

# memorandum

DATE: **SEP 16 2004**

REPLY TO

ATTN OF: 04-ORP-057 Chairman, Federal Technical Capability Panel

SUBJECT: ANNUAL WORKFORCE ANALYSIS AND STAFFING PLAN REPORT

TO: Distribution

The Federal Technical Capability Program (FTCP) Manual DOE M 426.1-1A 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. The workforce analysis and staffing plan report is provided to the FTCP Chair in December of each year as a basis for the FTCP annual report to the Secretary of Energy. The report provides a summary of actions taken and/or necessary to preserve the Department's critical technical capabilities.

Recently, the FTCP Panel reviewed past staffing plans to determine whether DOE M 426.1-1A, Chapter IV, Section 1, requirements are being met. The FTCP Agents noted that the workforce 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. During a recent FTCP meeting, the FTCP Agents discussed the results of the review, and were briefed on the methodology used at the Los Alamos Site Office (LASO). Agents then worked with Fred Bell of LASO to develop guidance and a standard template for use in the FTCP workforce analysis and staffing analysis reports. Attached is guidance for preparation of the final report (Attachment 1) and workforce analysis methodologies for determining your Facility Representative (Attachment 2) and Safety System Oversight personnel staffing (Attachment 3). The methodology for Senior Technical Safety Manager and critical Technical Qualification Program positions is being developed and will be transmitted in the near future. Please follow the attachments in completing your annual workforce analysis and staffing plan report, and transmit to me by December 31, 2004.

The National Nuclear Security Administration is using the Facility Representative workforce analysis methodology during a current effort directed at improvements in their Facility Representative staffing analyses. Results of these efforts are expected by the end of September and the attached guidance may be clarified based on lessons learned, as appropriate.

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If you have questions or comments, please contact your FTCP Agent, or call John Swailes, ORP, (509) 376-0933. Other points of contact for more specific assistance on implementing the methodology and guidance are Fred Bell, LASO, (505) 665-4856; John Evans, DR-1, (202) 586-3685; and Bill Bell, SRS, (803) 952-4673.

  
Roy J. Schepens, Chairman  
Federal Technical Capability Panel

**Attachments:**

1. Template for Annual Workforce  
Analysis and Staffing Plan Report
2. Process to Determine Facility  
Representative Staffing
3. Process to Determine Safety System  
Oversight Staffing

cc w/attachs:

FTCP Agents

S. J. Coleman, INNOV

**Distribution:**

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**(NAME OF FIELD/PROGRAM OFFICE)**  
**Annual Workforce Analysis and Staffing Plan Report**  
**As of December 31, 20\_\_**

**Section One: Current Mission(s) of the Organization and Potential Changes**

1. Provide several bullets that frame the types and magnitude of technical capabilities currently needed for safe operations in the hazardous facilities (non-nuclear and nuclear facilities including radiological facilities). For example:
  - 3 major operating Category II and III nuclear facilities
  - 4 significant nuclear facilities undergoing D&D
  - Major vitrification facility under construction
  - One non-defense reactor facility
  - One operating radiological facility
  - 8 operating hazardous non-nuclear facilities
  
2. Describe any potential or probable changes to the mission that may significantly impact the need for technical staffing. For example:
  - Within 8 months, facilities under active D&D are to increase from 4 to 9 and schedule accelerate from 12 years to 5 years
  - Operation of the new megatron test facility to start next year
  - Former separations facility is being converted to a TRU waste storage facility
  - All operating facilities to be shut down within 2 years

**Section Two: Technical Staffing**

Complete the Technical Staffing chart as follows for each of the technical positions:

- Enter the number of personnel needed (# needed column) to support safe operations in hazardous facilities (non-nuclear and nuclear facilities).
- Senior Technical Safety Manager (STSM)/Facility Representative (FR)/Safety System Oversight (SSO)/Authorization Basis (AB) personnel are generally required for all nuclear facilities.
- If other types of experts in the list are not needed at the site, show zero in the # Needed column.
- SSO may be a part-time duty so numbers should be expressed in fractions of FTEs for that position.
- All other entries, including experts, refer to number of persons filling a technical position need, regardless of the portion of time they spend working it.
- Include only personnel who are assigned technical safety functions or project management functions.
- The same person may be included in multiple capabilities, i.e., numbers are not additive.
- Show the number of people available and assigned for the organization (# In Place column) for each of the technical positions evaluated as needed.
- Collateral duties assigned should be considered in completing the workforce analysis.

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**Section Two (continued):**

- Use Comment column to identify support from other sites, service centers, HQ, or support contractors where there is a written agreement for the technical capability.
- Comments should also identify plans for qualification if in-place personnel are not fully qualified.

In order to determine the number of technical positions needed:

- Begin with the identification of hazardous non-nuclear facilities, nuclear facilities, Documented Safety Analysis (DSA), safety systems, and safety management programs relied upon for safe operation for the organization.
- For each of the identified facilities, the hazards should be qualitatively evaluated to determine a relative hazard ranking.
- This relative hazard ranking should be further evaluated in light of additional considerations, such as, activity level, desired coverage (frequency of coverage for applicable safety management programs), facility size, number of safety systems and DSAs (if applicable), operations complexity, programmatic importance, operational rigor, or others to determine a recommended staffing coverage for the Manager.
- The final staffing coverage needs (# needed column) may be adjusted based upon an analysis of other non-facility-specific factors such as collateral duty assignments, leave, admin, and training time in order to determine the realistic staffing needs.

**Section Three: Current shortages and plans for filling them**

Identify current shortages of technical personnel to support safe operations in hazardous facilities, compensatory measures if applicable, actions to fill shortages, and schedule.

**Section Four: Projected shortage/surplus over next 3 years**

Identify the impact of the changes described in Section One on technical personnel and positions.

Take into account expected retirements and other anticipated changes.

For example: The increased pace of D&D activity is expected to double the need for AB staff to 4 personnel over the next 1 ½ years, followed by a drop to zero in 3 years as the facilities become operationally clean. The temporary surge will be covered under a support service contract with XYZ corporation. One staff member has indicated a plan to retire as soon as eligible next year which may result in the need for a 3<sup>rd</sup> contractor. The other staff member hopes to be assigned to the core cadre in 3 years.

**Section Five: General concerns or recommendations related to the Technical Staffing**

Identify for the FTCP any concerns/issues with maintaining technical capabilities for the site or the Department.

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**TECHNICAL STAFFING**

- Number of Hazard Category 1, 2, or 3 Nuclear Facilities:**
- Number of Radiological Facilities:**
- Number of High or Moderate Hazard Non-Nuclear Facilities:**
- Number of Low Hazard Non-Nuclear Facilities:**
- Number of DSAs:**
- Number of Safety Systems:**
- Number of Contractor FTEs:**
- Number of Federal Office FTEs:**

**Technical Staffing Summary**

<b>TECHNICAL CAPABILITY</b>	<b># NEEDED</b>	<b># ON BOARD</b>	<b>COMMENTS</b>
<b>Senior Technical Safety Manager (STSM)</b>			
<b>Facility Representative (FR)</b>			
<b>Safety System Oversight (SSO)</b>			
<b>Authorization Basis (AB)</b>			
<b>Quality Assurance</b>			
<b>Nuclear Safety</b>			
<b>Mechanical Engineer</b>			
<b>Electrical Engineer</b>			
<b>Instrumentation &amp; Control</b>			
<b>Criticality Engineer</b>			
<b>Chemical/Process Engineer</b>			
<b>Fire Protection Engineer</b>			
<b>Occupational Safety</b>			
<b>Industrial Hygiene</b>			
<b>Radiation Protection</b>			
<b>Civil/Structural Engineer</b>			
<b>Emergency Preparedness</b>			
<b>Software Quality Assurance (SQA)</b>			
<b>Nuclear Explosives</b>			
<b>Technical Program Manager</b>			
<b>Transportation</b>			
<b>Environmental/Waste Manager</b>			
<b>Safeguards and Security</b>			
<b>Construction Manager</b>			
<b>Other</b>			

## **Process to Determine Facility Representative Staffing**

### Overview

The steps below describe an analytical process to determine Facility Representative staffing for all hazardous facilities at a site. The process builds on the guidance in DOE-STD-1063-2000, *Facility Representatives*. This method provides a technical approach to determine the appropriate amount of Facility Representative oversight necessary for a facility given its hazard level, operational activity and complexity, and programmatic importance. It also supports implementation of the President's Management Agenda on Human Capital, ensuring the Department has the necessary skills and resources available to carry out its missions and effectively oversee operations at its hazardous facilities.

### Methodology

The following elements shall be included in each site analysis:

1. A relative ranking of facilities based on hazards or risks present to the public, worker, and/or environment.
2. A method for determining Facility Representative coverage (e.g., continual, frequent, occasional, etc.) based on facility categorization and adjusted for other factors identified in DOE-STD-1063-2000 such as facility size, operations complexity, hazards and risks, etc.
3. A determination of Facility Representative Full Time Equivalent (FTE) requirements based on coverage assigned and adjusted to address factors considered in Step 2 above.
4. A determination of actual manning based on Facility Representative FTE requirements adjusted to account for actual staff time available to support the Facility Representative function when competing activities such as collateral duties, leave, training, etc. are considered.

### Procedures

Procedures for conducting a Facility Representative staffing analysis follow each table. Tables 1-4 describe the process to determine Facility Representative FTE levels for facilities or groups of facilities. Tables 5-6 represent two methods of determining actual staffing levels necessary to meet the FTE level, taking into account the duties, responsibilities, leave, and training typical of Facility Representatives at each site.

**Table 1 – Facility Hazard Value (Facility 1, 2, and 3 provided as examples)**

Facility or Groups of Facilities	Radiation Exposure		Criticality		Biological		Hazardous Chemicals		Lasers		Electricity		Cryogenics		High Pressure		Hoisting & Rigging		Construction or D&D		Explosives		Fire		Facility Hazard Value			
	public	worker	public	environment	public	worker	public	environment	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker		environment		
Facility 1	2	3	1	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	2	0	0	1	1	0	1	2	0	21
Facility 2	0	2	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	10
Facility 3	0	1	0	0	0	0	2	3	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	15

**Procedure to Complete Table 1 – Facility Hazard Value**

1. List all hazardous facilities or groups of facilities in the left column.
2. List types of hazards across the top row. These should include the hazards within a facility, such as radiation exposure, criticality, hazardous chemicals, electrical, cryogenics, lasers, explosives, construction or D&D, hoisting & rigging, and other hazards in the facility.
3. Evaluate each hazard at each facility based on the relative magnitude of the hazard to the public, worker, and environment. The evaluation should include the complete spectrum of hazards in the facility that could expose members of the public, onsite workers, facility workers and the environment to hazardous materials. The ranking system used in this example is as follows: high hazard – 3, moderate hazard – 2, low hazard – 1, no hazard – 0. Definitions for hazard categorization are as follows:
  - High – Potential off-site impacts to large numbers of people or on-site significant impacts to many workers from a single event.
  - Moderate – Potential on-site significant consequences. Potential significant impacts to workers or the environment, but at most only minor off-site impacts. Potential significant impacts to collocated workers.
  - Low – Potential for significant localized consequences and minor on-site impacts to collocated workers and negligible off-site impacts to public and the environment.
4. Sum the facility hazards across each row to determine the Facility Hazard Value.
5. Enter these values in Table 2, column b.

**Table 2 - Determination of Facility Coverage Priority Ranking (Facility 1, 2, and 3 provided as examples)**

Facility or Groups of Facilities	Facility Hazard Value (From Table 1)	Facility Size	Material Condition	Operations Complexity	Programmatic Importance	Operational Rigor	Coverage Priority Ranking*
a	b	c	d	e	f	g	h
Facility 1	21	1.25	1	1.25	1	1	33
Facility 2	10	1	1	1	1	1.25	13
Facility 3	15	0.75	0.75	1	1.25	1	11

\* Facility Representative coverage is optional for non-nuclear facilities with a Coverage Priority Ranking below 15.

**Procedure to Complete Table 2 – Determination of Facility Coverage Priority Ranking**

The Coverage Priority Ranking is an adjustment to the Facility Hazard Value based on factors such as facility size, material condition, operations complexity, programmatic importance, and operational rigor. The Coverage Priority Ranking is calculated by multiplying facility hazard value by the modifying factors (h=b\*c\*d\*e\*f\*g). Other factors appropriate for a particular site or facility may also be used. The Coverage Priority Ranking determines the priority of assigning Facility Representatives to a facility or group of facilities based on the hazards present as modified by these factors. Sort facilities by Coverage Priority Ranking from highest to lowest. The modifying factors are defined as follows:

**Facility Size (c):**  
 0.75 – Operations areas less than 10,000 square feet  
 1.00 – Operations areas between 10,000 square feet and 100,000 square feet  
 1.25 – Operations areas greater than 100,000 square feet

**Material Condition (d):**  
 0.75 – Configuration management program is mature, as-built drawings are reasonably accurate, material management/pedigree programs are in place, replacement parts for safety systems are available, safety systems are reliable, condition similar to what one would expect for a new or well maintained facility  
 1.00 – Between .75 and 1.25  
 1.25 – As-built drawings are unavailable or very out-of-date, replacement parts for safety systems are hard to get or unavailable, safety system reliability is degraded, condition similar to what one would expect for an old or poorly maintained facility

**Operations Complexity (e):**  
 0.75 – Majority of the following conditions are present: One primary program/function, less than 250 employees, single chain-of-command, modest level of expertise and training required to operate  
 1.00 – Between .75 and 1.25

1.25 – Majority of the following conditions are present: Multiple distinct programs/functions, many different activities/disciplines, many different tenants or chains-of-command, greater than 500 employees, high level of expertise and training required to operate

**Programmatic Importance (f):**  
 0.75 – Unplanned outages for up to 30 days will not negatively affect DOE Strategic Plan deliverables or objectives  
 1.00 – Limited impact on the DOE Strategic Plan deliverables or objectives as a result of unplanned outages for up to 30 days  
 1.25 – Significant impact on DOE Strategic Plan deliverables or objectives as a result of unplanned outages exceeding 30 days

**Operational Rigor (g):**  
 0.75 – Well implemented Conduct of Operations Programs. Within the last year, zero of the following significant events/accidents: radiation over-exposures or uptakes, injuries requiring hospitalization, lockout/tagout violations, or environmental releases. Within the last year, zero TSR/AB violations. Contractor integrated management systems are verified mature.  
 1.00 – Between .75 and 1.25  
 1.25 – Conduct of Operations is poorly implemented. Within the last year, two or more of the following significant events/accidents: radiation over-exposures or uptakes, injuries requiring hospitalization, lockout/tagout violations, or environmental releases. Within the last year, more than three AB/TSR violations. Contractor integrated management systems not mature.

**Table 3 - Determination of Facility Representative Coverage (Facility 1, 2, and 3 provided as examples)**

Facility or Groups of Facilities	Coverage Priority Ranking* (from Table 2 column h)	Facility Categorization	Facility Activity Level	Recommended Base Coverage Level	Initial FTE Coverage Level	Adjusted FTE Coverage Level	Recommended FTE Coverage Level	Percentage of Time Available to Provide FR Coverage (From Table 5)	Final FTE Coverage Level
a	h	i	j	k	l	m	n	o	p
Facility 1	33	Nuclear Haz Cat 2	High	Frequent (0.50 – 1.00)	1.00	1.25	1.50	0.77	1.95
Facility 2	13	Nuclear Haz Cat 3	High	Intermittent (0.25 – 0.50)	0.50	0.50	0.50	0.77	0.65
Facility 3	11	Biosafety Level 3	Medium	Intermittent (0.25 – 0.50)	0.25	0.25	0.25	0.77	0.32
* Facility Representative coverage is optional for non-nuclear facilities with a Coverage Priority Ranking below 15.						<b>Total</b>	<b>2.25</b>		<b>2.92</b>

**Procedure to Complete Table 3 – Determination of Facility Representative Coverage**

1. List each facility or groups of facilities for which Facility Representative coverage is desired, according to the facility's Coverage Priority Ranking (columns a, h). Facility Representative coverage is optional for non-nuclear facilities with a Coverage Priority Ranking below 15. This allows site offices flexibility to perform oversight on these facilities using personnel other than Facility Representatives.
2. Determine the Facility Categorization. Use Table 4, Recommended Facility Representative Base Coverage Levels, to determine the Facility Categorization and enter into column i.
3. Determine Facility Activity Level. Use the guidance in DOE-STD-1063-2000, *Facility Representatives*, paragraph 5.1.b. and enter in column j. The activity level definitions are:  
 HIGH: Facilities that daily to weekly involve activities related to hazardous operations.  
 MEDIUM: Facilities that weekly to monthly involve activities related to hazardous operations.  
 LOW: Facilities that monthly to quarterly involve activities related to hazardous operations.
4. Recommended Base Coverage Level (column k). Use Table 4 to determine the Recommended Base Coverage Level for a facility (Continual, Frequent, Occasional, etc.) based on the Facility Categorization and Facility Activity Level and enter in column k. The definitions for the Recommended Base Coverage Level are in DOE-STD-1063-2000, Table 2:  
 CONTINUAL: The Facility Representative is present daily. This coverage may require the complete attention of one or more individuals and may require back shift, weekend, or 24-hour coverage. If the normally-assigned Facility Representative is gone for one week or longer, the Field Element Manager should name a temporary replacement and establish an appropriate coverage schedule.  
 FREQUENT: The Facility Representative is present approximately half of the time. One person can cover multiple facilities. If the normally-assigned Facility Representative is gone for two weeks or longer, the Field Element Manager should name a temporary replacement and establish an appropriate coverage schedule.

- INTERMITTENT:** The Facility Representative is present at least one day per week. One person can cover several such facilities.
- OCCASSIONAL:** The Facility Representative visits the facility 12-24 days a year.
- SELDOM:** The Facility Representative visits the facility 6-12 days a year.

The Recommended Base Coverage Levels correspond to the following Recommended FTE Levels:

<u>Recommended Base Coverage Level</u>	<u>Recommended FTE Level</u>
CONTINUAL	> 1.00
FREQUENT	0.50 – 1.00
INTERMITTENT	0.25 – 0.50
OCCASSIONAL	0.10 – 0.25
SELDOM	< 0.10

- Initial FTE Coverage Level (column l). Determine the appropriate initial FTE coverage level from the recommended FTE Level and place in column i.
- Adjusted FTE Coverage Level (column m). Multiply the FTE Coverage Level (column l) by an Adjustment Factor in the table below, and put the result in column m. This ensures that facilities with the highest hazards, operational activity, complexity, and of greatest programmatic importance receive higher coverage. The Adjustment Factors are:

<u>Coverage Priority Ranking Value</u>	<u>Adjustment Factor</u>
> 100	2.00
50 – 99	1.50
25 – 49	1.25
< 25	No Adjustment

- Recommended FTE Coverage Level (column n). Following establishment of the Adjusted FTE Coverage Level (column m) for each facility, the Field Element Manager (FEM) may further adjust the level of coverage. This adjustment should take into consideration factors such as those listed below and based on based the FEM's judgment of the contractor's operational performance and the priority of coverage identified in column h:
  - Facility operations involving multiple shifts
  - History of contractor performance for similar activities
  - Potential for DOE or public interest
  - The risks to successful mission accomplishment
  - Financial risks
  - Complexity of the facility and facility operations
  - Hazardous work environments for workers
  - Age, maintenance condition, and level of uncertainty of the facility
  - Anticipated changes in operational status of facility
  - Number of significant accidents/incidents on site
  - Amount of other DOE technical facility oversight
- The next step is to adjust the Recommended FTE Coverage Level to account for additional duties assigned to Facility Representatives, as well as other competing activities. This can be done by using Table 5 or Table 6. Table 5 is used if sites can accurately estimate other activities for the group of Facilities Representatives at the site. Table 6 is used if Facility Representatives have different collateral duties from each other which would make using Table 5 impractical. Both Table 5 and Table 6 represent workload analyses to ensure that the Facility Representative coverage assigned is achievable given the other duties assigned to the Facility Representatives.

**Table 4 – Recommended Facility Representative Base Coverage Levels**

Chemical Hazards Class <sup>1</sup>	Biological Hazard Level <sup>2</sup>	Nuclear Hazard Categorization <sup>3</sup>	Other Hazardous & Unique Facilities <sup>4</sup>	Facility Activity Level		
				High	Medium	Low
Facilities with regulated hazardous material requiring a Risk Management Plan OR The potential for ERPG-2 levels or TEEL-2 for off-site	Biosafety Level 4	Category 1 Hazard		Continual	Frequent	Intermittent
Facilities with regulated hazardous material requiring a Risk Management Plan OR The potential for ERPG-2 levels or TEEL-2 for collocated worker (100M)	Biosafety Level 3	Category 2 Hazard	Facilities that pose a significant risk offsite	Frequent	Intermittent	Occasional
Inventories of flammable materials and reactive compounds exceeding threshold quantities in 29 CFR 1910.119	Biosafety Level 2	Category 3 Hazard	Facilities that pose a significant risk to on-site workers	Intermittent	Occasional	Seldom
		Radiological Facilities	Facilities that have a critical mission and require additional oversight	Occasional	Seldom	Coverage Optional

**Notes:**

1. Chemical hazard classes are established by OSHA and EPA. Regulated Toxic and Regulated Flammable Substances and their Threshold Quantities are listed in 40 CFR Part 68.130. Extremely Hazardous Substances and Threshold Planning Quantities are listed in 40 CFR Part 355, Appendices A and B. Process Safety Management chemicals are listed in 29 CFR 1910.119.
2. Biological hazard levels are defined in *Biosafety in Microbiological and Biomedical Laboratories*, U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes of Health Fourth Edition, May 1999
3. Nuclear hazard categorization is from DOE-STD-1027-92, (CH-1) *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
4. Unique Facilities are identified by Field Element Manager that could pose a significant risk to public or worker safety or crucial mission facilities that require Facility Representative oversight. Consideration could include poor operational or safety performance, special needs, and significant public concern.

**Table 5 – Facility Representative Available Time for Coverage, Generic Analysis**

FR Activity that does not provide oversight of his/her assigned facility or increases facility oversight time*	Average Time required to perform identified activity across the FR Program being analyzed	Hours required to perform identified activity annually
Annual Leave	6 hours per pay period	-156
Sick Leave	1 week per year	-40
Administrative Duties	10% of time	-208
Training	3 weeks per year	-120
Collateral Duties	3 hours per week at work	-132
Special Assignments	1 week	-40
Overtime	10%	+208
Available Time Adjustment		-488
Percentage of Time Available to provide FR Coverage (2080 + Available Time Adjustment / 2080)		<b>0.77</b>
Staff Required to meet FR coverage required on Table 3 and additional activities identified on this table (FTE Required from Table 3 / Percentage of time Available)		<b>2.25/0.77 = 2.92</b>

\* Activities that reduce FR coverage are negative, activities that increase FR coverage (overtime, staff detailed to provide backup oversight, etc.) are positive

**Procedure to Complete Table 5 – Facility Representative Available Time for Coverage, Generic Analysis**

This method identifies a uniform factor that can be applied to the Facility Representative Coverage Required (FTE) number derived in Table 3 (column n) to determine the actual number of staff required to meet the minimum coverage requirement when activities that compete with FR duties are considered. Attachment 1 lists some of the activities that may need to be considered; sites should develop the list applicable to their Facility Representative Program. This method works well when the non-FR activities completed by Facility Representatives are relatively uniform across the organization.

1. Identify activities performed by Facility Representatives in addition to the evaluated FR duties.
2. Determine the average amount of time spent performing those activities across the FR Program, either as a percentage of work time or on an annual basis.
3. Calculate the total percentage of time available to perform FR functions.
4. Divide the total number in Table 3 column n by the percentage of time spent performing non-Facility Representative activities to determine the staffing required to achieve the effective Facility Representative staff required.
5. For Facility Representatives in training, increase training time from 120 hrs per year or 7% to an appropriate value (e.g., approximately 25% or 400 hrs per year).

**Table 6 - Facility Representative Available Time for Coverage, Assignment Specific Analysis (Facility 1, 2, and 3 provided as examples)**

Facility Coverage Groupings	Staff Assigned		Collateral Duty Assignments and Estimated Time Commitments [hours/year]	Leave, Admin, Training Time [hours/year]	Effective Facility Coverage [Hours]	Effective Facility Coverage [FTE]	Recommended Coverage	Is Effective Coverage Acceptable? Yes/No (If no, describe additional measures)
	Total Hours Available	Available						
Facility 1	FR A	SSO Program Coordination	200	525	4078	2.0	2.00	
	FR B	DOE RA	80	525				
	FR C	Duty Officer Program Management Radiological Assistant Program Duty Officer DOE Accident Investigation	75 40 32 160	525				
	6240		587	1575			2.00	yes
Facility 2	FR D	EEO/Special Emphasis Coordinator	100	525	923	0.44	0.5	SSO coverage will occur at about 0.05 FTE to make up the oversight difference. Need to re-evaluate in 6 months for effectiveness.
		Duty Officer	32					
		HQ Program Manager Liaison	500					
	2080		632	525			0.5	no
Facility 3	FR E	FR Training Manager	500	525	873	0.42	0.25	yes
		Duty Officer	32					
		Criticality Engineer Overtime	250 -100					
	2080		682	525			0.25	yes

**Procedure to Complete Table 6 – Facility Representative Available Time for Coverage, Assignment Specific Analysis**

This method evaluates the actual staff time available for performing Facility Representative functions based on individual Facility Representative assignments, and compares that number with the Table 3-derived Recommended FTE Level (Table 3, column n) to determine if staffing is adequate or should be modified. This method works well when the non-Facility Representative activity time requirements vary considerably between Facility Representatives.

1. List facility/facility groupings with the Facility Representatives/assignments.
2. Sum the total man-hours assigned; on an annual basis this is typically 2080 hours times the number of Facility Representatives assigned.
3. List the collateral duty assignments, leave, special assignments, and other activities that are not Facility Representative activities that will be completed by the assigned Facility Representatives.
4. Sum the total man-hours spent performing these activities
5. For Facility Representatives in training, increase training time from 120 hrs per year or 7% to an appropriate value (e.g., approximately 25% or 400 hrs per year).
6. Subtract the total number of hours spent performing the non-Facility Representative activities from the total Facility Representative hours assigned.
7. Divide the total available hours determined in the above step by 2080 to determine the effective FTE available to perform Facility Representative duties.
8. Compare the effective FTE available to perform the Facility Representative duties with the Table 3-derived Recommended FTE Level (Table 3, column n) to determine if staffing is adequate or should be modified.

**Attachment 1 - Examples of Activities that Facility Representatives May Perform in Addition to Facility Representative Duties**

<b>Activity</b>	<b>Examples</b>
Collateral Duties*	ORPS process management
	Conduct of Operations Implementation
	Readiness Review Process
	Duty Officer Program Management
Site Office Support	Integrated Project Teams
	Special Emphasis / EEO Program Site Rep
	NNSA Duty Officer
	Radiological Assistance Program Team Leaders
Special Assignments*	Readiness Review Team Members
	Accident Investigation Team Members
	Special Contractor Project Partnering Team Members
	NNSA Policy Teams
	Contract Source Evaluation Board Support
	Management Support Teams
Training	Continuing Training
	Mandatory Training
	Qualification/Requalification Training
	Access Training
	Personal Development Training
Administrative Duties	Time Keeping
	Training Registration
	Travel
	Performance Indicator Tracking
	Surveys
	Personnel Activities
	Document Reviews (RevCom, FRAM, internal policies)
	E-mail management
Leave	Annual
	Sick
	Military

\* These are intended to describe duties that are performed on the institutional level or at facilities different from the Facility Representative's assigned facility.

Examples:

1. Participation on a readiness review at another site or a facility different from the Facility Representative's assigned facility is still oversight of the contractor, however, the FR is not providing oversight at his/her assigned facility so this is considered a competing activity; however, technical support to a readiness review team or participation on a readiness review team at the Facility Representative's assigned facility is not a competing activity and is considered part of the Facility Representative's assigned coverage duties.
2. Evaluating Occurrence Reports for the Facility Representative's assigned facility is part of the Facility Representative's assigned coverage duties; however, managing site-wide implementation of ORPS, performing as a subject area SME, developing and evaluating site-wide performance of contract measures, process interpretations, reengineering efforts, etc. are collateral duties beyond those expected for Facility Representative facility coverage.

## Process to Determine Safety System Oversight Staffing

### Background

The process for determination of Safety System Oversight (SSO) staffing levels is based on and adapted from the process used to determine Facility Representative staffing levels.

### Overview

The steps below describe the process to determine SSO staffing for all hazardous facilities at a site. The process is adapted from the Facility Representative staffing process which uses the guidance in DOE-STD-1063-2000, *Facility Representatives*. The Facility Representative staffing process was modified to address the duties and responsibilities of SSOs described in DOE M 426.1-1A, *Federal Technical Capability Manual*. This SSO staffing determination process uses the facility hazards analysis from the Facility Representative staffing determination process and takes into account safety system characteristics, including system size, condition, and complexity; and other factors deemed pertinent. Provided below are elements that must be met by the analysis, followed by a step-by-step description of the method and how it can be tailored to meet additional considerations that may be applicable at each site.

### Methodology

The following elements shall be included in each site analysis.

1. A relative ranking of facilities and safety systems based on the hazards or risks presented to the public, the worker, and/or the environment.
2. A method for ranking facilities and safety systems and prioritizing SSO coverage based on hazards or risks, as identified in Step 1 above, and other factors such as facility/system size, operations complexity, hazards and risks, etc.
3. A determination (i.e., an informed management judgment) of SSO Full Time Equivalent (FTE) requirements based on the priority of coverage, the system activity level, and the identified base coverage levels adjusted to address factors considered in Step 2 above.
4. A determination of actual staffing based on SSO FTE requirements adjusted to account for actual staff time available to support the SSO function when competing activities such as collateral duties, leave, training, etc. are considered.

### Procedure to Perform SSO Staffing Analysis

Procedures for conducting a Safety System Oversight staffing analysis follow each table. Tables 1 and 2 establish the Facility Hazard Value and rank the facilities for SSO coverage. Table 3 establishes the Safety System Adjustment Factor to address system complexity, size, condition, and rigor of the contractor System Engineer and Configuration Management programs. Table 4 determines the SSO base time commitments in terms of technical and administrative duties. Tables 5 and 6 are used to calculate the amount of SSO time needed for each safety system and account for multiple systems assigned to a single SSO individual. Table 7 accumulates the time requirements for each assigned SSO, including other collateral duty and special assignments and concludes whether adequate SSO resources are applied.

**Table 1, Facility Hazard Ranking Worksheet**

Table 1 is identical to the table used in the Facility Representative staffing analysis. If that analysis has been completed, the Facility Hazard Values can be inserted directly into Table 1. If the Facility Representative staffing analysis data is not available, the following procedure is used for Table 1. Using the provided Excel Spreadsheet, enter in the following data:

1. On Table 1, *Facility Hazard Ranking Worksheet*, list each hazardous facility, or group of facilities, at a site in the Facility Column.
2. Enter the severity of the hazard to the public, the workers, and the environment for each hazard that is present in the facility. The severity of the hazard is ranked as follows:
  - a. High Hazard = 3
  - b. Moderate Hazard = 2
  - c. Low Hazard = 1

The qualitative hazard descriptors are based on existing standards where available, such as the chemical hazard class, biological hazard categories, laser class, or an analogous judgment where a standard is not available or clearly applicable, or where a compendium of hazardous elements exist.

3. The spreadsheet will calculate the Facility Hazard Ranking Value and insert it in Table 1, *Facility Hazard Factor*, in Column (b).

**Table 2, Facility Coverage Ranking Factor**

Table 2 is identical to the table used in the Facility Representative staffing analysis. If that analysis has been completed, the Facility Hazard Ranking Factors (called Coverage Priority Ranking in the Facility Representative process) can be inserted into Table 2. If the Facility Representative staffing analysis data is not available, the following procedure is used for Table 2. Using the provided Excel Spreadsheet, enter in the following data:

Determine the Facility Hazard Ranking Factor, column h, in Table 2, *Facility Coverage Ranking Factor*. The Facility Hazard Ranking Factor is an adjustment to the Facility Hazard Value based on factors such as the facility size, the material condition of the facility, the complexity of operations conducted in the facility, the facility's programmatic importance, and operational rigor. The Facility Hazard Ranking Factor is calculated by multiplying facility hazard value by the modifying factors ( $h=b*c*d*e*f*g$ ). Other factors appropriate for a particular site or facility may also be added, as appropriate, and included in the calculation. The Facility Hazard Ranking Factor illuminates the higher priority facilities for the purposes of qualitatively prioritizing the assignment of SSOs resources to the safety systems located in those facilities. After the factors have been calculated, arrange the facilities in the spreadsheet in order of the Facility Hazard Ranking Factors, highest to lowest. The modifying factors are defined as follows:

**Facility Size (c):**

- 0.75 - Operations areas less than 10,000 square feet.
- 1.00 - Between 10,000 square feet and 100,000 square feet
- 1.25 - Operations areas greater than 100,000 square feet.

**Material Condition (d):**

- 0.75 - Configuration management program is mature, as-built drawings are reasonably accurate, material management/pedigree programs are in place, replacement parts for safety systems are available, safety systems are reliable, condition similar to what one would expect for a new or well maintained facility.
- 1.00 - Between .75 and 1.25.
- 1.25 - As-built drawings are unavailable or very out-of-date, replacement parts for safety systems are hard to get or unavailable, safety system reliability is degraded, condition similar to what one would expect for an old or poorly maintained facility.

**Operations Complexity (e):**

- 0.75 - Majority of the following conditions are present: One primary program/function, less than 250 employees, single chain-of-command, modest level of expertise and training required to operate.
- 1.00 - Between .75 and 1.25.
- 1.25 - Majority of the following conditions are present: Multiple distinct programs/functions, many different activities/disciplines, many different tenants or chains-of-command, greater than 500 employees, high level of expertise and training required to operate.

**Programmatic Importance (f):**

- 0.75 - Unplanned outages for up to 30 days will not negatively affect DOE Strategic Plan deliverables or objectives.
- 1.00 - Limited impact on the DOE Strategic Plan deliverables or objectives as a result of unplanned outages for up to 30 days.
- 1.25 - Significant impact on DOE Strategic Plan deliverables or objectives as a result of unplanned outages exceeding 30 days.

**Operational Rigor (g):**

- 0.75 - Well implemented Conduct of Operations Programs. Within the last year, zero of the following significant events/accidents: radiation over-exposures or uptakes, injuries requiring hospitalization, lockout/tagout violations, or environmental releases. Within the last year, zero TSR/AB violations. Contractor integrated management systems are verified mature.
- 1.00 - Between .75 and 1.25.
- 1.25 - Conduct of Operations is poorly implemented. Within the last year, two or more of the following significant events/accidents: radiation over-exposures or uptakes, injuries requiring hospitalization, lockout/tagout violations, or environmental releases, and more than three TSR/AB violations. Contractor integrated management systems not mature.

### **Table 3, Safety System Adjustment Factor**

In Table 3, the facilities should be listed in the rank order established in upon completion of Table 2, column h. List each safety system identified in each facility's authorization basis in Table 4, column (a), underneath the appropriate facility. In column (b), enter the type of safety system. These system types should be grouped around SSO disciplines and will be used to group related systems for assignment to a single SSO.

Enter safety system adjustment values into the table in columns (c), (d), (e), and (f). These factors are adjustments to the facility hazard ranking priority to account for system-specific issues, such as such as system size, design/operational complexity, system/equipment condition, and effectiveness of the contractor's system engineer program. Other factors appropriate for a particular site, facility, or system may also be used. The Nominal Safety System Adjustment Factors are defined and quantified as follows:

#### **System Size (c):**

- 0.75 – The system is reasonably compact in the amount of geographical space it occupies. It has few components and minimal or no redundant trains.
- 1.00 – Between 0.75 and 1.25.
- 1.25 – The system covers a large geographical area. It consists of two or more trains for redundancy. It has many components and/or several subsystems.

#### **System Complexity (d):**

- 0.75 – One primary system function, homogeneous process (i.e., an all electrical system; an all mechanical piping system; a simple ventilation system with controls that remain mostly static over time; or systems that require only a modest level of expertise and training to maintain, troubleshoot, and operate).
- 1.00 – Between .75 and 1.25.
- 1.25 – Multiple, distinct functions, or several processes combine to perform safety function (e.g., ventilation system with intricate controls to maintain air balance; a system with automated controls to sense off-normal parameters and automatically change system operating parameters or modes; a system where a high level of expertise and training are required to maintain, troubleshoot, and operate).

#### **System Condition (e):**

- 0.75 – System consistently operates above the reliability and availability goals set by the contractor System Engineer. Historically, the system has not caused the challenge of a TSR limit or caused entry into an LCO.
- 1.00 – System operates at or near the availability and/or reliability goals set by the contractor System Engineer. System requires moderate amounts of corrective maintenance, but parts are available and the corrective maintenance backlog is managed to a minimum level. System failures occasionally impact TSR performance.
- 1.25 – System operates below availability and/or reliability goals set by contractor System Engineer. System requires excessive corrective maintenance tasks each month, spare parts are not readily available, excessive maintenance backlogs (corrective and/or preventive). System routinely impacts TSR performance and is in an LCO condition for a moderate amount of time.

### **Contractor System Engineering Program Implementation (f):**

- 0.75 – Highly Effective - Contractor System Engineer is qualified on the system, has moderate to extensive experience with the system, monitors system performance, has a history of quick response to system problems. Actively manages system performance by appropriate performance of predictive maintenance tasks coupled with timely preventive maintenance to minimize system downtime. Performs system assessments on a regular basis and corrects problems or declining trends quickly.
- 1.00 – Effective - Contractor System Engineer is qualified and knowledgeable of system. Only minimum actions are conducted to maintain system operable. System engineer has little experience with the system.
- 1.25 – Ineffective or Non-Existent - No Contractor System Engineer is assigned to the system, or the assigned individual is not yet qualified on the system. Performance assessments have not been conducted and long-standing problems remain unresolved.

### **Table 4, System-Specific Adjusted Base SSO Hours**

Anticipated SSO activities and tasks can be divided into 3 basic categories: (1) those technical activities that each SSO must perform that are constant and independent of the intricacy or extent and number of assigned safety systems; (2) those technical activities that each SSO must perform that depend on the intricacy or extent and number of assigned safety systems; and (3) the administrative activities that each federal staff must perform.

1. Enter the estimated amount of time SSOs are expected to spend in each of the categories of time listed in the table. Times can be entered in any of the columns, depending on how often the activity is performed. Multiple entries in each row are allowed to account for daily, weekly, and monthly meetings, for example.
2. The technical time estimates used in Table 3 correspond to those times that would be reasonably required for a simple safety system in a low hazard facility. Factors to account for larger or more intricate and multiple assigned systems are addressed later in Table 4. Table 3 has several columns to allow time entry on a daily, weekly, monthly, etc. basis. Several columns can be used for one activity, for example, an SSO may prepare reports on a weekly and monthly basis for management, and provide input to the FTCP SSO quarterly report. Estimates of these times have been entered in the spreadsheet as a basis for all offices to start from. Additional activities can be added and times can be adjusted, as necessary, with appropriate rationale.
3. The spreadsheet calculates the Safety System Adjustment Factor in column (g) as a product of the Safety System Adjustment Elements.

### **Table 5, System-Specific Adjusted Base SSO Hours**

Table 5 is automatically filled in as data have been entered in previous worksheets. This table lists the facilities in ranked order according to the Facility Hazard Ranking Factor from Table 2. The facility with the largest Facility Hazard Ranking Factor is listed first<sup>1</sup>, with its associated safety systems. This focuses attention on the higher hazard facilities for qualitative SSO resource priority allocations. The result of Table 5 is an adjustment to the base SSO hours based on safety system size, intricacy, condition, and the maturity of contractor programs. The Adjusted System Dependent SSO hours does not account for

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<sup>1</sup> The spreadsheet requires some modification to implement the sorting feature. At the present time, the facilities are not sorted.

economies of scale associated with a single SSO overseeing several systems. That adjustment is made in the next table.

**Table 6, Multiple System Assignment Factors**

Table 6 uses the prioritized facility/system list from Table 5 and groups the systems by system type (which is considered equivalent to SSO discipline and may correspond to one SSO). The table groups the same system types together, adds the fixed technical activity hours, the system-dependent adjusted hours for the first system assigned, and a portion of the system-dependent adjusted hours for each additional system to account for the economies of scale that result from a single SSO being assigned to 2 or more systems. The factor for determining the portion of the system-dependent adjusted hours for additional systems is 50% of the system-dependent adjusted hours. The first system in the multiple system calculation is always the system with the largest adjusted system-dependent hours<sup>2</sup>.

**Table 7, SSO Available Time for Coverage, Assignment-Specific Analysis**

Table 7 calculates the time the SSO has available to perform the SSO technical duties after deduction of administrative time (leave, training, timekeeping, etc.), collateral duty time, and special assignment time. Administrative time is tabulated and summed in Table 3 and inserted into Table 7. The resulting available time to perform SSO activities is compared to the required SSO time calculated in Table 6. A final conclusion of coverage adequacy or inadequacy is entered into the table by testing whether the available time is greater than the needed SSO time.

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<sup>2</sup> The logic of this step needs to be programmed into the spreadsheet – right now the formula is manually input in each cell – the logic for selecting the system with the highest number of hours is not yet programmed.

**Table 1 - Facility Hazard Ranking Worksheet**

Nuclear Facility	Radiation Exposure		Criticality		Biological		Hazardous Chemicals		Lasers		Electricity		Cryogenics		High Pressure		Hoisting & Rigging		Construction or D&D		Explosives		Fire		Facility Hazard Value
	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	public	worker	
Facility A	2		2	1	1											1									7
Facility B	1				1													1							4
Facility C	1	2																							3
Facility D						3										1									4
Facility E						1										2									3
Facility F																									2
Facility G																				1					1

**Procedure to Complete Table 1 – Facility Hazard Value**

NOTE: This table is identical to the Facility Representative Staffing Determination Process for nuclear facilities. If the Facility Representative analysis has been completed, enter the Facility Hazard Values from that analysis for all nuclear facilities directly. If it has not been completed, these instructions may be followed to complete the table. Both the Facility Representative and the SSO staffing analyses should be based on the same hazards elements.

- List all hazardous nuclear facilities in the left column.
- List types of hazards across the top row. These should include the hazards within a facility, such as radiation exposure, criticality, hazardous chemicals, electrical, cryogenics, lasers, and environment.
- Evaluate each hazard at each facility based on the relative magnitude of the hazard to the public, worker, and environment. The ranking system used in this example is as follows:
  - High – Potential off-site impacts to large numbers of people or on-site significant impacts to many workers from a single event.
  - Moderate – Potential significant on-site consequences. Potential significant impacts to workers or the environment, but at most only minor off-site impacts.
  - Low – Potential for significant localized consequences and minor on-site impacts to collocated workers and negligible off-site impacts to public and the environment.
- Sum the facility hazards across each row to determine the Facility Hazard Value.
- Enter these values in Table 2, column b, Facility Hazard Ranking.

**Table 2 - Facility Coverage Ranking Factor**

Facility or Groups of Facilities a	Facility Hazard Value (from Table 1) b	Facility Size c	Material Condition d	Operations Complexity e	Programmatic Importance f	Operational Rigor g	Facility Hazard Ranking Factor $h=b*c*d*e*f*g$
Facility A	7	1.25	0.75	1.25	0.75	1.00	6.2
Facility B	4	1.00	1.75	0.75	1.75	1.75	16.1
Facility C	3	0.75	1.00	1.25	1.00	1.25	3.5
Facility D	4	1.25	0.75	1.00	0.75	0.75	2.1
Facility E	3	1.00	1.00	0.75	1.00	1.25	2.8
Facility F	2	0.75	1.25	1.25	1.25	1.00	2.9
Facility G	1	1.25	1.25	1.00	0.75	1.25	1.5

**Table 3 - Safety System Adjustment Factor**

Facility / Nuclear Safety Systems	System Type	System Size	System Complexity	System Condition	Contractor System Engineer Program Implementation	Safety System Adjustment Factor
a	b	c	d	e	f	$g=c*d*e*f$
<b>Facility A</b>						
System 1	Elec Dist	1	1	1	0.75	0.8
System 2	Vent	1.25	1.25	1.25	0.75	1.5
System 3	I&C	1.25	1.25	1	0.75	1.2
<b>Facility B</b>						
System 4	Fire Sprink	1.25	1	1	1.25	1.6
System 5	Crit	1	1	1	1.25	1.3
System 6	Chem Process	1.25	1.25	1.25	1.25	2.4
<b>Facility C</b>						
System 7	Vent	1.25	1.25	1.25	1	2.0
System 8	Elec Dist	1.25	1	1	1	1.3
System 9	Fire Sprink	1.25	1	1	1	1.3
<b>Facility D</b>						
System 10	I&C	1	1	0.75	0.75	0.6
System 11	Elec Dist	1	1	0.75	0.75	0.6
System 12						
<b>Facility E</b>						
System 13						
System 14						
System 15						
<b>Facility F</b>						
System 16						
System 17						
System 18						
<b>Facility G</b>						
System 19						
System 20						
System 21						

**Table 4 - SSO Base Time Commitment**

SSO Programmatic and Collateral Activities for a Simple Safety Significant System in a low hazard facility

	Activity	Hrs/day	Hrs/week	Hrs/month	Hrs/quarter	Hrs/year	Total Hours	FTE
<b>Fixed-Time Technical Activities</b>	<b>Meetings/Interface/Coordination</b>							
	Attend routine program meetings			2			24	0.012
	Attend meetings with Contractor SEs			1			12	0.006
	Weekly Meeting w/ Fac Reps		1				52	0.025
	Fac Rep One-on-One Interface			2			24	0.012
	<b>SSO Training/Requalification</b>							
	SSO Requalification					20	20	0.01
	SSO Training					20	20	0.01
	<b>SSO Reporting Activities</b>							
	Logkeeping		0.5				26	0.013
	Reporting - Quarterly, Weekly, Monthly		0.25	0.5	1		23	0.011
	<b>Safety/Authorization Basis</b>							
	Review DSA Mods/JCOs					32	32	0.015
	Annual Review of USQ Determinations					24	24	0.012
	Review of Assigned Safety System USQs				2		8	0.004
	<b>Contractor Procedure/Process Changes</b>							
	Review Process/Procedure Changes		0.75				39	0.019
	Travel Time to System Location		1.5				78	0.038
	SSO Program Assessment & Improvement						20	0.01
	Successor Development & Qualification						10	0.005
Turnover to Successor						0	0	
	<b>Fixed-Time Technical Hours Subtotal</b>						<b>412</b>	<b>0.198</b>
<b>System-Dependent Activities</b>	<b>Corrective Action Program (CAP)</b>							
	Review emerging system problems		1				52	0.025
	Review CAP resolutions			2			24	0.012
	Follow-up/Closure of SSO Findings, Issues			2			24	0.012
	<b>Performance Monitoring</b>							
	Reviews of System Performance/Reliability			2			24	0.012
	Review System Health Reports/Perf Ind.				2		8	0.004
	Review TSRLCO Performance			1			12	0.006
	Monitor Contractor SE Program			1			12	0.006
	<b>Inspection/Condition Monitoring</b>							
System Walkdowns/CAP Inspections			4			48	0.023	
Other (Specify)						0	0	
	<b>System-Dependent Time Subtotal</b>						<b>204</b>	<b>0.098</b>
	<b>Total BASE SSO Technical Time</b>						<b>616</b>	<b>0.30</b>
<b>Administrative Time</b>	<b>Other Technical Assignments - Non-SSO</b>							
	Operational Readiness Reviews						0	0.00
	Special Assignments					40	40	0.02
	Collateral Assignments		3				156	0.08
	Non-SSO Assessments (e.g., ISM, etc.)						0	0.00
	Technical Support to Other Federal Staff			2			24	0.01
	<b>Administrative Duties &amp; Activities</b>							
	Time keeping		0.25				13	0.01
	Training Registration			1			12	0.01
	Travel						0	0.00
	Personnel Activities					4	4	0.00
	Medical Qualifications/Exams					3	3	0.00
	Document Reviews						0	0.00
	Mail & E-Mail Management	0.5					130	0.06
	Staff Meetings		1	1			64	0.03
	Annual Leave		3				156	0.08
	Sick Leave						40	0.02
	Military Leave						0	0.00
	Training, GET					3	3	0.00
	Training, Rad Worker II					8	8	0.00
	Training, Hazwoper Refresher					8	8	0.00
	Training, Facility Access					4	4	0.00
	Training, Admin (EEO, Ethics, etc.)					12	12	0.01
Other, Specify						0	0.00	
Overtime (10%)						208	-208	-0.10
	<b>SSO Administrative Time</b>						<b>469</b>	<b>0.23</b>

<b>Table 5 - System-Specific Adjusted Base SSO Hours</b>				
<b>Facility or Groups of Facilities</b>	<b>System Type</b>	<b>Safety System Adjustment Factor</b>	<b>SSO System Dependent Base Hours</b>	<b>Adjusted System Dependent SSO Hours/Year</b>
(a)	(b)	(c)	(d)	(e)=(c)*(d)
<b>Facility A</b>				
System 1	Elec Dist	0.8	204	153
System 2	Vent	1.5	204	299
System 3	I&C	1.2	204	239
<b>Facility B</b>				
System 4	Fire Sprink	1.6	204	319
System 5	Crit	1.3	204	255
System 6	Chem Process	2.4	204	498
<b>Facility C</b>				
System 7	Vent	2.0	204	398
System 8	Elec Dist	1.3	204	255
System 9	Fire Sprink	1.3	204	255
<b>Facility D</b>				
System 10	I&C	0.6	204	115
System 11	Elec Dist	0.6	204	115
System 12			204	
<b>Facility E</b>				
System 13			204	
System 14			204	
System 15			204	
<b>Facility F</b>				
System 16			204	
System 17			204	
System 18			204	
<b>Facility G</b>				
System 19			204	
System 20			204	
System 21			204	

<b>Table 6 - Multiple System Assignment Factors</b>						
<b>System Type</b>	<b>Facility</b>	<b>System</b>	<b>Adjusted System Dependent SSO Hours/Year</b>	<b>Fixed-Time Technical Hours/Year</b>	<b>Total SSO Technical Hours/Year (Note 1)</b>	<b>Total SSO Technical FTE</b>
(a)	(b)	(c)	(d)	(f)	(g)	
Vent	Facility C	System 7	398	412	960	0.46
	Facility A	System 2	299			
Elec Dist	Facility D	System 11	115	412	801	0.34
	Facility C	System 9	255			
	Facility A	System 1	153			
I&C	Facility D	System 10	115	412	708	0.34
	Facility A	System 3	239			
Fire Sprink	Facility B	System 4	319	412	858	0.41
	Facility C	System 9	255			
Crit	Facility B	System 5	255	412	667	0.32
Chem Process	Facility B	System 6	498	412	910	0.44

Note 1: Total SSO hours/year = Fixed Time Technical hours  
+ largest adjusted system dependent hours  
+ 0.5\*(System{2} dependent hours)  
+ 0.5\*(System{3} dependent hours)  
+ ... + 0.5\*(System{N} dependent hours)

**Table 7 - SSO Available Time for Coverage, Assignment-Specific Method**

SSO	Staff Assigned	Total Available Hours	Collateral Duty Assignments	Estimated Collateral Duty Time Commitments	Leave, Admin, Training Time	Available Staff Time for SSO Coverage	Needed SSO Coverage (from Table 6)	Is Available SSO Coverage Acceptable?
a	b	c	d	e	f	g	i	h ≥ i?
		hours	hr/yr	hr/yr	hr/yr	hours	FTE	h ≥ i?
						g	i	
Ventilation	Vent SSO		AB Doc Reviews Acting DD	1080 60				
Electrical Dist	Electrical SSO	2080		1140	469	471	0.46	No
I&C	I&C SSO	2080			469	1611	0.34	Yes
Fire Protection	FP SSO	2080			469	1611	0.34	Yes
Criticality	Criticality SSO	2080	SSO Program Mgr S/RID Mgmt Maintenance O/S Acting DD	520 100 30 60				
Chem Process	Chem Process SSO	2080	RL Duties DST Corrosion	710 1212	469	901	0.41	Yes
				1212	469	399	0.32	No
				1250				
		2080		1250	469	361	0.44	No