

Paul A. Harden
Site Vice President724-682-5234
Fax: 724-643-8069January 22, 2013
L-12-45710 CFR 50, Appendix E
10 CFR 50.54(q)ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001**SUBJECT:**

Beaver Valley Power Station, Unit Nos. 1 and 2
Docket No. 50-334, License No. DPR-66
Docket No. 50-412, License No. NPF-73
Beaver Valley Power Station Emergency Plan and Implementing Procedures


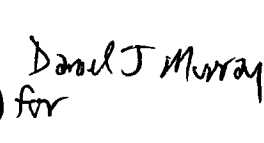
Pursuant to 10 CFR 50.54(q), FirstEnergy Nuclear Operating Company (FENOC) hereby submits the recent revisions of the Beaver Valley Power Station Emergency Preparedness Plan (EPP) to Section 5, "Emergency Organization"; Appendix G, "References"; Appendix H, "Beaver Valley Power Station (BVPS) ERO [Emergency Response Organization] On-Shift Staffing Analysis Report"; and the Volume 1 "Table Of Contents." The EPP Section 5 revision addresses the "Beaver Valley Power Station (BVPS) Emergency Response Organization (ERO) On-Shift Staffing Analysis Report" that is now incorporated as EPlan Appendix H, as required by 10 CFR 50 Appendix E, Section IV.A.9. Appendix G, "References" was revised to reflect the changes discussed above. The EPP Volume I "Table Of Contents" was revised to add Appendix H, "Beaver Valley Power Station (BVPS) ERO [Emergency Response Organization] On-Shift Staffing Analysis Report" to the appendices list. These EPP revisions were implemented on December 21, 2012.

EPP and implementing procedure revisions are reviewed in accordance with FENOC procedures. Revisions that are determined to be actual changes to the EPP (that is, a revision that is more than editorial) are evaluated in accordance with the requirements of 10 CFR 50.54(q). Attachment 1 lists the recent revisions to the Emergency Plan. Items listed on Attachment 1 as "Screen Only" were determined not to be actual changes to the EPP and did not require a 10 CFR 50.54(q) evaluation. Attachment 2 provides the 10 CFR 50.54(q) evaluation summary for the EPP Section 5 changes. FENOC determined that the changes do not result in a reduction of the effectiveness of the EPP.

Beaver Valley Power Station, Unit Nos. 1 and 2
L-12-457
Page 2

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Sean A. Zalesny, Manager – Emergency Response, at (724) 682-5767.

Sincerely,

 *for* 
Paul A. Harden

Attachments:

- 1 Beaver Valley Power Station 10 CFR 50.54(q) Review Summary Results
- 2 10 CFR 50.54(q) Change Summary: Beaver Valley Power Station Emergency Plan, Section 5, "Emergency Organization," Revision 27

Enclosures:

- A SECTION 5, "Emergency Organization," Revision 27
- B APPENDIX G, "References," Revision 22
- C APPENDIX H, "Beaver Valley Power Station (BVPS) ERO On-Shift Staffing Analysis Report," Revision 0
- D Volume 1 "Table Of Contents," Revision 28

cc: NRC Region I Administrator
NRC Resident Inspector (w/o enclosures)
NRC Project Manager (w/o enclosures)
Director BRP/DEP (w/o enclosures)
Site BRP/DEP Representative (w/o enclosures)

Attachment 1
L-12-457

Beaver Valley Nuclear Power Station
10 CFR 50.54(q) Review Summary Results
Page 1 of 1

| Document | Rev | PAF | RAD | 54(q) | 54(q) Review Status | Attachment |
|----------------------------------|-----|----------|----------|--------|--|------------|
| SECTION 5 | 27 | 12-02862 | 12-05161 | 12-069 | Evaluation - Summary Provided | 2 |
| APPENDIX G | 22 | 12-02864 | N/A | 12-070 | Screen Only - No Evaluation Required | N/A |
| APPENDIX H | 0 | 12-02910 | 12-05136 | 12-072 | Screen Only - No Evaluation Required | N/A |
| Volume 1 TABLE OF CONTENTS | 28 | N/A | N/A | N/A | N/A | N/A |

Attachment 2
L-12-457

Beaver Valley Power Station Emergency Plan
Summary of Changes to Section 5, Emergency Organization
Revision 27
Page 1 of 1

Change Summary:

Emergency Plan (EPlan) Section 5, Table 5.1 was revised to address the "Beaver Valley Power Station (BVPS) Emergency Response Organization (ERO) On-Shift Staffing Analysis Report," now incorporated as EPlan Appendix H, Revision 0. This revision addresses the BVPS ERO on-shift study, Revision 0, which utilized Nuclear Energy Institute (NEI) 10-05 dated June 2011, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0 and Nuclear Regulatory Commission "Interim Staff Guidance NSIR/DPR-ISG-01.IV.C," dated November 2011. Continued compliance with regulatory requirements, commitments, and the American Nuclear Society (ANS) Design Report are maintained in this revision.

Analysis Summary:

The BVPS ERO on-shift staffing analysis report concludes that adequate staff is available to complete necessary actions per the station's procedures and emergency plan. The existing number of on-shift personnel was greater than the number required by Table 5.1. The additional existing on-shift operators which were not previously listed in Table 5.1 are added to designate they are required to be on-shift to perform functions identified in the report.

As a result of including the already on-shift operators to Table 5.1, one operator was no longer available to support the 60 minute augmentation position of rad waste operator. This was documented in the corrective action program. Designated ERO call-out personnel were identified, verified to be qualified, and assigned to perform this required augmentation function.

Other specific changes to Table 5.1, all of which maintain on-shift functions, include:

- 1) Listing both Unit 1 and Unit 2 on-shift personnel
- 2) Indicating all operators available to perform plant and fire brigade functions with no overlap in responsibility/function
- 3) Identifying multiple on-shift personnel available to perform notification functions to offsite agencies with no overlapping duties identified
- 4) Identifying that a radiation technician is designated to perform on-shift dose projections and that the on-shift radiation technicians may also perform on-site surveys
- 5) Changing from a title to listing the expertise needed to perform the function for Repair and Corrective Actions

Other editorial changes were made to Table 5.1, including corrected titles for referenced documents and positions (health physics to radiation protection, mechanical maintenance to mechanical repair, and so forth) and simple formatting to allow for ease of reading and understanding within the table.

Enclosure A
L-12-457

Emergency Preparedness Plan
SECTION 5, "Emergency Organization"
Revision 27
(62 pages follow)

SECTION 5

EMERGENCY ORGANIZATION

EFFECTIVE DATE – 12/21/12

Emergency Preparedness Plan

Section 5

EMERGENCY ORGANIZATION

Table of Contents

| | <u>PAGE</u> |
|---|-------------|
| 5.0 EMERGENCY ORGANIZATION..... | 1 |
| 5.1 NORMAL OPERATING ORGANIZATION..... | 1 |
| 5.2 BVPS EMERGENCY ORGANIZATION..... | 1 |
| 5.2.1 Emergency Director..... | 3 |
| 5.2.2 Emergency/Recovery Manager..... | 5 |
| 5.2.3 Assistant to the Emergency Director/Emergency Recovery Manager..... | 7 |
| 5.2.4 Operations Coordinator..... | 7 |
| 5.2.5 Communications and Records Coordinator..... | 8 |
| 5.2.6 Operations Support Center (OSC) Health Physics Coordinator..... | 8 |
| 5.2.7 Radiological Controls Coordinator..... | 9 |
| 5.2.8 Environmental Assessment and Dose Projection Coordinator..... | 10 |
| 5.2.9 Environmental Coordinator..... | 11 |
| 5.2.10 Engineering Coordinator..... | 12 |
| 5.2.11 Technical Support Coordinator..... | 12 |
| 5.2.12 Computer Coordinator..... | 14 |
| 5.2.13 Operations Support Center Coordinator..... | 15 |
| 5.2.14 Maintenance Coordinator..... | 15 |
| 5.2.15 Security Coordinator..... | 16 |
| 5.2.16 Chemistry Coordinator..... | 17 |
| 5.2.17 Operations Communicator..... | 17 |
| 5.2.18 Support Services Manager..... | 18 |
| 5.2.19 Offsite Agency Liaison..... | 19 |
| 5.3 NUCLEAR COMMUNICATIONS..... | 19 |
| 5.3.1 Chief Company Spokesperson..... | 19 |
| 5.3.2 JPIC Manager..... | 19 |
| 5.3.3 Media Relations Coordinator..... | 20 |
| 5.3.3.1 Technical Briefer..... | 20 |
| 5.3.4 Information Manager..... | 20 |
| 5.3.4.1 Information Coordinator..... | 20 |
| 5.3.5 Logistics Coordinator (JPIC)..... | 22 |
| 5.3.5.1 Engineering Communications Representative..... | 22 |
| 5.3.5.2 Administrative Support..... | 22 |
| 5.3.5.3 Security Coordinator..... | 22 |
| 5.3.6 JPIC Technical Advisor..... | 22 |
| 5.3.7 Customer Services..... | 23 |
| 5.3.8 Nuclear Communications Manager- EOF..... | 23 |

Emergency Preparedness Plan

Section 5

EMERGENCY ORGANIZATION

Table of Contents

| | <u>PAGE</u> |
|---|-------------|
| 5.3.8.1 Nuclear Communications Writer | 23 |
| 5.3.8.2 Nuclear Communications Coordinator | 23 |
| 5.3.8.3 Nuclear Communications Technical Advisor - EOF | 23 |
| 5.3.9 EMA Contact Representative | 24 |
| 5.4 EMERGENCY ORGANIZATION STAFFING..... | 24 |
| 5.4.1 Relationship Between Normal and Emergency Organizations | 25 |
| 5.5 AUGMENTATION OF THE ONSITE EMERGENCY ORGANIZATION | 25 |
| 5.5.1 Corporate Level Support..... | 25 |
| 5.5.2 Institute for Nuclear Power Operations (INPO) Support..... | 26 |
| 5.5.3 NSSS Support..... | 26 |
| 5.5.4 Industry Support | 26 |
| 5.5.5 Local Services Support | 27 |
| 5.5.6 Other Support Services | 27 |
| 5.6 COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES | 28 |
| 5.6.1 State and Local Agencies..... | 28 |
| .1 Beaver County Emergency Management Agency..... | 28 |
| .2 Pennsylvania Emergency Management Agency..... | 29 |
| .3 Department of Environmental Protection/Bureau of Radiation Protection | 29 |
| .4 Columbiana County Emergency Management Agency..... | 30 |
| .5 Ohio Emergency Management Agency..... | 30 |
| .6 Hancock County Office of Emergency Management ^{C47} | 31 |
| .7 West Virginia Division of Homeland Security and Emergency Management ^{C47} | 31 |
| 5.6.2 Federal Agencies | 32 |
| .1 U.S. Nuclear Regulatory Commission..... | 32 |
| .2 U.S. Department of Energy | 32 |
| .3 National Weather Service..... | 33 |
| .4 Federal Emergency Management Agency..... | 33 |

5.0 EMERGENCY ORGANIZATION

The First Energy Nuclear Operating Company emergency organization for the Beaver Valley Power Station is discussed in this section. Included are the authorities and responsibilities of key individuals and groups and the communication links for notifying, alerting, and mobilizing emergency personnel. The emergency organization described in this section, which encompasses both the operating elements and support elements of the Beaver Valley Power Station ^{C16}, provides for a timely, staged response consistent with the emergency classification. The emergency organization will remain in effect until such a time as conditions have been stabilized at the Beaver Valley Power Station and normal operations have resumed or, if necessary, recovery operations are ready to begin.

The Beaver Valley Power Station (BVPS) Emergency Response Organization is supplemented by the emergency organizations of the various governmental agencies having an emergency response role within the Beaver Valley Power Station emergency planning zones. These offsite organizations are discussed in Section 5.4.

5.1 NORMAL OPERATING ORGANIZATION

The Beaver Valley Power Station ^{C16} organization for normal operations is shown in Figure 5.1. The organization integrates the major elements and disciplines necessary for the safe operation of the facilities into the five major areas – Plant Operations, Plant Engineering, Plant Maintenance, Projects and Scheduling and Nuclear Services. The organization reports to a Vice President and operates from facilities located on the BVPS site.

The Beaver Valley Power Station ^{C16} on-shift emergency organization for normal conditions is shown in Figure 5.2 ^{C8}. This organization is applicable to the operation of both Units. This figure shows the levels of responsibility within the station and indicates the typical categories of personnel present onsite.

5.2 BVPS EMERGENCY ORGANIZATION

For Unusual Event emergencies, the Beaver Valley Power Station emergency organization is initially comprised of the on-duty shift with the Shift Manager serving as Emergency Director. BVPS Unit 1 and Unit 2 minimum onshift crew compositions are identified in Table 5.2. Figure 5.2 illustrates the on-shift Emergency Organization shown in all capitals. For most initiating events within the Unusual Event category, this organization would be capable of adequately providing necessary assessment and corrective actions without augmentation. However, the Emergency Director, based on his evaluation of the situation, may activate part or all of the emergency organization described below. Table 5.1 identifies the staffing requirements and capabilities for additions of the Emergency Response Organization.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

Personnel assigned to the various positions in the BVPS Emergency Organization are detailed in the bi-monthly issue of the Emergency Response Organization Call List. This list provides names and phone numbers for personnel assigned to each emergency position.

The Beaver Valley Power Station onsite emergency organization for Alert emergencies is illustrated in Figure 5.3. This organization would be activated for all Alert emergencies or, at the discretion of the Emergency Director, for Unusual Events. When completely activated, this organization would operate from the Technical Support Center (TSC), except where noted.

For emergencies classified as Site Area or General Emergencies, the emergency organization would be expanded (as illustrated in Figure 5.4) to provide for the more extensive emergency operations that would be necessary to respond to these higher classification emergencies. The additional personnel assigned to the organization would staff the Emergency Operations Facility (EOF), and would be responsible for direction and coordination of the overall response with primary emphasis on the offsite aspects (monitoring, dose projection, recommendation of offsite protection actions, etc.) of that response thus allowing the Technical Support Center to concentrate on the onsite implementation of assessment, corrective, and damage control actions.

Regardless of the emergency classification, time of day, or status of emergency organization activation, the authorities and responsibilities for implementation of the Beaver Valley Power Station Emergency Preparedness Plan are unambiguously vested in a designated individual. Section 6.2 describes the activation of the emergency organization.

This section describes the positions, functions and responsibilities of the BVPS emergency organization. In addition to the individuals and alternates designated in the following sections for key positions, the Vice President and/or the Site Directors may designate other individuals, based on personnel availability, to make the most advantageous use of personnel qualifications. Section 8 of the Plan describes the training of the BVPS emergency organization personnel.

For a longer-term emergency condition, a duty rotation system will be established using the designated alternates and/or other appropriately qualified personnel from the BVPS staff.^{C16}

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.1 Emergency Director

The Shift Manager shall assume the role of the Beaver Valley Power Station Emergency Director until such time as he is relieved of that responsibility by a designated alternate.

The Shift Manager shall ensure that the designated alternate is promptly notified of an emergency condition. The designated alternate will receive a turnover from the SM and report to the Technical Support Center (conditions permitting).

The Beaver Valley Power Station Emergency Director shall assume full responsibility and authority for the implementation and administration of the BVPS Emergency Preparedness Plan, as set forth in 10CFR50 Appendix E and this section, until relieved of this responsibility by a more senior alternate; or by the designated Emergency/Recovery Manager upon activation of the Emergency Operations Facility.

Functional responsibilities of the Emergency Director include:

- .1 Immediately upon notification of an existing or potential emergency, contact the Control Room and initiate assessment activities, including classification of the emergency, implementation of protective and corrective actions, and projection of offsite doses, as appropriate to the emergency condition.
- .2 Initiate appropriate notifications and recommendations to offsite organizations (until EOF is activated). When the EOF is activated, the Emergency/Recovery Manager assumes the responsibility for offsite protective actions and should be consulted when Initial and Follow-up Notification Forms are being completed.
- .3 Appoint emergency coordinators from qualified personnel on-shift, for assistance with current and continuing emergency control; but assume those responsibilities until the positions are filled.
- .4 Augment the BVPS emergency organization with emergency call-list personnel and other available staff members, as appropriate.
- .5 Continue assessment of emergency status and make appropriate recommendations to offsite organizations (until EOF is activated).
- .6 Ensure that information to be released is accurate and released through the proper channels.
- .7 Request assistance from Federal agencies, if applicable.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .8 Activate other emergency facilities as described in Section 6.2, as appropriate.
- .9 Remain alert to radiological conditions and other hazards having the potential for significant effect on the health and/or safety of onsite BVPS personnel and other individuals having emergency assignments onsite (OSC^{CI5}, CR, emergency squads, etc.) and, where necessary, implement appropriate protective measures including emergency exposure limits and/or thyroid prophylaxis.
- .10 Until such time as the Emergency Operations Facility is activated, assume the responsibilities and authorities of the Emergency/Recovery Manager set forth in Section 5.2.2.
- .11 When the Emergency Operations Facility is activated, provide technical updates to the Emergency/Recovery Manager on plant systems status, radiological effluent assessment activities, and implementation of onsite protective and corrective actions and, when appropriate, make recommendations on possible offsite protective actions based on plant status to the Emergency/Recovery Manager.
- .12 When the Emergency Operations Facility is activated and, as necessary, request additional technical, engineering, material, or manpower assistance from the Emergency/Recovery Manager to supplement the resources of the onsite organization.
- .13 Upon implementation of the Severe Accident Management Guidelines (SAMG's), the Emergency Director assumes the role and responsibilities of the Decision Maker in addition to his/her Emergency Preparedness duties. The Emergency Director should base his/her decision upon information received from the TSC OPS Coordinator and/or the Engineering Coordinator.

The BVPS Emergency Director may delegate some of his assigned functional responsibilities to appropriately qualified FENOC personnel. However, the BVPS Emergency Director is the only individual authorized to declare an emergency condition, authorize emergency personnel radiation exposures greater than 10 CFR 20; and/or direct the issuance of thyroid prophylaxis, pursuant to Section 6.7.1.8. Until the Emergency Operations Facility is activated, the Emergency Director is the only individual authorized to recommend offsite protective actions to state, local, and county governmental authorities on behalf of First Energy Operating Company and shall retain overall responsibility for the implementation and administration of the Emergency Preparedness Plan.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

For Unusual Event and Alert emergencies, the Emergency Director reports to the Vice President. All designated emergency coordinators report directly to the Emergency Director. All other BVPS personnel report to the Emergency Director via the appropriate Emergency Coordinator who is responsible for the functions to which those personnel are assigned.

5.2.2 Emergency/Recovery Manager

Upon classification of abnormal condition as a Site Area or General Emergency, the Emergency Operations Facility will be activated and manned. For Site Area or General Emergencies, the Emergency Director shall ensure that the Emergency/Recovery Manager or a designated alternate is available.

When the Emergency Operations Facility is activated and staffed, the responsibilities and authorities of the Emergency Director, related to overall coordination of the BVPS response and to offsite response activities, are assumed by the Emergency/Recovery Manager.

The functional responsibilities of the Emergency/Recovery Manager include:

- .1 Immediately upon notification of an existing or potential emergency condition classified as a Site Area or General Emergency, report to the Emergency Operations Facility; relieve the Emergency Director located in the TSC; and assume primary responsibility for offsite emergency response activities by FENOC personnel.
- .2 Appoint interim emergency managers/coordinators from available qualified personnel, for assistance with current and continuing emergency control until such time as the designated managers/coordinators are available; but assume these responsibilities until the positions are filled.
- .3 Direct and coordinate the activities of the designated emergency managers, the Emergency Director, the emergency coordinators, and other BVPS personnel in the assessment of plant status and radiological effluent releases, implementation of protective and corrective actions onsite, assessment, monitoring, or projection of offsite radiological conditions, the recommendation of offsite protective actions, and the exchange of technical and operational information within the FENOC emergency organizations and with offsite emergency response organizations.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

NOTE

When activated, the Emergency/Recovery Manager is the only BVPS individual authorized to make recommendations of offsite protective actions to offsite response agencies. For instantaneous General Emergencies, the Emergency Director has the authority to recommend offsite protective actions to offsite response agencies.

- .4 Respond to requests for assistance from the Emergency Director, with additional technical, engineering, material, or manpower resources as necessary; arrange for this assistance from outside sources if such requests cannot be met with the resources of the Beaver Valley Power Station.^{C16}
- .5 Remain alert via the Emergency Director, of radiological conditions or other hazards having the potential for significant effect on the health and/or safety of personnel and other individuals assigned to BVPS emergency response facilities; and, where necessary, coordinate with the Emergency Director appropriate protective measures including emergency exposure limits and/or thyroid prophylaxis for Emergency Operations Facility and other offsite FENOC personnel.
- .6 Request assistance from Federal agencies should the situation warrant.
- .7 Through the Offsite Agency Liaison, coordinate the response of the BVPS Emergency Response Organization with that of the local, county, state, and Federal response organizations located at the Site.
- .8 When appropriate and necessary, implement the recovery organization as provided in Section 9 of this Plan.

For a Site Area or General Emergency, the Emergency/Recovery Manager reports directly to the Vice President. The designated Emergency Managers, including the Emergency Director, report directly to the Emergency/Recovery Manager. All other personnel report to the Emergency/Recovery Manager via the Emergency Director (TSC) or the Emergency Manager/Coordinator (EOF) responsible for the functions to which they are assigned.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.3 Assistant to the Emergency Director and Assistant to the Emergency/Recovery Manager

These positions are filled by individuals who are cognizant of the Emergency Plan and Procedures. The primary responsibility of the Assistant to the Emergency Director is to assist the Emergency Director in the performance of his activities and, in particular, to advise him with regard to the provisions of this plan and the supporting implementing procedures. This individual is assigned to the Technical Support Center. The Assistant to the Emergency/Recovery Manager is located in the Emergency Operations Facility upon activation and reports to the Emergency/Recovery Manager performing similar functions as the Assistant to the Emergency Director.

The Assistant to the Emergency Director and Assistant to the Emergency Recovery Manager have similar experience/backgrounds and receive the same training as the Emergency Director and Emergency Recovery Manager, respectively. Therefore, the respective Assistant may assume the functional responsibilities of the Emergency Director or Emergency Recovery Manager.^{C23}

5.2.4 Operations Coordinator

This ERO position is located in the Control Room, TSC and the EOF. Initially, the Control Room position is filled by an opposite unit Senior Reactor Operator, as available. At the Alert or greater stage, it will be filled by designated emergency response organization personnel.

Primary responsibilities of the Operations Coordinator are:

- .1 In the Control Room, remains cognizant of Control Room and in-plant activities through the on-duty shift supervision and provide operational information to the TSC.
- .2 In the TSC/EOF, report to, and advise the Emergency Director and/or Emergency/Recovery Manager on matters concerning plant operations.
- .3 Upon implementation of the Severe Accident Management Guidelines (SAMG's), the TSC OPS Coordinator assumes the role and responsibilities of an Evaluator in addition to his/her Emergency Preparedness duties. Appropriate ERO personnel should aid the TSC OPS Coordinator in this evaluation process. The TSC OPS Coordinator shall provide the evaluation results to the Emergency Director.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

The Control Room and TSC Operations Coordinator reports directly to the Emergency Director. The EOF Operations Coordinator reports directly to the Emergency/Recovery Manager. The operating personnel report to the Control Room Operations Coordinator through the on-duty SM. The TSC Operations Communicator reports to the TSC Operations Coordinator, and the EOF Operations Communicator reports to the EOF Operations Coordinator.

5.2.5 Communication and Records Coordinator

A designated qualified communicator will fill this position for Unusual Event emergencies or until the TSC is activated. For an Alert or higher emergency, this position will be filled by a designated emergency response organization member.

Responsibilities of the Communication and Records Coordinator include:

- .1 Coordinate and ensure proper notification to key Emergency Coordinators and offsite organizations.
- .2 Function as liaison for emergency-related communications between the Emergency Director and onsite and offsite emergency groups.
- .3 Maintain records concerning the emergency.

The Communication and Records Coordinator reports directly to the Emergency Director. The communications assistants report to the Communications and Records Coordinator. Appropriate emergency response personnel will assist communications personnel with obtaining appropriate information for off-site agencies notifications.

5.2.6 Operations Support Center (OSC) Health Physics Coordinator

The OSC H.P. Coordinator will be located at the Operations Support Center and will report directly to the Radiological Controls Coordinator in the TSC. This position will be filled by designated emergency response organization personnel. Responsibilities to be assumed by the Operations Support Center H.P. Coordinator are^{C15}:

- .1 Maintain appropriate in-plant radiation control.
- .2 Provide onsite radiation control personnel for in-plant, onsite and offsite monitoring teams.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .3 Coordinate radiological habitability surveys for assembly areas and response facilities.
- .4 Maintain accountability of personnel in the OSC and those personnel deployed in monitoring teams.

5.2.7 Radiological Controls Coordinator

The Radiation Technician or Health Physics Supervisor, when available, will fill this position for the Unusual Event or until the TSC is activated. This TSC position will be filled by the Manager of Health Physics or designee. Alternates for the position of Radiological Controls Coordinator are designated emergency response organization personnel. Responsibilities to be assumed by the Radiological Controls Coordinator are primarily related to in-plant radiation control and include:

- .1 Provide onsite radiation control personnel for monitoring teams, as requested by the Environmental Assessment and Dose Projection Coordinator, consistent with maintaining appropriate radiation controls in-plant.
- .2 Relay technical data to the Emergency Director and/or the Operations Coordinator on radiological aspects of onsite emergency activities.
- .3 Provides radiation control personnel and other radiological coverage for emergency team efforts.
- .4 Coordinate and direct personnel decontamination efforts, as necessary.
- .5 Oversee the operation of the personnel dosimetry program for on-site personnel and personnel assigned to the BVPS emergency response facilities.
- .6 Provide onsite bioassay services such as whole body counting for designated personnel.
- .7 Ensure access is restricted or controlled to areas where radiological hazards exist.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

The Radiological Controls Coordinator reports directly to the Emergency Director and interfaces onsite and offsite radiological activities with the Environmental Assessment and Dose Projection Coordinator. Radiological Controls personnel (not assigned to offsite monitoring activities) report to the Radiological Controls Coordinator through the normal radiological controls supervision. Radiological conditions permitting, the Radiological Controls Coordinator will normally operate from the Technical Support Center.

5.2.8 Environmental Assessment and Dose Projection Coordinator

During the early stages of an accident, where environmental and/or radiological situations warrant, radiological dose projections will be performed under the cognizance of the onshift Radiological Controls Coordinator. The EA & DP Coordinator position will be officially activated at the Alert level or upon activation of the TSC.

Upon activation of the Emergency Organization, this TSC/EOF position will be filled by designated emergency response organization personnel.

Once this position has been filled, an assistant is assigned from the available alternates or from the Health Physics Support Group.

Responsibilities of the Environmental Assessment and Dose Projection Coordinator are as follows:

- .1 Direct the activities of the offsite radiation monitoring teams.
- .2 Coordinate offsite monitoring activities and the exchange of results and other technical data with Federal and State agencies.
- .3 Provide the Emergency Director (Emergency/Recovery Manager) with dose projections and evaluations.
- .4 Provide technical advice to the Emergency Director (Emergency/Recovery Manager) concerning radiological assessment and recommendations for offsite protective actions.
- .5 Coordinate environmental sampling and analyses, and evaluation of results.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

The EA & DP Coordinator reports to the Emergency Director for Unusual Events (if deemed necessary) and Alert Emergencies, and subsequently to the Emergency/Recovery Manager for Site Area or General Emergencies. Assigned Environmental and Radiological monitoring personnel will report to the EA & DP Coordinator.

5.2.9 Environmental Coordinator

This ERO position is filled by designated emergency response organization personnel. Responsibilities to be assumed by the Environmental Coordinator include:

- .1 Adapt the existing environmental monitoring procedures to emergency environmental monitoring.
- .2 Determine the locations and type of sample media based on the type of activity released and the wind direction.
- .3 Direct personnel in any additional sampling, other than those in the ongoing program.
- .4 Review and evaluate sample results received from a designated low-level laboratory and forward result to proper personnel.
- .5 Assignment of EA & DP Assistants to specific tasks as required.
- .6 Act as the single point of contact for emergencies that cause entry into both the Emergency Preparedness Plan and the Environmental Emergency Response Plan for the site.

The Environmental Coordinator reports to the Environmental Assessment and Dose Projections Coordinator during emergency situations. Upon entry into the Environmental Emergency Response Plan for BVPS, is responsible for ensuring that Environmental Reportability Determination notifications are made to appropriate Offsite Agencies.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.10 Engineering Coordinator

This TSC position is activated at an Alert and is filled by designated emergency response organization personnel. Responsibilities to be assumed by the Engineering Coordinator include:

- .1 Direct and coordinate engineering efforts related to the emergency response.
- .2 Advise the Emergency Director on matters related to the engineering of short-term modifications to plant systems necessary to mitigate the consequences of the accident and/or recover the plant.
- .3 Supervise the Technical Support Coordinator and those ERO personnel directly reporting to the TS Coordinator.
- .4 Upon implementation of the Severe Accident Management Guidelines (SAMG's), the Engineering Coordinator assumes the role and responsibilities of an Evaluator in addition to his/her Emergency Preparedness duties. Appropriate ERO personnel should aid the Engineering Coordinator in this evaluation process. The Engineering Coordinator shall provide the evaluation results to the Emergency Director.

The Engineering Coordinator reports directly to the Emergency Director.

5.2.11 Technical Support Coordinator

This position is initially filled by the Staff Nuclear Advisor. This individual, or his relief, will remain in the Control Room throughout the emergency. For Alert and higher emergencies, the onsite Technical Support Center (TSC) will be activated and the position of Technical Support Coordinator will be filled by designated emergency response organization personnel.

The Technical Support Coordinator reports to the Engineering Coordinator and is responsible for the coordination and direction of engineering personnel in the Technical Support Center. The Technical Support Coordinator may assign technical support personnel, as appropriate, to activities such as:

- .1 Analyzing mechanical, electrical, instrument and control, effluent control, and radiation dose rate problems; determining alternate solutions, design and coordination of short-term modifications installation.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .2 Analyzing thermohydraulic and thermodynamic problems and developing resolutions.
- .3 Assisting in the development of Emergency Operating Procedures or other procedures, as necessary, for conducting emergency operations.
- .4 Analyzing conditions and developing guidance for the Emergency Director and operations personnel.

Reporting to the Technical Support Coordinator is a Document Support Group and the position of Ohio Emergency Management Agency (OEMA) Liaison in the Technical Support Center. Document Support Group personnel are available to retrieve and revise requested documents to aid in the emergency response as needed.

The Technical Support Coordinator reports directly to the Engineering Coordinator. All technical and engineering personnel assigned to the Technical Support Center report to the Engineering Coordinator through the Technical Support Coordinator.

5.2.11.1 Ohio Emergency Management Liaison – TSC

The role and responsibilities of the OEMA Liaison - TSC have been defined as follows:

- .1 Ability to transfer technical information to the state via the FENOC OEMA representative.
- .2 Be able to respond to questions from the FENOC OEMA representative located at OEMA that are not able to be answered by Emergency Operations Facility personnel (if activated) through the Offsite Agency Liaison.
- .3 These questions will primarily focus on information received via the Initial Notification Form concerning the validity of radioactive release data / information and operational status of the plant Systems / Structures / Components (SSC's).
- .4 Other information could be requested such as general mitigative actions that are in progress or pending.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.12 Computer Coordinator

The Computer Coordinator will be located in the TSC and will supervise the operation of the Inplant Process Computer, Safety Parameter Display System and the NRC Emergency Response Data System computer equipment. This position will be filled by designated emergency response organization personnel.

Responsibilities of the Computer Coordinator will include:

- .1 Assignment of computer operators to specific tasks as requested by the TSC Operations Coordinator.
- .2 Alert the TSC Operations Coordinator and other emergency personnel to changing conditions as indicated by the computer system.
- .3 At an Alert or higher Emergency, activate the Emergency Response Data System (ERDS) within 1 (one) hour of the declaration of the emergency.
- .4 Assist the TSC Operations Coordinator and other coordinators in interpreting plant data supplied by the computer systems.
- .5 Obtaining the required historical data (HDSR).
- .6 Upon termination, restoring the computer systems to normal operating modes.
- .7 Direction as necessary to Computer Maintenance personnel in corrective actions to non-functioning equipment.
- .8 Assign Computer Operator personnel to support EOF functions.

The Computer Coordinator reports to the TSC Operations Coordinator.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.13 Operations Support Center Coordinator

This OSC position will be filled by designated emergency response organization personnel. Responsibilities to be assumed by the Operations Support Center Coordinator are:^{C35}

- .1 Direct the activities of in-plant supplemental emergency team(s).

NOTE

The on-shift Emergency Squad has an Emergency Squad Chief who actually directs the efforts of the Emergency Squad in accordance with the Beaver Valley Fire Protection Plan, Emergency Implementing Procedures, and other applicable station procedures. In a long-term emergency, additional emergency teams may be activated, as appropriate, to supplement the on-shift Emergency Squad. The coordination of the various additional emergency teams will be the responsibility of the Operations Support Center Coordinator.

- .2 Coordinate the assignment of personnel from the onsite pool of available persons in response to requests from the Maintenance Coordinator.
- .3 Maintain accountability of personnel in the Operations Support Center (OSC) and those personnel deployed in emergency teams.
- .4 Provide direction to Operations Support Center assistants in completing the facility functions.

The Operations Support Center Coordinator (located in the OSC) reports to the Emergency Director, via the Maintenance Coordinator (located in the TSC). All personnel assigned to or directed to the OSC will report to the OSC Coordinator except the Emergency Squad, which reports directly to the Shift Manager.

5.2.14 Maintenance Coordinator

This TSC position is filled by designated emergency response organization personnel. Responsibilities to be assumed by the Maintenance Coordinator are:

- .1 Direct and coordinate the activities of mechanical, electrical, and instrumentation personnel in the performance of emergency corrective actions, and or damage control activities.
- .2 Advise the Emergency Director on the status of plant systems.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .3 Direct and coordinate the installation of short-term emergency systems modifications.

The Maintenance Coordinator reports directly to the Emergency Director. All station maintenance forces (electrical, mechanical, and instrumentation) will report to the Maintenance Coordinator via the OSC Coordinator, through their normal supervisory chain.

5.2.15 Security Coordinator

The Security Coordinator position is initially filled by the Supervisor, Nuclear Shift Security. This position is located in the Central Alarm Station (CAS) and will be relieved by the senior member of the security organization who may be located in the TSC.

Responsibilities to be assumed by the Security Coordinator include:

- .1 Maintain an appropriate plant security posture and institute appropriate contingency measures as necessary.
- .2 For Site Assemblies/Accountabilities and/or Site Evacuations, receive reports from assembly areas; determine the identity of unaccounted personnel; advise Emergency Director of personnel accountability status; and maintain accountability of onsite personnel during an emergency.
- .3 Expeditiously provide Site access for emergency response personnel who do not have current security badging at BVPS.
- .4 Ensure Security personnel are changed-out consistent with any exposure received depending upon the severity of the accident.
- .5 Oversee the Security portion of the ERF access sign-in.
- .6 Interface with the Emergency Director and the TSC staff concerning Security support.
- .7 Relay Assembly/Accountability instructions from the TSC and CAS and the status of Accountability or Search and Rescue from the CAS to the TSC.

All Site Security personnel will report to the Security Coordinator.

The Security Coordinator reports directly to the Emergency Director.^{C12}

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.16 Chemistry Coordinator

This TSC position will be filled by designated emergency response organization personnel.

Responsibilities to be assumed by the Chemistry Coordinator include:

- .1 Provide technical information to the Emergency Director and other key Emergency Coordinators concerning chemistry.
- .2 Provide chemistry personnel for analysis of onsite/offsite environmental samples.
- .3 Coordinate chemistry personnel for in-plant chemistry sampling and analysis.

The Chemistry Coordinator will report directly to the Emergency Director. Chemistry technicians will report to the Chemistry Coordinator.

5.2.17 Operations Communicator

This Control Room and ERF position will be filled by designated emergency response organization personnel. Although this individual may be physically located in the Control Room, the Operations Communicator is part of the TSC staff. Responsibilities to be assumed by the Operations Communicator:

- .1 Serve as liaison between operations personnel and personnel in other Emergency Centers (TSC-EOF-CAS and OSC^{C15}). The Operations Communicators will report to the Control Room, and ERF upon activation of the Alert emergency response organization.
- .2 Assist the appropriate Operations Coordinator in communications to other response centers.
- .3 Alert their immediate supervisor of vital data relayed over the Operations Circuit. The TSC Operations Communicator reports to the TSC Operations Coordinator and the EOF Operations Communicator reports to the EOF Operations Coordinator.
- .4 Maintain a log of information pertaining to the Operations Circuit communications.
- .5 Serve as a back-up to the IPC and SPDS for retrieval of control board data.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .6 Serve as the primary communicator for the NRC-ENS phone upon activation of the Alert Emergency Response Organization. This position will be manned regardless of the operability of the Emergency Response Data System (ERDS).

5.2.18 Support Services Manager

This EOF position is staffed at the Alert and activated at Site Area or General Emergency classification, and is filled by designated Emergency Response Organization personnel.

Responsibilities to be assumed by the Support Services Manager include:

- .1 Coordinate personnel and work schedules for shift relief emergency personnel.
- .2 Coordinate with outside groups in procuring and purchasing additional resources such as manpower, equipment, supplies and transportation.
- .3 Coordinate provisions for transportation, food and other logistical support for emergency personnel.
- .4 Coordinate with Nuclear Training for plant specific training for outside emergency support groups during an emergency condition, as appropriate.
- .5 Provide clerical support to the Emergency Response Organization, as necessary.
- .6 Serve as interface with the FirstEnergy Supply Chain for augmentation of onsite material and personnel resources.

The Support Services Manager reports directly to the Emergency/Recovery Manager. Assistants reporting to the Support Services Manager should include a Procurement Coordinator, Purchasing Coordinator and an Administrative Services Coordinator. These coordinators may have additional assistants.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.2.19 Offsite Agency Liaison

This EOF position is staffed at the Alert and activated for Site Area or General Emergencies and will be filled by designated emergency response organization personnel. Responsibilities to be assumed by the Offsite Agency Liaison are:

- .1 Resolving questions concerning Operating License requirements with Nuclear Regulatory Commission representatives.
- .2 Serving as liaison between representatives of the state and local governments present in the Emergency Operations Facility and the Beaver Valley Power Station emergency organization. This liaison is primarily for the exchange of operational information (less radiological assessment) and coordination of offsite activities with those of the Beaver Valley Power Station. The Offsite Agency Liaison reports directly to the Emergency/Recovery Manager.

5.3 NUCLEAR COMMUNICATIONS

5.3.1 Chief Company Spokesperson

The Chief Company Spokesperson is responsible for establishing corporate credibility and is designated by Senior Management.^{C36} Makes announcements to the media regarding significant changes in plant conditions and on-site status of the power station. Consults with both the Manager-Joint Public Information Center and the Emergency Recovery Manager to assure consistent and timely response on behalf of the Company. Chief Company Spokesperson, or designee, reviews all news announcements prior to issuance to the news media.

5.3.2 JPIC Manager

The JPIC Manager is responsible for the activation and overall operation of the Joint Public Information Center. The JPIC Manager presides over news briefings at the JPIC. The JPIC Manager will introduce spokespersons and oversee the conduct of the briefings and may review news announcements in the absence of the Chief Company Spokesperson. The JPIC Manager will compile a list of follow-up items from briefings and coordinate information between First Energy and off-site agencies spokespersons.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.3.3 Media Relations Coordinator

The Media Relations Coordinator is the liaison between First Energy and the Media. When the JPIC Manager is unavailable, the Media Relations Coordinator will introduce spokespersons and oversee the conduct of the briefings. In addition, the Media Relations Coordinator will work with the news media to meet special requests such as arranging interviews of company officials and directing media photographers and camera crews to designated locations to obtain requested photos and film footage. The Media Relations Coordinator ensures operability of the media briefing area and provides biographies of spokespersons upon request.

5.3.3.1 Technical Briefer

Under the general supervision of the Media Relations Coordinator, is responsible for providing, interpreting and clarifying as requested by the media, all generic technical information concerning the operation of plant systems. Attends all news briefings, assists the Chief Company Spokesperson during news briefings to explain events as requested, answers media questions between news briefings concerning descriptions of plant systems and operating characteristics of these systems using plant pictures and schematics as available and appropriate, and serves as a technical advisor to all JPIC staff on any technical matter.

5.3.4 Information Manager

The Information Manager is responsible for managing and coordinating the flow of verbal and written information for the nuclear communications organization. The Information Manager is located at the Joint Public Information Center (JPIC). While the JPIC is in operation, this individual participates in the telephone discussions between the technical advisors at the EOF and JPIC, and the Chief Company Spokesperson to ensure that verbal and written information issued from the organization is accurate and timely. The Information Manager may also review news releases if the JPIC Manager or Chief Company Spokesperson is unavailable. This individual also works closely with State and County Public Information Officers.

5.3.4.1 Information Coordinator

Under the general supervision of the Information Manager at the Joint Public Information Center, is responsible for notifying the JPIC staff of the emergency situation, coordinating the activities of the staff, directing rumor control activities and ensuring the distribution of news announcements. The Information Coordinator

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

maintains continual communications with Corporate and EOF staffs and informs them of current updates to the emergency situation. The Information Coordinator continually consults with the Information Manager and fulfills requests as needed.

- Information Coordinator Assistant

Under the general supervision of the Information Coordinator - JPIC, is responsible for assisting the Information Coordinator with maintaining logs, status boards, etc.

- Rumor Control Coordinator JPIC

Under the general supervision of the Information Coordinator - JPIC. Rumor Control Coordinator JPIC is responsible for establishing and maintaining telephone communications with Customer Account Services Department for the purpose of coordinating rumor information.

- Media Monitor

Under the general supervision of the Information Coordinator - JPIC. Responsible for monitoring local radio and TV broadcasts to ensure accuracy of information reported.

- Media Contact

Under the general supervision of the Information Coordinator - JPIC. Responsible for answering telephone inquiries received at the Joint Public Information Center from members of the news media.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.3.5 Logistics Coordinator (JPIC)

Under the general supervision of the JPIC Manager, is responsible for supervising and directing the activities associated with fulfilling the Emergency Public Information Response Team's equipment, and other logistical needs. Serves as the primary source for locating, acquiring and ensuring the timely acquisition and set-up of all equipment to be used at the JPIC to carry out the emergency response.

5.3.5.1 Engineering Communications Representative

Under the general supervision of the Logistics Coordinator, is responsible for providing the technical expertise required for the set-up and maintenance of all communications equipment needed to support emergency response operations. Serves as the primary source for resolving telecommunications problems.

5.3.5.2 Administrative Support

Under the general supervision of the Logistics Coordinator, is responsible for coordinating all administrative activities associated with the reproduction and facsimile equipment located in the Joint Public Information Center. Serves as the primary Emergency Public Information Response Team contact with BVPS in obtaining necessary administrative support for emergency response operations at the JPIC office.

5.3.5.3 Security Coordinator

Under the general supervision of the Logistics Coordinator, is responsible for establishing and implementing the security system at the Joint Public Information Center. Serves as the primary liaison between the Emergency Public Information Response Team and security personnel.

5.3.6 JPIC Technical Advisor

Under the general supervision of the Information Manager, is responsible for maintaining frequent contact with the EOF Technical Advisor to obtain up-to-the-minute information on plant status. This information is relayed to the Chief Company Spokesperson, the JPIC Manager and the Information Manager. This position also consults with the JPIC staff in the interpretation and clarification of plant status and actions being taken to achieve plant stability and recovery.^{c8}

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.3.7 Customer Services

Under the general supervision of the Information Manager, the Customer Services Department is responsible for addressing incoming phone calls to the Company Services Board regarding an emergency condition at BVPS. The Department assures that there is adequate staffing and directs callers to the appropriate organization (i.e., JPIC, Local Emergency Management Agency Public Information, etc.).

5.3.8 Nuclear Communications Manager - EOF

Under the general supervision of the Emergency Recovery Manager, ^{C36} is responsible for supervising and directing the activities of the Emergency Public Information Response Team assigned to the EOF. Ensures a continuous flow of essential information for developing news announcements regarding plant conditions and serves as the JPIC's primary information resource.

5.3.8.1 Nuclear Communications Writer

Under the general supervision of the EOF Nuclear Communications Manager, and in consultation with the Nuclear Communications Technical Advisor is responsible for developing and writing all news announcements in accordance with news announcement guidelines.

5.3.8.2 Nuclear Communications Coordinator

Under the general supervision of the EOF Nuclear Communications Manager, is responsible for assisting in the direction of the activities of the Emergency Public Information Response Team assigned to the EOF. Aids in ensuring a continuous flow of essential information for developing news announcements regarding plant conditions.

5.3.8.3 Nuclear Communications Technical Advisor - EOF

Under the general supervision of the EOF Nuclear Communications Manager, is responsible for providing, interpreting and clarifying, as requested, all technical information for EOF Nuclear Communications Writer. Also provides verbal information to the JPIC Technical Advisor for news briefings.

Section 5

EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.3.9 EMA Contact Representative

Under the general supervision of the Information Manager, is the liaison between the Public Information Officers for the three States in the EPZ and Nuclear Communications at the JPIC.

5.4 EMERGENCY ORGANIZATION STAFFING

This section describes the staffing of the Emergency Squad, radiological monitoring, other emergency teams, and the emergency centers. Specific personnel assignments to these teams and centers are made by title or job classification in an Emergency Organization Call-Out List. Section 8 describes the training requirements for these personnel.

- .1 The BVPS normal operations organization provides for an Emergency Squad comprised of on-duty shift personnel. This Emergency Squad provides for rapid response to emergency conditions at all times. This response includes fire fighting, first aid, search and rescue, and damage control. The on-shift Emergency Organization is illustrated in Figure 5.2 in all capitals.
- .2 The Emergency Squad may be supplemented by emergency teams comprised of other off-duty personnel onsite, or personnel called in during off-hours. Functions assigned to these emergency teams may include fire fighting, onsite radiological monitoring, offsite radiological monitoring, first aid, search and rescue, personnel decontamination, and/or damage control, as appropriate to the emergency.
- .3 Table 5.1 describes the typical availability of station personnel for emergency activity assignments.
- .4 The TSC, OSC^{CIS}, and the EOF, when activated, will be staffed with personnel from the BVPS emergency response organization, personnel from other FirstEnergy organizations, vendor/contractor personnel, and Federal, State and county agency personnel, depending on the severity of the emergency condition. The TSC, EOF, and Nuclear Communications Emergency Organization staffing is illustrated in Figure 5.3, Figure 5.4, and Figure 5.5 respectively.
- .5 The on-duty Staff Nuclear Advisor will continue to serve in an advisory role to the operating personnel from the Control Room. The Operations Coordinator will serve as the Control Room contact for the Technical Support Center, relaying questions and responses between operations personnel and the Technical Support Center.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.4.1 Relationship Between Normal and Emergency Organizations

In the event of an Alert or more severe emergency, personnel in the normal Beaver Valley Power Station^{C16} organization will assume their assigned positions within the Beaver Valley Power Station emergency organization. This emergency organization is operational in nature. Administrative reporting will continue as established in the normal Group and Station organization as described in the administration manuals, to the extent it does not conflict with timely emergency response in accordance with this Emergency Preparedness Plan and the Emergency Implementing Procedures. All other non-assigned personnel are available as a resource pool to support the activities of the various emergency coordinators.

Regulatory, Corporate, and other Station supervisory personnel without a specific supervisory assignment pursuant to this Plan shall not provide directions or instructions directly to plant personnel. All such directions and instructions shall be made to the designated emergency coordinators responsible for the activity in question.

In the course of the emergency, it may become necessary for Technical Support Center personnel to recommend a course of action which is in conflict with approved procedures. Normal procedure change approval requirements should be met, consistent with timely implementation of the required action. However, in the event of an emergency or casualty not covered by an approved procedure, operating personnel have the responsibility and authority to take whatever action they consider required to prevent injury to personnel or damage to the plant or to equipment and to place the plant and equipment in a safe condition.

5.5 AUGMENTATION OF THE ONSITE EMERGENCY ORGANIZATION

5.5.1 Corporate Level Support

The Beaver Valley Power Station^{C16} is comprised of the major elements and disciplines necessary to adequately respond to emergency situations. For this reason, a distinct Corporate emergency response organization is not defined. Legal, Financial and Security support shall be provided by Corporate personnel as requested by various BVPS Emergency Response Coordinators/Managers.

Personnel may be drawn from the following corporate groups:

- Legal and Public Affairs
- Corporate Services
- Finance

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- Customer Operations
- Generation Group

Personnel from these groups can be activated from call-lists developed by onsite response personnel.

5.5.2 Institute for Nuclear Power Operations (INPO) Support

The Institute for Nuclear Power Operation's (INPO) will be a clearinghouse organization for maintaining a roster of individuals and skills available to each utility for augmenting onsite and corporate emergency organizations in the event of an emergency. INPO will also serve as a clearinghouse for maintaining an inventory of material, equipment, and services, which may be used to supplement onsite resources. First Energy Nuclear Operating Company participates in the INPO program. The FENOC INPO Administrative Point of Contact is the liaison with INPO during normal operations^{C36}. In an emergency, this individual will coordinate all requests for assistance from INPO and will coordinate INPO activities in response to these requests, as appropriate to the nature and severity of the emergency.

5.5.3 NSSS Support

The Westinghouse Water Reactor Division, designer of the BVPS Nuclear Steam Supply System (NSSS), has developed an emergency response plan which provides for emergency engineering assistance to facilities having a NSSS designed by Westinghouse. This assistance is available on a 24-hour/day, 7-day/week basis. Section 6.3.3 describes activation of this organization. The Westinghouse WRD can supply a site response team if deemed appropriate. These personnel, if activated, could be directed to the Technical Support Center.

5.5.4 Industry Support

The Beaver Valley Power Station is operated by the FirstEnergy Operating Company (FENOC). FENOC also operates the Perry Nuclear Power Plant and the Davis Besse Nuclear Power Plant which may be a source of assistance in the event of an emergency at Beaver Valley Power Station.^{C8} Assistance from other nuclear facilities may be accessed through the Institute of Nuclear Power Operations, as described in Section 5.5.2.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

5.5.5 Local Services Support

The nature of an emergency may require augmenting onsite response groups with local services, personnel and equipment. These local agencies will be contacted for support in response to specific emergency conditions. The expected response of the medical treatment and transportation agencies is described in Section 6.8. The response of the fire organizations is described in detail in the Mutual Aid Fire Plan and in the BVPS Operating Manual. Support may be obtained as necessary from the following local organizations:

- The Medical Center, Beaver
- University of Pittsburgh Medical Center
- Offsite fire departments
- Offsite ambulance services
- Pennsylvania State Police

Specific methods for notifying these organizations and their expected assistance are described in Emergency Implementing Procedures and are summarized in Section 6 of this Plan. Letters of Agreement from each organization to provide their respective emergency assistance to the Beaver Valley Power Station are on file in the Emergency Response Section. Local fire services personnel performing emergency measures onsite shall coordinate activities onsite with the Emergency Squad Chief or other designated station supervisory personnel since each of these agencies possess specific capabilities as described in the Mutual Aid Fire Plan. Police functions to be performed by the Pennsylvania State Police in support of BVPS are contained within the BVPS Security Plan.

5.5.6 Other Support Services

Emergency conditions may require long-term or extensive support from organizations such as contractors, other utilities, support agencies or Federal and State agencies. Space is available, near the Emergency Response Facility, for trailers or other temporary facilities. Various facilities may be established for the following activities: security, training, instrument repair and calibration, food preparation, etc. If necessary, these functions would be considered an extension of the Emergency Response Organization.

5.6 COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES

5.6.1 State and Local Agencies

This section identifies the principal State and local governmental agencies in Pennsylvania, Ohio, and West Virginia having action responsibilities for radiological emergencies in the vicinity of the Beaver Valley Power Station. The radiological emergency response plans of these agencies describe their respective responsibilities, authorities, capabilities and emergency functions; and although not included as part of this Plan, are intrinsic parts of the emergency planning for the Beaver Valley Power Station. The emergency organizational interfacing between BVPS, local and state agencies and Federal government groups is outlined in Figure 5.6. The following sections provide a summary of the provisions for preparedness and response to radiological emergencies by each organization, as well as the primary and alternate methods of emergency notification. Table 5.3 identifies the governmental agencies, their mailing address and the individual (by position) accountable for planning, ordering and controlling emergency actions.^{c9}

The Beaver Valley Power Station has made available in the near-site Emergency Operations Facility space for liaison personnel from each of the jurisdictions within the BVPS Emergency Planning Zone. The Offsite Agency Liaison will be assigned to this location to serve as an interface between First Energy and the governmental groups. Liaison personnel at the EOF will serve to provide for coordination among the Federal agencies, primary State and local agencies within the EPZ, and BVPS. Upon request, BVPS will provide liaison personnel to the primary governmental Emergency Operations Centers (EOC).

- .1 Beaver County Emergency Management Agency (BCEMA) -- is the lead governmental agency for offsite coordination and response in Beaver County. The BCEMA emergency plan is entitled "Beaver County Emergency Operations Plan Annex "E" Beaver Valley Power Station", and the plan includes provisions for:

- Planning and coordination with local and State authorities
- Initial response to notification by Beaver Valley Power Station
- Alert and warning of local populations
- Evacuation and other protective measures for local populations
- Emergency services

The primary method of notification to BCEMA is the commercial phone system. The alternate method is radio. A copy of the agreement letter from the BCEMA is on file in the Emergency Response Section.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .2 Pennsylvania Emergency Management Agency (PEMA) -- is the lead governmental agency for coordination and response of emergency activities at the State level. The PEMA emergency plan is entitled "Commonwealth of Pennsylvania Emergency Operations Plan Annex "E" Radiological Emergency Response to Nuclear Power Plant Incidents". The PEMA plan includes provisions for:

- Issuance of planning guidance
- Coordination of State and Federal response to nuclear incidents
- Establishment of an emergency operations center
- Provision for emergency public information
- Coordination of State agencies and departments
- Notification and provision of technical information to affected contiguous states

The primary method of notification to PEMA is the commercial phone system. The alternate method is radio via BCEMA. A copy of the agreement letter from PEMA is on file in the Emergency Response Section.

- .3 Department of Environmental Protection/Bureau of Radiation Protection (DEP/BRP) -- is the lead governmental agency for providing technical advice and consultation to State and local organizations in evaluation of appropriate offsite preventive and protective measures. The DEP/BRP emergency plan is incorporated into the PEMA response plan. The DEP/BRP plan provides for:

- Technical consultation
- Accident assessment
- Recommendations for protective actions
- Recommendations for protection of potable water and food
- Recommendations for recovery and re-entry (off-site)

The initial notification to DEP/BRP will be made by PEMA. Direct telephone "hot-lines" have been installed between the Beaver Valley Power Station and DEP/BRP for transmitting radiological information.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .4 Columbiana County Emergency Management Agency (CCEMA) -- is the lead governmental agency for offsite coordination and response in Columbiana County, Ohio. The CCEMA emergency plan is entitled "Columbiana County Radiological Emergency Response Plan for Beaver Valley Power Station".

The CCEMA plan includes provisions for:

- Planning and coordination with local and State authorities
- Initial response to notification by Beaver Valley Power Station
- Alert and warning of local populations
- Evacuation and other protective measures for local populations
- Emergency Services

The CCEMA plan also contains emergency procedures for the local organizations, which are assigned action and/or support responsibilities under that plan.

The primary method of notification to CCEMA is the commercial phone system. The alternate method is radio. A copy of the agreement letter from the CCEMA is on file in the Emergency Response Section. CCEMA will not be requested to provide onsite local support, such as fire fighting.

- .5 Ohio Emergency Management Agency (OEMA) -- is the lead governmental agency for coordination and response of emergency activities at the State level. The OEMA emergency plan is entitled "The Ohio Plan for Response to Radiation Emergencies at Licensed Nuclear Facilities". The OEMA plan includes provisions for:

- Issuance of planning guidance
- Coordination of State response to nuclear incidents
- Accident Assessment
- Recommendations for protective actions
- Recommendations for recovery and re-entry (offsite)
- Operation of the emergency operations center
- Provision for emergency public information
- Coordination of response with Federal agencies and applicable agencies in the contiguous states.

The primary method of notification to OEMA is the commercial phone system. The alternate method is radio via CCEMA. Additionally, backup notification of OEMA can be made by PEMA via the commercial phone system, or as an alternate the National Warning Systems (NAWAS) interconnection. A copy of the Letter of Agreement with OEMA is on file in the Emergency Response Section.

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

- .6 Hancock County Office of Emergency Management (HCOEM) ^{C47} -- is the lead governmental agency for offsite coordination and response in Hancock County, West Virginia. The HCOEM emergency plan is entitled "Hancock County Radiological Emergency Response Plan Beaver Valley Power Station". ^{C47}

The HCOEM plan includes provisions for: ^{C47}

- Planning and coordination with local and State authorities
- Initial response to notification by Beaver Valley Power Station
- Alert and warning of local populations
- Evacuation and other protective measures for local populations
- Emergency services

The HCOEM plan also contains emergency procedures for local organizations, which are assigned action and/or support responsibilities under that plan. ^{C47}

The primary method of notification to HCOEM is the commercial phone system. The alternate method is radio. A copy of the agreement letter from the HCOEM is on file in the Emergency Response Section. HCOEM will not be requested to provide onsite local support, such as fire fighting. ^{C47}

- .7 West Virginia Division of Homeland Security and Emergency Management (WVDHS/EM) -- is the lead governmental agency for coordination and response of emergency activities at the State level. The WVDHS/EM emergency plan is entitled "West Virginia Emergency/Disaster Plan Volume Four Response/Radiological Beaver Valley Power Station". The WVDHS/EM plan includes provisions for: ^{C47}

- Issuance of planning guidance
- Coordination of State response to nuclear incidents
- Accident Assessment
- Recommendations for protective actions
- Recommendations for protection of potable water and food
- Recommendations for recovery and re-entry (offsite)
- Operation of the Emergency Operations Center
- Provision for emergency public information
- Coordination of response with Federal Agencies, and with applicable agencies in the contiguous States

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

The primary method of notification to WVDHS/EM is the commercial phone system. The alternate method is radio via HCOEM. Additionally, backup notification of WVDHS/EM can be made by PEMA via the commercial phone system, or as an alternate, the National Warning System (NAWAS) interconnection. Copies of the agreement letters between WVDHS/EM and Beaver Valley Power Station are on file in the Emergency Response Section.^{C47}

5.6.2 Federal Agencies

The principal Federal government agencies having emergency responsibilities relative to the Beaver Valley Power Station, and a summary of those responsibilities are:

- .1 US Nuclear Regulatory Commission (NRC), -- is responsible for conducting investigative activities associated with a radiological emergency, and verifying that emergency plans have been implemented and the proper agencies notified. The NRC and the Federal Emergency Management Agency (FEMA) share responsibility for coordinating Federal response to emergencies. Specific responsibilities assigned to the NRC include:
 - Notification of FEMA whenever a radiological event occurs or whenever there is high potential for such an event.
 - Monitoring operational data and assuring that adequate information and recommendations are being provided to offsite agencies.
 - As a back-up to the licensee, providing a technical assessment of onsite radiological and plant conditions to FEMA and other Federal agencies and keeping offsite agencies apprised of any operational decisions that may effect offsite protective actions.
 - Dissemination of onsite data to FEMA and Federal agencies, the news media, and the general public.
- .2 US Department of Energy (DOE), Brookhaven Area Office -- will respond to requests from the Beaver Valley Power Station and provide offsite assistance which is limited to advice and emergency action essential for the control of the immediate hazards to public health and safety.

DOE coordinates the activities of the Federal Radiological Monitoring and Assessment Plan (FRMAP). The FRMAP plan provides the framework through which the Federal agencies participating in the FRMAP program will coordinate their emergency radiological monitoring and assessment activities with those of State and local governments. The Beaver Valley Power Station will perform necessary onsite and in-plant radiological monitoring with Station personnel, augmented as necessary with personnel

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

from other nuclear utilities, and from contractor organizations. FRMAP personnel will not be used for onsite or in-plant monitoring at Beaver Valley. Since FRMAP resources are to be used for offsite response, the emergency plans of Pennsylvania, West Virginia, and Ohio have made provisions for the use of FRMAP resources. To provide means for FRMAP access to plant release and meteorological data, space will be made available for a liaison from FRMAP in the Emergency Operations Facility.

The primary method of notification to DOE is by the commercial phone system, in accordance with the provisions of the agreement letter, on file in the Emergency Response Section. Notifications may also be made through NRC.

- .3 National Weather Service (NWS) (Pittsburgh, PA) -- will respond to requests from the Beaver Valley Power Station for routine and special weather advisories and meteorological data, and through the River Forecasting Section, hydrologic data for the Ohio River.

The primary method of notification to NWS is by the commercial phone system, in accordance with the provisions of the agreement letter, on file in the Emergency Response Section.

- .4 Federal Emergency Management Agency (FEMA) -- The responsibility of FEMA in the event of an emergency at a nuclear power facility is to coordinate the response of the various Federal agencies. The NRC and FEMA share responsibility for coordinating Federal response to emergencies. Specific responsibilities assigned to FEMA include:

- Coordination of Federal support to state and local officials
- Dissemination of data on offsite support actions to the White House, other Federal agencies, and news media, and the general public.

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.1 MINIMUM ON-SHIFT STAFFING REQUIREMENTS

| C39 | | C39 | C39 | C39 2 | |
|---|---|---|-----------------------|------------------------------------|--------|
| Major Functional Area | Major Tasks | Position Title/ Expertise | On-Shift ⁵ | Capability for Additions 30 Min | 60 Min |
| Plant Operations and Assessment of Operational Aspects | Control Room Staff | Shift Manager (SRO) | 2 | ----- | ----- |
| | | Unit Supervisor (SRO) | 2 | ----- | ----- |
| | | Reactor Operator | 4 | ----- | ----- |
| | | Nuclear Operator | 6 | ----- | ----- |
| Emergency Direction and Control ^{C37} | Command and Control | Shift Manager | 1 ¹ | ----- | ----- |
| Notification/ Communication | Licensee Local/State Federal personnel and maintain communication | SRO | 1 ¹ | ----- | ----- |
| | | Designated Communicator | 1 ¹ | 1 | 2 |
| | | Licensed Operator (RO/SRO) | 1 ¹ | ----- | ----- |
| Radiological Accident Assessment C38, C39, C40, C41 | Offsite Dose Assessment | RP Technician / Sr RP expertise (EA & DP Coord) | 1 | 1 | ----- |
| | Offsite Surveys | RP Technicians ³ | ----- | 1 | 1 |
| | Offsite Surveys | RP Support ⁴ | ----- | 1 | 1 |
| | Onsite Surveys (out-of- plant) | RP Technicians ³ | 1 | 1 | 1 |
| | Inplant Surveys | RP Technicians ³ | 1 | 1 | 1 |

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.1 MINIMUM ON-SHIFT STAFFING REQUIREMENTS

| C59 | | C59 | C59 | C59 2 | |
|--|--|---|-----------------------|------------------------------------|--------|
| Major Functional Area | Major Tasks | Position Title/ Expertise | On-Shift ⁵ | Capability for Additions 30 Min | 60 Min |
| Radiological Accident Assessment (cont.) | Chemistry/Radiochemistry | Chemistry ^{C13} | 1 | ----- | 1 |
| Support of Operational Accident Assessment | EOF Director | Emergency/Recovery Manager | ----- | ----- | 1 |
| Plant System Engineering | Technical Support - Ops Core/Thermal Hydraulics | Staff Technical Advisor | 1 | ----- | ----- |
| | | Staff Technical Advisor | 1 ¹ | 1 | ----- |
| | | Electrical | ----- | ----- | 1 |
| | | Mechanical | ----- | ----- | 1 |
| Repair and Corrective Actions | Repair and Corrective Actions | mechanical repair | 1 ¹ | ----- | 1 |
| | | rad waste operator | ----- | ----- | 1 |
| | | electrical repair | 1 ¹ | 1 | 1 |
| | | instrument & control repair | 1 ¹ | 1 | ----- |
| Protective Actions (In-Plant) | Radiation Protection - Access Control - RP coverage - Personnel monitoring - Dosimetry | ^{C38} RP Technicians ³ | 2 ¹ | 2 | 2 |

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.1 MINIMUM ON-SHIFT STAFFING REQUIREMENTS

| Major Functional Area | Major Tasks | Position Title/ Expertise | On-Shift ⁵ | Capability for Additions | |
|---|--------------------------------|---|----------------------------------|--------------------------|------------------|
| | | | | 30 Min | 60 Min |
| C42 Firefighting | | Fire Brigade Chief (RO/SRO) Fire Brigade Member (NO) | 1 ¹ 4 ¹ | Local Support | Local Support |
| C42 Rescue Operations and First Aid | | Fire Brigade | 2 ¹ | Local Support | Local Support |
| Site Access Control and Personnel Accountability | Security and Accountability | Security Shift Supervisor Security Personnel | 1 (6) | ----- (6) | ----- (6) |
| Totals per column | | | 20 | 11 | 15 |

- NOTES:**
- 1 May be filled by someone filling another position having the same functional qualifications. ^{C59}
 - 2 BVPS will continue to maintain an ERO and notification system, which will have the objective of meeting the 30/60 minute response time criteria specified in NUREG-0654. It is recognized that 100% staff augmentation, within 30 minutes, may not be achievable under all circumstances. The Onsite staff shall be augmented as soon as reasonably achievable.
 - 3 Includes Radiation Technicians, RP Supervisors, or other personnel qualified to perform the functions listed. ^{C38}
 - 4 Individuals designated as drivers for offsite Field Monitoring Team support. ^{C38}
 - 5 On-shift staffing for both BVPS U1 and U2 per the BVPS On-Shift Staffing Analysis Report. ^{C59}
 - 6 Per the BVPS Physical Security Plan. ^{C59}

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.2
MINIMUM BVPS UNIT 1 and UNIT 2 CREW COMPOSITION^(a)

| License Category Qualification | <u>Applicable Modes^(c)</u> | | | |
|--|---------------------------------------|---------------------|-----------------|-------------------|
| | Both Units 1,2,3,4 | One Unit 1,2,3,4 | One Unit 5,6 | Both Units 5,6 |
| Senior Reactor Operator (SRO) (SRO) ^{(b)(e)} | 2(f) | | 2(d)(f) | 1(d)(h) |
| Reactor Operator (RO) | 3(g) | | 3(g) | 2 |
| Plant Operator | 3(g) | | 3(g) | 3(g) |
| Staff Nuclear Advisor (SNA) | 1 | | 1(h)(i) | 0 |
| Individual Qualified in Radiation Protection Procedures | 1(h) | | 1(h) | 1(h) |
| Rad/Chem Technician | 1(h) | | 1(h) | 1(h) |

NOTES:

- (a) Except for the Shift Manager, the shift crew composition may be one less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.
- (b) Includes the licensed SRO serving as the Shift Manager.
- (c) Operational Mode Definitions:
- MODE 1 - Power Operation
MODE 2 - Start-up
MODE 3 - Hot Standby
MODE 4 - Hot Shutdown
MODE 5 - Cold Shutdown
MODE 6 - Refueling

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

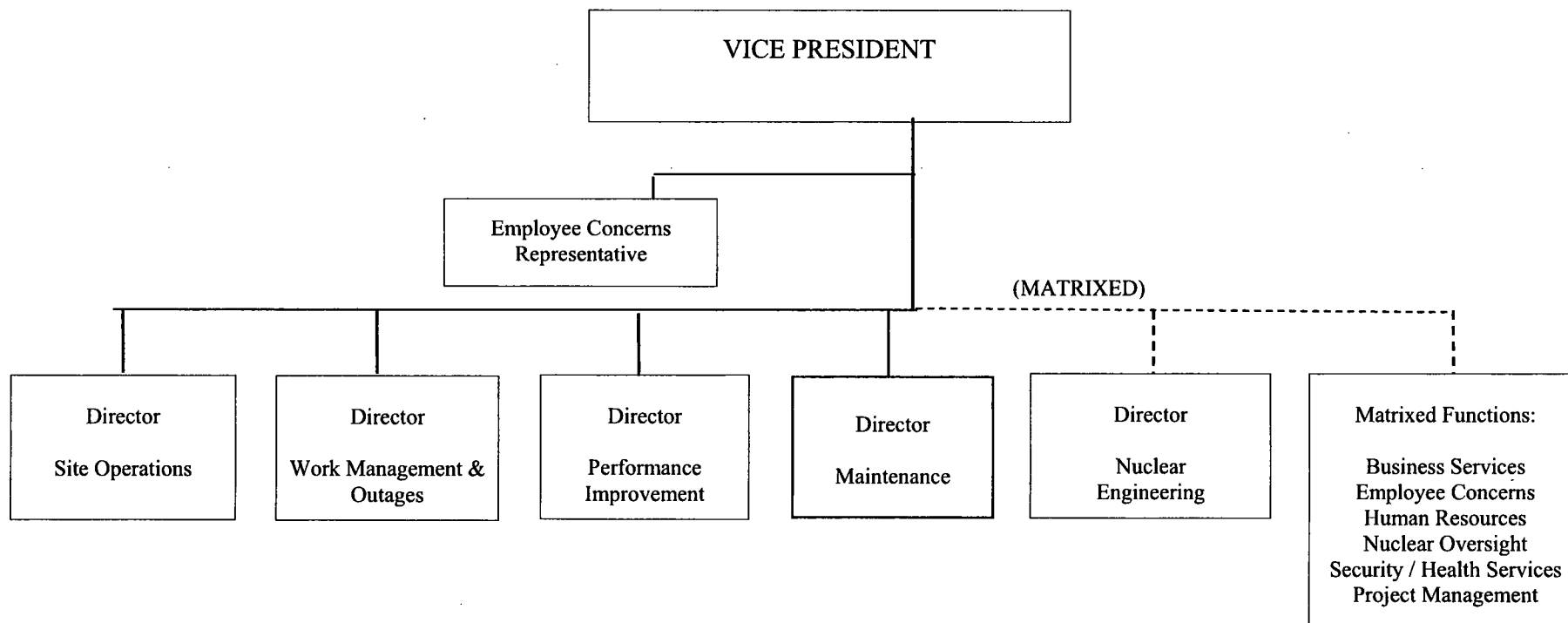
- (d) Does not include the SRO assigned during Mode 6 to directly supervise operations.

TABLE 5.2
MINIMUM BVPS UNIT 1 and UNIT 2 CREW COMPOSITION^(a)
(Continued)

- (e) During any absence of the Shift Manager from the Control Room while the unit is in Mode 1, 2, 3 or 4, an individual (other than the Staff Nuclear Advisor) with a valid SRO license shall be designated to assume the Control Room command function. During any absence of the Shift Manager from the Control Room while the unit is in Mode 5 or 6, an individual with a valid SRO or RO license shall be designated to assume the Control Room command function.
- (f) Minimum of 2 individuals for each unit; each individual may fill the same position on both units if qualified on both units.
- (g) Minimum of 2 individuals for each unit; one of two individuals may fill the same position on both units if qualified on both units.
- (h) Minimum of 1 individual for each unit; one individual may fill the same position on both units if qualified on both units.
- (i) One of two required individuals filling the SRO positions may also fill the STA position, if qualified.

FIGURE 5.1

**FIRST ENERGY NUCLEAR OPERATING COMPANY
BEAVER VALLEY POWER STATION**

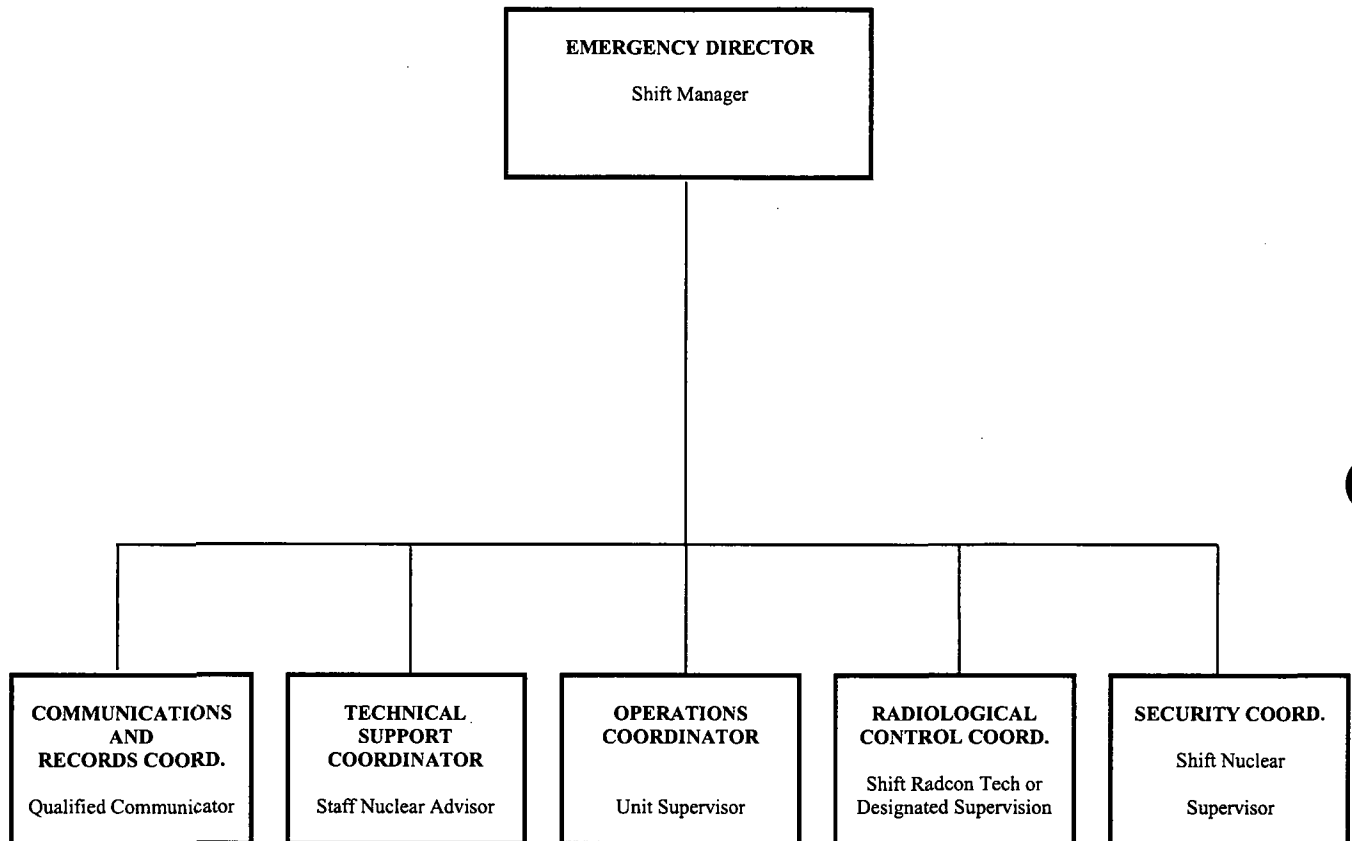


Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

FIGURE 5.2
ONSHIFT EMERGENCY ORGANIZATION

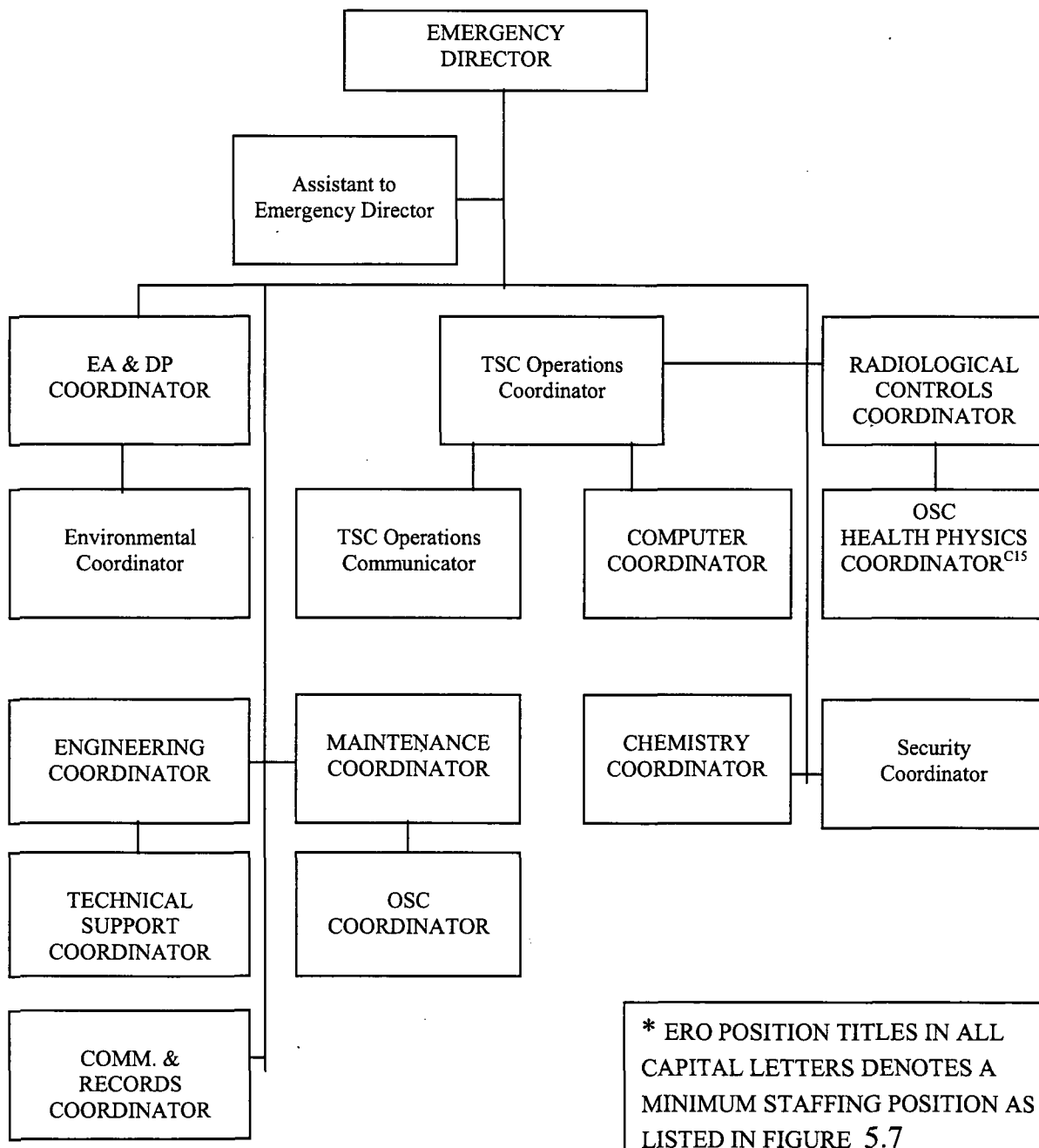


Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

FIGURE 5.3
TECHNICAL SUPPORT CENTER ORGANIZATION ^{c8}



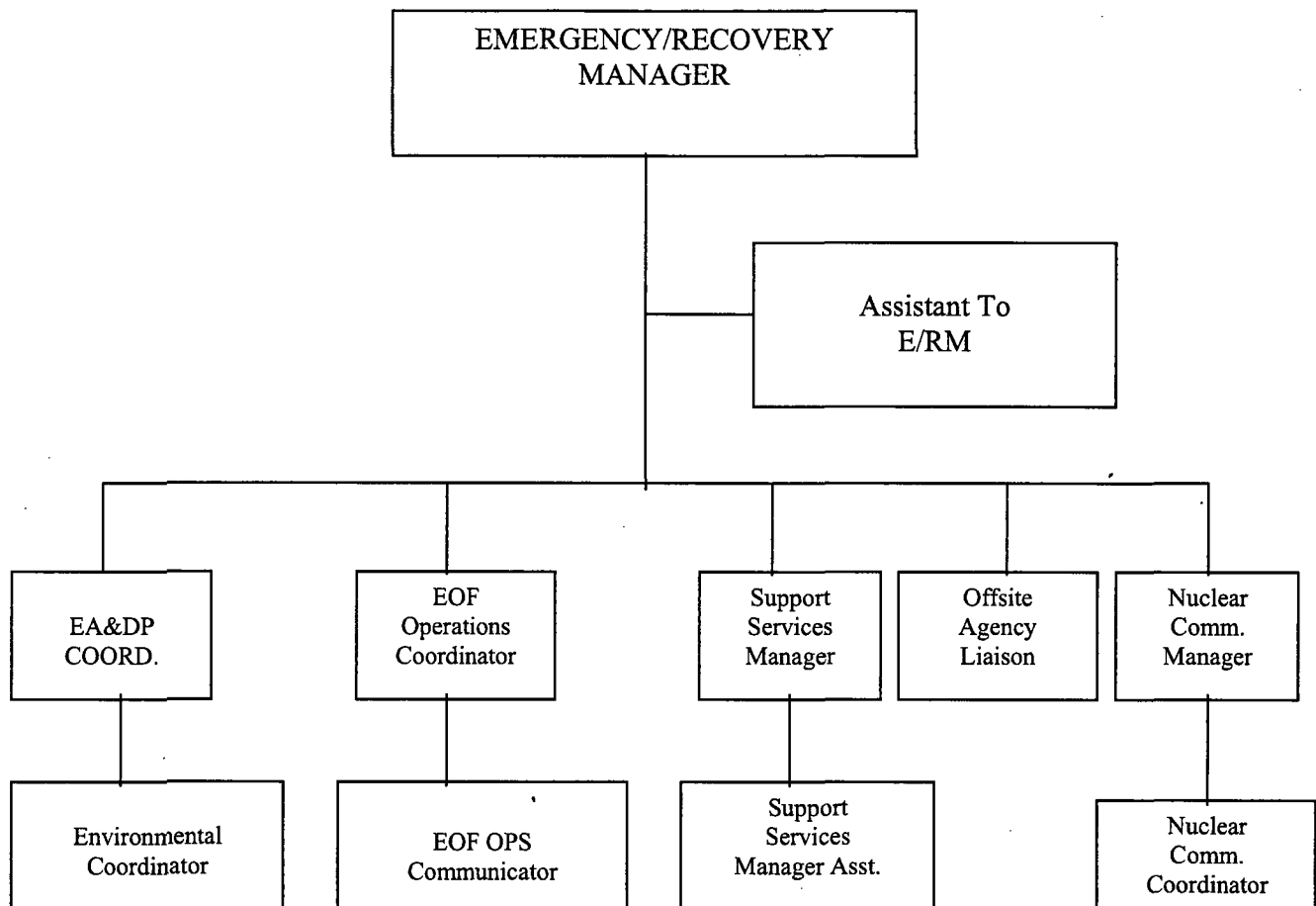
Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

FIGURE 5.4

EMERGENCY OPERATIONS FACILITY ORGANIZATION



* ERO POSITION TITLES IN ALL CAPITAL LETTERS DENOTES A MINIMUM STAFFING POSITION AS LISTED IN FIGURE 5.7

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

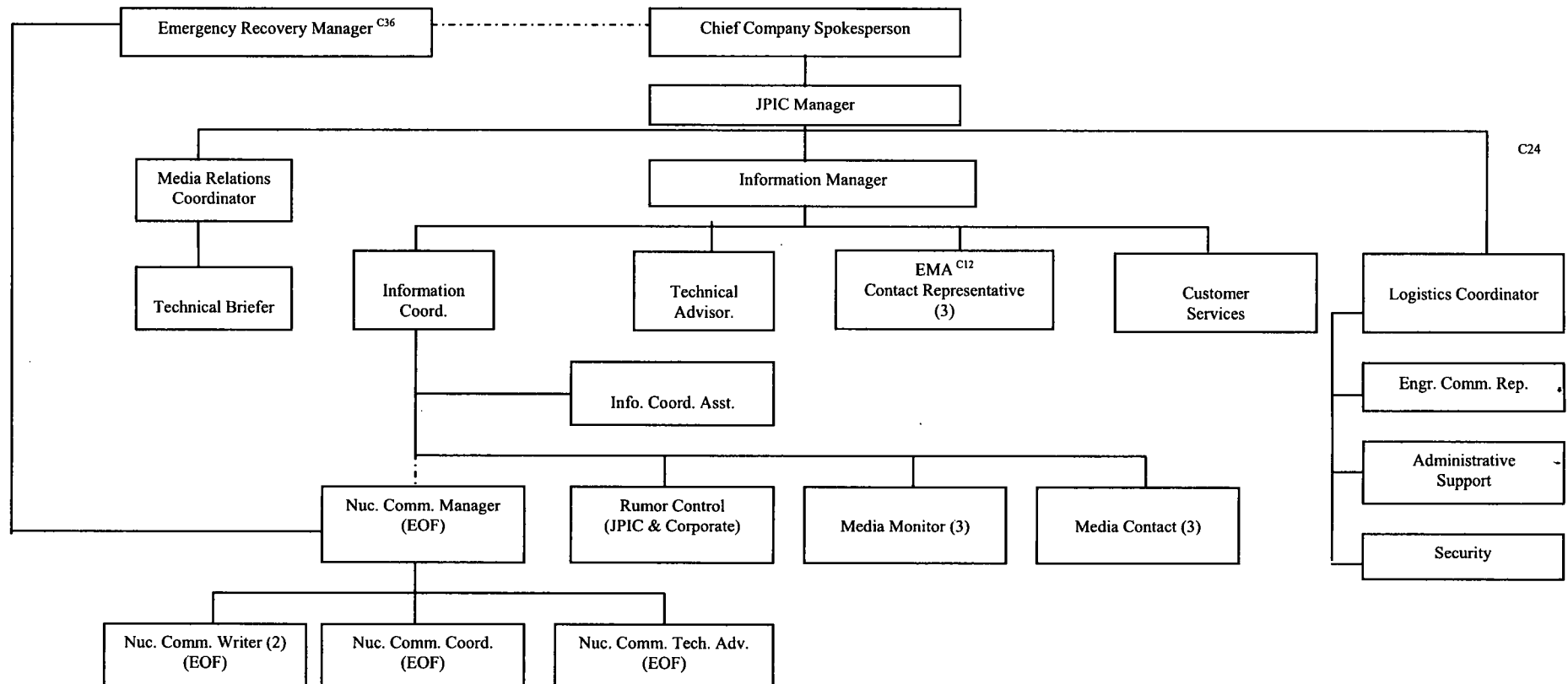
INTENTIONALLY BLANK

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

FIGURE 5.5

EMERGENCY PUBLIC INFORMATION RESPONSE ORGANIZATION ^{c8}



Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

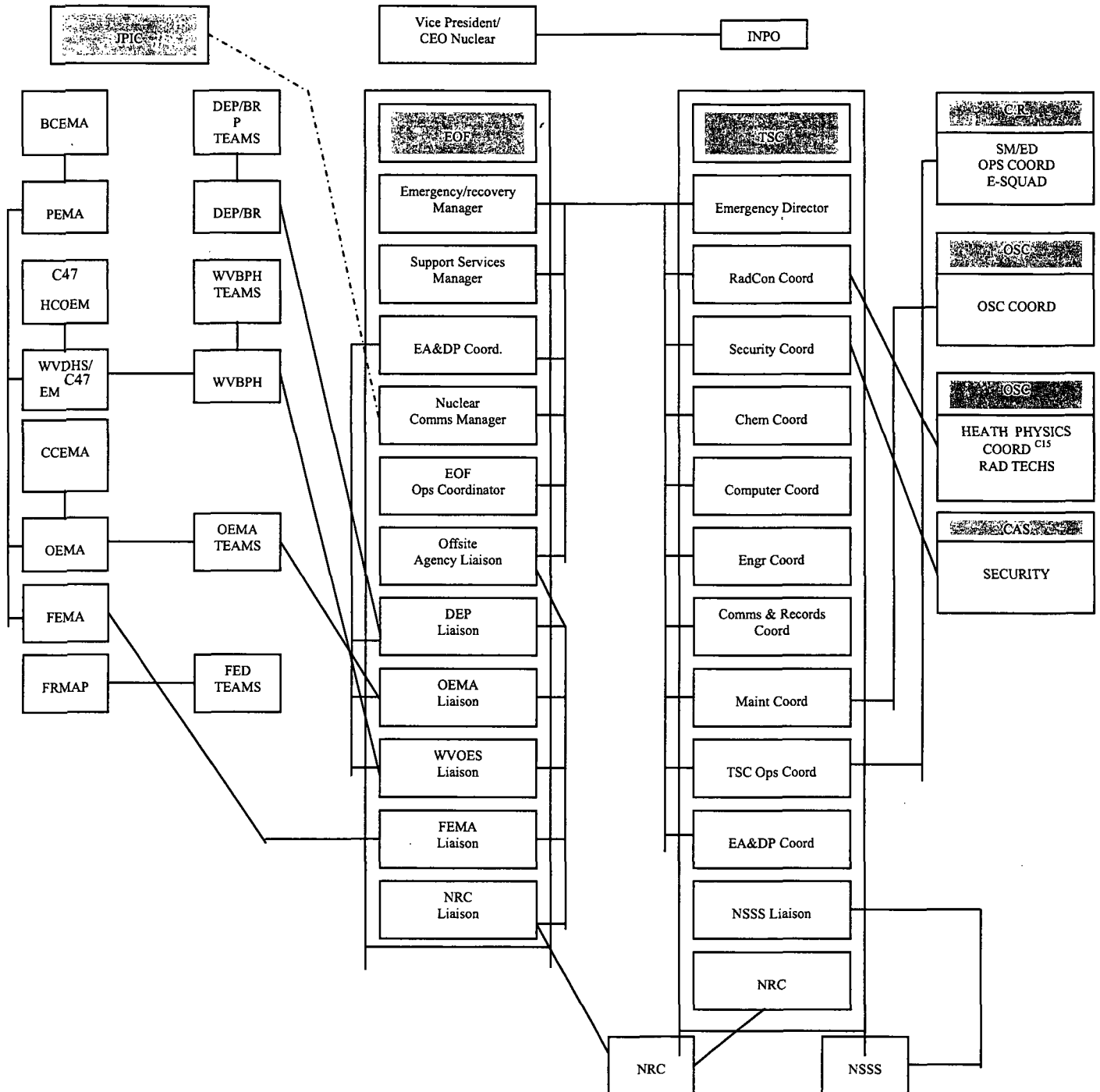
INTENTIONALLY BLANK

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

FIGURE 5.6

C36



Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

Section 5 EMERGENCY ORGANIZATION

Emergency Preparedness Plan

FIGURE 5.7

The following comprises the minimum staffing positions, in excess of the On-Shift minimum staffing, of the BVPS Emergency Response Organization needed to ensure that the BVPS Emergency Plan described Emergency Response Facilities responsible for mitigative and corrective actions are capable of fulfilling their function:

Operations Support Center (OSC) staffing:

| <u>Position Title</u> | <u>#</u> |
|--------------------------------|----------|
| OSC Coordinator | 1 |
| OSC Health Physics Coordinator | 1 |

Technical Support Center (TSC):

| | |
|--|---|
| Emergency Director [or Assistant] | 1 |
| Communications & Records Coordinator | 1 |
| Communications Assistants | 3 |
| Chemistry Coordinator [or Assistant] | 1 |
| TSC Coordinator | 1 |
| Radiological Controls Coordinator [or Assistant] | 1 |
| Maintenance Coordinator [or Assistant] | 1 |
| Computer Coordinator | 1 |
| Engineering Coordinator | 1 |
| Electrical Engineer | 1 |
| Mechanical Engineer | 1 |
| Nuclear Engineer | 1 |

Emergency Operations Facility (EOF):

| | |
|---|---|
| Environmental Assessment & Dose Projection Coordinator [or Assistant] | 1 |
| Emergency / Recovery Manager [or Assistant] | 1 |

Total 18

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

INTENTIONALLY BLANK

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

Table 5.3

| Major Functional Area | Major Tasks | Augmented ERO Position Title * |
|--|---|---|
| <p>Assessment of Emergency Operational Aspects</p> <p>Implementation & Administration of the Emergency Plan</p> <p>Emergency Direction and Control</p> <p>Notification / Communication</p> | <p>Notify Licensee, State, Local and Federal personnel and maintain Communication</p> | <p>EMERGENCY DIRECTOR</p> <p>EMERGENCY / RECOVERY MANAGER</p> <p>TSC COORDINATOR</p> <p>COMPUTER COORDINATOR</p> <p>COMMUNICATIONS & RECORDS COORDINATOR and Communications Assistants</p> <p>TSC Operations Communicator</p> |
| <p>Radiological Accident Assessment</p> | <p>Offsite Dose Assessment</p> <p>Offsite Surveys</p> <p>Onsite Surveys</p> <p>In-plant Surveys</p> <p>Chemistry/Radiochemistry</p> | <p>EA & DP COORD. and Assistants</p> <p>RADIOLOGICAL CONTROLS COORDINATOR</p> <p>OSC HEALTH PHYSICS COORDINATOR</p> <p>HP Technicians and Field Monitoring Team drivers</p> <p>CHEMISTRY COORDINATOR / Assistant</p> |
| <p>Support of Operational Accident Assessment</p> | <p>EOF Command & Control</p> <p>Data Access / Acquisition</p> | <p>EMERGENCY / RECOVERY MANAGER</p> <p>COMPUTER COORDINATOR</p> |

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

Table 5.3 (Continued)

| Major Functional Area | Major Tasks | Augmented ERO Position Title * |
|---|--|--|
| Plant System Engineering | Technical Support | ENGINEERING COORDINATOR |
| | Core / Thermal Hydraulics Engineering | NUCLEAR / ELECTRICAL / MECHANICAL / System Engineers |
| Repair and Corrective Actions | Repair and Corrective Actions | OSC COORDINATOR / Assistants |
| | | MAINTENANCE COORDINATOR / Assistant Mechanical / Electrical / Instrument & Control Maintenance Rad Waste Operator |
| Protective Actions (In-Plant) | Radiation Protection - Access Control - HP coverage - Personnel monitoring - Dosimetry | OSC HP COORDINATOR HP Technicians |
| Firefighting | Fire Fighting / Rescue Operations / First Aid | Emergency Squad / Fire Brigade |
| Site Access Control and Personnel Accountability | Security / Personnel Accountability | Security Personnel |

* ERO POSITION TITLES IN ALL CAPITAL LETTERS DENOTES A MINIMUM STAFFING POSITION AS LISTED IN FIGURE 5.7.

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.4 ^{c9}

OFFSITE ORGANIZATIONS
COUNTY

(Page 1 of 2)

| ORGANIZATION | ADDRESS | RESPONSIBLE INDIVIDUAL |
|----------------------|---|--|
| BCEMA | Beaver County EMA 351 14 th Street Ambridge, PA 15003 | Director, Beaver Co. Emer. Services Center |
| CCEMA | Columbiana County EMA P.O. Box 414 Lisbon, OH 44432 | Coordinator, Columbiana Co. EMA |
| HCOEM ^{C47} | ^{C47} Hancock County Office of Emer. Management P.O. Box 884 New Cumberland, WV 26047 | Director, Hancock Co. OEM ^{C47} |

STATE

| ORGANIZATION | ADDRESS | RESPONSIBLE INDIVIDUAL |
|---------------------------|---|--|
| Ohio Department of Health | Ohio Dept. of Health Radiological Health Program 246 N. High Street Columbus, OH 43266-0588 | Director, Ohio Dept. of Health Radiological Health Branch |
| OEMA | Ohio Emergency Management Agency Adjutant General's Dept. 2855 West Granville Road Columbus, OH 43235-2206 | Chief, Radiological Branch |

Section 5
EMERGENCY ORGANIZATION

Emergency Preparedness Plan

TABLE 5.4 ^{c9}
OFFSITE ORGANIZATIONS

(Page 2 of 2)

STATE (Continued)

| ORGANIZATION | ADDRESS | RESPONSIBLE INDIVIDUAL |
|--|---|--|
| PA DEP/BRP | PA Dept. of Environmental Protection Bureau of Radiation Protection 16th Floor, M.S.S.O.B P.O. Box 8469 Harrisburg, PA 17105-8469 | Section Chief of Division of Licensing and Registration |
| PEMA | PA Emergency Management Agency P.O. Box 3321 Harrisburg, PA 17105-3321 | Director, Pennsylvania Emergency Management Agency |
| WV Department of Health and Human Resources | WV Department of Health and Human Resources Bureau for Public Health Radiological Health Program Capitol and Washington Streets 1 Davis Squire, Suite 200 Charleston, WV 25301 | Chief, Radiological Health Division |
| WVDHS/EM ^{C47} | West Virginia Division of Homeland Security and Emergency Management ^{C47} Capitol Building Room EB-80 Charleston, WV 25305 | Division Director |

Enclosure B
L-12-457

Emergency Preparedness Plan
APPENDIX G, "References"
Revision 22
(16 pages follow)

APPENDIX G

REFERENCES

Emergency Preparedness Plan

APPENDIX G

REFERENCE

| | | |
|-----|---|-----------------------------------|
| C1 | - | CR# 980708 |
| C2 | - | CR# 980706 |
| C3 | - | CR#980480 |
| C4 | - | NPDAP 5.1 "Report Requirements" |
| C5 | - | Unit 2 Licensing Condition 2.C(6) |
| C6 | - | CR#992882 |
| C7 | - | CR#990012 |
| C8 | - | CR#00-0616 |
| C9 | - | CR#00-0617 |
| C10 | - | CR#00-0618 |
| C11 | - | CR#00-0615 |
| C12 | - | CR#01-0246 |
| C13 | - | CR#01-1168 |
| C14 | - | CR#00-3939 |
| C15 | - | CR#00-2202 |
| C16 | - | CR#01-0246 |
| C17 | - | CR#99-1234 |
| C18 | - | CR#01-1011 |
| C19 | - | CR#01-3556 |

Emergency Preparedness Plan

APPENDIX G

REFERENCE

- C20 - LAR #295 and #166 (Letter Number L-01-103, 8/13/01, PASS Elimination, CR# 01-2107)
- C21 - CR#02-02195 and NRC Inspection Report 50-334/02-03, 50-412/02-03, dated 4/12/02
- C22 - CR#02-02524
- C23 - CA's # 01-6025-6, 01-3198-98, 02-00444-5
- C24 - CA #02-00444-4
- C25 - CA's #02-0667-01, 02-07647-06
- C26 - CR's #02-08649, 02-09224
- C27 - CR#02-09061-01
- C28 - CR#03-01371
- C29 - CA# 02-02195-8
- C30 - CR#04-00104
- C31 - CA#03-02202-15
(Includes deletion of Section 7, Figures and Tables)
- C32 - CA#03-09983-1
- C33 - CA#04-01302-1
- C34 - CA#03-12278-01
- C35 - CA#04-02011-14
- C36 - CA#03-02202-15
- C37 - CA#03-06133-1
- C38 - CA#03-06133-2

Emergency Preparedness Plan

APPENDIX G

REFERENCE

| | | |
|-----|---|---|
| C39 | - | CA#03-06133-3 |
| C40 | - | CA#03-06133-6 |
| C41 | - | CA#03-12097-1 |
| C42 | - | CA#03-16133-4 |
| C43 | - | CA#04-05163 |
| C44 | - | CR#05-03243-04 |
| C45 | - | CR#05-01489-01 |
| C46 | - | Reference: NRC Bulletin 2005-02 |
| C47 | - | CR#05-0651 |
| C48 | - | CR#04-06540 |
| C49 | - | CA#07-31052-02 |
| C50 | - | Reference: Eplan Section 6 PAF 11-01349 and 1/2-EPP-IP-2.6.1 PAF 10-02713 |
| C51 | - | CA# 11-93746-01 |
| C52 | - | CA# 11-93743-01 |
| C53 | - | CA# 11-93744-01 |
| C54 | - | Reference: EPlan Section 1 PAF 12-00289 |
| C55 | - | Reference: EPlan Section 7 PAF 12-00290 |
| C56 | - | Reference: EPlan Section 6 PAF 12-00745 |
| C57 | - | Reference: EPlan Appendix-C PAF 12-00747 |

Emergency Preparedness Plan

APPENDIX G

REFERENCE

- C58 - Reference: EPlan Section 4 PAF 12-00824, Section 1 PAF 12-01487 and Appendix G PAF 12-01488
- C59 - Reference: EPlan Section 5 PAF 12-02862, Appendix G PAF 12-02864, and Appendix H PAF 12-02910

The Emergency Preparedness Plan/NUREG-0654 Cross Reference was developed using the following documents:

| NUREG-0654, Rev. 1 | November 1980 |
|--------------------|--------------------------------|
| EPP Section 1 | Rev. 10 |
| EPP Section 2 | Rev. 10 |
| EPP Section 3 | Rev. 10 |
| EPP Section 4 | Rev. 11 |
| EPP Section 5 | Rev. 10 |
| EPP Section 6 | Rev. 10 |
| EPP Section 7 | Rev. 10 |
| EPP Section 8 | Rev. 10 Unless Otherwise Noted |
| EPP Section 9 | Rev. 10 |
| EPP Appendix A | Rev. 10 |
| EPP Appendix B | Rev. 10 |
| EPP Appendix C | Rev. 10 |
| EPP Appendix D | Rev. 10 |
| EPP Appendix E | Rev. 10 |
| EPP Appendix F | Rev. 10 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---|
| NUREG-0654, Section II.A.1.a | Paragraph 5.5 Paragraph 5.6.1 Paragraph 5.6.2 |
| NUREG-0654, Section II.A.1.b | Paragraph 5.2 Paragraph 5.3 Paragraph 5.4 |
| NUREG-0654, Section II.A.1.c | Figures 5.1 through 5.5 Section 5.6 |
| NUREG-0654, Section II.A.1.d | Paragraph 5.2.1 Paragraph 5.2.2 |
| NUREG-0654, Section II.A.1.e | Paragraph 5.2 Tables 6.1 and 6.2 |
| NUREG-0654, Section II.A.3 | Paragraph 8.3.d Appendix A |
| NUREG-0654, Section II.A.4 | Paragraph 5.2.1 Paragraph 5.2.2 |
| NUREG-0654, Section II.B.1 | Figure 5.2 |
| NUREG-0654, Section II.B.2 | Paragraph 5.2.1 Paragraph 5.2.2 Appendix E |
| NUREG-0654, Section II.B.3 | Paragraph 5.2.1 Paragraph 5.2.3 |
| NUREG-0654, Section II.B.4 | Paragraph 5.2.1 |
| NUREG-0654, Section II.B.5 | Paragraph 5.2 Table 5.1 |
| NUREG-0654, Section II.B.6 | Paragraph 5.5 Figure 5.6 |
| NUREG-0654, Section II.B.7 | Paragraph 5.2 Table 5.1 |
| NUREG-0654, Section II.B.7.a | Paragraph 5.2.18 |
| NUREG-0654, Section II.B.7.b | Paragraph 9.3 Paragraph 9.4 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---|
| NUREG-0654, Section II.B.7.c | Paragraph 5.2.19 Paragraph 5.2.2 |
| NUREG-0654, Section II.B.7.d | Paragraph 5.3 |
| NUREG-0654, Section II.B.8 | Paragraph 5.5.2 Paragraph 5.5.3 Paragraph 5.5.4 |
| NUREG-0654, Section II.B.9 | Paragraph 5.5.5 Appendix A |
| NUREG-0654, Section II.C.1.a | Paragraph 5.2.1.7 Paragraph 5.2.2.6 |
| NUREG-0654, Section II.C.1.b | Paragraph 5.6.2 |
| NUREG-0654, Section II.C.1.c | Paragraph 7.1.4 Paragraph 7.6 |
| NUREG-0654, Section II.C.2.b | Paragraph 5.6.1 |
| NUREG-0654, Section II.C.3 | Paragraph 7.1.4 Paragraph 7.4 |
| NUREG-0654, Section II.C.4 | Paragraph 5.5 Paragraph 5.6 Appendix A |
| NUREG-0654, Section II.D.1 | Section 4 |
| NUREG-0654, Section II.D.2 | Section 4 |
| NUREG-0654, Section II.E.1 | Paragraph 6.4 |
| NUREG-0654, Section II.E.2 | Paragraph 7.6 |
| NUREG-0654, Section II.E.3 | Paragraph 6.4.1 |
| NUREG-0654, Section II.E.4 | Paragraph 6.4.2 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---------------------------------|
| NUREG-0654, Section II.E.4.a | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.b | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.c | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.d | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.e | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.f | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.g | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.h | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.i | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.j | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.k | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.l | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.m | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.4.n | Paragraph 6.4.2 |
| NUREG-0654, Section II.E.6 | Paragraph 3.3.3 Appendix F |
| NUREG-0654, Section II.E.7 | Paragraph 6.7.2.5 |
| NUREG-0654, Section II.F.1.a | Paragraph 7.6 Table 6.2 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|--|--|
| NUREG-0654, Section II.F.1.b | Paragraph 7.6 Table 6.2 |
| NUREG-0654, Section II.F.1.c | Paragraph 7.6 Table 7.1 |
| NUREG-0654, Section II.F.1.d | Paragraph 7.6 Table 7.1 |
| NUREG-0654, Section II.F.1.e | Paragraph 7.6 Table 7.1 |
| NUREG-0654, Section II.F.1.f | Paragraph 7.6.3 |
| NUREG-0654, Section II.F.2 | Paragraph 7.6.1 Paragraph 7.6.2 Paragraph 7.6.5 Paragraph 6.3.1 |
| NUREG-0654, Section II.F.3 | Paragraph 8.1.4.f Paragraph 7.6 |
| NUREG-0654, Section II.G.1 | Paragraph 8.1.1.a |
| NUREG-0654, Section II.G.1.a, b, c, d | Paragraph 8.5 |
| NUREG-0654, Section II.G.2 | Paragraph 8.5 |
| NUREG-0654, Section II.G.3.a | Paragraph 7.1.5 |
| NUREG-0654, Section II.G.3.b | Paragraph 7.1.5 |
| NUREG-0654, Section II.G.4.a | Paragraph 5.3.1 |
| NUREG-0654, Section II.G.4.b | Paragraph 5.3.1 Paragraph 5.3.2 |
| NUREG-0654, Section II.G.4.c | Paragraph 5.3.4.1 |
| NUREG-0654, Section II.G.5 | Paragraph 8.1.2.f |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---|
| NUREG-0654, Section II.H.1 | Paragraph 7.1.4.1 Paragraph 7.1.2 |
| NUREG-0654, Section II.H.2 | Paragraph 7.1.4.2 |
| NUREG-0654, Section II.H.4 | Paragraph 6.2 |
| NUREG-0654, Section II.H.5 | Paragraph 7.4 |
| NUREG-0654, Section II.H.5.a | Paragraph 7.4.3 |
| NUREG-0654, Section II.H.5.b | Paragraph 7.4.1 |
| NUREG-0654, Section II.H.5.c | Paragraph 7.4.4 |
| NUREG-0654, Section II.H.5.d | Paragraph 7.4.2 |
| NUREG-0654, Section II.H.6.a | Paragraph 7.4.3 |
| NUREG-0654, Section II.H.6.b | Paragraph 7.4.1 Appendix D |
| NUREG-0654, Section II.H.6.c | Paragraph 7.1.4.3 Paragraph 7.1.4.4 Paragraph 7.4.1.3 |
| NUREG-0654, Section II.H.7 | Paragraph 7.2 Appendix D |
| NUREG-0654, Section II.H.8 | Paragraph 7.4.3.1 |
| NUREG-0654, Section II.H.9 | Paragraph 7.1.2 |
| NUREG-0654, Section II.H.10 | Paragraph 8.4 |
| NUREG-0654, Section II.H.11 | Appendix D |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---|
| NUREG-0654, Section II.H.12 | Paragraph 5.2.8 Paragraph 7.1.4.4 |
| NUREG-0654, Section II.I.1 | Section 4 |
| NUREG-0654, Section II.I.2 | Paragraph 7.4.1 Paragraph 7.4.1.6 |
| NUREG-0654, Section II.I.3.a | Paragraph 6.5.3 |
| NUREG-0654, Section II.I.3.b | Paragraph 6.5.3 |
| NUREG-0654, Section II.I.4 | Paragraph 6.5.3 Paragraph 6.5.4 |
| NUREG-0654, Section II.I.5 | Paragraph 7.4.3.1 Paragraph 7.1.4.e Paragraph 7.6.3 |
| NUREG-0654, Section II.I.6 | Paragraph 6.5.3.2 |
| NUREG-0654, Section II.I.7 | Paragraph 6.5.4 |
| NUREG-0654, Section II.I.8 | Paragraph 6.5.4 Table 5.1 Table 6.1 |
| NUREG-0654, Section II.I.9 | Paragraph 6.5.4.3 |
| NUREG-0654, Section II.I.10 | Paragraph 6.5.3.2 |
| NUREG-0654, Section II.J.1 | Paragraph 6.7.1 |
| NUREG-0654, Section II.J.1.a | Paragraph 6.7.1 |
| NUREG-0654, Section II.J.1.b | Paragraph 6.7.1 |
| NUREG-0654, Section II.J.1.c | Paragraph 6.7.1 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|----------------------------------|--|
| NUREG-0654, Section II.J.1.d | Paragraph 6.7.1 |
| NUREG-0654, Section II.J.2 | Paragraph 6.7.1 Paragraph 7.5.3 Figure 7.2 |
| NUREG-0654, Section II.J.3 | Paragraph 6.7.1.6 |
| NUREG-0654, Section II.J.4 | Paragraph 6.7.1.4 Paragraph 6.7.1.6 |
| NUREG-0654, Section II.J.5 | Paragraph 5.2.13.3 Paragraph 5.2.6.4 Paragraph 6.7.1.5 |
| NUREG-0654, Section II.J.6.a | Paragraph 6.7.1.8 |
| NUREG-0654, Section II.J.6.b | Paragraph 6.7.1.6 |
| NUREG-0654, Section II.J.6.c | Paragraph 6.7.1.8 |
| NUREG-0654, Section II.J.7 | Paragraph 6.7.2 |
| NUREG-0654, Section II.J.8 | Appendix B |
| NUREG-0654, Section II.J.10.a | Figure 7.2 (Evacuation Route) Paragraph 7.5.3 |
| NUREG-0654, Section II.J.10.b | Appendix B, Figure B-1 |
| NUREG-0654, Section II.J.10.c | Appendix F |
| NUREG-0654, Section II.J.10.m | Appendix B Paragraph 6.7.1.2 |
| NUREG-0654, Section II.K.1 | Table 6.3 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|--------------------------------------|
| NUREG-0654, Section II.K.1.a | Table 6.3 |
| NUREG-0654, Section II.K.1.b | Table 6.3 |
| NUREG-0654, Section II.K.1.c | Table 6.3 |
| NUREG-0654, Section II.K.1.d | Table 6.3 |
| NUREG-0654, Section II.K.1.e | Table 6.3 |
| NUREG-0654, Section II.K.1.f | Table 6.3 |
| NUREG-0654, Section II.K.1.g | Table 6.3 |
| NUREG-0654, Section II.K.2 | Paragraph 5.2.1 Paragraph 6.7.1.7 |
| NUREG-0654, Section II.K.3.a | Table 5.1 Paragraph 6.7.1.7 |
| NUREG-0654, Section II.K.3.b | Paragraph 6.7.1.7 |
| NUREG-0654, Section II.K.5.a | Paragraph 6.8.1 |
| NUREG-0654, Section II.K.5.b | Paragraph 6.8.1 Paragraph 6.8.2 |
| NUREG-0654, Section II.K.6.a | Paragraph 6.7.1.6 |
| NUREG-0654, Section II.K.6.b | Paragraph 6.7.1.6 |
| NUREG-0654, Section II.K.6.c | Paragraph 6.7.1.6 |
| NUREG-0654, Section II.K.7 | Paragraph 6.7.1.6 |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|---------------------------------|
| NUREG-0654, Section II.L.1 | Appendix A Paragraph 6.8.4 |
| NUREG-0654, Section II.L.2 | Paragraph 6.8.2 |
| NUREG-0654, Section II.L.4 | Appendix A Paragraph 6.8.3 |
| NUREG-0654, Section II.M.1 | Section 9 |
| NUREG-0654, Section II.M.2 | Section 9 |
| NUREG-0654, Section II.M.3 | Paragraph 9.2 |
| NUREG-0654, Section II.M.4 | Paragraph 9.6 |
| NUREG-0654, Section II.N.1.a | Paragraph 8.1.4.a |
| NUREG-0654, Section II.N.1.b | Paragraph 8.1.4.a |
| NUREG-0654, Section II.N.2.a | Paragraph 8.1.4(f) |
| NUREG-0654, Section II.N.2.b | Paragraph 8.1.4(b) |
| NUREG-0654, Section II.N.2.c | Paragraph 8.1.4(c) |
| NUREG-0654, Section II.N.2.d | Paragraph 8.1.4(d) |
| NUREG-0654, Section II.N.2.e | Paragraph 8.1.4(e) |
| NUREG-0654, Section II.N.3 | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.3.a | Paragraph 8.1.3.d |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|--|
| NUREG-0654, Section II.N.3.b | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.3.c | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.3.d | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.3.e | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.3.f | Paragraph 8.1.3.d |
| NUREG-0654, Section II.N.4 | Paragraph 8.1.3.f |
| NUREG-0654, Section II.N.5 | Paragraph 8.1.3.g |
| NUREG-0654, Section II.O.1.a | Paragraph 8.1.2.b |
| NUREG-0654, Section II.O.2 | Paragraph 8.1.2 |
| NUREG-0654, Section II.O.3 | Paragraph 6.8.2 |
| NUREG-0654, Section II.O.4.a | Paragraph 8.1.1.b |
| NUREG-0654, Section II.O.4.b | Paragraph 8.1.1.b |
| NUREG-0654, Section II.O.4.c | Paragraph 8.1.1.b |
| NUREG-0654, Section II.O.4.d | Paragraph 8.1.1.c Paragraph 8.1.2.c Paragraph 8.1.2e |
| NUREG-0654, Section II.O.4.e | Paragraph 8.1.2.a |
| NUREG-0654, Section II.O.4.f | Paragraph 8.1.1.b |

Emergency Preparedness Plan

NUREG-0654 CROSS REFERENCE

| <u>Reference</u> | <u>Emergency Plan Reference</u> |
|---------------------------------|--|
| NUREG-0654, Section II.O.4.g | Paragraph 8.1.2.b |
| NUREG-0654, Section II.O.4.h | Paragraph 8.1.2.d |
| NUREG-0654, Section II.O.4.i | Paragraph 8.1.1.b |
| NUREG-0654, Section II.O.4.j | Paragraph 8.1.1.b |
| NUREG-0654, Section II.O.5 | Paragraph 8.1.1 (Rev. 11) |
| NUREG-0654, Section II.P.1 | Paragraph 8.2 |
| NUREG-0654, Section II.P.2 | Paragraph 8.2 |
| NUREG-0654, Section II.P.3 | Paragraph 8.2 |
| NUREG-0654, Section II.P.4 | Paragraph 8.3.d |
| NUREG-0654, Section II.P.5 | Paragraph 8.3.b |
| NUREG-0654, Section II.P.6 | Paragraph 5.6 |
| NUREG-0654, Section II.P.7 | Appendix C |
| NUREG-0654, Section II.P.8 | Table of Contents in front of Plan and for each Section. |
| NUREG-0654, Section II.P.9 | Paragraph 8.3.e Paragraph 8.3.f |
| NUREG-0654, Section II.P.10 | Paragraph 8.3.g Paragraph 8.1.4.f |

Enclosure C
L-12-457

Emergency Preparedness Plan
APPENDIX H, "Beaver Valley Power Station (BVPS) ERO
On-Shift Staffing Analysis Report"
Revision 0
(97 pages follow)

APPENDIX H^{C59}

BVPS ERO On-Shift Staffing Analysis Report

APPENDIX H ^{C59}

BVPS ERO On-Shift Staffing Analysis Report

(Under separate cover)

Beaver Valley Power Station (BVPS) ERO On-Shift Staffing Analysis Report
(location: Filenet/Manuals and Plans)



First Energy Nuclear Operating Company (FENOC)



Beaver Valley
Power Station
(BVPS)

ERO On-Shift Staffing Analysis Report

Revision 0

Author: Scott McCain 12/17/12
Date

EP Reviewer: Hal Szklinski 12/18/12
Date

OPs Reviewer: Dan Schwer 12/18/12
Date

Owner: Sean Zalesny 12/18/12
Date

TABLE OF CONTENTS

| | | |
|----------|---|-----------|
| 1 | INTRODUCTION..... | 2 |
| 2 | ON-SHIFT STAFFING COMPLEMENT | 3 |
| 2.1 | On-Shift Staffing Licensing Basis | 3 |
| 2.2 | On-Shift Staffing Complement Used in the Analysis | 4 |
| 3 | EVENTS..... | 5 |
| 3.1 | List of Potential Events to be Analyzed | 5 |
| 3.2 | Disposition of Events | 6 |
| 3.3 | NEI 10-05 Appendix A Table, Analyzed Events and Accidents | 10 |
| 3.4 | Scope/Sequence of Events..... | 11 |
| 4 | ON-SHIFT STAFFING ANALYSIS..... | 21 |
| 4.1 | Non-Validated Task Evaluation Results | 21 |
| 4.2 | Potential Task Overlap Evaluation Results (by position) | 21 |
| 4.3 | Potential Task Overlap Requiring Time Motion Study | 23 |
| 4.4 | Event Specific Task Analysis Summaries | 24 |
| 5 | ON-SHIFT STAFFING TIME MOTION STUDY | 27 |
| 5.1 | Confirmed Task Overlaps | 27 |
| 5.2 | Resolved Task Overlaps..... | 27 |
| 5.3 | Event Specific Time Motion Study Summaries..... | 27 |
| 6 | LIST OF REFERENCES | 31 |
| | Attachment 1: NEI 10-05 Table 5 Controlling Method Correlation | 33 |
| | Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables | 35 |
| | Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables..... | 80 |

1 INTRODUCTION

The requirements for an on-shift emergency response organization are provided in 10 CFR 50.47(b)(2) and 10 CFR 50 Appendix E. §50.47(b) states, in part, the following:

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times...

§50 Appendix E.IV, Content of Emergency Plans, subsection A states:

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's ERO and the means for notification of such individuals in the event of an emergency.

§50.47(b) states that on-shift staffing levels must be adequate, but provides no specific definition of the term "adequate" for use in this context. §50 Appendix E.IV likewise does not specify a basis for the composition or assignments of the on-shift emergency response organization (ERO).

NUREG-0654, which is used for the review and approval of emergency plans, provides general guidance for what constituted adequate on-shift staffing by way of a table, but approval and implementation of this table has not been consistent throughout the industry as it also is not developed upon a technical basis. The NRC states that licensees must have enough on-shift staff to perform specified tasks in various functional areas of emergency response. All shifts must have the capability to perform these emergency functions 24 hours a day, 7 days a week, to minimize the impact of radiological emergencies and to provide for the protection of public health and safety.

As part of the overall Emergency Preparedness rulemaking published in November of 2011, the Commission amended §50, Appendix E, Section IV.A, "Organization," to address concerns regarding the assignment of tasks or responsibilities to on-shift ERO personnel that would potentially overburden them and prevent the timely performance of their emergency plan functions. §50 Appendix E.IV subsection A.9 was added to state:

By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

In conjunction with the new rule, the NRC issued, Interim Staff Guidance (ISG) NSIR/DPR-ISG-01. ISG Section IV.C provides specific detail on the criteria and acceptable methods for the conduct of the on-shift staffing analysis, including the endorsement of NEI 10-05. The NEI analysis methodology composed of the following:

- Identification of the on-shift ERO staffing and response time requirements.
- Identification of the site specific event scenarios described in the ISG.
- Documentation of an On-shift Staffing Analysis (OSA) for each event scenario.
- Documentation of a Time Motion Study (TMS), if deemed necessary.

The ISG considers the analysis report to be the technical basis for the on-shift staffing, and requires that the results be incorporated into the Emergency Plan as a part of the formal licensee licensing bases.

2 ON-SHIFT STAFFING COMPLEMENT

2.1 On-Shift Staffing Licensing Basis

Issue 8 Revision 1 of the Beaver Valley Emergency Plan, dated 07/11/1986, is established as the licensing basis for the on-shift staffing complement.

2.1.1 Section 5.1 and Table 5-1 of the SER emergency plan document the latest NRC approved on-shift staffing complement.

2.1.2 Section 5.1 lists a minimum shift crew complement of 11 individuals for single unit operation.

- 1 – Shift Supervisor (SRO)
- 1 – Shift Foreman (SRO)
- 1 – Shift Technical Advisor
- 4 – Nuclear Control Operator (RO)
- 4 – Nuclear Operator
- 1 – NSS Administrative Assistant
- 2 – Radiation Technician
- 1 – Chemistry Specialist

2.1.3 Table 5-1 corresponds with NUREG-0654 Table B-1 (BV 2 SER page 13-10). NUREG-0654 Table B-1 assumes the operations staff for a single unit in accordance with §50.54(m). The total operations staff required for the plant operations and assessment of operational aspects function is doubled to account for both units operating at 100% power.

2.1.4 Table 5-1 does not contain footnotes for collateral duty positions, resulting in a total head count of 20 on shift individuals (not accounting for both units' plant operators).

2.2 On-Shift Staffing Complement Used in the Analysis

Only personnel required to be on-shift are credited in the staffing analysis. The on-shift personnel complement is limited to the minimum required number and composition as described in the BVPS emergency plan.

| Functional Area | Major Tasks | Emergency Positions | Analysis Shift Staffing |
|---|-------------------------------|--|--|
| 1. Plant Operations and Assessment of Operational Aspects | Control Room Staff | Shift Manager (SRO) Unit Supervisor (SRO) Reactor Operator Nuclear Operator | 2 2 4 6 |
| 2. Emergency Direction and Control | Command and Control | Shift Manager | 1 ^(a) |
| 3. Notification & Communication | Licensee | SRO | 1 ^(a) |
| | Local/ State | Designated Communicator | 1 ^(a) |
| | Federal | ENS Communicator (RO/SRO) | 1 ^(a) |
| 4. Radiological Assessment | Dose Assessment | RP Technician | 1 |
| | In-plant Surveys | RP Technician | 1 |
| | Onsite Surveys | RP Technician | 1 |
| | Chemistry | Chemistry Technician | 1 |
| 5. Plant System Engineering, Repair, and Corrective Actions | Tech Support – OPs | Shift Technical Advisor | 1 |
| | – Core Damage | Shift Technical Advisor | 1 ^(a) |
| | Repair and Corrective Actions | Mechanical Maintenance Electrical Maintenance I&C Maintenance | 1 ^(a) 1 ^(a) 1 ^(a) |
| 6. In-Plant PAs | Radiation Protection | RP Technician | 2 ^(a) |
| 7. Fire Fighting | -- | Fire Brigade Chief (RO/SRO) Fire Brigade Member (NO) | 1 ^(a) 4 ^(a) |
| 8. 1 st Aid and Rescue | -- | Fire Brigade | 2 ^(a) |
| 9. Site Access Control and Accountability | Security & Accountability | Security Shift Supervisor Security Personnel | 1 (b) |
| TOTAL: | | | 20 |

(a) May be filled by someone filling another position having functional qualifications.

(b) Per BVPS Physical Security Plan.

3 **EVENTS**

3.1 **List of Potential Events to be Analyzed**

BVPS U1 UFSAR Section 14.2, Standby Safeguards Analysis, provides the following IV events:

1. Fuel Handling Accident (14.2.1)
2. Steam Generator Tube Rupture (14.2.4)
3. Major Secondary System Line Break (14.2.5)
 - A. Major Steam Line Break (14.2.5.1)
 - B. Main Feedwater Line Break (14.2.5.2)
4. CRDM Housing Rupture Rod/Cluster Control Assembly Ejection (14.2.6)
5. Single Reactor Coolant Pump Locked Rotor (14.2.7)
6. Loss of Coolant Accident (14.3.2)

BVPS U2 UFSAR Section 15.0.1.4 Condition IV - Limiting Faults, provides the following faults classified in this category:

1. Steam System Piping Failure (Section 15.1.5)
2. Feedwater System Pipe Break (Section 15.2.8)
3. Reactor Coolant Pump Shaft Seizure – Locked Rotor (Section 15.3.3)
4. Reactor Coolant Pump Shaft Break (Section 15.3.4)
5. Spectrum of RCCA Ejection Accidents (Section 15.4.8)
6. Steam Generator Tube Failure (Section 15.6.3)
7. Loss-of-Coolant Accident (Section 15.6.5)
8. Fuel Handling Accident (Section 15.7.4)
9. Spent Fuel Cask Drop (Section 15.7.5)

In summary, the UFSAR events to be carried forward in the analysis are as follows:

| Analysis # | Event Type | Unit 1 | Unit 2 |
|-------------------|-----------------------------------|---------------|---------------|
| 1 | Fuel Handling Accident | 14.2.1 | 15.7.4 |
| 2 | Steam Generator Tube Rupture | 14.2.4 | 15.6.3 |
| 3 | Main Steam Line Break | 14.2.5.1 | 15.1.5 |
| 4 | Main Feedwater Line Break | 14.2.5.2 | 15.2.8 |
| 5 | Control Rod Assembly Ejection | 14.2.6 | 15.4.8 |
| 6 | Loss of Coolant Accident | 14.3.2 | 15.6.5 |
| 7 | Reactor Coolant Pump Locked Rotor | 14.2.7 | 15.3.3 |
| 8 | Reactor Coolant Pump Shaft Break | N/A | 15.3.4 |
| 9 | Spent Fuel Cask Drop | N/A | 15.7.5 |

Note: At least one of the DBA scenarios must result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs.

Additionally, the following events must be analyzed to comply with the interim staff guidance (ISG) for the new on-shift staffing rule in 10 CFR 50 Appendix E.

- Design Basis Threat (DBT)
- Aircraft Probable Threat – 50.54(hh)(1) response actions
- Control Room Fire Leading to Evacuation and Remote Shutdown
- Station Blackout (SBO)
- Appendix R Fire Response
- SAMG

3.2 Disposition of Events

BVPS1 UFSAR Chapter 14 and BVPS2 UFASR Chapter 15 were used to identify the bounding Condition IV events. Those postulated events were then evaluated for Emergency Plan activation using EPP-I-1a, Recognition and Classification of Emergency Conditions. The results of the event evaluations are listed below.

Note: The most limiting UFSAR conditions between Unit 1 and Unit 2 UFSAR events were taken for the analyses.

3.2.1 Fuel Handling Accident (FHA) – U1 14.2.1 / U2 15.7.4

This event considers two different locations; inside containment and inside the fuel building.

Fuel handling activities performed in the Containment Building during an outage would include numerous extra personnel available for event response. Since there will not be a time during refueling activities in the Containment Building when only the minimum on-shift ERO is present, the fuel handling accident in this area is not included in the on-shift staffing analysis.

Fuel handling activities inside the Fuel Building are allowed to occur during plant operation. This event results in an Alert Emergency Classification Level (ECL) based on Emergency Action Level (EAL) 7.4.A, and is carried forward in the analysis.

3.2.2 Steam Generator Tube Rupture (SGTR) – U1 14.2.4 / U2 15.6.3

This event assumes that a loss of offsite power occurs and the highest worth control assembly is stuck in its fully withdrawn position at reactor trip. It is also assumed that the ruptured steam generator atmospheric steam dump valve fails open when the ruptured steam generator is isolated.

This event results in a Site Area Emergency ECL based on EAL 1.3.4 (Containment Loss) and EAL 1.2.4 (RCS Loss) and is carried forward in the analysis.

Additionally, the scope of this event will be expanded to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs in order to comply with the specifications of NSIR/DPR-ISG-01.

3.2.3 Main Steam Line Break (MSLB) – U1 14.2.5 / U2 15.1.5

The decay heat for this event occurring at 100% power would retard the cooldown thereby reducing the magnitude of the return to power, thus the most limiting condition for this event is hot at 0% power.

The event with no LOOP is limiting as the case with forced circulation is more severe than the case with a loss of forced circulation.

The UFSAR also specifies that the limiting break in terms of radiological consequences occurs outside of the containment building.

A review of the limiting event results in an Unusual Event ECL based on EAL 2.10.U, Steam/Feed Line Break, and is carried forward in the analysis.

3.2.4 Main Feedwater Line Break – U1 14.2.5.2 / U2 15.2.8

The system response following the feedwater line rupture is similar for LOOP and no LOOP. Therefore, the case with the LOOP will have the greater impact on operator actions.

This event (the most limiting case involving a feedwater line rupture inside containment between the steam generator and the check valve with a concurrent loss of offsite power) results in an Unusual Event ECL based on EAL 2.10.U, Steam/Feed Line Break, or EAL 3.1.U, Loss of AC, and is carried forward in the analysis.

3.2.5 Control Rod Assembly Ejection – U1 14.2.6 / U2 15.4.8

The worst case for reactor power and hot spot fuel and clad temperature transient is beginning-of-life at full power, where core damage is limited to no more than 10% clad failure.

This event results in a Site Area Emergency ECL based on EAL 1.1.5 (Fuel Clad Loss) and EAL 1.2.5 (RCS Loss) and is carried forward in the analysis.

3.2.6 Loss of Coolant Accident (LOCA) – U1 14.3.2 / U2 15.6.5

The UFSAR thermal and hydraulic analyses concluded that there would be little if any core damage.

This event results in an Alert ECL based on EAL 1.2.3 (RCS Potential Loss) and is carried forward in the analysis.

3.2.7 Reactor Coolant Pump Locked Rotor – U1 14.2.7 / U2 15.3.3

A BVPS LRA assumes less than 20% failed fuel and a release of the associated gap activity. The integrity of the primary coolant system is not endangered. This event includes a LOOP.

This event results in a Site Area Emergency ECL based on EAL 1.1.4 (Fuel Clad Loss) and 1.2.5 (RCS Loss) and is carried forward in the analysis.

3.2.8 Reactor Coolant Pump Shaft Break – U2 15.3.4

The analysis presented in reactor coolant pump locked rotor represents the limiting condition, assuming a locked rotor for forward flow but a free-spinning shaft for reverse flow in the affected loop. Plant response to the single reactor coolant pump locked rotor event is almost identical to the single reactor coolant pump sheared shaft event.

This event is bounded by the reactor coolant pump locked rotor event as indicated in U2 UFSAR Section 15.3.4.2, and therefore will not be carried forward in the analysis.

3.2.9 Spent Fuel Cask Drop – U2 15.7.5

In accordance with UFSAR Section 15.7.5.1 Cask handling procedures ensure that a postulated spent fuel cask drop height of 30 feet is not exceeded. If the spent fuel cask trolley limiting devices are removed during cask handling within the plant, the 30-foot drop height is still not exceeded. Additionally, since a spent fuel cask drop exceeding 30 feet cannot occur, no radiological analysis was performed for a spent fuel cask drop accident.

This event does not result in a classifiable event and is therefore not carried forward in the analysis.

3.2.10 Design Basis Threat (DBT)

This event results in a Site Area Emergency ECL based on EAL 4.6.S, Security, and will be included in the analysis.

The scope of this scenario will include impact on both units.

3.2.11 Aircraft Probable Threat – 50.54(hh)(1) Response Actions

This event results in an Alert ECL based on EAL 4.6.A, Security, and will be included in the analysis.

The scope of this scenario will include impact on both units.

3.2.12 Control Room Evacuation due to Fire

This event results in an Alert ECL based on EAL 4.5.A, Control Room Evacuation, and will be included in the analysis.

The scope of this scenario will include impact on both units.

3.2.13 Station Blackout (SBO)

This event results in a Site Area Emergency ECL based on EAL 3.1.S, Loss of AC, and will be included in the analysis.

The scope of this scenario will include impact on both units.

3.2.14 Appendix R Fire Response

The control room fire scenario requiring evacuation and plant shutdown at the remote stations is the most severe Appendix R scenario with regard to operator actions. No additional Appendix R fire response scenarios are included in the on shift staffing analysis.

3.2.15 SAMG

An event that results in the conditions necessary for entry into the SAMGs was not included in the on shift staffing analysis.

Operations personnel on shift receive SAM-1-Oper, Emergency Directors in Control Room, which consists of 8 hours classroom training.

None of the UFSAR limiting fault events result in entry conditions into SAMG procedures prior to the ERO augmentation. Entry conditions into SAMG procedures for all of the other events analyzed, with the exception of the event established to artificially exceed PAGs, are not expected to occur until after the augmenting ERO has responded. BVPS SACRG-1 entry conditions are as follows:

- 1) Core exit thermocouples are greater than 1200°F.

AND

- 2) Actions to cool the core are not successful.

It is therefore concluded that the on shift ERO would not be called upon to perform SAMG functions and activities for the events analyzed for this report prior to the assistance of the greater ERO in the emergency facilities being available.

3.3 NEI 10-05 Appendix A Table, Analyzed Events and Accidents

| Analysis # | Summary Description of Event or Accident | Plant Mode | Reference Document(s) | ECL | Analysis Required? |
|------------|--|------------|--|-----------------|--------------------|
| 1 | Fuel Handling Accident (FHA) | 1 | UFSAR 14.2.1 / 15.7.4 | Alert | Yes |
| 2 | Steam Generator Tube Rupture (SGTR) | 1 | UFSAR 14.2.4 / 15.6.3 | GE ¹ | Yes |
| 3 | Main Steam Line Break | 1 | UFSAR 14.2.5.1 / 15.1.5 | UE | Yes |
| 4 | Main Feedwater Line Break | 1 | UFSAR 14.2.5.2 / 15.2.8 | UE | Yes |
| 5 | Control Rod Assembly Ejection | 1 | UFSAR 14.2.6 / 15.4.8 | SAE | Yes |
| 6 | Loss of Coolant Accident (LOCA) | 1 | UFSAR 14.3.2 / 15.6.5 | Alert | Yes |
| 7 | Reactor Coolant Pump Locked Rotor | 1 | UFSAR 14.2.7 / 15.3.3 | SAE | Yes |
| 8 | Reactor Coolant Pump Shaft Break | 1 | UFSAR 15.3.4 | SAE | No ² |
| 9 | Spent Fuel Cask Drop | 1 | UFSAR 15.7.5 | None | No |
| 10 | Design Basis Threat (DBT) | 1 | 1/2OM-53C.4A.100.1 1/2OM-53C.4A.100.2 | SAE | Yes |
| 11 | Aircraft Probable Threat | 1 | 1/2OM-53C.4A.100.1 1/2OM-53C.4A.100.3 | Alert | Yes |
| 12 | Control Room Evacuation due to Fire | 1 | 1OM-53.C.4.1.33.1A 2OM-53.C.4.2.33.1A | Alert | Yes |
| 13 | Station Blackout (SBO) | 1 | 1/2OM-53A.1.E--0 | SAE | Yes |
| 14 | Appendix R Fire Response | 1 | 1OM-56C.4 | Alert | No ³ |
| 15 | SAMG | 1 | 1/2OM-53F.1.SACRG-1 | GE | No ⁴ |

Notes:

1. The UFSAR steam generator tube rupture results in a Site Area Emergency ECL. The scope of this event will be expanded to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs in order to comply with the specifications of the ISG.
2. The RCP shaft break event is bounded by the RCP locked rotor event per the UFSAR.
3. The control room fire and evacuation is the limiting Appendix R fire response scenario with regard to complex actions by the on-shift ERO.
4. The entry conditions for SAMG actions do not occur prior to the arrival of the augmenting ERO for any of the UFSAR category IV events or other scenarios performed within this analysis.

3.4 Scope/Sequence of Events

3.4.1 General Assumptions and Limitations

1. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions. The following are the typical locations of the on shift personnel:
 - U1 Shift Manager..... U1 Control Room
 - U2 Shift Manager..... U2 Control Room
 - U1 Supervisor..... U1 Control Room
 - U2 Supervisor..... U2 Control Room
 - Shift Technical Advisor U1 Control Room
 - U1 Reactor Operator U1 Control Room
 - U2 Reactor Operator U2 Control Room
 - U1 Balance of Plant RO..... U1 Control Room
 - U2 Balance of Plant RO..... U2 Control Room
 - NLO#1U1 Operator Tour Office: (735' south of Turbine Deck)
 - NLO#2U1 Operator Tour Office: (735' south of Turbine Deck)
 - NLO#3U1 Operator Tour Office: (735' south of Turbine Deck)
 - NLO#4 U2 Operator Tour Office: (767', adjacent to Turbine Deck SE corner)
 - NLO#5 U2 Operator Tour Office: (767', adjacent to Turbine Deck SE corner)
 - NLO#6 U2 Operator Tour Office: (767', adjacent to Turbine Deck SE corner)
 - RP Tech #1.. Health Check Area (Waste Handling Bldg., 767', west of Turb Deck)
 - RP Tech #2.. Health Check Area (Waste Handling Bldg., 767', west of Turb Deck)
 - RP Tech #3.. Health Check Area (Waste Handling Bldg., 767', west of Turb Deck)
 - Chem Tech.....U1 Cold Lab: (Turbine Bldg., 735' west of Turb Deck)
 - Security Shift Supervisor.....Central Alarm Station (CAS)

2. The on-shift staff possesses the necessary Radiation Worker qualifications to obtain normal dosimetry and to enter Radiologically Controlled Areas (but not high, locked high or very high radiation areas) without the aid of an RP Technician.

3. It is assumed that personnel assigned to the major response area of Plant Operations & Safe Shutdown meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown. Staff performance within this area is not evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.
4. It is assumed that personnel assigned to the major response area of Firefighting meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to fight a fire. Staff performance within this area is regularly analyzed through other station programs (e.g., fire drills) and will not be evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.
5. The on-site security organization is able to satisfactorily perform all tasks related to Site and Protected Area Access Controls, under all event or accident conditions. Performance of this function is regularly analyzed through other station programs and will not be evaluated here, unless a role or function from another major response area is assigned as a collateral duty.
6. Individuals holding the position of radiation protection technician or chemistry technician are qualified to perform the range of tasks expected of their position.
7. The task of making a simple and brief communication has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include making a plant page announcement or placing a call for assistance to an offsite resource such as local law enforcement. This assumption does not apply to emergency notification to an ORO or the NRC.
8. The task of performing a peer check has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include performing a peer check on a recommended emergency classification or notification form for transmittal to offsite authorities.
9. The analyzed events occur during off-normal work hours at a time when augmented ERO responders are not at the site (e.g., during a backshift, weekend or holiday). The ERO augmentation time is based on the time of event declaration until the time of turnover of the function/responsibility. Specifically, any time needed by the augmenting ERO to acquire materials or prepare for turnover is accounted for.

The BVPS emergency plan does not describe the ERO augmentation time commitment. 1/2 EPP-IP-1.4 specifies that the TSC is activated within 60 minutes of the event declaration. Facility activation includes the turnover of functions from the on shift staff.

To facilitate fleet standardization initiatives, the ERO augmentation period used for the event analyses will be 120 minutes.

3.4.2 Event Specific Information

1. Analysis Event #1 – Fuel Handling Accident (FHA)

The event consists of a dropped fuel assembly in the spent fuel pool, resulting in fuel cladding integrity failure. Normal Building ventilation is in service. All automatic ventilation systems function as designed. The personnel air lock and equipment hatch are closed. Auxiliary Building and Fuel Handling Building (FHB) ARMs are operating properly.

Initial Conditions: Both Units are in mode 1, 100% power.

Abnormal Conditions: None

Scenario Events: Failure of 137 fuel rods results in an instantaneous release of all the gap activity in each rod into the spent fuel pool water.

All of the noble gases and a fraction of the halogen inventory released from the fuel pins collect in the FHB atmosphere and are exhausted to the environment over a 2 hour period.

No credit is taken for the filters that are present on the HVAC post-accident clean up units.

The radionuclide inventory is based upon 100 hours after shutdown.

Notes: Shift staffing is at minimum.

Ops has completed 1OM-49.4.O, Movement of Spent Fuel Pool Crane Checklist, prior to fuel movement, and verifies procedure 1OM-49.4.O.

Five additional personnel are required for the fuel move (1 engineer, 3 fuel handlers and 1 HP technician).

Procedures Used: NORM-OPS-1002

1/2-EPP-I-1a

EPP-I-3

1OM-53C.4.1.49.1

AOP-1-49

ARP

EPP-2.6.2

EPP-2.2

EPP-3.1

2. Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

Note: This DBA scenario has been chosen to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate the making of PARs.

Pressurizer low pressure and low level alarms are actuated and charging pump flow increases in an attempt to maintain pressurizer level. On the secondary side there is a steam flow/feedwater flow mismatch before trip as feedwater flow to the affected steam generator is reduced to the additional break flow which is now being supplied to that unit.

Continued loss of reactor coolant inventory leads to a reactor trip signal generated by low pressurizer pressure. Resultant plant cooldown following reactor trip leads to a rapid change of pressurizer level, and the safety injection signal, initiated by low pressurizer pressure, follows soon after the reactor trip. The safety injection signal (SIS) automatically terminates normal feedwater supply and initiates auxiliary feedwater addition.

The steam generator blowdown liquid monitor and the condenser air ejector vent monitor will alarm indicating a sharp increase in radioactivity in the secondary system. Upon reaching a high-high radiation level, the condenser air ejector vent monitor will automatically divert the condenser air ejector discharge to containment.

The reactor trip automatically trips the turbine and if off-site power is available the steam dump valves open permitting steam dump to the condenser. In the event of a coincident station blackout, the steam dump valves would remain closed or be automatically closed to protect the condenser. The steam generator pressure would rapidly increase resulting in steam discharge to the atmosphere through the steam generator safety and/or atmospheric dump valves.

Following reactor trip, the continued action of auxiliary feedwater supply and borated safety injection flow (supplied from the refueling water storage tank) provide a heat sink which absorbs some of the decay heat. Thus, steam bypass to the condenser, or in the case of loss of offsite power, steam relief to atmosphere, is attenuated during the time period in which the recovery procedure leading to isolation is being carried out.

Safety injection flow results in increasing pressurizer water level. The time after trip at which the operator can clearly see returning level in the pressurizer is dependent upon the amount of operating auxiliary equipment.

Initial Conditions: 100% power, equilibrium conditions, end of core life

Abnormal Conditions: Coolant activity (gap failure) is sufficient to result in an offsite dose that exceeds the EPA PAGs beyond the site boundary.
[PCV-1MS-101A], SG 1A Atm Stm Dump Vlv (ADV), for faulted SG 1A fails open following completion of E-3, Step 4.a, "Place [PCV-1MS-101A] in MAN and verify valve closed".
ADV can be isolated after 10 minutes.

Scenario Events: Guillotine break of one SG tube.

Coincident loss of offsite power upon reactor trip.

Notes: The reactor coolant is contaminated with fission products at a level necessary to support the offsite radiological conditions, thus a non-realistic damage source term input is necessary.
RM-CH-101A/B, Letdown Rad Monitor, peaks at $>3.5 \times 10^5$ cpm at approximately T+6
RM-1MS-100A, Atm Stm Dump and Safety Valve Rad Monitor, peaks at "60 cpm" at approximately T+6
RM-SV-100 Condenser Air Ejector peaks at 1.2×10^5 cpm at approximately T+15
Wind: FROM 270° @ 15 mph

Procedures Used: NORM-OPS-1002

1/2-EPP-I-1a
EPP-I-4
EPP-I-5
EO
E3
E2
1OM-46.4.6
SP-18.1

3. Analysis Event #3 – Main Steam Line Break (MSLB)

The rupture of a major steam line is the most limiting cooldown transient and, thus, is analyzed at zero power with no decay heat. Decay heat would retard the cooldown thereby reducing the magnitude of the return to power. Should the reactor be just critical or operating at power at the time of a steam line break, the reactor will be tripped by the normal overpower protection system when power level reaches a trip point. Following a trip at power, the reactor coolant system contains more stored energy than at no load, the average coolant temperature is higher than at no load and there is appreciable energy stored in the fuel. Thus, the additional stored energy is removed via the cooldown caused by the steam line break before the no load conditions of Reactor Coolant System temperature and shutdown margin assumed in the analyses are reached.

Initial Conditions: 0% power, hot conditions, end of core life

Abnormal Conditions: Single most reactive rod cluster control assembly is stuck in the fully withdrawn position.

Tech Spec Max Iodine concentrations in primary and secondary systems and Tech Spec max primary to secondary leakage of 450 gpd (15.1.5.3)

Offsite Power remains available.

Scenario Events: Double-ended (guillotine) shear of 1A SG steam line outside containment such that the 1A steam generator will completely depressurize.

Notes: All Main and Auxiliary Feedwater pumps are operating at full capacity. Safety injection, steam and feed isolation systems operate as designed.

Procedures Used NORM-OPS-1002

1/2-EPP-I-1a
EPP-I-2
EOP-EO, E1, E2, ES1.1,
1OM-46.4.6
1/2-EPP-IP-2.6

4. Analysis Event #4 – Main Feedwater Line Break (MFLB)

The feedwater line break analyzed was assumed to occur during full power operation with concurrent loss of offsite AC power at the time of trip. This is limiting from the standpoint of potential RCS pressure increase, since this results in the maximum initial stored energy and minimum steam generator inventory.

Initial Conditions: Unit 2 is Critical at 100.6% power (2910 MWt), equilibrium conditions, end of core life

Abnormal Conditions: Tave is 8.5°F above nominal (15.2.8.2).

Pzr pressure is 45 psi below nominal.

Pzr Level is at programmed level +7%.

Initial SG level in the faulted SG is at nominal plus 10% and nominal minus 10% in all others. The turbine-driven [1FW-P-2], TDAFW pump is failed concurrent with Feedwater Line Break.

Only one train of safety injection is available.

Scenario Events: Double-ended (guillotine) shear of a feedwater line between the Steam Generator and the check valve inside containment.

Loss of offsite power concurrent with Reactor trip.

Notes: None

Procedures Used: NORM-OPS-1002

1/2-EPP-I-1a

EPP-I-2

1/2OM 53B.2

E0

E1

E2

ES1.1

1OM-46.4.6

5. Analysis Event #5 – Control Rod Assembly Ejection

This accident is defined as the mechanical failure of a control rod mechanism pressure housing resulting in the ejection of an RCCA and drive shaft. The consequence of this mechanical failure is a rapid positive reactivity insertion together with an adverse core power distribution, possibly leading to localized fuel rod damage.

Initial Conditions: Unit 1 100.6% power,

Abnormal Conditions: None

Scenario Events: The most reactive control rod is ejected from the core.

At BOL, the most reactive rod at Unit 1 is J3.

Loss of offsite power coincident with turbine trip.

Notes: Leak rate does not exceed that postulated for one ejected rod.

Assumption is 10% fuel clad damage.

Scenario will require accountability etc. for SAE.

Procedures Used: NORM-OPS-1002

EO

E1

1/2-EPP-I-1a

EPP-I-3

EPP-I-4

SP-18.1

6. Analysis Event #6 – Loss of Coolant Accident (LOCA)

The unit is operating normally at 100% power in an equilibrium condition. Upon occurrence of a double-ended break in the cold leg between the RCP and the reactor vessel, rapid depressurization of the Reactor Coolant System (RCS) to a pressure nearly equal to the containment pressure occurs in approximately 40 seconds, with a nearly complete loss of system inventory. Rapid voiding in the core shuts down reactor power. A safety injection system signal is actuated when the low pressurizer pressure setpoint is reached.

Initial Conditions: Unit 1 102% (2900 MWth) power, equilibrium conditions, end of core life (Table 14.3.2.1)

Abnormal Conditions: Loss of one SI Train (Table 14.3.2-1)

Scenario Events: Double-ended shear of the 1A cold leg.

Loss of offsite power coincident with reactor trip (Table 14.3.17C / 15.6-8a)

Notes: All emergency diesel generators start except DG1 which fails to start sync to their respective bus and the load sequencing occurs normally.

Local conditions peak at 2.29×10^2 R/hr on RM-1RM-202 and 1.9×10^0 mR/hr on RM-1RM-201 at approximately T+30 minutes.

Procedures Used: 1/2-EPP-I-1a
1/2-EPP-1.4
1/2-EPP-IP-2.1
1/2-EPP-IP-2.6
NORM-OPS-1002
EPP-I-3
EOP-E0
EOP-E1
EOP-ES1.3
ES-0.2
10M53A.E.1
10M-7.4Q

7. Analysis Event #7 – Reactor Coolant Pump Locked Rotor

The event consists of an instantaneous seizure of one RCP rotor with all loops operating. Following initiation of the reactor trip, the rapid expansion of the coolant in the reactor core, combined with reduced heat transfer in the steam generators causes an insurge into the pressurizer and a pressure increase throughout the RCS. The insurge into the pressurizer compresses the steam volume, actuates the automatic spray system, opens the power-operated relief valves, and opens the pressurizer safety valves in that sequence. The three power-operated relief valves function properly during the accident

Initial Conditions: Unit 2 is Critical at 100.6% power (2918 MWt), equilibrium conditions, end of core life (Table 14.2-4b)

Abnormal Conditions: Tave is 8.5°F above nominal (14.2.7.2.1)

Pzr pressure is 45 psi above nominal (14.2.7.2.1)

Scenario Events: Loss of offsite power concurrent with Reactor trip (14.2.7.2.2)

Notes: Assumed to result in 20% failed fuel.

Leakage at max Tech Spec primary to secondary leak rate of 450 gpd (14.2.7.2.2).

Local conditions peak at 3.0×10^2 R/hr on RM-1RM-219 A/B and 1.0×10^3 mR/hr on RM-1RM-201 at approximately T+30 minutes.

Procedures Used: 1/2-EPP-I-1a
1/2-EPP-I-4
NORM-OPS-1002
EOP-E0
ES-0.1
EOP-0.2
1OM-53.4B.S-0
1/2-EPP-IP-2.6
SP-18.1

8. Analysis Event #10 – Design Basis Threat (DBT)

The event consists of notification to the Shift Manager from the Nuclear Security Shift Supervisor that a hostile action is occurring at or inside the Protected Area. A hostile force will breach the Protected Area fence but is neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components is not sufficient to prevent safe shutdown or cause a radiological release. There is no fire significant enough to warrant firefighting efforts prior to the arrival of offsite resources and/or the augmented ERO.

The event must account for the expected constraints on the movement of personnel (e.g., movement not allowed, limited movement using the 2-person rule, etc.). Specifically, individuals must usually be in, or readily able to respond to, assigned response locations before being credited with performing a function/task that implements the emergency plan.

An analysis objective is to confirm that sufficient staff is available to simultaneously implement both the emergency plan and the security plan.

Initial Conditions: Both units at 100% power, equilibrium conditions, end of core life

Abnormal Conditions: None

Scenario Events: The Shift Manager is notified by the Nuclear Security Shift Supervisor that an adversarial force matching the Design Basis Threat is engaged in a hostile action such that Security officers stationed inside the Protected Area are under attack.

Notes: This scenario constitutes a dual unit event.

No prior notification of a threat is given before the initiation of hostile actions.

Procedures Used: NORM-OPS-1002
EPP-I-1a
EPP-I-4
1/2OM53C.4A.100.2

9. Analysis Event #11 – Probable Aircraft Threat (PAT)

This event includes all emergency response actions taken prior to an aircraft impact in accordance with RG 1.214 for an aircraft threat that is greater than 5 minutes, but less than 30 minutes, from the site, including the dispersal of the fire brigade away from target areas. These actions should generally reflect those listed in 10 CFR 50.54(hh)(1), as expanded upon in Regulatory Guide 1.214, and others required by the emergency plan.

The event consists of notification to the Shift Manager from the NRC Headquarters Operations Officer that a Probable Aircraft Threat has been declared for Beaver Valley Power Station.

Initial Conditions: 100% power, equilibrium conditions, end of core life

Abnormal Conditions: None

Scenario Events: The Shift Manager receives a phone call from the NRC HQ HOO that a Probable Aircraft Threat (impact > 5 minutes but < 30 minutes) has been issued for BVPS.

Notes: This scenario constitutes a dual unit event.
Validation of authenticity of the notification is confirmed.

Procedures Used: EPP-I-4
NORM-OPS-1002
1/2-EPP-I-1a
1/2OM53C.4A.100.3

10. Analysis Event #12 – Control Room Evacuation Due to Fire

The event consists of a localized fire in the Control Room envelope that requires evacuation. Dual Unit Shutdown from outside the Control Room is required.

Initial Conditions: Both units at 100% power, equilibrium conditions, end of core life.

Abnormal Conditions: None

Scenario Events: This scenario constitutes a dual unit event.
A fire ignites inside the Control Room in U1 Vertical Board A (VB-A).
The fire cannot be extinguished quickly, and Control Room atmosphere becomes dangerous to health and safety via smoke and fumes.

Notes: This scenario constitutes a dual unit event.

Procedures Used: 1OM56C
AOP2.33.1A
AOP2.33.1A
1/2-EPP-I-1a
EPP-I-4
ESOMS
2AOP-33.1A
1OM56C Attach H
1OM56C Attach G
2AOP-33.1A
SP-18.1

11. Analysis Event #13 – Station Blackout (SBO)

The event consists of a loss of offsite power and a failure of all emergency AC power sources resulting in a Station Blackout (Loss of all AC power). Both units are affected.

Initial Conditions: Both units at 100% power, equilibrium conditions, end of core life.

Abnormal Conditions: None

Scenario Events: An electrical transient occurs resulting in a loss of all offsite power.

On reactor trips (both units), all AC buses are de-energized

None of the EDGs can be synchronized to any Unit 1 or Unit 2 AC bus, resulting in a dual-unit Loss of all AC power, bus (including [RG-EG-1], ERF DG).

Notes: This scenario constitutes a dual unit event.

The scenario must be developed such that restoration of any AC power source is not possible before the arrival of ERO personnel.

Procedures Used: 1/2-EPP-I-1a
EPP-I-4
NORM-OPS-1002
2OM53A.1
1/2OM 53B.2
EOP-E0
ECA0.0
SP-18.1

4 ON-SHIFT STAFFING ANALYSIS

Refer to Attachment 2, NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables, for additional documentation of the on-shift staffing task analysis evaluation results.

4.1 Non-Validated Task Evaluation Results

NEI 10-05 Table 5 – Emergency Plan Implementation task analysis controlling methods are correlated with the EP Drill Program in Attachment 1.

The task analysis did not identify any non-validated tasks that were performed by the on-shift positions.

4.2 Potential Task Overlap Evaluation Results (by position)

Table 4-1 summarizes the results of the potential overlaps identified in the analysis.

The task analysis identified four (4) on-shift positions that may experience task overlap:

- 1) The U2 Shift Manager experiences potential overlap of the task (5/15) *Personnel accountability* in the following:
 - Analysis Event #10 – Design Basis Threat (DBT)
 - Analysis Event #12 – Control Room Evacuation Due to Fire
 - Analysis Event #13 – Station Blackout (SBO)
- 2) The U1 BOP Operator experiences potential overlap of the task (5/13) *Perform NRC notification* in the following events:
 - Analysis Event #10 – Design Basis Threat (DBT)
 - Analysis Event #13 – Station Blackout (SBO)
- 3) The U2 BOP Operator experiences the following potential task overlaps:
 - (5/9) *Perform State/local notifications* in the following events:
 Analysis Event #1 – Fuel Handling Accident (FHA)
 Analysis Event #10 – Design Basis Threat (DBT)
 - (5/13) *Perform NRC notification* in the following events:
 Analysis Event #1 – Fuel Handling Accident (FHA)
 Analysis Event #12 – Control Room Evacuation Due to Fire
- 4) The Chemistry Technician experiences potential overlap of the task (5/9) *Perform State/local notifications* in Analysis Event #6 – Loss of Coolant Accident (LOCA)

Table 4-1: Task Analysis Summary

| Line | On-shift Position | Role in Table # / Line# |
|---|----------------------|---|
| Analysis Event #1 – Fuel Handling Accident (FHA) | | |
| 11. | U2 BOP | 2 / 9 Perform CR AOP actions 5 / 9 Perform State/local notifications 5 / 13 Perform NRC notifications |
| Analysis Event #6 – Loss of Coolant Accident (LOCA) | | |
| 19. | Chemistry Technician | 4 / 7 Sampling 5 / 9 Perform State/local notifications |
| Analysis Event #10 – Design Basis Threat (DBT) | | |
| 2. | U2 Shift Manager | 2 / 2 Plant and crew oversight 5 / 1 Declare the Emergency Classification Level (ECL) 5 / 3 Approve content of State/local notifications 5 / 5 Notification and direction to on-shift staff 5 / 6 ERO notification 5 / 8 Complete State/local notification form 5 / 10 Complete NRC event notification form 5 / 15 Personnel accountability |
| 8. | U1 BOP | 2 / 8 Perform CR HAB activities 5 / 13 Perform NRC notifications |
| 9. | U2 BOP | 2 / 9 Perform CR HAB activities 5 / 9 Perform State/local notifications |
| Analysis Event #12 – Control Room Evacuation Due to Fire | | |
| 2. | U2 Shift Manager | 2 / 2 Plant and crew oversight 5 / 1 Declare the Emergency Classification Level (ECL) 5 / 3 Approve content of State/local notifications 5 / 5 Notification and direction to on-shift staff 5 / 6 ERO notification 5 / 8 Complete State/local notification form 5 / 10 Complete NRC event notification form 5 / 15 Personnel accountability |
| 9. | U2 BOP | 2 / 9.A Perform CR AOP activities 2 / 9.B Perform In-plant AOP activities 5 / 13 Perform NRC notifications |
| Analysis Event #13 – Station Blackout (SBO) | | |
| 2. | U2 Shift Manager | 2 / 2 Plant and crew oversight 5 / 1 Declare the Emergency Classification Level (ECL) 5 / 3 Approve content of State/local notifications 5 / 5 Notification and direction to on-shift staff 5 / 6 ERO notification 5 / 8 Complete State/local notification form 5 / 10 Complete NRC event notification form 5 / 15 Personnel accountability |
| 8. | U1 BOP | 2 / 8 Perform CR EOP activities 5 / 13 Perform NRC notifications |

Note: Bold text indicates potential task overlap.

4.3 Potential Task Overlap Requiring Time Motion Study

For combinations of tasks that resulted in the same potential overlap in multiple events, demonstration and evaluation of those task combinations may be conducted in one or more time motion studies, provided procedure, environment and task timing are similar.

Table 4-2 provides a comparison of potential overlapping tasks by position for each of the analyzed events.

The results of the task analysis indicate that the following events require time motion study:

The results of the task analysis indicate that the following events require time motion study evaluation:

- 1) Analysis Event #1 – Fuel Handling Accident (FHA)
- 2) Analysis Event #6 – Loss of Coolant Accident (LOCA)
- 3) Analysis Event #10 – Design Basis Threat (DBT)
- 4) Analysis Event #12 – Control Room Evacuation Due to Fire
- 5) Analysis Event #13 – Station Blackout (SBO)

The results of the task analysis indicate that the following events do not require time motion study evaluation:

- 1) Analysis Event #2 – Steam Generator Tube Rupture (SGTR)
- 2) Analysis Event #3 – Main Steam Line Break (MSLB)
- 3) Analysis Event #4 – Main Feedwater Line Break
- 4) Analysis Event #5 – Control Rod Assembly Ejection
- 5) Analysis Event #7 – Reactor Coolant Pump Locked Rotor
- 6) Analysis Event #11 – Probable Aircraft Threat (PAT)

Table 4-2: Task Overlap Summary

| | Analysis Event #1 (FHA) | Analysis Event #6 (LOCA) | Analysis Event #10 (DBT) | Analysis Event #12 (CR Evac) | Analysis Event #13 (SBO) |
|----------------------|---------------------------------|-----------------------------|---|---|---|
| Unit 2 Shift Manager | | | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 |
| Unit 1 BOP Operator | | | 2 / 8 5 / 13 | | 2 / 8 5 / 13 |
| Unit 2 BOP Operator | 2 / 9 5 / 9 5 / 13 | | 2 / 9 5 / 9 | 2 / 9.A 2 / 9.B 5 / 13 | |
| Shift Chemistry Tech | | 4 / 7 5 / 9 | | | |

Note: Bold text indicates potential task overlap.

4.4 Event Specific Task Analysis Summaries

4.4.1 Analysis Event #1 – Fuel Handling Accident (FHA)

Based on the results of the task analysis, the following on-shift position was identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event:

1. The U2 BOP Operator performs tasks (5/9) *Perform State/local notification* and (5/13) *Perform NRC notifications*. Per Table 3.1 of NEI 10-05, operations positions that perform table 2 tasks and these emergency plan implementation tasks are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.4.2 Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

Task analysis of this event did not indicate any non-validated tasks or potential overlap in activities for any of the on-shift staff ERO positions.

4.4.3 Analysis Event #3 – Main Steam Line Break (MSLB)

Task analysis of this event did not indicate any non-validated tasks or tasks with potential overlap in activities for any of the on-shift staff ERO positions.

4.4.4 Analysis Event #4 – Main Feedwater Line Break (MFLB)

Task analysis of this event did not indicate any non-validated tasks or tasks with potential overlap in activities for any of the on-shift staff ERO positions.

4.4.5 Analysis Event #5 – Control Rod Assembly Ejection

Task analysis of this event did not indicate any non-validated tasks or tasks with potential overlap in activities for any of the on-shift staff ERO positions.

4.4.6 Analysis Event #6 – Loss of Coolant Accident (LOCA)

Based on the results of the task analysis, the following on-shift position was identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event:

1. The Chemistry Technician performs the task (5/9) *Perform State/local notification*. Per Table 3.1 of NEI 10-05, on-shift ERO positions that are assigned RP/Chemistry tasks and this emergency plan implementation task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.4.7 Analysis Event #7 – Reactor Coolant Pump Locked Rotor

Task analysis of this event did not indicate any non-validated tasks or tasks with potential overlap in activities for any of the on-shift staff ERO positions.

4.4.8 Analysis Event #10 – Design Basis Threat (DBT)

Based on the results of the task analysis, the following on-shift positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event:

- The U2 Shift Manager performs tasks (5/15) *Personnel accountability*. Per Table 3.1 of NEI 10-05, Shift Manager positions that perform this EP task are required to have the collective performance of all assigned tasks analyzed and validated by a time motion study.
- The U1 BOP Operator performs task (5/13) *Perform NRC notifications*. Per Table 3.1 of NEI 10-05, operations positions that perform table 2 tasks and these emergency plan implementation tasks are required to have the collective performance of those tasks analyzed and validated by a time motion study.
- The U2 BOP Operator performs task (5/9) *Perform State/local notification*. Per Table 3.1 of NEI 10-05, operations positions that perform table 2 tasks and these emergency plan implementation tasks are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.4.9 Analysis Event #11 – Probable Aircraft Threat (PAT)

Task analysis of this event did not indicate any non-validated tasks or tasks with potential overlap in activities for any of the on-shift staff ERO positions.

4.4.10 Analysis Event #12 – Control Room Evacuation Due to Fire

Based on the results of the task analysis, the following on-shift positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event:

- The U2 Shift Manager performs task (5/15) *Personnel accountability*. Per Table 3.1 of NEI 10-05, Shift Manager positions that perform this EP task are required to have the collective performance of all assigned tasks analyzed and validated by a time motion study.

- The U2 BOP Operator performs task (5/13) *Perform NRC notifications*. Per Table 3.1 of NEI 10-05, on-shift ERO positions that are assigned plant operations tasks and this emergency plan implementation task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.4.11 Analysis Event #13 – Station Blackout (SBO)

Based on the results of the task analysis, the following positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study:

1. The U2 Shift Manager performs numerous EP tasks, which include (5/15) *Personnel accountability*. Per Table 3.1 of NEI 10-05, Shift Manager positions that are assigned this emergency plan implementation task are required to have the collective performance of those tasks analyzed and validated by a time motion study.
2. The U1 BOP Operator performs the EP task of (5/13) *Perform NRC notifications*. Per Table 3.1 of NEI 10-05, operations positions that perform table 2 tasks and these emergency plan implementation tasks are required to have the collective performance of those tasks analyzed and validated by a time motion study.

5 ON-SHIFT STAFFING TIME MOTION STUDY

Refer to Attachment 3, NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables, for additional documentation of the on-shift staffing time motion study results.

5.1 Confirmed Task Overlaps

The time motion study identified no on-shift positions that experienced task overlap.

5.2 Resolved Task Overlaps

Task (5/9) Perform State/local Notifications – The potential overlap involving the Unit 2 BOP Operator performing task (5/9) Perform State/local Notification was resolved during the time motion study. The operations related tasks and EP related tasks were sequential with no delay in timing.

Task (5/9) Perform State/local Notifications – The potential overlap involving the Chemistry Technician performing task (5/9) Perform State/local Notifications was resolved during the time motion study. State and local notifications were conducted by the Unit 2 BOP Operator.

Task (5/13) Perform NRC Notification – The potential overlap involving the Unit 1 BOP Operator and Unit 2 BOP Operator performing task (5/13) Perform NRC Notifications was resolved during the time motion study. The BOP Operators did not perform NRC notifications while tasked with performing panel operations.

Task (5/15) Personnel Accountability – The potential overlap involving the Unit 2 Shift Manager performing task (5/15) was resolved during the time motion study. The actions for completion of personnel accountability were accomplished in typically less than one (1) minute when required. This does not detract from the oversight role of the Shift Manager.

5.3 Event Specific Time Motion Study Summaries

The time motion study scenarios indicated that at least one (1) operator was no longer needed for response tasks within 60 minutes from the start of the events.

5.3.1 Analysis Event # 1 - Fuel Handling Accident (FHA)

A. Time motion study results for potential overlaps identified in the task analysis are as follows:

1. Unit 2 BOP Operator

Task (5/9) Perform State/Local notifications: Task analysis indicated that the Unit 2 BOP Operator performed task (2/9) Perform CR AOP actions. Time motion study determined that this task did not result in an overlap with task (2/9) perform control panel manipulations as the Unit 2 BOP was not tasked with performing any operations related tasks.

Task (5/13) Perform NRC notifications: Task analysis indicated that the Unit 2 BOP Operator would be assigned this task during a FHA event. Time motions analysis revealed that the Unit 2 Shift Manager performed NRC notifications during this event. Refer to the Unit 2 Shift Manager in section B for the overlap evaluation of this task.

- B. Time motion study results for potential overlaps not identified in the task analysis are as follows:

1. Unit 2 Shift Manager

Task (5/13) Perform NRC Notifications: Task analysis indicated that the Unit 2 BOP Operator would be assigned this task during a FHA event. Time motions analysis determined that the Unit 2 Shift Manager performed NRC notifications. Performance of NRC notifications is technical and requires an understanding of the event, plant conditions and response actions taking place. Maintaining an open line with the NRC by the Unit 2 Shift Manager does not create an overlap as the Unit 1 Shift Manager was in command and control and this task was performed for a short period.

5.3.2 Analysis Event # 6 – Large Break Loss of Coolant Accident (LB-LOCA)

- A. Time motion study results for potential overlaps identified in the task analysis are as follows:

1. Chemistry Technician

Task (5/9) Perform State/local Notifications: Task analysis indicated that Chemistry technician was assigned this task during a LB-LOCA event. Time motions study determined that the Unit 2 BOP Operator performed this task. Refer to the Unit 2 BOP Operator in section B for the overlap evaluation of this task.

- B. Time motion study results for potential overlaps not identified in the task analysis are as follows:

1. Unit 2 BOP Operator

Task (5/9) Perform State/local Notifications: Task analysis indicated that Chemistry technician was assigned this task during a LB-LOCA event. Time motions study determined that the Unit 2 BOP Operator performed this task. The Unit 2 BOP Operator performed task (5/9) after completing the immediate actions for a loss of offsite power. Performance of the tasks was sequential with no delay in timing for this position.

5.3.3 Analysis Event # 10 – Design Basis Threat (DBT)

- A. Time motion study results for potential overlaps identified in the task analysis are as follows:

1. Unit 2 Shift Manager

Task (5/15) Personnel Accountability: Task analysis indicated that the Unit 2 Shift Manager performed this task during a DBT event. Time motion study determined

that this task was not performed during this event due to the take cover order in place, therefore there is no overlap.

2. Unit 1 BOP Operator

Task (5/13) Perform NRC Notifications: Task analysis indicated that the Unit 1 BOP Operator performed this task during a DBT event. Time motions study determined that this task was performed by the Unit 2 Shift Manager. Refer to the U2 Shift Manager in section B for the overlap evaluation of this task.

3. Unit 2 BOP Operator

Task (5/9) Perform State/local Notifications: Task analysis indicated that the Unit 2 BOP Operator performed state and local notifications. Time motion study revealed that the Unit 2 BOP Operator performed task (5/9) after completing the immediate actions to trip the plant. Performance of the tasks was sequential with no delay in timing for this position.

B. Time motion study results for potential overlaps not identified in the task analysis are as follows:

1. Unit 2 Shift Manager

Task (5/13) Perform NRC Notifications: Task analysis indicated that the Unit 2 BOP Operator would be assigned this task during a DBT event. Time motions analysis determined that the Unit 2 Shift Manager performed NRC notifications. Performance of NRC notifications is technical and requires an understanding of the event, plant conditions and response actions taking place. Maintaining an open line with the NRC by the Unit 2 Shift Manager does not create an overlap as the Unit 1 Shift Manager was in command and control and this task was performed for a short period.

5.3.4 Analysis Event # 12 Control Room Evacuation Due to Fire

A. Time motion study results for potential overlaps identified in the task analysis are as follows:

1. Unit 2 Shift Manager

Task (5/15) Personnel Accountability: Task analysis indicated that the Unit 2 Shift Manager performed this task during a Control Room fire event. Time motion study determined that this task consisted of recording the names of on shift personnel, which took less than one minute, and providing the list to CAS. This did not result in any overlap.

2. Unit 2 BOP Operator

Task (5/13) Perform NRC notifications: Task analysis indicated that the Unit 2 BOP Operator would perform plant operations activities (2/9.A) and (2/9.B). A potential overlap occurred when the Unit 2 BOP Operator was subsequently directed to perform (5/13) NRC notifications. Time motion study analysis determined that the Unit 2 BOP Operator performed these activities in sequence with no delay in actions assigned.

- B. Time motion study results for potential overlaps not identified in the task analysis are as follows:

None

5.3.5 Analysis Event # 13 Station Blackout (SBO)

- A. Time motion study results for potential overlaps identified in the task analysis are as follows:

1. Unit 2 Shift Manager

Task (5/15) Personnel Accountability: Task analysis indicated that the Unit 2 Shift Manager performed this task during a SBO event. Time motion study determined that this task consisted of recording the names of on shift personnel, which took less than one minute, and providing the list to CAS. This did not result in any overlap.

2. Unit 1 BOP Operator

Task (5/13) Perform NRC Notifications: Task analysis indicated that the Unit 1 BOP Operator was assigned operations task (2/8) while being assigned to perform NRC notifications. (5/15). Time motions study determined that this task was performed by the Unit 2 Shift Manager and therefore there is no overlap.

- B. Time motion study results for potential overlaps not identified in the task analysis are as follows:

1. Unit 1 Shift Manager

Task (5/13) Perform NRC Notifications: Task analysis indicated that the Unit 1 BOP Operator would be assigned this task during a SBO event. Time motions analysis determined that the Unit 1 Shift Manager performed NRC notifications. Performance of NRC notifications is technical and requires an understanding of the event, plant conditions and response actions taking place. Maintaining an open line with the NRC by the Unit 1 Shift Manager does not create an overlap as the Unit 2 Shift Manager was in command and control and this task was performed for a short period.

6 LIST OF REFERENCES

- 6.1 10 CFR 50.47(b)(2)
- 6.2 10 CFR 50 Appendix E Section IV.A.9
- 6.3 NSIR/DPR-ISG-01, Interim Staff Guidance – Emergency Planning for Nuclear Power Plants
- 6.4 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 6.5 NEI 10-05, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities, Rev 0
- 6.6 NOP-OP-1002, Conduct of Operations
- 6.7 BVPS U1 UFSAR Section 14, Standby Safeguards Analysis
- 6.8 BVPS U2 UFSAR Section 15.0.1.4 Condition IV - Limiting Faults
- 6.9 1/2 EPP-I-1a/b, Recognition and Classification of Emergency Conditions
- 6.10 1/2 EPP-IP-I.2, Unusual Event
- 6.11 1/2 EPP-IP-I.3, Alert
- 6.12 1/2 EPP-IP-I-4, Site Area Emergency
- 6.13 1/2 EPP-IP-I-5, General Emergency
- 6.14 1/2-EPP-1.1, Notifications
- 6.15 1/2-EPP-1.2, Communications and Dissemination of Information
- 6.16 1/2-EPP-1.3, Turnover
- 6.17 1/2-EPP-2.6.Dose Projections
- 6.18 1/2-epp-3.1, Evacuation
- 6.19 1/2-EPP-3.2, Site Assembly and Accountability
- 6.20 1/2-EPP-4.1, Offsite Protective Actions
- 6.21 1AOP-1.49.1, Irradiated Fuel Damage (Unit 1)
- 6.22 1/2OM-48.1.A, Operations Duties and Responsibilities During EPP Implementation (dual unit)
- 6.23 Movement of Spent Fuel Pool Crane Checklist (Unit 1)
- 6.24 Reactor Trip or Safety Injection (Unit 1)

- 6.25 Steam Generator Tube Rupture (Unit 1)
- 6.26 1/2OM-53C.4A.100.1, Security Threat Procedure (dual unit)
- 6.27 1/2OM-53C.4A.100.2, Land-Based Threat (dual unit)
- 6.28 1/2OM-53C.4A.100.3, Airborne Threat (dual unit)
- 6.29 1OM-53C.4.1.33.1A, Control Room Inaccessibility
- 6.30 2OM-53C.4.2.33.1A, Control Room Inaccessibility
- 6.31 1/2OM-53F.1.SACRG-1, Severe Accident Control Room Guideline Initial Response Background
- 6.32 1OM-56C.4, Table of Contents
- 6.33 2OM-56C.4, Table of Contents
- 6.34 2OM-56C.1.Basis/Background
- 6.35 1/2ADM- 1106 Drill/Exercise Scenario Development, Preparation and Conduct
- 6.36 1/2ADM-1351, Licensed Operator Continuing Training Program
- 6.37 1340-012-03-023 Direct EPP Communicator to perform required of on-site and off-site personnel for abnormal conditions
- 6.38 1350-005-03-033 Direct required notifications to be made to on-site and off-site personnel for emergency plan events.

Attachment 1: NEI 10-05 Table 5 Controlling Method Correlation

| Line | Function/Task | OPs Training Program and EP Drill Program Task Analysis Controlling Method |
|------|--|--|
| 1. | Declare the Emergency Classification Level (ECL) | 1/2ADM-1351: Licensed Operator Continuing Training Program A.2 Demonstrate the Control Room (Simulator) personnel's ability to initially identify and classify emergency conditions using the EALs. If a General Emergency is declared, demonstrate performing a dose projection and making a Protective Action Recommendation (PAR). |
| 2. | Approve Offsite Protective Action Recommendations | A.2 Demonstrate the Control Room (Simulator) personnel's ability to initially identify and classify emergency conditions using the EALs. If a General Emergency is declared, demonstrate performing a dose projection and making a Protective Action Recommendation (PAR). |
| 3. | Approve content of State/local notifications | 1340-012-03-023: Direct EPP Communicator to perform required of on-site and off-site personnel for abnormal conditions. A.4 Demonstrate the Control Room's (Simulator) efficient and effective 24-hour communications capability to notify offsite and onsite personnel which includes the use of phone systems, audible alarms, public address systems, and/or visual alarms. B.1 Demonstrate the ability to perform timely and accurate emergency classification notifications to appropriate State and County agencies per 1/2-EPP-IP-1.1, Notifications. |
| 4. | Approve extension to allowable dose limits | A.9 Demonstrate the Control Room (Simulator) personnel's ability to complete an emergency dose exposure extension approval. |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | 1350-006-03-023: Direct emergency response initially as the Site Emergency Director A.4 Demonstrate the Control Room's (Simulator) efficient and effective 24-hour communications capability to notify offsite and onsite personnel which includes the use of phone systems, audible alarms, public address systems, and/or visual alarms. |
| 6. | ERO notification | 1350-005-03-033: Direct required notifications to be made to on-site and off-site personnel for emergency plan events. A.3 Demonstrate the Control Room (Simulator) personnel's ability to initially notify ERO personnel via Beepers using the Beaver Valley Emergency Response System (BVERS), or alternate methods. |
| 7. | Abbreviated NRC notification for DBT event | A.6 Demonstrate the control room's (Simulator) capability to promptly provide an abbreviated notification to NRC personnel for a security based event. |

Attachment 1: NEI 10-05 Table 5 Controlling Method Correlation

| Line | Function/Task | OPs Training Program and EP Drill Program Task Analysis Controlling Method |
|------|---|--|
| 8. | Complete State/local notification form | 1/2ADM-1351: Licensed Operator Continuing Training Program A.4 Demonstrate the Control Room's (Simulator) efficient and effective 24-hour communications capability to notify offsite and onsite personnel which includes the use of phone systems, audible alarms, public address systems, and/or visual alarms. |
| 9. | Perform State/local notifications | 1/2ADM-1351: Licensed Operator Continuing Training Program B.1 For On-shift Communications personnel, demonstrate the ability to perform timely and accurate emergency classification notifications to appropriate State and County agencies |
| 10. | Complete NRC event notification form | 1330-028-03-023: Initiate and complete NRC form 361. |
| 11. | Activate ERDS | N/A – ERDS is continually operating. |
| 12. | Offsite radiological assessment | A.2 Demonstrate the Control Room (Simulator) personnel's ability to initially identify and classify emergency conditions using the EALs. If a General Emergency is declared, demonstrate performing a dose projection and making a Protective Action Recommendation (PAR). E.5 Demonstrate the ability to perform timely and accurate offsite dose projections concerning potential airborne radiological releases using FSAR, isotopic, or monitor information. E.6 Demonstrate the ability to provide appropriate dose assessment information to the Emergency Director or the Emergency Recovery Manager, as appropriate. |
| 13. | Perform NRC notifications | A.5 Demonstrate the Control Room's (Simulator) efficient and effective 24 hour communications capability to notify NRC personnel which includes completing an NRC form 361 and the use of phone systems to complete the 10CFR50.72 call (including assigning an individual to maintain contact if requested by the NRC). |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A – Shift staff is not procedurally required to perform other offsite event notifications. |
| 15. | Personnel accountability | G.3 Demonstrate the ability to perform personnel Assembly/Accountability for the BVPS site. |

Note: EP Drill objectives taken from 1/2-ADM-1106

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #1 – Fuel Handling Accident (FHA)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 5 / 15 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | N/A | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 2 / 9 5 / 9 5 / 13 | No | Yes |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | N/A | No | No |
| 10. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | 4 / 2 4 / 8 | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #1 – Fuel Handling Accident (FHA)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct AOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR AOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | N/A | N/A |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR AOP/ARP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | Perform CR AOP actions | Ops Training Program |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant AOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | N/A | N/A |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #1 – Fuel Handling Accident (FHA)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #1 – Fuel Handling Accident (FHA)

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: RP Technician #2 | | X | | X | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Direct RP Activities On-Shift Position: RP Technician #2 | X | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #1 – Fuel Handling Accident (FHA)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|--------------------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|--|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 2 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 5 / 15 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7 | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 11. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 12. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 9. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 10. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | 4 / 1 | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | 4 / 2 4 / 4 | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | 5 / 15 | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: RP Technician #2 | | X | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: RP Technician #3 | | | X | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: RP Technician #3 | | X | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #2 – Steam Generator Tube Rupture (SGTR)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|---|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | U1 Shift Manager | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager Security Shift Supervisor | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #3 – Main Steam Line Break (MSLB)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role In Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | N/A | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #3 – Main Steam Line Break (MSLB)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | N/A | N/A |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #3 – Main Steam Line Break (MSLB)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #3 – Main Steam Line Break (MSLB)

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #3 – Main Steam Line Break (MSLB)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|--------------------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | N/A | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #4 – Main Feedwater Line Break

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | N/A | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #4 – Main Feedwater Line Break

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | A. STA Tasks | Ops Training Program |
| | | | B. Perform CR EOP actions | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | N/A | N/A |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #4 – Main Feedwater Line Break

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #4 – Main Feedwater Line Break

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #4 – Main Feedwater Line Break

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|--------------------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | N/A | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #5 – Control Rod Assembly Ejection

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 5 / 15 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | N/A | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | 4 / 4 | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | 5 / 15 | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #5 – Control Rod Assembly Ejection

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | N/A | N/A |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #5 – Control Rod Assembly Ejection

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #5 – Control Rod Assembly Ejection

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|---|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: RP Technician #2 | X | X | | X | X | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #5 – Control Rod Assembly Ejection

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|---|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager Security Shift Supervisor | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 5 / 15 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7 | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | 2 / 12 | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | 4 / 1 4 / 4 | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | 4 / 4 | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 4 / 7 5 / 9 | No | Yes |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | Perform In-plant EOP actions | Ops Training Program |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|--------|--------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: RP Technician #2 | | X | X | X | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: RP Technician #2 RP Technician #3 | | | | | | X X | X X | X | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Sampling On-Shift Position: Chemistry Technician | | | | | | X | X | X | X | X | X | X |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|--------------------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #7 – Reactor Coolant Pump Locked Rotor

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|---|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 5 / 6 5 / 10 5 / 15 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | N/A | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | N/A | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 5 / 9 5 / 13 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | 4 / 5 4 / 6 | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | 4 / 4 | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | 5 / 15 | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #7 – Reactor Coolant Pump Locked Rotor

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | N/A | N/A |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | N/A | N/A |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP actions | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | N/A | N/A |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP actions | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | N/A | N/A |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP actions | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP actions | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #7 – Reactor Coolant Pump Locked Rotor

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #7 – Reactor Coolant Pump Locked Rotor

| # | Position Performing Function/Task | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|---|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: RP Technician #2 | | | | | X | X | X | X | X | X | X | X |
| 5. | Offsite Radiological Assessment On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Monitor In-Plant Radiation Levels: On-Shift Position: RP Technician #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. | Sampling On-Shift Position: Chemistry Technician | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #7 – Reactor Coolant Pump Locked Rotor

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|---|--|
| 1. | Declare the Emergency Classification Level (ECL) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U1 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U1 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U1 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager Security Shift Supervisor | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #10 – Design Basis Threat (DBT)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|--|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 5 / 7 5 / 13 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 | No | Yes |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | 2 / 4.A 2 / 4.B | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7 | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 5 / 13 | No | Yes |
| 9. | U2 BOP | Table 5.1 | | 2 / 9 5 / 9 | No | Yes |
| 10. | NLO #1 | Table 5.1 | | N/A | No | No |
| 11. | NLO #2 | Table 5.1 | | N/A | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | N/A | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | N/A | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #10 – Design Basis Threat (DBT)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|--|--|
| 1. | Shift Manager #1 | U1 Shift Manager | N/A | N/A |
| 2. | Shift Manager #2 | U2 Shift Manager | Plant and crew oversight | Ops Training Program |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct HAB actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | A. Plant and crew oversight B. Direct HAB actions | Ops Training Program Ops Training Program |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR HAB activities | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | Perform CR HAB activities | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR HAB activities | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | Perform CR HAB activities | Ops Training Program |
| 10. | Auxiliary Operator #1 | NLO #1 | N/A | N/A |
| 11. | Auxiliary Operator #2 | NLO #2 | N/A | N/A |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #10 – Design Basis Threat (DBT)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #10 – Design Basis Threat (DBT)

| # | Position Performing Function/Task On-Shift Position: | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: | | | | | | | | | | | | |
| 6. | Other Site-Specific RP – Describe: On-Shift Position: | | | | | | | | | | | | |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #10 – Design Basis Threat (DBT)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|----------------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U2 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | U1 Shift Manager | EP Drill Program |
| 8. | Complete State/local notification form | U2 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | U2 BOP | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U1 Shift Manager U1 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #11 – Probable Aircraft Threat (PAT)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|--|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 5 / 13 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 | No | No |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | 2 / 4 | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7 | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 | No | No |
| 9. | U2 BOP | Table 5.1 | | 2 / 9 | No | No |
| 10. | NLO #1 | Table 5.1 | | N/A | No | No |
| 11. | NLO #2 | Table 5.1 | | N/A | No | No |
| 12. | NLO #3 | Table 5.1 | | N/A | No | No |
| 13. | NLO #4 | Table 5.1 | | N/A | No | No |
| 14. | NLO #5 | Table 5.1 | | N/A | No | No |
| 15. | NLO #6 | Table 5.1 | | N/A | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | N/A | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | N/A | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #11 – Probable Aircraft Threat (PAT)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|---------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | N/A | N/A |
| 2. | Shift Manager #2 | U2 Shift Manager | Plant and crew oversight | Ops Training Program |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct HAB actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | Direct HAB actions | Ops Training Program |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR HAB activities | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | Perform CR HAB activities | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR HAB activities | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | Perform CR HAB activities | Ops Training Program |
| 10. | Auxiliary Operator #1 | NLO #1 | N/A | N/A |
| 11. | Auxiliary Operator #2 | NLO #2 | N/A | N/A |
| 12. | Auxiliary Operator #3 | NLO #3 | N/A | N/A |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | N/A | N/A |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #11 – Probable Aircraft Threat (PAT)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #11 – Probable Aircraft Threat (PAT)

| # | Position Performing Function/Task On-Shift Position: | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: | | | | | | | | | | | | |
| 6. | Other Site-Specific RP – Describe: On-Shift Position: | | | | | | | | | | | | |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #11 – Probable Aircraft Threat (PAT)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|----------------------|--|
| 1. | Declare the Emergency Classification Level (ECL) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U2 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U2 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U1 Shift Manager | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | N/A | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #12 – Control Room Evacuation Due to Fire

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|--|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 | No | Yes |
| 3. | U1 Supervisor | Table 5.1 | | 3 / 1 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | 2 / 4 | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6.A 2 / 6.B | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7.A 2 / 7.B | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8.A 2 / 8.B 2 / 8.C | No | No |
| 9. | U2 BOP | Table 5.1 | | 2 / 9.A 2 / 9.B 5 / 13 | No | Yes |
| 10. | NLO #1 | Table 5.1 | | 3 / 2 | No | No |
| 11. | NLO #2 | Table 5.1 | | 3 / 3 | No | No |
| 12. | NLO #3 | Table 5.1 | | 2 / 12 | No | No |
| 13. | NLO #4 | Table 5.1 | | 3 / 4 | No | No |
| 14. | NLO #5 | Table 5.1 | | 3 / 5 | No | No |
| 15. | NLO #6 | Table 5.1 | | 2 / 15 | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | N/A | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | 5 / 15 | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #12 – Control Room Evacuation Due to Fire

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|------------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | Plant and crew oversight | Ops Training Program |
| 3. | Unit Supervisor #1 | U1 Supervisor | N/A | N/A |
| 4. | Unit Supervisor #2 | U2 Supervisor | Plant and crew oversight | Ops Training Program |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | A. Perform CR AOP activities | Ops Training Program |
| | | | B. Perform BIP activities | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | A. Perform CR AOP activities | Ops Training Program |
| | | | B. Perform SDP activities | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | A. Perform CR AOP activities | Ops Training Program |
| | | | B. Perform In-plant AOP activities | Ops Training Program |
| | | | C. Perform BIP activities | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | A. Perform CR AOP activities | Ops Training Program |
| | | | B. Perform In-plant AOP activities | Ops Training Program |
| 10. | Auxiliary Operator #1 | NLO #1 | N/A | N/A |
| 11. | Auxiliary Operator #2 | NLO #2 | N/A | N/A |
| 12. | Auxiliary Operator #3 | NLO #3 | Perform In-plant AOP activities | Ops Training Program |
| 13. | Auxiliary Operator #4 | NLO #4 | N/A | N/A |
| 14. | Other | NLO #5 | N/A | N/A |
| 15. | Other | NLO #6 | Perform In-plant AOP activities | Ops Training Program |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #12 – Control Room Evacuation Due to Fire

| Line | Performed By | Task Description | Controlling Method |
|------|-------------------------------------|-------------------------|-------------------------|
| 1. | Fire Brigade Leader (U1 Supervisor) | Firefighting Activities | Fire Protection Program |
| 2. | Fire Brigade Member #1 (NLO #1) | Firefighting Activities | Fire Protection Program |
| 3. | Fire Brigade Member #2 (NLO #2) | Firefighting Activities | Fire Protection Program |
| 4. | Fire Brigade Member #3 (NLO #3) | Firefighting Activities | Fire Protection Program |
| 5. | Fire Brigade Member #4 (NLO #4) | Firefighting Activities | Fire Protection Program |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #12 – Control Room Evacuation Due to Fire

| # | Position Performing Function/Task On-Shift Position: | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|---|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: | | | | | | | | | | | | |
| 6. | Other Site-Specific RP – Describe: On-Shift Position: | | | | | | | | | | | | |
| 7. | Sampling On-Shift Position: Chemistry Technician | | | | X | X | X | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #12 – Control Room Evacuation Due to Fire

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|---|--|
| 1. | Declare the Emergency Classification Level (ECL) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U2 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U2 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U2 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager Security Shift Supervisor | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Analysis Event #13 – Station Blackout (SBO)

| Line | On-shift Position | Emergency Plan Reference | Augmentation Elapsed Time (min) | Role in Table#/Line# | Unanalyzed Task? | TMS Required? |
|------|---------------------------|--------------------------|------------------------------------|--|---------------------|------------------|
| 1. | U1 Shift Manager | Table 5.1 | | 2 / 1 | No | No |
| 2. | U2 Shift Manager | Table 5.1 | | 2 / 2 5 / 1 5 / 3 5 / 5 5 / 6 5 / 8 5 / 10 5 / 15 | No | Yes |
| 3. | U1 Supervisor | Table 5.1 | | 2 / 3 | No | No |
| 4. | U2 Supervisor | Table 5.1 | | 2 / 4 | No | No |
| 5. | STA | Table 5.1 | | 2 / 5 | No | No |
| 6. | U1 Reactor Operator | Table 5.1 | | 2 / 6 | No | No |
| 7. | U2 Reactor Operator | Table 5.1 | | 2 / 7 | No | No |
| 8. | U1 BOP | Table 5.1 | | 2 / 8 5 / 13 | No | Yes |
| 9. | U2 BOP | Table 5.1 | | 2 / 9 | No | No |
| 10. | NLO #1 | Table 5.1 | | 2 / 10 | No | No |
| 11. | NLO #2 | Table 5.1 | | 2 / 11 | No | No |
| 12. | NLO #3 | Table 5.1 | | 2 / 12 | No | No |
| 13. | NLO #4 | Table 5.1 | | 2 / 13 | No | No |
| 14. | NLO #5 | Table 5.1 | | 2 / 14 | No | No |
| 15. | NLO #6 | Table 5.1 | | 2 / 15 | No | No |
| 16. | RP Technician #1 | Table 5.1 | 120 | N/A | No | No |
| 17. | RP Technician #2 | Table 5.1 | 120 | N/A | No | No |
| 18. | RP Technician #3 | Table 5.1 | 120 | N/A | No | No |
| 19. | Chemistry Technician | Table 5.1 | | 5 / 9 | No | No |
| 20. | Security Shift Supervisor | Table 5.1 | | 5 / 15 | No | No |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 2 – Plant Operations & Safe Shutdown

Analysis Event #13 – Station Blackout (SBO)

Minimum Operations Crew (Two Units – Single Control Rooms)

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|-------------------------|---------------------|---------------------------------|----------------------|
| 1. | Shift Manager #1 | U1 Shift Manager | Plant and crew oversight | Ops Training Program |
| 2. | Shift Manager #2 | U2 Shift Manager | Plant and crew oversight | Ops Training Program |
| 3. | Unit Supervisor #1 | U1 Supervisor | Direct EOP actions | Ops Training Program |
| 4. | Unit Supervisor #2 | U2 Supervisor | Direct EOP actions | Ops Training Program |
| 5. | Shift Technical Advisor | STA | STA Tasks | Ops Training Program |
| 6. | Reactor Operator #1 | U1 Reactor Operator | Perform CR EOP activities | Ops Training Program |
| 7. | Reactor Operator #2 | U2 Reactor Operator | Perform CR EOP activities | Ops Training Program |
| 8. | Reactor Operator #3 | U1 BOP | Perform CR EOP activities | Ops Training Program |
| 9. | Reactor Operator #4 | U2 BOP | Perform CR EOP activities | Ops Training Program |
| 10. | Auxiliary Operator #1 | NLO #1 | Perform In-plant EOP activities | Ops Training Program |
| 11. | Auxiliary Operator #2 | NLO #2 | Perform In-plant EOP activities | Ops Training Program |
| 12. | Auxiliary Operator #3 | NLO #3 | Perform In-plant EOP activities | Ops Training Program |
| 13. | Auxiliary Operator #4 | NLO #4 | Perform In-plant EOP activities | Ops Training Program |
| 14. | Other | NLO #5 | Perform In-plant EOP activities | Ops Training Program |
| 15. | Other | NLO #6 | Perform In-plant EOP activities | Ops Training Program |

Other (non-Operations) Personnel

| Line | Generic Title/Role | On-Shift Position | Task Description | Controlling Method |
|------|--------------------|---------------------------|------------------|--------------------|
| N/A | Mechanic | Collateral duty of an NLO | N/A | N/A |
| N/A | Electrician | Collateral duty of an NLO | N/A | N/A |
| N/A | I&C Technician | Collateral duty of an NLO | N/A | N/A |

TABLE 3 – Firefighting

Analysis Event #13 – Station Blackout (SBO)

| Line | Performed By | Task Description | Controlling Method |
|------|------------------------|------------------|--------------------|
| 1. | Fire Brigade Leader | N/A | N/A |
| 2. | Fire Brigade Member #1 | N/A | N/A |
| 3. | Fire Brigade Member #2 | N/A | N/A |
| 4. | Fire Brigade Member #3 | N/A | N/A |
| 5. | Fire Brigade Member #4 | N/A | N/A |

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 4 – Radiation Protection and Chemistry

Analysis Event #13 – Station Blackout (SBO)

| # | Position Performing Function/Task On-Shift Position: | Performance Time Period After Emergency Declaration (minutes) | | | | | | | | | | | |
|----|--|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|---------|
| | | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| 1. | In-Plant Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 2. | On-Site Radiological Survey On-Shift Position: | | | | | | | | | | | | |
| 3. | Personnel Monitoring On-Shift Position: | | | | | | | | | | | | |
| 4. | Job Coverage On-Shift Position: | | | | | | | | | | | | |
| 5. | Offsite Radiological Assessment On-Shift Position: | | | | | | | | | | | | |
| 6. | Other Site-Specific RP – Describe: On-Shift Position: | | | | | | | | | | | | |
| 7. | Chemistry function/task #1 – Describe: On-Shift Position: | | | | | | | | | | | | |
| 8. | Chemistry function/task #2 – Describe: On-Shift Position: | | | | | | | | | | | | |

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

TABLE 5 – Emergency Plan Implementation

Analysis Event #13 – Station Blackout (SBO)

| Line | Function/Task | On-Shift Position | Task Analysis Controlling Method |
|------|--|---|--|
| 1. | Declare the Emergency Classification Level (ECL) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 2. | Approve Offsite Protective Action Recommendations | N/A | EP Drill Program |
| 3. | Approve content of State/local notifications | U2 Shift Manager | Ops Training Program EP Drill Program |
| 4. | Approve extension to allowable dose limits | N/A | EP Drill Program |
| 5. | Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.) | U2 Shift Manager | Ops Training Program EP Drill Program |
| 6. | ERO notification | U2 Shift Manager | Ops Training Program EP Drill Program |
| 7. | Abbreviated NRC notification for DBT event | N/A | EP Drill Program |
| 8. | Complete State/local notification form | U2 Shift Manager | Ops Training Program EP Drill Program |
| 9. | Perform State/local notifications | Chemistry Technician | Ops Training Program EP Drill Program |
| 10. | Complete NRC event notification form | U2 Shift Manager | Ops Training Program |
| 11. | Activate ERDS | N/A | N/A |
| 12. | Offsite radiological assessment | N/A | EP Drill Program |
| 13. | Perform NRC notifications | U1 BOP | EP Drill Program |
| 14. | Perform other site-specific event notifications (e.g., INPO, ANI, etc.) | N/A | N/A |
| 15. | Personnel accountability | U2 Shift Manager Security Shift Supervisor | EP Drill Program |

Note: Lines #3, #8 and #9 includes initial and follow-up State/local notifications.

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #1 – Fuel Handling Accident (FHA)

Position: Unit 1 Shift Manager

Line #: 1-1

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|--|------------|
| 1. Command and Control | 1.1 Plant and Crew Oversight (2/1) | 1.1.1 NOP-OP-1002 | Thru Event |
| | 1.2 Notification and direction to on-shift staff (5/5) | 1.2.1 1/2EPP-IP-I-3, Alert | Thru Event |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | 2.1.1 1/2EPP I-1a (determine EAL and ECL) 2.1.2 1/2EPP-I-3 (Announce the Alert) | 2 |
| 3. Local/State Event Notification (ECL and PAR) | 3.1 Complete State/local notification form (5/8) | 3.1.1 1/2EPP-I-3 (initial) | 4 |
| | | Follow-up Not Performed | N/A |
| | 3.2 Approve content of State/local notifications (5/3) | 3.2.1 1/2EPP-I-3 (initial) | 1 |
| | | 3.2.2 1/2EPP-I-3 (follow-up) | 1 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|---|
| 16:02 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Plant and Crew Oversight: Continuous OPs management (16:02 – Thru Event) |
| 16:02 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Notification and direction to on-shift staff: Continuous ERO management (16:02– Thru Event) |
| 16:02 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Declare the ECL: Assess conditions and classify (16:02 – 16:04) |
| 16:07 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Complete State/local notification form: initial notification (16:07 – 16:11) |
| 16:14 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Approve content of State/local notifications: initial notification (16:14 – 16:14) |
| 16:47 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Approve content of State/local notifications: follow-up notification (16:47 – 16:47) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #1 – Fuel Handling Accident (FHA)

Position: Unit 2 Shift Manager

Line #: 1-2

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|----------|
| 1. ERO Notification | 1.1 Perform ERO notifications (5/6) | 1.1.1 1/2EPP-I-3 | 5 |
| 2. Local/State Event Notification (ECL and PAR) | 2.1 Complete State/local notification form (5/8) | 2.1.1 1/2EPP-I-3 (follow-up) | 17 |
| 3. NRC Notifications | 3.1 Complete NRC event notification form (5/10) | 3.1.1 1/2EPP-I-3 | 11 |
| | 3.2 Perform NRC notifications (5/13) | 3.2.1 1/2EPP-I-3 | 4 |
| 4. Assembly and Accountability | 4.1 Personnel Accountability (5/15) | 4.1.1 1/2EPP-I-3 | 2 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|--|
| 16:15 | All actions completed in the Control Room, refer to section 3.4.2.1 for event and conditions description | Perform ERO notifications (16:15 -16:20) |
| 16:23 | All actions completed in the Control Room, refer to section 3.4.2.1 for event and conditions description | Personnel Accountability (16:23-16:25) |
| 16:28 | All actions completed in the Control Room, refer to section 3.4.2.1 for event and conditions description | Complete State/local notification form: follow-up notification (16:28 – 16:45) |
| 16:45 | All actions completed in the Control Room, refer to section 3.4.2.1 for event and conditions description | Complete NRC event notification form (16:45 – 16:56) |
| 16:56 | All actions completed in the Control Room, refer to section 3.4.2.1 for event and conditions description | Perform NRC notification (16:56 – 17:00) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #1 – Fuel Handling Accident (FHA)

Position: Unit 2 BOP Operator

Line #: 1-9

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|------------------------------|----------|
| 1. Plant Operations (status monitoring and EOP actions) | 1.1 Perform CR AOP actions (2/9) | Not Performed | N/A |
| 2. Local/State Event Notification (ECL and PAR) | 2.1 Perform State/local notifications (5/9) | 2.1.1 1/2EPP-I-1 (initial) | 3 |
| | | 2.1.2 1/2EPP-I-3 (follow-up) | 1 |
| 3. Perform NRC Notifications | 3.1 Perform NRC notifications (5/13) | 3.1.1 1/2EPP-I-3 | 68 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|---|
| 16:14 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Perform State/local notifications: initial notification (16:14 – 16:17) |
| 16:49 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Perform State/local notifications: follow-up notification (16:49 – 16:50) |
| 17:00 | All actions completed in the Control Room. Refer to section 3.4.2.1 for event and conditions description. | Perform NRC notifications: takes over NRC communications from U2 SM. (17:00 – Thru Event) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

Position: Unit 1 Shift Manager

Line #: 1-1

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|------------|
| 1. Command and Control | 1.1 Plant and crew oversight (2/1) | 1.1.1 NOP-OP-1002 | Thru Event |
| | 1.2 Notification and direction to on-shift staff (5/5) | 1.2.1 1/2EPP-IP-I-3 (Alert) | Thru Event |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | 2.1.1 1/2EPP I-1a | 3 |
| 3. Local/State Event Notification (ECL and PAR) | 3.1 Complete State/local notification form (5/8) | 3.1.1 1/2EPP-I-3 (initial) | 4 |
| | | Follow-up Not Performed | N/A |
| | 3.2 Approve content of State/local notifications (5/3) | 3.2.1 1/2EPP-I-3 (initial) | 1 |
| | | 3.2.3 1/2EPP-I-3 (follow-up) | 32 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|--|
| 16:27 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Plant Oversight: Continuous OPs management (16:27 – Thru Event) |
| 16:27 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Notification and direction to on-shift staff: Continuous ERO management (16:27 – Thru Event) |
| 16:27 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Declare the ECL: Assess conditions and classify (16:27 – 16:30) |
| 16:30 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Complete State/local notification form: initial notification (16:30 – 16:34) |
| 16:34 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Approve content of State/local notifications: initial notification (16:34 – 16:35) |
| 17:29 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Approve content of State/local notifications: follow-up notification (17:29-18:01) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

Position: Unit 2 Shift Manager

Line #: 1-2

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|----------|
| 1. ERO Notification | 1.1 ERO notification (5/6) | 1.1.1 1/2EPP-I-3 | 10 |
| 2. Local/State Event Notification (ECL and PAR) | 2.1 Complete State/local notification form (5/8) | 2.1.1 1/2EPP-I-3 (follow-up) | 4 |
| 3. NRC Notification | 3.1 Complete NRC event notification form (5/10) | 3.1.1 1/2EPP-I-4 | 16 |
| | 3.2 Perform NRC notifications (5/13) | 3.2.1 1/2EPP-I-3 | 32 |
| 4. Assembly and Accountability | 4.1 Personnel Accountability (5/15) | 4.1.1 1/2EPP-I-3 | 1 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|--|
| 16:38 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | ERO notification (16:38 – 16:48) |
| 16:48 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Personnel Accountability (16:48 – 16:49) |
| 16:50 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Complete NRC event notification form (16:50 – 17:06) |
| 17:07 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Perform NRC notifications (17:07 – 17:18) |
| 17:25 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Complete State/local notification form: follow-up notification (17:25 – 17:29) |
| 17:40 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Perform NRC notifications (17:40 – 18:01) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #6 – Large Break Loss of Coolant Accident (LB-LOCA)

Position: Unit 2 BOP Operator

Line #: 1-9

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|------------------------------|----------|
| 1. Local/State Event Notification (ECL and PAR) | 1.1 Perform State/local notifications (5/9) | 1.1.1 1/2EPP-I-1 (initial) | 5 |
| | | 1.1.2 1/2EPP-I-3 (follow-up) | 5 |
| 2. NRC Notification | 2.1 Perform NRC notifications (5/13) | 2.1.1 1/2EPP-I-3 | 12 |
| | | 2.1.2 NRC Form 361 | |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|---|
| 16:35 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Perform State/local notifications: initial notification (16:35 – 16:41) |
| 17:18 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Perform NRC notifications (17:18-17:40) |
| 18:01 | Actions completed in the Control Room. Refer to section 3.4.2.6 for event and conditions description. | Perform State/local notifications: follow-up notification (18:01 – 18:06) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #10 – Design Basis Threat (DBT)

Position: Unit 1 Shift Manager

Line #: 1-1

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|------------|
| 1. Command and Control | 1.1 Plant and crew oversight | 1.1.1 NOP-OP-1002 | Thru Event |
| | 1.2 Notification and direction to on-shift staff (5/5) | 1.1.2 1/2EPP-I-4 | Thru Event |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | 2.1.1 1/2EPP I-1a (SAE) | 8 |
| 3. Local/State Event Notification (ECL and PAR) | 3.1 Complete State/local notification form (5/8) | 3.1.2 1/2EPP-I-3 (follow-up) | 6 |
| | 3.2 Approve content of State/local notifications (5/3) | 3.2.1 1/2EPP-I-3 (initial) | 1 |
| | | 3.2.3 1/2EPP-I-3 (follow-up) | 1 |
| 4. NRC Event Notification | 4.1 Make Abbreviated NRC Notifications (5/7) | Not Performed | N/A |
| | 4.2 Perform NRC notifications (5/13) | Not Performed | N/A |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|--|
| 16:20 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Plant and Crew Oversight: Continuous OPs management (16:20 - Thru Event) |
| 16:20 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Notification and direction to on-shift staff: Continuous ERO management (16:20 – Thru Event) |
| 16:20 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Declare the ECL: Assess conditions and classify (16:20 – 16:28) |
| 16:39 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Approve content of State/local notifications: initial notification (16:39 – 16:39) |
| 17:09 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Complete State/local notification form: follow-up (17:09 – 17:15) |
| 17:16 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Approve content of State/local notifications: follow-up (17:15 – 17:16) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #10 – Design Basis Threat (DBT)

Position: Unit 2 Shift Manager

Line #: 1-2

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|----------------------------|----------|
| 1. Command and Control | 1.1 Plant and crew oversight (2/2) | Not Performed | N/A |
| | 1.2 Notification and direction to on-shift staff (5/5) | Not Performed | N/A |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | Not Performed | N/A |
| 3. ERO Notification | 3.1 ERO Notification (5/6) | 3.1.1 1/2EPP-I-4 | 8 |
| 4. Local/State Event Notification (ECL and PAR) | 4.1 Complete State/local notification form (5/8) | 3.1.1 1/2EPP-I-4 (initial) | 4 |
| | 4.2 Approve content of State/local notifications (5/3) | Not Performed | N/A |
| 5. NRC Event Notification | 5.1 Make Abbreviated NRC Notifications (5/7) | 5.1.1 1/2EPP-I-4 | 1 |
| | 5.2 Complete NRC event notification form (5/10) | 5.2.1 1/2EPP-I-4 | 9 |
| | 5.3 Perform NRC notifications (5/13) | 5.3.1 1/2EPP-I-3 | 69 |
| 6. Assembly and Accountability | 6.1 Complete CR accountability (5/15) | Not Performed | N/A |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|--|
| 16:28 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Complete State/local notification form: initial notification (16:28 – 16:32) |
| 16:33 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Make Abbreviated NRC Notifications (16:33 – 16:33) |
| 16:33 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | ERO Notification (16:33 – 16:41) |
| 16:49 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Complete NRC event notification form (16:49 – 16:58) |
| 17:11 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Complete NRC notification (17:11 – Thru Event) |

NRC Control Room phone is equipped with a portable headset to enable the individual on the phone to be mobile.

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event #10 – Design Basis Threat (DBT)

Position: Unit 2 BOP Operator

Line #: 1-9

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|------------------------------|----------|
| 1. Plant Operations (status monitoring and EOP actions) | 1.1 Perform CR HAB activities (2/9) | 1.1.1 E-0 | 1 |
| 2. Local/State Event Notification (ECL and PAR) | 2.1 Perform State/local notifications (5/9) | 2.1.1 1/2EPP-I-1 (initial) | 5 |
| | | 2.2.1 1/2EPP-I-3 (follow-up) | 3 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|---|
| 16:29 | All actions completed in the Control Room, refer to section (report section for event and conditions description) | Perform CR HAB activities (16:29 – 16:30) |
| 16:39 | All actions completed in the Control Room, refer to section (report section for event and conditions description) | Perform State/local notifications: initial notification (16:39 – 16:44) |
| 17:20 | All actions completed in the Control Room, refer to section (report section for event and conditions description) | Perform State/local notifications: follow-up notification (17:20 – 17:22) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event # 12: – Control Room Evacuation Due to Fire

Position: Unit 2 Shift Manager

Line #: 1-2

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|------------|
| 1. Command and Control | 1.1 Plant and crew oversight (2/2) | 1.1.1 NOP-OP-1002 | 7 |
| | 1.2 Notification and direction to on-shift staff (5/5) | 1.2.1 1/2EPP-I-4 | Thru Event |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | 2.1.1 1/2EPP I-1a | 3 |
| 3. Local/State Event Notification (ECL and PAR) | 3.1 Complete State/local notification form (5/8) | 3.1.1 1/2EPP-I-4 (initial) | 3 |
| | | 3.1.2 1/2EPP-I-4 (follow-up) | 4 |
| | 3.2 Approve content of State/local notifications (5/3) | 3.2.1 1/2EPP-I-4 (initial) | 1 |
| | | 3.2.2 1/2EPP-I-4 (follow-up) | 1 |
| 4. ERO Notification | 4.1 Perform ERO Notification (5/6) | 4.1.1 1/2EPP-I-4 | 4 |
| 5. NRC Event Notification | 5.1 Complete the NRC event notification form (5/10) | 5.1.1 1/2EPP-I-4 | 3 |
| | 5.2 Perform NRC notifications (5/13) | Not Performed | N/A |
| 6. Assembly and Accountability | 6.1 Personnel accountability (5/15) | 6.1.1 1/2EPP-I-4 | 2 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|--|
| 11:30 | All actions completed in the Control Room. Refer to section 3.4.2.8 for event and conditions description. | Plant and Crew Oversight: Continuous OPs management (11:30 – 11:37) |
| 11:30 | All actions completed in the Control Room, refer to section 3.4.2.10 for event and conditions description. | Declare the ECL: Assess conditions and classify (11:30 – 11:33) |
| 11:33 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Notification and direction to on-shift staff: Continuous ERO management (11:33 – Thru Event) |
| 11:40 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Complete State/local notification form: initial notification (11:40 – 11:43) |
| 11:44 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Approve content of State/local notifications: initial notification (11:44 – 11:44) |
| 11:44 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Perform ERO Notification (11:44 – 11:48) |
| 11:48 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Complete the NRC event notification form (11:48 – 11:51) |
| 11:53 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Personnel accountability: Completes CR accountability roster (11:53 – 11:55) |
| 11:55 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Complete State/local notification form: follow-up notification (11:55-11:59) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------------|---|--|
| 11:59 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Approve content of State/local notifications: follow-up notification (11:59 – 11:59) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event # 12: – Control Room Evacuation Due to Fire

Position: Unit 2 BOP Operator

Line #: 1-9

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|-------------------|----------|
| 1. Plant Operations (status monitoring and EOP actions) | 1.1 Perform CR AOP activities (2.9.A) | Not Performed | N/A |
| | 1.2 Perform In-plant AOP activities (2.9.B) | 1.2.1 1OM-56C.4.H | 10 |
| 2. NRC Event Notification | 2.1 Perform NRC notifications (5/13) | 2.1.1 1/2EPP-I-4 | 99 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|---|
| 11:33 | All actions completed in the plant, refer to section 3.4.2.10 for event and conditions description | Perform In-plant AOP activities: Check charging pump breaker then travels to CAS (11:33 – 11:47) |
| 11:51 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Perform NRC notifications (11:51 – Thru Event) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event # 12: – Control Room Evacuation Due to Fire

Position: Chemistry Technician

Line #: 1-19

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|------------------------------|----------|
| 1. Local/State Event Notification (ECL and PAR) | 1.1 Perform State/local notifications (5/9) | 1.1.1 1/2EPP-I-4 (initial) | 4 |
| | | 1.1.2 1/2EPP-I-4 (follow-up) | 2 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|---|---|
| 11:40 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Perform State/Local notifications: initial notification (1140 – 11:44) |
| 11:59 | All actions completed in the CAS. Refer to section 3.4.2.10 for event and conditions description. | Perform State/Local notifications: follow-up notification (11:59 – 12:01) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables**Analysis Event # 13: – Station Blackout (SBO)****Position: Unit 1 Shift Manager****Line #: 1-1****Appendix D: Function / Responsibility (Task) Analysis**

| Function | Responsibility (Task) | Action Step | Duration |
|---------------------|--------------------------------------|------------------|----------|
| 2. ERO Notification | 2.1 ERO notification (5/6) | 2.1.1 1/2EPP-I-4 | 6 |
| 3. NRC Notification | 3.1 Perform NRC notifications (5/13) | 3.1.1 1/2EPP-I-4 | 79 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|--|
| 15:31 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | ERO notification (15:31 – 15:37) |
| 16:06 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Complete NRC notification (16:06 – Thru Event) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event # 13: – Station Blackout (SBO)

Position: Unit 2 Shift Manager

Line #: 1-2

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|--|------------------------------|------------|
| 1. Command and Control | 1.1 Plant and crew oversight (2/2) | 1.1.1 NOP-OP-1002 | Thru Event |
| | 1.2 Notification and direction to on-shift staff (5/5) | 1.2.1 1/2EPP-I-4 | Thru Event |
| 2. Event Classification | 2.1 Declare the ECL (5/1) | 2.1.1 1/2EPP I-1a | 3 |
| 3. Local/State Event Notification (ECL and PAR) | 3.1 Complete State/local notification form (5/8) | 3.1.1 1/2EPP-I-4 (initial) | 3 |
| | | 3.1.2 1/2EPP-I-4 (follow-up) | 14 |
| | 3.2 Approve content of State/local notifications (5/3) | 3.2.1 1/2EPP-I-4 (initial) | 1 |
| | | 3.2.2 1/2EPP-I-4 (follow-up) | 1 |
| 4. NRC Event Notification | 4.1 Complete NRC notification form (5/10) | 4.1.1 1/2EPP-I-4 | 18 |
| 5. Perform ERO Notifications | 5.1 ERO notification (5/6) | Not Performed | N/A |
| 6. Assembly and Accountability | 6.1 Personnel accountability (5/15) | 6.1.1 1/2EPP-I-4 | 1 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|--|
| 15:25 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Plant and Crew Oversight: Continuous OPs management (15:25 – Thru Event) |
| 15:25 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Declare the ECL: Assess conditions and classify (15:25 – 15:28) |
| 15:28 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Notification and direction to on-shift staff: Continuous ERO management (15:28 – Thru Event) |
| 15:25 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Complete State/local notification form: initial notification (15:25 – 15:28) |
| 15:28 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Approve content of State/local notifications: initial notification (15:28 – 15:29) |
| 15:44 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Complete NRC notification form: Form 361 (15:44 – 16:02) |
| 16:10 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Personnel accountability (16:10 – 16:11) |
| 16:13 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Complete State/local notification form: follow-up notification (16:13 – 16:27) |
| 16:28 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Approve content of State/local notifications: follow-up notification (16:28 – 16:28) |

Attachment 3: NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables

Analysis Event # 13: – Station Blackout (SBO)

Position: Chemistry Technician

Line #: 1-19

Appendix D: Function / Responsibility (Task) Analysis

| Function | Responsibility (Task) | Action Step | Duration |
|---|---|------------------------------|----------|
| 1. Local/State Event Notification (ECL and PAR) | 1.1 Perform State/local notifications (5/9) | 1.1.1 1/2EPP-I-4 (initial) | 6 |
| | | 1.2.1 1/2EPP-I-4 (follow-up) | 2 |

Appendix E: Work Activities Analysis

| Time | Plant/equipment/environmental events and conditions applicable to the functions and tasks | Task / Action Step description (start & stop) |
|-------|--|---|
| 15:33 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Perform State/local notifications: initial notification (15:33 – 15:39) |
| 16:27 | All actions completed in the Control Room. Refer to section 3.4.2.11 for event and conditions description. | Perform State/local notifications: follow-up notification (16:27 – 16:29) |

Enclosure D
L-12-457

Emergency Preparedness Plan
Volume 1 "Table Of Contents"
Revision 28
(4 pages follow)

TABLE OF CONTENTS

| | <u>PAGE</u> |
|--|--------------------|
| 1. DEFINITIONS | 1-1 |
| 2. SCOPE AND APPLICABILITY | 2-1 |
| 3. SUMMARY OF EMERGENCY PREPAREDNESS PLAN | 3-1 |
| 3.1 ONSITE EMERGENCY ORGANIZATION | 3-1 |
| 3.2 OFFSITE EMERGENCY ORGANIZATION | 3-2 |
| 3.3 EMERGENCY MEASURES | 3-4 |
| 3.4 EMERGENCY FACILITIES | 3-7 |
| 3.5 MAINTAINING EMERGENCY PREPAREDNESS | 3-7 |
| 4. EMERGENCY CONDITIONS | |
| 4.0 EMERGENCY ACTION LEVEL BASES | 4-1 |
| 4.1 CLASSIFICATION OF EMERGENCIES | 4-1 |
| 4.2 EAL BASES | 4-7 |
| 4.3 EAL MATRIX | 4-10 |
| 4.4 INDIVIDUAL EAL BASIS DESCRIPTIONS | 4-15 |
| 4.5 SPECTRUM OF POSTULATED ACCIDENTS | 4-17 |
| 5. EMERGENCY ORGANIZATION | 5-1 |
| 5.1 NORMAL OPERATING ORGANIZATION | 5-1 |
| 5.2 BVPS EMERGENCY ORGANIZATION | 5-1 |
| 5.3 NUCLEAR COMMUNICATIONS | 5-18 |

TABLE OF CONTENTS

| | | <u>PAGE</u> |
|-----------|--|-------------|
| 5.4 | EMERGENCY ORGANIZATION STAFFING | 5-22 |
| 5.5 | AUGMENTATION OF THE ONSITE EMERGENCY ORGANIZATION | 5-24 |
| 5.6 | COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES | 5-26 |
| 6. | EMERGENCY MEASURES | 6-1 |
| 6.1 | EMERGENCY INITIATION | 6-1 |
| 6.2 | ACTIVATION OF THE ONSITE EMERGENCY ORGANIZATION | 6-1 |
| 6.3 | ACTIVATION OF THE EMERGENCY SUPPORT GROUPS | 6-7 |
| 6.4 | ACTIVATION OF OFFSITE EMERGENCY RESPONSE ORGANIZATIONS | 6-9 |
| 6.5 | ASSESSMENT ACTIONS | 6-12 |
| 6.6 | CORRECTIVE ACTIONS | 6-23 |
| 6.7 | PROTECTIVE ACTIONS | 6-24 |
| 6.8 | AID TO AFFECTED PERSONNEL | 6-40 |
| 6.9 | EMERGENCY PUBLIC INFORMATION | 6-43 |
| 7. | EMERGENCY FACILITIES AND EQUIPMENT | 7-1 |
| 7.1 | ONSITE EMERGENCY CENTERS | 7-1 |
| 7.2 | EMERGENCY SUPPLIES | 7-6 |
| 7.3 | COUNTY AND STATE EMERGENCY CENTERS | 7-7 |

TABLE OF CONTENTS

| | | <u>PAGE</u> |
|-----------|--|-------------|
| 7.4 | ASSESSMENT FACILITIES | 7-8 |
| 7.5 | PROTECTIVE FACILITIES | 7-15 |
| 7.6 | COMMUNICATIONS SYSTEMS | 7-17 |
| 7.7 | ONSITE FIRST AID AND MEDICAL FACILITIES | 7-22 |
| 7.8 | DAMAGE CONTROL EQUIPMENT | 7-23 |
| 8. | MAINTAINING EMERGENCY PREPAREDNESS | 8-1 |
| 8.1 | ORGANIZATIONAL PREPAREDNESS | 8-1 |
| 8.2 | MANAGER, EMERGENCY PREPAREDNESS | 8-9 |
| 8.3 | REVIEW AND UPDATING | 8-10 |
| 8.4 | MAINTENANCE AND INVENTORY OF EMERGENCY EQUIPMENT AND SUPPLIES | 8-12 |
| 8.5 | NUCLEAR COMMUNICATIONS | 8-13 |
| 8.6 | NRC/FEMA | 8-14 |
| 9. | RE-ENTRY AND RECOVERY | 9-1 |
| 9.1 | TRANSITION FROM RESPONSE TO TERMINATION AND/OR RECOVERY | 9-1 |
| 9.2 | TERMINATION CRITERIA | 9-2 |
| 9.3 | RE-ENTRY | 9-2 |
| 9.4 | RECOVERY | 9-3 |
| 9.5 | RECOVERY OPERATIONS | 9-3 |
| 9.6 | POST-ACCIDENT EVALUATION | 9-4 |

TABLE OF CONTENTS

10. APPENDICES

- A. Letters of Agreement
- B. Demography and Evacuation Evaluation
- C. Emergency Implementing Procedures
- D. Equipment Listings
- E. Corporate Policy Statement
- F. Warning Sirens
- G. References
- H. BVPS ERO On-Shift Staffing Analysis Report