

DOE/EH – 0264



Fluor Hanford – FFTF Project



**Report from the DOE
Voluntary Protection Program
Onsite Review, June 19-21, 2001**



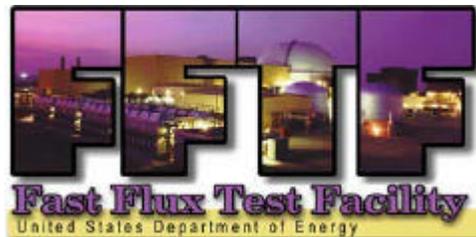
U.S. Department of Energy
Office of Environment, Safety and Health

Liaison

August 2001



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Abbreviations and Acronyms

AJHA	Automated Job Hazard Analysis
ALARA	As Low As Reasonably Achievable
BED	Building Emergency Director
BLS	Bureau of Labor Statistics
CAIRS	DOE Computer Accident/Incident Reporting System
CATS	Computer Aided Tracking System
CIH	Certified Industrial Hygienist
CSP	Certified Safety Professional
DEG	Deficiency Evaluation Group
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy’s Richland Operations Office
EJTA	Employee Job Task Analysis
ES&H	Environment, Safety and Health
ESH&Q	Environment, Safety, Health & Quality
EWP	Enhanced Work Planning
FCN	Field Change Notice
FEB	Facility Evaluation Board
FFTF	Fast Flux Test Facility Project
FIN	Fix It Now
FSAR	Facility Safety Analysis Report
FY	Fiscal Year
HAMTC	Hanford Atomic Metals Trade Council
HEHF	Hanford Environmental Health Foundation
HGET	Hanford General Employee Training
HOST	Housekeeping & Office Safety Tour
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ITEM	Integrated Training Electronic Matrix

JHA	Job Hazard Analysis
JSA	Job Safety Analysis
LOTO	Lockout/Tagout
MSDS	Material Safety Data Sheets
NI	Nuclear Irradiation
OE	Operations Engineer
OJT	On the Job Training
ORPS	Occurrence Reporting Program System
OSHA	U.S. Department of Labor’s Occupational Safety and Health Administration
PA	Physicians Assistant
PHMC	Project Hanford Management Contract
PIC	Person In Charge
PM	Preventive Maintenance
POD	Plan Of The Day
PPE	Personal Protective Equipment
PEIS	Programmatic Environmental Impact Statement
ROD	Record of Decision
RWP	Radiation Work Permit
SAC	Safety Awareness Council
S&H	Safety and Health
SIC	Standard Industry Code
VPP	Voluntary Protection Program

Executive Summary

The Department of Energy's Voluntary Protection Program (DOE-VPP) onsite review of the Fluor Hanford - Fast Flux Test Facility (FFTF) Project was conducted from June 19-21, 2001 in Richland, Washington. Fluor Hanford has operated FFTF for the Department of Energy (DOE) since 1996. The following summarizes the review team's observations and analyses.

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. Despite the strong possibility of FFTF's permanent deactivation, morale is high and the safety culture remains strong.

Employee Involvement

The Team found that employees are actively involved in S&H in the workplace. Employee involvement not only occurs through participation in the safety meetings and training activities, but also through work planning, the safety inspection processes, the 400 Area Safety Awareness Council (SAC) 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 of "our" efforts when referring to their peers and management. The Team could not detect a difference in managers' or employees' attitudes toward safety. 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. Employees consistently described each other as members of a family, and that each was genuinely concerned for the safety of others. Notably, employees are not only involved in hazard recognition and job hazard analyses, but also in hazard resolution.

Worksite 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 with appropriate corrective actions being taken in a timely manner. The site has established several integrated hazard analysis and work planning tools. FFTF also conducts numerous inspections of all work areas.

Hazard Prevention and Control

FFTF has a full complement of safety and health professional staff, and can draw from other experts from across the Hanford site. S&H rules have been clearly laid out for all employees and managers. The site employs a standard hierarchy of control to prevent and mitigate 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, maintenance, engineering, technical support, and S&H oversight and training portions of the site's programs. FFTF 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. FFTF depends on frontline supervisors to identify training needs, and uses an automated system to track and report the status of training.

Management clearly supports the S&H training programs as evidenced by employee interviews, funding levels, and documentation reviews. In addition, interviews with personnel who conduct S&H inspections and self-assessments confirmed that they provided in-depth hazard recognition training.

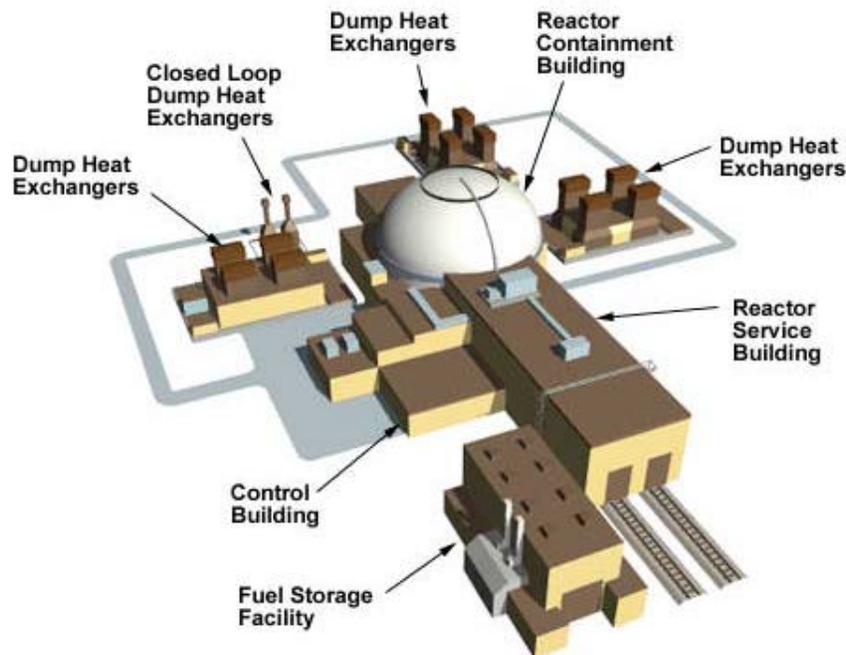
Conclusion

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.

I. Introduction

The DOE-VPP onsite review of the Fluor Hanford Fast Flux Test Facility (FFTF) Project was conducted from June 19-21, 2001 in Richland, Washington. Fluor Hanford has operated the Fast Flux Test Facility for the Department of Energy (DOE) since 1996. This application encompasses all work conducted by FFTF. The application was approved on June 5, 2001.

The FFTF Project reports to the Office of Nuclear Facilities Management in the Office of Nuclear Energy. According to their Web Page, FFTF is a 400-megawatt thermal nuclear test reactor cooled by liquid sodium. The FFTF consists of the reactor and several support buildings and equipment arranged around the central reactor containment building, as illustrated below. The reactor is located in a shielded cell at the center of the containment building. Heat is removed from the reactor by liquid sodium that is circulated through three primary loops, which include the pumps, piping, and intermediate heat exchangers. The primary loops are connected to secondary loops consisting of pumps, piping, flow meters, and heat exchangers. At full-power operation, the reactor inlet temperature of the sodium is 360 °C and the outlet temperature is 527 °C.



The FFTF operated from 1982 until 1992 to test advanced fuels and materials in support of the national Liquid Metal Fast Breeder Reactor Program. The plant also produced a variety of medical and industrial isotopes, including tritium, and provided research and testing of components and systems for advanced power systems.

In September 1999, DOE began development and preparation of their Programmatic Environmental Impact Statement (PEIS) for Accomplishing Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility ([NI-PEIS](#), DOE/EIS-0310).

The [NI-PEIS Record of Decision \(ROD\)](#) was issued and published in the Federal Register on January 26, 2001. DOE's preferred alternative, i.e., Preferred Alternative 2, Option 7, consists of the following three major components:

1. The DOE will use its existing facilities to the extent possible, and consider opportunities to enhance its current infrastructure to maximize the agency's ability to address future mission needs.
2. The department will develop a conceptual design and a research program for an Advanced Accelerator Applications facility to perform future research and testing, for which Congress has provided funding in Fiscal Year (FY) 2001.
3. Permanent deactivation of the FFTF at the Hanford Site, near Richland Washington. Commitments from the private and public sectors were not sufficient to justify restarting FFTF or building new facilities at this time.

On April 25, 2001, Secretary of Energy Abraham suspended for 90 days, the previous administration's decision in the ROD regarding the permanent deactivation of the FFTF. This suspension was made to allow for a proper review of available data and information to date to ensure that all relevant factors affecting the decision to close the FFTF are addressed. The scope of the review, presently scheduled for completion by July 31, 2001, will encompass:

- A review of all existing studies, reports, assessments, and environmental reviews related to the FFTF's original mission of medical isotope production, Pu-238 production for space missions, and nuclear energy study;
- A well-defined forum for the submission of public and private sector interest in the continued operation of the FFTF for original and potential missions; and
- Additional opportunities for stakeholder input through open public meetings.

The results of the review will be documented in a report and submitted to Secretary Abraham's office upon completion of the review.

FFTF successfully completed its Integrated Safety Management System (ISMS) Phase II verification in FY2000 and was subject to an evaluation by Fluor Hanford's Facility Evaluation Board (FEB) in March 2001. FFTF received a satisfactory rating for all areas assessed, to include occupational safety and health and training.

FFTF was evaluated against the program requirements of the DOE-VPP. The On-site DOE-VPP Evaluation Team consisted of a diverse cross-section of individuals from the DOE Headquarters office, the Richland and Idaho Operations Offices, Fernald Environmental Management Project, and the Kansas City Plant. (See the Appendix for a roster of the DOE Onsite Review Team.) During their review, the Team walked through the facility, conducted formal and informal interviews, and conducted a limited review of documentation.

The Standard Industry Code (SIC) for FFTF is #4911, Nuclear Reactors. Since the BLS does not publish data for this four-digit level industry, SIC 491 – Electrical Services, data were used for comparison. The injury/illness rates reported by FFTF show that they are below the known rates for comparable industries. Submitted rates meet the DOE-VPP criteria. The listed data was collected from the DOE Computerized Accident /Incident Reporting System (CAIRS) and the BLS.

Historical Occupational Injury and Illness Data					
FFTF Employees (Only)					
Calendar Year	Hours Worked	Total Recordable Cases	Total Recordable Case Incidence Rate	# of Lost and Restricted Workday Cases	Lost and Restricted Workday Case Incidence Rate
1997	541,576	2	0.74	2	0.74
1998	521,839	3	1.15	1	0.38
1999	461,355	0	0.00	0	0.00
2000	452,462	0	0.00	0	0.00
1998-2000	478,552	0.42	0.16	1	0.14
	<i>Total hours</i>	<i>Total cases</i>	<i>3-yr Average</i>	<i>Total cases</i>	<i>3-yr Average</i>
1999 Bureau of Labor Statistics rates for SIC 491			4.9		2.2
<i>"Electrical Services"</i>					

FFTF made their comparisons with data from BLS information. (Applicants are required to compare their injury/illness data with the 3-year average rate to the most current published BLS injury rates for that industry).

FFTF injury and illness data is not reported directly to CAIRS. FFTF’s data is reported and captured as part of Fluor Hanford’s site-wide program. Injuries and illnesses at FFTF are reported to Fluor Hanford’s corporate manager by an FFTF case manager and evaluated by the Hanford Environmental Health Foundation (HEHF), the site-wide health provider. HEHF helps to ensure that recording and reporting is accomplished consistently across all Fluor Hanford projects. Fluor Hanford reports aggregate injury and illness data to CAIRS.

Employees incurring a work-related injury or illness are required by procedure to report their injury or illness to line management as well as HEHF. This assures prompt medical and operational review of the employee’s condition. Appropriate and timely treatment expedites employee recovery.

Case managers are responsible for activities related to each occupational injury and illness. They ensure prompt and appropriate medical attention for injured or ill employees. In working with affected employees, the teaming of managers and employees helps to broaden the perspective of incident investigations and resultant corrective actions. This clearly demonstrates that management is committed to the minimization and/or elimination of identified hazards. Routine assessments of safety performance is supported by a state-of-the-art web-based computer program that automates multiple activities, and facilitates continuous improvement through the sharing of lessons learned at Employee and President Accident Council meetings.

Investigations of injuries and illnesses involve at least the employee and their manager. Frequently, additional personnel with specific expertise in factors related to the incident supplement this teaming effort, assuring a thorough investigation and a broad perspective in the identification of corrective actions. Management readily accepts responsibility for implementing measures that either control or eliminate the hazards involved with the related incident.

Safety performance is tracked and trended on at least a monthly basis, and adjustments are made where negative trends are identified. These adjustments include such items as additional training, and task redesign and/or physical changes to the work environment. Tracking of these trends is accomplished utilizing a web-based computer program specifically designed to perform multiple recordkeeping, management, and statistical functions. The program generates the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) 200 Log from data entered by the Project Case managers. It also generates the Computerized Accident Investigation Report (the OSHA 101 equivalent) required by DOE O 231.1, and a variety of statistical and narrative management reports.

Lessons learned identified during the investigation process are discussed with those involved and with those who could potentially benefit from lessons learned. Significant incidents are elevated to both the Employee and President Accident Councils to promote proactive implementation of corrective actions at other locations with similar conditions.

FFTF has an excellent safety culture and has achieved over 1 million hours since its last Occupational Safety and Health Act between its most recent recordable case and the previous case. The FFTF has worked more than 1.6 million hours since its last Lost Time Away Workday Case that occurred in October 1997. All of the FFTF's injury/illness rates are below the Project Hanford Management Contract (PHMC) average rate, and the FFTF consistently has the lowest injury/illness rates of the major PHMC projects.

III. Management Commitment

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. In addition to a fully implemented Integrated Safety Management System (ISMS), FFTF management has implemented a number of mechanisms including independent audits and assessments, availability of technical expertise, periodic conferences, and distribution of corporate lessons learned. These mechanisms work together to ensure that all work is managed, and all recognized potentially hazardous situations are identified and mitigated.

Fluor corporate commitment is evident in their statement that "Fluor is known as one of the safest contractors in the world thanks to the outstanding safety focus of its members." Anything that poses a safety and health risk is unacceptable. During the review employees indicated they were aware of this position.

FFTF managers at every level are involved and show their commitment to worker safety by helping to identify the worksite hazards and reducing the danger of injuries and illnesses to employees. An ISMS is in place that supports efforts efficiently, and effectively accomplishes work, while protecting the workers, the public, and the environment.

Management's involvement, participation, and visibility in safety are evidenced by their endorsement of staff members and worker's participation in workplace safety activities. Activities include participation in safety councils, critiques of events, and work planning.

All staff employees and management have performance criteria that include safety performance as a key element of their yearly evaluation. All employees at FFTF may report a safety related concern or issue without fear of reprisal or harassment for reporting the issue. Bargaining unit employees do not have performance criteria.

Leadership

The application presents an informed, 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 Senior Director, Plant Manager, and other managers solidly demonstrate management commitment. Both the Senior Director and Plant Manager make focused tours at least once a week. FFTF's commitment is demonstrated in strong S&H policy statements, the providing of resources necessary to support all S&H program activities, attention to employee-identified S&H concerns, active participation in safety promotional activities, and leadership/mentoring for employee safety activities.

FFTF has established a variety of committees and teams that appear to effectively provide an opportunity for all employees to be involved in the safety program. Starting with the VPP coordinating committee, and working down through several process and discipline-specific committees, workers and managers cooperate to plan and administer the safety process.

FFTF has five major sub-tiered organizations. These are: Operations, Engineering, Maintenance, Transition Project Office, and Technical Support. Three other direct-reporting organizations include the 400 Area Radiological Control Team, Quality Assurance Team, and the Safety Team. The total workforce is approximately 231 employees, consisting of 21 people in management, 130 exempt, 33 non-exempt, and 47 bargaining unit personnel.

One employee stated: "management listens to craft at FFTF." There seems to be a genuine concern for the well being of employees at FFTF. For example, when an employee reported to his supervisor that his back was hurting, the supervisor arranged for an ergonomic evaluation of his workstation, resulting in a new chair for the employee.

Organization

FFTF is organized to support its production-oriented role, with additional strong emphasis on safety, quality assurance, and radiological protection. Through review and observation of the processes in action, the Team believes that safety is well integrated into FFTF's organizational design. FFTF management has established an effective and consistent risk-based process for prioritizing Environmental, Safety, and Health (ES&H) needs and associated funding for identified safety issues, deficiencies, and commitments. Line management has also developed a consistent and responsive Integrated Safety Management (ISM) System Description and implemented project specifics through Administrative Procedure A-3, *Operations Organization and Responsibilities*. The FFTF Safety Team reports to the Plant Manager and provides expert ES&H services to FFTF. Most of the staff on the Safety Team provide direct support and frequently participate as team members on specific projects or work activities. Line management uses formal mechanisms and processes for collecting information on ES&H performance. Managers and first line supervisors include time in their schedules for walking through the facility and maintaining an open dialogue with employees.

Responsibility

Top management is prominently involved in all elements the S&H program and are committed to the implementation of a well coordinated S&H program, including establishment of a clear line of communication with employees. FFTF subscribes to the philosophy that line management is responsible for safety. However, it is clear that management needs help with implementing the ES&H Program, and that each employee is personally responsible for safety and has a significant role to play in implementing this program.

FFTF has clearly defined the roles, responsibilities, accountabilities, and authorities for conducting business. Managers and staff have been made responsible for safety at FFTF. Policy acknowledges that a team of ES&H specialists with technical expertise in a variety of disciplines such as industrial hygiene, fire protection, and radiation protection must be available to achieve excellent performance. For that reason, highly qualified ES&H professionals are part of the organization to ensure that work is performed safely, and other ES&H professionals provide independent overview of FFTF operations.

FFTF uses position descriptions to ensure that all positions in their organizations have current and accurate descriptions of the duties of the job to be performed and reporting relationships. HNF-RD-7085, *Safety Responsibilities*, defines worker rights, and management and worker S&H responsibilities. Staff performance reviews are used to monitor and reinforce implementation and performance goals for safety.

FFTF has established a strong safety culture that both management and employees share – a belief that *all* employees of FFTF are both responsible and accountable for safety and health in the workplace.

Notable Practice:

Operations management uses worker involvement to establish individual operations goals for shift personnel. Each shift crew is required to develop performance indicators to illustrate crew performance relative to established goals. Shift crews meet independently each month to discuss their performance, with a subsequent monthly meeting attended by the Operations Manager, Assistant Operations Manager, Shift Operations Manager, and Assistant Shift Operations Manager. This process promotes crew synergy, the discussion of performance issues, and the self-identification of opportunities for continuous improvement. Additionally, this practice provides operations management with valuable information on crew status, allows trending, promotes consistency, and identifies common crew performance issues.

Accountability

Management is committed to providing the leadership, direction, goals, training, resources, and standards to assist employees in the performance of their duties in a safe and healthful manner. Management and employees share in the responsibility to carry out individual duties in a safe manner. Managers are held accountable for safety by

specific criteria within their individual performance standards, and they are accountable for the consistent enforcement of company safety policy. The company has a formal written performance appraisal system with S&H responsibilities as a critical element for management personnel.

The annual performance reviews are a key method used by the site to hold all employees, including managers and supervisors, accountable for their performance. The annual performance reviews, which are conducted for all employees, consider S&H performance as a major element of the review. Employees have input as to what their specific S&H expectations are for the rating period. Additionally, the results of these reviews directly affect annual merit pay considerations. Management has an established policy allowing disciplinary action(s) for violations of rules, policy and requirements, thereby ensuring day-to-day accountability on the job. Accountability is regularly communicated to all employees through staff meetings, safety meetings, training, site publications, and annual performance reviews. All subcontractors are expected to follow FFTF S&H requirements; they are held accountable for meeting these requirements both through formal contractual agreements, and through the implementation of formal policies, procedures and directions. Failure to comply with these requirements and/or continued non-compliance can result in dismissal from the work site.

Authority and Resources

All employees are responsible for safety. All site employees are empowered by management with the authority to address safety concerns. This review indicated that the system utilized is effectively working. The Senior Director and Plant Manager have ultimate responsibility with assistance of full-time professional, technical and administrative employees, and the Safety Team. Adequate resources, including staff, equipment, materials and funding, training, and professional expertise have been committed to workplace safety and health.

The site's overall budget is \$625 million, with \$48.3 million or 8 % of the total budget being devoted to Safety and Health. Safety goals are included in annual performance reviews for all managers and employees. There is 1 Certified Industrial Hygienist (CIH) (who is also a Certified Safety Professional (CSP)) and 3 CSPs at this site. In addition to Radiation Control, Environmental Protection, Fire Protection, Waste Management, as low as reasonably achievable (ALARA)/Waste Minimization, Emergency Preparedness, and professionals within other FFTF groups, FFTF draws from other Hanford experts, the Case Manager, and the Hanford Atomic Metals Trade Council (HAMTC) Safety Representative.

Planning

The need to build S&H into projects is well ingrained into FFTF's nuclear reactor culture and policy. The annual planning process requires managers to analyze and predict employee training, ES&H, and operational costs for doing business. A five-year institutional plan helps capture long-term goals and capital expenditures. An integrated

planning framework has been established to provide a comprehensive template to ensure the planning process is comprehensive.

The overall objective for FFTF's jobs is to "do work safely," by reducing risks to the worker, the public, and the environment. Managers plan for S&H at the site level. These planning elements then flow down to the operations, maintenance, and engineering levels. They establish cost, schedule, and technical baselines within the Advanced Reactors Multi-Year Work Plan. Overall, FFTF's S&H program is goal-driven with annual review and modification of goals and objectives based on actual performance findings. Safety and health planning is extremely thorough and is designed to ensure continuous improvement.

Notable:

It was confirmed that FFTF develops annual ES&H management plans as part of the annual site-wide budget process. These ES&H documents and plans support the overall budget process, identify crosscutting issues and needs, and document projected activities for ES&H.

Subcontractor Program

Subcontractors must pre-qualify, based on past S&H performance before they are allowed to bid on work at this site. Specific S&H requirements are contained in subcontracts. Depending on their expected length of stay on site, subcontractors go through Hanford Site Orientation Training and facility-specific orientation. Once onsite, subcontractors are closely monitored through informal walk-throughs on a routine basis. Prior to starting work, the subcontractor must produce a Job Safety Analysis (JSA). Daily work activities are coordinated with FFTF's project engineering and line management personnel to ensure compliance with site policy, standards, and regulations. Deficiencies must be corrected in a timely manner, and employees cannot be exposed to hazards during mitigation activities. Failure to comply with S&H rules, regulations and policy can result in monetary penalties and/or dismissal from the site. Subcontractors who repeatedly violate the same rules, policies, or standards may be dismissed from the site. While only a few subcontractors were engaged in work during the onsite VPP review, several subcontractor employees were observed not wearing proper PPE. When these discrepancies were pointed out to FFTF personnel, the discrepancies were quickly corrected. FFTF personnel pointed out that the observed subcontractor behavior was out of the ordinary.

The ES&H Contract Clause is inserted into subcontracts as appropriate. Subcontractors are then carefully screened using combined ISM/VPP criteria. Those accepted for work at the site must send their employees to the required site-entry training courses before beginning work. Once onsite, subcontractors are closely monitored through weekly and monthly surveillance to ensure compliance with site policy, standards and regulations. Deficiencies must be corrected in a timely manner and employees cannot be exposed to hazards during mitigation activities. Failure to comply with S&H rules, regulations and policy can result in monetary penalties and/or dismissal from the site. Subcontractors

who repeatedly violate the same rules, policies or standards may be dismissed from the site and prohibited from bidding on future work at the site.

FFTF typically has less than a dozen subcontractor personnel onsite at any one time. All subcontractors must receive the primary site orientation through Hanford General Employee Training (HGET); activity and workplace-specific orientation and training is received through a mix of both site-sponsored courses and contractor-sponsored courses. Contract provisions require program and site audits by FFTF. Contracted entry/exit at the site is through a series of security and permit/work authorization processes. Contracts contain penalties (e.g., stop work without remuneration for safety infractions), up to termination for non-compliance. This system has been effective for several years.

The management personnel interviewed during the course of this onsite evaluation who had a responsibility for either planning, supervising or working along with subcontractors indicated that subcontractors were all expected to follow FFTF S&H requirements, and that subcontractors were held accountable for meeting these requirements.

Program Evaluation

The FEB, which is FFTF's independent assessment group, adopted VPP criteria as part of their safety evaluation. The 2000 FEB evaluation consisted of an ISMS system verification assessment and a complementary OSHA expert prototype computer program evaluation. The 2001 FEB FFTF evaluation was completed in March 2001. The results of annual program evaluations and other S&H trending data are tracked in the Hanford Site tracking system and used to develop Safety Improvement Plans. Corrective actions are then tracked to completion.

Site Orientation

The new Hanford Site Orientation has been revised and streamlined. It is comprehensive, includes training and documentation, and applies to all persons entering the site. This training covers S&H policies, regulations, requirements, and instructions on ISM and VPP. Other specialized training is given, based on the tasks that will be assigned. For example, the FFTF Nuclear Training Team provides a 2-hour orientation course for initial training in safety, radiation, and security at the facility.

Employee Notification

The employee notification program surpasses the requirements for employee notification contained in DOE Orders and guidance documents. These requirements also exceed the OSHA (Federal and state) requirements for employee notification. This information is presented again during annual S&H refresher training required for all employees, and is reinforced through oral communications and various publications and other written materials.

Management Visibility

Top-level management is clearly visible and actively participates in the S&H program. FFTF management regularly participates in various S&H activities. Managers are held accountable for their S&H responsibilities and maintain a policy of accessibility with regard to S&H issues that arise in the workplace. An “open door” policy ensures that any employee, at any time, can express an S&H concern to any level of management. The team confirmed this policy through formal and informal interviews, and noted that most employees did not feel the need to raise concerns above their first-tier or immediate supervisor, because any concerns raised were resolved almost immediately. Also, the VPP Steering Committee and the FFTF-HAMTC and FFTF Safety Committees do an outstanding job of addressing any safety concerns and facilitating corrective action(s) where needed. Accordingly, employees did not believe it necessary to take concerns to upper-level management, as issues were effectively handled by the various safety committees and first line supervision.

The Plant Manager for FFTF personally meets all new employees. He indicated that it is his expectation that new employees embrace the FFTF culture that values a safe workplace and a clean work environment. Numerous examples of this culture were noted, to include personnel going out of their way to pick up discarded coffee cups, sweep floors, neatly store equipment, etc. The grounds and all work areas that were visited were neat and orderly. New employees are also introduced to DOE Facility Representatives assigned oversight responsibilities related to FFTF.

Conclusion

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. FFTF meets all requirements for the management commitment tenet.

IV. EMPLOYEE INVOLVEMENT

The onsite review clearly showed that employees are actively engaged in the S&H program. In addition, a 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 interviews with the 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 often result in candid opinions.

Since the total number of employees was approximately 230, formal interviews were scheduled with almost all management staff. Random, informal employee interviews were conducted with individuals who were selected from a list that was provided by FFTF. Many of the informal interviews were conducted with employees during the walk-through of work areas at various site locations. Most of the interviewed employees have worked at FFTF for between 10 and 20 years. The institutional knowledge inherent in such a well-developed organization was apparent. These factors contributed to a mature safety attitude.

Workers were candid and showed no fear in talking with the VPP review team during interviews. All employees indicated that they understood their rights and responsibilities, and are very knowledgeable about their rights and responsibilities regarding S&H. Interviews confirmed that a strong safety culture exists at all levels, and employees feel empowered to voice safety concerns.

Most employees were familiar with FFTF’s efforts to continually improve safety programs. They understood that the pursuit of VPP recognition was part of the FFTF’s ongoing efforts to keep the program moving forward. Nearly all employees interviewed were highly knowledgeable regarding their rights to request reports of inspections; accident investigation; and injury and illness records. All stated that they were given timely and complete written and/or oral feedback to S&H questions and issues.

Overall, it was clear that the work force has enthusiastically welcomed the opportunity for increased participation in assuring their abilities to perform work safely. When asked how the VPP process has impacted their work, most employees interviewed responded that their awareness level has increased, and their recognition of how their work may impact the safety others has also been heightened. Notably, FFTF employees indicated that the Company's VPP efforts have kept safety in the forefront. Many workers indicated that the VPP effort has moved the FFTF's programs to a higher level.

Employees stated that they were not afraid to stop work if needed. Health Physics technicians stated that their relations with Operations were good and Operations did not become upset if they stopped work because of safety concerns.

FFTF employees made the following comments:

"FFTF has a more caring attitude than any place else I have ever worked."

"FFTF is 125% better than my last job when it comes to safety and health. I get to go home in one piece."

UNION STEWARD: "VPP is nothing new to us, we were doing it years ago!"

"Workers are in charge of safety instead of management."

"The Safety Council is an employee committee as opposed to a management committee."

"Management is very responsive to issues."

UNION STEWARD: "I know about a problem usually before management and I hear of very few problems."

REPETITIVE COMMENT: "People that violate safety requirements are either not here anymore or soon won't be."

"We're like a family here."

"Operations takes pride in being able to remember small details related to work procedures. This is the kind of knowledge that can cause you to win or lose a soft drink bet."

Safety and Health Committees

Employees are knowledgeable about the VPP effort at this site through several committees including:

- FFTF-Hanford Atomic Metals Trade Council (HAMTC) FFTF Safety Committee
- VPP Steering Committee
- 400 Area Safety Awareness Council (SAC)
- President's Zero Accident Council
- As Low As Reasonably Achievable (ALARA)/Pollution Prevention Committee
- Safety First Program

The FFTF has also spread the word through posters; emails; bulletin boards; safety meetings; all hands meeting; and other oral communication. Employees feel they own the committees and that management participates in the committees, but the employees have the ownership.

SAC meetings are held on a monthly basis and minutes are kept and posted for review by all employees. Employees are aware of the SAC, and use it to address safety issues. Employees are very knowledgeable and confident in the various committees and program processes. The Safety First Program is supported and staffed by employees on a volunteer basis. These volunteers represent the various work groups, and are scheduled to perform weekly inspections to look for missed safety issues. Issues are noted on a form called the "Safety First Program — Observation Report". This form lists the employee's name performing the inspection as well as information briefly describing the work observed. The form includes a fairly comprehensive listing of industrial S&H topical areas that should be considered during an inspection. The report has sections where inspectors can note good safety practices, safety discrepancies, and improvement suggestions. A quarterly report (e.g., "2001 Safety First Program First Quarter Report") summarizing the activities of the Safety First Program, is routinely published and made available to all employees. Issues are passed on to the Safety Council and are also forwarded to the management team. Issues requiring action are given a unique tracking number, entered into a database, and tracked to closure. This simple, yet effective database is called the "400 Area Safety Awareness Council Action Items". Information contained in this database is routinely posted on bulletin boards for employees to review.

Most workers indicated that they have input into the procedures for the work being performed. Many of them are involved in the development process, and others have input after the development, but always prior to implementation and use. Employees were very confident and enthusiastic and feel they are part of the work development process at this site. FFTF is starting to incorporate more employee involvement in the

development of new training, coordinating with other craft and also in the actual writing of the lesson plan.

Employees are involved in the formal and informal reporting of hazards. They have stop work authority, and feel comfortable and confident with it. They have input into systems and procedures for incentive programs, as well as the disciplinary procedures as they relate to safety and health issues. The FFTF HAMTC Bargaining Unit Safety Representative is responsible for assisting bargaining unit staff members with resolving their safety-related concerns, or any staff concern related to ES&H issues. It is up to the manager to ensure that the employee is familiar and understands the disciplinary procedures as they relate to S&H issues. In the interviews conducted, all employees were knowledgeable of these procedures.

Notable:

Employees are involved in the reporting (formal and informal) of hazards, have stop work authority, and have input into systems and procedures for incentive programs, as well as disciplinary procedures as they relate to safety and health issues. Cash awards are given to employees who report hazards or develop innovative solutions.

The SAC plays a direct role in developing Safety Procedures. Several of those interviewed credited this activity as increasing employee ownership of safety.

Conclusion

Employee ownership has taken root in many forms throughout this worksite, 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. FFTF meets all requirements for the employee involvement tenet.

V. Worksite Analysis

The onsite review clearly showed that FFTF meets the requirements for worksite analysis found in the DOE-VPP criteria. The sub-elements of Worksite Analysis program at this site are described below.

The worksite analysis processes at FFTF are structured and implemented to adequately control hazards to the workers, the environment, and the public. Formal worksite analysis processes for control of operations and maintenance, and the mitigation of hazards or potential hazards are in place. Personnel interviewed during this review and observations made by the Team confirmed that these processes are used and understood by the workers. Hazard analysis processes incorporate such tools as the Automated Job Hazard Analysis (AJHA) system, Job Safety Analyses (JSA), and require walkthroughs by crafts, engineers, maintenance personnel, and subject matter experts to ensure a safe and functional work evolution is structured prior to commencing work.

Pre-use/Pre-startup Analysis

All of the 1,500 active operations processes at FFTF have been screened for the applicability of AJHAs. Another 1,000 inactive processes have been screened. Prior to the design or modification of systems or processes at FFTF, a hazard and accident analysis is completed which documents the defined processes, specifies requirements, lists specific types of hazards and mitigation during design, and ranks categories of hazards. Safety and engineering professionals review the design criteria and provide comments and resolutions. These are tracked to completion on any new design or modification to systems and processes. Employees are involved in pre-start-up analyses using the AJHA, and in developing operating procedures for new equipment. Each facility has completed a Baseline Hazard Assessment. In addition, the FFTF Work Management Process provides a mechanism to review and change facilities and work. FFTF's Facility Safety Analysis Report (FSAR) is updated for major modifications. It was recommended that FFTF strengthen processes that will ensure that basic industrial safety issues are consistently identified and addressed, to include, means of egress, wearing of safety glasses, and ladder safety.

The Team observed a Plan of the Week and a Plan of the Day Meeting. There appears to be effective interaction between engineers, Persons in Charge (PICs), crafts and the Hanford Fire Department when it comes to preparing, reviewing, revising, and implementing work packages.

Employees confirmed that they are involved in pre-work/startup analyses, and feel that their involvement is appreciated and contributes significantly to the development of safe

work practices. As a result, employees have a greater sense of ownership, thus their level of participation has increased.

Comprehensive Surveys

Each facility has completed a Baseline Hazard Assessment. Employee Job Task Analyses (EJTA) are conducted to match employees with work and are reviewed by industrial hygienists. Risk-based monitoring and personal exposure monitoring also complement the survey program. Shift, daily, monthly, quarterly, and annual radiological surveys/monitoring are also conducted. The industrial S&H staff performs routine inspections of all facilities.

Self-Inspections

Safety and health professionals, line managers, and employees are involved in self-inspections, which include S&H, fire, and respiratory protection program procedures. In addition, they conduct facility surveillances, operations inspections, shift surveillance inspections and employee-based inspections. Depending on the type of deficiency discovered and the type of self-inspection, deficiencies are tracked using either surveillance data sheets, log books, maintenance work packages, the facility tracking database or the Project Hanford Management Contract (PHMC) Deficiency Tracking System.

Two types of self-inspections are conducted by employees; the Housekeeping and Office Safety Tour (HOST) program, which is focused on office safety, and the Safety First Program, which is a behavior-based safety activity. Both activities have been in place for quite some time and have contributed significantly to the positive safety attitude at FFTF.

In addition, the high level Fluor-sponsored FEB performs a comprehensive review of FFTF every other year. The scope of the most recent FEB review, conducted from March 5-15, 2001, fulfilled the independent assessment requirements of the ISMS implementation and confirmed elements of FFTF's Voluntary Protection Program.

Two spill cabinets, five flammable liquid storage cabinets, one emergency cabinet, and approximately 25 fire extinguishers were checked to determine if inspection frequencies had been maintained. With the exception of the two spill cabinets, inspections were annotated in accordance with prescribed schedules.

There were formal schedules for assessments; e.g., "FY 2001 FFTF Requirement Compliance Assessments" is a listing of assessment topics that includes documents, records, conduct of maintenance, radiological records, nuclear safety requirements, work processes, lockout/tagout (LOTO) training, environmental training, etc. "Revised FY 2001 FFTF Management Assessments" is a listing of assessments topics that includes operations procedures, control of administration documents, ISMS improvement actions, fire hazards, fire prevention, electrical safety, etc. There is also an established surveillance schedule for safety systems that is established and prioritized by engineering.

Routine Hazard Analysis

All work is planned and analyzed before activities begin. Since the reactor and associated systems are in a deactivation status, few major modifications are made. Most of the work involves maintenance and work related to keeping the plant in standby. In the development of maintenance work packages, maintenance personnel involve engineering personnel and the crafts that will be involved in the work. Work tasks are routinely reviewed to identify hazards and determine safe work practices. This can be accomplished by using the AJHA tool, or by direct equipment inspection, procedure validation walk-downs, and/or safe condition checks. Employees are involved in the pre-job planning, that includes the assessment of hazards. Safety professionals are included in the process when needed.

A job hazard analysis (JHA) following the requirements in HNF-PRO-079, *Job Hazard Analysis* is completed for all jobs using a graded approach. The JHA is used during the work planning process for identifying, evaluating, controlling, and communicating potential hazards and environmental impacts associated with routine, non-routine, and skill-of-the-craft work. While 80-85% of the maintenance tasks is screened out of the AJHA process, a craftsperson can order an AJHA even though the graded approach may have screened it out. The strength of the program lies in the fact that anyone can stop work if something is not right.

During a JHA review, the work team discussed options to improve the work site, place shielding for dose reduction, or work more efficiently to minimize worker exposure. This is completed as part of the Enhanced Work Planning (EWP) process. The scope of hazard analyses activities appears to be thorough across the site.

Noteworthy:

Interviews with employees confirmed that they were actively engaged in pre-job planning and that they provided feedback for continuous improvement during post-job briefings. This practice has gained in importance to the employees over the past few years. In the past, some work packages were unworkable once they reached the field. Craftsmen informed management that the reason this problem existed was that craftsmen were not involved in the planning process. Current practices fully involve craftsmen, supervisors and managers across organizational lines.

Employee Reporting of Hazards

FFTF promotes open, two-way communication to facilitate resolution of employee safety and health issues and concerns. Employees are free to use verbal or written means to report safety and health issues. Issues that are brought up in safety meetings and cannot be resolved immediately are tracked to resolution in safety meeting minutes.

The “Stop Work Responsibility” policy establishes employee responsibility and authority to stop work immediately, without fear of reprisal, when a situation exists that places

themselves, their coworkers, or the environment in danger. This has been communicated to all employees verbally, in letters from the FFTF Project managers, and in the HGET. It is also posted in all facilities to remind employees of their rights and responsibility to stop work when they deem it necessary.

A custodial subcontractor stated that shortly after reporting a broken cover plate on an electrical outlet, the cover plate was replaced. A Health Physics Technician once reported a roof leak. The water was immediately removed, a bucket was placed under the leak, and the roof leak was soon thereafter permanently repaired.

Security personnel with asset protection responsibilities occupy the building on a daily basis. They suggested marking various tripping hazards that are unavoidably located in walkways within the facility. This issue and others like it were addressed and resolved. Security personnel frequently attend FFTF safety meetings. Loose rubber mats used to cover grated metal walkways and stairs posed tripping hazards. These problems were brought to the Safety Council and ultimately resolved through the application of permanently affixed keepers.

Employee interviews confirmed that they are fully aware of how to report hazards. While there are formal mechanisms for reporting hazards, most employees feel comfortable reporting hazards to their supervisors expecting that hazards will be corrected almost immediately. Employees feel they can report hazards to either the Senior Director or Plant Manager without fear of reprisal.

Notable:

FFTF supports a program called Fix It Now (FIN); a team of employees authorized to search out hazards or respond to reported hazards and accomplish relatively minor abatement actions. This hazard abatement mechanism has proven very effective and is held in high regard by the employees.

Accident Investigations

FFTF personnel are required and encouraged to promptly report and investigate work-related events, including incidents involving property/vehicle damage, accidents involving injuries/illness, and near misses. Line managers determine the extent and type of accident investigation required. Training is offered to all employees and managers through the SAC. Bargaining unit employees assist in training development and conducting training sessions. Employees are encouraged to participate as part of a team during investigations.

Lessons learned are sent to the Hanford Site Lessons Learned Coordinator for distribution. Informal lessons learned are shared within the FFTF Project safety contacts. Any actions are entered into the tracking system and tracked to completion.

The only recordable injury to date this calendar year was properly investigated. First aid cases as well as recordable cases are investigated and recorded on Event Report (Project

Hanford Form A-6001-714) forms. The form provides a mechanism for the injured employee, immediate supervisor, and an Industrial Safety and Health professional to investigate and record how the incident occurred, and what can be done to prevent recurrence. These incidents are also discussed at monthly 400 Area SAC meetings. A records check indicated that it has been years since a Type A, B or C accident investigation has occurred.

Trend Analysis

Safety and Health performance and trending data are available to both management and employees and are used as the basis to modify, change, or establish safety processes. FFTF ES&H staff perform a broad-based, comprehensive trend analysis on a routine basis. A monthly collection of fifteen indicators provided summary data on FFTF performance that are used to monitor processes used to reduce hazards. Indicators include project safety rates, safety improvement plan performance, personnel radiation exposure, preventive maintenance backlog, and corrective action risk ranking. A monthly trend analysis report captures injury and illness to date and is issued to management and the 400 Area Safety Awareness Council. The information is shared with other groups at FFTF. Annually, environment, safety, health and quality (ESH&Q) staff analyzes trend event reports, motor vehicle accident causes, and violation data to communicate to employee's weaknesses and desired improvements. Radiological trend analyses are used to develop improvement strategies and annual ALARA goals.

FFTF formally trends injuries, illnesses, fire damage, vehicle damage, preventive maintenance backlog, and corrective action risk rankings. There is also some informal trending of Occurrence Reporting Program System (ORPS) reports and other information gathered by the Deficiency Evaluation Group (DEG). Trending charts are made available to all employees. Charts are posted, for example, outside the Maintenance Shop. While the FFTF Safety and Quality Assurance Teams are aware and pursue safety issues on a "gut level," information from walkdowns, inspections, self-assessments, and employee reported deficiencies are not trended. It was recommended that FFTF track and trend these safety and health activities.

Conclusion

Worksite analysis is an important element of everyday work at FFTF. It is so ingrained into the culture that safety analyses are the first considerations for any maintenance or operations tasks. FFTF meets all requirements for the worksite analysis tenet.

VI. Hazard Prevention and Control

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

Access to Certified Professionals

FFTF has chosen to maintain a highly qualified S&H staff to meet the needs of their projects and assigned facilities. Personnel in the Industrial Hygiene, Occupational Safety, Fire Protection, and Radiological Control organizations have the education, training, experience, and professional certifications to provide “world class” support to facility personnel. The staff includes a CIH, CSPs, radiation protection technologists, and qualified fire protection engineers. Communication from this extensive staff of technical experts to the employees is encouraged and supported through various mechanisms, to include:

- Meetings to discuss new regulations, technology, concerns, and other site issues,
- Examination of site electrical issues by the Hanford Workplace Electrical Safety Board,
- Establishing Centers of Expertise, to include, ES&H, Radiological Control, and Nuclear Safety, and
- Locating technical experts near the work.

FFTF depends on services available at the Hanford site to complement their expertise. The Hanford Site maintains trained and qualified medical, fire department, and emergency response personnel and services. The Hanford Occupational Medical contractor, the Hanford Environmental Health Foundation (HEHF), provides occupational medical personnel. HEHF has assigned a physician to work with FFTF employees. The physician and physician assistants have regularly toured FFTF facilities, are familiar with the day-to-day scope of work, and understand the different needs of employees. The medical staff works very closely with FFTF safety specialists to ensure that workers are receiving appropriate care. Periodic meetings are held to discuss new regulations, technologies, concerns, or other site-wide issues.

Under the direction of HEHF’s three board-certified occupational health physicians, five physician’s assistants and nurses, skilled specialists provide the following a wide range of services to FFTF employees. Services include case management, ergonomics assessments, exercise physiology, fitness for duty evaluations, health education, immediate health care, infection control, medical surveillance, occupational medicine and nursing, psychology and counseling, and work suitability evaluations. They are

encouraged to perform at least 12 site visits a year and to become more knowledgeable about field operations and potential medical risk factors. Their hazards-based program focuses on key elements such as risk factors related to workplace exposures and target organs.

Communication from this extensive staff of technical experts to the employees is encouraged and supported by a number of processes and policies.

Methods of Prevention and Control

Hazards at this site are controlled using engineering controls, PPE, and work practice guidelines. These controls are reviewed and only need updating on an infrequent basis, as they are well characterized. All site safety rules, safe work practices, and PPE usage was found to meet requirements. The site currently maintains Material Safety Data Sheets (MSDS) in a central location for site-wide access. It was recommended that FFTF strengthen their process for ensuring that MSDS files are protected, complete, current and readily available. The field should also have ready access to MSDSs and understand the MSDS program.

During the onsite review it was determined that the 29 CFR 1910.147 Lockout/Tagout standard was not violated, but the inconsistent use of different colored locks for different purposes could cause confusion and that lock system integrity could be improved. When asked about LOTO, one employee was confused by lock colors. The Reactor Containment Building and locks were accessible by anyone. The LOTO program needs to be reviewed and upgraded to eliminate administrative weaknesses and inconsistencies.

Notable:

Several years ago FFTF successfully established a FIN Team, composed of workers of multi-disciplines, whose purpose is to walkdown, troubleshoot, and repair identified system/equipment problems in a timely manner to support facility operations. The team consists of a Lead, an Operations Engineer (OE), and four craft persons (Pipefitter, Electrician, Instrument Technician, and Millwright). Ownership and teamwork are demonstrated, particularly in using craft-alignment to share work among bargaining units. The assignment of an OE on the FIN Team is unique and promotes rapid decision-making and approvals. After interviewing members and observing the team, it is evident that the OE is an integral part of team success. Plant Engineers and Operations use the Lead, OE, and craft people daily for troubleshooting, Automated Job Hazard Analysis, ISMS walkdowns, and consulting. This readily available resource has relieved a large emergent workload from the rest of the Maintenance teams. The FIN Team has matured and adapted to the needs of the facility.

The Lead, OE, and craft persons use their approved administrative procedure to determine if emergent work is within the scope of the FIN Team. The team completes 30 to 35 work packages per month. They also troubleshoot 12 to 15 packages per month and send them on to engineering for resolution. Average completion time per package is 1 week. This is very favorable compared to the Hanford Site norm, when depending on

priorities, work packages could remain in the backlog for months. Availability of equipment is improved due to rapid repairs and efficient troubleshooting. The work of the FIN team expedites operational repairs and replacements, and plays a significant part in the prevention and control of safety hazards.

Safety and Health Rules

Rules and expectations have been clearly laid out for all workers and managers and are reinforced in various ways, such as HGET and 400 Area SAC meetings. FFTF employees receive positive reinforcement as well as discipline when necessary. Senior managers have the responsibility for establishing and enforcing disciplinary policy. Violations of S&H procedures, activities or standards can result in disciplinary action, up to and including dismissal. There were recent examples of both days off work without pay for violating S&H rules, as well as termination of employment for a major violation of S&H rules. Interviewed employees stated that they were well aware of what happened and the disciplinary actions taken; they stated that the terminations were justified and that the days away from work without pay were fair when invoked.

The “FFTF Project Employee of the Quarter” and “400 Area Safety Awareness Council” provide recognition processes for rewarding outstanding safety support. Employees nominate their peers. All-Hands meetings, All-Employee meetings and Facility Safety Days are events where employees receive certificates, pins and hats for safety achievements.

Overall, the Team found that the S&H rules to be followed by all employees, including subcontractor employees, is well documented. Interviews with employees indicated they knew and understood the disciplinary process should these rules not be adhered to. Those interviewed felt this process was both fair and consistent, and gave examples of positive reinforcement received from supervisors and management for good work practices.

Personal Protective Equipment

The site policy is to provide the necessary PPE required, protecting workers from hazards that cannot be otherwise eliminated or avoided by engineering or administrative controls. Many types of equipment are made available, including gloves, boots, safety glasses, hearing protection, and respirators. Employees must receive training and appropriate medical evaluation before being permitted to use PPE. Training includes information about the maintenance, care, inspection, storage, disposal, and use of PPE. Where PPE is utilized, instruction for its use is integrated into task-specific procedures. Areas throughout the FFTF (such as the carpenter shop) were properly posted to inform employees of the proper PPE to wear to protect themselves from potential hazards. Appropriate PPE was made available for visitors.

Several contractors and subcontractors were observed not using appropriate PPE. It was recommended that FFTF strengthen their surveillance of PPE use.

Preventive/Predictive Maintenance

FFTF has implemented a comprehensive preventive maintenance (PM) program. Preventive and predictive maintenance is used to mitigate the chances and effects of unplanned equipment failure, thereby enhancing safe and effective operations. The PM program uses a computer database that has been designed to produce scheduled maintenance prior to equipment failure. The computerized PM system facilitates scheduling, tracking, and trending. Maintenance work instructions are included in the database and are rigorously reviewed and approved by Engineering personnel depending on the relative risk involved in performing the work. Tracking of the corrective and PM program occurs monthly. FFTF conducts weekly and daily planning meetings that include all affected managers and supervisors.

Notable:

FFTF has instituted a work control system that incorporates all work to be accomplished in a given year into four quarterly work packages. Scheduling and planning for the safe accomplishment of work in separate phases enables FFTF to establish short-term goals and the employees have a sense of accomplishment as each quarter is completed.

Emergency Preparedness and Response

FFTF has a mature emergency preparedness program. They practice scenarios (drills and exercises) and maintain a comprehensive set of response plans specific to a variety of potential scenarios. The FFTF has adopted the incident Command System as the model for managing emergency response on the site. FFTF also participates in two Hanford site-wide emergency drills each year; one is typically a fire scenario and the other is a “take cover” scenario. At FFTF the Operations Team and health physics technicians conduct as many as two drills per week. There are approximately 13 drills per year, which cover potential hazards such as a sodium leak, fire, radiation and security. There are 13 Building Emergency Directors (BEDs) and 2 additional BEDs who cover operations outside the boundaries of FFTF. As a result, FFTF has Emergency Preparedness coverage 24 hours a day, 7 days a week. The site’s facilities, personnel, procedures and systems meet and/or exceed all requirements of DOE Order 151.1, Comprehensive Emergency Management System.

Employees interviewed were aware of emergency procedures, and effectively explained evacuation processes. FFTF has several means to communicate emergency conditions including; alert phones, sirens, computers, intercoms, offsite radios, etc. Weather emergencies are also communicated to employees. Additionally, VPP Team members were briefed on site emergency procedures, and, although escorted during the VPP review, received orientation to site alarms, postings, and various FFTF hazards.

FFTF conducts their own monthly drills and is involved in a joint drill with DOE and other onsite contractors. These drills are to ensure developed/deployed emergency and evacuation plans and contingency plans function properly.

Radiation Protection Program

The site has implemented the ALARA program to maintain the highest standards of ES&H protection possible. The program includes appropriate levels of self-assessment and oversight to ensure compliance with departmental requirements and that established radiological work practices are being implemented. FFTF ensures that personnel responsible for performing radiological work activities are appropriately trained and have the technical competence needed to implement and oversee the Radiological Control Program. Radiological Work Permits are used to ensure that radiological operations are planned and performed properly. Data and trends are monitored to ensure adequate performance.

Employee interviews indicated that management holds as very important the protection of employees from exposure to radiological hazards. Employee awareness of FFTF's ALARA program is increasing.

Medical Programs

The site has integrated medical services with ES&H. The FFTF project safety organization provides direct support and planning to the facilities on occupational health related processes. They also interface with HEHF physicians and staff. HEHF has a cadre of physicians, physicians' assistants, nurses, and other medical specialists. To supplement this coverage, the FFTF has established an Emergency Response Team, whose duties include providing first aid before arrival of professional medical support. Each active shift has personnel trained and assigned to this Team.

FFTF utilizes the EJTA system to match work-related hazards that require medical evaluation and essential job functions. Medical exams are then scheduled with notification to the employee and their supervisor. The Team found these combined systems to be unique, and extremely efficient.

Conclusion

Hazard prevention and control is clearly demonstrated by FFTF's injury/illness statistics. The medical program, FIN initiative, and work planning procedures are but a few examples of the focus on the prevention and control of hazards. FFTF meets all requirements for the hazard prevention and control tenet.

VII. SAFETY AND HEALTH TRAINING

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

Safety and Health Training

Overall, the site provides formal, comprehensive, and documented S&H training for all employees, supervisors and managers. FFTF-specific training is provided based on the location of an employee's job assignment. Line managers are depended upon to identify required S&H training for employees. FFTF utilizes an electronic system called Integrated Training Electronic Matrix (ITEM) to enter data for tracking purposes and to create periodic training reports. This system lists the employee's job functions and required training.

Employees are taught to recognize hazards associated with their jobs through several means. Special technical groups receive professional skills training, which is discipline-specific. Operating staff personnel receive special qualifications training. Programs covering fire and emergency systems, hazard communications, hazardous waste operations, and operational safety are also included in training.

On-the-job (OJT) training is used extensively across the site to ensure that each worker obtains the required skills to perform a specific job function safely and effectively. This is achieved by following the requirements of a qualification guide or OJT checklist that documents "hands-on" training and "mock-up" training used to prepare for conducting potentially high-hazard activities. This training documents the worker's understanding and proficiency. Informal OJT has proven highly effective. Daily pre-job briefings are performed, and most supervisors provide a safety message that extends beyond the job to enhance the overall attitude about safety. It was recommended that FFTF develop and implement effective training for personnel performing employee-based safety inspections.

Informal training in the form of meetings and group discussions also takes place. Programs of continuing education and/or re-certification are also provided to update qualifications and maintain proficiency at regular time intervals.

There is a formal training class required prior to performing more formal assessments (i.e., "FFTF Nuclear Training Topical Guide – FFTF Assessor"). The course objective is to, "Improve the knowledge level and performance of the assessor by preparing quality performance objectives, preparing criteria supporting the performance objectives, preparing lines of inquiry to perform the assessment, conduct a quality assessment, and document the assessment results in a standard format."

As supplemental training, line managers complete a “Manager’s Safety Training” course designed to address issues related to roles and responsibilities, goals, objectives, and employee involvement. Additional training courses that are offered to managers and supervisors include:

- Accident Investigation,
- Accident Investigation,
- Case Management/Workers Compensation,
- Conduct of Operations,
- Root Cause Analysis, and
- Injury and Illness Recordkeeping

Training curriculum is revised as required by training instructors. Whenever changes occur to procedures, standards, or regulations, or changes are made as a result of lessons learned or feedback from students, corresponding changes are made to the curriculum. Oral and written exams are administered and re-certification is scheduled regularly.

Employees appeared to be very knowledgeable concerning the safety aspects of their job responsibilities. Health Physics Technicians are required to re-certify every two years and participate in established training cycles every 2-3 months. Certification includes testing and oral boards. Training records that were reviewed were complete and up-to-date.

Conclusion

S&H training receives high priority at this site. Employees are well aware of their safety and health responsibilities and are well equipped to consider safety and health in all they do. FFTF meets all requirements for the S&H training tenet.

VIII. General Assessment

Safety and Health Conditions

The DOE-VPP Onsite Review Team made observations during walk-around activities, both as a group and individually, and conducted over 100 interviews of FFTF personnel. No conditions or events, which could be qualified as significant in terms of an unabated hazard to workers, were noted or reported. It was readily apparent that hazard prevention and control measures were effectively implemented at the site. Site safety rules, safe work practices, and PPE usage met requirements although team members did observe one or two conditions that were in apparent violation of OSHA standards, or were not in keeping with best practices. These conditions were reported to FFTF management; they indicated that these issues would receive immediate management attention. For example, a ladder and scaffold were not placed properly. The VPP team notified management and their response included a key commitment to re-evaluate placement of scaffolds and ladders on jobs scheduled in the future. In another instance, the PIC was not wearing a hard hat during construction operations. The general practice of individual employees relaxing their use of PPE may have been repeated elsewhere and FFTF management recognized the need to reexamine the practice.

The consensus of the team was that the site was well maintained and no major S&H issues were observed. All minor issues were immediately explained and/or resolved to the satisfaction of the Team.

Safety and Health Programs

The DOE-VPP team found the applicant's program to be highly effective. The overall program is comprehensive and well communicated. The Team believes that the contractor has developed a strong S&H infrastructure and with proper guidance and funding this program is expected to continually improve.

IX. Team Conclusion

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 to senior management as formal documentation in support of FFTF's consideration for DOE-VPP recognition.

X. References*

* The following documents were reviewed as a source of background information and comparative data during the Application Evaluation Review of the FFTF submittal for the DOE-VPP. This section is entitled "References," to guide those readers who wish to consult the documents that were reviewed by the Office of Regulatory Liaison, EH-51, along with the subject application. Although this list has been placed in a bibliographic format, it is not intended to imply that these documents are cited within the body of this report.

2001 Safety First Program First Quarter Report

Administrative Procedure A-3, *Operations Organization and Responsibilities*

“DOE O 223, Emergency Plan Implementing Procedures”, “DOE/RL-94-02 Rev. 2, Hanford Emergency Management Plan”, and “HNF-IP-0263-FFTF, Building Emergency Plan for FFTF Property Protection Area”

Emergency Services Morning Report, dated June 20, 2001

Emergency Preparedness Drill Schedule, dated June 20, 2001

FEB-FY01-03 Facility Evaluation Board Final Report, Fast Flux Test Facility Project
March 5- March 15, 2001

FFTF Daily Report, dated June 19, 2001

FFTF Plan Of Day (POD), June 19, 2001

FFTF/ART Executive Program Review meeting minutes, dated June 14, 2001

FFTF Weekly Status Report, dated June 18, 2001

Fluor Hanford memorandum dated June 20, 2001, Ergonomic Assessment of Caution Zone Jobs at the FFTF

FS-26.6-3, Safety Equipment Inspections

HNF-RD-7085, *Safety Responsibilities*

HNF-PRO-079, *Job Hazard Analysis*

J-5 Work Record/Post Job Review Form

FFTF OSHA 200 Logs

Project Hanford Form A-6001-714

Reference Work Package 4F-00-718/M, Work Change Notice #3 – Inverter Modification Package, replace D-114/115

Reference the G1 Annex Heater Job

SI-12-3 Operation of Turbine Generator G-3 and Auxilliaries, dated 09/29/99

SI-23.9-10 Gas Turbine Generator Fuel Oil System Fill/Drain, dated 03/19/98

SI-23.12-7 Gas Turbine Generator G-3 Lube Oil System Fill and Drain, dated 11/16/98

SN-12-4 Operation of the 13.8kV Emergency Power System, dated 05/22/96

SN-12-23 FFTF Breaker Racking Operations, dated 10/01/98

SN-26.5-2 Operation of the Gas Turbine Generator Enclosure Halon Gas Blanketing System, dated 03/22/95

Work Request 4F-01-00195/M

XI. Appendix: DOE-VPP Onsite Review

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