

Waste Feed Operations, (WFO) CH2M HILL Hanford Group, Inc.

**Report from the DOE Voluntary Protection Program
Onsite Review
February 27 - March 2, 2006**



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“...Some of us will serve in government for a season; others will spend an entire career here. But all of us should dedicate ourselves to great goals: We are not here to mark time, but to make progress, to achieve results, and to leave a record of excellence.”

**- George W. Bush
President of the United States
October 15, 2001
Constitution Hall, Washington, D.C.**

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Abbreviations and Acronyms

AED	Automated external defibrillator
AJHA	Automated Job Hazard Analysis
ALARA	As Low As Reasonably Achievable
AMH	Advanced Medical Hanford
BLS	Bureau of Labor Statistics
CHAMPS	Computerized History and Maintenance Planning Software
CPR	Cardiopulmonary resuscitation
CVST	Chemical Vapors Solution Team
DART	Days Away, Restricted, or Transferred
DOE	U.S. Department of Energy
DOE VPP	U.S. Department of Energy Voluntary Protection Program
EAPC	Employee Accident Prevention Council
EH	Office of Environment, Safety and Health
EJTA	Employee Job Task Analysis
ES&H	Environment, Safety, and Health
HAMTC	Hanford Atomic Metals Trade Council
HPT	Health Physics Technicians
ISMS	Integrated Safety Management System
JHA	Job Hazard Analysis
MSDS	Material Safety Data Sheet
NAICS	North American Industry Classification System
OSHA	U.S. Department of Labor’s Occupational Safety and Health Administration
PAPC	President’s Accident Prevention Council
PER	Performance Evaluation Reporting
PNNL	Pacific Northwest National Laboratory
PPE	Personal Protective Equipment
S&H	Safety and Health
SIP	Safety Improvement Plan
SWE	Safe Work Environment
TRC	Total Recordable Cases
VPP	Voluntary Protection Program
WFO	Waste Feed Operations
WIPP	Waste Isolation Pilot Plant

Executive Summary

The Department of Energy Voluntary Protection Program (DOE VPP) onsite review of the Waste Feed Operations (WFO) CH2M HILL Hanford Group, Inc (CH2M HILL) was conducted February 27 through March 2, 2006, in Richland, WA. CH2M HILL is Tank Farm contractor for the DOE, Office of River Protection (ORP). Based on review of the WFO VPP application, onsite review of VPP implementation, and interviews with management and employees, the review team (Team) recommends that DOE award VPP Star status to WFO. The following summarizes the Team's observations and analysis.

Management Leadership

The DOE VPP onsite Team found a strong management commitment to safety and health (S&H) within WFO. Responsibilities and accountabilities are well defined and implemented by the management. Within five months, the new Vice President of CH2M HILL's WFO has been actively participating in safety programs and has successfully established a relationship of mutual respect and cooperation with employees and the trades on all matters relating to safety program implementation. The WFO management team believes that all accidents are preventable and has established goals to achieve increasingly lower accident and injury rates. In fact, accident and injury rates have been decreasing over the past year since WFO began to operate at the VPP Star level. WFO has had neither a lost work day in the past 217 workdays nor a recordable case in the past 100 work days.

The Team noted that management holds itself responsible and accountable for S&H in the workplace. Top-level management is visible in the work place and actively participates in the development and implementation of S&H programs. The management believes that DOE VPP recognition would be an endorsement of the effectiveness of the expanding safety and health program across the Hanford Tank Farm complex.

Employee Involvement

The Team found that employees are increasingly expressing their commitment to safety at WFO. Employees work together with management to implement safety and health programs within WFO. The Employee Accident Prevention Council (EAPC) is the central employee forum for managing safety and health. It is supported and complimented by the President's Accident Prevention Council (PAPC) and the facilities VPP Champions Team. Additionally, the Chemical Vapors Solutions Team (CVST) and the As Low As Reasonably Achievable (ALARA) Committee, formed by employees, were regarded by the Team as areas of strength for their overall VPP. The Team considered the CVST a DOE VPP best practice and worthy of sharing across the DOE VPP. The Hanford Atomic Metal Trades Council (HAMTC) Safety Representative Program was also regarded as a best practice.

CH2M HILL's company-wide Performance Evaluation Reporting (PER) is a computer-based corrective active management system and provides the central reporting vehicle for collecting, communicating, tracking and closing out all safety and health issues, including accident investigations and other special safety studies. The Team found this network of committees and systems to be working very effectively. The complexity of the PER as a whole, however,

requires additional refinement to assure that it is sufficiently simple to use for the average employee.

Employee surveys conducted over the past six months indicate an increase in employee involvement across the WFO. The Team observed that employees are truly involved in their safety and health programs and a strong safety culture is developing at this site. However, the Team recommends that employees learn more about VPP requirements, their benefits, responsibilities and authorities, and the operation of their worker rights under the VPP. Likewise, the team felt that employee communications needed strengthening to ensure enhanced employee understanding of Integrated Safety Management System (ISMS) and VPP expectations and to promote greater employee ownership of VPP. More emphasis is needed to reach out to more employees and establish additional avenues for greater individual participation in VPP.

Worksite Analysis

The ISMS provides the baseline for worksite analysis. The principles of ISMS are fully operational at the WFO. Employees participate with managers and supervisors in pre-job /pre-start assessments and inspections. The Peer Safety Observer Program is well operated with an increasing participation of employees. It began with office workers and is now expanding to field operators. The Team regarded the Peer Safety Observer Program as a DOE VPP best practice. Originally piloted in WFO, it has expanded throughout the rest of CH2M HILL. The Team noted that their system of Job Hazard Analyses (JHA) procedures is well developed, communicated, and used. Employees are encouraged to communicate any unsafe conditions or issues. Oral and written methods are utilized throughout the work process. Work packages are meticulously prepared using both routine JHA for common processes and specially developed JHA for jobs with greater ambiguity. Using the PER, identified hazards are addressed, conditions/issues are documented, a responder/action is assigned, appropriate corrective actions are taken in a timely manner; and actions are tracked to completion. Accident investigation processes are also well developed and implemented through the PER. The team determined that the WFO has safety strengths in its comprehensive work planning process and its workplace program for worksite analysis. Likewise, the CH2M HILL industrial hygiene and toxicological professional expertise is another strength in the WFO VPP. The Team noted that the extensive effort to characterize the legacy of mixed wastes in the tanks was commendable.

Hazard Prevention and Control

WFO has a well-qualified group of safety and health professionals in the Environment, Safety and Health (ES&H) organization. The S&H rules, work practices, and usage of Personal Protective Equipment (PPE) were found to meet the requirements of VPP. The CVST has taken a very sizable role in managing vapor hazards in addition to the well-managed radiological hazards across the tank farms. The team found the PPE program now in operation a clear reflection of the effectiveness of the vapor and radiological controls hazard prevention effort from the combined activities of the CVST and the ALARA group. Likewise, preventive maintenance programs were developed and are effectively used to mitigate the chances of unplanned equipment failure, thereby enhancing safe operations at WFO. The Team determined, in particular, that its health physics and radiological protection program are very

strong and that there is currently a very strong commitment for safety from the Health Physics Technician (HPT) organization.

Safety and Health Training

Employees are trained and qualified appropriately to their job descriptions and responsibilities. Employees at all levels know how to identify and protect themselves and others from hazards associated with their jobs. Training that is required and completed is documented. Through staff and safety meetings, supervisors reinforce training throughout the year. Employees stated in interviews that the training provided has made them more conscious of health and safety issues in their work environment. Managers and supervisors routinely receive training commensurate with their responsibilities. Safety meetings are held regularly. The Team feels that more OSHA/VPP training is needed to enhance general employee understanding of the knowledge baseline that highlights the OSHA safety programs. The Team determined that the safety and health training program at WFO is rated as a strength of the general safety and health program. In particular, the Team noted that the Instructor Safety and Health training course, the First Aid/ Blood Borne Pathogen course, and the Stretch for Life Program were rated as best practices.

Conclusion

The WFO has fully integrated its ISMS with the operation of its VPP. The Team concluded that WFO is a safe place to work and that it has satisfied the DOE VPP tenets. The Team recommends that DOE award Star status to WFO.

I. Introduction

The DOE VPP onsite review of the WFO was conducted February 27 through March 2, 2006, in Richland, WA. The operating contractor for DOE is CH2M HILL, which is a large nationally based company. The WFO has approximately 300 full-time employees. CH2M HILL is charged with the stewardship of 28 double shelled and 149 single shelled waste collection tanks, associated pumps, mixers, piping, and other equipment at the Hanford Tank Farm. These tanks store residue fluids created from the Cold War weapons production activities at Hanford.

The primary safety and health hazards are related to vapors and radiation originating from these tanks. Other hazards such as those involving construction, fire, electricity, wild animals, and natural phenomena are common to general industry.

The Team evaluated the safety programs of WFO against the requirements of the standards of the DOE VPP. The DOE VPP onsite Team consisted of safety professionals from DOE Headquarters, Waste Isolation Pilot Plant (WIPP) in Carlsbad, NM, the Hanford site, DOE ORP, and an observer from WISHA, Washington State's VPP Office. (See Appendix A for the Team member responsibilities and contact information). During the site visit the Team evaluated relevant safety documents, conducted interviews, and toured the facilities to evaluate and verify the information submitted in the WFO VPP application. The Team interviewed 127 WFO staff members.



II. Injury Incidence / Lost Workdays Case Rate

A review of the Occupational Safety and Health Administration (OSHA) 200/300 logs was conducted. The rates below include subcontractor hours and injuries.

Injury Incidence / Lost Workdays Case Rate (WFO)					
Calendar Year	Hours Worked	Total Recordable Cases	Total Recordable Case Incidence Rate	DART Cases	DART Case Rate
2003	841017	23	5.47	14	3.33
2004	961353	31	6.45	21	4.37
2005	793183	14	3.53	9	2.27
2006 YTD	103502	2	3.86	0	
3-Year Average (2003-2005)	2595552	68	5.24	44	3.39
Bureau of Labor Statistics (BLS) average for NAICSC 5629			6.3		4.0

Injury Incidence / Lost Workdays Case Rate (Sub-Contractor)					
Calendar Year	Hours Worked	Total Recordable Cases	Total Recordable Case Incidence Rate	DART Cases	DART Case Rate
2003	461245	2	0.87	0	0
2004	482584	6	2.49	4	1.66
2005	448227	10	4.46	3	1.34
3-Year Average (2003-2005)			2.59		1
Bureau of Labor Statistics (BLS) average for NAICSC 2379			6.5		3.5

III. Management Leadership

Responsibility

WFO management subscribes to the philosophy that line management is responsible for safety. The VPP effort began from a management decision in 2003 to reduce workplace injuries and accidents and encourage a more cooperative and safe workplace. The success and example of other STAR sites at Hanford gave WFO the encouragement and technical support to go forth with this initial decision. Having achieved recognition by the DOE field office and having gained sufficient employee involvement, WFO management has placed their responsibility for safety and health into an active program aimed to satisfy the requirements of the DOE VPP.

WFO managers are involved and committed to the implementation of a well-coordinated safety and health program. With clearly defined roles, responsibilities, accountabilities, and authorities for safety and health, managers are responsible for safety at all WFO facilities. Managers also ensure that employees are properly trained and equipped. Employees are responsible for performing work in a safe manner for themselves and for their coworkers. They are expected to comply with all safety requirements and to assist in the identification and correction of safety problems. The implementation and documentation of the safety and health program support and demonstrate these activities.

Safety and health services, with technical expertise in a variety of disciplines such as industrial hygiene and radiological protection, are available to achieve excellent performance. These services identify and determine applicability of requirements, develop and assist with program operations, assess potential hazards, assist with development and implementation of controls, and participate in assessments and in continuous improvement activities. All managers interviewed shared the view that vapors and radiological concerns are WFO's greatest workplace hazards.

Interviews with managers reflected that they clearly understand their safety and health responsibilities and are aware of the potential hazards at the workplace.

Accountability

WFO management is committed to providing the leadership, direction, goals, training, resources, and standards to assist employees in the performance of their duties in a safe manner. Management and employees share the responsibilities to carry out individual duties safely. The employees' position descriptions include their responsibilities under the ISMS requirements and expectations. The existing formal performance appraisal system inclusive of safety and health responsibilities is a critical element for safety accountability.

Program Evaluation

Management leadership is an opportunity for WFO to enhance its programs, drive feedback and improvement, and develop a corrective actions process that will serve as a tremendous tool to take safety to the next level of excellence. As such, WFO recently conducted a self-assessment of its VPP safety program and identified a few areas for further improvement. The Team also noted the need for further improvement in communicating the VPP to employees.

WFO should determine the evaluation of all VPP requirements that would help identify any weaknesses in the programs. Once this program is developed, it would be anticipated that the results of these evaluations and other safety and health trending data would be used to develop goals and objectives for the coming year.

Site Orientation

WFO provides site orientation for both visitors and new employees. Participants receive a general orientation and a brochure. Visitors are informed of security, safety and health, emergency evacuation procedures, and general organizational information. All new employees are required to complete site orientation training including, safety and health information, “Stop Work” responsibilities, “Worker’s Bills of Rights”, and an overview of ISMS and VPP requirements.

Employee Notification

Initial and annual safety and health training include VPP requirements. In addition, to maintain an effective notification process, employee representatives participate in several safety councils and contribute to *Focus*, a weekly WFO newsletter that addresses safety and health issues.

Employee notification elements in the VPP criteria include ensuring all employees are aware of participation in the DOE VPP, their right to express concerns related to occupational safety and health to DOE, and their right to receive the results of self-inspections and accident investigations upon request.

The Team, however, discovered during site interviews that some employees were not aware of their role in the VPP.

Commitment

Management commitment is critical to the successful implementation of the DOE VPP. WFO management has implemented a number of well-integrated safety management systems. The commitment to health, safety, and the environment as a core business value to ensure compliance is stated in RPP-MP-003, *Integrated Environment, Safety and Health Management System for the Tank Farm Contractor*. Management has issued a safety policy (*Industrial Safety and Health Policy*, TFC-POL-14) stating its commitment to safety and health for employees. The policy conveys the safety and health rules with which employees must comply and includes the “Workers’ Bill of Rights” stating employees’ rights for safety and health. The WFO work control procedure also details the process for safe work practices. By embracing ISMS and VPP as the foundation for performing work safely, a collaborative work environment has been created between management and the workers. The WFO managers are involved at every level and show their commitment to worker safety by helping to identify the worksite hazards and reducing the risk of injury and illness to employees. This level of commitment is reflected in the accessibility of all managers. The employees indicated that they were able to communicate both formally and informally with their managers for any safety issue and to take action for their concerns. Interviews indicated that employees do understand the priority of safety and health protection in relation to other organizational values. Although no one stated that safety was the first consideration, all maintained safety as a

primary focus. However, the Team noted that frequent change in the management organization and budgetary cuts may have raised some doubt among employees about the sincerity of management commitment.

WFO has incorporated a safety-culture improvement effort to enhance ISMS implementation. This effort, called Safe Work Environment (SWE), emphasizes a broad, comprehensive set of organizational attributes for improving safety behaviors. The organization has received training on these expectations, has completed two separate surveys, and has received feedback on the surveys and improvement opportunities. Positive examples of these expectations were the high trust levels within work crews and their sense of freedom to raise issues without fear of retaliation.

Contract Workers

All contractors working for WFO are expected to perform safely in a quality manner while protecting worker health and the environment. WFO reviews the safety performance history of all subcontractors before a contract is awarded. Specific requirements for subcontractors, including safety requirements, are documented during the procurement process. Periodic inspections of subcontractor work activities are routine. Subcontractors are required to use the same processes and follow the same rules. However, based on limited interviews, the Team noted that there is a perception that the rigor of safety requirements is not enforced equally among subcontractors and WFO employees.

Organization

The WFO review process has established a quarterly walk-through by senior managers of their areas. This review facilitates management's commitment, reinforces employees' awareness, and fosters safe behavior in workplaces. The recognition and award process provides additional reinforcement. Monthly PAPC and bi-monthly EAPC meetings, the self-assessment program, and the JHA program are further demonstrations of WFO management commitment.

Though management is committed to safety overall, management leadership in the implementation of the VPP does not meet the full potential reflected in its commitment and implementation of programs. The Team noted that some employees may not have a thorough understanding of the VPP Program. This may be due to the lack of in-depth understanding of the VPP areas since these are cultural based rather than written requirements that reflect compliance-only orientation. Involving more employees in all aspects of safety program management including development of programmatic goals, decision-making, and driving the programmatic implementation of VPP, are areas needing improvement.

Top-level management is clearly visible and actively participates in the S&H program. Managers are accountable for S&H responsibilities and maintain a policy of accessibility with regard to S&H issues that arise in the workplace. An "open door" policy ensures that any employee at any time can express a safety concern to any level of management.

Resources

CH2M HILL has sufficient resources including safety professionals in industrial safety, industrial hygiene, and radiological control to support essential programs for workers safety

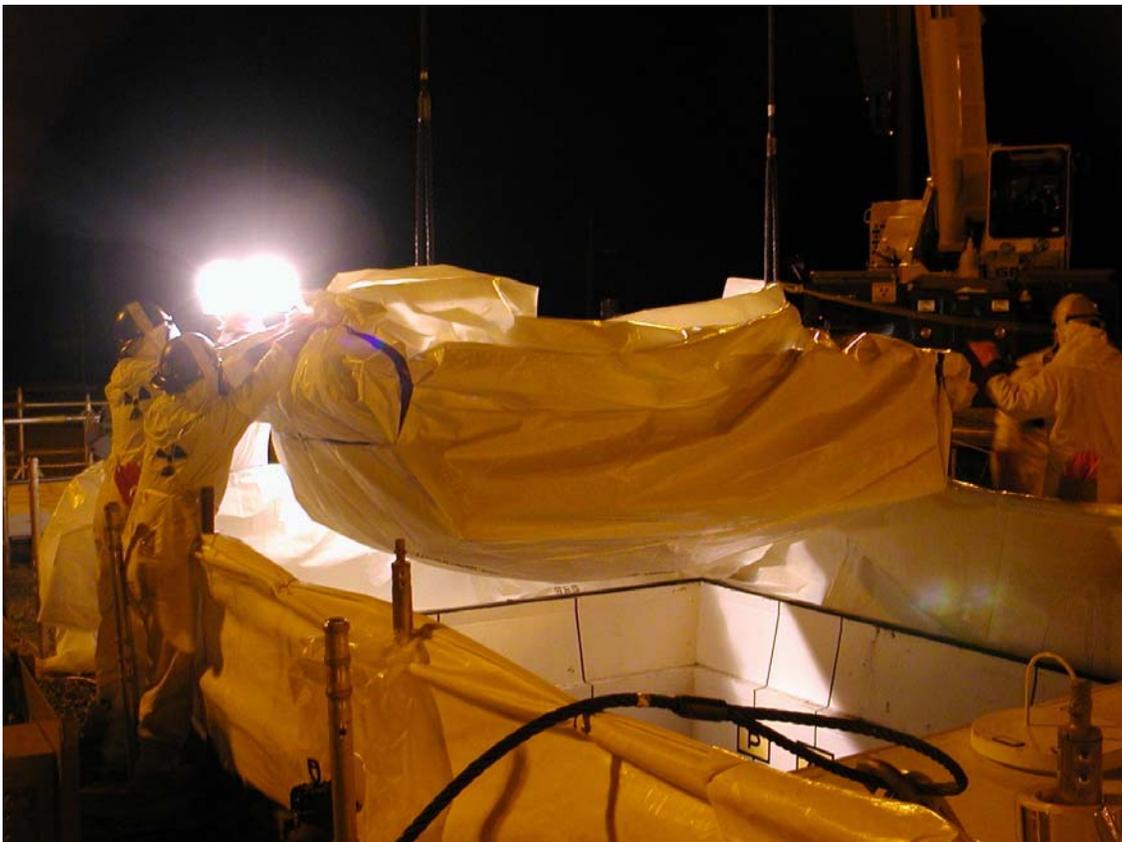
and health. Moreover, CH2M HILL uses matrix organization with other Hanford contractors for miscellaneous services, such as Dosimetry (Pacific Northwest National Laboratory), Fire and Emergency Response (Fluor Hanford), Advanced Medical Hanford (AMH), etc. CH2M HILL provides employees with paid safety-related training and PPEs.

Planning

At the company level, safety and health planning is incorporated into the annual budget process. The WFO EAPC members and management, in conjunction with the VPP Champion's Team, develop the safety improvement plan (SIP) annually. The WFO management annually evaluates and revises a formal implementation plan that includes the goals and actions from the SIP.

Conclusion

The Team found strong management commitment to safety and evidence of active involvement of management to achieve a safe working environment for employees. However, further improvement in communication would help some employees have a better understanding of the VPP.



IV. Employee Involvement

The Team noted that employees are actively engaged in the safety and health program. The recent achievement of one million safe work hours without a restricted or lost work day injury in a work environment requiring continuous respiratory protection is evidence of increasing quality of the safety and health program. Many employees feel their safety issues are being resolved and that there is a stronger commitment by management to provide a safe work environment at all levels. In general, employees believe that the safety and health program has been getting stronger over the last year, although some employees remain skeptical at this positive change due to trust issues from attitudes of the past.

Safety and Health Committees and Teams

WFO participates in the following safety and health committees and teams:

- Presidents Accident Prevention Council
- WFO Employee Accident Prevention Council
- WFO VPP Champions Team
- WFO Peer Safety Observer Team
- WFO ALARA Committee
- Chemical Vapors Solution Team
- Various activities for initiatives (e.g., safety topics, safety notice, daily safety meeting)

Overall, WFO employees are participating in the ownership and operation of the VPP. They work closely with managers through their EPAC and its companion, PAPC, to manage and expand their safety and health employee programs. The Team suggests the commencement of a process of membership rotation to encourage more involvement by larger numbers of employees, especially among the operations from the field. Additionally, the EPAC and PAPC should begin a review of the entire safety and health program to simplify its elements and thereby make it more comprehensible to a greater number of employees.

The WFO VPP Champions team was noted by the Team to be operating effectively and working in coordination with the Hanford VPP Champions program. WFO has representation on the Hanford VPP Champions Committee, as the former WFO VP is the current co-chair of this committee. Additionally, the Team regarded the HAMTC Safety Representative Program to be a strength in WFO. The Team members monitored each associated meeting during the audit and were satisfied that employees are effectively involved in the WFO VPP.

Degree and Manner of Involvement

The information gathered for this portion of the report relies heavily on observations of employees in the workplace as they conducted their routine duties and on formal and informal interviews of approximately 1/3 of the employees and managers from all work areas. As required by the VPP Star criteria, employees at all levels are involved in the structure and operation of the health and safety program and in decisions that affect employee health and safety. Most employees feel they own the safety program. In addition, employees are involved in continuous improvement programs such as the Peer Safety Observation Program, work planning, JHA development, workplace inspections, and other various initiatives.

However, much of the safety and health message presented to the employees is not clear. Although very comprehensive, the message is too complex. The Team believes that the VPP and the ISMS program information and their interfaces need to be streamlined and simplified and recommends more employee training for both the criteria and principles of VPP and OSHA. Moreover, communication among employees must be strengthened to enhance individual safety ownership and ISMS expectations. Many interviewed employees could not express ownership or sense the value-added quality of VPP and ISMS due to misunderstanding of ISMS expectations. Additional avenues for greater participation must also be established, although the Team noted the successful execution of a SWE as fully integrated into employee ISMS/VPP activities.

Clearly, the Team recognized that the WFO VPP began mostly as a management-driven exercise to change the safety culture and thus reduce accidents and injuries at the Tank Farms. This effort has brought significant success to workplace safety and health, and employee involvement has risen accordingly as surveys and other indicators demonstrate. However, presently even more employee involvement is very important, as a continuously improving excellent safety program for WFO will require a more fully employee-driven process.

There were no communication barriers identified between managers and employees with regard to raising concerns about safety and health issues. Employees were candid and did not hesitate to talk with the Team during interviews. All employees indicated that they understand their rights and responsibilities and are very knowledgeable about their responsibilities regarding safety and health overall. However, in many cases, they were not aware of the VPP specific actions. Interviews confirmed that a strong safety culture exists at all levels, and employees feel empowered to voice safety concerns. All employees interviewed (formally and informally) strongly expressed their readiness to stop work if they felt conditions were unsafe and believed that management would support the action. Some employees were able to give examples of when they intervened after observing an unsafe act or condition, and most felt that their interventions were received positively.

Most employees are familiar with efforts to continue to improve safety programs. The HAMTC Safety Representative Program has helped in resolving many issues early. Managers, including first-level supervisors, understand the purpose of VPP, but this same level of understanding is not evident throughout the organization. Most employees singled out the PER system for collection of concerns and issues as an improvement opportunity. However, WFO is still grooming the PER to be fully useful for all employees. In particular, quicker responses or continued status updates could assist the employee PER process

Clearly, majority of the workforce has welcomed the opportunity for increased participation and has indicated that the company's efforts have kept safety in the forefront. Many workers indicated that the effort has moved the WFO safety programs to a higher level. Some comments made during the interviews were as follows:

"This is a safe place to work".

"Safety has always been #1"

"This is one of the best safety environments I've worked in."

"I appreciate what the company does for safety."

Conclusion

Employee ownership is firmly established throughout WFO. Employees are proud of their worksite and feel safety is an integral part of it. WFO has satisfied this VPP criterion, although a few opportunities for further improvement exist. Namely, these improvements include:

- rotating EPAC membership to encourage more involvement by a large number of employees
- offering additional training for both the criteria and principles of VPP and OSHA
- streamlining the PER process to make it a more effective and efficient tool



V. Worksite Analysis

The worksite analysis processes within WFO are structured and implemented according to ISMS core functions and guiding principles. These processes adequately identify hazards to the workers, the environment, and the public. Formal worksite analysis processes for control of operations and the mitigation of hazards or potential hazards are in place. Personnel interviewed during this review and observations made by the Team confirmed that these processes are used and understood throughout the organization.

Comprehensive Surveys

WFO maintains baseline surveys of health and safety hazards that are updated on a routine basis and include chemical, vapor, radiological, nuclear, and industrial hazards information. This survey data supports emergency preparedness, the development of industrial hygiene monitoring plans, the assessment of physical requirements and working conditions, and other work purposes. In addition, WFO collects data on tank waste emission during any waste disturbing activity that increases the potential of worker exposure.

Self-Inspections

Inspections processes are well documented and fully implemented. The ISMS provides the baseline foundation for this inspection effort. Both formally required and informally employee-based observation programs work well together. WFO employees are aggressively recruited to become part of this effort as observers. The Team determined the Peer Observer Program to be a best practice and considered the overall inspection program a strength. Non-compliances and issues are documented and actions are tracked to completion, using the site-wide PER. The PER provides the vehicle for communication, tracking, assignment, follow up and close out of inspection items. Results from the inspections are analyzed to produce information useful to improve performance and prevent recurrence of negative issues. Likewise, the PER provides a baseline of information for selected training and for trending when requested by individual managers.

Employee Reporting of Hazards

Employees are encouraged and expected to identify and report, without fear of reprisal, unsafe conditions. This statement was strongly communicated to the Team during employee and manager/supervisor interviews. Most employees stated that they are not hesitant to communicate a concern or comment. The PER is the primary means for these reports and continues to evolve its value and utility. Interviews indicated that many employees require additional training and orientation with the PER to adjust its use as an effective tool for employees. The Team determined that the PER must be simplified to be of greater employee value.

Employees stated they felt that any of the available means could be used to report all situations (though they unanimously said they would use the verbal method to communicate to their immediate supervisor/manager). No one could recall an unreported dangerous situation.

Accident Investigations

The team noted that WFO has a strong accident investigation program. This program addresses both the formally required investigating procedures and the more informal fact-finding efforts that are usually driven by management request or by specific circumstances. All efforts are managed and reported/ tracked through the PER.

Trend Analysis

Safety and health performance and trending data of occupational injury/illness statistics is developed from the database and presented monthly. Trending is a strong activity at WFO. Additionally, site weather is presented from past histories as a leading indicator for daily work briefings. This practice of providing weather information was recognized as a best practice at WFO. By VPP criteria, that trend analysis is conducted for all data accumulated under the health and safety program including injury/illness statistics, inspections, and employee reports of hazards to help identify systemic problems that may not be noticed when only isolated incidents are considered. WFO appears to have the broad, comprehensive approach necessary to assist its continuous improvement efforts. Accident/injury performance shows steady improvement since the implementation of VPP. Trending is coordinated in the PER.

Routine Hazard Analyses

All work performed by employees, including work performed by subcontractors, maintenance work, and emergency response, is routinely analyzed using the JHA method. Regularly executed, JHA is fully described in the WFO documents, which include routine JHA and JHA created for specific jobs. When routine tasks are performed, provided the safety conditions have not changed since the JHA was last reviewed/approved, the JHA can replace the need to complete another hazard evaluation. This allows routine activities to be performed, such as normal maintenance. However, for jobs involving activities not previously analyzed and/or activities involving changed/changing conditions, a JHA is required. The Team noted that pre-job briefings are conducted for new and revised JHAs as well as many routinely performed activities that involve a higher level of risk.

Pre-use/Pre-startup Analysis

New or modified facility designs, operations, and processes are reviewed and analyzed to identify and mitigate potential hazards before work is started. New and modified equipment must meet requirements for safety (e.g., guarding, electrical safety, noise levels, etc.) using the JHAs. The line manager in charge of a new or modified process is required to initiate a JHA, which S&H then reviews and concurs with, if acceptable. This checklist is the initial screening to determine if a preliminary analysis is required. Before beginning the work, line managers ensure that the risks and hazards are controlled as specified in the work plan and the JHA.

Interviews and record reviews demonstrated that S&H professionals are routinely involved in this process. Examples of these reviews and interviews with the S&H professional and maintenance work planner highlighted the process and its effectiveness.

Conclusion

Worksite analysis methods are effective in addressing new and hazards. WFO meets all of the requirements of the Worksite Analysis tenet.



VI. Hazard Prevention and Controls

OS&H Programs

WFO's integrated safety management system (ISMS) policies, programs, processes, and implementation procedures incorporate environment, safety and health, and quality (ESH&Q) into work planning and execution. Subcontractors are also required by contract to have and document their own safety management system that is compatible with the Tank Farm (CH2M HILL) contract ISMS. Flowdown of the requirements systematically follows from company to facility and to activity levels. Management and workers at every level are responsible and accountable for understanding and implementing established company standards for safety. Personnel are accountable for their own safety and the safety of their peers, the public, and the environment.

Safety & Health Rules

WFO has strong safety and health rules in the hierarchy of policies, procedures, and ISM plans. The Master Safety Rules are posted (e.g., Porcelain Press, Tailgate, and FOCUS) throughout the facility and can be found on WFO's intranet. "Stop Work" authority is also posted throughout the facility with references to the supporting safety documents. Safety and health rules are communicated to workers through a variety of mechanisms, including pre-job and daily briefings, and formal training. Hazards are controlled by using engineering controls, PPE, JHAs, and work planning checklists. Site safety rules, work practices, and use of PPE were found to meet requirements. The rewards and recognition/disciplinary program reinforce these rules.

WFO promotes good safety culture while working with employees through positive contacts, casual conversations, and coaching to improve performance and recognition. To reinforce good safety practices, WFO has implemented a Safety Recognition Program that includes the EAPC Awards Program, the President's Safety Award, the President's Life Saving Award, the Peer Safety Observer Program, On-the-Spot Awards, and the VPP Annual Safety Awareness Campaign and Safety Expo. PAPC and EAPC have formed a partnership of labor and management to improve safety performance. Several subcommittees, namely the ALARA Committee, the VPP Champion Committee, and the Safety Expo Committee, help PAPC and EAPC to achieve its safety performance goal.

An industrial hygienist reviews hazardous materials before procurement. Material Safety Data Sheets (MSDSs) are maintained at Right-to-Know Stations throughout the facility and are available on the intranet.

Subcontractor's work is monitored by industrial hygiene and radiological control to verify that work is performed as planned and in accordance with requirements.

Safety and health rules are used to guide and enforce/reward conformance to policies and requirements. A hierarchy of positive reinforcement (recognition awards program, Presidents Lifesaving award, Presidents Safety Award, monthly safety award) is available and used by management to reward proper and exceptional behavior.

Overall, the Team found that all employees follow safety and health rules. Interviews with employees indicated they know and understand the disciplinary process should these rules not be followed. Those interviewed felt this process is both fair and consistent, and gave examples of positive and negative reinforcement received from supervisors and management for good or poor work practices.

Personal Protective Equipment

WFO employees utilize a hierarchy of controls, such as engineered controls, administrative controls, and PPE, for safety. WFO uses comprehensive work control procedures for managing work from initiation to closeout. Site policy regarding the use of PPE is established in procedures.

The Chemical Vapors Solutions Team (CVST) provides the technical basis for PPE operations. Vapor hazards are now considered the primary workplace hazard at WFO. A variety of PPE including gloves, boots, safety glasses, hearing protection, and respirators is available. Where PPE is needed, requirements for its use are integrated into JHAs.

There is a strong program for medical evaluation, respirator fit testing, and training for respirator users. CH2M HILL Environmental Health, Industrial Safety, and the CVST are addressing the current mandatory use of supplied air for tank farm operations and have been able to justify a reduction in the requirements for respiratory protection. This is a major achievement in addressing an extraordinarily complex issue.

Preventive Maintenance

WFO currently manages preventive maintenance through the Computerized History and Maintenance Planning Software (CHAMPS) database system. CHAMPS is used at tank farms to request and perform preventive and corrective maintenance as well as modifications. The system is in the process of being enhanced through the implementation of PC-SACS data retrieval capabilities. This will allow enhanced analysis of maintenance needs and the use of resources to reduce backlogs.

Medical Programs

WFO contracts with Advanced Medical Hanford for its medical services, which include evaluation and treatment, preventative and wellness programs, and general health support for associates. WFO has established procedures providing support for occupational health related needs to improve services to all employees. These include the process for determining and obtaining necessary employee medical qualifications based on the job requirements, hazards, exposures, and overall risk associated with their assigned work. This program also uses an automated employee job task analysis (EJTA) which supports the collection of data necessary for a risk-based approach to medical qualification and monitoring.

WFO also provides CPR, First Aid, Automated External Defibrillator (AED), Respiratory Protection and Blood Borne Pathogens trainings to the employees based on the requirements of their job function.

WFO Industrial Hygiene provides ergonomic assessments and expertise. The reviews are ongoing and help employees identify any aches or pains before they become significant.

Professional Expertise

WFO has a well-qualified group of safety and health professionals. Several hold academic degrees and safety certifications. Quality personnel are available at both the staff and the line levels of management. The Team considered the WFO industrial hygiene and toxicological expertise as a strength of the organization that has helped in identifying WFO's extensive legacy of mixed waste characterization.

Emergency Preparedness

The CH2M HILL Emergency Management Department provides an emergency management program to support the facility. The Fluor Hanford Fire Department supplies fire and ambulance service to the Tank Farms. Employees participate in drills and exercises as scheduled with the key hazards including chemical hazards, explosives hazards and natural phenomena.

Radiation Protection Program

The HPT organization provides radiological control support to the WFO work force. Based on employee interviews there is a perception that the HPT have used the "Stop Work" program for other bargaining unit employees who have concerns about safety on the job. The Health Physics Manager, although on the job less than a year, has earned a level of respect from his HPTs and has adequately addressed legacy safety concerns among his work group. In almost every interview, employees reported high praise for the professional performance of the HPTs.

The Team determined that WFO has an effective health physics program. Dosimetry is managed through support from the Pacific Northwest National Laboratory (PPNL).

Conclusion

The Team felt that WFO meets all of the requirements of the work analysis tenet and its sub-elements as described above.

VII. Safety and Health Training

The safety and health training processes used by WFO are structured and implemented by ISMS core functions and guiding principles. These processes adequately train workers and employees in recognizing hazards and performing their work safely. Statements of employees interviewed during this review, and observations made by the Team, confirmed that these processes are used and understood by employees throughout the organization. The onsite review clearly showed that processes have been effectively developed, communicated, implemented, and self-assessed to meet the tenet of safety and health training. The Team found three outstanding training programs worthy of mention: (1) a combined/condensed first aid/ blood borne pathogen course; (2) an instructor course for safety and health training; and (3) the Stretch for Life program. In general, the Team rated WFO as having strong safety training programs.

The Team noted that WFO has identified certain areas of training for further improvement. Currently, the individual manager decides what training his/her staff needs. However, some employees require varying levels of training to meet their requirements.

Supervisors

Supervisors attend a training program that provides a useful tool for continuous improvement in safety in accordance with the expectations of the ISMS. Subject matter experts in safety and health determine if formal or informal training is necessary for management. Other management training may include behavior-based safety training for management with a focus on hazardous materials and waste control and appropriate management skills training, such as creative problem solving to ensure a safe work environment for the staff. Training addresses text knowledge, practical factor accomplishment, and on-the-job tasking.

Managers

Managers interviewed reflected that they had been given sufficient training in proportion to their authority and responsibilities for employee safety. They were able to outline their safety and health responsibilities and appropriately describe the hazards associated with jobs under their supervision and the potential adverse effects on employees.

Employees

Processes have been documented to define the required training for employees and managers/directors. The Team confirmed through interviews, observations, and document reviews that each employee receives training commensurate with their job description, responsibilities, and authority. All training provided has three parts associated with the job qualification. These are text knowledge as classroom work, specific practical exercises, and on-the-job qualification by peer. All training provided has a “knowledge check” (test) associated with the course. The feedback loop in the “knowledge check” is used to reinforce learning through incorrect responses. In addition, each line manager is responsible for determining additional training requirements based on the JHA for the tasks that an employee will be performing. Furthermore, orientation for new employees includes all general ES&H training that is necessary for the individual employees to perform their job assignment safely.

One area for improvement noted by the Team was to expand the employees' knowledge base of OSHA and VPP. Employees interviewed reported that they are taught how to protect themselves and others from the hazards of their jobs. There was evidence from observation, documentation, and interviews that employees understood what the vapor hazards were and how to operate the required PPE properly.

Conclusion

The safety & health training processes used by WFO are structured and implemented core functions and guiding principles. These processes adequately train workers and employees. WFO meets the safety and health Training VPP tenet. The Team noted an area for further improvement, which is to extend the knowledge base among the employees for OSHA and VPP understanding.

The Team recommends VPP Star status for WFO.



APPENDIX A: Onsite VPP Audit Team Members

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