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Weldon Spring Site Remedial Action Project: Report from the DOE Voluntary Protection Program Onsite Review, November 17-21, 1997

U.S. DEPARTMENT OF ENERGY
Office of Worker Health and Safety
Office of Occupational Safety and Health Policy
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Department of Energy VPP

Foreword

VPP - "The New National Model"

The overwhelming success of the Voluntary Protection Programs (VPP) has been voiced by people at all levels within government, management and labor over the past sixteen (16) years. The VPP and those people and organizations associated with its success have been the recipients of numerous commendations and awards including multiple "Hammer" awards from the Vice President of the United States.

> ***"The new national model of government regulation is patterned on the successes of programs such as the Voluntary Protection Programs (VPP), which is administered by the Occupational Safety and Health Administration (OSHA) and the Department of Energy (DOE)."***
>
> The White House
> Office of the Vice President
> September 26, 1995

At a White House ceremony in 1995, the Vice President presented two Hammer Awards to recognize the positive impact that VPP had in regard to the National Performance Review (NPR) initiative on reinventing government. The Vice President stated; "It [VPP] is about working in partnership with common goals, instead of as adversaries to protect the safety and health of our workers. It's about focusing a lot less on red tape, and a lot more on results. The Voluntary Protection Programs is the premier example of partnership between government, management and labor."

OSHA - VPP

Since its creation by OSHA in 1982, VPP has established the credibility of cooperative action among government, industry and labor to achieve excellence in worker health and safety. As of 1997, there were 394 participants in OSHA-VPP. A variety of major industries are represented in OSHA-VPP including research and development, construction, utilities, health care, petrochemical, textiles, storage and distribution, wood and paper products, industrial chemicals, and many others.

Injury incident rates for OSHA-VPP participants are 55% below the expected average for similar industries. Lost workday injury rates at participating worksites are 62% below the expected average for similar industries and workers' compensation costs showed a 52% reduction.

DOE - VPP

The U.S. Department of Energy (DOE) recognizes that true excellence can be encouraged and guided, but not standardized. For this reason, on January 26, 1994, the Department initiated the DOE Voluntary Protection Program (DOE-VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels the Occupational Safety and Health Administration's (OSHA's) Voluntary Protection Program (VPP).

DOE-VPP outlines areas where DOE contractors and subcontractors can surpass basic compliance with DOE orders and OSHA standards. The program encourages the "stretch for excellence" through systematic approaches involving everyone in the contractor or subcontractor workforce at DOE sites. DOE-VPP emphasizes creative solutions through cooperative efforts by managers, employees, and DOE.

DOE-VPP consists of three programs, with names and functions similar to those in OSHA's VPP. These programs are STAR, MERIT, and DEMONSTRATION. The STAR program is the core of DOE-VPP. The program is aimed at truly outstanding protectors of employee safety and health. The MERIT program is a steppingstone for contractors and subcontractors that have good safety and health programs but need time and DOE guidance to achieve STAR status. The DEMONSTRATION program is rarely used; it allows DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for the STAR status.

Requirements for DOE-VPP participation are based on comprehensive, integrated management systems where employees are actively involved in assessing, preventing, and controlling potential hazards at the site. DOE-VPP is designed to apply to all contractors in the DOE complex and to encompass produc-

tion facilities, research and development operations, environmental remediation activities, and various subcontractors and support organizations.

DOE contractors are not required to apply for participation in the DOE-VPP. In keeping with OSHA's VPP philosophy, *participation is strictly voluntary.* Additionally, any participant may withdraw from the program at any time.

Contractors interested in participating in DOE-VPP evaluate how well their safety and health programs implement the DOE-VPP requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements.* They may decide to submit an application, using *Part III: Application Guidelines*.

The steps of the application review process described in *Part II: Procedures Manual* involve the area office, operations office, and program office to independently assess the application's completeness and the applicant's qualifications for DOE-VPP recognition. Comments from the review are resolved before the application is submitted to the Office of Worker Health and Safety (EH-5).

DOE-VPP staff members may augment the application's information by requesting additional information, visiting the applicant's site, consulting the program office, talking to the applicant's OSHA VPP outreach partner, or getting input from the applicant's DOE-VPP customer representative.

If the DOE-VPP staff approves the application, an onsite review is scheduled as described in *Part II: Procedures Manual*. Team members are selected, based on one or more of the following criteria:

- Is the candidate a subject-matter expert appropriate to the site's activities and complexity?
- Does the candidate possess prior VPP experience (DOE and/or OSHA)?
- Does the candidate bring union representation to the team?
- Is the candidate a safety or health professional from outside of EH?
- Is the candidate free of any apparent conflict of interest?

The Onsite Review Team interviews a cross section of employees and management, reviews documents, and makes observations during facility walkthroughs to evaluate the applicant's implementation of DOE-VPP criteria found in *Part IV: Onsite Review Handbook.*

During daily team meetings, Review Team members assess findings, address issues, and seek additional input. At the review's conclusion, the Team presents its recommendation for the level of DOE-VPP recognition to the contractor.

The Team prepares an *Onsite Review Report*, containing the recommendation for recognition, and submits it to the Assistant Secretary for Environment, Safety and Health (EH-1) for approval. The contractor is notified of the Assistant Secretary's decision, and, if approved, the DOE-VPP headquarters office (EH-51, Office of Occupational Safety and Health Policy) makes arrangements to present the DOE-VPP flag.

This report—the third DOE-VPP Onsite Review Team report—summarizes the Team's findings from the evaluation of activities at the Weldon Spring Site Remedial Action Project during the week of November 17 through 21, 1997. It is a milestone in the Department's efforts to encourage the empowerment of employees, and the efforts to change the safety culture in DOE from compliance-driven *re*activity to continuous-improvement–driven *pro*activity.

The purpose of this report is to provide the Assistant Secretary for Environment, Safety and Health with an assessment against the DOE-VPP criteria, together with other information necessary to make the final decision regarding the disposition of Weldon Spring Site Remedial Action Project's application efforts for DOE-VPP. Included are synopses of Team member findings, and the Team's final recommendation for the site's DOE-VPP recognition. ■

Contents

Abbreviations and Acronyms

ALARA—as low as reasonably achievable

CATS—Corrective Action Tracking System

CFR—Code of Federal Regulations

CIH—Certified Industrial Hygienist

CPR—cardiopulmonary resuscitation

CSS—Chemical Stabilization and Solidification

DNT—dinitrotoluene

DOE—[U.S.] Department of Energy

DOE-VPP—U.S. Department of Energy's Voluntary Protection Program

ECMS—Employee Concerns Management System

EMR—Experience Modification Rate

ES&H—environment, safety, and health

FTE—full time equivalent

GET—General Employee Training

GERT—General Employee Radiological Training

HASP—health and safety plan

HazMat—hazardous materials

HAZWOPER—**HAZ**ardous **W**aste **OP**erations and Emergency **R**esponse

JEG—Jacobs Engineering Group

LWD—lost workday

LWDI—lost-workday incidence

MK—M-K Ferguson Company

MSC—Management Safety Committee

MSDS—Material Safety Data Sheet

OCAW—Oil, Chemical and Atomic Workers International Union

OSH—occupational safety and health

OSHA—Occupational Safety and Health Administration [of the U.S. Department of Labor]

PMC—Project Management Contractor

PPE—personal protective equipment

QAA—Quality Achievement Award Program

RAM—Responsibility Assignment Matrix

RFP—request for proposal

RI—recordable injury

RII—recordable injury incidence

S&H—safety and health

SHARP—Safety, Health and Radiation Protection

SIC—standard industrial classification

SQE—Safety, Quality, and Enjoyment

TaSSA—Task Specific Safety Assessments

TIPS—Teaming to Improve Productivity and Safety

TMAX—Training Matrix System

TNT—trinitrotoluene

VPP—Voluntary Protection Program

WSSRAP—Weldon Spring Site Remedial Action Project

Executive Summary

THIS REPORT SUMMARIZES the Department of Energy Voluntary Protection Program (DOE-VPP) Review Team's findings from the five-day onsite evaluation of the Weldon Spring Site Remedial Action Project (WSSRAP), conducted November 17–21, 1997. The site was evaluated against the program requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements* to determine its success in implementing the five tenets of DOE-VPP.

WSSRAP

WSSRAP is a U.S. Department of Energy facility operated and managed under a contract by M-K Ferguson Company with Jacobs Engineering Group (JEG) serving as an integrated subcontractor. Site operations involve working towards permanent encapsulation of wastes in an engineered disposal facility. In 1985, DOE officially designated control and decontamination of the Weldon Spring Site as a "major project."

Onsite Review Team

The DOE-VPP Onsite Review Team (hereafter referred to as the "Team") was composed of eight individuals, representing a diverse cross-section of the Department and included a representative of the Occupational Safety and Health Administration (OSHA). Members included managers and safety and health professionals from DOE Headquarters, a bargaining-unit representative, OSHA representative, consultants who had been instrumental in the development of OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, and other subject matter experts. Team members were experienced with VPP principles, possessed safety and health backgrounds, had management experience, and had prior experience in applying the VPP tenets.

The Team concluded that WSSRAP met or surpassed all DOE-VPP requirements for MERIT recognition as shown in Appendix II: Key Elements of the WSSRAP Health and Safety Program of this report. The Team identified several opportunities for continued progress at this site including: 1) employee involvement; 2) training for radiological control support personnel; and, 3) the annual evaluation process. WSSRAP was officially notified of these opportunities and will address these issues as goals to achieve STAR level performance during the coming year.

Evaluation Summary

The Team determined that WSSRAP has met in various degrees, all the tenets of the DOE-VPP. In every case, WSSRAP programs and procedures exceed the level or degree necessary for compliance with existing standards, DOE Orders and guidelines. In addition, WSSRAP has systematically integrated their occupational safety and health program into management and work practices at all levels. WSSRAP's efforts toward implementing the five major DOE-VPP tenets are summarized as follows:

- **Management Leadership**—Project management at WSSRAP has set occupational safety and health as the highest priority for this site. WSSRAP's management leadership is clearly visible in their commitment to this priority and they fully satisfy the requirements of this DOE-VPP tenet.

The framework for carrying out this priority is established by a management policy statement and is clearly embodied in the site's goals and objectives. Managers are held accountable for their safety and health responsibilities through a formalized program of performance improvement and accountability. Managers at every level participate in weekly walkthroughs of the project operations and activities. Interviews of WSSRAP departmental and project managers revealed that they are empowered to stop any unsafe activity, and have done so, whether it is under their supervision or another manager's control.

Interviews with employees confirmed that management at WSSRAP exhibits visible leadership. WSSRAP management is truly committed to providing every employee with the resources, knowledge, and authority to make their workplace as safe as is possible. The Team noted that an opportunity for improvement existed in the safety and health program evaluation aspect of the overall program. Accordingly, the site has accepted this opportunity as Goal 1.

Goal 1 of 3 - **Safety and Health Program Evaluation**

Based on the Annual Health and Safety Goal Setting Process, WSSRAP should continue the implementation and evaluation of a system which ensures the:

- preparation of an annual evaluation report that assesses the effectiveness of each DOE-VPP element and sub-element;
- incorporation of recommendations derived from the program evaluation into the goal and objective setting process;
- communication of the revised goal and objectives throughout the worksite; and
- implementation of a goal setting process which is part of a continuous improvement program.

❷ **Employee Involvement**—During the course of this evaluation, the Team identified several excellent safety and health programs in which employees are fully engaged. These programs include: the Teaming to Improve Productivity and Safety (TIPS) program, the Time Out for Safety program where employees are encouraged routinely to take time out in situations requiring safety attention, the site-wide Lessons Learned System that is used to continuously improve safe work practices, and the morning Safe Work Meetings program.

WSSRAP has made great strides in cultivating employee involvement and building a safety culture among the workforce. Prior to April 1997, this site's Project Management Contractor (PMC) did not have hourly employees. Since that time the site has employed hourly workers who are members of organized bargaining groups and are covered under the National Maintenance Agreement.

Because of this recent change in the makeup of the workforce to include hourly employees, WSSRAP has begun the process of changing the structure of their safety and health committees. While WSSRAP had several mechanisms in place where employees were encouraged to be involved in the safety and health programs, only recently has this site initiated joint labor-management safety and health committees. If successfully continued, this effort will meet the intent of the current DOE-VPP guidelines for employee participation on safety and health committees, however, the initiative has been underway for approximately two months and is not sufficiently mature to meet DOE-VPP requirements for STAR level recognition. Considering these facts, it is the consensus of the Team that the present worksite culture of employee involvement is indicative of the level required for DOE-VPP MERIT status.

In reaching this decision, the Team noted that there is an opportunity for improvement in the employee involvement aspect of the program and the site has accepted this opportunity as Goal 2.

Goal 2 of 3 - **Employee Involvement**

a) The Team recognizes and encourages the participation of longer-term (resident) subcontractor hourly workers or hourly-worker representatives in labor-management safety and health committees. WSSRAP should continue the current labor-management safety and health committee activities in accordance with criteria provided in DOE-VPP Part I: Program Elements, Section II.E.2.

b) WSSRAP should involve, where possible, other subcontractor hourly workers in other safety committee activities such as the Electrical Safety Committee and the VPP Steering Committee.

c) In light of the importance of the employee involvement component of DOE-VPP, the Team has identified other areas for enhancing employee involvement at the site. Opportunities for enhanced employee involvement include participation in activities such as:

- Accident investigations
- Monthly hazard inspections (ALARA reviews)
- Observer program
- Site-wide drills
- Safety incentive program

❸ **Worksite Analysis**—WSSRAP has a thorough and comprehensive worksite analysis program in place that identifies and corrects hazards. Through interviews, document reviews, and site walkarounds, the Team verified that the system meets the requirements of the seven subelements of this tenet.

- ***Pre-use, pre-startup analysis***—Each time equipment, materials, processes, or facilities are purchased or significantly modified, they are analyzed for hazards prior to use.
- ***Comprehensive surveys***—Comprehensive surveys for safety and health hazards are performed by the ES&H and safety departments.

- ***Routine hazard assessments***—Several self-inspection systems are used to ensure that the entire site is assessed at least monthly.
- ***Routine hazard analyses***—Routine hazard analyses were conducted through preliminary hazard analyses and task specific safety assessments (TaSSA).
- ***Employee reports of hazards***—Employees are encouraged to submit safety and health concerns without fear of reprisal. They can report their concerns either directly to their supervisors, union leadership, or to the ES&H department. Alternatively, an employee can use one of several telephone hotlines, remaining anonymous.
- ***Accident investigations***—The accident investigation system uses a team approach to identify the root cause and prevent recurrence. The process clearly defines reporting and evaluation requirements and responsibilities for near-miss incidents, first aid, OSHA recordable injuries and illnesses, and property and vehicle-damage accidents.
- ***Trend analysis***—Injury and illness data, inspection findings, and employee reports of hazards are trended and used to help identify problems with management systems and improve programs.

❹ **Hazard Prevention and Control**—Hazard prevention and control efforts at WSSRAP are thorough and comprehensive. Hazards and potential hazards identified through WSSRAP's worksite analysis process are eliminated or mitigated through effective implementation of controls. Corrective actions are documented and tracked to completion. The programs and overall process show extensive integration with the other program elements and fully meet the DOE-VPP tenets. Management, safety and health staff, and workers at the WSSRAP site are singularly focused and aggressive in their efforts to prevent and eliminate hazards.

❺ **Safety and Health Training**—The Team identified through review of documents and during interviews that WSSRAP's safety and health training program ensures that employees at all levels are aware of their safety and health responsibilities and the procedures to work safely.

The training system in use for all employees at the site, including contractor and subcontractor employees, is maintained on a computerized database. This system also tracks dates for any forthcoming individual refresher training. The Team reviewed and verified the records and accuracy of material on this system and found it to be excellent.

The Team noted, however, an opportunity for improvement in the training program for ES&H technicians. Accordingly, the site has accepted this opportunity as Goal 3.

> Goal 3 of 3 - **Training**
>
> WSSRAP should upgrade the training and qualification program for the Environment, Safety and Health technicians responsible for radiological control support and radiological laboratory personnel. The content of the training should be determined by an evaluation of the individual job assignments, should include appropriate performance demonstrations and should be adequately documented.

Recommendation

BASED ON the information acquired during the onsite visit, the Review Team unanimously recommended the facility be accepted into the U.S. Department of Energy Voluntary Protection Program at the MERIT level. ■

I. Introduction

THE WELDON SPRING Site Remedial Action Project (WSSRAP) DOE-VPP onsite review was conducted from November 17 through 21, 1997. The site was evaluated against the program requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements* to determine its success in implementing the five tenets of DOE-VPP. The Team consisted of a diverse cross section of individuals from the Department of Energy (DOE) Office of Worker Health and Safety (EH-5), the VPP Manager from OSHA's Region VII office, a hazardous waste operations (HAZWOPER) consultant, a Hanford employee representative from the Oil, Chemical and Atomic Workers International Union (OCAW), and a special advisor from the Office of Environment, Safety and Health (EH-1). The Team was also joined near the end of the onsite review by two senior DOE officials. The names of the Team members and DOE officials with their respective organizations can be found in the tables at the end of this report.

WSSRAP is a DOE facility located in Missouri, and operated under a Project Management Contractor (PMC), by MK-Ferguson Company with Jacobs Engineering Group (JEG) serving as an integrated subcontractor. The mission of WSSRAP is to carry out remedial action of the Weldon Spring site. The site is located on property used by the U.S. Department of Army from 1941-1946 to process dinitrotoluene (DNT) and trinitrotoluene (TNT) and later used by the Atomic Energy Commission from 1957-1966 to process uranium and thoruim ore concentrates. From the late 1960s until 1985, the site remained virtually dormant in caretaker status. In May 1985, DOE officially designated the control and decontamination of the Weldon Spring Site as a Major Project (this project has since been designated as a Major System Acquisition). Later that year, due to the threat of groundwater contamination near a well field one quarter mile away from the Weldon Spring Quarry that served 60,000 users in rapidly growing St. Charles County, the Environmental Protection Agency proposed to include the quarry on the National Priorities List. In 1986, DOE selected M-K Ferguson as the PMC for remedial activities at WSSRAP.

WSSRAP is comprised of the Weldon Spring Chemical Plant, raffinate pits, and quarry. The chemical plant and raffinate pit areas total 217 acres and the nine acre quarry is located approximately four miles south of the chemical plant which was used for waste disposal during and after the operational activities of the 1940s, 1950s, and 1960s.

Deactivation and decommissioning of WSSRAP uranium production process buildings began in 1988, with the last of the site's 44 structures safety dismantled in December 1994. Risk reductions have been realized with the dismantlement of building superstructures, debris consolidation, asbestos removal, and chemical consolidation, with placement of building rubble and materials in interim storage.

Bulk waste removal from the quarry began in May 1993. After removing over 120,000 cubic yards of contaminated waste, the quarry bulk waste removal activity was declared substantially complete in November 1995. Upon reaching this milestone, the main threat at the quarry, the potential contamination of the St. Charles County well field, was significantly reduced.

DOE and the prime and subcontractors are working towards permanent encapsulation of wastes in an engineered disposal facility. Located in the northeast portion of the chemical plant, the disposal facility will encompass approximately 55 acres and average 65 feet in height. The facility is expected to store approximately 1.1 million cubic yards of waste.

WSSRAP began investigating participation in the DOE-VPP program prior to 1994. Prior to submitting their DOE-VPP application, WSSRAP benchmarked their program against several private sector companies and with DOE-VPP participants. These sites included Monsanto and the AlliedSignal-Kansas City Plant. This benchmarking effort allowed WSSRAP to better position itself to apply for and attain DOE-VPP status.

The primary purpose of the DOE-VPP onsite review was to assess WSSRAP's implementation of systems

and programs to meet DOE-VPP criteria. The Team also verified the information in WSSRAP's application by reviewing additional onsite documentation, and by conducting more than 114 formal and informal interviews of WSSRAP employees, both managerial and nonmanagerial.

II. Quantifiable Program Results

A. WSSRAP Rates

WSSRAP maintains a database for the purposes of tracking and trending site-wide injury and illness rates and data and meeting DOE-VPP requirements for excellence. This database is maintained by the safety department at WSSRAP. However, individual contractors maintain their own OSHA's injury and illness logs--OSHA 200 logs. They are required by contract to report any injury and illness incidences to the safety department. WSSRAP's safety department conducts periodic audits of subcontractor recordkeeping to monitor compliance with requirements. The Team conducted a sample review of OSHA 200 logs and first reports of injuries and illnesses, and verified that recordkeeping was properly classified and documented in accordance with OSHA's recordkeeping guidelines.

The rates shown in the three tables below, reflect the data for the three previous calendar years. Table 1 provides the injury rates for the PMC, Table 2 provides for the entire project, and Table 3 provides injury information relevant to subcontractor work activities only.

Table 1 - Injury Rates - MK-Ferguson and Jacobs Engineering Group

Calendar Year	LWD[1] Injury Cases	RII[1] Cases	Employee-Hours Worked	LWDI Rate	RII Rate
1994	1	2	627,052	0.32	0.63
1995	0	2	608,379	0.00	0.66
1996	1	6	616,075	0.32	1.95
3-Year Average Rates				0.22	0.65

Since the above injury rates pertain to employees who perform mostly administrative work and field surveys, the Team also decided to compare the rates for the entire project shown below in Table 2, with the industry average.

[1]To calculate the lost-workday incidence (LWDI) rate and recordable injury incidence (RII) rates, the Team used two standard formulas:

$$\text{RII rate} = \frac{\text{No. of Recordable incidents [Col.(1) + Col.(2) + Col.(6)] x 200,000}}{\text{No. of employee hours worked}}$$

$$\text{and LWDI rate} = \frac{\text{No. of LWD cases [Col.(2)] x 200,000}}{\text{No. of employee hours worked}}$$

Table 2 - Injury Rates for Project (Includes MK-Ferguson, JEG, and Subcontractor Rates)

Calendar Year	LWD Injury Cases	RII Cases	Employee-Hours Worked	LWDI Rate	RII Rate
1994	18	27	1,184,628	3.04	4.56
1995	8	18	1,009,159	1.59	3.57
1996	7	15	979,795	1.43	3.06
3-Year Average Rates				2.02	3.78

The predominant work activity at the site by the PMC is heavy-construction related. The standard industrial classification (SIC) for heavy-construction is classified to be 1600. Under SIC 1600, the most current (1995) Lost Workday Incidence (LWDI) rate published by the Bureau of Labor Statistics is 4.7 and the Recordable Injury Incidence (RII) rate is 9.6. The entire project rates, when compared with the industry published averages, are significantly below the industry average rates.

B. Subcontractor Rates

The table below gives the injury rates for all subcontractors combined. The predominant activity by subcontractors varies depending on the stage of the project. During the onsite review, mostly heavy construction-related operation was being carried out. The rates for both the LWDI and RII for subcontractors are just at or below the averages for SIC 1600. However, if the rates are compared with the hazardous waste site SIC, which is 495, the most current industry average LWDI rate is 6.9 and RII is 13.5. The combined subcontractor rates are then significantly below the industry average. ■

Table 3 - Injury Rates of WSSRAP's Subcontractors

Calendar Year	LWD Injury Cases	RII Cases	Employee-Hours Worked	LWDI Rate	RII Rate
1994	17	25	557,576	6.10	8.97
1995	8	16	400,780	3.99	7.98
1996	6	9	363,720	3.30	4.98
3-Year Average Rates				4.69	7.56

III. Management Leadership

THE DOE-VPP REQUIREMENTS for excellence in management leadership were met by the Weldon Spring Site Remedial Action Project's (WSSRAP) demonstration of top-level management commitment to occupational safety and health and the DOE-VPP. The stated mission of WSSRAP is to eliminate potential hazards to the environment and public, and to restore the area for other uses. In undertaking this mission, WSSRAP management has also committed themselves to the prevention of personal injuries, occupational illnesses, damage to equipment and property, and protecting the environment and general public. Project management at WSSRAP has set occupational safety and health as the highest priority for this site. WSSRAP management has fully integrated the authority and responsibility for employee safety and health into their management system to ensure that all project activities are carried out in a way that reflects their full commitment to this environment, safety and health (ES&H) priority.

A. Commitment

Project management commitment to safety and health is clearly established by a management policy statement. Project management at WSSRAP developed a written health and safety policy in the initial planning phases of this project. Both the WSSRAP Health and Safety Policy and the DOE Occupational Safety and Health Policy are communicated to all site employees through the initial site orientation training--General Employee Training (GET)--and are posted throughout the site. Included with the GET, which every new employee receives, is a copy of the WSSRAP Health and Safety Guidebook, which provides a written copy of the site's health and safety policy. Notably, this document is also presented to all visitors before they enter the worksite during formal visitor orientation and/or tour orientation classes. Employee interviews and review of formal training records confirmed that the WSSRAP Health and Safety Policy are well understood by all employees. Almost without exception, the managers, supervisors, business agents and hourly rate employees could explain the fundamental concepts set forth in the policy statement. Additionally, it was clear from the Team's discussions with the union business agents and most employees that they understood WSSRAP's policy of giving safety the highest priority. A common comment heard during these interviews was, "this is the safest place I have ever worked." During many interviews, employees expressed amazement at the fact that they were not only allowed to stop work when confronted by a hazard or potential hazard, but that they were expected to stop work when such conditions arose.

To ensure the project's overall mission, vision, and objectives are met, WSSRAP's PMC has established a comprehensive and effective trend analysis and performance goals program. The intent of this program is to provide a culture of continuous improvement based on distinct performance objectives and the identification of both positive and deficient practices throughout all levels of the organization. This program is a key component of the overall PMC program of performance improvement and accountability, as discussed in section E., "Line Accountability."

B. Written Program

All key elements of a written safety and health program, including management leadership, employee involvement, worksite analysis, hazard prevention and control, and safety and health training, were verified to be included and integrated into the WSSRAP written safety and health documents. The key document at a hazardous waste site is the health and safety plan (HASP) and Team members verified that this document is widely distributed and readily available to all site personnel. As is required by 29 Code of Federal Regulations (CFR) 1910.120 and/or 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response, the HASP is updated whenever there is an operational, process, or control methodology change, or in the absence of such significant change, at least annually.

The Team verified that the detail and complexity of the safety and health program were appropriate to the size of the worksite, the complexity of the hazards or

potential hazards, and the nature of the operations. The WSSRAP ES&H program plans, procedures and instructions which cover a number of functional areas are clear, concise and fully instructive on their respective areas coverage. ES&H program guidance was thorough and covered all expected operational areas including areas such as hoisting and rigging, emergency response, process safety management, hazard communication, and many others.

C. Responsibility

The WSSRAP Project Director has overall or primary responsibility for implementing safety and health programs. The stated policy of WSSRAP, however, assigns to each individual the ultimate responsibility for their own safety. In doing this, WSSRAP management has empowered the employees and provided the safety and health training necessary to recognize hazards, provided the guidance and documentation needed to evaluate compliance issues, and given them the authority to stop work.

Management responsibility for safety and health passes from the WSSRAP Project Director to three deputy project directors. The deputy project directors communicate this responsibility and hold the project managers and departmental managers accountable for their performance in discharging these responsibilities. Project managers assign safety and health responsibilities to the task specific field supervisors who manage the day-to-day field operations. WSSRAP utilizes a matrix management approach where ES&H resources are both aligned under a functional area manager and concurrently assigned to various operational functions or projects. The total integration of ES&H resources in this manner provides the technical capability to formulate health and safety programs and establish implementation procedures while providing task specific project managers with staff level policy guidance and day-to-day support for operational priorities. Utilizing a matrixed management approach to integrating ES&H throughout the management structure reinforces the concept that safety and health is the responsibility of the line managers and ensures that the ES&H staff are fully utilized as a project-wide resource.

Interviews with members of the WSSRAP management staff clearly indicated that they were aware of their safety and health responsibilities and committed to a proactive safety and health concept which is integrated throughout the site. Management staff interviews also revealed that managers at all levels are extensively involved in the safety and health performance goals setting process and utilize the trending analysis and performance indicator programs on a regular basis to identify positive and deficient practices and improve project performance. Interviews confirmed that the primary or fundamental focus of WSSRAP management is to provide every employee with the resources, knowledge, and authority to recognize and modify any work practices that they feel represent an unacceptable risk.

D. Authority and Resources

Evidence reviewed by the DOE-VPP Team demonstrated WSSRAP management commitment to provide sufficient resources to carry out safety and health program responsibilities. Interviews with managers and supervisors indicated that they understood the project goals and the associated ES&H risks, and effectively deploy resources adequate to address both priorities. WSSRAP employs sixty-one (61) personnel who are responsible for administering the site's environment, safety, and health programs. This number includes fifty-five (55) personnel in the ES&H Department and six (6) in the Safety Department. In addition, WSSRAP utilizes the services of sixteen (16) subcontractor employees to supply additional health and safety support.

Review of budget figures and documentation confirmed that the combined budgets for the ES&H Department and the Safety Department are approximately ten percent (10%) of the entire WSSRAP budget. WSSRAP also allots approximately one-half of one percent (0.5%) of the total WSSRAP budget to safety and health training. The emergency response program funding is also considered annually and incorporated as a line item within the WSSRAP budget as opposed to overhead account funding which is typical for many DOE sites. This practice coupled with the proportion of the total budget committed to safety and health activities clearly demonstrates management's commitment to their stated priority of placing safety and health first.

During the course of interviews with management and hourly rate employees, it was clear that everyone has been given the authority to stop work, or not begin, any activity where they feel uncomfortable about their health and safety. Employees with previous construction experience offered, that prior to working at WSSRAP, they had never worked on a construction project where they had absolute power to stop work until safety and health concerns were adequately addressed. The "Time Out for Safety" program is an extremely successful program indicative of employee authorization to stop work in danger-warranted situations. All interviewed employees indicated that they felt empowered to stop work, with many individuals relaying specific examples of when they actually did stop work. Typical of the comments made by workers when asked if there was any negative ramifications of stopping work, one worker replied, "I got a pat on the back and a sticker for my hard hat." The DOE-VPP Team found adequate authority and resources had been assigned within the WSSRAP safety and health program.

E. Line Accountability

All project managers at the WSSRAP are held accountable for employee safety and health within their projects. WSSRAP has a comprehensive performance goals program which includes an effective trend analysis segment. The intent of this program is to ensure that the project's overall mission, vision, and objectives are met by providing a systematic means for continuous improvement based on distinct performance objectives that identify and measure both positive and deficient practices at all levels within the organization.

The use of performance objectives is employed to assess performance in areas such as ES&H, business performance, and customer satisfaction on the basis of predefined objectives and criteria. Performance goals are established at the beginning of each year by the respective department or project area responsible. The annual goals are established based upon performance during the previous year, the expected work activities for the current year, and in response to adverse trends identified during field surveillance and management oversight activities. The annual performance goals are communicated from the Project Director to the project or departmental managers and from these managers to all WSSRAP employees. Most of the annual goals are also submitted to the Management Safety Committee (MSC) for concurrence prior to approval by the Project Director.

The MSC meets monthly and reviews the safety performance of all project managers utilizing trend analyses of predetermined performance indicators. Performance trends are reviewed, and any necessary corrective action is assigned to the responsible Project Manager. The assigned action items are tracked during the next month and reviewed at the following MSC meeting for completion.

Each project manager is held responsible for correcting negative trends and remedying deficiencies. It is the responsibility of each project manger to monitor project incidence and severity rates, perform accident/incident critiques, conduct investigations of safety violations, and document lessons learned for the Lessons Learned Program.

WSSRAP meets the requirement for holding managers and supervisors at all levels accountable for meeting their assigned responsibilities by virtue of a formal system for performance review and career development planning. Managers and supervisors are held accountable for ES&H performance for themselves and those under their direction through this system. The performance review and career development planning system recognizes the need for a formal system of accountability and incorporates a constructive feedback avenue via the career development planning segment.

The performance evaluation process is not limited to a single, annual meeting for evaluating goals set during the previous year. The documented process requires ongoing evaluation throughout the year and requires managers and supervisors to maintain a "critical incident file," that is used to document positive and negative incidents and observations. Evaluations consist of a listing of the employees' primary responsibilities which are evaluated in terms of their professional and technical skills, the application of those skills, their effectiveness of the working relationships, and their managerial skills. The performance evaluation also includes a formal process for developing a performance improvement plan when performance improvement is needed. The performance evaluation system does not include a

numerical weighting method rather the performance categories are evaluated by using a short narrative and an overall rating is assigned in one of five levels ranging from "unsatisfactory" to "outstanding."

Performance in the area of ES&H is a standardized category within the performance evaluation system and actual reviews of performance evaluations indicated that the ES&H performance component is weighted equally with all other objectives. It was not possible to factually determine or measure if the ES&H performance element was equally emphasized across the management, supervisory and professional staff member evaluations. Every evaluation reviewed, however, did have a segment that considered and evaluated safety performance. The individual evaluation system, coupled with the programmatic performance system, trending system and other tracking and indicator programs combine to provide WSSRAP with an effective program for holding managers and supervisors accountable for meeting their assigned responsibilities.

F. Visible Management Involvement

Top-level management at WSSRAP is active and visibly committed to excellence in safety and health programs and practices. The Team review of documents and programs confirmed that management involvement was at a level consistent with DOE-VPP requirements. Interviews of managers, supervisors and employees provided anecdotal information which confirmed the findings of the Team's review.

Managers at every level participate in weekly walkthroughs of the project operations and activities. Project managers are not only concerned with their specific tasks or activities under their jurisdiction during these walkthroughs, but are also empowered to stop any unsafe activity, and have done so, whether it is under their supervision or another manager's control.

Interviews with top-level management at WSSRAP revealed that all managers have an "open door" policy which is visibly demonstrated by the WSSRAP Project Director. Our interview with the Project Director indicated that he meets with ten to fifteen employees per month by virtue of this open door policy. In addition, WSSRAP operates a computerized feedback system, the Safety, Quality, and Enjoyment (SQE) program, which is linked directly to the Project Director's office. Employees are invited to submit questions directly to the Project Director and receive a direct response from him. Anonymity is assured when this system is utilized and all employees have access to a number of unassigned computer terminals for this program.

G. Site Orientation

All new employees including contract workers who are at WSSRAP for more than eight (8) hours are required to receive General Employee Training (GET). This training covers a general description of the site as well as hazards at the site. Employees are also given a copy of the WSSRAP Health and Safety Handbook that has specific information pertaining to the hazards at the site and information on what to do during emergencies. In addition to this training, those employees who work in controlled areas receive General Employee Radiological Training (GERT) and Safety, Health and Radiation Protection (SHARP) training. Visitors and vendors who are not going to be at the site for more that eight (8) hours per week do not receive the GET, but are escorted 100% of the time by an individual who has received GET.

H. Subcontractor Programs

Past safety and health performance for prospective bidders on subcontracted WSSRAP construction projects is reviewed prior to contract award. This is done in one of two ways. For complex or highly hazardous work, prospective bidders are required to be pre-qualified prior to bid submission For construction work of a more routine nature, bidders are not pre-qualified, but are required to submit safety program documentation to be used in an evaluation of bidder responsibility prior to contract award.

Both the pre-qualification process and the determination of bidder responsibility require the bidder to have had a workers compensation experience modification rate (EMR) of less than 1.2 in each of the preceding two years. Additionally, both processes include the evaluation of the bidder's OSHA 200 logs for the same period. Unresolved

concerns with the submitted OSHA 200 logs constitute grounds for the rejection of a contractor's proposal. The pre-qualification process further requires specific recent corporate experience on projects of a similar nature as well as personal experience on the part of key project personnel. Documentation provided to the Team indicate that these practices have resulted in the rejection of apparent low bidders' proposals on safety grounds on several occasions in the recent past.

In addition to complying with the site-wide HASP, contractors are required to submit safe work plans after contract award but prior to commencement of onsite work. These plans are reviewed thoroughly by PMC project and safety staff and are returned for revision and re-submission if found unacceptable. Those projects less complex in nature are not required to submit a safe work plan, but are required to submit and have approved a task specific safety assessment (TaSSA) for each distinct project task. These TaSSA's are reviewed with the appropriate work crews during daily safety meetings conducted each morning prior to the start of work on the construction jobsite.

In addition to the above noted plan, submissions and hazard evaluations are required on all construction projects. The scope of prospective projects is reviewed prior to solicitation to determine the need for dedicated subcontractor project safety staff. If this review determines such a need, this requirement is spelled out in the contract specifications, including the minimum qualifications of such personnel, as well as the requirement for their onsite presence during periods of active construction.

Oversight of project safety and health requirements is performed by both PMC project management and safety staffs through frequent jobsite inspections and interaction with the subcontractor's superintendent and onsite safety personnel. In most cases, notification to the subcontractor of unsafe acts or conditions results in immediate corrective action. Corrective actions of a more complex nature or requiring more time to complete are documented and well tracked. The subcontractor's overall safety and health performance is documented in a project post-completion report, along with the required safety submittals noted above, which is used in the determination of bidder responsibility on subsequent project solicitations.

Walkthroughs of several of the ongoing construction projects, including the Chemical Stabilization and Solidification (CSS) Facility and the vicinity property projects, revealed that safety on these projects was well managed. Project personnel, from the PMC project and safety staffs to the subcontractor craft workers, were keenly aware of the importance of and the practices in place to achieve high levels of project safety performance. Interviews revealed that craft workers knew of their ability to stop work when they had concerns about hazardous conditions (i.e., the Time Out for Safety Program) and they indicated that management has strongly endorsed this practice and has reacted favorably to its use by workers in the past.

I. Safety and Health Program Evaluation

Several safety and health program evaluations are conducted at WSSRAP. These include quality assurance surveillances and assessments, functional area assessments, corporate audits, as well as DOE assessments and programmatic DOE-VPP evaluations, to determine the overall effectiveness of the safety and health programs. A program evaluation addressing DOE-VPP requirements was conducted by the VPP Steering Committee from January-March, 1997. The program evaluation report dated May 15, 1997, identified opportunities for improvements in five major areas, however, it did not elaborate on each sub-element as required under DOE-VPP. To incorporate the recommendations derived from the DOE-VPP program evaluations into goal setting process, WSSRAP has recently developed an Annual Health and Safety Goal Setting Process (MGMTDI-1/0). From review of the program evaluation and MGMTDI-1/0 document, and based on the status of the implementation of the program evaluation component of DOE-VPP, the Onsite Review Team suggested the following safety and health programmatic improvements to achieve STAR consistency:

Goal 1 of 3 - Safety and Health Program Evaluation:

Based on the Annual Health and Safety Goal Setting Process, MGMTDI-1/0 (approved November 11, 1997) WSSRAP should continue the implementation and evaluation of a system which ensures the:

- preparation of an annual evaluation report that assesses the effectiveness of each DOE-VPP element and sub-element;
- incorporation of recommendations derived from the program evaluation into the goal and objective setting process;
- communication of the revised goal and objectives throughout the worksite; and
- implementation of the goal setting process as part of a continuous improvement program. ■

IV. Employee Involvement

THIS site started active pursuit of DOE-VPP recognition approximately 18 months ago. Since that time WSSRAP has made great strides in cultivating employee involvement and building a safety culture among the workforce. However, prior to April 1997, this site's PMC did not have hourly employees represented by organized bargaining agents. Since that time the site has employed hourly workers who are members of organized bargaining groups and are covered under the National Maintenance Agreement. Given the large percentage of construction activities which make up typical operations at this worksite, the site must follow the DOE-VPP requirements for employee involvement at construction worksites. While WSSRAP has several mechanisms in place where employees are encouraged to be involved in safety and health programs, only recently has this site initiated joint labor-management safety and health committees. This effort has been underway for the past two months and does not appear to be sufficiently mature to meet DOE-VPP STAR requirements for employee involvement programs engaged in construction activities.

During the course of this evaluation, the Team identified several excellent safety and health programs implemented on site. These programs include: the "Teaming to Improve Productivity and Safety (TIPS) program," the "Time Out for Safety Program" where employees are encouraged routinely to take time out in situations requiring safety attention, the "Site-Wide Lessons Learned System" that is used to continuously improve safe work practices, the "Morning Safe Work Meetings Program," the "Blue Card" system, the "Project Director's Round Table Sessions," "Safety, Quality and Enjoyment Ballots," "Quality Achievement Awards," the "Quality Spotter Program" where an anonymous peer spots and reports quality events and some 16 different "Safety Committees."

Teaming to Improve Productivity and Safety (TIPS)

The Teaming to Improve Productivity and Safety (TIPS) program is an excellent example of a program aimed at employee involvement. TIPS' stated mission is to "institute, promote and maintain a program to continue productivity enhancements and site effectiveness" with an inclusive scope of "all contract and subcontract employees of the Weldon Spring Site." The TIPS program is an employee driven improvement system through which employees manage and implement their improvements. It has the stated goals of supporting the site's Total Quality Management strategy by:

- encouraging and recognizing employee participation;
- achieving a site-wide focus on continuous improvement;
- encouraging employee involvement and the team approach to improve work processes; and
- fostering two-way communication between employee and management.

The TIPS program is essentially an employee suggestion system promoted throughout the site and has universal participation. The program emphasizes that TIPS do not have to involve a radical change and do not have to involve cost savings, although many suggestions do result in some cost avoidance.

Essentially all of the employees interviewed had reported submitting TIPS, and perhaps more importantly, were aware of the outcome of their particular TIP or suggestion, i.e., if it had been implemented or not. Several employees reported that submitting a certain minimum number of TIPS was part of their professional objectives. Professionals from the safety and health department had professional objectives requiring them to submit at least three TIPs per year.

The TIPS goal for 1997 was to receive one thousand (1000) suggestions, and as of November 5, 1997 some six hundred and sixty-nine (669) had been received. The TIPS submitted appeared to be serious suggestions for improvement because of the three hundred and fifty three (353) TIPS evaluated and processed during 1997, two hundred and seventy

eight (278) have been implemented, with only seventy five (75) not considered for implementation. That is an implementation rate of almost seventy-nine percent (79%). There are currently three hundred and sixteen (316) TIPS that have been evaluated and are being processed for implementation. All TIPS are tracked on the WSSRAP TIPS log which is accessible by all employees through the site computer network. TIPS can be submitted through the site computer network in an automated fashion. There is also a yellow paper submittal form through which TIPS may be submitted in hard copy and these forms are available in all lunch rooms.

The TIPS implementation process has two tiers. The first tier empowers the employee to simply implement the TIPS or to submit it to the manager and to work with the manager to implement the TIPS. The TIPS is then submitted to the system and recorded as an implemented TIPS. When the suggestor cannot directly implement the TIPS or required approvals are not obtainable, the suggestor may forward the TIPS directly to the TIPS System administrator. The system administrator reviews the TIPS and forwards it to the TIPS Steering Committee who may approve or disapprove the TIPS. However, the person that submitted the TIPS has a right to request a review of any decision to not implement their TIPS if they are not satisfied with the explanation. The employee empowerment provided by TIPS has resulted in one hundred and ninety-eight (198) site employees participating in the TIPS program as of November 5, 1997.

Quality Achievement Award Program (QAA)

Associated with the TIPS system is the WSSRAP Quality Achievement Award (QAA) Program, another example of WSSRAP's commitment to employee involvement. The purpose of the Quality Achievement Award is to recognize the work performance of Weldon Spring Site Remedial Action Project Personnel. This award may be given out monthly and is most often given to teams associated with implementing some substantial improvement in their processes. It may be associated with or independent of a TIPS. The awardees are announced at the monthly TIPS ceremony. Awardees receive a letter of congratulations and are invited to a quarterly reception to recognize their contribution.

Time Out for Safety

The "Time Out for Safety" program empowers individual workers who perceive that there is a potential safety or health hazard associated with a task they are performing to stop work and take "time out for safety." This is an extremely successful program in that all of the employees interviewed felt empowered to stop work when they had a safety concern. Further, most employees could cite specific examples of when they had stopped work because of a perceived concern. Workers were queried regarding potential negative consequences associated with taking a time out for safety and their message was consistent and clear--management respects our right to take time out for safety and supports us when we do. One worker cited an example of stopping work and then realizing it was probably not necessary to have done so, yet his decision was supported by management. In this critical area it is evident that employees at every level feel empowered and involved.

Specific examples of instances where workers have taken a time out for safety include an incident during which a hazardous waste containing drum was being opened. The worker observed that the contents were different from the listed contents - there appeared to be a liquid in the drum that was reportedly filled with solids. The worker called a time out for safety and the contents of the drum were verified by site environmental personnel. In another incident a worker requested a time out for safety because the clutch on a fork lift had stopped functioning. The fork lift was still operable but was difficult to get in and out of gear which posed a hazard in terms of stopping the vehicle. The worker called a time out for safety which resulted in the vehicle being removed from service until it could be properly repaired.

Morning Safety Meetings

Members of the Onsite Review Team were able to attend several of the 15-minute morning safety meetings held before work was to begin. These meetings were well attended and workers seemed attentive and involved. Hazards as identified in the task specific safety assessment (TaSSA) or Safe Work Plan were reviewed and discussed. Task

procedures were reviewed. Worker input was solicited and discussion was open and constructive. One worker complained of having cold feet from wearing rubber boots all day. The worker was informed that the function of the rubber mats around the piece of equipment being operated were there to elevate the worker off the cement floor. The following day boot insulators were distributed to all workers at the meeting. This was an excellent example of management empowering workers--through explanation of the function of the mats--and management responding to expressed needs--boot liners were distributed in a timely and responsive fashion.

Site-wide Lessons Learned Program

WSSRAP maintains a computer data base of lessons learned from specific events that have occurred onsite. These lessons learned may have a safety element to them or may be independent of safety and health concerns. Individual employees involved in incidents are responsible for writing up the lessons learned and submitting it to the Lessons Learned systems administrator. The system is available online and lessons learned from similar procedures can be searched and reviewed so others can benefit from the experiences of the author. There were eighty (80) lessons learned on the system at the time of the onsite review.

General Observations from Employee Interviews

Workers at the WSSRAP site demonstrated that they are part of a safety culture. Essentially all of the workers reported that they perceived WSSRAP to be "the safest place they've ever worked". Several workers reported in interviews that they have taken this emphasis on safety home with them and that it has changed their behavior there. One worker who works a second, part-time job as a roofer, stated that everyone on the roofing crew refers to him as "Mr. Safety", because of his insistence that they work safely. Other workers reported that when they identify a hazard, "I see it, I take care of it right then, if I can't, I go to my manager or foreman." This is indicative of the safety culture at WSSRAP.

In addition, workers believe that their input is respected by management or that "everybody has input." It is the workers perception that site management and DOE oversight are committed to safety as a primary objective. One worker commented "Joe Enright [DOE Oversight] don't play when it comes to safety." Workers also recognized the importance of the morning safety meetings as one worker commented, "without the meetings there probably would have been a whole lot of accidents."

The workers did convey a perception that it is more difficult for fix priced contractors to spend as much time and resources, and hence demonstrate the type of commitment to health and safety that the longer term contractors do. One worker summarized this by saying "hard dollar contractors are not spending as much time on safety--they don't have the attitude." Inherent in the workers statement is a recognition of the safety culture that is ubiquitous at WSSRAP, although perhaps not as evident in fixed priced contractors. WSSRAP, in general, has the "VPP attitude."

Opportunities for Improvement

The Team found instances where employees were not fully engaged in program decisions, and other aspects of the safety and health program. For example, employees were not involved in all safety walkdowns of the worksites. Additionally, some workers conveyed a sense of hazard abatement being the responsibility of safety and health professionals, that their role was to merely report the problem and others would address it. There was a sentiment expressed by management that employee involvement was limited by the dynamics of having union and non-union employees on site, and that there are multiple contractors onsite.

It is the consensus of the Team that while employee involvement is actively encouraged by management, the programs mentioned above have resulted in a worksite culture of employee involvement indicative of the level required for DOE-VPP MERIT status. The Team based this conclusion on the numerous contractor and subcontractor employee interviews conducted during the course of the onsite review.

The Team identified several opportunities for enhancing employee involvement at the site. The following opportunities for improvement in goal format is suggested by the Team to achieve STAR status:

Goal 2 of 3 Employee Involvement:

a) The Team recognizes and encourages the participation of longer-term (resident) subcontractor hourly workers or hourly worker representatives in labor-management safety and health committee activities. WSSRAP should continue the current labor-management safety and health committee activities in accordance with criteria provided in the DOE-VPP document, Part I: Program Elements, Section II.E.2.

b) WSSRAP should involve, where possible, other subcontractor hourly workers in other safety committee activities such as the Electrical Safety Committee and the VPP Steering Committee.

c) In light of the importance of the employee involvement component of DOE-VPP, the Team has identified other areas for enhancing employee involvement at the site. Opportunities for enhanced employee involvement include participation in activities such as:

- Accident and incident investigations;
- Monthly hazard inspections (ALARA reviews);
- Observer Program;
- Site-wide drills;
- Safety incentive program. ■

V. Worksite Analysis

WSSRAP has a thorough and comprehensive worksite-analysis program in place that identifies and corrects hazards. Through interviews, document reviews, and site walkarounds, the Team verified that the system meets the requirements of the seven subelements of this tenet, as follows.

A. Pre-Use, Pre-Startup Analysis

Whenever new pieces of equipment and new chemicals are brought onsite, they are analyzed for hazards and subject to inspection by the Safety Department. If any deficiencies are noted, the pieces of equipment are not permitted onsite. Incoming vehicles and equipment are also subject to radiological survey to prevent any additional radiological contamination. The purchase of any new chemical requires approval of the ES&H hazard communication coordinator and the waste minimization coordinator. Likewise, new processes or construction new structures undergo a formal safety review.

A formal procedure has been established for site review and approval of WSSRAP design documents. The review is conducted by a design review board comprised of various technical experts including professionals from the safety and ES&H departments. During the review process--from inception to completion of a work package--close attention is paid to safety and health aspects of the projects. The final approval process considers input from technical experts, managers, and employees, and requires a safety and health professional to review and sign. The Team verified that all input from the safety department was integrated in the formal approval package of the newly built CSS plant. Likewise, another random sample involving the building of a new Solvated Electron Treatment Process for treating hazardous wastes with anhydrous ammonia verified that hazard analyses were conducted on the process prior to its start.

B. Comprehensive Surveys

As part of the remediation of WSSRAP, the PMC has performed extensive characterization to identify, quantify, and locate radiological and chemical contaminants onsite. Multiple safety and engineering assessments were also performed to document site safety hazards. Additionally, the PMC enlisted the services of an independent construction safety and loss control consultant to assess the site's ES&H and construction safety programs to verify the site's compliance with OSHA standards and DOE Orders.

In addition to the initial assessments conducted, WSSRAP maintains a continuing characterization and facility safety assessment program to develop strategies for the determination of safety and health hazards for each task performed onsite. Characterizations and facility safety assessments are performed by environmental scientists, industrial hygienists, health physicists, and safety professionals.

The system of worksite hazard analysis was extremely sophisticated with multiple redundant entry points for safety and health review, as can be seen by Diagram 1 on the next page.

Work planning and hazard analysis has two distinct paths. The first is the Safe Work Planning Process, and the second is the task specific safety assessment (TaSSA). The site's commitment to hazard control is evident in their emphasis on the "as low as reasonably achievable" (ALARA) approach to both radiological hazards and hazardous chemical exposure.

Comprehensive surveys of potential hazards associated with a task to be performed are identified and in most cases, abated in the planning process. Potential hazards that cannot be eliminated in the planning process are addressed in terms of hazard control during the ES&H review stage.

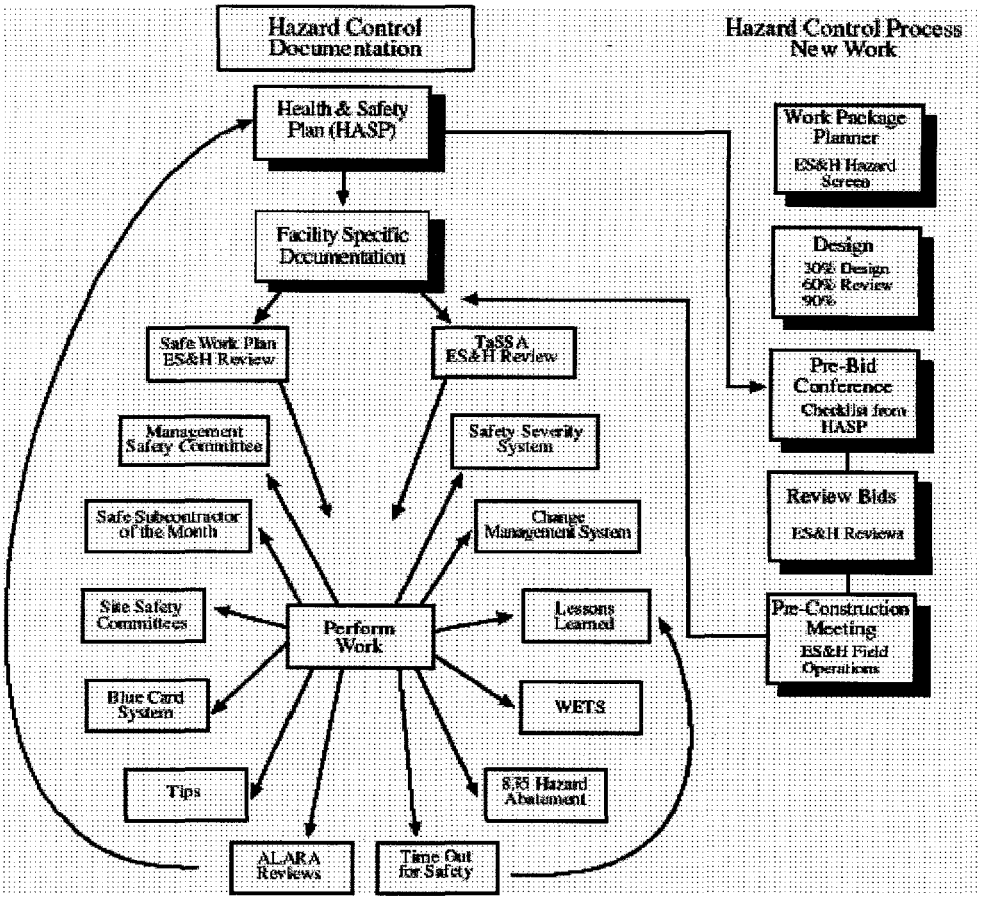


DIAGRAM 1. Hazard Control Process and Documentation

The planning process for distinct phases of the operation are initiated through development of a "Work Package Planner." The Work Package Planner is forwarded to safety and health personnel for initial screening. The initial hazard screen results in a score of one, two or three. If the work to be performed is rated as a one, there is a specific requirement that the site safety documents be updated to address any changes. If the hazard rating is a two or three, the document process moves forward.

The work package planner then enters the design phase, in which engineering develops their approach to the work. There are 30%, 60% and 90% complete design safety and health reviews. Following completion of the work design phase, a request for a proposal (RFP) is developed. The RFP contains a safety and health checklist which is derived from review of the site HASP and its requirements for the work to be preformed. The RFP HASP checklist is incorporated into the contract with the winning bidder for the work to be performed. Safety and health staff attend and participate in the pre-bid conference.

After the bids are received, safety and health personnel are included in the bid review process. The review process equally weights technical competency, of which safety and health performance is a component, and price. The safety and health staff interviewed regarding this process were confident their review was considered in the process of awarding contracts.

Once the contract is awarded, the field safety and health staff assumes responsibility for the contractor. This process is initiated with a pre-construction meeting with the contractor. The work to be performed then follows the site procedures for work planning and execution of tasks.

C. Routine Hazard Assessments (Self-Inspections)

Formal self-inspections and audits are conducted at WSSRAP on a routine basis. Most of these audits occur daily. Safety supervisors from the safety department are at the site on a daily basis to monitor the work activities. Field personnel, including construction engineers, safety supervisors from the safety department and personnel from the ES&H department, document any findings on a daily basis in the log books or through the "blue card" program. These blue cards are checklists that provide guidance to representatives conducting the walkthroughs. Various forms of blue cards are used based on the nature of the activity. For example, for an excavation operation, the blue card specifically designed for excavation is used. The information gathered from the blue card program is summarized by various categories and the summary of these findings is distributed to project managers on a weekly basis. The Team reviewed a sample of these summaries and found them to be thorough. Similarly, other forms of checklists designed specific to hazards are also used during the walkthroughs. Another example is the use of a form "Storage Area Surveillance Checklist" specifically designed to hazards associated with buildings that store hazardous substances and wastes.

There is a formal "Corrective Action Tracking System" (CATS) that is used to track any deficiencies that are long term in nature. The safety department is responsible for maintaining this database. The safety department generates the CATS reports weekly for project manager meetings and discussions at which time the status of corrective actions are discussed and tracked.

Items or deficiencies noted are also tracked through CATS. Also, ALARA reviews are conducted by ES&H department personnel on a weekly basis. These reviews typically include an evaluation of the condition and adequacy of area sign postings and assessment of worker radiological and hazardous chemical protection practices.

Contractors are also required to inspect their respective work areas on a daily basis and take any corrective actions, if necessary. Subcontractor weekly safety inspection reports are submitted to project managers on a weekly basis.

D. Routine Hazard Analyses

WSSRAP has multiple, routine hazard analyses of work being performed. These include a myriad of walkthrough inspections, exposure assessment data review and incident review and categorization.

Monthly Monitoring Report

A monthly monitoring report is distributed which documents all general area, perimeter, and breathing-zone air sampling results for radioactivity and industrial hygiene analyses and onsite meteorological monitoring data. This report is distributed to all ES&H staff, as well as site access control. Results of the monthly monitoring report are also posted in the administration building to allow review by all employees. The results are presented by work package. All exposure monitoring performed on a specific day is compiled onto a daily log and the log is signed off by a safety and health professional after review. This daily signoff insures that any overexposure situations are addressed immediately and do not have to wait for the monthly reviews.

ALARA Reviews (Monthly Hazard Reviews)

A monthly walkthrough by ES&H professionals is performed of all work areas with the intention of insuring hazard exposure potential "as low as reasonably achievable" (ALARA). Any newly identified hazardous situations are systematically tracked through abatement and must be signed off by the ES&H worker protection manager and the safety and health professional responsible for the site. Employees are not included in these monthly hazard assessment walkthroughs which may be enhanced by increased employee involvement.

Task Specific Safety Assessments (TaSSA)

Another important component of the onsite routine hazard assessments are the TaSSAs which must be performed by subcontractors. The TaSSA must address all pertinent requirements presented in the HASP regarding the specific tasks being analyzed. In addition, all OSHA requirements beyond those presented in the HASP must also be addressed. All TaSSAs are reviewed and approved by the contractor.

Safe Work Plans

Another important element of the onsite routine hazard assessment system are safe work plans. Safe work plans are required for tasks that are going to require extended periods to complete. Safe work plans are formally reviewed by safety and health personnel.

E. Employee Reports of Hazards

At WSSRAP employees are encouraged to informally report safety and health hazardous conditions to their supervisors or managers without fear of reprisal. Employees understand the safety priority at the site. Employees are instructed and encouraged to take time out whenever they feel there is a need to evaluate a safety condition in the operation being carried out. Interviewed employees indicated that they have no fear of reprisal in approaching a manager or a supervisor on any safety issue. For example, when the Onsite Review Team leader and another Team member visited WSSRAP in August 1997 prior to this onsite review, a subcontractor employee brought up a safety concern on the use of a check valve on an air compressor system. This equipment was not used until the WSSRAP and DOE management resolved the issue.

If safety concerns cannot be resolved satisfactorily, WSSRAP has formal methods where employees can file written concerns through a DOE complaint form or use the Employee Concerns Management System (ECMS) to place a complaint. Under the system, employees may contact the ECMS manager, use the 24-hour confidential telephone line or submit an employee concerns notification form. All submitted concerns are tracked to completion through a computerized database system.

F. Accident Investigations

Accident and incident reviews are called for by the Project Manager or the appropriate functional area manager affected by the accident or incident. Accident and incident investigations conducted at WSSRAP are coordinated by members of the safety department following the DOE accident investigation guidelines and criteria stated in DOE Order 225.1. The criteria used to determine whether an accident warrants investigation and the type of investigation that should be conducted is based on DOE Order 225.1.

The review or investigation team consists of all parties affected by an incident. During the investigation process, management representatives, Responsibility Assignment Matrix (RAM) team members and the involved individuals or subcontractors convene to evaluate the occurrence

and to determine any necessary corrective actions and lessons learned. Incidents are documented on the WSSRAP Incident Report form for future reference. Corrective actions are assigned and lessons learned are entered into the lessons learned program system for future reference and use by all parties.

Safety supervisors coordinate accident investigations and are provided guidance and training on the WSSRAP Event Investigations and Recording Procedure (SAFE-24) which outlines the actions that should be taken during an accident or incident investigation.

Near miss events, as defined in DOE Order 232.1, are investigated by employing an appropriate cause or analysis methodology. Assigned personnel receive training on when to use and how to use the root cause analysis procedure. Near-miss events are documented on the WSSRAP Notable Reports, which are logged into a data base and tracked to determine trends and patterns. The safety department manager reviews all near-miss, notable occurrences and determines the appropriate corrective actions.

The lessons learned program is a database linked to this investigation process and contains lessons learned as a result of investigations and near-misses, as well as other materials. Lessons learned can be generated by any WSSRAP employee and includes valuable ideas and other information. This database can be accessed by any employee, and all lessons learned are reviewed and distributed on- and off-site. Because the lessons learned database contains information resulting from accident and incident investigations and reports based on near-misses, the system is used in conjunction with the occurrence reporting system. Notably, root-cause analyses and corrective actions are printed directly on the lessons learned forms.

G. Trend Analysis

The WSSRAP has a formal trending and analysis system for collecting, trending and analyzing data related to injuries and illnesses, first-aid cases, near misses, root causes, and workers' compensation claims. Performance indicators based on the trending and analysis of this data are generated on a monthly basis. Data graphs indicating current trends and rates are formatted and distributed to WSSRAP management and the DOE field office, and are posted throughout the site for review by all site employees.

Members of WSSRAP top management, the DOE field office, and WSSRAP line management review data graphs and submit questions and concerns to the appropriate department or project manager during the monthly MSC meetings. Adverse trends are identified and corrective actions are assigned to the responsible project or departmental managers who in turn assign responsibility for corrective action to the appropriate line managers. Progress in meeting any assigned corrective action is reviewed during the weekly managers meeting as a follow-up to the monthly MSC meetings.

Data reports currently utilized in the trend analysis program include the following:

Safety

- Project Safety Severity Index
- Lost Workday Case Rate
- Recordable Injury/Illness Rate
- CATS/OSH Noncompliance
- Waste Maintenance Group Safety Severity Index
- Disposal Cell Group Safety Severity Index
- Support Group Safety Severity Index
- CSS Group Safety Severity Index
- Quarry/Vicinity Properties Group Safety Severity Index

Environmental Safety and Health

- Missed Exit Bioassays
- Skin/Clothing Contaminations
- Positive Bioassays
- Lost Thermoluminescent Dosimeters
    - Deep Dose Counts
    - Occurrence Reports

An example of the trending and analysis program involved a project to install a polypropylene liner as a protective barrier for the disposal cell project. During a one month period, it was determined that

two employees had been injured (lacerations) using knives to cut and section the liner. All work involving cutting of the liner was stopped, all knives collected, and employees assigned to these duties were given additional training on safe work methods. At the conclusion of this remedial training, the contractor in charge of the liner project was required to request a "start-up" review prior to restarting this activity. Several other similar examples were discovered by the DOE-VPP Team during the onsite review and in each case the trending and analysis program performed well in identifying negative trends and allowing the correction of such actions.

Importantly, the trending and analysis program at WSSRAP is not considered to be a "stand-alone" effort, rather it is part of an overall integration of the safety and health efforts at this site. The identification of a negative trend such as the one cited in the example above, results in changes and/or modifications to the site's training efforts (additional training given), management leadership (corrective action assigned), in worksite analysis (utilizing the trending system to identify this issue), and in hazard recognition (post accident, start-up review required). This example clearly demonstrates WSSRAP's ability to utilize the DOE-VPP components in a totally integrated manner. ■

VI. Hazard Prevention and Control

THE HAZARDS IDENTIFIED through WSSRAP's worksite analysis process are eliminated or mitigated through effective implementation of controls. The following sections explain the methods of hazard prevention and control used by WSSRAP in meeting the requirements for this program element.

A. Access to Certified Professionals

Adequately staffing the safety and health office onsite can be used as a proxy measure for management commitment to the Voluntary Protection Program. The PMC ES&H department and safety department have a reported combined full time equivalent (FTE) number of 66. The total FTE onsite is reportedly in the neighborhood of 420, including the prime contractor, subcontractors and sub-tier contractors (reference WSSRAP's VPP application). This results in a ratio of ES&H professional to covered worker of less than six to one. This is an extraordinary commitment of resources to address the environment safety and health concerns onsite. Further, this does not take into account the safety and health professionals assigned to the compliance division, which appears to be actively engaged in safety and health oversight.

There are three certified industrial hygienists onsite and three certified safety professionals (one individual has dual certification). Several of the health and safety professionals onsite had either sat for one of the professional exams in the recent past or were preparing to do so in the immediate future. All of the safety and health professionals queried reported that considerable emphasis on and support for certification was extended by management. Two of the staff reported having received support for examination review courses and several safety and health professionals reported having attended the last American Industrial Hygiene Conference and Exposition. Three safety and health staff members were graduating this December -- two with a masters in industrial hygiene and the third with a masters in safety.

In addition to the certified professionals onsite, the contractor has a program of inter linking the health and safety professionals from throughout its entire organization. The staff has access to over 100 industrial hygienists and safety professionals of which at least sixteen (16) were certified industrial hygienists.

In addition to the onsite safety and health staff, WSSRAP has a contractual relationship with healthline for occupational medicine support. There has been a full time onsite occupational nurse since 1994. The onsite occupational health nurse is a masters (safety engineering) prepared nurse who has been working in occupational safety since 1970.

B. Methods of Hazard Control

This site has been designated an uncontrolled hazardous waste site, however, there has been extensive site characterization and remediation work performed and the site no longer represents an uncontrolled situation.

The site has a policy that all new hazardous materials that are to be brought onsite must have a material safety data sheet (MSDS) onsite five days before the material is to be bought onsite. The compliance office reviews all MSDSs to ascertain if a less hazardous substance can be substituted. If this is possible the less hazardous materials is used.

An excellent example of the site's commitment to using substitution of less hazardous materials is the case study involving the membrane barriers for the waste cell. The 80-mil membranes were originally supplied black. They were being installed in the summer and became extremely hot through absorption of sunlight and exacerbated an already extant problem of heat stress. The supplier of the cell membrane was contacted and white colored membrane material was made available.

Engineering controls—In addition to the white liners being acquired to reduce heat stress, temporary shading devices were also made available as an example of engineering controls used onsite.

Administrative controls— Examples of administrative controls were evident throughout the site. All hazardous areas were clearly marked and isolated with fencing. Site access was controlled. Work zones were clearly labeled and access limited. This was particularly true of the radiologically controlled areas.

All radioactive waste was disposed of yellow and magenta disposal bags which carried the radioactive warning label. Administrative controls limited the use of these bags for radiologically contaminated materials only.

Personal protective equipment—Personal protective equipment (PPE) was evident throughout the site. Workers were observed with hard hats, eye protection, tyvex suits, steel toed boots, and safety glasses.

In terms of chemical hazards the only task which currently involved wearing respirators is decontamination of heavy equipment with a hydrochloric acid wash.

Workers on the WSSRAP system who are required to wear a respirator receive an annual physical and quantitative fit test.

Heat and cold stress have been identified as hazards at the WSSRAP site. Reportedly, heat stress had been an expressed concern of the workers installing the membrane in the disposal cell this past summer. The concern was immediately addressed with shade devices (engineering control) being supplied and ice vests (PPE) made available.

During the onsite review, the site was transitioning into the winter season. At a safe work planning meeting a worker complained of his feet getting cold due to standing on a cement floor operating trash compacting equipment. The engineer in charge pointed out to the worker that it was important to stand on the rubber mats (engineering control) surrounding the equipment which had been installed the previous winter. The engineer highlighted the purpose of the rubber mats was to reduce direct contact with the cold cement. To further alleviate the problem, the following day boot liners were distributed at morning safe work planning meetings.

C. Positive Reinforcement

The Safety Awareness Incentive Program at WSSRAP increases the level of safety awareness at the site. This program has been changed several times since its inception in 1991. Currently, the site has four safety incentive programs:

1) The Annual Safety Cookout

The Annual Safety Cookout is held each spring to kickoff the new construction season. This occasion involves all employees. A TaSSA is conducted prior to actual cookout.

2) Safe Subcontractor of the Month Award

This award is given to one service subcontractor and one construction subcontractor based on their safety performance in a given month. An evaluation sheet for each contractor is submitted to the Management Safety Committee. To receive this award, the subcontractor must have operated without a safety violation notice and recordable injury/illness incident. All employees of the award-receiving subcontractor receive gift certificates to be used at local restaurants.

3) Consecutive Safe Day/Consecutive Safe Hour Award

Subcontractors who work safely for a consecutive number of days are given this award. The following four levels of awards are given based on the number of days or number of manhours worked without injury/illness incidences:

Ist Award	90 consecutive days or 20,000 manhours
2nd Award	180 consecutive days or 40,000 manhours
3rd Award	270 consecutive days or 60,000 manhours
4th Award	360 consecutive days or 80,000 manhours

The consecutive days allow smaller contractors to participate in the program and the consecutive hours assists larger subcontractors with higher exposure hours.

In addition to the above three programs designed to enhance safety awareness at the site, WSSRAP has

also instituted an "Employee Incentive Compensation Program," where a pool of money is allocated to the final cell construction. The money is tied to performance in safety, schedule and cost. Safety accounts for 55%, schedule performance--30%, and cost control--15%. The safety incentive amount is reduced if there are any safety incidents. If a safety incident is not reported within a given time frame, the incentive amount is then also equally reduced.

4) Teaming to Improve Productivity and Safety

TIPS is another means where employees are encouraged to suggest improvements that contribute to safety. If suggestions are implemented, employee(s) suggesting receive a certificate of recognition.

D. Disciplinary System

The safety and health rules to be followed by all employees, including subcontractor employees, are documented in the WSSRAP's Health and Safety Guidebook, which is given to all employees during GET training. These rules apply equally to all employees including subcontractor employees. Disciplinary actions are taken in three forms: verbal, written notice of safety violation and restriction from entering the site. Restriction from entering the site could be temporary or permanent, and is dependent on the nature and number of instances in violation of a safety rule. Safety violation notices are given to employees violating a safety rule. If two safety violations are written against an employee in one year, that particular employee will be removed from the site for three days. Interviewed employees were aware of the three-step disciplinary system at the site. No one remembered the system being used; however, they indicated minor infractions such as, if an employee forgets to wear PPE, the employee is reminded verbally. Interviewed employees felt that the system is fair and consistently applied.

E. Preventive Maintenance

Preventive maintenance at WSSRAP for vehicles and pieces of equipment is scheduled using a computer tacking system called ALLMAX. Vehicles and equipment, such as back hoes, tractors, fork lifts, dump trucks, and motor vehicles are part of the preventative maintenance program. Preventive maintenance of these pieces of equipment is performed off-site. Each piece of equipment has a task definition, and the computer program prints out a work order at least two weeks before the actual scheduled maintenance date. Additionally, the water treatment facility's pieces of equipment, such as calibrating gauges, backflow preventors, and motors are also part of the preventative maintenance program at the site and are also scheduled through ALLMAX. A report documenting the work orders issued, work orders closed and the current backlog of each area are prepared monthly and distributed to the appropriate responsible parties.

F. Emergency Preparedness and Response

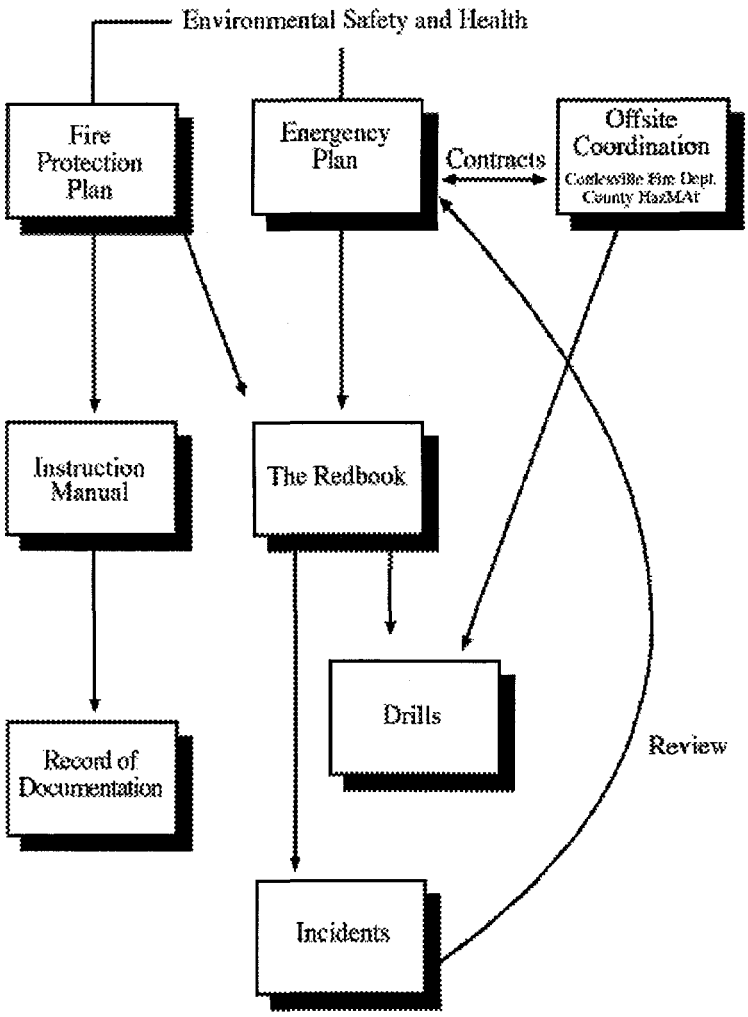
All site contractors are required to have a site emergency response plan which is coordinated and integrated with the site emergency response plan. A spill prevention and control plan was in place that triggered reporting requirements beyond identified reportable quantities with a fifteen minute notification policy.

Although general site employees are not asked to take responsive action to fighting fires, they are trained, through GET, regarding the effective use of fire extinguishers.

Coordination with outside responders has been established through a formal contract with the local fire department and the county hazardous materials response team. A member of the onsite response team is a volunteer member of the county hazardous materials response team. There is a familiarity with the hazards onsite and awareness that anhydrous ammonia and sodium metal are to be brought on to the site in the near future for a new process line.

The emergency response plan was current and comprehensive. Subordinate to the emergency response plan was the "Redbook" which contained detailed instructions and decision tree analysis for the procedures to be followed in the event of an emergency. Redbooks were limited in their use by individuals trained in the procedures to be followed. This included members of access control, who are to be called in the event of an emergency, and members of the emergency response team. The emergency response documentation and communication can be seen in Diagram 2.

Diagram 2. Emergency Response Documentation



The incident command structure is presented in the following Diagram 3. In the event of an uncontrolled emergency, the county hazardous materials response team will take control of the incident as they come onsite.

There is a record of all emergency response incidents, drills, and other emergency related incidents. This includes a formal write-up of the event with minute-by-minute events documented and lessons learned spelled out. Reportedly, these formal evaluations are used in the ongoing emergency response training.

proactively involve the workforce in the radiological control program during the planning stages instead of primarily being in a reactive mode in response to worker concerns while work projects are ongoing. For example, the Team noted the existence of numerous safety committees, such as the Evacuation Safety Committee and the Fall Protection Safety Committee, however, the Team noted that the lack of any form of a radiological safety committee. While the Team recognizes that the radiation exposures at the site are very low, an enhancement could be made by establishing a radiological safety committee that actively engages the workforce at the worker level. Given the low exposures at the site, the Team recognizes that it would be reasonable that such a committee would not have the same number of participants or meeting frequency as the other safety committees.

The Team reviewed quarterly assessments of the radiological control program by reviewing several functional element surveillance checklists. The Team found evidence of an effective internal review program with appropriate corrective actions being implemented.

Through the implementation of site procedures, pre-job reviews and monthly surveillances the contractor has implemented an effective program to maintain occupational exposures as low as reasonably achievable.

Radiological Standards

The Team found evidence of well-defined and challenging program for site-specific administrative controls for minimizing individual and collective dose.

Challenging goals had been established for many radiological control indicators including:

number of lost TLDs

missed exit bioassays

skin/clothing contaminations

maximum individual shallow dose

maximum individual deep dose

collective deep dose

internal contaminations

collective internal dose

The Team noted that there was no incentive, either positive or negative, for the ES&H staff to meet these goals. Twice a year the organization performance relative to these goals is discussed at a MSC. While the Team noted that the goals were challenging, a recommended improvement would be to include appropriate goals in the safety incentive program.

Conduct of Radiological Work

The Team reviewed survey records, observed ongoing work activities and noted evidence that appropriate measures were taken prior to release of equipment and property for non-radiological or unrestricted use. The technical requirements for the conduct of work incorporated appropriate radiological criteria to ensure that radiation exposures are as low as reasonably achievable.

The daily safe work plan meetings attended by the Team were considered a strength. These meetings discussed ongoing work activities such as soil work, contaminated capacitor work or acid washing decontamination of heavy equipment. However, the Team did not observe an equivalent level of safety briefing for the Access Control Personnel or the Radiological Laboratory Personnel. An improvement would be to have periodic safety briefings for these individuals.

Radioactive Materials

The Team observed that radioactive material was properly identified, labeled, packaged and controlled. Adequate controls were in place for the release of radioactive material to controlled and uncontrolled areas. The surveys for releasing material were determined to be adequate. Based on Team comments, the contractor indicated that they would enhance the program by revising the calculated minimum detectable activity specified on the survey documentation sheets at a confidence interval that is typically used throughout DOE and in the commercial sector. The site was using a 68% confidence interval, while most sites use a 95% interval.

Radiological Health Support Operations

There is evidence of an effective external dosimetry program. Approximately one year ago the site reduced the number of individuals being issued a dosimeter. All of the workers interviewed by the Team indicated that they were adequately informed of the reasons for their no longer being monitored and did not express concern at receiving unmonitored exposures. The Team noted that the radiological control organization was effective in communicating this program change to the workforce.

The Team reviewed internal dose assessments and found them to be appropriate. Consistent with the external exposure assessment program, the Team noted that the internal exposure control program was effective in maintaining exposures as low as reasonable achievable, and with communicating the results to the workers.

The Team reviewed the respiratory protection program plan and observed an individual being fit tested for a respirator. The Team found evidence that the program was properly coordinated with the industrial hygiene and medical programs.

During the conduct of several site tours, the Team observed that radiological survey instruments were found to be appropriately calibrated and routinely performance tested.

Training and Qualifications

The Team reviewed and discussed with several radiological workers the radiological safety training--SHARP training. The Team observed, through individual interviews, that the level of training and knowledge of the radiological hazard for the radiological workers was sufficient.

Within the worker protection group, the ES&H field support personnel provide radiological protection support, such as performing surveys and establishing the radiation protection requirements in the Safe Work Plan ES&H Review, which is the site equivalent of a Radiological Work Permit program. The Radiological Laboratory staff are responsible for performing the analyses of radiological field monitoring performed at the site. The Team reviewed the training records for individuals in these groups. Supervisors are responsible for documenting that their employees satisfactorily demonstrated the ability to perform job tasks, such as operating a laboratory instrument or performing a contamination survey, by completing a skills proficiency attestation record for each individual. The Team noted the following areas in need of upgrading in the training and qualification of ES&H field support personnel and radiological laboratory staff. A goal to achieve Star status is recommended in the safety and health training section of this report.

Training records were missing for one individual and were outdated for another individual. The records indicated that an individual working in the radiological laboratory was performing the job of an access control monitor.

The completion of the skills proficiency attestation record was inconsistently applied. It is at the discretion of the first line supervisor to choose the tasks which must be included in the skills proficiency attestation record. The Team observed examples of individuals with the same job function whose training records indicating that they were qualified for different functions. A recommended practice would be to evaluate the training needs for these individuals, such as through a job task analysis, and then provide necessary training and adequately document completion of the training. ■

VII. Safety and Health Training

WSSRAP has an onsite training department that conducts the safety and health training to meet DOE-VPP requirements. It offers several training sessions for onsite personnel who are exposed to hazards at the site. There are two full-time training instructors onsite and training is ongoing on a daily basis. In addition to receiving GET, which is for all employees, employees also receive safety and health training appropriate for the hazards to which they are potentially exposed. Examples of such training programs include: hearing conservation, confined spaces, lockout/tagout, excavation, rigging, respiratory protection, fire safety, first aid and CPR, and bloodborne pathogens.

The training history for all individuals at the site, including contractor and subcontractor employees, is maintained on a computerized database called "Training Matrix System" (TMAX). This system also tracks dates for any forthcoming individual refresher training. The Team reviewed training records on the computer for several employees and found it to be complete and accurate. After training is received, employees are required to sign off on a hard copy. The copy is then forwarded to the training department for database update. Since WSSRAP is a hazardous waste site, three color-coded (red, yellow and blue) cards are given to individuals who have received specific Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Yellow cards are given to individuals who have received 24-hour HAZWOPER training, red cards to individuals with 40-hour HAZWOPER training and who are respirator-qualified, but not asbestos-trained, and blue cards indicate that the individual is qualified to wear respirators, asbestos-qualified and has received 40-hour HAZWOPER training.

In general, employees were of aware of hazards and how to protect themselves. Project managers and construction superintendents were found to be effectively carrying out their safety and health responsibilities. The Team noted, however, an area of improvement in the training program for ES&H technicians, and the following goal to achieve the STAR status is suggested.

Goal 3 of 3 - Safety and Health Training

WSSRAP should upgrade the training and qualification program for the ES&H technicians responsible for radiological control support and radiological laboratory personnel. The content of the training should be determined by an evaluation of the individual job assignments, should include appropriate performance demonstrations and should be adequately documented. ■

VIII. General Assessment

Safety and Health Conditions

The DOE-VPP Team conducted a number of walkarounds, both as a group and individually, and conducted over one hundred interviews of personnel; the consensus of the Team was that the site was exceptionally well maintained and no major issues of non-compliance with DOE Orders or safety and health standards were discovered.

Safety and Health Programs

The DOE-VPP Team found the WSSRAP safety and health program to be highly effective. While minor opportunities for improvement were identified, the overall program is comprehensive and well communicated. The Team believes that given sufficient time to mature, this program will achieve the highest levels of recognition. ■

IX. Recommendation

IT IS THE UNANIMOUS RECOMMENDATION of the DOE-VPP Onsite Review Team that the Weldon Spring Site Remedial Action Project be accepted into the U.S. Department of Energy Voluntary Protection Program at the MERIT level. ■

Appendix I: DOE-VPP Onsite Review Team for WSSRAP

Name/Affiliation	Specialty/Organization	Area(s) of Responsibilities
SMITH, David	• **Team Leader** • Management Leadership Lead • DOE-HQ (EH-51)	• Commitment • Responsibility • Line Accountability • Visible Management Involvement • Authority and Resource Program Evaluation • Emergency Response
KANTH, Sanjeeva	• **Subteam Leader** • Worksite Analysis Lead • DOE-HQ (EH-51)	• Records Review • Injury Rates • Self Inspections • Preventive Maintenance • Pre-use/Pre-startup Analysis • Site Orientation • Hazard Tracking
FINN, Pat	• Construction Safety Management Lead • Senior Safety Engineer • DOE-HQ (EH-51)	Construction Safety Management/Subcontractor Programs
O'CONNELL, Pete	• Radiation Protection Lead • Health Physicist • DOE-HQ (EH-52)	• Radiation Protection • Employee Involvement • Safety and Health Training
MATHAMEL, Marty	• EH-1 Special Assistant	Consultant, Special Advisor to the DOE-VPP Team
DELINGER, Don	• Safety and Health Training Lead • OSHA VPP Co-ordinator/Manager, Region VII	• Safety and Health Conditions • Safety and Health Training • Accident Investigations • Trend Analyses • Job Hazard Analyses
CARRIGAN, Ross	• Employee Involvement Lead • Fluor Daniel Hanford (OCAW)	• Employee Involvement • Employee Reports of Hazards • Disciplinary System • Positive Reinforcement
FITZGERALD, Matt	• Hazard Prevention and Control Lead • CIH • Scientech, Inc. (Consultant)	• Comprehensive Surveys • Access to Certified Professionals • Methods of Hazard Control • HAZWOPER • HazMAT Medical Programs

DOE Senior HQ Officials

FITZGERALD, Joe	DOE-HQ (EH-5), Deputy Assistant Secretary for Worker Health and Safety
BARBER, Bob	DOE-HQ (EH-53), Office Director, Office of Field Support

Appendix II: Key Elements of the WSSRAP Health and Safety Program Demonstrating DOE-VPP Level Excellence

DOE-VPP Element	Site-Specific Elements
General	
	☆ Standard Industrial Classification Code · 4953 - Refuse Systems ☆ Injury/Illness Incidence Rate (RII) · 3 year average rate is 3.78. · Continuous improvement: 1994 - 4.56 1995 - 3.57 1996 - 3.06 · Industry average is 9.6.
Management Leadership - Element 1	
★ **Commitment**	☆ WSSRAP Health and Safety Policy ☆ DOE Occupational Safety and Health Policy ☆ WSSRAP Mission, Vision, Objectives, and Priorities ☆ Health and Safety Goals ☆ Project Director's Monthly Round Table ☆ Management Safety Committee
★ **Organization**	☆ Health and Safety Oversight ☆ ES&H Department · Industrial Hygiene · Health Physics/Radiation Safety · Occupational Medicine · Emergency Response · Fire Protection · Environmental Protection ☆ Safety Department · Industrial Safety · Construction Safety · Site Security ☆ Matrixed Organization
★ **Responsibility**	☆ Overall responsibility - Project Director ☆ Each individual ultimately responsible for their own safety ☆ All employees have responsibility and authority to stop work - "Time Out for Safety"
★ **Accountability**	☆ Project Managers are held accountable for employee safety and health within their project ☆ Management Safety Committee reviews Project Manager health and safety performance ☆ Safety is documented on annual employee performance reviews
★ **Resources**	☆ Health and safety staff - ES&H and Safety Department ☆ Budget for health and safety greater than industry average ☆ State of the art monitoring instruments and equipment

★ **Planning**	☆ Design Review Board ☆ Readiness Assessment Process ☆ Strategic Planning Board ☆ Plan of the Day Meetings ☆ Safe Work Plan (SWP) and/or Task Specific Safety Assessment (TaSSA) briefings
★ **Contract Workers**	☆ Health and safety performance is evaluated prior to award of new subcontracts ☆ Required to follow WSSRAP Health and Safety Plan (HASP) ☆ Training ☆ Enforcement of health and safety rules · Inspections · Safety Violation Notices · Stop Work Orders · Disciplinary Actions ☆ Subcontractors report all injuries to PMC ☆ Involvement in Site Safety Committees
★ **Program Evaluation**	☆ Assessments · QA Assessments · Corporate Assessments · VPP Employee Assessments · DOE Functional Appraisals ☆ Annual Health and Safety Program Plan Evaluations ☆ Trend Analysis and Performance Goals Program Goal 1 of 3 - **Safety and Health Program Evaluation** Based on the Annual Health and Safety Goal Setting Process, WSSRAP should continue the implementation and evaluation of a system which ensures the: • preparation of an annual evaluation report that assesses the effectiveness of each DOE-VPP element and sub-element; • incorporation of recommendations derived from the program evaluation into the goal and objective setting process; • communication of the revised goal and objectives throughout the worksite; and • implementation of a goal setting process which is part of a continuous improvement program.
★ **Site Orientation**	☆ General Employee Training ☆ WSSRAP Health and Safety Guidebook ☆ Visitor Orientation and Tour Orientation
★ **Employee Notification**	☆ Employee Concerns Reporting · Concerns Coordinator · 24-Hour Hotline (926-7066) · ECMS Form · SQE Ballot ☆ "Time Out for Safety"

Employee Involvement - Element 2

★ **Degree and Manner of Involvement**	☆ "Time Out for Safety" ☆ TIPS Suggestions ☆ Weekly Toolbox Meetings ☆ SWP/TaSSA Briefings ☆ Incident Critiques ☆ RAM Team Meetings ☆ SQE Surveys ☆ Quality Achievement Award
★ **Safety and Health Committees**	☆ Management Safety Committee ☆ Voluntary Protection Program Steering Committee ☆ Project Safety Committees · CSS Safety Committee · Disposal Cell Safety Committee · Waste Maintenance Safety Committee · Quarry/Vicinity Properties Safety Committee · Support Group Safety Committee ☆ Special Emphasis Safety Committees · Fleet Safety Committee · Excavation Safety Committee · Fall Protection Safety Committee · Hoisting & Rigging Safety Comm. · Electrical Safety Committee · Work Space Safety Committee Goal 2 of 3 - **Employee Involvement** a) The Team recognizes and encourages the participation of longer-term (resident) subcontractor hourly workers or hourly-worker representatives in labor-management safety and health committees. WSSRAP should continue the current labor-management safety and health committee activities in accordance with criteria provided in DOE-VPP Part I: Program Elements, Section II.E.2. b) WSSRAP should involve, where possible, other subcontractor hourly workers in other safety committee activities such as the Electrical Safety Committee and the VPP Steering Committee. c) In light of the importance of the employee involvement component of DOE-VPP, the Team has identified other areas for enhancing employee involvement at the site. Opportunities for enhanced employee involvement include participation in activities such as: • Accident investigations • Monthly hazard inspections (ALARA reviews)
Work Site Analysis - Element 3	
★ **Pre-Use/Pre-Startup Analysis**	☆ Equipment/Material Pre-Use Inspections ☆ New chemicals "Approved for Use" ☆ Comprehensive Facility Safety Analysis Program
★ **Comprehensive Surveys**	☆ Remedial Investigations ☆ Characterization and Facility Safety Assessment Program ☆ Design Review Board ☆ Industrial Hygiene and Radiological Surveys

★ **Self-Inspections**	☆ WSSRAP inspected monthly via: · "Blue-Cards" · Corrective Action Tracking System · Daily Walkthroughs · ALARA Surveillance's · Subcontractor Inspections
★ **Routine Hazard Analysis**	☆ Task Specific Safety Assessments (TaSSA) ☆ Safe Work Plans (SWP) ☆ Readiness Assessment Process ☆ Facility Safety Reviews ☆ Pre-Job ALARA Reviews ☆ Equipment/Pre-Occupancy Inspections
★ **Employee Reporting of Hazards**	☆ Informal Methods: · Supervisor · Safety Department · "Time Out for Safety" ☆ Formal Methods: · DOE Complaint System · WSSRAP Employee Concerns Management System (ECMS)

★ **Accident Investigations**	☆ Coordinated by Safety Department using guidelines from DOE Order 225.1, ☆ WSSRAP Incident Report ☆ Procedure SAFE-24, Event investigations and recording ☆ Lessons Learned Database
★ **Trend Analysis**	☆ Monthly Performance Indicators

Hazard Prevention and Control - Element 4

★ **Professional Expertise**	☆ Site Occupational Medical Director ☆ Site Nurse ☆ Experienced Professional Staff Including Certified Industrial Hygienists (CIH) and Certified Safety Professionals (CSP)
★ **Safety and Health Rules**	☆ Positive Reinforcement Systems: · Safe Subcontractor of the Month · Consecutive Safe Day/Consecutive Safe Hour Award · Blue Card Observations · NEWSSRAP Articles ☆ Safety and Health Rules: · WSSRAP Health and Safety Guidebook · Health and Safety Plan (HASP) · Safety Violation Notices · Stop Work Orders
★ **Personal Protective Equipment**	☆ Standard Safety Apparel ☆ Health and Safety Plan (HASP) ☆ Personal Protective Equipment Requirements Manual (PPERM) ☆ Respiratory Protection Program Plan

★ **Preventive Maintenance**	☆ CM&O Department: · Vehicles and Equipment · Water Treatment Facilities ☆ ES&H Department · Fire Equipment · Monitoring Instruments · Analytical Laboratory Equipment
★ **Emergency Preparedness**	☆ Emergency Plan ☆ Emergency Response Team ☆ Emergency Management Team ☆ Drills, Exercises, and Evacuation Drills

★ **Radiation Protection Program**	☆ Radiation Protection Program in accordance with 10 CFR 835, ☆ ALARA Procedure - ES&H 1.1.5, The WSSRAP ALARA Procedure ☆ Employee training ☆ Restricted access to radiological areas
★ **Medical Programs**	☆ Medical Surveillance Program ☆ Occupational Medical Program Plan ☆ Onsite Medical Staff: · Occupational Health Nurse · Emergency Response Team First Responders
★ **List of Occupational Safety and Health Programs**	☆ *Occupational Medical Program Plan* ☆ *Wellness Program* ☆ *Hazard Communication Program Plan* ☆ *Hearing Conservation Program Plan* ☆ *Respiratory Protection Program Plan* ☆ *WSSRAP Health and Safety Plan* ☆ *Fire Protection Program Plan* ☆ *Personal Protective Equipment Requirements Manual* ☆ *WSSRAP Ergonomics Plan* ☆ *Laboratory Chemical Hygiene Plan* ☆ *Emergency Plan* ☆ *Industrial Hygiene Monitoring Program Plan* ☆ *WSSRAP Facility Management Plan* ☆ *Radiation Protection Program* ☆ *Internal Dosimetry Technical Basis Manual* ☆ *External Dosimetry Technical Basis Manual* ☆ *Safety Awareness Incentive Program Plan*

Safety and Health Training - Element 5

★ **Employees**	☆ Formal Training: · GET, GERT, SHARP, HAZWOPER, etc. ☆ Informal Training: · Tuesday/Thursday Safety Meetings · SWP/TaSSA briefings · Toolbox Meetings ☆ Training Documentation · Training Matrix System (TMAX) · Regulatory, Critical, and Required Training Goal 3 of 3 - **Training** WSSRAP should upgrade the training and qualification program for the Environment, Safety and Health technicians responsible for radiological control support and radiological laboratory personnel. The content of the training should be determined by an evaluation of the job assignments, should include appropriate performance demonstrations and should be adequately documented.
★ **Supervisors**	☆ Employee Training ☆ HAZWOPER Manager/Supervisor Training ☆ Lead/Supervisor Meetings
★ **Managers**	☆ Employee Training ☆ HAZWOPER Manager/Supervisor Training ☆ Weekly Managers Meeting ☆ Monthly Management Safety Committee