

**TRIPLE CROWN OF SAFETY EXCELLENCE AT WIPP**

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**INTRODUCTION**

A cornerstone of the United States Department of Energy's (DOE) national clean-up strategy, the Waste Isolation Pilot Plant (WIPP) is designed to permanently dispose of TRU waste generated by defense-related activities. Located in southeastern New Mexico, 26 miles east of Carlsbad, project facilities include disposal rooms excavated 2,150 feet underground in the bedded salt of the Salado Formation. With the arrival of its first shipment in March of 1999, the WIPP became the first operational TRU waste disposal site in the world. The WIPP facility is owned by the Department of Energy (DOE) and co-operated by its designated management and operating contractor, Westinghouse Government and Environmental Services Company, Waste Isolation Division (WID).

The National Security and Military Applications of the Nuclear Energy Authorization Act of 1980 (Public Law 96-164) authorized the DOE to provide a research and development facility for demonstrating the safe disposal of radioactive waste produced by national defense activities. DOE's decision to proceed with WIPP followed a thorough National Environmental Policy Act (NEPA) review, culminating with a Record of Decision on the facility's Final Environmental Impact Statement in 1981. The WIPP Land Withdrawal Act of 1992 (LWA) (PL 102-579) transferred public land to the DOE and established the regulatory framework and specific requirements to begin waste disposal operations, including Environmental Protection Agency oversight. This regulatory framework enabled the WIPP to map a course, which ultimately led to its opening in 1999.

**The Quest**

As the WIPP progressed into operational mode, the history and success of the WID in safety excellence had instilled confidence in the project's stakeholders that WID could safely operate a nuclear waste disposal facility. How did this come about? Frankly, it took a major event to catalyze the change. During an inspection by the Mine Safety and Health Administration in 1990, more than twenty-five violations were noted. The General Manager of the WID realized the futility of trying to convince the public that WIPP would be safe for thousands of years without an operational safety system that was above reproach. That idea was shared with the DOE and WID employees, thus beginning the quest and subsequent successes in safety management excellence. It began on a foundation that continues to have relevance today - namely the imperatives of management example and leadership, customer buy-in and employee involvement. These elements came together to form a unique safety culture at WIPP that was virtually unparalleled in the DOE complex.

## **Voluntary Protection Program**

The resulting safety culture was awarded with the first DOE Voluntary Protection Program (VPP) STAR status in 1994, and was re-certified in 1999. Through VPP, the DOE recognizes that true excellence can be encouraged and guided but not standardized. This program closely parallels the Voluntary Protection Programs of the Occupational Safety and Health Administration (OSHA). The VPP, adopted by OSHA in 1982 had already demonstrated that cooperation between government, industry, and labor can achieve excellence in worker health and safety. In fact, Vice President Gore recently stated that the VPP is the premier example of partnership between government, management, and labor.

The DOE-VPP program identifies areas where DOE contractors and subcontractors can go beyond compliance with DOE Orders and OSHA standards. The program encourages the creative stretch for excellence through systematic approaches and cooperative efforts involving managers, employees, and DOE. Requirements for participation are based on comprehensive management systems, with employees actively involved in assessing, preventing, and controlling the potential health and safety hazards at the site. No matter how carefully conceived and properly developed, orders, standards, and procedures will never address all unsafe activities and conditions. In its quest for safety excellence, the WID recognized that employees at all levels possess valuable firsthand knowledge of the processes, materials, and hazards involved in their own operations. This knowledge, combined with the empowered ability to quickly evaluate and address unique hazards, set the site on a continuous improvement course to provide the best feasible health and safety protection system at WIPP. To qualify for the DOE-VPP STAR program WID had to demonstrate:

- Management Leadership: Through top level commitment to occupational health and safety in general, visible management involvement, line accountability, and safety and health program evaluations.
- Employee Involvement in the structure and operation of the health and safety program and in decisions that affect employee health and safety.
- Worksite Analysis beginning with a thorough understanding of all potentially hazardous situations and the ability to recognize and correct hazards as they arise, to comprehensive health and safety surveys, investigations, and trend analysis.
- Hazard Prevention and Control with hazards and potential hazards identified in the worksite analysis minimized by the implementation of effective controls and measures.
- Safety and Health Training with a formal training program for employees and managers proven to be effective in ensuring employees recognize the hazards of their jobs, rules, procedures, and work practices that afford protection, what to do in an emergency, and management responsibilities for protection of the employees and public.

By providing outstanding protection and serving as a model for other DOE contractors, WID has been awarded DOE VPP STAR status and have enjoyed many benefits from participating in this program including:

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- fewer employee injuries
- decreased worker compensation payments
- decreased litigation costs relating to worker injury
- fewer safety noncompliance findings
- improved employee morale
- improved communication between management and employees
- increased employee and management involvement in health and safety related matters
- increased productivity and profits
- positive public relations

With WID having been the first to meet the requirements for DOE-VPP STAR status in 1994, we were also the first to undergo review for re-certification. The 1999 DOE-VPP STAR re-certification verified that our safety culture had truly progressed from a compliance-driven reactivity to continuous improvement driven proactively based culture.

### **ISO 14001, ENVIRONMENTAL MANAGEMENT PROGRAM**

WID also became the first DOE nuclear facility to actively pursue environmental excellence, which resulted in its 1997 environmental management system registration under the International Standard Organization's ISO 14001. The Environmental Management System (EMS) was established to provide safeguards for the community, the workplace, and the environment while providing flexibility to meet our business needs. The EMS integrates the necessary organizational structure, plans, procedures, and resources necessary to develop, implement, and maintain those safeguards. The ISO 14001 Standard establishes general requirements for a high performing EMS, including:

- Environmental Policy including commitment to continuous improvement and prevention of pollution
- Planning to identify and control the environmental aspects of WIPP's activities, products, and services with objectives and targets for continuous improvement
- Implementation & Operation with roles, responsibilities, communication, documentation, and training to facilitate effective environmental management and effective emergency preparedness and response to facilitate prevention and mitigation of environmental impacts from emergency situations
- Checking & Corrective Action, tracking performance, and monitoring relevant operational controls that can have a significant impact on the environment.
- Management Review of the EMS to ensure its continuing suitability, adequacy, and effectiveness.

WID has maintained registration of the EMS by successfully undergoing semi-annual review in accordance with international standards.

## **INTEGRATED SAFETY MANAGEMENT**

To address safety management issues raised in Defense Nuclear Facilities Safety Board recommendations, the DOE and its contractors began institutionalizing the controls necessary to achieve common environment, safety, and health objectives. This Integrated Safety Management (ISM) system established a hierarchy of components that was initially incorporated into DOE Policy in October of 1996. The safety management system consists of six components:

- The overall objective of the program for management of safety functions and activities to become an integral part of mission accomplishment.
- Guiding principles that serve as fundamental policies to guide DOE and contractor actions, from development of safety directives to performance of work. Those key principles include line management responsibility for safety, clear roles and responsibilities, competence commensurate with responsibility, balanced priorities, identification of safety standards and requirements, hazard controls tailored to work being performed, and operations authorization.
- Five core functions that provide the necessary structure for an activity that could potentially affect the public, the workers, and the environment. The functions are applied as a continuous cycle with the degree of rigor appropriate to address the activity and the hazards involved. The functions include defining the scope of work, analyzing the hazards, developing and implementing hazard controls, performing work within controls, and providing feedback and continuous improvement.
- Safety mechanisms defining how the core safety management functions are performed, with DOE expectations subsequently expressed through directives and contract clauses.
- Defining and demonstrating the responsibilities for Integrated Safety Management were the basis of the fifth component.
- Implementation.

As the WIPP facility had progressed through the various phases of development, environment, safety, and health had truly become the number one priority and consideration for the conduct of operations of WIPP activities. This means that the measures to protect the worker, the public, and the environment had been factored into facilities and systems designs, operating procedures, and employees' job responsibilities and requirements. By the time the requirements for an ISM system had been issued by the DOE, the profound culture of safety and environmental excellence at WIPP was well established. The principles of management commitment and leadership, employee involvement, and customer support fitted very well with the ISM system criteria, and WID received its ISM verification in the fall of 1998.

## **CONTINUOUS IMPROVEMENT**

Though WIPP was pleased with being recognized for its excellence in safety, management recognized that to maintain and improve that standard of excellence was the next challenge. Core values of continuous improvement and outstanding performance drove a focus on continued effectiveness and efficiency. In Fiscal Year 1999, WID implemented actions to integrate programs even further to prevent redundancy and ensure understanding of the various criteria to prevent inadvertent programmatic loss. Lessons learned from other facilities had shown that many had approached new programs over the years as “flavor of the month” approach to implementation, instead of taking the strengths and fully integrating without losing the benefits of the previous programs. WID’s goal was to keep all the best of all, while utilizing inputs already available and becoming ever more efficient and cost effective at utilizing what we have in place. In order to monitor and evaluate the various aspects, an aggressive system of trending, analysis, and assessments was utilized for continuous objective feedback. The resulting integration of our safety systems of excellence, VPP, ISM, ISO 14001 EMS, led to realization of a number of long range benefits:

- The WID has established high standards and expectations that are vital to the foundation for a continuous improvement culture
- A continuous improvement culture has built a climate of trust.
- Managers can make proactive business decisions on the basis on systematic, objective information rather than on opinions and perceptions.
- Managers have developed increased knowledge and confidence in the organization’s ability to safety deliver customer expectations.
- Employee involvement in setting and tracking performance indicators enhanced acceptance of changes and improvements while inducing a sense of pride in bringing about such improvements.

Already, WIPP is leading again in the next phases of ensuring continued safety excellence by proactively considering all safety concerns and issues as quality problems and forging ahead with new innovative approaches to safety program effectiveness.

## **CONCLUSION**

Originally, the prospect of developing and implementing a safety culture strong enough to instill confidence in the project’s myriad stakeholders probably seemed insurmountable. However, progress was made and is continuing based on the following foundations of success:

- caring attitude and commitment of all employees
- management commitment
- integration of programs
- assessments and evaluations of effectiveness
- continuous improvement culture

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Major contributing factors to success were WID's core values:

- Trust and Fairness - employees are empowered to work safely, stop work when necessary, and continuously be involved in the improvement of programs and processes
- Continuous Improvement - a cultural expectation
- Environmental Awareness - a major cornerstone of our safety excellence
- Integrity and Highest Ethical Standards - ensure proactive protection of employees and the public
- Perseverance and Commitment - the defense in depth posture necessary for excellence instead of accepting minimal levels of compliance
- Outstanding Performance
- Mutual Respect and Communication - vital to continued excellence in safety implementation

In totality, the WIPP safety culture has resulted in our Triple Crown of Safety Excellence, a benchmark accomplishment that has allowed WIPP to concentrate on integration of effective performance, assessments, and continuous improvement and to demonstrate to the world that WIPP has set the standard of excellence for nuclear waste disposal.