DOE/EH-0271

Fluor Federal Services
Richland, Washington

Report from the
DOE Voluntary Protection Program
Onsite Review, February 26 - March 2, 2001

U.S. Department of Energy
Office of Environment, Safety and Health
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Abbreviations and Acronyms

AJHA	Automated Job Hazard Analysis
ALTY	A Little Thank You (Program)
DOE	U.S. Department of Energy
ES&H	Environmental, Safety and Health
FFS	Fluor Federal Services
FH	Fluor Hanford
HAMMER	Hazardous Materials Management and Emergency Response
HEHF	Hanford Environmental Health Foundation
HGET	Hanford General Employee Training
IIR	Injury Incidence Rate
JHA	Job Hazard Analysis
JSA	Job Safety Analysis
LOI	Letter of Instruction
LWDI	Lost Workday Incidence
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
PRIDE	People Respecting Integrity Dedication and Excellence
RL	DOE, Richland Operations Office
S&H	Safety and Health
SIC	Standard Industrial Classification
SIP	Safety Improvement Plans
VPP	Voluntary Protection Program

Executive Summary

The DOE-VPP onsite review of Fluor Federal Services (FFS) was conducted from February 26-March 2, 2001 in Richland, Washington. The following summarizes the review team's observations and analysis.

Management Leadership

The DOE-VPP Onsite Review Team (Team) found strong evidence of safety and health (S&H) commitment from all levels of management. Management and employees have successfully established a relationship of mutual respect and cooperation on all matters relating to safety program implementation. The Team noted that management demonstrated a very strong commitment to employee S&H and they held themselves both responsible and accountable for S&H in the workplace. All managers, supervisors and employees are evaluated as to their performance in the safety and health area. Top-level management is visible and actively participates in the S&H program.

Employee Involvement

The Team found that employees are actively involved in S&H in the workplace. Employee involvement not only occurs through their participation in the safety meetings and training activities, but also through the safety inspection processes, the worker observation program, and in periodic self-assessments. Employees openly stated that they not only felt responsible for their own safety, but also for their peers' safety. The Team found during the interviews that employees usually spoke in terms "our" efforts when referring to their peers and management. This clearly demonstrates a strong sense of ownership and pride in S&H by the employees. The Team observed that employees are truly involved in the S&H program and a strong safety "culture" has developed at this site. Notably, employees are not only involved in hazard recognition, job hazard analyses, but also in hazard resolution.

The key component to employee involvement in the Safety and Health Program is their participation and shared leadership on the company's senior-level integrating safety committee called the "People Respecting Integrity Dedication and Excellence (PRIDE) Committee." Employees at the worksite are well integrated into the Safety and Health Program through various forms of participation.

Work-site Analyses

Various forms of self-inspections are conducted at this site. Job hazard analyses are thorough and extensively utilized. Employees are not only encouraged to report any unsafe conditions, but are expected to report and correct the situation(s), if safe to do so. Accident investigation processes involve employees and result in an analysis to determine the root cause. Identified hazards are immediately addressed and appropriate corrective actions are being taken in a timely manner. The site has established several integrated hazard analysis and work planning tools.

FFS also conducts numerous inspections of all units and areas such that the entire work-site is covered at least quarterly.

Hazard Prevention and Control

FFS employs approximately 752 persons to perform construction and engineering activities for prime contractors of both the DOE, Richland Operations Office and the Office of River Protection at the Hanford Site. The most common S&H hazards encountered at this site are those typically associated with heavy construction. Additional health hazards exist at the Hanford Site that could potentially expose FFS employees to chemicals, radiation, and chemical and radiologically contaminated wastes.

Hazard assessment systems, including identification of uncontrolled hazards, self-inspections, routine hazard surveys, employee notification of hazards, accident investigations, preventive maintenance, and medical programs are all in place. FFS has a full complement of S&H professional staff. S&H rules have been clearly laid out for all employees and managers. The site employs a standard hierarchy of control to the prevention and mitigation of hazards in the work environment consisting of engineering controls, administrative controls, and personal protective equipment (PPE). The PPE program is an in depth program that is well integrated into the operations control, S&H oversight and training portions of the site's programs. FFS has implemented a comprehensive preventive maintenance (PM) program that uses a combination of preventive, predictive, and corrective maintenance to enhance the availability, operability, and reliability of plant structures, systems and components. The site has mature, well functioning emergency preparedness, radiation protection and medical programs.

Safety and Health Training

The Team noted from employee interviews and document reviews that employees at all levels knew how to identify and protect themselves and others from hazards associated with their jobs. As was noted on several occasions during the interviews, the training provided to employees has made them more conscious of health and safety issues not only in their work environment, but also in their everyday lives away from the site. Management strongly supports the S&H training programs as evidenced by employee interviews, funding level, documentation review, accreditation and nationally recognized awards. In addition, interviews with personnel, who conduct safety and health inspections and self-assessments, confirm that they provided in-depth hazard recognition training.

Conclusion

The Team concludes that the applicant has met and/or exceeded each of the five DOE-VPP tenets. Accordingly, our technical opinion as documented in this report will be presented to the DOE-VPP Program Administrator for consideration.

Introduction

The DOE-VPP onsite review of the Fluor Federal Services (FFS) was conducted from February 26 through March 2, 2001 in Richland, Washington. FFS's VPP application encompassed all work conducted by FFS regardless of the sponsoring organization. The DOE VPP Program Administrator had approved the VPP application on April 4, 2000 and AER on March 1, 2001.

FFS performs construction and engineering activities for prime contractors to RL and the DOE Office of River Protection at the 560 square mile-Hanford Site, which is located in the southeastern portion of Washington State, north of the city of Richland. FFS is a large, multidisciplinary organization that conducts multiple task orders and projects at numerous locations throughout the Hanford Site. There are approximately 752 FFS employees at the Hanford Site. Of these 752 employees, approximately 214 are members of the Central Washington Building and Construction Trades Council (hereinafter referred to as crafts).

FFS was evaluated against the program requirements of the U.S. Department of Energy Voluntary Protection Program (DOE-VPP). The Onsite DOE-VPP Evaluation Team (Team) consisted of a diverse cross section of individuals from the DOE Headquarters office, the DOE Richland Operations Office, Occupational Safety and Health Administration (OSHA), Region X and the Hanford Advisor Board (HAB). See Appendix for a roster of the Team. During the review, the Team conducted formal and informal interviews, and reviewed a limited number of documents.

Program Status

FFS is properly classified under the Standard Industrial Classification (SIC) Code 1629 "Heavy Construction, except highway." The following nine specific hazard categories exist at FFS: construction; housekeeping, slip, trip and fall; chemical and radiologically contaminated waste; general physical; general chemical; biological; electrical; general industry; and general radiation.

The 3-year injury incidence rate (IIR) and lost or restricted workday incidences (LWDI) for the periods (1998-2000) are 2.48 and 0.84, respectively. FFS numbers are 32% of the IIR and 21% of the LWDI of the 2000 U.S. Department of Labor's Bureau of Labor Statistics national industry averages for SIC 1629. A review of the OSHA 200 logs was performed. Table 1 provides the total incidence and lost workday injury rates since 1998 for FFS and subcontractors:

Table 1. Fluor Federal Services and Subcontractors – 1998 Through 2000.

Year	Hours	Total Recordable Cases	IIR	LWDC	LWDI Rate
1998	1,852,713	27	2.91	10	1.08
1999	1,529,898	24	3.14	8	1.05
2000	1,600,100	11	1.37	3	0.37
3 yr	4,982,711	62	**2.48**	21	**0.84**
BLS National Average for 1998 Accident Facts 2000 Edition (SIC 1629)			**7.8**	--	**4.0**

BLS = Bureau of Labor Statistics
LWDC = Lost workday case

FFS requires contract employers to maintain OSHA 200 logs and to report injuries/illnesses and hours related to FFS work. Injuries or illnesses occurring to temporary employees under the direct supervision of FFS are recorded in FFS's OSHA 200 log.

The information on the OSHA 200 logs supports the information provided in the *Fluor Federal Services Application for Participation in the U.S. Department of Energy Voluntary Protection Program* (FFS 2000) and the company's first report of injury forms support the data in the logs. Minor discrepancies in hours and cases were noted from the record keeping review, but no significant or systematic concerns were identified.

The Safety and Health Manager is responsible for the entries to the OSHA 200 log. A Safety Specialist, who understands the record keeping and reporting requirements, verifies the accuracy of the records. Detailed records and a computerized database support the record keeping process. Based on interviews conducted with management and employees, and reviews of selected records, the logs accurately reflect the injury and illness rate for FFS.

Management Leadership

The level of management commitment found at this site meets all DOE-VPP criteria. The sub-elements of this tenet and an evaluation of the applicant's performance in these areas are addressed and described below.

VPP Commitment

Management support and commitment are critical to the successful implementation of the DOE-VPP. FFS senior- and mid-level management is committed to the implementation of a well-coordinated S&H Program, including establishing a clear line of communication with employees. FFS executives and senior field managers frequently attend field all-craft construction safety meetings, as well as PRIDE safety group meetings. All managers interviewed clearly demonstrated a high level of commitment and dedication to assuring that craft personnel were afforded processes, tools, and other resources to facilitate safe working conditions and practices. Management was knowledgeable of the administrative and technical work processes that support and sponsor their health and safety program. A full-time safety representative from the craft workforce has a direct line of communication to FFS senior staff, including the director of the company's Environment, Safety and Health (ES&H) organization. The person holding this position was very satisfied with the quality and timeliness of management response to safety concerns and related issues. FFS managers were very positive in their views of the implementation of the craft safety representative program, citing the ability to use that position as a conduit to safety issues and related needs of the field labor force.

Leadership

The application presents a well thought out comprehensive program to support all the sub-elements of this VPP tenet. Management commitment to safety and employee involvement is implicit in the design of the program and systems that support safety at the site.

The General Manager and other managers solidly demonstrate management commitment. All critical elements (management leadership, employee involvement, worksite analysis, hazard prevention control, and S&H training) and sub-elements of a robust Safety and Health Program are a part of FFS's written program (FFS 2000). Detailed policies and procedures applicable to safety management have been developed and are readily available to the workforce. All aspects of the Safety and Health Program are appropriate for the size of the worksite, the type of work conducted, and the nature of operations. The company has established an effective *Industrial Safety and Health Program Manual*, Practice 134.653.0100, "Introduction and Table of Contents." This manual refers to over 40 other FFS work and safety practices (procedures) to be used and followed by FFS managers and workers.

Responsibility

FFS has established such a strong safety culture that both management and employees share the belief that *all* employees are both responsible and accountable for S&H in the workplace. FFS Practice 134.653.1001, "Responsibility, Authority, and Accountability" clearly outlines the general requirements, roles and responsibilities, worker's rights, and authorities of FFS management and staff with regard to the company's industrial Safety and Health Program. Employees understand the company S&H expectations, and are required to set a good example by always observing and implementing this policy as part of the normal work routine. Managers interviewed were very aware that safety is their primary responsibility, and the Safety and Health Department is frequently consulted for their assistance in resolving safety and technical issues. Managers meet monthly to discuss their safety performance.

The Team found that ownership of the Safety and Health Program was shared equally by managers, engineers, and craft personnel. There is one practice that is making a significant difference in the quality and safety of construction projects at Hanford Site facilities. Many project design teams from FH and FFS are asking craft personnel to participate and be responsible for conducting "constructability" reviews upfront in the project cycle. This enables expert-based input from construction trade workers that can preliminarily correct or prevent design, and even potential safety issues, long before the new systems are constructed. One example of this practice is on the Project A-13b, Spent Fuel Sludge Handling System (T Plant).

Accountability

FFS management is committed to providing the leadership, direction, goals, training, resources, and standards to ensure all employees are able to perform their duties in a safe and healthy workplace. Management and employees *share* in the responsibility to perform individual duties in a safe manner. Managers are held accountable for safety by performing root cause and trend analysis on safety-related incidents, and with developing corrective action plans where trends are identified. Exempt employees and managers receive annual performance appraisals where their performance to safety and health objectives and goals are evaluated. FFS craft personnel receive frequent and constant feedback on their overall performance to safety and productivity through a number of formal and informal processes, pre-job briefings, post-job reviews, tailgate meetings, group safety meetings, and one-on-one meetings with their general supervisor or superintendent. Many of the craft personnel and construction engineers interviewed indicated they were extremely satisfied with the authority they are given regarding resolution of safety concerns or issues at the earliest opportunity and at the first-line level.

FFS senior management is visible and actively participates in the company Safety and Health Program. Management representative is present on the various safety committee meetings, and several senior managers attend work group all-hands meetings in the field. These councils meet monthly and address issues that could not be resolved at the "grassroots" level. Several employee interviews verified that the FFS directors, area construction managers, and project managers actively participate in daily field visits and frequently stop to speak with employees on a wide range of topics that are often related to S&H issues. Managers are held accountable for their safety responsibilities, and maintain a policy of open-door communication with regard to safety issues that arise in the workplace.

Authority and Resources

FFS managers have sufficient resources to perform their S&H responsibilities. All employees interviewed by the team indicated that safety is a top priority at FFS. Time allotted for PRIDE safety committee meetings, resources provided to participate in Hanford Site-wide or FFS specific training, and employee participation in VPP or Integrated Safety Management-related activities are a few examples of management commitment to provide appropriate resources. Manager and employee interviews confirmed that resources were sufficient to carry out their safety and health responsibilities. All personnel interviewed clearly understood the company policy for "Stop Work Responsibility" when encountering unsafe conditions. Employees stated that this responsibility, when exercised, is always fully supported by management. Managers and field workers are actively involved in developing Safety Improvement Plans (SIP) based on results of the annual Safety and Health Assessment Program. SIPs are developed for each of FFS's major project work areas on the Hanford Site. Several employees stated that they participated in the Annual Fiscal Year 2000 FFS VPP Self-Evaluation, and a report of this evaluation was provided for the team's review.

Management Visibility

FFS senior-level management is visible and actively participates in the Safety and Health Program. Management participates in monthly division/area safety councils and FFS's Zero Accident Council, which are co-chaired by a union-represented employee. The steering committees, as well as the FFS process requiring annual long-term planning, are extremely effective and all encompassing.

Managers are held accountable for their S&H responsibilities, and are accessible to any employee with any S&H issue that arises in the work place. The DOE-VPP Team observed this policy through formal and informal interviews, and noted that most employees did not feel the need to raise concerns above their first-tier supervisor or Craft Safety Representative, because any concerns raised were immediately resolved. The Team review of documents and programs confirmed that management involvement was at a level consistent with DOE VPP requirements. Management and employee attitudes conveyed a strong sense of teamwork and mutual respect. It was apparent that FFS has created a workplace culture that has removed most barriers to communication and divisiveness. The FFS process of pre-qualification of subcontractors demonstrates another area where the commitment to a proper and complete safety culture is evident.

The FFS corporate S&H policy, "We can always restart work — we cannot eliminate an accident after it happens," is clearly understood and implemented within FFS and their subcontractors.

Site Orientation

The basic Hanford Site orientation for employees is achieved through the completion of the Hanford General Employee Training (HGET). HGET is an interactive, computer-based course that covers a wide variety of areas, including occupational S&H topics, computer security, and industrial safety. Employees are tested at the end of each session, and must be able to pass a course before he or she can proceed to a next session. FFS construction managers and superintendents described in detail how they meet with new employees and craft personnel to go

over their expectations for S&H performance. Several construction managers interviewed indicated they try to partner new employees with experienced and seasoned craft personnel to assure (promote) safe work practices and safety expectations are "transferred" through that work interaction. Each new employee is given a tour of the facilities and construction project work areas and shops where they are assigned, and their managers (normally the superintendent) give additional guidance on "stop work responsibilities." Existing employees receive the same level of orientation when they transfer to a new work assignment location. Training records and interviews showed that this program met DOE-VPP expectations.

General craft-specific Job Safety Analysis (JSA)(K-1) is used to introduce new workers to the general hazards of the worksite for their craft. Foremen and workers review the K-1 JSAs every 6 months as part of a continuous improvement process for workers and the JSAs, which are revised as needed. K-1 and K-2 JSAs may also be used as methods of communicating general area hazards to FFS and non-FFS workers.

Supervisors use a new-hire orientation checklist to orient new workers when they start with FFS. A similar new-hire orientation process is used for exempt staff. The 200 Area safety manager provides a safety briefing to new exempt staff and managers to ensure they are aware of processes and specific requirements for their work.

Daily pre-job briefings, conducted by the area construction manager and the superintendent ensure that workers are aware of the specific safety issues related to that worksite where they are assigned. These pre-job briefings are based on the work packages and JSAs that they will be working under.

Work in the 200 East tank farms requires 40 hours of supervised experience under a previously qualified worker before a new worker is allowed to work on their own.

Subcontractor Programs

FFS performs project work activities using several subcontractor companies for specialized construction work. FFS has implemented an excellent contractor pre-qualification process that prescribes, specifies, and then reviews the S&H programs for their subcontractors. Construction engineers, project managers, and S&H professionals from FFS perform frequent oversight activities on the work performed by their subcontractors. In many cases~~,~~ (based on risk and complexity of the assigned work), subcontractors are required to perform to construction safety processes and practices developed by FFS. Examples of these processes include crane and rigging, lock and tag, and work control practices.

Subcontractor employees receive primary site orientation through HGET; activity and workplace-specific orientation and training is provided by both site-sponsored courses and contractor-sponsored courses. Contract provisions require program and site audits by the contractors with oversight performed by FFS. Subcontractor entry/exit to worksites and to Hanford Site facilities is controlled through a series of security and permit/work authorization processes. Contracts contain provisions for penalties (e.g., stop work without remuneration for safety infractions) up to termination for noncompliance.

Program Evaluation

Annual evaluations of worksites are conducted as part of the FFS Management Assessment Program. FFS recently completed their annual FY 2000 VPP Self-Evaluation, and the resulting report identified several opportunities for improvement, with corresponding corrective actions. Site assessments help to determine the adequacy, effectiveness, and compliance of programs, through documentation review, interviews, and observations. In addition to the annual evaluation, each management assessment scheduled throughout the year includes specific Integrated Safety Management guiding principles and VPP elements. Findings or concerns identified are prioritized as safety-related issues. Corrective actions are developed by a corrective action team from FFS Safety and Health or by various safety committees. FFS organizations or individual managers are assigned responsibility for all actions necessary to resolve, track, and S&H deficiencies.

Employee Notification

The employee notification program surpasses the requirements for employee notifications contained in DOE Orders and guidance documents, and these requirements exceed the OSHA (Federal and State) requirements for employee notification. FFS employs a number of communication mechanisms designed to appeal to the diverse population.

Safety and Health Program Evaluation

Management leadership is clearly demonstrated by the S&H infrastructure in place and functioning at this site. Skillful attention to the encouragement and growth of employee ownership has enhanced not only the S&H program, but has measurably improved all operational areas. FFS meets all requirements for the management commitment tenet.

Employee Involvement

The on-site review clearly showed that employees are actively engaged in the S&H program. In addition, review of program documents and the results of interviews showed that management has empowered employees to proactively administer the S&H program at this site. The degree of employee involvement in S&H found during the review clearly meets all DOE-VPP criteria for employee involvement.

Degree and Manner of Involvement

The information gathered for this portion of the report relies heavily on observations of employees in the workplace while conducting their routine duties, and on both formal and informal interviews of employees. The anecdotal information gathered during interviews is often the most informative method of determining whether extensive, complicated methods and procedures are actually utilized, and whether such well-intended programs are genuinely useable and effective for the workers. No review of workplace conditions or programmatic effectiveness can have a high degree of confidence without the gathering and analysis of this type of anecdotal information from the interview of workers. Formal, scheduled interviews are most useful when complimented by random, unscheduled interviews. Random interviews allow reviews to have a greater degree of confidence in the results obtained during formal interviews, they help to exclude any "rehearsed" information, and they often result in a frankly candid opinion. Employees were randomly selected for formal interviews with respect to their job title, associated responsibilities, and work location. The wishes of the employees who did not want to be interviewed were respected.

All employees interviewed were comfortable and spoke freely to the Team. Employees indicated they understood their responsibilities in the event of an emergency and were confident that their coworkers were equally competent. The employees were knowledgeable of the company's Safety and Health Program and VPP. Employees reported that training was effective and appropriate with respect to the hazards encountered on various job sites. The employees, particularly craft personnel, knew they had stop work authority and could use it without fear of reprisal. Safety concerns were quickly addressed and resolved to the satisfaction of the employees through their supervisor at the job site. Several craft personnel stated that the FFS Safety and Health Program was the best construction company where they had worked. All interviewees knew the names of both his/her safety professional, and the chairpersons of the VPP/PRIDE committee.

Safety and Health Committees

Employees are knowledgeable about the FFS S&H committees, and many were active participants in the some of them. Every project work-site had a safety committee that reported to the central VPP committee. The VPP Committee, called the PRIDE Committee, includes participants from both management and employees. Craft personnel are deeply involved in the job hazard analysis process, pre-job planning, and workplace inspections. During pre-job briefings, any questions or concerns by craft personnel are answered and resolved to their

satisfaction before work starts. Safety meetings are conducted weekly for the individual craft workforce (e.g., pipe-fitters, electricians, and carpenters), and monthly safety meetings are conducted for entire projects. FFS also sponsors, and actively supports, an elected Craft Safety Representative~~,~~ (a full-time position that serves as a Safety and Health Representative to the workforce). The Craft Safety Representative is viewed as an extension of the Safety and Health organization, and works to improve communications and resolve safety concerns from all craft personnel.

A safety recognition program is used to recognize employees who have taken actions to identify or remove safety hazards in their workplace. The typical award is a debit card from a local retailer, and is presented to the employee by their manager/supervisor at monthly safety meetings. To receive such an award and recognition, an employee is usually nominated by either their manager/supervisor or coworker. On-the-spot awards are also used to recognize safe work behavior. The company newsletter is also used to recognize and promote the health and safety awards presented to employees. The safety recognition program has proven to be an excellent program to promote and encourage a safe work culture. Everyone in the company receives reward (cups, hats) for achieving a certain goal set for employee hours worked without injury.

Conclusion

Employee ownership has taken root in many forms throughout this work-site, and it appears that it can be sustained by the infrastructure put in place by management, and through diligence by all to nurturing the culture that has been built. FFS meets all requirements for the employee involvement tenet.

Worksite Analysis

The On-Site Review clearly showed that FFS meets the requirements for work site analysis found in the DOE-VPP criteria. The sub-elements of Worksite Analysis program at this site are described below.

Employees and managers are committed to the identification and mitigation of hazards, and demonstrated a good understanding of the hazards and appropriate control measures. The cornerstone of the FFS worksite analysis process is the JSA, which is consistently implemented for potentially hazardous work (except in situations where the client's Automated Job Hazard Analysis [AJHA] is required, which is equivalent to the FFS JSA).

FFS safety performance and worker satisfaction with job planning, communication, and employee involvement indicates that worksite analysis is being well addressed.

Pre-use/Pre-startup Analyses

JSAs, especially job-specific JSAs (K-2), and task-specific (K-3), are used to document and communicate hazards, and how these identified hazards will be controlled for a particular job. K-2 JSAs may be relatively general and broad, relating to an entire work package or project. K-3 JSAs are developed where there are more significant hazards. Examples noted where hazardous chemicals were associated with a K-3 JSA, in which case the Material Safety Data Sheet was included and the JSA addressed specific PPE requirements. Workers review and sign JSAs before they begin work under them.

Job-specific (K-2) JSAs are written to address the general hazards and mitigation methods on a given job or project. Task-specific (K-3) JSAs are prepared when there are special hazards associated with a given task. Special controls, such as PPE or special procedures/precautions, are specified in those documents.

JSAs for FFS workers that were evaluated tended to be rather general and sometimes involved circular references (from K-1 to K-2 to K-3 and back to K-1 or K2). Several workers who were questioned about general JSAs (especially the K-2 JSAs or K-1 JSAs that were not craft specific) were uncertain whether the JSAs applied to them or not. However, daily interaction between workers, supervisors, and superintendents help ensure that workers understand the specific safety requirements related to the potentially hazardous work they will perform that day.

A subcontracted project's JSAs were reviewed and found to be complete and less general than other FFS JSAs. This difference is attributed to the skill of a very capable project manager and an experienced onsite subcontractor. The emphasis on preparing and actively using JSAs in this manner was a noteworthy practice that should be expanded.

In the Spent Nuclear Fuel and Plutonium Finishing Plant work locations, potentially hazardous work in client facilities is analyzed and controlled under the client-facility's AJHA system, and

supplemented by FFS craft-specific JSAs (K-1). This process replaces and is comparable to the K-2 and K-3 JSAs that would otherwise be in place.

Letter of Instruction (LOI) documents provide input from the client to FFS regarding scope of work, constructability issues, and known hazards. These LOIs have improved over the past several years and there is a close working relationship between the Area Construction Managers and client engineering/operations representatives.

FFS engineering is developing a Design for Safety Program with checklists and a process to provide feedback to engineers and designers from craft workers. This effort is an outgrowth of the training and design guide that was developed several years ago. The engineering department seems very interested in constructability issues and gaining input from craft workers and client/users. Representatives from the FFS engineering organization participate in the PRIDE committee and onsite engineering councils to enhance communications related to safety, design, and constructability issues.

Comprehensive Surveys

Industrial Safety and Health Baseline surveys were found in FFS facilities, along with the relevant K-1 JSAs. Monitoring (e.g., industrial hygiene or RadCon) is performed as needed by qualified staff. An example noted was that trained workers continuously monitor their confined spaces after initial monitoring by an Industrial Hygienist.

The 200 Area's safety organization performs "vertical" surveillances of program performance for targeted hazard areas, such as hoisting and rigging. The safety organization also has a process to review requirements for all program elements on a 3-year cycle.

Self-Assessments

The Craft Safety Committees perform self-assessments on a regular, frequent basis (typically several times per month for FFS-operated facilities). Area construction managers and safety staff typically participate in self-assessments led by craft safety committees. Superintendents conduct daily job walkthroughs intended to address safety issues. Safety engineers perform periodic (weekly to monthly) inspections of potentially hazardous worksites, and quarterly inspections of other facilities such as offices.

Checklists are not mandatory for self-assessments but are available, and some inspectors (e.g., superintendents) use them. The experience and training of the inspection team often drives the identification of issues, especially if a checklist is not explicitly used. Documentation of inspections and corrective actions is typically the responsibility of the Craft Safety Committee Chairperson (in one case the Area Construction Manager provided this function), and there was variability in the formality and discipline related to the documentation of the inspections. However, such inspections were noted to be acceptable and accomplished the objective.

A subcontractor project was evaluated that performed weekly inspections of the worksite by the project manager (or construction engineer), the subcontractor superintendent, FFS safety, and the client. These inspections are well documented and corrective actions are promptly addressed.

The safety organization performs regular inspections (typically monthly) of FFS worksites and documents the findings in the Action Tracking System.

Routine Hazard Analysis

Routine hazards associated with each craft are addressed in K-1 JSAs. Craft supervisors and workers in each area develop these general worksite analysis documents, which are reviewed and revised every 6 months by the supervisor and workers. The FFS safety organization maintains record copies of these documents and triggers the periodic review.

Workers continuously monitor their work for hazards. During employee interviews, several instances were related where work was stopped and issues were addressed based on employee concerns about safety issues identified at the worksite.

Superintendents inspect worksites daily, and address safety issues as needed. These inspections are documented in their logbooks.

Safety committee chairpersons lead inspections of worksites on a regular (weekly to quarterly) basis. Management and the FFS safety organization participate in walkthroughs and provide administrative and technical support. Issues are typically addressed on the spot, or are tracked to completion. There is substantial evidence that there is prompt response to issues that were noted from these inspections. Checklists are rarely used; instead, issues are identified based on the experience and training of the participants.

The FFS safety organization performs independent inspections of worksites on a regular basis (weekly or every other week in the 200 Areas). Findings from these inspections are entered into the Safety Action Tracking System.

Employee Reporting of Hazards

All workers interviewed were indicated that they could voice concerns or stop work without fear of reprisal. Workers and managers demonstrated a strong confidence that safety issues identified by workers are promptly addressed. This was corroborated through several examples brought up by workers and managers.

Employees are kept informed with the status of their safety and health concern through direct interaction with their safety committee representatives, and open, effective communication with their supervisor, superintendent(s), and area construction managers.

Accident Investigations

All injury or illness accidents and motor vehicle accidents are investigated to determine the root causes, and implement corrective measures for preventing the recurrence of a similar incident. The FFS safety organization leads accident investigations to ensure consistency and a high quality of investigation, although management and staff are involved in the investigations, and are responsible for the investigation results. Investigations are conducted to determine cause, not blame, but managers and staff are held accountable for accidents as appropriate. A standard accident reporting form captures cause (including root cause) and corrective action. The

involved worker and the managers verify information in the form before it is formally recorded in the Fluor Incident Tracking System.

Trend Analysis

Monthly, quarterly, and annual accident trends are distributed company-wide to managers and the PRIDE Committee members. This information is used in the development of Safety Improvement Plans. One former PRIDE Committee member indicated that the PRIDE Committee had done an in-depth evaluation of accident reports to identify trends at least one time in the recent past. This approach is a good practice that should be institutionalized. FFS conducts trend analysis on data generated through the various programs that includes safety professional findings from inspections; employee reports of hazards, injuries and illnesses; and the results from the HGET VPP survey. Trends are discussed monthly at executive staff meetings. Injuries, accidents, and at-risk behavior are discussed at the regularly scheduled PRIDE meetings.

Radiological Protection

FFS clients provide radiation protection coverage for radiological work. No issues were identified regarding the Radiation Protection Program.

Hazard Prevention & Control

The level and complexity of the hazard prevention and control program at this site meets DOE-VPP criteria. Sub-elements of this tenet are addressed and described below.

Access to Certified Professionals

FFS has adequate safety staff to support its activities. Occupational medicine services are provided by the Hanford Environmental Health Foundation via a contractual arrangement with RL. FFS has 14 full-time professionals on the safety and health support staff. The safety and health staff is comprised of one certified Safety Professional, two certified Industrial Hygienists, three qualified Industrial Hygienists, six qualified Safety Professionals, two registered Fire Protection Engineers, and one certified Occupational Health Nurse. As needed, additional site support professionals are supplied from field contractors.

Methods of Prevention and Control

The Team verified through interviews and documentation review, that the defined Hazard Control Program follows substitution, engineering controls, administrative controls, and PPE processes. Hazards are controlled by a variety of engineering controls, PPE, and work practice guidelines. These controls are reviewed and updated infrequently as they are well characterized. All site safety rules, safe work practices, and PPE requirements are adequate.

Engineering Controls

Engineering controls were demonstrated to be the preferred method for eliminating/ minimizing employee exposure to hazards. When planning non-routine work tasks involving high hazards, FFS involves the employee, client, and engineers in planning the work scope prior to field work. They felt that it is a *noteworthy practice*. Other methods of engineering controls include the use of mock-up situations, machine guarding, ventilation controls, and mechanical lifting equipment.

Administrative Controls

Administrative controls are defined in safe work procedures, such as Practice 134.653.1205, *"Work Release Control."* This process is understood by employees, and/or subcontractor employees, and is used in the field. Requirements for planned cycle reviews for currency is applied practice. Administrative practice controls may entail time rotation or exposure control strategies.

Safety and Health Rules

Written S&H rules have been established and are made available to all employees after they have been instructed on their contents through the informational handbooks. FFS reinforces the S&H rules through employee meetings, bulletin boards, and PRIDE committee member's

communication. These rules include the appropriate selection of needed PPE, stop work for unsafe conditions, disciplinary system, and reporting of injury.

Personal Protective Equipment

A workplace assessment for use of appropriate PPE was conducted. FFS has put great emphasis on improving the use and types of PPE to further reduce employee injuries. During worksite walkthroughs and interviews, employees were aware of required PPE and proper use of equipment for current job tasks. During the pre-job briefings with employees, hazards and PPE were discussed. FFS employees identified the need for improved PPE dealing with heat stress. A team of employees investigated the issue and tried available products. The investigation revealed that the products tested did not resolve the heat-stress issue for employees. The team subsequently developed a new system to keep workers cool without placing them at additional risk, and the new system is currently being used with success. The process of employee involvement to help resolve this issue is a noteworthy practice.

Required equipment supplied by FFS includes safety shoes, safety glasses with side shields, hearing protection, hard hats, and respirators. Appropriate written programs are in place for respiratory protection, hearing conservation, and exposure to hazards. Respirator fit testing is also being conducted.

Positive Reinforcement

Employees interviewed provided examples of positive reinforcement received from supervisors or higher levels of management for safe work practices. An example of comments received from several employees is: "This is the safest job I have worked." The employees on the PRIDE Committee show strong ownership and are very involved in the positive reinforcement. They consistently provide personal reinforcement and motivation for safety due to their exemplary individual commitment to safety. The PRIDE Committee presents to employees monthly gift certificate awards, personal thank you cards, thumbs-up stickers, and small token gifts. The "STOP Card" incentive program focuses on the craft personnel to formally recognize individuals who go above and beyond their normal daily responsibilities to promote safety. The program encourages employees to intervene directly with coworkers to avoid unsafe acts and to correct potential safety hazards, both at work and off the job. The "STOP Card" program was developed, implemented, and administrated by a task team of PRIDE Committee members. The "A Little Thank You" (ALTY) is a positive recognition program for non-bargaining employees. The employee is nominated by peer or management and receives a gift certificate and an ALTY figure. In addition, outstanding safety acts are selected from the nominations for special recognition and gifts.

Disciplinary System

The FFS disciplinary system, as described in *Human Resources Policies and Procedures Manual*, Practice 002.600.0145, "Employee Discipline," enforces company policy. The policy applies to all employees and defines a disciplinary policy that is both objective in content and progressive with respect to modifying inappropriate behavior through its reprimand structure. Deliberate violations of established safety, radiological control, or configuration control standards is considered inexcusable behavior, and may result in immediate discharge. Disorderly

conduct or conduct that endangers the safety of employees or equipment (including playing pranks) may result in verbal or written reprimand, or time off without pay. The second act of misconduct may result in discharge. Failure to report a personal injury to supervision on the day it occurs may result in a reprimand for the first offense, with progressive discipline for a subsequent offense.

Employees are made aware of these standards during new employee orientations, employee presentations, employee handbooks and guides, and bulletin board postings.

Several employees stated that disciplinary actions are so rare they could not explain the exact process, but the employees were aware that failure to follow safety rules could result in disciplinary action. Employees understood discipline was progressive in severity depending on the offense. The disciplinary system equally applies to both employees and management.

Preventive/Predictive Maintenance

The DOE-VPP Team found evidence that FFS routinely conducts monitoring and preventative maintenance on workplace equipment. Heavy equipment — such as cranes — are leased from DynCorp Tri-Cities Services and monitored by FFS through the use of the "Third Party Recall System." This system is reviewed and tracked by FFS. Preventative maintenance and calibration on heavy equipment is performed by DynCorp Tri-Cities Services using procedure M-M-00.55, *"Preventative Maintenance and Calibration,"* which governs these activities. FFS maintains a record system for maintenance and repair of equipment, based on manufacturer's recommendations that are regularly updated. Employee interviews confirmed that maintenance is performed on schedule, and lack of maintenance did not contribute to worksite hazards. Employees are encouraged to remove small equipment from service if needed, due to wear inspections. Ventilation systems are annually inspected and tested. Review of documentation and system labels verify completion of inspections.

Emergency Preparedness/Emergency Response

FFS employees are integrated into the Hanford Site Emergency Preparedness Program. Hanford Site facilities applicable to FFS employees maintain Building Emergency Directors. Periodic and annual emergency drills are performed for evacuations and take cover, as appropriate, to ensure all employees are involved and knowledgeable of actions required during an actual emergency. Types of drills and exercise include take cover, evacuation, bomb threat, and response to natural phenomena. Bulletin boards dedicated to response information including building emergency plans, evacuation routes, list of hazards and other response information are located in all work areas. Employees interviewed demonstrated understanding of their roles and responsibilities, and site location for evacuation response during site emergency. Drills consist of joint efforts with the FH Site Drill Coordinator, and participation in site drills to ensure preparedness of emergency responders. FFS employees at one worksite location thought they were exempt from participation in onsite drills. This was determined to be unacceptable; the members of the PRIDE Committee at the worksite intervened, and now all employees are included in drills.

Medical Programs

The Hanford Environmental Health Foundation (HEHF) (contracted by RL) is the occupational medical service provider for FFS personnel. Employee Job Task Analyses are completed for employees to list occupational health hazards associated with their job duties. HEHF uses Employee Job Task Analysis information and information gathered during onsite visits for work-specific medical monitoring of individuals. Other services provided by HEHF include annual medical surveillances, audiometric examinations, fitness for duty evaluations, preventive medicine, and pulmonary function tests. First-aid treatment is also provided by HEHF. The emergency transportation is provided by the Hanford Fire Department. The Hanford Fire Department is staffed by multiple paramedics around the clock for full advanced cardiac life-support ambulance care, as well as a full battalion-force fire department for fire response, industrial rescue, and hazardous/material/radiological response. Medical protocols are based on the county medical protocol system, and approved by contract with an emergency medical director.

Industrial Hygiene, Health Physics, and Safety Survey

Quantitative industrial hygiene monitoring is conducted by Industrial Hygienists assigned to facilities, and augmented as needed by Industrial Hygienists in the central safety and health organization. Comprehensive and updated baseline industrial hygiene monitoring data has been maintained. Industrial hygiene, injury, illness, radiation exposure, health, and medical record keeping at FFS is excellent and trending of data is appropriate. All potential safety, health, and environmental hazards are analyzed and communicated to the field site for work planning. Job Hazard Analyses (JHA) or the AJHA is used to document and communicate hazards that are job specific. The approach uses AJHA, which is augmented by the industrial hygiene, safety, radiation protection, and health staff. The AJHA is used to identify and perform industrial hygiene monitoring and exposure assessments, and for communicating hazard exposure information to workers. Results from monitoring and surveys are maintained in the AJHAs. The AJHAs are reviewed at least annually, and the monitoring data is incorporated in employees' job task analyses.

Health and Safety Plan/ Hazardous Waste Operations Survey

FFS has a formal and integrated Safety and Health Program. Procedures and practices used by employees are understood and readily available. Employees interviewed described the type of hazardous materials/waste, training, and site where they were located. Employees discussed work practices used to protect them while working. The Safety and Health Program is reviewed and approved by FFS clients to further integrate safety practices at the worksite.

Tracking Systems

The Safety Action Tracking System and the Fluor Incident Tracking System formally tracks the status of safety-related issues. Each of the Safety Committee chairpersons retain notebooks to track safety inspections performed by them and action items from those inspections. Superintendents, safety engineers and others use informal systems to ensure follow-up on safety issues related to their daily work activities.

Safety and Health Training

The S&H training program, procedures and overall implementation meets the DOE-VPP criteria.

Safety and Health Training Program Description

Formal S&H training begins with employee orientation. The initial HGET orientation is approximately 4 hours long, with job- and workplace-specific orientation conducted by FFS supervisors, or safety points-of-contact. Employees requiring formal certification/qualification receive more extensive training. Training includes PPE, respiratory, emergency evacuation, hazard communication, and hearing conservation. Hazard awareness and employee protection are strongly emphasized due to the extreme consequences of some construction activities (e.g., confined space entries in tank farms). Formal training is conducted primarily at the Hazardous Materials Management and Emergency Response (HAMMER) and Hanford Technical Training Centers.

The frequency of refresher training is in compliance with DOE and Federal standards, and commensurate with risks associated with work activities. Training is specified by position task, and tracked by a database that is used Site-wide. Additional training is provided through a required reading program, which is tracked from an internal database. Training programs are regularly reviewed and updated. On-the-job training and on-the-job experience as well as "just in time" training at pre-job meetings often provided by employees -programs are in place and fully operational. Testing is conducted for formal training; employee feedback to improve/modify training is routinely requested, and has been used in modifying courses where appropriate. Safety and health training is provided to subcontractor employees through a 4-hour Safety Environment and Health Orientation for Contractor Supervisors class with a requirement to flow down the information to their employees. Document reviews and employee interviews confirm training is being systematically and thoroughly conducted.

Employees – Employees understand worksite hazards, including the PPE required. Shop and other high-hazard areas of the worksite require the use of PPE, such as safety glasses with side shields, steel-toed shoes, hearing protection, and hard hats. Employees understand why PPE is necessary, its protective limitations, and how to properly maintain the equipment. Employee interviews and documentation reviewed indicated that activity-specific and OSHA-mandated training sessions are being conducted as required.

Supervisors – Supervisors receive the same training as those they supervise. In addition, supervisors are trained to recognize the hazards of the job site, assess effects on employees, and how to plan for safely conducting work activities (e.g., hazardous waste worker-supervisor, asbestos worker-supervisor). Also, supervisors and managers are trained in concerns resolution, drug-free workplace/substance abuse identification, and conflict resolution. Based on interviews and job site observations, FFS supervisors and superintendents clearly understand and perform their S&H role. Superintendents are responsible for ensuring that employees under their supervision receive all required training, which is documented in training records.

Emergencies – FFS employees receive S&H training initially and annually, including training on bomb threats, emergency situations from fire, chemical releases, and natural disasters. Management reinforces emergency preparedness periodically through safety meetings, JHA reviews, and pre-job meetings.

Managers – Managers understand their S&H responsibilities and know how to effectively perform those responsibilities. Although managers receive training similar to supervisors, managers usually receive S&H training at a higher level, usually informally in staff and leadership team gatherings. Examples include contract management, employee concerns resolution, safety leadership/management, conduct of operations, diversity, ethics, and affirmative action. There was no evidence of an annual refresher for S&H responsibilities for managers.

Safety Meetings – Employees attend safety meetings regularly at FFS. Crafts/supervisors attend weekly and monthly meetings, and non-craft administrative/support personnel attend quarterly meetings.

General Assessment

Safety and Health Condition

The DOE-VPP preliminary review and onsite review teams conducted a number of site and activity observations, both as a group and individually, and conducted 213 personnel interviews. The consensus of the DOE-VPP Team was that the FFS worksites were well maintained and no major S&H issues were observed.

Safety and Health Programs

The DOE-VPP Team found the FFS Safety and Health Program to be highly effective with complete employee-management support and cooperation. FFS employees indicated to several team members that there has been an increase in employee participation in the Safety and Health Programs, and that management remains committed to keeping FFS a safe place to work.

Noteworthy Practices

- FFS has established as part of their design review process constructability by use of craft personnel. Craft personnel are brought in at the conceptual design and/or definitive design stage to help determine the safest, most cost-effective way to perform project work.

- The Subcontractor Construction Contracting Officer has adopted the Department of Defense contracting criteria to assure proper flow down of requirements; in addition, the officer attends pre-job and weekly progress meetings. The subcontractor, sub-sub contractors (if any), contract administrator, safety representative, and client representative also attend the weekly progress meetings.

- FFS craft personnel were observed to practice “project teaming,” which reduces the possibility of sprains/strains. This involves one craft worker helping a different craft worker in a task to reduce the possibility of injury.

Team Conclusions

The Team was able to reach a consensus opinion that the applicant has met or exceeded all technical requirements for participation in the DOE-VPP. Accordingly, the Team now forwards this report as formal documentation of their conclusion to the senior management for its consideration in granting DOE-VPP recognition to FFS.

References

DOE, 1994, *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements to Determine its Success in Implementing the Five Tenets of DOE-VPP*, DOE/EH-0433, Office of Worker Health & Safety, Office of Occupational Safety & Health Policy, U.S. Department of Energy, Washington, D.C.

FFS, 2000, *Fluor Federal Services Application for Participation in the U.S. Department of Energy Voluntary Protection Program*, Fluor Federal Services, Richland, Washington.

Human Resources Policies and Procedures Manual, Practice 002.600.0145, "Employee Discipline," Fluor Federal Services, Richland, Washington.

Industrial Safety and Health Program Manual, Fluor Federal Services, Richland, Washington.
Practice 134.653.0100, "Introduction and Table of Contents"
Practice 134.653.1205, "Work Release Control"

Appendix

DOE-VPP Onsite Evaluation Review Team Roster

Team Lead: N.J. Atkins, RL 509-376-4199

Name	Specialty/Organization	Areas of Responsibilities
L.G. Musen W. J. Schildknecht[a]	**Management Leadership Lead** DOE/AMT 509-372-4009 FH 509-373-3902	Commitment, Responsibility, Line Accountability, Visible Management Involvement, Authority and Resources, Program Evaluation
P.A. Wright[a] R. T. Evans[b]	**Worksite Analysis Lead** PNNL 509-372-6201 FH 509-373-7924	Records Review, IIR, LWDI Rates, Self-Inspections, Preventative Maintenance, Pre-use/Pre-Startup Analysis, Site Orientation, Hazard Tracking
J.F. Dickman[a]	**Safety and Health Training Lead** DynCorp 509-376-3297	Safety and Health Conditions, Safety and Health Training, Accident Investigations, Trend Analyses, Job Hazard Analyses
V. J. Madson[a] D. K. Bultena S. Singal	**Employee Involvement Lead** PNNL 509-376-0792 FH PFP 509-373-2564 DOE/EH-51 301-903-2990	Employee Involvement, Employee Reports of Hazards, Disciplinary System, Positive Reinforcement
P.J. Bailey[a] J.M. Molnaa[b]	**Hazard Prevention and Control Lead** CHG 509-372-2343 FH 509-373-1803	Comprehensive Surveys, Access to Certified Professionals, Methods of Hazard Control, HAZWOPER, HASP, Medical Programs, Emergency Response
D. Hoeschen[b] P. Brown[b]	Region X OSHA 206-553-5930 City of Richland/HAB 509-942-7348	Observers

[a]Assignment lead
[b]Observer
AMT – RL Office of Assistant Manager for Technical Support
CHG – CH2M HILL Hanford Group, Inc.
HAB – Hanford Advisory Board
HASP – Health and Safety Plan
HAZWOPER – Hazardous Waste Operations and Emergency Response Regulations
PFP – Plutonium Finishing Plant
PNNL – Pacific Northwest National Laboratory