



Fluor Hanford, Inc. – Fast Flux Test Facility Closure Project



**Report from the DOE
Voluntary Protection Program
Onsite Review, July 10-15, 2005**



U.S. Department of Energy
Office of Quality Assurance Programs

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

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

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Abbreviations and Acronyms

AED	Automated external defibrillator
AJHA	Automated Job Hazard Analysis
BLS	Bureau of Labor Statistics
CAIRS	Computer Accident/Incident Reporting System
CFR	Code of Federal Regulations
CPR	Cardiopulmonary resuscitation
DART	Days Away, Restricted, or Transferred
DOE	U.S. Department of Energy
DOE-VPP	U.S. Department of Energy Voluntary Protection Program
EH	Office of Environment, Safety and Health
EJTA	Employee Job Task Analysis
ES&H	Environment, safety, and health
FFTF	Fast Flux Test Facility Closure Project
FIN	Fix It Now
HAMTC	Hanford Atomic Metals Trade Council
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
JSA	Job Safety Analysis
LOTO	Lockout/Tagout
LWDI	Lost Workday Injury and Illness
NAICS	North American Industry Classification System
OSHA	U.S. Department of Labor's Occupational Safety and Health Administration
PPE	Personal Protective Equipment
S&H	Safety and health
SIC	Standard Industrial Classification
VPP	Voluntary Protection Program

Executive Summary

The DOE-VPP onsite review of the Fast Flux Test Facility (FFTF) Closure Project for recertification was conducted from July 10-15, 2005 at Richland, WA. The VPP onsite review Team (Team) found the safety and health performance at FFTF needs improvement in order to remain Star quality. The following summarizes the review team's observations and analysis.

Management Leadership

The Senior Director of the FFTF closure project and other managers visibly participate in safety programs, and has successfully implemented the Department's required Integrated Safety Management System (ISMS). The Team found that the senior manager at FFTF is committed to implementing and maintaining a strong Safety and Health (S&H) program. Interviews indicate that managers are personally committed and that they provide competent leadership and direction. Overall, FFTF management encourages a safety culture based on an "injury-free workplace" concept and they have currently achieved a FFTF record of 1500 workdays without a lost time incident. FFTF management considers the site's VPP to be an effective tool that supports implementation of ISMS and complements the overall safety and health program.

Employee Involvement

The Team found that employees are actively involved in S&H in the workplace. Employee involvement not only occurs through participation in safety meetings and training, but also through work planning, periodic self assessments, and the 400 Area Safety Awareness Council. Employees openly stated that they not only felt responsible for their own safety but that of their co-workers. The Team found during interviews that employees usually spoke in terms of "our" efforts when referring to peers and management. The observation of a strong safety culture was observed by this Team by individuals describing each other as members of a family with a genuine concern for the safety of others. FFTF continues to satisfy the VPP requirements for Employee Involvement.

Worksite Analysis

The Team noted that the FFTF meets the basic requirements of the Worksite Analysis tenet; however, use of the Automated Job Hazard Analysis (AJHA) process versus reliance on skill of the craft needs careful review. FFTF uses graded approach for the AJHA process and its implementation using the skills of the craft as a basis. The Supervisor/Work Leaders for tasks do not always prepare and include AJHAs with work packages; instead rely on the workers' skills and knowledge to identify hazards and implement controls. For example, the Team noted that over the last six months, a total number of 446 work packages were completed of which five (5) were "Admin" with no field work, 267 were with pre-approved procedures, and of the remaining 174 packages, only 14 had formal AJHA's performed. The Team concludes that reliance on skill of the craft in the place of a formal JHA process places an undue burden on workers to identify hazards and implement control measures. FFTF needs to carefully review the rigor in which they apply the AJHA system versus reliance on skill of the craft.

Hazard Prevention and Control

FFTF has provided the basic elements of hazard prevention control. Certified Safety Professionals are accessible, hazards are controlled utilizing a hierarchy of controls, safety and health rules are established, PPE is readily available, emergency response procedures are in place and functioning, and medical programs are integrated into facility procedures. The Team found that FFTF satisfies the requirements of hazard prevention and control. However, several programmatic deficiencies were noted and are documented in section III and section VII of this report.

Safety and Health Training

The Team noted from interviews and document reviews that employees at all levels knew how to identify and protect themselves and others from hazards associated with their jobs. The training consists of a combination of formal, informal; computer based, and on the job training as it applies to various positions and tasks. FFTF uses an automated system to track and report the status of training. Training is comprehensive and is provided to managers, workers and subcontractors. The Team concluded that FFTF continues to exceed S&H training requirements.

Conclusion

The Team concludes that FFTF has satisfied the requirements for continued participation in DOE-VPP, and recommends that DOE approve the recertification to STAR after appropriate corrective actions have been taken to address the items listed in section VII of this report (Areas for Improvement).

I. Introduction

The Department of Energy Voluntary Protection Program (DOE-VPP) recertification review was conducted during July 10-15, 2005 at the Hanford Site in Richland, Washington. The purpose of this review was to evaluate the Fast Flux Test Facility (FFTF) for continuation as a STAR participant in the DOE-VPP. FFTF was a 400-megawatt (thermal) liquid-metal (sodium) cooled fast neutron flux nuclear test reactor owned by DOE. FFTF is operated by the FLUOR Corporation for DOE. The Department's Richland Field Office (RL) in Richland, Washington provides guidance to FFTF on a regular basis, and has oversight responsibility for operations.

FFTF is located on the 560 square mile Hanford site located north of the city of Richland, Washington. The facility is in that portion of DOE's Hanford site which is referred to as the "400 Area." There are approximately 203 FFTF employees at the Hanford site. Of these, approximately 54 are members of an organized bargaining group. The STAR level recognition was initially awarded to the site in June 2001.

The Team evaluated the safety programs of FFTF against the protocol for DOE-VPP Star Site Recertification. The Team consisted of safety professionals from DOE Headquarters, Office of Environment, Safety and Health (HQ/EH), Richland Operations Office (RL), Office of River Protection (ORP), and Savannah River Site (SRS). See Appendix for a roster of the Team. During the site visit, the Team evaluated relevant safety documents and conducted interviews of employees (bargaining, non-bargaining, and exempt) to evaluate and verify the information necessary to perform the recertification review.

Historical Background

The initial DOE-VPP onsite review of FFTF was conducted from June 19-21, 2001 in Richland, Washington. Fluor Hanford, Inc. has operated FFTF for DOE since 1996. During the time in which FFTF was operational, oversight was provided by reports to the Office of Nuclear Facilities Management in the Office of Nuclear Energy (NE). However, since moving into deactivation status, the Office of Environmental Management (EM) now provides oversight of FFTF.

As stated earlier, FFTF was a 400-megawatt thermal nuclear test reactor cooled by liquid sodium. As designed, FFTF's makeup consisted of a reactor and several support buildings and equipment arranged around the central reactor containment building, as shown in the illustration below. The reactor was located in a shielded cell at the center of the containment building. Heat was removed from the reactor by liquid sodium that was circulated through three primary loops, which include the pumps, the piping, and a series of intermediate heat exchangers. The primary loops are connected to secondary loops and consist of pumps, piping, flow meters, and heat exchangers. At full-power operation, the reactor inlet temperature of the sodium is 360 degrees Celsius (°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 proposed using existing facilities while considering future mission needs; planning a research program for an advanced accelerator facility, and permanent deactivation of the FFTF.

In April 2001, the Secretary of Energy suspended the previous administration's decision in the ROD regarding the permanent deactivation of the FFTF. This suspension was to allow for a review of available information regarding the decision to close the FFTF. Following these reviews, the DOE decided in December 2001 that restart of the FFTF was impracticable and that its deactivation would proceed. Since December 2001, the FFTF has been in deactivation status.

Major deactivation activities underway at this time consist of, but are not limited to, dry cask storage of irradiated fuel, dry storage of unirradiated and sodium-bonded fuel, sodium drain and storage, and deactivation of the auxiliary plant systems. In mid-May 2003, the Tri-Party Agreement agencies (i.e., the U.S. Department of Energy, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency) signed into agreement the FFTF TPA M-81-00 series milestones and related M-20-29B milestones for governing the deactivation activities currently underway. These milestones can be viewed at <http://www.hanford.gov/fftf/pdf/m-81-series.pdf> or under Appendix D of the Hanford Federal Facility Agreement and Consent Order, April 24, 2003 at: <http://www.hanford.gov/tpa/agreement-6/tpadoc.pdf>.

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, including the occupational safety and health program and training functions.

II. Injury and Illness Rate Information and Trends

The Team reviewed the Occupational Safety and Health Administration (OSHA) form number 200, *Log and Summary of Occupational Injuries and Illnesses* and OSHA form number 300, *Log of Work-Related Injuries and Illnesses*. The rates below include all FFTF employees.

INJURY AND ILLNESS DATA FOR FFTF					
Calendar Year	Lost Workday Cases	Total Recordable Cases	Employee Hours	Days Away, Restricted, or Transferred (DART) rate*	Total Recordable Case (TRC) Incident Rate
2002	0	2	492,259	0.41	0.81
2003	0	1	325,774	0.61	0.61
2004	0	3	434,171	0.00	1.38
3-Yr. Average	0	2	417,401	0.32	0.95
Bureau of Labor Statistics (BLS) national average for North American Industry Classification System (NAICS) 5629 – Remediation and other waste management services				4.0	6.3

* Days Away, Restricted, or Transferred (DART) rate replaced the Lost Workday Injury and Illness (LWDI) rate in 2004

The information on the OSHA 200/300 logs supports the data provided in the FFTF self-evaluations, the organization's first report of injury forms and other recordkeeping documents. A health and safety professional is responsible for classifying all injuries and illnesses for OSHA recording and is responsible for maintaining the OSHA log. Injury/illness data is submitted for inclusion in the DOE HQ Computerized Accident/Incident Reporting System (CAIRS). Routinely, the data output from CAIRS is checked against the actual data reported and submitted. This ensures that accurate information is being presented in the CAIRS database. The staff understands the recordkeeping requirements including the 29 CFR 1904 recordkeeping changes that went into effect in January 2002.

It should be noted, prior to the Federal government's conversion from using the Standard Industrial Classification (SIC) codes to use of the North American Industry Classification System (NAICS), FFTF was classified as SIC 491 – "Electrical Services," for all data comparisons. DOE utilized this data because the Bureau of Labor Statistics (BLS) did not publish data for the specific four-digit industry code, 4911, "Nuclear Reactors."

III. Summary of Performance Related to VPP Tenets and Sub-elements

The level of management leadership, employee involvement, worksite analysis, hazard prevention & control, and safety & health training found at this site generally meet DOE-VPP criteria for STAR level recognition. The sub-elements of the tenets and an evaluation of the FFTF performance in selected areas are addressed and described below.

A. Management Leadership

Fluor Hanford's management commitment to S&H is demonstrated in strong policy statements, in the allocation of resources necessary to support S&H program activities, and in their active participation in safety committees. It is the Team's observation that FFTF management demonstrates their commitment to a safe and healthful workplace for all employees through the implementation of ISMS and VPP. Top-level management is visible and actively involved in the S&H program at FFTF.

Based on observations, interviews and review of policy and program documents, the Team believes that Fluor Hanford's management of FFTF is organized to effectively support the assigned roles, responsibilities, and policies. Further, the Team observed that roles and responsibilities for employees and managers are identified in position descriptions and the labor bargaining agreements. Accountability for safety and health responsibilities is demonstrated by inclusion of safety and health as an element in the performance evaluations for managers as well as other non-bargaining unit employees. Means or methods for holding bargaining unit employees accountable for safety and health are identified in the union agreement between Fluor Hanford and the collective bargaining units.

An integrated framework has been established to provide a template to ensure the S&H planning process is comprehensive. The FFTF self assessment and the subsequent VPP Annual Report are fully integrated with a well developed scoring system that trends performance by sub tenet. These annual program evaluations have been conducted using VPP criteria and ISMS core functions and guiding principles; the results of annual program evaluations and other S&H trending data are used by FFTF to develop improvement strategies/actions for the coming year. The last annual VPP program review was completed in January 2004.

Employee orientations are well developed and implemented effectively at all levels, including employee notification of FFTF participation in VPP.

FFTF meets the requirements of the Management Leadership tenet and its sub-elements as described above.

B. Employee Involvement

The information gathered by the Team from field observations, formal and informal employee interviews indicate there is a positive atmosphere at FFTF. The review of documentation and formal interviews indicate there is a proactive culture on the part of management to ensure that employees have a voice in all safety programs. This employee involvement is demonstrated by active participation in Pre-jobs, shift turnovers, job walk downs, and Automated Job Hazard Analysis (AJHA). This process includes the concepts of the DOE requirement for an Integrated Safety Management System (ISMS), as well as the tenets of VPP. When held, employees from all interested disciplines meet to discuss the scope of work, identify work requirements or potential problems, and finalize the AJHA. AJHA meetings may be held, depending on the complexity of the tasks.

Most workers were candid and showed no fear of talking to the Team members during interviews. Workers indicated that their safety concerns are heard and acted upon in a timely manner. Employees indicated that they understood their rights and responsibilities, and are very knowledgeable about their rights and responsibilities regarding S&H, particularly their “stop work” authority. Interviews confirmed that a strong safety culture exists at FFTF and employees feel empowered to voice their safety concerns, however, the team felt the safety culture at FFTF could be enhanced with a stronger employee Safety Incentive Program/ Safety Suggestion Program. Enhancing both of these would increase employee’s interest in the safety program as well as reward individuals for thinking safety first. The As Low As Reasonably Achievable (ALARA) / Pollution Prevention (P2) suggestion boxes and log books also provide an opportunity for FFTF employees to express concerns through the Safety Awareness Council (SAC). Concerns are documented and tracked to completion. The Hanford Atomic Metal Trades Council (HAMTC) Safety Representative program was cited several times as a best practice by those who were interviewed (see Best Practices section of this report). The HAMTC Safety Reps are members of the organized bargaining agent (HAMTC) who work with the contractors and the Operations Office (RL) to address and resolve formal safety concerns by working issues to resolution at the lowest possible level. FFTF like many other worksites at Hanford has an established, union safety position to serve in this capacity. The HAMTC Safety Reps have been very effective in reducing the number of safety concerns at RL. The bargaining unit staff is fully aware of this position and its function, but indicated that they have not extensively utilized this resource as issues and problems are generally resolved at the lowest possible levels.

Employees are actively involved in their Safety Awareness Council, which has two (2) sub committees at FFTF; the P2 and ALARA. Employees at FFTF are proud of their worksite and feel safety is integral to maintaining a world class nuclear organization. This is evident by the length of time employees stay at FFTF once in the organization.

FFTF meets the requirements of the Employee Involvement tenet and its sub-elements as described above.

C. Worksite Analysis

The Team reviewed site procedures, self-assessment reports, completed work packages and on going work activities. The Team also interviewed managers, technical staff, safety council members and workers, walked down the facilities and attended Plan-of-the Day meetings.

The Team found that the work site analysis processes are well structured. Hazard analysis processes incorporated variety of tools including Automated Job Hazard Analysis (AJHA), Job Safety

Analysis (JSA) and Pre-Job Briefing Checklist. Personnel interviewed and observations made by the Team confirmed that the process is well understood by the workers. AJHA establishes the minimum requirements for integrating activity-based job hazard analysis into work planning. Analysis is performed to develop the proper controls to mitigate a given hazard.

The AJHA process and its implementation are graded using the skill of the craft as a basis. The procedure states that if the work activity is skill-based, AJHA details may not be required. The Supervisor/Work Leader is responsible for determining whether an AJHA will be required using the workers' training and qualifications as compared to the hazards that may be expected to be encountered. If an AJHA is not prepared, the Work Leader must communicate the potential hazards, control measures, and other ESH requirements information relating to the skill-based work prior to commencing work using a pre-job checklist. This graded approach utilized by FFTF includes a Work Management Pre-Job Review form which contains the results of hazard analysis, as well as, forms and permit processes providing focused attention to specific hazards such as the HNF-PRO-081 Lockout/Tagout Eight Criteria Checklist or Tagout Authorization Form, the HNF-9900 Hot Work Performance Requirements, Hot Work Permit, and/or a Confined Space Permit.

The Team noted that during last six-month period (Jan – Jun. 2005) a total of 446 work packages were completed. Analysis revealed that of the 446 work packages, five were "Admin" which involved no field work, and 267 were pre-approved procedures (ICRS, PMP, or Survey) screened per procedures for AJHA impacts. Of the remaining 174 work packages, FFTF performed formal AJHA's on 14 work packages or about 8%.

The Team is concerned that reliance on skill of the craft in the place of a formal JHA process places an undue burden on workers to identify hazards and implement adequate control measures. The Team is aware of FFTF's graded approach utilizing a pre-job review procedure, as well as, the use of other forms and permit processes to provide focused attention to specific hazards; however, the Team believes that FFTF needs to carefully review the rigor in which they apply the AJHA system versus their reliance on skill of the craft.

The Team also reviewed an Occurrence Report for an electrical shock incident that occurred in January 2004. The report states that the task was skill-based and no AJHA was prepared. The instrument technician received an electrical shock while attempting to replace an instrument module near another 110 volt energized circuit. The apparent cause, as stated in the Occurrence Report, was "incorrect performance due to mental lapse." The Team believes that AJHA process is a methodical approach in identifying all hazards associated with the task and controls that are required. It helps reminding the workers during pre-job briefing the details of hazards and controls putting the safety first.

The Team also reviewed the baseline hazard assessment reports. The current baseline hazard assessment for the FFTF was completed in 2001. A checklist using Occupational Safety and Health Administration (OSHA) requirements was used to verify the key safety requirements in the workplace. Since 2001, however, the facility hazards conditions have changed significantly due to the deactivation work of de-fueling, removal of liquid sodium and other actions to place the reactor in a safe configuration. The baseline hazard assessment requires that periodic updates should be performed to ensure that no new hazards have been introduced into the workplace and that the workplace is being maintained in a safe manner. Fluor-Hanford acknowledges the need for such re-assessment and is planning to conduct by later part of this year.

The Team noted that the FFTF has a matured and experienced work force. The workers are safety conscious and knowledgeable about hazards and controls. FFTF meets most of the basic requirements of the Worksite Analysis tenet and its sub-elements as described above. However, for the program to be effective and produce the results expected of DOE Star Sites, improvements are needed in the area of Worksite Analysis.

D. Hazard Prevention & Control

FFTF has eleven professionals within the ESH&Q staff. These positions include regulatory compliance, quality assurance and safety disciplines. The FFTF Safety group includes a fire protection engineer, a nuclear criticality engineer, a safety professional and a lead position for the department which is currently held by the ESH&Q manager. In addition, two Hanford Atomic Metal Trades Council (HAMTC) Safety Representatives provide services which equate to approximately 1/3 FTE. FFTF continues to rely on the Hanford site to complement their technical expertise. Certified S&H personnel (including industrial hygienists) are available on an "as needed" basis from other projects outside of FFTF. The Hanford site maintains trained and qualified medical, fire department, and emergency response personnel. Primary medical care is provided by Advanced Medical Services Hanford (AMH).

The safety and health staff is functioning to meet the minimum emergent needs of the FFTF facility. However, maintenance of required programs such as confined space, hearing conservation, and integrated facility walk downs needs improvement. In the case of the confined space program, spaces were observed not marked, log forms were incomplete and evaluations were needed to reflect the status of current hazards in the facility. In the case of the hearing conservation program, postings contained specified time limit exclusions and sound level surveys could not be produced for requested areas in the facility. Based on the overall state of maintenance of these safety programs (safety walk-downs, confined space, hearing conservation, etc.) the Team recommends that FFTF conduct a review of safety and health staffing levels to identify whether such staffing is a factor in lagging program maintenance.

Hazards are controlled by elimination/substitution, engineering controls, administrative controls and finally, use of PPE. Evidence of sound hazard prevention practices includes the robust control of rigging devices, use of flammable storage cabinets, the Employee Job Task Analysis (discussed in "Best Practices"), the Safety First Program (also discussed in "Best Practices") and asbestos training for the safety professional in anticipation of asbestos abatement tasks. In addition, a plan of the day (POD) meeting is held each day to discuss expected work execution and resource allocation. Each work group is represented at the POD and has ownership for their respective portion of the work. The communications fostered by this process reduce the risk of external hazards associated with complex or integrated tasks.

FFTF conducts general hazard inspections and baseline hazard assessments for the workplace to identify existing and potential safety and health hazards. Safety and housekeeping walk downs are performed in accordance with HNF-RD-7652, "Safety and Health Inspections." However, a review of completed walk down forms indicates a lack of critical review by the assessors. Areas recently graded as excellent by the responsible manager were found to be unsatisfactory with regard to general housekeeping, electrical safety, tripping hazards, proper storage of ladders, storage of flammables not in use, and control of first aid kits. In addition, trained front line workers and safety professionals are not included in the walk down process. (Front line workers are expected to be utilized per the FFTF procedure.)

Employees interviewed expressed a strong belief and confidence in the safety culture at FFTF. The majority of employees are experienced, long time members of the FFTF team and express pride in the work they have accomplished safely (e.g., the completion of 1500 consecutive days without a lost time injury). Employees were also asked to discuss the attributes VPP program at FFTF and to identify the impact of the program on the facility and personal safety. Most employees questioned were not generally familiar with the program beyond name recognition. Most described the program as their safety program but possessed a low level of knowledge regarding any specific information. FFTF should examine the effectiveness of safety communications and employee involvement regarding the VPP program.

FFTF has chartered a Safety Awareness Council, which is comprised of representatives from each work group. The council meets on a bi-weekly basis to discuss safety issues. Employees are involved in this process by serving as council members and by submitting safety suggestions/concerns to the committee for resolution. Meeting minutes are taken and a system is in place to track open items until completion. The Team's review of the items presented to the Safety Awareness Council identified two concerns. First, many safety items presented to the council were not resolved in a timely manner, with some items open for as long as nine months. In addition, input from the front line workers has been negligible since January of 2005. Although the Safety Council Steering Committee resumed their input to the work planning process just prior to this VPP recertification review, the Team believes FFTF should develop a process to place priority on correction of safety items identified and take action to revitalize employee input into the program.

FFTF has a suite of safety and health requirements in their hierarchy of policies, procedures, and ISM plans; safety and health rules are used to guide and enforce conformance to policies and requirements. Site policy regarding the use of personal protective equipment (PPE) is strong. PPE is made available, including gloves, boots, safety glasses, hearing protection, and respirators. Where PPE is needed, requirements for its use and training are integrated into EJTA, AJHA procedures, or applicable work packages.

FFTF has a robust emergency preparedness program. FFTF employees are routinely involved in drills and exercises. The facility also has sponsored an emergency response team that provides an organized response to incidents. Employees on the response team are trained in first aid and the use of automatic electronic defibrillators (AEDs). FFTF employees follow the requirements of "host" facilities regarding radiation protection training and program requirements.

FFTF meets most of the basic requirements of the Hazard Prevention & Control tenet and its sub-elements as described above. However, for the program to be effective and produce the results expected of DOE Star Sites, improvements are needed in the area of Hazard Prevention and Control.

E. Safety & Health Training

Overall FFTF provides formal, comprehensive and documented safety and health training for all employees, supervisors, and managers. The safety & health training processes used by FFTF are structured and implemented according to ISM core functions and guiding principles; these processes adequately train workers, supervisors, and managers in recognizing hazards and performing their work safely. This is accomplished through formal, informal; computer based, and on the job training depending on the employee's job. FFTF utilizes the Integrated Training Electronic Matrix (ITEM) to track and document training.

Formal training is developed utilizing a systematic approach to training. This approach incorporates a stringent set of tools for analyzing the job task to be performed, and develops course material (Qualification Cards).

All formal training is evaluated to ensure its effectiveness. Subject experts from qualified discipline assist and review training development. Most training programs require the successful completion of the following:

- Written examination
- Performance demonstration
- Oral examination.

Informal training varies by group. A combination of pre-job briefings, safety meetings, exercises, safety awareness programs, lessons learned, SAC meetings, and computer based training, as well as discussion groups are utilized. Employee involvement may range from development of presentations for safety meetings to continuing training classes. Programs of continuing education and/or re-certification are also provided to update qualifications and maintain proficiency.

On-the-job training (OJT) is used extensively across the site to ensure 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 potential high-hazard activities.

FFTF managers and first line supervisors receive the same safety and health training as their employees, with the exception that some specific training is increased in depth to reflect the added responsibility of their positions. An example would be sending the Safety Professional to Asbestos training ahead of the projected work scope for asbestos removal in the future.

Employees who were interviewed during this review, as well as observations made by the Team, confirmed that these processes are used and understood by FFTF employees throughout the organization.

FFTF maintains a trained an Emergency Response Team in addition to having the Hanford Fire Department ambulance with emergency medical technicians (EMT) only 3-8 minutes away. Additionally, FFTF has placed AED's with in its facility and provided AED training in the form of safety meeting presentations and as formal, certified training. A recent medical emergency event at FFTF caused several of the staff members interviewed by this Team to question whether the current first aid training of staff is adequate. The number of personnel trained in First Aid, CPR and the use of AED's was clearly identified by employees as an area where improvement opportunities exist. FFTF should examine this area for potential improvements which enhance the overall safety and health program.

FFTF meets most of the basic requirements of the Safety and Health Training tenet and its sub-elements as described above. However, for the program to be effective and produce the results expected of DOE Star Sites, FFTF should examine options and opportunities for improvement in the area of Safety and Health Training.

IV. Outreach

FFTF outreach effort has been strong and consistent throughout the past three years. The Team and the annual VPP Status report identified several ongoing programs. Listed below are a few that are commendable.

FFTF –

1. Provided support to the DOE-VPP on-site review team conducting a re-certification review of the Central Plateau Star site.
2. Provided a staff member to act as team lead for the Fluor Hanford, Waste Stabilization and Disposition Annual self-evaluation.
3. Provided support for the teams conducting annual on-site self-evaluations of the Plutonium Finishing Plant (PFP), the Hazardous Materials Management and Emergency Response (HAMMER) training and education center and CH2MHill's Waste Feed Operations.
4. Provided support and participation in the Voluntary Protection Programs Participant's Association (VPPPA) regional and national meetings and activities.
5. Recognized for participation and support of the Annual Hanford Safety EXPO.
6. Supported the DOE Richland Operations Office in assisting other site locations with safety and health issues.

V. Strengths

During this review, the Team noted several strengths within FFTF that are indicative of a healthy and comprehensive safety culture. The ISMS principles and methodologies are evident in these behaviors and practices, and illustrate the depth and scope to which FFTF values the five main tenets of VPP. Listed below are the strengths noted by Team members during this review.

1. Competent workforce resulting “ZERO” lost time injuries for the past 1500 days.
2. Teamwork and “family like” relationship between the work groups. Most employees have been part of the FFTF facility for many years and are on a first name basis. The close working relationship adds to the success of the safety program as well as production schedules.
3. Management support to sponsor and fund safety solutions. Recent examples of management commitment are –
 - a. Sport therapist sessions for employees to reduce injury risk and to promote a “pain free” workplace.
 - b. Ready access to required tools, instruments, PPE, etc.
 - c. Ergonomic assessments and subsequent purchase of “ergo” chairs, workstations, hand rests, etc.
 - d. Development of a new fall protection device to use on the containment crane rail system.
4. Control of rigging equipment including unique ID system and pedigree history files for all devices.
5. The FFTF Emergency Response Team
6. Group recognition for meeting milestones (steak lunch provided for successful sodium campaign and reaching 1500 days without a DART-DA).

VI. Best Practices

The Team commends FFTF for its continuation as a STAR participant in the Department of Energy Voluntary Protection Program. The Team recognized a majority of FFTF ES&H programs as long term assets, which provide excellent value and sufficient worker and management involvement. FFTF ES&H programs effectively integrate and implement best practices which have allowed FFTF employee involvement to evolve and stabilize a strong safety culture. Examples of FFTF programs and processes best practices are:

1. Employee Job Task Analysis (EJTA) Database - an online program designed to assess employee exposure to identified hazards based job assignment. Information is collected by the manager and safety professional and then reviewed by the employee. The information is submitted electronically to medical and is used to ensure proper enrollment in surveillance programs. The program also aids in proper classification of injuries and case management. Every employee has an EJTA that covers the potential hazards and anticipated exposures from an employee's routine scope of work. The EJTA is reviewed and updated periodically or whenever the individual has a change in potential exposures.
2. Safety Observation Program - provides the opportunity for employees to volunteer to observe a job from start to finish. Data and observations are collected to assign corrective actions and to facilitate trending.
3. Use of HAMTC safety representatives to resolve safety issues identified by FFTF employees.

VII. Areas for Improvement

Although the Team recognizes that FFTF has implemented many good programs and practices, as with any healthy continuous improvement program, there are areas for improvement within the safety arena. The following items are areas where the Team noted room for improvement:

1. Job Hazard Analyses – FFTF needs to carefully review the rigor in which they apply the AJHA system versus their reliance on skill of the craft. FFTF's graded approach utilizes a pre-job review procedure, as well as, other forms and permit processes to provide focused attention to specific hazards; however, careful review of the current procedures and processes is needed to ensure that reliance on skill of the craft in the place of a formal JHA is not placing an undue burden on workers to identify hazards and implement adequate control measures.
2. The employee safety incentive program – FFTF should examine options to revitalize and/or enhance the program to encourage increased employee interest and participation in the safety program.
3. Safety Suggestion Program – FFTF should examine options to revitalize the program to encourage greater participation. Increase emphasis and utilization of the employee recognition program with special attention directed toward recognition of individual staff members.
4. Participation in facility/site safety inspections – FFTF needs to emphasize safety professional and trained employee involvement in the facility/site safety inspection program. It is likely that such emphasis will be achieved jointly with a revitalized effort regarding employee incentives and that it will jointly improve employee participation in the safety suggestion program.
5. FFTF should examine the current assignment/offering of First Aid, CPR and AED training.
6. FFTF should act to ensure that prompt attention (priority) is given to safety deficiencies and necessary corrective actions.
7. FFTF should conduct a review of safety and health staffing levels to identify whether staffing is a factor in maintenance of required programs.
8. FFTF should perform sound level surveys as needed and post areas in accordance with their procedures.
9. FFTF should evaluate confined spaces for potential changes in Permit vs. Non-permit required. A review of existing evaluation forms for incomplete sections should also be conducted.
10. FFTF should implement control of first aid kits to ensure that employees seek appropriate medical attention and to ensure that all injuries are recorded.
11. Housekeeping and control of hazards in shop areas at FFTF needs improvement. Deficiencies noted include; general housekeeping, electrical safety, tripping hazards, proper storage of ladders, storage of flammables not in use and secondary containers not labeled.

12. FFTF should enhance the staff's level of knowledge regarding VPP and its benefits. As an example, no visual indications of FFTF's VPP status were observed during this review; i.e. the DOE-VPP Star flag was not flown or displayed at the site. Such visual displays could be a starting point toward enhancing the staff's awareness of VPP.
13. FFTF should consider establishment of an active and dedicated VPP steering committee to assist in the maintenance of STAR level quality. In the alternative, FFTF must consider methods to enhance the effectiveness of the existing Safety Awareness Council and Steering Committee in maintaining STAR level quality at FFTF.

VIII. Conclusion

The Team found that FFTF continues to meet and maintain a safety and health program addressing the basic tenets of DOE-VPP.

The Team concludes that FFTF has satisfied the requirements for continued participation in DOE-VPP, and recommends that DOE approve the recertification to STAR after appropriate corrective actions have been taken to address the items listed in section VII of this report (Areas for Improvement).

Appendix: DOE-VPP Review Team Assignments

DOE-VPP Review Team Assignments Fast Flux Test Facility On-site Review Team July 10- 15, 2005

Name	Organization	Contact Information	Area(s) of Responsibility
David M. Smith	DOE/EH - 31	(301) 903 – 4669 david.smith@eh.doe.gov	Team Lead
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Theo Martin	DOE/RL	(509) 376-0125 theo_jr_martin@rl.gov	Management Leadership
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