasible. And, for a short time, interest in nuclear issues was low.

However, public attention once again turned to the weapons complex. Stories about the environmental conditions at DOE sites were published, environmental laws tightened, and the public's awareness of and interest in environmental issues increased substantially. The shroud of secrecy that veiled the DOE complex since the days of the Manhattan Project began to lift. The public became aware that nuclear weapons facilities were storing massive amounts of hazardous and radioactive wastes.

The revolution picked up steam by the end of the '80s when the Cold War ended. These events made the DOE weapons complex an anachronism. And the missions of the sites shifted from weapons production to environmental cleanup.

The cost for neglect and silence is enormous. Independent cost estimates to clean up the DOE complex are as high as $240 billion, which is more than the cost of the Apollo program, the Trans-Alaska Pipeline, Star Wars and the nation's highway system combined.

Therefore, it is essential DOE contractors be diligent in finding ways to do more cleanup work with less dollars. As a multiple DOE site contractor, Westinghouse has a particularly profound obligation to look continually at the broader picture.

Realizing that sites were too insulated and distant from each other, Westinghouse looked for effective ways to exchange information on our company's most successful practices. This includes efforts to transfer compliance know-how and human resources, eliminate redundancies and avoid the need to rediscover or reinvent practices at one site that already exist in a refined state at another. In short, Westinghouse needed to achieve a total effect for DOE from our contracts to make the sum greater than its individual parts. Our aim was to assure that best practices and know-how were being used at all the sites no matter what their origin.

Simply put, we needed to share. Share how we learned to do things better, faster, safer and cheaper.

We adopted what is known as our Saving Through Sharing program as a tool of strategic management -- a tool that tracks and measures savings of time, talent, technology and money, site-by-site, program by program, step by step. Site managers use this tool by looking at a lot of ideas, by avoiding reinventing every practice, and by accepting methods, policies and procedures that are better than his or her own.

Westinghouse has done this sharing informally in the past. Some programs shared a lot, others some, while still others weren't communicating at all. In the fall of 1991, Westinghouse formally began this program to pool its resources.

SAVINGS THROUGH SHARING -- AN EASY PROCESS

The first step in establishing a formal sharing program was to sanction the groups that were already teaming informally to solve problems. Teams were created that looked at DOE's highest priorities, the environmental restoration and waste management missions, and the key areas where solutions were extremely difficult to come by.

The teams are called "cross cultivation committees." There are currently 23 dedicated to:

- Training
- Conduct of Operations
- Environmental Restoration
- Construction Project Management
- Radiation Health Protection

- High-Level Waste Integration
- Quality Assurance
- Security
- Technology Transfer
- Waste Management
- Total Quality
- Employee Ownership
- Conduct of Maintenance
- Safety
- Nuclear Facility Safety Analysis
- Engineering
- Public Affairs
- Conduct of Administrative Operations
- Decontamination and Decommissioning
- Codes and Standards
- Human Resources
- Planning and Scheduling
- Emergency Preparedness

Each committee is run from the bottom up. They are self-managed groups with naturally emerging leaders. They determine their own goals, charters and priorities.

Westinghouse recognizes that the people who are next to a problem are the best ones to identify and solve a problem. Management's only role is to help communicate progress and accomplishments of these cross-cultivation committees. They let the real experts take the lead.

Employees in each division of our five subsidiaries are encouraged to identify potential Savings Through Sharing initiatives. Employees have developed a standard format for reporting initiatives; they have established a database to track achievements. The program's philosophy and objectives are communicated to other employees through company newspapers, videos, brochures and meetings.

Initiatives developed by cross-cultivation committees have eliminated redundant work, expanded technical expertise, and raised performance at each site. At the same time, initiatives have reduced training and development costs. The result of the committee's efforts are not only calculated by the number of dollars saved, but by safer operations, higher standards, and consistency between sites. (See Fig. 1.)

In addition, transferring technology to the private sector is a crucial area because many of the technologies we need do not yet exist. Environmental restoration of this magnitude has never been done before -- anywhere in the world. If we are going to be successful in cleaning up these sites, we're going to have to develop new technologies. The only way to do that is by combining talent and resources.

SHARING WITHIN WESTINGHOUSE

Westinghouse-managed DOE sites completed more than 344 Saving Through Sharing initiatives. The following is a summary of each site's savings, as well as examples of their Saving Through Sharing initiatives. (See Fig. 2.)

Westinghouse Hanford Company (WHC)

As first recipient of the Saving Through Sharing award, Hanford tracked 76 initiatives worth $23 million in savings in 1992. Moreover, there are another 53 being developed that could produce another $40 million in savings.

A key element of the Westinghouse Hanford approach consisted of identifying a point-of-contact in each major division and department within WHC, along with the contacts at other sites who were on cross cultivation committees. Non-financial Saving Through Sharing and company stretch goals were set to emphasize the importance of the program. The Department of Energy, Richland Field Office, thought so much of the program that they established a DOE point-of-contact to track the progress of initiatives. In addition, Saving Through Sharing has been added to the Westinghouse Hanford award fee evaluation.

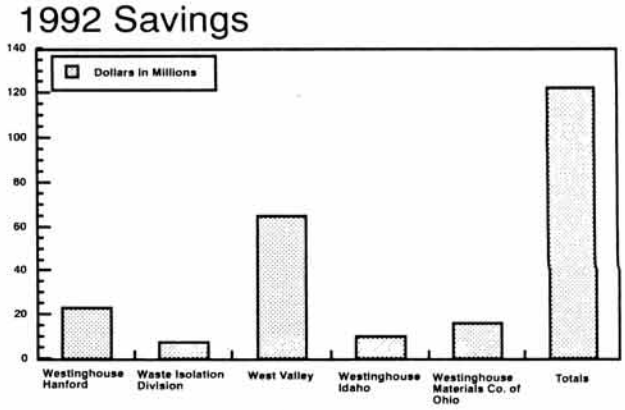

Fig. 1. 1992 savings.

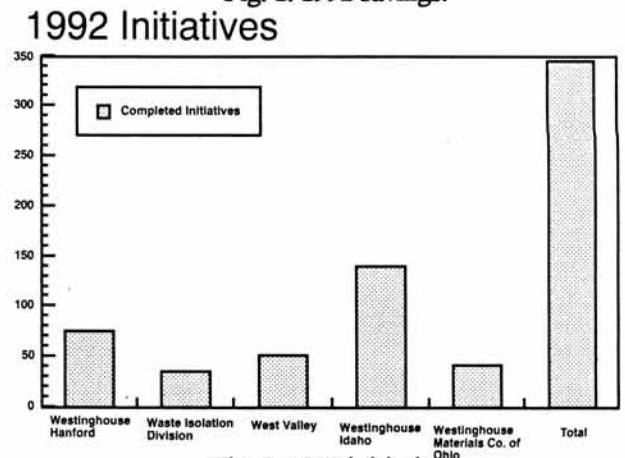

Fig. 2. 1992 initiatives.

One initiative that Westinghouse Hanford is particularly proud of is a Hoisting and Rigging Manual that was shared with the Westinghouse Savannah River Company. By implementing the manual in its entirety, Westinghouse Savannah River achieved full compliance with Occupational Safety and Health Act (OSHA) regulations and American National Standards Institute (ANI).

Based on preparation costs for the Hanford manual, Westinghouse Savannah River avoided an estimated $1 million in preparing its own. The only modifications made to the WHC manual were the changes necessary to make the Savannah River manual site-specific. An additional savings of at least $500,000 was achieved at Savannah River by adopting a Hanford-initiated change to the manual.

The Westinghouse Savannah River Hoisting and Rigging Manual was issued and implemented approximately 18 months earlier than would have been possible if the manual had been written from scratch. The result was a substantial savings to the customer as well as early compliance with government regulations. Long-term, true savings will be realized as the Savannah River personnel use the clear direction on how to perform safe, effective lifts.

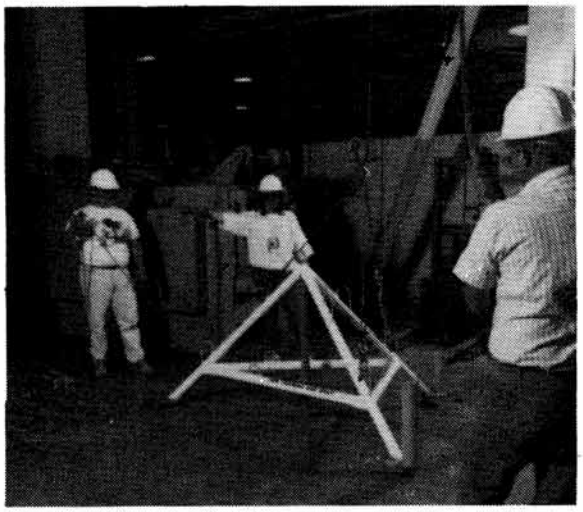

Fig. 3. Sharing the WHC Hoisting and Rigging Manual with the Westinghouse Savannah River Company, where it was implemented in its entirety, saved $1 million.

Westinghouse Idaho Nuclear Company (WINCO)

Westinghouse-Idaho tracked more than 140 Saving Through Sharing initiatives from other Westinghouse sites and adopted 26 of them. Although not all of them bear identifiable cost savings, all clearly improved performance excellence. In those areas where savings were identified, a $10 million cost savings was estimated for 1992.

One initiative where duplication of effort was greatly reduced was in the development of a hazardous chemical tracking system referred to as Haz-Trac, used at WINCO's Idaho Chemical Processing Plant (ICPP). Haz-Trac tracks all chemicals and chemical compounds from the time they enter the ICPP, until the chemical changes form, is used, or becomes waste.

WINCO shared Haz-Trac with Westinghouse's Fernald Site (WEMCO). The estimated cost for WINCO development of Haz-Trac was approximately $365,000; WINCO worked directly with WEMCO personnel to implement Haz-Trac at their site thereby avoiding much of the development cost. Further cost savings are realized by the proper disposal of unneeded chemicals and by eliminating duplicate inventories.

In addition, the initiative has been shared with many others during symposiums, workshops and conferences.

West Valley Nuclear Company (WVNS)

West Valley has adopted 23 initiatives from other sites with an estimated savings of nearly $65 million. The programs involved nearly every aspect of the West Valley Demonstration Project -- from decontamination to security. Significantly, West Valley's effort tapped not only other Westinghouse managed sites, but also those managed by other contractors.

A construction accident at West Valley emphasized the need for training in procedures which address the safety requirements of various construction activities. Approximately three months' time would have been required for the Construction Projects Department to develop a training package for these procedures.

Westinghouse Savannah River Company had already developed such a training package in construction safety procedures. The West Valley staff reviewed and adopted the WSRC training package, and then adapted it to fit their specific needs. WVNS has since used the package as a basic part of the tool box safety meetings and as an information resource.

Having safety procedures immediately available that required only minimal site-specific adaption allowed a quicker response to the employees' safety needs and provided a significant savings in work hours. In minimal time and with minimal effort, WVNS was able to adapt the WSRC training package in construction safety procedures as a site-specific training tool, as well as an information resource and job analysis tool. The approximate cost avoidance was $50,000.

Waste Isolation Division (WID)

The Waste Isolation Pilot Plant (WIPP) estimated a savings of $7.5 million from the 35 Saving Through Sharing initiatives they undertook in 1992. The WID cross-cultivation committees sought out know-how from a variety of sources...from powerplants...to DOE laboratories...to an outside consultant.

In one case, the WID teams were able to return the favor by sharing a training program that is recognized as the most advanced and comprehensive in the DOE complex. WID shared its Health Physics Technician Training Manual and Qualification System -- the program now used as a benchmark to create a uniform health physics technician training program at DOE sites. Consistency in operations in areas such as training is critical.

The training uses guidelines from the International Nuclear Power Operators (INPO). Since the DOE Health Physics Technician Training Program is modeled after the WIPP program, impact and cost of implementation to DOE is minimal. Individual government-operated facilities will save approximately $250,000 in initial development cost for their site specific program.

Westinghouse Environmental Management Company (WEMCO)

Although 1992 was the last year for formal participation, WEMCO shared, adopted, and co-developed 41 initiatives that saved $16 million in 1992. In the process, WEMCO received accolades from plant neighbors before departing as site contractor.

WEMCO developed a five-volume quality assurance plan detailing its Environmental Sampling Process referred to as the Sitewide CERCLA Quality Assurance Project Plan (SCQ).

WEMCO communicated this project to other government-operated sites by sending computer disks of information for easy modification. Adoption of this program is estimated to save approximately $1-1.5 million in development costs per site. The real cost savings will be realized by employing the quality requirements and analytical procedures to effectively meet EPA guidelines.

SCQ satisfies an Environmental Protection Agency (EPA) requirement to identify quality requirements and to provide a detailed sampling and analysis system. The EPA expressed a need for a system that promoted comparability between various laboratories. SCQ accomplished this by identifying a consistent set of procedures which allows comparability of analyses.

The major benefit of this program is that it gives the EPA a system that allows for control over the sampling process and comparability of results. This system gives the EPA a method to view a consistent set of radioactive samples.

The analytical methods have been sent to DOE for inclusion in their methods compendium which will help standardize these throughout the DOE complex.

SHARING WITHIN OUR INDUSTRY

In January 1991, operations employees from each Westinghouse site came together for a week-long meeting. They were determined to pool their experience and resources to write a conduct of operations manual that DOE could use to standardize operations. They combined the DOE orders with Westinghouse's "best management practices."

It was the first time a contractor had used its own best management practices in this fashion. It was sent to DOE Headquarters, which in turn, asked Westinghouse to share the manual with 40 other prime contractors.

Today, this Conduct of Operations manual is a core training document at all DOE sites. And DOE is using this manual to train their own executives. In addition, there's another spin-off. Other cross-cultivation committees have seen the value of standardizing procedures, and have developed similar manuals.

The Conduct of Operations manual is just one example of how the Savings through Sharing program reaches far beyond the confines of our company doors. Because the program is still relatively new, the majority of initiatives have been internal, however, growth is imminent.

The success of this program wouldn't have been possible without strong support from the Department of Energy. The Conduct of Operations manual shows how DOE recognized the benefits of Savings Through Sharing and encouraged Westinghouse to move forward with it.

Yet we know that we need to reach beyond the DOE complex to find solutions. There are hundreds of companies that are working on similar problems. Teaming with them is essential. Instead of thousands of people working to restore the environment, we'll have tens of thousands working together on solutions.

SHARING WITHIN THE U.S.

The Department of Energy and Westinghouse teamed in developing a six-week Environmental School which was shared with others outside the DOE complex. The school engenders a working knowledge of environmental laws and regulations applicable to the sites. A representative from a citizen group concerned with DOE's Fernald Environmental Management Project, near Cincinnati, attended the course in 1990. Since that time, five sessions of the Environmental School have been conducted.

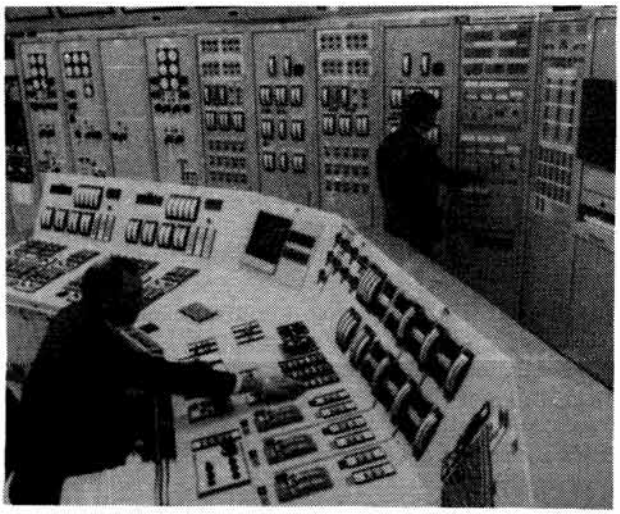

Fig. 4. The Westinghouse Conduct of Operations Manual was prepared by a team composed of operations personnel from each Westinghouse M&O site. The Fast Flux Test Facility at Hanford is recognized as the premier example of excellence in operations.

In 1991, DOE and the Westinghouse Savannah River Company hosted a multimedia technology conference to showcase the computer-based training Westinghouse offers at DOE sites. This conference highlighted numerous computer-based training (CBT) courses Westinghouse uses at DOE sites. By sharing this kind of technology and course information, significant cost savings can be realized by the various government facilities participating. Feedback from the conference was overwhelmingly positive. To date, Westinghouse has provided 120 copies of the course information to federal facility operators, national laboratories, regulatory agencies and the Canadian government.

And our customer strongly encourages us to bring more people into the process. Having private companies benefit from the Westinghouse Saving Through Sharing program greatly increases the number of people who are working together to restore the environment.

SAVINGS THROUGH SHARING BENEFITS ALL

When we began our Saving Through Sharing program, we anticipated two benefits -- greatly improved cost effectiveness and higher performance standards. Yet a third, more intangible, benefit is employee enthusiasm and productivity. Employees participating in the Savings Through Sharing program are motivated by the teamwork and camaraderie of working together.

Employees are the key to the success of the program, and they are embracing the challenge. They know how best to improve quality and enhance operations.

So in addition to providing value to DOE, we're also growing people and cultivating talent. It's an innovative, creative way to increase job satisfaction. That inherently provides value to our customer.

CONCLUSIONS

Contractors embarking on the difficult task of environmental restoration and waste management for the Department of Energy need to work together to bring the DOE complex in line with environmental laws and attitudes -- and get the best value for taxpayer dollars. Sites must work cooperatively to leverage their collective experience to help DOE meet the greatest environmental and budgetary challenges our nation has ever faced.

Westinghouse's Saving Through Sharing program serves as a model for sharing existing resources to cut costs of cleanup activities.

ACKNOWLEDGEMENTS

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