Fluor Hanford
Closure Services and Infrastructure Recertification

Report from the DOE
Voluntary Protection Program
Onsite Review
September 4 -14, 2007

U.S. Department of Energy
Office of Health, Safety and Security
Office of Health and Safety
Office of Worker Safety and Health Assistance
Washington, D.C. 20585

October 2007

Foreword

THE 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. The DOE-VPP closely parallels the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP), which was established by OSHA in 1982 and has demonstrated that cooperative action among government, industry, and labor can achieve excellence in worker health and safety.

DOE-VPP outlines areas where DOE contractors and subcontractors can comply with DOE Orders and OSHA standards while also "stretching for excellence." DOE-VPP emphasizes systematic and creative approaches involving cooperative efforts of everyone in the contractor or subcontractor workforce at DOE sites, including contractor managers and workers.

Requirements for DOE-VPP participation are based on comprehensive management systems, with employees actively involved in assessing, preventing, and controlling the potential health and safety hazards at their sites. DOE-VPP is designed to apply to all contractors in the DOE complex and encompasses production facilities, research and development operations, 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, participants may withdraw from the program at any time.

DOE-VPP consists of three programs, which are based on and similar to those in OSHA's VPP. These programs are Star, Merit, and Demonstration. The Star program is the core of DOE-VPP, and its achievement indicates 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 expected to be used rarely; it exists to allow DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for the Star program.

By approving an applicant for participation in DOE-VPP, DOE recognizes that the applicant is meeting, at a minimum, the basic elements of ongoing, systematic protection of employees at the site. The symbols of this recognition are DOE-provided certificates of approval and the right to fly the VPP flags (e.g., VPP Star flag for sites with Star status). The participant may also choose to use the DOE-VPP logo on letterhead or on award items for employee incentive programs. Further, each approved site will have a designated DOE staff person to handle information and assistance requests from DOE contractors, and DOE will work cooperatively with the contractors to resolve health and safety problems.

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ABBREVIATIONS AND ACRONYMS

AJHA	Automated Job Hazard Analysis
AMH	Advance Med Hanford
BLS	Bureau of Labor Statistics
CS&I	Closure Services and Infrastructure
CZAC	Closure Services Zero Accident Council
DART	Days Away, Restricted, or Transferred
DOE	U.S. Department of Energy
DOE-VPP	U.S. Department of Energy Voluntary Protection Program
EJTA	Employee Job Task Analysis
ESQ&R	Environment, Safety, Quality, and Radiation Protection
EZAC	Employee Zero Accident Council
FH	Fluor Hanford, Inc.
HAMTC	Hanford Atomic Metal Trades Council
HASP	Health and Safety Plan
HGET	Hanford General Employee Training
HSS	Office of Health, Safety and Security
HVAC	Heating, Ventilation, and Air Conditioning
IH	Industrial Hygienist
IDLH	Immediately Dangerous to Life or Health
ISM	Integrated Safety Management
NAICS	North American Industry Classification System
OSH	Occupational Safety and Health
OSHA	U.S. Department of Labor's Occupational Safety and Health Administration
PBC	Polychlorinated Biphenyl
PEL	Permissible Exposure Level
PHMC	Project Hanford Management Contract
PM	Preventive Maintenance
PPE	Personal Protective Equipment
PZAC	Presidents Zero Accident Council
RES	Refrigeration Equipment Services
RL	Richland
RWP	Rad Work Permit
SIP	Safety Improvement Plan
TRC	Total Recordable Case
VPP	Voluntary Protection Program

EXECUTIVE SUMMARY

The Fluor Hanford (FH) Closure Services & Infrastructure (CS&I) sub-project is responsible for enabling safe, efficient and reliable operation and cleanup of the Hanford Site. It provides closure services for specialized operations and maintenance activities, operation of utilities, fire protection, and facilities and land management. The project was awarded DOE-VPP Star status in 2003. It was due for a recertification site visit in 2006, but that visit was delayed until 2007.

Continuation of Star status in the DOE-VPP program requires an onsite review by the DOE Office of Health, Safety and Security (HSS) DOE-VPP team (Team) every three years. The Team conducted its review during September 5-14, 2007 to determine whether CS&I is continuing to perform at a level deserving DOE-VPP Star recognition. The purpose of this report is to document the results of the Team review and provide the Chief Health, Safety and Security Officer with the necessary information to make the final decision about CS&I's DOE-VPP status.

Based on discussions and interviews with over 100 workers, supervisors, and managers, as well as extensive observation of work activities, inspection of worksites and facilities within the project scope, and reviews of records, the Team determined that CS&I has generally maintained a strong safety culture. The accident and injury statistics are well below national averages for their comparison industry. The Team was concerned about the strength of the worksite analysis, employee involvement, and the effectiveness of the partnership between managers and workers. Although most of the workers and managers work effectively and safely, a significant number of workers are not fully engaged in safety. Although CS&I has recently taken actions to improve the employee involvement, those actions have not yet had time to produce the anticipated improvements. The weaknesses in hazard analysis stem from FH corporate implementation of the hazard analysis process. While the weaknesses in the corporate process were not evident at other FH projects reviewed, they became evident at CS&I because of the heavy reliance on skill-based work. The corporate weaknesses have been a longstanding problem since they were first identified by Richland (RL) in 2005, and then again by the Office of Security and Safety Performance Assurance (SSA, now HSS) Office of Independent Oversight in 2006. Although the FH process has weaknesses, CS&I managers and supervisors can choose to use the Automated Job Hazard Analysis (AJHA) process more frequently to ensure they are performing effective hazard analysis. As a result of the weaknesses in hazard analysis, the Team identified some hazards that have not been adequately analyzed and subsequently controlled.

Due to the needed improvements in Management Leadership, Employee Involvement, and Worksite Analysis, the Team recommends that CS&I be given a Conditional Star rating. This rating allows CS&I to continue with Star status on the condition that they demonstrate improvement in those areas, and are subject to another onsite review in approximately 12 months.

The standard for Star status is not perfection, but rather that in addition to an excellent safety record, managers and workers are dedicated to and effectively pursuing excellence in safety performance. Consistent with that goal, the Team identified a number of opportunities for improvement. These opportunities reflect those areas where CS&I can further improve its performance (see Table 1). While no formal corrective action plan is required to address these opportunities, CS&I is expected to consider and specifically address them in their annual status reports.

TABLE 1
OPPORTUNITIES FOR IMPROVEMENT

Opportunity for Improvement	Page
CS&I managers should encourage workers to propose alternative solutions to problems when existing actions are viewed as burdensome or are no longer effective.	6
CS&I managers need to identify more creative means to communicate regularly and directly with workers and demonstrate their commitment to ensuring that work is done safely or not at all.	6
CS&I managers and supervisors must take advantage of opportunities to work with individual employees to enter safety concerns in the logbook and ensure those logbooks are maintained accurate and up to date.	8
FH should find the resources to send additional employee representatives to regional and national safety conferences, and give them the support necessary to implement new ideas and strategies.	9
FH should encourage the EZACs to take ownership of new initiatives, such as a Behavior Based Safety Program, that would encourage workers to raise safety observations, including observations that cross jurisdictional boundaries between labor unions.	10
FH should train EZAC chairpersons and VPP leads as critique leaders, and allow more participation by the EZAC in the investigation process.	10
FH should revise the JHA procedure to ensure that a graded approach to work control is based on a systematic analysis of the hazards, and that the assumed skill of the workforce or complexity of the work is not used as a reason for omitting a necessary hazards assessment.	13
CS&I should ensure that a systematic job hazard analysis has been performed for all work, and that job hazard analysis is used to determine the classification of work as "skill-based."	15
CS&I should evaluate and train supervisors to identify when work to be performed is non-routine or beyond the standing AJHA for their group.	15
CS&I should add the Fleet Services trucks outfitted with hydraulic boom hoists to the Hoisting and Rigging B30.5 inspection program. Additionally, CS&I should ensure no other hoisting and rigging equipment is in use outside the hoisting and rigging workgroup that has not been properly inspected and tested.	19
Fleet Services should have a qualified engineer analyze and determine, based on manufacturers requirements, whether the truck bodies that the boom cranes are installed on are approved for use by the boom crane manufacturer. If results warrant, the current rating of the booms should be lowered.	19
CS&I should reemphasize to workers the need to read and follow posted warnings and controls. If the postings are incorrect, workers must be encouraged to bring incorrect postings to the appropriate authorities, and get the postings corrected before work continues.	19

I. INTRODUCTION

The DOE-VPP onsite review of FH CS&I at the Hanford Site was conducted from September 4-14, 2007. Fluor Hanford Incorporated is the prime contractor for the Management and Integration contract at the Hanford Site since 1996. The DOE Richland Operations Office provides direction to and oversight of FH.

The CS&I sub-project is responsible for enabling safe, efficient and reliable operation and cleanup of the Hanford Site. It provides closure services for specialized operations and maintenance activities, operation of utilities, fire protection, and facilities and land management. The CS&I sub-project scope of work includes:

- Government vehicle fleet management
- Transportation of materials and waste
- Maintenance of roads
- Maintenance services to other sub-projects
- Water, sewage, and electrical utilities
- Management of general purpose facilities
- Account management for Work for Other Contractors process
- Technical services (e.g., traffic engineering, water compliance, and asset condition evaluation)
- Purchased services (e.g., calibration, mail, fabrication services, laundry, and fuel)
- Fire Protection

Recognition in the DOE-VPP requires an onsite review by the HSS DOE-VPP team (Team) to determine whether the applicant is performing at a level deserving DOE-VPP recognition. The Team evaluated CS&I safety programs against the provisions of DOE-VPP. During the site visit, the Team observed activities, evaluated relevant safety documents and procedures, and conducted interviews to assess the strength and effectiveness of CS&I health and safety programs.

The Team had contact with over 100 employees, managers, and supervisors, either formally or during observation of field activities. Hazards associated with CS&I activities included potential radiological contamination, potential chemical exposure associated with various activities, thermal stress and dehydration, noise, heavy equipment, electrical hazards (including high voltage transmission lines and distribution systems), elevated work, excavating, hoisting and

rigging, waste handling, and a multitude of other standard industrial hazards associated with site infrastructure maintenance and operation. CS&I workers may also be exposed to the range of other nuclear hazards associated with site cleanup work, including nuclear facilities and tank waste management activities. Work observed included operation and maintenance of the site water treatment plant, high voltage electrical switching, electrical maintenance, refrigeration equipment servicing, carpentry work, vehicle maintenance and repair, hoisting and rigging activities, and road maintenance and repair.

II. INJURY INCIDENCE / LOST WORKDAYS CASE RATE

The team conducted a review of the Occupational Safety and Health Administration (OSHA) 300 logs. The tables 2.1 and 2.2 below summarize the OSHA reportable data for: CS&I employees and subcontractors supporting CS&I, respectfully

Table 2.1 Injury Incidence / Lost Workdays Case Rate (CS&I)					
Calendar Year	Hours Worked	Total Recordable Cases (TRC)	TRC Rate	Days Away, Restricted, Transferred DART Cases	DART Case Rate
2004	1,221,034	12	1.97	4	0.66
2005	1,057,521	6	1.13	2	0.38
2006	995,108	7	1.41	2	0.4
3-Year Total	3,273,663		1.53 (Avg)		0.49 (Avg)
Bureau of Labor Statistics (BLS-2005) average for NAICS Code # 562 (Waste Management and Remediation Services)			7.1		4.7

Table 2.2 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
2004	25,739	0	0.00	0	0.00
2006	37,061	1	5.40	0	0.00
2007	60,118	1	3.33	1	3.33
3-Year Average	122,918		3.25 (avg.)		1.63 (avg.)
Bureau of Labor Statistics (BLS-2005) average for NAICS Code # 562			7.1		4.7

Total Recordable Case Incidence Rate including subcontractors: 1.59
Lost or Restricted Workday Case Incidence Rate including subcontractors: 0.53

Conclusion

CS&I injury rates are well below the averages for the comparable industry and meet the criteria for participation in the DOE-VPP program at the Star level. The subcontractor three year average accident total recordable case rate and DART rate, although higher than CS&I, are below the comparable industry averages, and also meet the criteria.

III. MANAGEMENT LEADERSHIP

Management leadership is a key element of obtaining and sustaining an effective safety culture. The contractor must demonstrate senior-level management commitment to occupational safety and health in general, and to meeting the requirements of the DOE-VPP. Management systems for comprehensive planning must address health and safety requirements and initiatives. As with any other management system, authority and responsibility for employee health and safety must be integrated with the management system of the organization and must involve employees at all levels of the organization. Elements of that management system must include clearly communicated policies and goals, clear definition and appropriate assignment of responsibility and authority, adequate resources, and accountability for both managers and workers. Finally, managers must be visible, accessible, and credible to employees.

Interviews with the managers, from the sub-project Vice President down through the project organization, all demonstrated a clear commitment to the safety and health of every member of the project. The CS&I managers have a broad variety of experience from industry and the military, as well as extensive experience at the Hanford Site. As discussed later in this section, managers may not always be effective in translating this commitment into actions that demonstrate effective leadership and encourage the workforce to engage in safety.

Project Hanford Management procedures define how work is accomplished, and include the integration of safety into all work. The Fluor Hanford Project Execution Plan describes the FH approach to safely accomplish the mission and goals established in the Project Hanford Management Contract (PHMC). A series of PHMC procedures and project procedures define how the requirements and management processes are implemented. These processes and procedures adequately define the authorities and responsibilities for safety and health of the workforce. Observations of work and inspection of worksites clearly reflected the use of and conformance with processes and procedures.

The ***"Fluor Hanford Safety Policy,"*** HNF-5053, establishes a clearly stated policy on safe and healthful working conditions. This policy applies to all workers at the site, including FH employees and subcontractor personnel. This policy is communicated to all workers initially as part of the Hanford General Employee Training (HGET). Unlike some other FH projects, CS&I has chosen not to establish a separate safety policy for their organization. Although not required, a separate safety policy or statement of expectations from CS&I management could be an effective means of helping managers and employees "own" the CS&I safety program.

FH has established specific, aggressive goals for days away from work and recordable injury case rates that are well below industry averages. CS&I rates are above the FH corporate goals. Managers are aware of this situation, and are trying to find effective strategies to reduce accidents and injuries. CS&I has a Safety Improvement Plan (SIP) supported by the Employee Zero Accident Council (EZAC) that establishes actions to improve safety performance. Elements of that plan are posted throughout the project on Safety Bulletin Boards. Several actions are identified to improve Management Commitment, including regular visits to worksites, rewarding safe behaviors, and providing individual employee recognition. CS&I has implemented these actions, but has not been sensitive to how effective those actions are at

achieving the desired results. For example, each workgroup that meets the zero injury goal is given a budget of $10 per employee per quarter that can be used by the group to either have a catered lunch or purchase food that the employees cook. For some groups, this lunch is perceived as a reward, but not by other groups. Other rewards include: gift cards for individuals that make a significant safety contribution; monthly drawings for a $50 gift card for teams that have no vehicle accidents, recordable injuries, or skin contaminations; CS&I Team Stretch Awards of $50 gift cards for teams that meet the quarterly goals for six consecutive months; and special project Vice President (VP) awards given at the project VP's discretion. CS&I should identify additional means to provide instant recognition for employees exhibiting desired behaviors. For example, allowing individual workgroups additional latitude to pick a desired safety reward at the beginning of the quarter, and then providing regular reminders, could provide more effective safety incentives. Managers also need to identify ways to encourage and reward employees to think more creatively about safely performing work.

Based on the information gathered during this review, sufficient safety resources are available to perform safety and health functions. There is a dedicated staff with expertise in industrial hygiene, industrial safety, and radiological controls to provide the necessary support to safely accomplish field work.

Although they are committed to the individual safety and health of every employee, some managers' actions are being misinterpreted by workers, and may be perceived as discouraging employee participation and initiative. For example, critiques conducted as a result of injuries or incidents are usually led by managers. In some cases, employees reported feeling that the critique process was trying to "blame the employee." Facts from the critiques are not always clearly communicated to the workers and, consequently, rumors about the injury or event spread throughout the workforce. For example, in an accident that occurred approximately one year ago, a piece of heavy equipment known as a "guzzler" had a tire blowout that caused it to go off the road and roll over. Employees interviewed by the team reported they had heard a manager state, either during the critique or afterward, that had he been driving the equipment, the accident would never have happened. While the manager may or may not have made that statement, the perception by the workforce was that the employee was blamed for the accident, rather than the lack of maintenance or inspection of the tires.

In other cases during interviews, some managers were very quick to resort to disciplinary measures for potentially unsafe employee behaviors, such as failure to correctly wear identified personal protective equipment (PPE) (gloves or safety glasses). While fully within their scope of management prerogative to take disciplinary action, the failure to find other means to raise worker awareness of the hazards and engage them in the solution erodes employee trust, leads to workers questioning managers' motives, and discourages employees from self reporting problems or infractions of safety rules. It further discourages workers from reporting unsafe behaviors by other workers, as this becomes perceived by workers as "putting their friends on report."

In a few cases, managers' actions may be perceived as not responsive to employee input, and subsequent corrective actions for the injury or event are then perceived as either strong-handed management directives or punishment of workers that had no input. For example, FH initiated a

vehicle safety program approximately three years ago that required employees to place a traffic cone at the rear of any government vehicle. Before driving the vehicle, the employee has to walk behind the vehicle to retrieve the cone. This action was implemented to ensure workers performed a walk around the vehicle to identify any obstructions or hazards. Initially, the action was very effective in the pilot program within a group that experienced several vehicle incidents, and as a result of the ***"Cone 360 Program"*** vehicle accidents were sharply reduced. This action has been previously identified as a best practice at other FH projects. For many workers at the CS&I sub-project, however, this action has lost its effectiveness. Workers who have never had a vehicle accident now complain that they are being punished for others carelessness. Many workers have either stopped using the cones, or do not use the action as an opportunity to look around the vehicle. Workers have not been effectively encouraged by managers to identify alternative solutions, and managers have not been alert to the employee complaints about the requirement.

Opportunity for Improvement: CS&I managers should encourage workers to propose alternative solutions to problems when existing actions are viewed as burdensome or are no longer effective.

Another hurdle CS&I managers must overcome relates to the size and diversity of the organization. Because of the broad mission, many workers are spread throughout the site for the majority of their workday. Opportunities for managers to address the organization as a whole are few, and require significant coordination across the site. In many cases, the conduct of an all-employee meeting at the beginning of the workday would result in a nearly complete shutdown of work across the site. Some managers have developed mechanisms to regularly meet with workers. For example, the Vice President for CS&I recently held a "Safety Pause" that was effective in identifying a number of actions, and many of the workgroups meet on a weekly basis for return-to-work meetings, or even daily pre-job meetings. In some cases, however, workgroups do not hold return-to-work meetings or daily pre-job meetings. In those cases, lower level managers and supervisors need to look for opportunities to engage and empower their workforce on a more frequent basis.

Opportunity for Improvement: CS&I managers need to identify more creative means to communicate regularly and directly with workers and demonstrate their commitment to ensuring that work is done safely or not at all.

Conclusion

CS&I managers are clearly committed to safely accomplishing the mission, but in some cases have not been effective in communicating or demonstrating that commitment to the workforce. For the most part, CS&I managers are proactive and have an effective working relationship with their employees. However, some managers have not established effective partnering relationships with their workers, and this situation is causing an erosion of some employees' trust and participation. CS&I managers need to find more effective methods to communicate with their workforce, encourage broader employee participation, identify and reward individual

creativity in improving safety, and effectively demonstrate their commitment to safety in ways that are not perceived as threatening to employees.

IV. EMPLOYEE INVOLVEMENT

Employees at all levels must be involved in the structure and operation of the safety and health program and in decisions that affect employee health and safety. Employee participation is a complement to the individual right to notify appropriate managers of hazardous conditions and practices.

CS&I has several systems in place to encourage employee involvement, including the EZAC. CS&I has 32 separate workgroups each having their own EZAC. The chairperson for each of these councils is selected by the labor unions' leadership. These councils in turn provide information to the CS&I Zero Accident Council (CZAC). The CZAC is chaired by The Hanford Atomic Metal Trades Council (HAMTC) Safety Representative appointed to CS&I. The CZAC provides information to the FH Presidents Zero Accident Council (PZAC). These councils serve as an avenue for workers to raise safety issues and for managers and employees to work together to seek appropriate and timely solutions. FH Senior Managers also use these councils as an effective means to disseminate pertinent safety information to the entire organization, and to discuss ways of preventing future accidents.

Similar to other FH organizations, CS&I has implemented safety logbooks within each workgroup. To promote employee ownership of the logbooks, CS&I has consciously chosen not to establish any procedural requirements for using the logbooks. Instead, each workgroup is provided the latitude to use and maintain the logbook as they see fit. The CS&I Vice President has established an expectation that any safety item in the logbook that cannot be closed within 60 days must be brought to his attention, along with an explanation of what is required to address the issue. The safety logbooks provide an effective mechanism for employees to raise safety concerns and ensure the concerns are tracked and resolved.

The team observed some cases where the use and maintenance of the safety logbook has not met managers' expectations. In some cases, items listed in the safety logbooks were not updated to reflect the status of resolutions for several months. Other items, although up to date, had not been addressed or resolved in a timely manner. Not all employees recognized the value of the safety logbooks, or were convinced of the managers' commitment to resolve safety logbook issues. The nature of the workforce may also provide barriers to use the logbooks because some workers are not comfortable or skilled in expressing their concern in writing. Managers and Supervisors often reported during interviews that when presented with a safety concern by a worker, their first response was to ask "Is it in the safety logbook?" Their well intentioned question may often be misinterpreted by workers. Recognizing that workers may not always be able to clearly express their concerns in writing, managers and supervisors need to ensure that they assist workers with making safety logbook entries that clearly define the specific concern of the worker.

Opportunity for Improvement: CS&I managers and supervisors must take advantage of opportunities to work with individual employees to enter safety concerns in the logbook and ensure those logbooks are maintained, accurate, and up to date.

CS&I has a recognition and award system intended to promote employee involvement. CS&I has committed to providing a luncheon each quarter for each of the 32 workgroups provided they meet the zero injury rate goal for that quarter. This year, most of the workgroups have met that goal. Other awards available to individual employees include $50.00 gift cards for every six months in which they experience no vehicle accidents, skin contaminations, or recordable injuries, timely recognition of safe work awards ($15.00 gift cards), monthly random safety drawings, and a project VP award. All of these recognition processes are highly encouraged by senior management. During the CS&I EZAC, the CS&I Vice President spoke about the insufficient use of these awards by managers and supervisors, and encouraged them to "start spending the money."

CS&I employees are also actively involved in the work planning process. When the need for a "planned" job is identified, all crafts that are involved in the job are included in the work package or work procedure planning. When used, this planning process is strictly adhered to. Employees are also involved in the Monday return-to-work meetings, and morning meetings where work jobs are discussed. At these meetings, employees are given the opportunity to provide safety anecdotes or stories from their own experience.

A significant observation by the Team, which was also recognized by senior managers, was the insufficient employee involvement or enthusiasm for safety within some workgroups. The causes of this situation are varied, and include a long period where there was no effective HAMTC Safety Representative, contractual uncertainty, individual manager's style, labor union politics, poor communication, labor disputes and grievances, and individual workers' frustrations. Collectively, this has lead to a situation where up to an estimated 30 percent of the labor force may not be fully engaged in the safety process. While these workers are not "unsafe," they do not contribute to safety improvements, may be discouraging other employees from pursuing safety excellence, and are not engaging in the safety improvement processes such as the EZAC discussed earlier. Peer observation of safety practices has not been encouraged, particularly when the observation crosses jurisdictional boundaries. Most managers are working to address this situation, but there have been very few creative and innovative means of improving employee involvement. Managers, supervisors, and workers need to work together to find new ways to encourage all employees to not only take responsibility for their own safety, but to become fully engaged in the corporate safety program. Broader participation in regional or national conferences by CS&I personnel is one option for providing opportunities to identify better means of encouraging and rewarding employee participation.

Opportunity for Improvement: FH should find the resources to send additional employee representatives to regional and national safety conferences, and give them the support necessary to implement new ideas and strategies.

Opportunity for Improvement: FH should encourage the EZACs take ownership of new initiatives, such as a Behavior Based Safety Program, that would encourage workers to raise safety observations, including observations that cross jurisdictional boundaries between labor unions.

As discussed in the Management Leadership section, employees may not be fully engaged in the accident or incident investigation process. Training EZAC chairpersons and VPP leads as critique/investigation leaders could provide a means for more workers to participate as members of investigation teams. This participation would provide a means for workers to see first hand the investigation and analysis processes, and help limit the spread of rumors about incidents and accidents.

Opportunity for Improvement: FH should train EZAC chairpersons and VPP leads as critique leaders, and allow more participation by the EZAC in the investigation process.

Conclusion

Employee involvement, while strong in most areas, has declined in some workgroups. There are employee champions, but their efforts have not yet been fully effective in maintaining or restoring a workforce committed to the tenets of VPP. Managers, supervisors, and workers must work to reestablish their partnership, and ensure that the entire workforce understands and is working toward not just safety compliance, but safety excellence.

V. WORKSITE ANALYSIS

Management of health and safety programs must begin with a thorough understanding of all hazards that might be encountered during the course of work, and the ability to recognize and correct new hazards. There must be a systematic approach to identifying and analyzing all hazards encountered during the course of work. The results of the analysis must be used in subsequent work planning efforts. Effective safety programs also integrate feedback from workers about additional hazards that are encountered, and include a system to ensure those new or newly recognized hazards are properly addressed. Worksite analysis, in part, involves a thorough and systematic approach for identifying and analyzing all hazards that may be encountered in the workplace. It also involves implementing preventive and /or mitigative measures in the work planning phase to minimize the impact of such hazards.

The worksite analysis processes across CS&I are structured and implemented according to disciplined core functions and guiding principles; in most cases, 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 are generally understood and practiced throughout the organization.

The diversity of CS&I worker disciplines/functions covers a wide range of potentially hazardous conditions that could include chemical, physical, biological agents, and ergonomic stresses. Employees have the potential to be exposed to: asbestos, lead, hexavalent chromium, beryllium, polychlorinated biphenyls, wood dusts, cadmium, methylene chloride, hantavirus, mold, heat and cold stresses, noise, heavy lifting, repetitive motions, and insect and animal bites as well as events associated with typical office work. Workers in each discipline have greater potential to encounter specific hazards that are unique to their projects and/or nature of their jobs. For example, the hazards encountered by a firefighter (e.g., hazards associated with fire fighting and rescue) are very different from those associated with work performed by an electrician.

The Team determined that CS&I has processes in place based on Integrated Safety Management (ISM) principles that are adequate to identify and mitigate potential hazards during the entire work process. The team found that CS&I planners, supervisors, subject matter experts, and workforce employ a healthy sense of teaming to effectively identify and analyze work-related hazards. EZAC members demonstrate an interest in achieving optimal safety and health for their fellow co-workers. EZAC members include volunteers from bargaining unit and non-represented employees. As previously discussed, EZACs have been instrumental in providing an open forum to exchange information and ideas relative to safety and health, including discussion and analysis of hazardous situations or safety issues. In addition to the existing hazard analysis tools, CS&I has begun to train personnel on the principles of Human Performance Improvement to further address the identification of and avoidance of hazards.

Tools used to identify workplace hazards include the Safety Logbooks, Monday morning return-to-work meetings (job assignments and safety discussions), Safety meetings, group EZACs, formal and informal training, and the Automated Job Hazard Analysis (AJHA). Emails and bulletins are used to rapidly disseminate concerns that have developed during a work process and

that may warrant immediate attention. Fluor Hanford Safety Information Bulletins are also used to disseminate information that is usually applicable to the entire site. CS&I recently implemented the use of a "Safety Pause" which allows employees to ask critical questions before and during work activity to ensure their awareness of the hazards associated with the job and worksite. Workers are encouraged to discuss the work with a co-worker, coordinate work activities within the work team and others involved, and look at the work environment in which the work activity takes place. Workers are encouraged to ask themselves whether something about the task or environment changed, to consider items that might catch them by surprise, and whether all hazards been identified and adequately mitigated.

Through worksite analysis, FH has made several improvements within the past three years that have strengthened the safety and health program. The following are examples of some of the improvements made within some facilities:

Facilities and Land Management:
- Added step rails to trucks for improved access
- Purchased ergonomic furniture and chairs sized to fit different body types

Hanford Fire Department:
- Implemented monthly walkdowns of facilities by the Fire Chief
- Purchased new electrically operated ambulance cots for lift operations to minimize the potential for shoulder, back, and knee injuries
- Implemented quarterly safety presentations at all facilities by a chief officer
- Hired a full-time fitness coordinator to address fitness-for-duty and injury prevention

Crane & Rigging:
- Instituted monthly meetings with the crane operators to discuss issues with cranes

Custodial Services:
- Moved dumpsters closer to buildings to minimize distance and potential hazardous conditions during winter months and during the dark

Reproduction Services:
- Requested the paper vendor to stack pallets 3 high to minimize potential for back injuries

Electrical Utilities:
- Applied non-slip coating to tread plate truck steps and the test truck lift gate platform surface

Fleet Operations:
- Provided bump caps to employees to wear when hard hats are not necessary

Transportation Services:
- Modified loading docks, lift gates, side boards on trailers and trucks to facilitate operations

Facility Services and Facility Support
- Installed lift gates on Refrigeration Equipment Services RES vehicles to minimize strains and fall hazards
- Purchased new saws with state-of-the-art technology that prevents serious injuries
- Installed permanent guardrail systems on facility roofs where routine maintenance of Heating, Ventilation, and Air Conditioning (HVAC) systems is performed.

CS&I uses the Job Hazard Analysis (JHA) process as directed in "***Job Hazard Analysis*,"** HNF-PRO-079, to review and document hazards associated with routine and non-routine tasks and all work packages that have been determined to be beyond skill-based per procedure. The JHA is performed in various ways depending on the organization. Some organizations use the AJHA tool while others develop Comprehensive Hazard Inventories to document the hazards and controls for Skill-Based work.

Formal job hazard analysis for skill-based tasks is not required by the FH procedure. Skill-Based work is defined by HNF-PRO-079 as: "*the level of work that can be safely performed by a worker possessing the needed proficiency, skill, job position training, and experience to perform a given task without the need for enhanced work planning, formal hazard analysis, or direct supervision. Such work is usually a routine, non-rad (or low risk rad), or low hazard activity performed in a stable environment and of a non-complex nature that supports fulfillment of a workgroup's day-to-day function. The hazards are assessed as part of the Employee Job Task Analysis, and the training necessary to mitigate these hazards is outlined in the individual or position training matrix. There is little potential for identified hazards to change during the work activity."* The AJHA procedure essentially allows the work to be classified as "skill-based" before a systematic hazard analysis has been performed. The procedure states the intention is to use a graded approach to hazard analysis. This application of the graded approach is contrary to the DOE ISM expectation that all hazards are identified and analyzed (subsequent work controls can be graded based on such an analysis). This practice has been an ongoing area of weakness in the FH process since 2005, when it was identified by the Richland Operations Office. It was further identified by the Office Independent Oversight in 2006 (*Inspection of Environment, Safety, and Health and Emergency Management Programs at the Hanford Site Waste Stabilization and Disposition Project, September 2006*).

Opportunity for Improvement: FH should revise the JHA procedure to ensure that a graded approach to work control is based on a systematic analysis of the hazards, and that the assumed skill of the workforce or complexity of the work is not used as a reason for omitting a necessary hazards assessment.

CS&I estimates that roughly 80 percent of the work performed falls within the classification of skill-based work. Most work observed by the team was identified as skill-based, and consequently relied on worker knowledge and training in place of a formal JHA process to ensure all the associated hazards were identified and analyzed. The extensive dependence on skill-based work has resulted in managers, supervisors, and workers depending on workers to identify hazards and implement adequate control measures rather than more systematic analysis through the AJHA process. For example the team observed that the Refrigeration Equipment Services (RES) shop had a barrel used by the RES staff for recycling of mercury thermometers and switches. The RES group's standing AJHA did not identify mercury as a hazard, nor did it include appropriate actions for mercury spills or handling. Instead, workers relied on their own experience, knowledge, and training to address the potential hazards.

The AJHA can be used to document a hazard evaluation for a task performed in a work-control document or as a stand-alone document provided it addresses the scope, hazards, and hazard

mitigation and proper work authorization. In some cases the AJHAs were effective in identifying and analyzing hazards. However, the Team observed some cases in which hazards were identified, but were not adequately analyzed. For example, an AJHA associated with a concrete pour was very broad and did not include any hazard analysis. This AJHA covered the entire job from tearing old cement out to digging outside the building to pouring the new cement. Aside from the main AJHA, the supervisor conducted a Construction Contractor Safety Meeting/Briefing report each day. This report covered the work scope and hazards for that day, but did not mention controls for the hazards. The use of this process for contractors can lead to uncontrolled or over controlled hazards in the work. The AJHA required the use of hearing protection during high noise work, but did not specify what equipment generated the high noise levels. Although the entire worksite was posted as a high noise area the entire time work was being done, no one was observed wearing hearing protection.

The Team also observed examples where full analysis of the worksite was not fully or adequately performed. For example, during an excavation job, the heavy equipment operator performed a simple equipment pre use inspection of the front loader to be used for this job. This inspection consisted of a walk around the loader but no functional checks. The operator did not identify that the back up alarm on the front loader was inoperable. This job location was very congested, with several observers and other traffic in the immediate vicinity. Further, the operator did not identify a need for a spotter. In this case, reliance on the workers' skill was inadequate to ensure the controls for safe operation of the equipment were implemented. A more systematic approach to hazard analysis of the equipment might have correctly identified the need to verify the backup alarm was functioning as part of the equipment pre-use inspection, the need for a spotter in a congested area, identification of appropriate work zone boundaries, or other controls.

On July 27, 2007, a spill of tank waste occurred in the early morning (about 2:00 a.m.) at one of the tank farms, which are managed by CH2M-Hill. Later on that same day, CS&I workers performed a herbicide spray near the tank farms. A number of workers reported symptoms in the days and weeks following the spill. Although not within the scope of the Type A investigation, the lack of hazard analysis for the skill-based spraying of herbicides may have contributed to worker concerns about chemical exposures. CS&I workers generally understand that they want to minimize personnel exposure to the sprayed areas. Consequently, they schedule spray activities for days when few personnel are normally present. On the day of the event, the CS&I workers saw many people at the site where they were going to be spraying, but did not stop the work. Further, the potential for exposure to other hazards associated with the tank farm were not included in a systematic hazard analysis. Since the spraying activities were to be conducted outside the tank farm fence, potential hazards associated with changes in conditions at the tank farms were not considered. Without the systematic analysis of the hazards, specific controls for the site application (e.g., defer spraying if the tank farm is occupied, coordination with CH2M-Hill, awareness of condition changes) were not identified or implemented. Consequently, the CS&I workers were potentially exposed to tank waste (at very low levels not expected to be hazardous based on CH2M Hill dispersion models and confirmed by the Accident Investigation Board report). In addition, the potential for tank farm workers to be exposed to herbicides was not sufficiently considered in a timely manner.

Last year, CS&I was involved in a significant event where a transformer containing approximately 60 gallons of polychlorinated biphenyl (PCB)contaminated oil was incorrectly shipped off-site to a metal recycling facility. Although the details of that event have been thoroughly investigated, one of the significant contributors to the event was a lack of hazard analysis for the entire process of shipping materials offsite, and the culture of relying on workers to recognize when problems exist, and to stop the work and ask questions. In this event, workers were not able to recognize the problem in advance, and without an analysis of the actions during a structured planning process, adequate controls were not identified or implemented. As corrective action, CS&I has conducted extensive analysis of material streams coming on and leaving the Hanford Site. As of this review, they had not sufficiently recognized and addressed the potential for the reliance on skill-based work to cause similar problems in other work.

Opportunity for Improvement: CS&I should ensure that a systematic job hazard analysis has been performed for all work, and that job hazard analysis is used to determine the classification of work as "skill-based."

Notwithstanding the processes used by CS&I to focus attention on specific hazards, CS&I needs to carefully review the rigor in which they apply the JHA system, and ensure the hazard analysis is used to supplement and reinforce skill-based knowledge to adequately address all potential hazards associated with the work at hand.

The Team also observed that in at least one workgroup, workers did not understand the requirements that took them out of their standing AJHA and skill-based work into a planned work package. Workers did not recognize that when the work scope was non-routine work or a subject matter expert (industrial hygienist (IH), environmental, engineering, manufacturers procedure with work steps, etc.) was required to determine appropriate PPE or work steps and special precautions, an AJHA would be necessary. Typically, the CS&I planning group performs work planning and work package development when necessary. However, at least one group did not understand when a planned package is necessary nor did they know when to request that assistance from the planning group. For example, the Grove Crane repair that was performed in March 2007 by Fleet Heavy Vehicle Maintenance required specific work steps and procedures from the manufacturer which included specific precautions regarding welding temperature limitations to ensure crane boom material integrity. Also, IH was called in to determine appropriate PPE for the grinding and welding operations. Exposure monitoring was performed and tracked throughout the task. These steps and precautions removed the Fleet Group from their standing AJHA and should have resulted in a planned work package that documented the entire process.

Opportunity for Improvement: CS&I should evaluate and train supervisors to identify when work to be performed is non-routine or beyond the standing AJHA for their group.

Workers are encouraged and expected to identify and report unsafe conditions that compromise safety or are not in compliance with company safety and health programs without fear of

reprisals. This statement was strongly communicated to the Team during interviews of workers and manager/supervisors. Most workers stated they have no problem communicating a concern or comment.

Four basic methods for communicating hazards and concerns are fully developed and implemented throughout:

- Verbal reporting to the immediate line manager or safety & health representative;
- Entering a concern in a safety logbook;
- Imminent danger by calling 911 or 373-3800 (from a cell phone); and
- Calling the Fluor Employee Concerns Program Hotline at 373-CARE (2273).

Injury, illness, and event trending is performed by and provided to CS&I by FH. FH reviews the data, and any adverse trends or conditions are identified and incorporated into their safety inspections. Safety and health performance and trending of occupational injury/illness statistics is developed from the database and presented monthly at the EZAC meeting. The VPP criteria is trended and must be 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 through the evaluation of isolated incidents.

Conclusion

CS&I has adequate worksite analysis processes and procedures in place. These processes include periodic safety inspections by safety professionals, employee reporting safety concerns through the safety logbooks, trending of injury and hazard related data for analysis, and generating corrective actions and lessons learned. Good worksite housekeeping was evident at the worksites observed. CS&I workers are involved in hazard identification on a daily basis before the start of and during work activities. Although AJHA's and Comprehensive Hazard Inventories are used to identify the hazards and establish the controls required to perform the work safely, these processes do not always adequately analyze the hazards. Further, because CS&I relies heavily on the use of skill-based work, most of the tasks performed by workers are not subjected to more rigorous review or analysis. As a result, some hazards have not been adequately analyzed, and the appropriate control set has not been clearly established for those hazards.

VI. HAZARD PREVENTION AND CONTROL

Once hazards have been identified and analyzed, they must be eliminated (substitution or changing work methods) or addressed by the implementation of effective controls (engineered controls, administrative controls, and/or PPE). Equipment maintenance, PPE, processes to ensure compliance with requirements, and emergency preparedness must also be implemented where necessary. Safety rules and work procedures must be developed, communicated, and understood by supervisors and employees, and followed by everyone in the workplace, to prevent mishaps or control their frequency and/or severity.

In some cases, FH has eliminated hazards and thus reduced risks to workers. The FH Chemical Control program ensures that all chemicals purchased for use at the site, including everyday cleaning supplies, herbicides, and pesticides, are subjected to an evaluation before purchase to determine whether a less hazardous chemical can be used to accomplish the same purpose. Although there is not always a non-hazardous alternative, FH has been able to effectively reduce worker exposures to hazardous materials in a number of instances.

CS&I has used engineered controls in some cases to minimize worker exposure, prevent the spreading of contamination, and reduce the need for additional PPE. For example, the Fleet Heavy and Light Equipment Maintenance Shop uses the facility exhaust ventilation system to limit worker exposure to vehicle exhaust and, in certain cases, welding fumes. During a crane boom repair, use of localized ventilation and exposure monitoring performed by the IH group, resulted in the eventual downgrading of PPE requirements for respiratory protection.

A newly completed carpentry shop had a saw dust collection system installed to lower the employees exposure to wood and plexi-glass dust thereby eliminating the need for additional PPE in the shop. While the system has experienced some operational issues, CS&I management is working with the system designer and the carpenters to ensure the system meets the employees' expectations. In addition, the carpentry shop acquired a new piece of equipment known as a "Stop Saw". This saw, which is used for precise cutting of large sheets of plywood and plexi-glass, includes a unique sensor and braking system that can detect the presence of non-wood objects near the blade and can stop the saw within 5 milliseconds, preventing personal injury.

The Environment, Safety, Quality, and Radiological Control (ESQ&R) organization is staffed with numerous IH, Health Physics and other safety professionals. Several of the safety professionals are matrixed to provide closer support to designated organizations. One IH has performed several exposure monitoring tests in the Central Maintenance Facility and in the Fleet Repair Shop. The monitoring is being performed because of welding activities and the potential for exposure to hexavalent chromium, and the need to ensure compliance with the recently lowered permissible exposure level (PEL) for hexavalent chromium. While the CS&I self assessment indicated that "safety and health professionals are available, but they are spread thin," work observations and interviews by the VPP Team showed consistent support of the safety professionals and their availability.

The HAMTC safety & health representative also provides substantial occupational safety and health expertise, in addition to an effective interface between management and bargaining unit employees about safety related issues.

PPE is used as a protection measure when substitution, engineered controls, or administrative controls are not feasible. In most cases, workers were observed wearing the appropriate PPE and the PPE was correct for the hazards encountered. However, there were some examples of appropriate PPE not being used. For example, a worker was observed applying weed control through sprayers. The manufacturer's instructions for the herbicide specifically indicated that applicators should wear long sleeves and pants during spraying activities; however, one of the employees had removed their long sleeve shirt. A second example involved a mechanic shop in the 400 area. The shop has a painted yellow line on the floor with a requirement for wearing safety glasses beyond the line. The workers break table was located in the area marked as requiring safety glasses. In many shops, these areas are posted as "eye protection required if work is going on." Workers in the 400 area shop believed this was the case in their shop, although the markings on the floor did not make that exception. During breaks the workers sat at a table without their glasses. In this case, the workers and supervisors had become complacent regarding the shop posting, and had not acted to either correct the posting, or move the break table.

There were cases identified where managers and supervisors have been receptive to employee concerns and provided additional controls. For example, the RES group raised a concern about the potential for skin cancer, considering the amount of time RES employees spend outdoors. As a result of this concern, CS&I procured sun hats with extended flaps to cover the ears and neck, with bump cap inserts included. These hats were well liked by the workforce, and provided an additional measure of protection for an environmental hazard (e.g., ultraviolet rays from the sun) that often is not addressed.

Preventive maintenance (PM) serves a dual purpose in hazard prevention and control: to maintain equipment so it will operate as intended and to mitigate potential safety issues. CS&I is responsible for an extensive maintenance program at the site that entails all vehicles, hoisting and rigging equipment, roads, grounds, water, sewer, and high voltage electrical distribution systems. For example, CS&I service vehicles are serviced by the Fleet Repair Facility based on General Services Administration mileage requirements. All vehicles have their mileage logged to determine required maintenance. Instruments and detectors are stamped and inspected based on the industry requirements. The hoisting and rigging workgroup performs annual re-tagging of all wire ropes and synthetic harnesses both in the shop tool crib and on all their vehicles. Hoisting and rigging also performs the PMs and inspections for overhead, mobile, and gantry cranes and forklifts. Hoisting and rigging also maintains the program and notifies the landlord facility when inspections are nearly due.

Fleet Vehicle Services has five service trucks outfitted with hydraulic boom hoists that were not identified as equipment requiring inspection or PM as specified in American Society of Mechanical Engineers B30.5, ***"Mobile and Locomotive Cranes."*** The auto-crane boom hoists were rated at capacities from 3200 lbs to 6000 lbs and were stamped as built to B30.5

specifications. These hoists were not included in the inspection program, and had not been inspected or tested.

Opportunity for Improvement: CS&I should add the Fleet Services trucks outfitted with hydraulic boom hoists to the Hoisting and Rigging B30.5 inspection program. Additionally, CS&I should ensure no other hoisting and rigging equipment is in use outside the hoisting and rigging workgroup that has not been properly inspected and tested.

CS&I has not performed an analysis of the service truck frames and bodies to determine if the boom cranes can be safely operated up to their rated loads. Although workers claim they do not lift more than 1800 lbs with the booms, as previously described, they are rated much higher, and could potentially be used by qualified riggers to lift up to 6000 lbs. There is no analysis to demonstrate that the truck bodies and frames would be capable of supporting the stresses induced by such a load.

Opportunity for Improvement: Fleet Services should have a qualified engineer analyze and determine, based on manufacturers requirements, whether the truck bodies that the boom cranes are installed on are approved for use by the boom crane manufacturer. If results warrant, the current rating of the booms should be lowered.

Work observations at the SY Tank Farm involving a Health Physics Technician shield box move by the Hoisting and Rigging group raised a concern about a warning tag on a crane. After observing the shield box move, the crane was brought out of the farm. A warning tag on the main hoist provided instructions indicating that the main hoist was not to be used due to a bad wire rope that had been identified during the previous monthly inspection. For the operator to use the secondary hoist, the main hoist had to be engaged and manipulated to articulate the boom. Further review revealed that the tag warning was not written correctly. The warning tag should have specified the main hoist was not to be used for lifting any loads until the wire rope was repaired. The tag was replaced immediately to reflect the appropriate instructions. However, given the warning tag instructions, the operator should not have operated the main hoist until the proper instructions were received. In this case, like the case of the 400 area shop and safety glass use, workers had not been adequately conditioned to read and follow posted warnings and controls.

Opportunity for Improvement: CS&I should reemphasize to workers the need to read and follow posted warnings and controls. If the postings are incorrect, workers must be encouraged to bring incorrect postings to the appropriate authorities, and get the postings corrected before work continues.

Site emergency preparedness activities are the primary driver for alarm testing and emergency drills. Site-wide alarm tests are conducted. Drills may include evacuation, take-cover, or personal injury scenarios. Participation in these drills adequately ensures workers are capable of recognizing the alarms and responding appropriately to the variety of emergencies that can occur.

Emergency drills present a special challenge to CS&I because the majority of the employees are providing service to all the Hanford facilities and are therefore dispersed and mobile. The majority of CS&I employees are provided cell phones and/or two-way radios as an effective way to maintain reliable communication in the event of an emergency. As discussed under the training section, CS&I personnel are briefed on the individual area health and safety plans (HASP) as necessary to access those areas of the plant.

Radiological hazards are effectively controlled. The majority of the CS&I employees are Rad Worker II trained and participate in the radiation monitoring program. When CS&I employees work with regulated vehicles (vehicles with potential contamination, such as cranes used in the tank farms) the work is performed under a standing Radiation Work Permit (RWP) with Health Physics support frequently involved. For example, at the Hoisting and Rigging regulated parking area, the Health Physics Technicians routinely survey equipment before Fleet Vehicle Mechanics perform work on the equipment.

Medical monitoring and evaluation is available to workers and used effectively to monitor worker exposure to hazards. Advanced Med Hanford (AMH) provides all medical services for CS&I (and other Hanford Site contractors) including acting as the medical director, providing medical surveillance, maintaining medical records, providing medical evaluation, and other medical-related activities. The FH Employee Job Task Analysis (EJTA) defines medical surveillance requirements for each worker and subcontractor. The responsible manager, supported by IH, implements the EJTA program and revises the EJTA in accordance with the requirements found in, "***Occupational Medical Qualification and Monitoring,"*** HNF-RD-11058. Job activities requiring medical surveillance are scheduled for evaluation by AMH, which uses EJTA information to guide medical surveillance and monitoring. The EJTA provides a key mechanism for CS&I to coordinate with AMH about medical monitoring and surveillance.

Workers with potential exposure or minor injury/illness are evaluated by AMH. Emergency medical response service is provided by the Hanford Fire Department and serious cases can be transported directly to the local hospital.

Conclusion

In general, workers implement appropriate hazard controls during the course of their work. However, a few cases were identified where workers and managers alike have accepted incorrect postings and do not follow the posted requirement. Additionally, the problems identified in worksite analysis may contribute to deficiencies in hazard prevention and control. CS&I needs to reemphasize and encourage workers to recognize and follow the identified controls. In the event the controls are inadequate, CS&I workers and managers need to ensure the correct control set is identified and agreed upon before work continues.

VII. SAFETY AND HEALTH TRAINING

Training is necessary to implement management's commitment to prevent exposure to hazards. Managers, supervisors, and employees must know and understand the policies, rules and procedures established to prevent exposure to hazards. Managers, supervisors, and employees must understand their safety and health responsibilities, and know how to effectively carry them out.

The CS&I workforce is generally very experienced, with many workers having been at the Hanford Site for more than 10 years. New employees are taught to recognize hazards associated with their jobs primarily through the HGET, and annual refresher training serves to ensure workers are aware of any changes that may have occurred. This training covers general site access requirements, including alarm recognition and appropriate responses to those alarms. On-the-job training is used extensively within the CS&I organization, although less formally than at other projects within FH.

Because the organization is spread over a broad geographical region, each workgroup establishes their own routines for weekly or daily pre-job briefings or return-to-work meetings. Where used, these meetings provide an effective means of communicating changes in site conditions to workers.

Field workers are provided with first aid, Cardio-Pulmonary Resuscitation, and Automated External Defibrillator training when it is required by their job. First-aid kits are provided in facilities and at key worksites/vehicles.

CS&I employees are knowledgeable of appropriate response to emergencies as a result of annual HGET, postings in all major facilities, and documentation such as HASP. When CS&I employees are performing work in another organization’s facility the CS&I personnel are required to inform the host facility of their presence, who are then responsible for ensuring the CS&I personnel either have the appropriate training, or are escorted within the facility. For example, during work observation of the RES group at the K-West Basin Pump and Treat, the RES team was briefed by groundwater personnel on the facility HASP. In the case of the Hoisting and Rigging group performing a Shield Pit Lid Lift at the A Tank Farm, the tank farm supervisor was assigned the lead for the work activity within the farm. The tank farm supervisor informed the Hoisting and Rigging crew of the facility hazards and designated the cranes route through the tank farm. The Hoisting and Rigging supervisor was designated a “technical advisor” to the tank farm supervisor and provided the Hoisting and Rigging expertise.

Similar to other projects reviewed at FH, CS&I has access to safety training programs at the Volpentest Hammer Training facility. In particular, firefighters can receive training in fighting a variety of fires, hazardous material response, high angle rescues, and other emergency response activities.

Conclusion

The safety and health training processes used by FH ensure all workers at the site understand the safety rules, the FH Safety Policies, are aware of the general hazards present at the site, and ensure workers are capable of taking basic action to protect themselves in emergency situations.

VIII. CONCLUSIONS

CS&I has been a DOE-VPP Star Site since 2003. They continue to demonstrate low accident and injury statistics. Although the statistics compare favorably to their comparison industry, there has been some degradation of the safety program, particularly in the areas of employee involvement and worksite analysis. There are numerous reasons for this, including uncertainty over the contract, reorganizations at the site, and reassignment of key personnel. CS&I and other FH organizations may be hindered by weaknesses in the FH hazard analysis process for skill-based work. These generic weaknesses are considered more significant at CS&I because so much of the work is classified as skill-based. The existence of hazards that have not been adequately analyzed, the fact that a significant fraction of the workforce is not fully engaged in proactively enhancing safety, and the lack of partnership between managers and workers in some workgroups are areas that need to be addressed by CS&I. Consequently the team is recommending that CS&I continue in the DOE-VPP with a Conditional Star rating.

The Conditional Star rating means that CS&I must address the opportunities for improvement identified in this report. It also means that they will be subjected to annual inspections from DOE until such time as the conditions identified in this report have been corrected, or the site withdraws from the DOE-VPP. To that end, HSS commits to providing assistance, where feasible, to support any CS&I requests to assist with addressing the identified problem areas.

Appendix A

Onsite DOE-VPP Audit Team Roster

Management

Glenn S. Podonsky, *Chief Health, Safety and Security Officer*
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Dr. Pat Worthington, *Director*, Office of Worker Health and Safety
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