



Department of Energy

Washington, DC 20585

September 29, 2006

MEMORANDUM FOR: ROY SCHEPENS
CHAIRMAN
FEDERAL TECHNICAL CAPABILITY PANEL

FROM: LINTON F. BROOKS 
UNDER SECRETARY FOR NUCLEAR SECURITY

DAVID K. GARMAN 
UNDER SECRETARY FOR ENERGY, SCIENCE &
ENVIRONMENT

SUBJECT: TECHNICAL PROFESSIONAL CAREER
DEVELOPMENT PROGRAM

Commitment 12 in the Department's 2004-1 Implementation Plan, Revision 1, *Oversight of Complex, High-Hazard Nuclear Operations*, commits to provide structured training (such as the Nuclear Executive Leadership Training) for safety professionals, senior managers and decision-makers responsible for nuclear safety, including those responsible for nuclear safety oversight. In response to this commitment, a working group consisting of senior personnel with expertise in safety management and operations from Headquarters and Field Elements developed the attached Technical Professional Career Development Program (TPCDP) and its supporting Implementation Plan.

As Chairman of the Federal Technical Capabilities Panel (FTCP), please institutionalize the attached TPCDP by incorporating it into DOE Manual 426.1-1A, *Federal Technical Capability Manual*. Also, as part of the FTCP activities, please lead the overall management and coordination of the supporting Implementation Plan for the TPCDP which identifies the programmatic activities that must be completed to fully implement the Program. Some of these activities are already underway as part of other plans. When these activities are complete, the programmatic requirements for implementing the Technical Professional Career Development Program will all be in place.

If you have any questions on the attached documents, please contact Ray Hardwick, Deputy Assistant Secretary for Facility Safety, at (301) 903-4439. Ray led the working group of senior personnel who responded to this commitment.

Attachments



cc:

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S. Johnson, NE-1
G. Podonsky, SP-1
C. Cross, HR-1
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M. Whitaker, DR-1
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T. Wyka, NA-3
J. Evans, NA-3.6
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***TECHNICAL PROFESSIONAL
CAREER DEVELOPMENT
PROGRAM DESCRIPTION***



**U.S. Department of Energy
Washington, D.C. 20585**

August 15, 2006

**DEPARTMENT OF ENERGY
TECHNICAL PROFESSIONAL CAREER DEVELOPMENT
PROGRAM DESCRIPTION**

Background

There have been a variety of recruitment, training, development, and qualification activities and initiatives throughout the history of the Department of Energy (DOE). The Department's Implementation Plan in response to Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 93-3 resulted in significant improvements in these areas for employees associated with defense nuclear facilities. However, some of these efforts have been fragmented, and some have not been sustainable. Internal and external reviews identified a need for DOE to improve and formalize the overall training and development program for technical professionals associated with defense nuclear facilities. In addition, there was a need to clearly identify a complete career path for these employees—one with opportunities for development, growth, advancement, and recognition throughout their tenure as technical professionals. The Department's Implementation Plan responding to DNFSB Recommendation 2004-1 included a commitment to develop a corporate training and development plan for technical staff. This document satisfies that commitment and responds to the identified weaknesses.

Purpose

The Department is establishing a structured training program for safety professionals, senior managers, and decision-makers responsible for nuclear safety, including those responsible for nuclear safety oversight. These technical professionals are primarily employees classified as scientists, engineers, or managers working in the safety, health, environmental, and management functions associated with the safe operation of defense nuclear facilities.

The program gives technical professionals the education and experiences necessary to develop the technical and managerial skills needed for their positions and helps ensure that DOE recruits, continuously develops, and retains the employees it needs for critical oversight and management jobs. In addition, technical professionals can develop technical and professional skills and perform challenging technical assignments so they can advance to higher-graded positions—all through a structured program. Two paths are provided: a management path and a technical path. The management path outlines a career path from entry into the Department up to becoming a senior executive, such as a Site Office manager or Headquarters Associate Deputy Administrator or Deputy Assistant Secretary; the technical path outlines a career from entry level to becoming a technical expert.

The purpose of this document is to provide an overall description of the Department's training program, which is a tool for ensuring that the DOE maintains the highly qualified and skilled technical professionals necessary to support safe operations of its Complex, potentially high-risk defense nuclear facilities and programs. The elements of this program are integrated with the Department's Human Capital Management Program.

A separate document, *Department of Energy Technical Professional Career Development Program Implementation Plan*, identifies the actions that are underway, or will be undertaken, to fully implement this program.

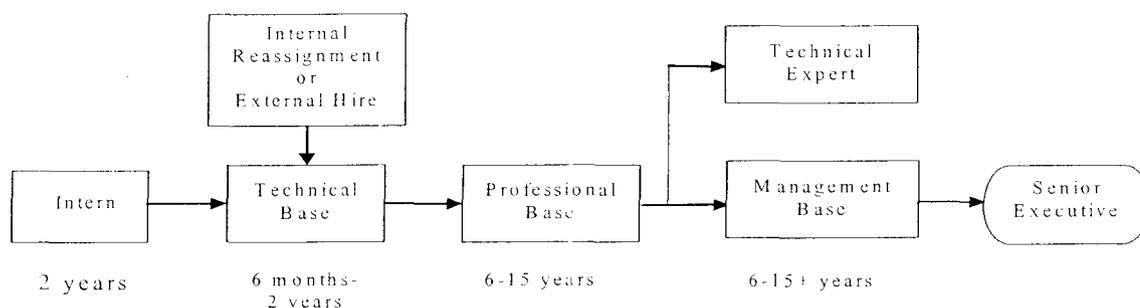
Program Summary

The Technical Professional Career Development Program (TPCDP) is a formal program approved by the Secretary of Energy through the Department's directives program. The Program includes technical professionals throughout their careers, starting with their first permanent job and continuing until they leave the agency or take a different type of position.

The TPCDP consists of three phases: a Technical Base, a Professional Base, and a Management Base. The program builds on existing DOE programs as much as possible, integrating them into a career development system. The TPCDP is a strategic program that describes the career paths available to technical professionals and defines the training and work experiences required to progress along the career paths. The TPCDP is also a long-term program that covers many years of training, development, and professional growth in multiple assignments. The Technical Base and Professional Base consist primarily of non-supervisory assignments, and the Management Base consists of supervisory assignments. The Technical Expert path allows select employees to become recognized experts by their peers both in the Department and in industry.

The TPCDP and associated Implementation Plan calls for numerous specific actions related to establishing an intern program as an entry pipeline for new talent, developing talent through establishing training and development programs, and developing or strengthening the processes for defining, tracking and measuring knowledge, skills, and qualifications of employees. There are currently department-wide corporate programs that exist or are in the process of being established that will either meet, or partially meet, the goals the TPCDP is striving to achieve. In order to avoid unnecessary duplication of programs, the TPCDP will utilize those corporate programs where they exist. The TPCDP will also transition to applicable future corporate programs that come on-line where they do not now currently exist.

The figure below shows the major elements of the TPCDP and the approximate time span employees can expect to spend in each phase.



Recruitment

Interns are a source of new technical professionals. Individuals hired under the Future Leaders Program are a principal source of new technical professionals for the National Nuclear Security Administration (NNSA). NNSA recruits college graduates for this program, assigns them to home offices, and requires them to complete two rotational assignments. Each intern is assigned a mentor. The interns receive NNSA orientation, core training, and office-specific training. The core training includes formal qualification on the General Technical Base Standard and a functional area standard, which is a major part of the first phase of the TPCDP, the Technical Base. Completion of these qualifications during the internships allows interns to finish the Technical Base phase rapidly, taking 6 months instead of the 18 months to 2 years normally required.

The Department's Corporate Outreach and Recruitment Council has created a corporate "umbrella" intern program called the "DOE Scholars Program." That program is designed as a comprehensive, pipeline program to attract a new generation of employees into DOE and quickly prepare them for vital mid- to senior-level positions. The DOE Scholars Program offers flexibility to meet varied mission needs and mobility for candidates to move throughout the Complex. The program also provides a strategic approach to help the Department achieve a highly skilled, diverse workforce capable of carrying out vital mission areas.

Other DOE Program Offices are sponsoring Technical Intern Programs. The Technical Leadership Development Program is in the process of being reinstated through an initiative of the Federal Technical Capability Panel. The Department seeks to attract excellent technical graduates by using administrative flexibilities authorized for hiring interns. In order to compete for highly talented employees, the Department has the option of offering interns lucrative benefits, including recruitment bonuses, moving expenses, student loan repayments, and accelerated promotions.

Program Offices also recruit other technical personnel for the TPCDP in addition to interns. These other sources could be current employees within the Program Office, current employees from other DOE offices, or personnel from outside DOE selected to fill vacancies. Personnel hired from outside the Department or transferred from other Programs may enter the TPCDP at various points based on an objective evaluation of previous education, training, and experience.

Technical Base

The Technical Base encompasses the training and qualification for a new technical professional. New technical professionals can be interns hired directly from college for entry-level positions, or they can be more experienced professionals hired for non-supervisory positions.

Qualifications to enter the Technical Base phase are the knowledge and skills acquired through college education, combined with activities such as completion of internships, on-the-job training, and prior work experience within DOE or external to DOE. New technical professionals in the Technical Base must demonstrate effective performance by formal qualification in the Department's Technical Qualification Program, as defined in the *Federal Technical Capability Program Manual* (DOE M 426.1). Technical professionals complete the Technical Base phase when they achieve formal qualification in the General Technical Base Qualification Standard, a specific Functional Area Qualification Standard, and a site-specific or office-specific Qualification Standard. Most employees will take 18 months to complete the training and qualification activities in the Technical Base. This is accomplished in conjunction with their normal job assignments.

When employees complete the Technical Base training and qualification, they are considered to be competent to perform all the duties and assignments associated with that functional area.

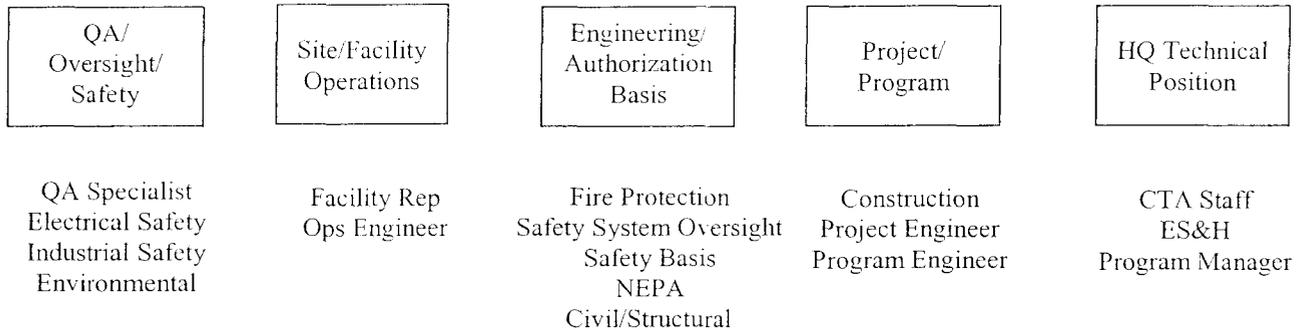
Professional Base

Technical professionals in the Professional Base phase of their careers develop further expertise within their assigned functions. This phase of an employee's development program includes a balance of technical skills with professional and personal development. Although there is a training curriculum associated with this phase, there is more emphasis on expanding the experience base of the employee.

Employees that complete the Professional Base are recognized as very well qualified in their functions. They typically hold positions in one of the five general technical- or safety-related organizations shown in the figure below: QA/Oversight/Safety,

Site/Facility Operations, Engineering/Authorization Basis, Project/Program, and HQ
Technical Position.

TYPICAL TECHNICAL- AND SAFETY-RELATED ORGANIZATIONS



Safety organizations can be grouped broadly into these five general categories. The figure shows examples of jobs in the organizations. Employees are encouraged to work in two or more of these organizations during the Professional Base phase of their careers. The "Project/Program" organization isn't a primary safety group, but it does have safety responsibilities and is one of the organizations where technical professionals can seek an assignment.

Employees should complete the Professional and Leadership Development curriculum while in the Professional Base. The specifically defined curriculum covers both technical and professional topics all technical professionals should know, such as safety culture, contract administration, project management, human performance improvement, and conduct of assessments. The curriculum also covers personal development topics such as written and oral communications, conflict resolution, fundamentals of supervision, time management, and leadership. Technical professionals are expected to begin Professional and Leadership Development as soon as practicable after they enter the Professional Base.

When technical professionals have worked in a single function for a few years (typically 3 to 5 years), they should seek reassignment to a position in an organization other than the one where they currently work. Typically they are at a GS-13/14 or pay band III when they become candidates for assignment to different organizations with technical- or safety-related responsibilities. These assignments are typically within the original functional area in which they qualified. However, they are required to qualify under the site-specific or facility-specific standards for their new assignment. They expand their technical expertise through qualification and work in the new assignment.

As employees continue to work and progress through the Professional Base, they should seek to serve in at least two of the five types of organizations at the first-line worker level. Assignments in these organizations would not necessarily be at the same facility or even the same site. These assignments may require the employee to pursue qualification in an additional functional area, although this is not a requirement of the program. Diverse assignments to different facilities and different sites, including assignments to a

central staff or Headquarters staff, are important to the development of the technical professional and are valued in the Department. Opportunities for professional growth and promotion generally are expanded with a diversity of experience in different programs, projects, facilities, and sites. A set of diverse assignments will help employees understand and better integrate the lessons learned at all locations and all levels of the Department into the day-to-day conduct of business. This also promotes better understanding and integration of different organizational functions and perspectives into technical and organizational decisions.

Employees complete the Professional Base when they have held permanent positions in at least two different technical- or safety-related organizations, have completed the Professional and Leadership Development curriculum, and are qualified as Senior Technical Safety Managers. It is expected that employees, their supervisors, and Departmental management work to accomplish these activities through the effective use of the Professional Base Development Plan. The Plan serves both to facilitate the accomplishment of training and assignments while in the Professional Base and to document the completion of these activities.

The Professional Base phase of the TPCDP broadens employees' technical experiences through assignments in different organizations with technical- and safety-related responsibilities. This phase also develops technical professionals to perform GS-14/15 or pay band IV level jobs as first- and second-level supervisors and managers. The Professional Base phase develops skills in leadership, management, supervision, program management, and communications and involves management development in addition to technical growth. Employees gain program or project management experience in this phase. They lead teams for tasks such as operational readiness reviews or accident investigations. They can work independently on challenging technical assignments in support of their own organizations or other offices. Employees who complete the Professional Base have progressed to a career stage where they are prepared to manage programs or projects or lead teams. When employees complete the Professional Base phase of their development, they are qualified to compete for jobs as supervisors or managers in the Management Base.

Expert Base and Management Base

Some employees may choose to complete the Professional Base and continue working in that capacity for their entire career. Other employees may choose to continue to advance their career, and, at this point, they may choose one of two tracks. Those employees that want to progress into supervisory and management positions will move into the Management Base. Other employees may choose to continue to practice their chosen technical profession at a higher level without moving into a supervisory or management position. These employees will move into the Expert Base.

Expert Base

The Expert Base phase of the TPCDP is directed toward a limited number of select employees who wish to continue to excel within their chosen profession. These employees are typically GS-15 or pay band IV, and, in select cases, they may become Senior Executive Service employees. The training and development program for these personnel is typically individually based and focused on achieving technical excellence within a specific discipline such as fire protection, criticality safety, structural engineering, or similar discipline. Employees in the Expert Base may continue to pursue advanced education to obtain a PhD in their technical discipline; in select cases, the Department will strive to support their choice through educational reimbursement or fellowship programs. Employees should also continue to pursue advanced training (not degree related) provided by professional organizations, educational institutions, other agencies, or commercial providers.

Employees in the Expert Base should also pursue other experiential opportunities in their technical discipline. At a minimum these experiential opportunities would involve short- and mid-term assignments within the Department in areas that allow for growth within their technical discipline. Such opportunities may include assignments on operational readiness review teams, accident investigation teams, assessment teams, or assisting other offices with a particular technical issue or project. Employees in the Expert Base should also pursue temporary assignments with other agencies or industry organizations to broaden their base of knowledge in their specific technical discipline.

In addition to continuing to pursue other education, training, and experience in their technical area, employees in the Expert Base should also pursue opportunities to participate on professional committees, such as standards-setting organizations, and should expect to earn professional certification before being promoted to the grade of GS-15 or Pay Band IV. The Department may support professional certification through training and reimbursement of certification costs on a case-by-case basis. Employees in the Expert Base should also periodically speak on topics and issues at outside conferences and publish articles in professional journals.

Management Base

The Management Base phase of the TPCDP includes first-line supervisor and middle management positions in line or staff offices with oversight responsibilities for defense nuclear facilities. These jobs typically are at the GS-14/GS-15 or pay band IV level. This phase includes supervisory and management assignments in at least two different departmental organizations, management training tailored to each employee, and experience in both headquarters and the field. Qualification in the Management Base includes the required knowledge and skills for managers who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities. Work experience and professional development at this level, and the Senior Technical Safety Manager qualifications

completed in the Professional Base, prepare employees for Senior Executive Service positions such as Field Site Managers and Headquarter Program Directors.

Employees located in the field who are selected as first-level managers typically are assigned to one of four types of organizations: environment, safety, and health support; site and facility operations; site and facility engineering; or projects or programs. Employees at Headquarters typically are assigned to a technical organization such as programs, facilities, or safety support.

Managers initially assigned to these types of organizations generally should expect to remain in the initial assignment for 3 to 5 years. Following the initial assignment, they should seek assignment to one of the remaining types of organizations at this level, or potentially to a larger or more complex facility in the same type organization, to broaden their knowledge of, and experience with, defense nuclear facilities and sites. Managers typically should expect to serve in at least two organizations at this level, with between 3 and 5 years in each organization, before seeking positions in the next level. Assignments in these organizations need not be at the same facility or site. If the employee has not held positions at both a Headquarters and a field organization, then it is encouraged that employees complete a minimum of 6 months of experience (not necessarily continuous) at one of those locations during the Management Base phase of their development.

Acquiring a diversity of experience in different DOE commercial or military programs, projects, facilities, and sites generally enhances professional growth and promotion. Pursuit and acquisition of advanced degrees in related areas may also enhance opportunities for advancement. Managers may remain in a first-level management position for some time due to personal choice or limited opportunities for continued advancement. First-level managers still should seek to spend no more than 5 years in any position at a facility or site. All other factors being equal, rotation of technical managers and advisors through field assignments, Headquarters, and other facilities and sites may provide the greatest opportunity for professional growth and promotion based on the greatest diversity of management experience with, and knowledge of, defense nuclear facilities. The Management Base is considered complete when employees complete at least two job rotations, have previous experience in both the field and Headquarters, and complete the management training specified in individual development plans. Broader and increasingly more responsible management positions make employees better prepared to seek senior management opportunities.

There are a limited number of senior management jobs within the Department, and there is strong competition for each of these positions. Technical managers who seek a senior management position must develop a broad range of knowledge, skills, and abilities to demonstrate executive leadership capability in addition to technical management expertise. The knowledge, skills, and abilities for senior management positions are developed and demonstrated through multiple assignments in increasingly more complex and challenging environments.

Candidates for senior management positions should consider progressive management assignments at multiple sites that provide learning opportunities to support a fundamental transition from technical management to organizational leadership. Key abilities to be developed as part of these progressive assignments should include the Executive Core Qualifications that must be demonstrated for any SES position: (1) Leading Change (the ability to develop and implement an organizational vision which integrates key national and program goals, priorities, values, and other factors); (2) Leading People (the ability to design and implement strategies which maximize employee potential and foster high ethical standards in meeting the organization's vision, mission, and goals); (3) Results Driven (the ability to stress accountability and continuous improvement, to make timely and effective decisions, and to produce results through strategic planning and the implementation and evaluation of programs and policies); (4) Business Acumen (the ability to acquire and administer human, financial, material, and information resources in a manner which instills public trust and accomplishes the organization's mission and to use new technology to enhance decision-making); (5) Building Coalitions/Communications (the ability to explain, advocate, and express facts and ideas in a convincing manner and negotiate with individuals and groups internally and externally); and (6) the ability to develop systems to more effectively and efficiently complete assigned missions.

Leadership and executive development programs beyond the scope of the TPCDP are available to refine the skills employees need to be competitive for senior executive jobs. There are courses such as the training offered by the Federal Executive Institute, which are focused on strengthening skills. Successful candidates for senior executive positions typically demonstrate that they meet the core qualifications and they have exemplary performance in their work experiences. Their track records show they have the capabilities to lead organizations and accomplish challenging tasks in a broad range of topics. A technical professional who becomes a Senior Executive Service manager likely will be responsible for a technical field much broader than only a safety function, such as a Headquarters Program Manager or a Site Office Deputy Manager or Manager.

Senior executives with responsibility for technical work are required to complete Nuclear Executive Leadership Training. Nuclear Executive Leadership Training is a week long, in-residence course that covers topics such as safety culture, nuclear and non-nuclear safety, assessment, decision-making, human performance improvement, and contracting. The content is designed for executive-level employees.

DOE Technical Professional Career Development Program

