

**Federal Technical Capability Program
Annual Report to the Secretary of Energy
for
Fiscal Year 2004**

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Introduction

The U.S. Department of Energy (DOE) is committed to ensuring that employees are trained and technically capable of performing their duties. In pursuit of this objective, the Secretary of Energy issued DOE Policy 426.1, Federal Technical Capability Policy for Defense Nuclear Facilities, to institutionalize the Federal Technical Capability Program (FTCP). This program specifically applies to those offices and organizations performing functions related to the safe operation of defense nuclear facilities, including the National Nuclear Security Administration (NNSA). It applies to all aspects of recruitment, deployment, and retention of Federal employees in these organizations.

The Federal Technical Capability Panel (the Panel) was formed, recognizing that corporate leadership and line management ownership are essential to successfully implementing a program to recruit, develop, deploy, and retain technical capability at defense nuclear facilities.

The Panel consists of senior managers designated as Agents to represent DOE Headquarters (HQ) and field elements with defense nuclear facility responsibilities, including NNSA. Membership of the Panel is provided in Appendix I. The Panel reports to the Deputy Secretary and is responsible for overseeing the Technical Qualification Program (TQP). The TQP includes the Safety System Oversight (SSO) Program, the Facility Representative Program, and the Senior Technical Safety Manager (STSM) Program, and other critical technical skills; conducting periodic assessments of the effectiveness of the FTCP using internal and independent

experts; and providing recommendations to senior Department officials regarding DOE technical capability.

Annually, the Panel provides the Secretary of Energy a report summarizing actions taken to address the Department's technical capability needs.

Cultural traits and organizational practices detrimental to safety and reliability were allowed to develop, including: reliance on past success as a substitute for sound engineering practices (such as testing to understand why systems were not performing in accordance with requirements/specifications); organizational barriers which prevented effective communication of critical safety information and stifled professional differences of opinion; lack of integrated management across program elements; and the evolution of an informal chain of command and decision-making processes that operated outside the organization's rules.

**Columbia Accident Investigation Report
August 2003**

Status of Critical Technical Capabilities and Staffing Related to Safe Operations of Defense Nuclear Facilities

As part of its ongoing mission, the Panel ensures that Offices conduct periodic workforce analyses and develop staffing plans that identify critical technical capabilities and positions ensure safe operations at defense nuclear facilities.

A working group that included STSMs representing DOE-HQ and field elements examined the most recent Workforce Analysis and Staffing Plan Reports from each site to determine if the sites were qualitatively comparable in terms of technical safety staffing for defense nuclear facilities. When measured against other factors, such as number of nuclear facilities, number of safety systems, proportion of staff, number of environmental, safety and health (ES&H) staff, types of hazards and activities, and degree of ongoing change, the critical technical staffing at the sites was surprisingly consistent. With a few exceptions, critical technical staffing was comparable from site to site. Appendix II provides an overview of the results.

However, there is considerable difference in interpretation from site to site on which positions are critical. This will be resolved with the amplifying guidance provided to DOE site and HQ management on preparation of the Workforce Analysis and Staffing Reports.

Accomplishments

Revision of DOE Manual 426.1-1, Federal Technical Capability Manual

A major revision of the FTCP Manual, last updated in 2000, was initiated in late FY 2003 and completed in spring 2004. The revision resulted in a streamlined, more concise description of the FTCP. Most notable of the changes was the addition of an SSO Program chapter which defined duties and responsibilities, technical competencies, and provided a basis for a uniform implementation of SSO throughout DOE.

Update of Functional Area Qualification Standards

The Department's Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, Configuration Management, Vital Safety Systems, included a commitment to update the functional area qualification standards

(FAQS) in the TQP. The commitment called for DOE to revise TQP standards or processes for safety system expertise. During the past two years and after numerous discussions with DNFSB staff, the decision was made to develop a chapter for the FTCP Manual specifically addressing the expectations and requirements for the SSO personnel in the Department.

It was determined that the FAQS still needed to be enhanced to improve the technical content and rigor, and assure consistency in application across the DOE complex. During the process, 30 FAQS in the areas of nuclear safety, construction management, facility management, technical training, and civil engineering were reviewed and/or revised. In August 2004, the FTCP completed that effort with approval of the final FAQS, DOE-STD-1185-2004, *Nuclear Explosive Safety Functional Area Qualification Standard*.

Review Workforce Analysis and Staffing

The FTCP Manual requires that Managers annually conduct a workforce analysis of their organizations and develop staffing plans that identify technical capabilities and positions to ensure safe operations at defense nuclear facilities. Recently, the FTCP Panel reviewed past staffing plans to determine whether FTCP Manual requirements were being met, and found that the analyses were not developed in a consistent manner that would allow identification of DOE-complex status/needs, and that a common methodology could be useful.

Agents worked with Los Alamos staff to develop guidance/methodologies for preparation of the workforce analysis for determining Facility Representative and SSO personnel staffing. The NNSA is using the Facility Representative methodology during their effort to verify and improve Facility Representative staffing.

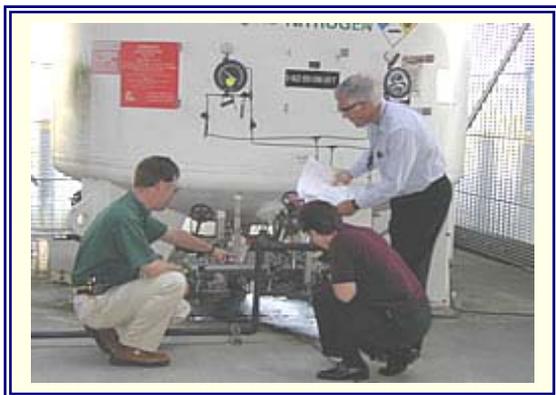
Implement Safety System Oversight

During FY 2004, the Panel defined the technical qualification standards for SSO personnel. SSO personnel are a key technical resource qualified to oversee contractor management of safety systems at DOE defense nuclear facilities. Unlike Facility Representatives, who are responsible for monitoring the safety performance of DOE defense nuclear facilities and day-to-day operational status, staff members assigned to SSO are responsible for overseeing assigned systems to ensure that they will perform as required by the safety basis and other applicable requirements.

SSO Program requirements are now included in the recently revised FTCP Manual.

Briefings were provided to the major program offices and field office managers of both the Office of Environmental Management (EM) and NNSA. In January 2004, a meeting was held in Washington, D.C. with SSO leads from each program and site to share key expectations and milestones for implementation. For the first time, a separate meeting for SSO personnel was held in conjunction with the Facility Representatives Workshop at Las Vegas, Nevada, in May 2004.

Initial assessments focusing on SSO program implementation, which includes the qualification process and staffing, were held at 4 sites: the Office of River Protection; Savannah River Operations Office (EM); Richland Operations Office; and the Idaho Operations Office. The objective is to complete initial assessments of all applicable sites by December 2004.



Final assessments to determine whether sites have trained, qualified, and capable SSO personnel performing their roles will be performed in FY 2005.

Implement Software Quality Assurance

The Secretary of Energy committed to implement a software quality assurance program as part of the Department's DNFSB Recommendation 2002-1, *Quality Assurance for Quality-Related Software* Implementation Plan, approved in March 2003. The Department's Office of Environment, Safety and Health (EH) has the lead in the Department's Implementation Plan.

However, working in concert with DOE-EH, the Panel developed and issued a Safety Software Quality Assurance FAQs for Federal personnel who provide assistance, direction, guidance, oversight, or evaluation of safety software. This includes safety software used for consequence analysis for potential accidents and design basis events, design for structures, systems and components, instrumentation and controls, and similar software, such as databases used for safety management functions.

Enhance Authorization Basis Capability

Department efforts to upgrade the Federal technical workforce are centered on personnel performing four functions: 1) Senior Technical Safety Managers; 2) Facility Representatives; 3) SSO personnel; and 4) Authorization Basis (AB) personnel. The Panel has devoted considerable attention to the first three groups of personnel. Therefore, the Panel determined that it was necessary to enhance the capability of the Federal personnel performing AB work due to the importance and technical difficulty of the work, and its foundation to all safety management activities.

During FY 2004, the Panel formed a working group of FTCP personnel and authorization basis experts representing a cross-section of the DOE complex. The working group divided into three sub-teams: 1) Review best practices and lessons

learned; 2) Investigate methods to attract and retain AB personnel; and, 3) Develop roles and responsibilities for AB personnel. Several teleconferences and one face-to-face meeting were held during the year. Additionally, sub-teams one and two developed surveys which were distributed throughout the DOE complex. The results of the surveys were used to develop sub-team one and two reports. Sub-team work is completed. The team is preparing a plan to enhance the capability of the Federal personnel performing AB work. The plan will be presented to senior DOE management in early FY 2005.

Measure Performance in Improving Capability

In FY 2003, the FTCP established quarterly performance measures to focus line manager's attention on achieving the key Department goals related to upgrading the DOE federal technical work force. The collection and dissemination of quarterly performance data has proven to be useful in focusing management to improve weak areas.

During FY 2004, the Panel raised the bar of acceptable site performance from 75% to 80% fully qualified rate for all personnel in the TQP.

As of September 30, 2004, 19 of Offices and Headquarters organizations meet the 80% qualified goal and the DOE qualification rate is 85%.

In addition, NNSA established a Task Force, consisting of training specialists from all NNSA offices to promote consistency in implementation of the TQP. This activity has improved communication and information exchange between the sites.

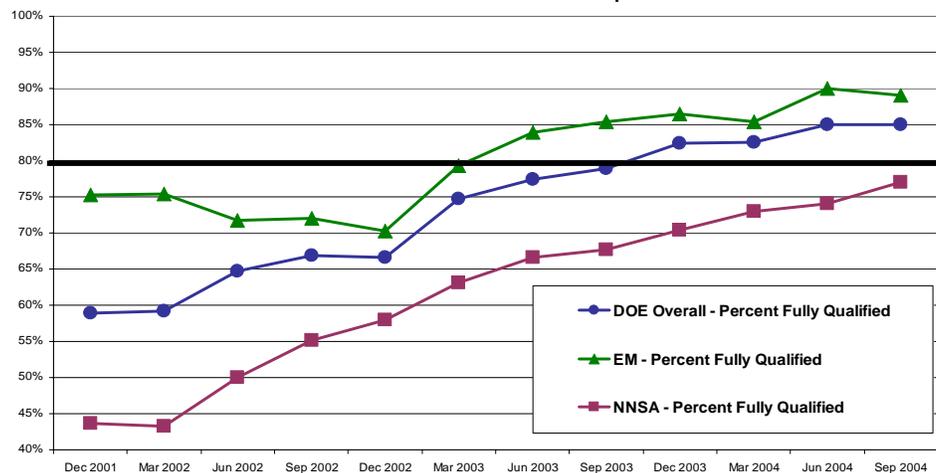
Review the Role of Program Assessments

In an effort to continually improve the DOE FTCP, the Panel reviewed existing requirements, guidance, and criteria for program assessments in DOE M 426.1-1A, Chapter IX; the FTCP Independent Assessment of June 2000; and the NNSA Columbia Accident lessons learned for applicability to FTCP-related initiatives and responsibilities.

The first activity was to review the role of Program Assessments, including the existing requirements, guidance, and criteria for program assessments in the FTCP Manual and make recommendations for potential improvements/refinements. The working group proposed recommendations for revising the existing guidance and emphasized the importance of sharing the results of site/HQ and independent assessments for lessons learned.

Another key activity was to review the FTCP Independent Assessment of June 2000 for completion of findings and recommendations. The working group reported that "there were many strengths within individual organizations at Sites and Offices across the Department There was awareness and generally a positive atmosphere toward the TQP and Senior Technical Safety Manager (STSM) Programs, and a basic receptivity to continuous improvement within the technical qualification Processes."

DOE Trend on Technical Qualification - September 2004



Continued Enhancement of the Facility Representative Program

The Facility Representative Program experienced several notable achievements in 2004. The most significant accomplishment is that over 90% of the Department's Facility Representatives continued to maintain full qualification status during 2004. This is the second consecutive year that the Facility Representative community achieved this qualification level and represents the highest qualification rate since program inception. Another achievement for 2004 is that 14 Facility Representatives were nominated for the Facility Representative of the Year award by their field offices. This demonstrates continued strong performance and management support for the program.

The 2004 Annual Facility Representatives Workshop was held in Las Vegas, Nevada, May 18-20, 2004. This workshop is essential for the Facility Representative Program to achieve its objective which is to provide effective day-to-day oversight of contractor operations at DOE facilities so that line managers have accurate information on safe work performance. At the workshop, Facility Representatives from across the complex reviewed operational experiences, shared safety lessons learned, and discussed ways to effectively oversee work in DOE's most hazardous facilities. Departmental personnel in attendance totaled 132, the most ever for a Facility Representative workshop. Every major program and field office with Facility Representatives were represented. Included in the total were 64 Facility Representatives, representing one-third of the Department's Facility Representative community. Several distinguished guests provided their views on safety and operational oversight, including the Chairman of the DNFSB, John T. Conway; Principal Assistant Deputy Administrator for Military Applications, NNSA, Brigadier General Ronald J. Haeckel; and Major General (Retired) John L. Barry, who was a member of the Columbia Accident Investigation Board.

Also at the workshop, the Department-wide 2003 Facility Representative of the Year Award was presented to Joanne D. Lorence of the Los Alamos Site Office. Her noteworthy accomplishments included serving as a board member on the DOE Type B accident investigation of the multiple plutonium-238 uptake event at Los Alamos, participating as a

team member on the DOE Operational Readiness Review for Wet Chemistry Operations at Y-12, and establishing significantly increased formality in facility operations at the Los Alamos Radiochemistry Facility.

Issues Related to Improving Technical Capability

With the notable exception of recruiting, most of the recommended improvements in the implementation of the FTC Program could be achieved by raising the priority of the FTC Program among the array of tasks to be accomplished. That would be simple, but two formidable barriers exist. First, in a Department stretched thin by downsizing and budget cuts, the balance is tilted toward dealing with current urgencies and against initiatives with longer-term payoff. Altering these circumstances will depend on the success of DOE Management in working with Congress and the Administration to address staffing and budgetary needs. Second, there are no compelling positive incentives for the departmental aspects of the program. Too often it is seen as a compliance issue rather than an essential element in a powerful future. The FTC program must be viewed by Senior Managers as an integral part of the Department's strategic vision if it is to achieve the intended results. These barriers still exist today.

FTCP Team Review of FTCP Independent Assessment of June 2000

The Panel has identified the following specific issues or problems of concern associated with improving and retaining technical capability within the Department. DOE Sites and HQ Offices must

1. Continue to develop and retain the right technical skill mix to provide thoughtful and comprehensive direction and oversight of activities;
2. Be able to compete with contractors in attracting and retaining senior experts;

3. Continue to improve project director expertise per DOE O 413.3;
4. Improve key DOE staff understanding of Earned Value and cost estimating capabilities;
5. Improve DOE capability and understanding of environmental risk assessments; and
6. Improve contract management capability and resources in the Department to handle the increased pace and number of EM cleanup and risk reduction work scopes.

Recommendations to Maintain or Improve Technical Capability

Organizations are about people, and successful organizations have the right people with the right skills in the right places at the right time to achieve their goals. To do that, we must make sure that we recruit highly qualified individuals, reward good performance, and give employees the tools and the training they need

**Energizing America for a New Century
Results from Implementing the President's
Management Agenda 2004**

Over the past year, the FTCP has vigorously pursued enhancements to the TQP and capability of DOE technical personnel to perform their duties, however, there is still much to do. It is key that a Departmental corporate strategic approach be developed to effectively ensure the recruitment, deployment, development, and retention of technical capabilities in light of significant budgetary constraints, staffing ceilings, and other external requirements.

In addition, specific, definitive criteria for maintaining technical competence once initial completion of the program is achieved need to be defined. Some sites have defined specific objectives but the FTCP should establish a re-qualification program for technical staff.

Appendix I
FTCP Panel Membership
 (As of September 30, 2004)

Chairman Roy J. Schepens, Manager, Office of River Protection
 Executive Secretary Craig D. West, ME-51

Organization	Agent
Office of Environmental Management Offices	
Carlsbad Field Office	Chuan-Fu Wu Donald Galbraith (Alt)
Ohio Field Office Office of River Protection	William J. Taylor, Director, Fernald Closure Project John H. Swailles, Assistant Manager, Tank Farms Project
Richland Operations Office	Shirley J. Olinger, Assistant Manager, Engineering and Standards
Rocky Flats Field Office Savannah River Operations Office	Thomas E. Lukow Kevin R. Hall Arthur B. Gould, Jr. (Alt)
Office of Science Operations Office(s)	
Oak Ridge Operations Office	Robert J. Brown, Chief Operating Officer, ORO Lawrence C. Kelly (Alt), Assistant Manager, ES&H
Office of Nuclear Energy Office(s)	
Idaho Operations Office	Gerald C. Bowman, Assistant Manager, Technical Support Thomas I. Elias (Alt)
National Nuclear Security Administration (NNSA) Offices	
Livermore Site Office	Ralph R. Kopenhaver, Senior Safety Advisor Phillip E. Hill (Alt), Technical Deputy for Safety and Environmental Programs
Los Alamos Site Office	Joseph C. Vozella Mark A. Alsdorf (Alt)
Nevada Site Office NNSA Service Center Pantex Site Office Sandia Site Office Savannah River Site Office Y-12 Site Office	Stephen A. Mellington James J. Szenasi Karl E. Waltzer Kenneth E. Zamora Wayne A. Richardson Daniel K. Hoag Kenneth D. Ivey, Jr. (Alt)
DOE Headquarters Offices	
Office of Departmental Representative to DNFSB	John D. Evans Theodore A. Wyka, Jr. (Alt)
Office of Environmental Management	Joseph Arango III William G. Boyce (Alt)
Office of Environment, Safety and Health	Richard M. Stark Edward B. Blackwood (Alt)
Office of Management, Budget and Evaluation National Nuclear Security Administration	Craig D. West Emil D. Morrow
Defense Nuclear Facilities Safety Board Staff (Observer)	Jay DeLoach

Appendix II
Review of Workforce Analysis and Staffing *

Site	STSM	FR	SSO	AB	Total FTEs (FY04 Target)	# DSAs for Cat II/III Facilities	# Safety Systems	Ratio NUCs/STSM (Facilities per Person)	Ratio SS/SSO (Systems per FTE)	Ratio NUCs/FR Staff	Ratio NUCs/AB Staff
EM											
CBFO	2	1	1.3	1	50	2	8	1.00	6.15	2.00	2.00
OH	9	11	2	2	112	8	1	0.89	0.50	0.73	4.00
ORP	15	11	13	8	116	3	12	0.20	0.92	0.27	0.38
RL	21	17	7.3	8.5	278	22	57	1.05	7.81	1.29	2.59
RFPO	5	8	1	2	52	11	19	2.20	19.00	1.38	5.50
SRS	16	33	34	14	389	15	182	0.94	5.35	0.45	1.07
HQ	3	0	0	0	353	0	0	0.00	NA	NA	NA
Total	67	81	58.6	35.5	1350	61	279	0.91	4.76	0.75	1.72
SC											
ORO	21	18	1.3	10	468	22	26	1.05	20.00	1.22	2.20
NE											
ID	17	16	7	9	307	25	135	1.47	19.29	1.56	2.78
NNSA											
KCSO	0	0	0	0	50	0	0	NA	NA	NA	NA
LSO	8	7	5.7	3	90	9	47	1.13	8.25	1.29	3.00
LASO	7	16	6.5	10	103	17	86	2.43	13.23	1.06	1.70
NSO	19	4	3.5	4	92	5	24	0.26	6.86	1.25	1.25
PXSO	6	6	3.5	6	82	19	81	3.17	23.14	3.17	3.17
SSO	4	8	1.98	6	89	5	28	1.25	14.14	0.63	0.83
SRSO	3	2	1.7	1	20	1	15	0.33	8.82	0.50	1.00
YSO	8	9	6	5	81	13	34	1.63	5.67	1.44	2.60
Total	55	52	41.08	35	607	69	315	1.25	7.67	1.33	1.97

* From FTCP Review of Workforce Analysis and Staffing Plan Reports dated March 2004.