		I 3H	C 3H
*Backup TSC,OSF-113	C. Warlow	— —	1 —
*Bureau of Rad Protection	M. Vyenielo	— —	1 —
*Control Rm-U/1 File Copy, OOB-1	L. Ritter	— —	1 —
Control Rm-U/1 Shift Mgrs Station, OOB	L. Ritter	— —	— —
*Control Rm-U/1 Work Copy, OOB-1	L. Ritter	— —	1 —
Dauphin County EMA	D. Fetterhoff	— —	— —
*Dir. Work Mgmt., OSF-2	S. Epler	— —	1 —
Dir. Communications, SOB.	R. DeSantis	— —	— —
*Document Center, NOB-2	S. Burkett	— —	1 —
*Document Control Desk		1 —	— —
Dosimetry, Serv. Bldg.	D. College	— —	— —
*EP – NDB, Trng. Bldg. #2	N. D. Brown	— —	1 —
*Emerg. Prep. Dept.	D. Light	1 —	— —
*EOF, Trng. Bldg.	R. Finicle	— —	1 —
*EP Drills, Trng. Bldg. #2	N. D. Brown	— —	1 —
ESD, Trng. Bldg..	R. Finicle	— —	— —
Environ. Affairs-Lab, Interstate Drive	D. Russ	— —	— —
Environ. Affairs-TMI, NOB-1	W. Ressler	— —	— —
*Instructor Nuclear IV, Trng. Bldg. #2	R. Neff	1 —	— —
Logisitcal Support, Trng. Bldg..	R. Finincle	— —	— —
*NRC – Onsite, NOB-1	P. Sauder	— —	1 —
*NRC – Region 1, (Chief EP Section)	N. McNamara	— —	2 —
*PEMA – Bureau of Plans	D. Fleck	— —	1 —
Personnnel/Vehicle Monitor Kit Trng Ctr.	T. Berstler	— —	— —
*Plant Maint. (Library), Serv. Bldg.	N. Smith	— —	1 —
*Porter Consultants, Ardmore	S. Porter	— —	1 —
RLM, Rad Field Ops.	T. Berstler	— —	— —
Rad Con –RAC Locker, Rad Field Ops.	T. Berstler	— —	1 —
Rad Con –Kit 1 PC, Rad Field Ops.	T. Berstler	— —	— —
Rad Con –Kit 2 PC, Rad Field Ops.	T. Berstler	— —	— —
Rad Con –Kit 3 Env, Rad Field Ops.	T. Berstler	— —	— —
Rad Con–Kit 4 EOF Bldg Rad Field Ops.	T. Berstler	— —	— —
Rad Con–Kit 5 EOF Bldg Rad Field Ops.	T. Berstler	— —	— —
Rad Con–Simulator Locker,Rad Field Ops	T. Berstler	— —	1 —
*Rad Engineers-U1, OOB	M. Wherry	— —	1 —
*Rad Instrument, Bldg. 159	J. L. Eckroth	— —	1 —
Radwaste/Chemistry, OOB-1	L. Ritter	— —	— —
Secondary Chem Lab-, OOB-1	L. Ritter	— —	— —
*Security Mgr., PC	V. Handley	— —	1 —
Security U-1, PC	R. Goodrich	— —	— —
*Simulator Room/File Copy, Trng.	D. Silar	— —	1 —
Simulator Room/Shift Supvs Office, Trng	D. Silar	— —	— —
*Simulator Room/Working Copy, Trng.	D. Silar	— —	1 —
*TSC - Unit 1, OSF-113	C. Warlow	— —	1 —
*Training Dept., Trng	C. Flory	— —	1 —
*OSC, Rad Field Ops..	T. Berstler	— —	1 —
*Unit 1 Operations, OOB-1	L. Ritter	— —	1 —
*Vice President – TMI , OSF-2	P. J. Chevalier	— —	1 —
*Word Processing, OOB,No Stamp/Clip	A. Houseal	— —	1 —
RECORDS MGMT	S. Zimmerman	— —	— —

EPIP/TEP Instruction Memo

Date 11/13/00 Verif: [illegible] Box No. 0644 T1 ✓ T2 ___

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AmerGen	TMI - Unit 1 Emergency Procedure	Number EPIP-TMI-.29
Title **OSC Operations**		Revision No. **16**
Applicability/Scope TMI Division	**USAGE LEVEL** **2**	Effective Date NOV 13 2000

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Safety Reviews Required	X	Yes		No

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	Signature	Date
Originator	A. J. Knoche Alan J Knoche	11-09 2000
Procedure Owner	/s/ A. J. Knoche Alan J Knoche	10/26/00
PRG	/s/ E. R. Frederick for J. S. Schork	11/03/00
Approver	/s/ N. Brown	11/06/00

1.0 PURPOSE

The purpose of this procedure is to provide guidance for activation and operation of the Operations Support Center (OSC). Guidance is also provided for Search and Rescue Operations, Emergency Repair/Operations and In-Plant Radiological Controls.

2.0 APPLICABILITY/SCOPE

- This procedure is applicable to all Operations Support Center personnel.
- The OSC is activated during an Alert, Site Area, or General Emergency or when directed by the Emergency Director.

3.0 DEFINITIONS

IREO - Initial Response Emergency Organization

4.0 RESPONSIBILITIES

- The Operations Support Center Coordinator (OSCC) is responsible for coordinating OSC activities.
- The security representative is responsible, except during security related emergencies, for coordinating Protected Area Access Control and for coordinating the location and movement of security personnel with the OSCC and the Radiological Controls personnel in the OSC.
- The Radiological Assessment Coordinator (RAC) is responsible for in-plant Radiological Controls coverage, habitability surveys of the OSC, and Radiological Controls support for the site evacuation until the Rad Con Coordinator (RCC) position is filled. Thereafter, the RCC is responsible for these actions.
- The Chemistry Coordinator is responsible for coordinating all chemistry samples and analyses.
- The Emergency Maintenance Coordinator (EMC) is responsible for carrying out emergency maintenance, repair, damage control, and corrective actions as deemed necessary by the OSC Coordinator.

5.0 PROCEDURE

5.1 The OSC Coordinator (Maintenance Team Leader/IREO OSC Coordinator) will perform the applicable steps of Exhibit 1.

5.2 A Rad Con Technician/IREO Rad Con Coordinator will perform the applicable steps of Exhibit 2.

NOTE

The Radiological Controls Coordinator (RCC) and Emergency Maintenance Coordinator (EMC) are not on-shift emergency organization positions.

5.3 The Senior Chem Tech/Chemistry Coordinator will perform the applicable steps of Exhibit 3.

5.4 The Emergency Maintenance Coordinator will perform the applicable steps of Exhibit 4.

6.0 REFERENCES

- TMI Emergency Plan
- TMI Emergency Plan Implementing Procedure EPIP-TMI-.05, Communications and Record Keeping
- TMI Emergency Plan Implementing Procedure EPIP-TMI-.16, Contaminated Injuries
- TMI-1 Security Procedure TSEC-IMP-1530.01, Personnel Accountability During Site Area/General Emergencies

7.0 EXHIBITS

- Exhibit 1 - OSC Coordinator Checklist
- Exhibit 2 - In-Plant Rad Controls Checklist
- Exhibit 3 - Chemistry Coordinator Checklist
- Exhibit 4 - Emergency Maintenance Coordinator Checklist
- Exhibit 5 - Emergency Team Dispatch Checklist
- Exhibit 6 - Search and Rescue Checklist
- Exhibit 7 - Dose Limits for Emergency Personnel
- Exhibit 8 - Heat Stress Control
- Exhibit 9 - Protected Area Accountability
- Exhibit 10 - OSC Intercom System Operation
- Exhibit 11 - OSC Emergency Team Status Form
- Exhibit 12 - OSC Personnel Roster
- Exhibit 13 - OSC Utilization

EXHIBIT 1

OSC Coordinator Checklist

1.0 Activate the OSC and coordinate the in-plant support of emergency operations by completing the following steps (initial the space provided for actions taken):

> **NOTE**
>
> Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

> **NOTE**
>
> The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

_____ 1.1 Print your name on the OSC status board under the OSC Coordinator position.

_____ 1.2 Pin on the position tag for the OSC Coordinator.

_____ 1.3 Announce to the personnel in the OSC that you are assuming the duties of the OSC Coordinator.

_____ 1.4 Establish a roster of OSC personnel using Exhibit 12.

1.5 Distribute the appropriate checklist to the lead OSC staff members.

_____ a. Exhibit 2 to the Rad Con Coordinator if available, or to a Rad Con Technician if available.

_____ b. Exhibit 3 to the Chemistry Coordinator (Chemistry Technician or duty roster Chemistry Coordinator).

_____ c. Exhibit 4 to the Emergency Maintenance Coordinator (Maintenance Team Leader or duty roster Emergency Maintenance Coordinator).

_____ 1.6 Begin tracking emergency teams/individuals as they are dispatched from the OSC. Use the Emergency Team Status Form (Exhibit 11). When the duty roster OSC Coordinator Assistant arrives, assign team tracking to him/her and using Exhibit 11 and the Team Tracking Status Board.

_____ 1.7 Contact the Operations Coordinator in the Control Room and request that he/she direct all Auxiliary Operators to report their location to you by radio or page phone. Also request that the Control Room coordinate the movement of Auxiliary Operators in the plant through the OSC.

_____ 1.8 Assign a person to man the Operations Line and start a log.

_____ 1.9 Determine the in-plant priorities from the Emergency Director and assign available personnel to address these priorities. List the priorities on the status board.

_____ 1.10 Consider the need to call out additional personnel.

_____ 1.11 Set up the ED intercom as follows:

a. Energize the amplifier by sliding the power switch to the "**ON**" position and verifying that the red power L.E.D. is lit.

b. Adjust the "**Volume**" knob to at least half way (i.e., 12 o'clock).

_____ 1.12 If relieved by an OSC Coordinator, provide a briefing on the current plant status and turn the duties over to him/her.

_____ 1.13 If anyone reporting for duty is suspected of NOT being Fit For Duty, (as reported by the individual or by others) contact Security to perform Fitness For Duty testing.

_____ 1.14 When the OSC is fully staffed with personnel from the duty roster, notify the Emergency Director Assistant in the Control Room (extension 8070, [2070 during drills]). Provide the names of the personnel in each position to the Emergency Director Assistant.

_____ 1.15 Establish an OSC Watch Bill if operations have the potential to exceed twelve hours. Refer to Communications and Record Keeping Procedure EPIP-TMI-.05 for guidance.

_____ 1.16 If Protected Area Accountability is required (i.e., at the Site Area Emergency or General Emergency declaration or earlier if ordered by the Emergency Director), refer to Exhibit 10 for instructions.

2.0 The following is a list of additional duties that the OSC Coordinator should oversee. They are not necessarily listed in the order they are to be performed or in order of priority. The OSC Coordinator must periodically review the list to ensure that they are adequately covered.

- Pursue the following activities as directed by the Emergency Director:

a. Emergency Team Dispatch Checklist (see Exhibit 5)

b. Search and Rescue (see Exhibit 6)

NOTE

If keys are needed to perform any repair/operation, they can be obtained from the key locker at the remote shutdown (RSD) control panel area located on the second floor of the control tower on the south wall of the backup Tech Support Center.

- Coordinate in-plant repairs with the Tech Support Center, if the facility is operational.
- If personnel are injured and/or contaminated, inform the Emergency Director and ensure that medically trained and/or Rad Controls personnel are responding.
- Utilize the OSC Security Representative to coordinate access control to the Protected Area and to coordinate the movements of Site Protection personnel in the plant.

NOTE

For security events, the Security Representative will not report to the OSC. In such events, coordinate with security in the CAS at ext. 8039.

- Retransmit Emergency Director Briefings using the OSC Intercom to allow all OSC personnel to be updated simultaneously. If OSC Coordinator briefings to key OSC staff members contain significant additional information or information relevant to the standby personnel, use the OSC Intercom to transmit that information. (Instructions for the OSC Intercom are found in Exhibit 10).
- If problems are encountered with the telephone system, request resolution from the ECC Communications Coordinator.
- Ensure that the Radiological Controls personnel:

  a. Monitor habitability in the OSC.

  b. Consider the need for frisking stations at OSC entrances.

- If evacuation of the OSC becomes necessary:

  a. Contact teams in the plant and advise them of the OSC evacuation and the backup location.

  b. Gather the OSC logs, procedures, radios, emergency telephones with cords, headsets, rad instruments and emergency locker equipment for transfer to the backup location.

  c. Relocate to the backup OSC on the 355' elev. of the Control Building.

  d. Set up the OSC in the available space. Connect the telephones to the labeled wall jacks and establish communications.

e. Fill in the current information on the status boards.

f. Establish a frisking station at the backup OSC entrance.

3.0 Upon close-out of the emergency and direction from the Emergency Director to deactivate the facility, perform the following:

a. Gather all logs, records and any procedures which were utilized during the emergency and turn them over to a member of the Emergency Preparedness Department.

b. Ensure that the facility is returned to its pre-emergency condition if possible and emergency equipment is re-stocked in the emergency lockers.

EXHIBIT 2

In-Plant Rad Controls Checklist

INITIALS

1.0 Perform the in-plant radiological controls function by completing the following steps (initial the space provided for action taken):

> **NOTE**
>
> Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

> **NOTE**
>
> The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

_____ 1.1 Assess in-plant radiological conditions based on available information such as RMS readings, in-plant surveys, samples, etc. Keep the OSC Coordinator (OSCC) and RAC (if applicable) informed of the conditions.

_____ 1.2 Dispatch field monitoring teams as directed by the RAC. Request drivers for the teams from the OSC but do not delay teams while waiting for drivers to be assigned. Ensure vehicles are available and ensure that current dose information is verified for techs and drivers.

_____ 1.3 Implement habitability monitoring in the OSC.

_____ 1.4 If the backup TSC is in use, implement habitability monitoring in the backup TSC.

> **NOTE**
>
> The following steps (1.5 through 1.7) are to be implemented by the Initial Response Emergency Organization Rad Controls Coordinator upon assuming the duties.

_____ 1.5 Print your name on the OSC status board under the Rad Con Coordinator (RCC) position.

_____ 1.6 Pin on the position tag for Rad Con Coordinator.

_____ 1.7 Activate the In-Plant Rad Con Line or the Radiological Line and establish contact with the Radiological Assessment Coordinator (RAC) and start a log. Assign a log keeper/phone talker if someone is available.

(See EPIP-TMI-.05, Communications and Record Keeping for guidance.)

EXHIBIT 2

2.0 The following is a list of in-plant rad controls duties. They are not necessarily listed in the order they are to be performed or in order of priority. This list must be reviewed periodically to ensure that the functions are adequately covered.

- Provide radiological support for Emergency Repair, Search and Rescue, Fire Brigade, etc. as requested by the OSCC or Emergency Maintenance Coordinator (EMC).

- Ensure radiological briefings are provided for in-plant teams.

- Call out additional Rad Con Techs as needed.

- Personnel Radiation Exposure Monitoring:

  a. Ensure proper dosimetry is issued as needed. Track accumulated doses for personnel required to enter areas of high radiation dose rates. Utilize the REM-ON-LINE system or manual backup to document doses and stay times.

  b. For those situations where the REM system is not sufficiently updated to support processing of NRC personnel into RWP areas, the following guidelines should be used to support such entries as requested by NRC personnel:

     > Confirm the individual has either a TMI or NRC Whole Body TLD. Baseline bioassay is not required.

     > Discuss the radiological conditions likely to be encountered and the protective equipment/methods required to be used as specified on the RWP. If the individual does not feel sufficiently trained to enter the area due to his/her past training/experience, provide an escort. NRC personnel will make the determination relative to their qualifications to use respiratory protection equipment, if required.

     > Obtain a verbal annual dose bank estimate from the individual and ensure that the bank is sufficient to support the proposed entry.

     > Manually collect the RWP entry/exit data such that the information can be input into the REM system at a later date.

- Coordinate Rad Con Tech actions in obtaining in-plant surveys/samples to support assessment of plant conditions and emergency response.

  a. Radiation Surveys:

     When high dose-rate conditions exist, Radiological Controls personnel should not be used for the sole purpose of performing dose-rate surveys. Other duties (for which he/she is qualified and has been briefed) may be performed while radiation levels are determined with all information documented for use by others requiring access.

b. Airborne Surveys:

> When emergency access is required to areas where known or suspected airborne radioactivity exists, the need for respiratory protection shall be evaluated.

> Life saving activities may take precedence.

> Air samples should be taken unless authorized otherwise by the RAC.

> Where practical, in order to minimize exposure, air samples should be obtained by personnel making entries for other purposes.

> Whole Body Counts of personnel should be used to evaluate the effectiveness of the respiratory protection program, and the need for additional concern for personnel who have made entries.

> Unless continuous air monitoring is available, air samples should be used as guidance in determining respiratory requirements during emergency conditions.

- If in-plant conditions warrant, set up friskers and step-off pads at the entrance(s) to the OSC.
- Ensure that areas which are radiologically affected by the emergency are properly controlled (e.g., Turbine Bldg. postings for a primary to secondary leak).
- Ensure that inadvertent entry into areas of high dose rate does not occur by implementation of one or more of the following controls.

a. Request the Ops. Support Center Coordinator to have the Control Room make an announcement over the public address system identifying the locations of those areas that are off limits due to radiological hazards.

b. Lock doors at all possible entry points.

c. Post signs at all possible entry points.

d. Post personnel in low background areas at all possible entry points that cannot be secured by other means.

e. Personnel access should be restricted and logged appropriately.

- If site evacuation of non-essential personnel is required, provide Rad Con support by completing Exhibit 2 of EPIP-TMI-.36, Emergency Assembly and Site Evacuation.

- Periodically provide updated status to the following positions , as applicable: RAC, OSCC, and Rad Con Techs.

- If an RCS Post Accident Sample has been requested, coordinate Rad Controls support with the Chemistry Coordinator.

- Consider evacuation of the OSC if actual or projected dose exceeds 1 REM Total Whole Body Dose (TEDE). Consult with the RAC and OSCC regarding this determination. If evacuation is necessary:

  a. Contact Rad Con Techs in the plant and advise them that the OSC is being evacuated to the backup location in the Group Operations Supervisor Office.

  b. Gather the logs, procedures, radios, telephones with cords, headsets, rad instruments, portable counting equipment, emergency locker equipment and locked high rad keys/inventory sheets for transfer to the backup OSC.

  c. Minimize personnel doses and the spread of contamination during the evacuation.

  d. Establish access control, habitability monitoring, communications, etc. at the backup OSC.

- When needed, access the Reuter-Stokes data via the Emergency Information Network (i.e., RAC Code).

- As soon as necessary, the Radiological Controls Coordinator should assign an individual(s) to maintain radiological controls supplies and equipment. Segregation of contaminated materials for eventual decontamination or discarding should occur.

- Assign a specific individual to ensure contaminated personnel are properly evaluated and decontaminated. Control Point personnel must be aware of the location of decontamination facilities, and ensure contaminated personnel are directed to the facility.

- Upon close-out of the emergency and direction from the OSCC to deactivate the facility, perform the following:

  a. Gather all logs, records, surveys, sample results and any procedures which were utilized during the emergency and turn them over to the Radiological Controls Field Operations Manager.

  b. Ensure that the facility is returned to its pre-emergency condition if possible and emergency equipment is re-stocked in the emergency lockers.

  c. An inventory of the OSC facility is required to be performed by the end of the working day following the end of the event/drill. The inventory is the responsibility of Rad Con Field Ops. Notify the Manager of Rad Con Field Ops of the need to perform the inventory in accordance with procedure TEP-ADM-1300.01, Maintaining Emergency Preparedness.

EXHIBIT 3

Chemistry Coordinator Checklist

1.0 Assist in the activation of the OSC and provide chemistry support by completing the following steps (initial the space provided for actions taken):

> **NOTE**
>
> Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

> **NOTE**
>
> The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

_____ 1.1 Print your name on the OSC status board under the Chemistry Coordinator position.

_____ 1.2 Pin on the position tag for Chemistry Coordinator.

_____ 1.3 Establish a Chemistry Coordinator log.

(See EPIP-TMI-.05, Communications and Record Keeping for guidance).

_____ 1.4 Assess the current status of plant chemistry control and brief the OSC Coordinator (OSCC).

_____ 1.5 Brief on-shift Chemistry Techs on the current status and advise them to be aware of possible elevated activity in any plant samples.

_____ 1.6 Consider the need to call out additional chemistry assistance (e.g., duty chemist, etc.).

2.0 The following is a list of the duties of the Chemistry Coordinator. They are not necessarily listed in the order they are to be performed or in order of priority. The Chemistry Coordinator must periodically review the list to ensure that they are adequately covered.

- Coordinate all plant chemistry sample taking and analysis. Prioritize samples in cooperation with the RAC and the OSCC.
- Coordinate RCS PAS, MAP-5, and/or CAT PASS sampling and analysis as directed. Coordinate with the Rad Assessment Coordinator (RAC)/Rad Con Coordinator (RCC) for radiological coverage of these samples.
- Provide sample results to both the OSCC and the Radiological Assessment Coordinator (RAC).

EXHIBIT 4

Emergency Maintenance Coordinator Checklist

1.0 Assist in the activation of the OSC and provide support in emergency maintenance, repairs, damage control, search and rescue, and corrective actions by completing the following steps (initial the space provided for actions taken):

> **NOTE**
>
> Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

> **NOTE**
>
> The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

_____ 1.1 Print your name on the OSC status board under the Emergency Maintenance Coordinator (EMC) position.

_____ 1.2 Pin on the position tag for Emergency Maintenance Coordinator.

_____ 1.3 Establish an Emergency Maintenance Coordinator Log.

(See EPIP-TMI-.05, Communications and Record Keeping for guidance).

_____ 1.4 Determine from the OSC Coordinator (OSCC) the priorities for in-plant repairs, damage control, etc.

_____ 1.5 Establish a standby area for Operations and Maintenance personnel awaiting assignment.

2.0 The following is a list of the duties of the Emergency Maintenance Coordinator. They are not necessarily listed in the order they are to be performed or in order of priority. The Emergency Maintenance Coordinator must periodically review the list to ensure that they are adequately covered.

- Consider establishing a "Ready Team" for immediate response into the plant. The team should be briefed on known plant conditions and hazards and should be prepared to respond in full PC's and SCBA.
- If Search and Rescue is needed, refer to Exhibit 6 for instructions. Exhibit 5 is for briefing and debriefing the team.
- If Emergency Repair/Operations is needed, refer to Exhibit 5 for instructions. Provide technical briefings, as needed, to teams.

- Coordinate with the Radiological Controls Coordinator (RCC)/RAC to ensure in-plant teams are provided radiological briefings prior to dispatch, if needed.

- Keep the OSCC informed of the status of in-plant emergency teams, their work progress and findings.

3.0 Upon close-out of the emergency and direction from the OSCC to deactivate the facility, perform the following:

a. Gather all logs, records, and any procedures which were utilized during the emergency and turn them over to the OSCC.

b. Ensure that the facility is returned to its pre-emergency condition if possible.

EXHIBIT 5

Emergency Team Dispatch Checklist

NOTE

Make copies of this exhibit before initial use to ensure sheets are available for subsequent team briefings.

NOTE

This exhibit should be used for trouble shooting, repairs, operations, or damage control. For search and rescue assignments, utilize Exhibit 6.

NOTE

Initial the steps as covered. Steps not applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

1.0 Assemble the team using the appropriate available disciplines.

Team Member Name	Badge Number	Authorized Dose		Team Member Signature
		Total Whole Body Dose (TEDE)	Thyroid Dose (CEDE)	

2.0 Request engineering support if appropriate.

3.0 Appoint a team leader.

4.0 Establish communications requirements.

a. Specify communications equipment to be used by the team.

b. Specify frequency of, or interval between status reports.

c. Test portable communications equipment before dispatch.

EXHIBIT 5

5.0 Provide a technical briefing. The following points should be covered as a minimum.

a. Problem and equipment involved/affected.

b. Task/Objective of the team (troubleshoot, repair, operate, etc.).

c. Location of the equipment.

1) Best access route.

2) Alternate evacuation routes.

d. Equipment

_____ 1) Tools, test equipment, parts as appropriate.

_____ 2) Prints, drawings, technical manuals as appropriate.

_____ 3) Keys (available from Control Room or Remote Shutdown Control Panel).

_____ 4) Supplemental lighting.

e. Safety Considerations

_____ 1) Area hazards

_____ 2) Cautions

_____ 3) Protective equipment

_____ 4) Heat stress considerations (refer to Exhibit 8). Prehydrate the team.

6.0 Provide a radiological briefing. The following points should be covered as a minimum.

a. Dose limits (refer to Exhibit 7).

1) Record dose limits in the Table under Step 1.0.

NOTE

Doses in excess of 10 CFR 20.1201 limits require volunteers, preferably over 45 years of age. Declared or potentially pregnant workers should not be used.

2) Record name of Emergency Director authorizing dose extension (if applicable) and the Radiological Assessment Coordinator.

Emergency Director _____

Radiological Assessment Coordinator _____

_____ 3) Ensure team members understand their dose limits.

b. Radiological conditions

_____ 1) Along access route

_____ 2) At job site

_____ c. Appropriate dosimetry and monitoring instruments.

_____ d. Protective clothing (includes respiratory protection).

_____ 7.0 Confirm the team understands the assignment.

_____ 8.0 Dispatch the team and inform the ECC.

9.0 Team Debriefing

_____ a. Obtain a task status

1) Success or failure of the mission.

2) "As Left" condition of the equipment.

_____ b. Notify the ECC of the status before continuing.

c. Obtain the following information from the team.

_____ 1) Health of the team members

_____ 2) Doses/contamination received by the team members.

EXHIBIT 5

Team Member Name	Dose	Contamination (Yes/No)	Comments

_____ 3) Conditions en route to, and at the work site.

_____ 4) Difficulties encountered with the task.

_____ 5) Suggestions

_____ 10. Stage deactivated team members for reassignment if appropriate.

EXHIBIT 6

Search and Rescue

NOTE

Make copies of this exhibit before initial use to ensure sheets are available for subsequent search and rescue team briefings.

NOTE

Initial the steps as covered. Steps not applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

1.0 Assign personnel to continuously attempt to establish contact with the missing individual(s) using plant page or radio.

2.0 Assemble the team using the appropriate available disciplines. If available, at least one member should be trained in first aid procedures.

Team Member Name	Badge Number	Authorized Dose		Team Member Signature
		Total Whole Body Dose (TEDE)	Thyroid Dose (CEDE)	

3.0 Appoint a team leader.

4.0 Establish communications requirements.

a. Specify communications equipment to be used by the team.

b. Specify frequency of, or interval between status reports.

c. Test portable communications equipment before dispatch.

5.0 Provide search subject information. If known, the following points should be covered as a minimum.

a. Person or persons missing by name, badge number, company, and department.

b. Description of individual(s) if unknown by search team.

c. Last known location/task.

6.0 Search Area

a. Building/area to be searched.

b. Sector assignments

c. Search pattern

7.0 Conditions if known

a. Environmental (heat, cold, steam, normal, etc.).

b. Heat stress considerations (refer to Exhibit 8). Prehydrate the team.

8.0 Equipment

a. Safety items

b. Supplemental lighting

c. First aid equipment

d. Equipment

9.0 Provide a radiological briefing. If applicable to conditions, the following points should be covered as a minimum.

a. Dose limits (refer to Exhibit 7).

1) Record dose limits in the table under Step 1.0.

NOTE
Doses in excess of 10 CFR 20.1201 limits require volunteers, preferably over 45 years of age. Declared or potentially pregnant workers should not be used.

2) Record name of Emergency Director authorizing dose extension (if applicable) and the Radiological Assessment Coordinator.

Emergency Director _____

Radiological Assessment Coordinator _____

3) Ensure team members understand their dose limits.

b. Radiological conditions

1) Along access route

2) At job site

c. Appropriate dosimetry and monitoring instruments.

d. Protective clothing (includes respiratory protection).

10.0 Confirm the team understands the assignment.

11.0 Dispatch the team and inform the ECC.

12.0 Request/obtain additional resources as necessary to support the search and rescue team.

13.0 Team Debriefing

a. Obtain a task status (success or failure of the mission.

b. Notify the ECC of the status before continuing.

c. Obtain the following information from the team.

1) Health of the team members

2) Doses/contamination received by the team members.

EXHIBIT 6

Team Member Name	Dose	Contamination (Yes/No)	Comments

3) Conditions/status of the missing/found individual(s).

4) Conditions en route to, and at the search area site.

5) Difficulties encountered with the task

6) Suggestions

14.0 Stage deactivated team members for reassignment if appropriate.

EXHIBIT 7

Dose Limits For Emergency Personnel

Emergency measures may warrant the acceptance of greater than normal radiation exposure (doses). Lifesaving, measures to prevent substantial radiation exposure to the population or preservation of vital equipment may be sufficient cause for greater than normal exposures. The following are the exposure guidelines for these emergency activities:

Life Saving Action - **No Pre-established Limit**

Corrective Action - **10 REM Total Whole Body Dose (TEDE)**
30 REM to the lenses of the eyes
100 REM total organ dose (CDE) to any organ

The Emergency Director is the designated individual who can authorize emergency workers to receive doses as defined in excess of the 10CFR20 limits. These emergency workers **must** be volunteers and will be required to closely adhere to the guidance and instruction provided during their briefing.

Emergency personnel should consider the risks involved in accepting the dose verses the benefits of the emergency action prior to volunteering to receive such dose. The table below is provided to assist potential volunteers in deciding whether to volunteer.

HEALTH EFFECTS FROM ACUTE WHOLE BODY DOSES:
(From Rad Health Handbook)

<25 RAD	No observable effects
25-100 RAD	Range from no symptoms to nausea. Changes in white blood cells are anticipated so the individual is more susceptible to diseases.
110 RAD	10% chance of being lethal with no medical intervention.*
340 RAD	50% chance of being lethal with no medical intervention.*
585 RAD	90% chance of being lethal with no medical intervention.*

*Note that medical intervention will approximately double the chance of survival.

NOTES

- In addition to the acute health effects, the worker may have an increased long-term risk of fatal cancer. This risk is roughly estimated to be about 2% per 25 REM of exposure (based on a risk factor of 8E-4 per REM from Table 4.3, BEIR V). By comparison, natural cancer mortality is about 20%.

- For the purpose of estimating doses for use with the table on health effects (above) use the following relationships:

  1 RAD is approximately equal to 1 REM for GAMMA
  1 RAD is approximately equal to 10 REM for NEUTRON

EXHIBIT 8

Heat Stress Control
Recommended Work Time Limits (Action Times) Using Dry Bulb Temperature

DRY BULB TEMPERATURE RANGE (°F)	LIGHT WORK				MODERATE WORK				HEAVY WORK			
	WORK CLOTHES	SINGLE PC'S	DOUBLE PC'S (min.)	WET SUIT (min.)	WORK CLOTHES	SINGLE PC'S (min.)	DOUBLE PC'S (min.)	WET SUIT (min.)	WORK CLOTHES	SINGLE PC's (min.)	DOUBLE PC'S (min.)	WET SUIT (min.)
65	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT
70	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	180
75	NO LIMIT	NO LIMIT	NO LIMIT	240	NO LIMIT	NO LIMIT	NO LIMIT	180	NO LIMIT	NO LIMIT	240	140
80	NO LIMIT	NO LIMIT	240	200	NO LIMIT	NO LIMIT	240	150	NO LIMIT	240	180	80
85	NO LIMIT	NO LIMIT	210	175	NO LIMIT	240	170	70	240	165	90	45
90	NO LIMIT	240	180	120	240	130	80	40	180	65	50	25
95	240	170	135	70	150	65	45	30	80	35	30	20
100	195	110	75	45	70	40	35	25	45	25	20	15
105	120	65	50	30	40	30	25	20	30	20	15	15
110	70	40	30	20	30	20	15	15	25	15	15	*
115	45	25	20	15	25	15	15	*	20	15	*	*
120	30	20	15	*	20	15	*	*	15	*	*	*
125	20	15	*	*	15	*	*	*	*	*	*	*
130	15	*	*	*	*	*	*	*	*	*	*	*
135	*	*	*	*	*	*	*	*	*	*	*	*
140	*	*	*	*	*	*	*	*	*	*	*	*

*These conditions present a high heat stress environment. It is required that some combination of the following countermeasures be taken, depending upon the nature of the work:

a. Monitoring of the worker's condition by the supervisor or designee

b. Use of personal cooling devices

c. Stressing self-determination

d. Drinking plenty of water prior to entering this environment

e. Acclimating of the worker to these conditions

Guidelines for Using Personal Cooling Devices

a. Ice Vests can double action time if properly worn. When the ice has melted the individual must leave the area and remove the ice vest.

b. Circulating ice water garments can increase the action time by a factor of 4 or more, provided that the ice container is changed as needed; i.e., when the water temperature increases to the point that it is not providing sufficient cooling.

c. Circulating air garments (e.g., supplied air hood/helmet and vortex tube suit) can also increase the action time by a factor of 4 or more, depending upon the temperature of the air supplied to the garment.

NOTE

These are only guidelines and do not reflect the differences in heat tolerance among the workers. Therefore, the ability of the worker to recognize the onset of symptoms of heat related illness must be stressed.

EXHIBIT 9

Protected Area Accountability Checklist

Perform the following steps when Protected Area Accountability is required (i.e., at the declaration of a Site Area or General Emergency or when ordered by the Emergency Director).

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

_____ A. Announce to all OSC personnel that Protected Area Accountability has been ordered.

_____ B. Instruct the coordinators in the OSC to have their personnel process through the accountability key-card reader on the West wall near door #41. Assign someone to assist with this process, if needed (the OSC Security Representative may be available to provide assistance). **DO NOT** use the normal door #41 key-card reader for accountability processing.

_____ C. The green light on the accountability key-card reader should flash after each card is read. This indicates that the person has been accounted for by the system. The right hand red light indicates a problem. Notify Site Protection of any badges which cause the red light to flash.

_____ D. Contact all emergency teams and other personnel in the plant and obtain their key-card numbers (the key-card number is the hand-written number in on the reverse side of the key-card). It is important to obtain **KEY-CARD NUMBER and NOT SECURITY BADGE NUMBER.**

_____ E. Enter the key-card numbers for personnel in the plant using the key-pad on the accountability key-card reader as follows:

1 Press the "*" button.

2 Enter the key-card digits in order.

3 Then press the "*" button and pause for the green light to flash before entering the next key-card number.

EXHIBIT 9

_____ F. When all OSC personnel and emergency team personnel in the Protected Area have been processed through the accountability key-card reader, inform the Security Representative in the OSC or call the Site Protection Officer in the CAS at ext. 8039.

_____ G. Site Protection will produce a report of any personnel in the Protected Area who did not respond to accountability. This report may be faxed to the OSC. Assist Site Protection in determining the whereabouts and status of these persons. Implement Search and Rescue per Exhibit 6, Search and Rescue Instructions, if needed.

EXHIBIT 10

OSC Intercom System Operation

1.0 Pre-operational checks

a. Verify that the power supply (gray box in the Ops/Maintenance muster area) is plugged into the nearby outlet.

b. Verify that the 'Transmit Volume' control is at maximum. To do this, rotate the knob away from you while you are facing the unit.

2.0 Transmitting Plant Status Updates

a. Depress all station selector buttons except for the station you are at and any blank buttons.

b. Depress the "Talk" button (or "Talk Lock" button for hands-free use).

- To speak - Talk in a normal voice toward the unit at a distance of 12 to 18 inches, or
- To retransmit the Emergency Director briefing as it is given - Hold the ED intercom speaker in close proximity to the unit.

c. When finished, release the 'Talk' button or depress the 'Talk Lock' button again to release it, as appropriate.

3.0 Two Way Communications

a. Depress the station selector button for the station you want to contact.

b. Depress the 'Talk' button and speak in a normal voice at a distance of 12 to 18 inches. Be sure to identify your station to the station you are calling and instruct them to depress the button on their intercom corresponding to your station.

c. Release the 'Talk' button when you are finished and wait for a reply.

d. To answer a call, depress the appropriate station selector button and the 'Talk' button and speak in a normal voice at a distance of 12 to 18 inches.

e. When the conversion is completed, release the 'Talk' button and the station selector button by depressing it a second time.

EXHIBIT 11
OSC Emergency Team Status Form

OPS SUPPORT CENTER
EMERGENCY TEAM STATUS

DATE _____

TYPE OF TEAM	TEAM MEMBERS	PURPOSE	LOCATION	TIME DISPATCHED	TIME RETURNED

EXHIBIT 12

OSC Personnel Roster

Date: _____

NAME	DEPT.	BADGE #	KEY CARD #

EXHIBIT 13

OSC Utilization

The Rad Con Chemistry lunch room is transformed into the Operations Support Center during an emergency or during drills and exercises. OSC staff members must assist in the transformation by clearing any routine paperwork and personal items so that the room needed to efficiently and effectively fulfill Operations Support Center emergency responsibilities is available. Courtesy and sensitivity to the people who use the room every day dictate that personal belongings and paperwork are carefully collected and stored to result in the least amount of disruption or inconvenience. The suggested use of the facility follows.

1. OSC Coordinator - The OSC Coordinator should use the north-west table in the center of the room. This provides a good working surface, access to the emergency telephones and intercom, and is centrally located. It provides accessibility to the OSC Coordinator Assistant and to the Security Representative in the hallway.

2. Rad Con Coordinator - The Rad Con Coordinator and a Rad Con communicator should be stationed in the north-east corner of the room. Space is available for this function and all of the relevant telephone and radio communications are located there.

3. Operations Line Communicator - The Operations Line Communicator should be stationed at the desk with the Operations Line telephone. This provides suitable space for log keeping and communicator activities.

4. Emergency Maintenance Coordinator - The Emergency Maintenance Coordinator should work at the south-east table in the center of the room. This provides suitable writing space and access to a plant page phone. Team briefings can be performed in this or any other suitable area.

5. Security Representative - The Security Representative should work in the hallway outside the OSC door. This is the location of a dedicated telephone jack and the accountability key card reader.

6. Chemistry Coordinator - The Chemistry Coordinator should operate from an available table in the room.

7. OSC Coordinator Assistant - The OSC Coordinator assistant should work in the hallway outside the OSC at the team tracking status board. In this location, the OSC Coordinator Assistant will be in the route of all personnel dispatched from the OSC allowing more positive team tracking.

8. Other Staff - Support staff members should work from an available table in the room.

9. Staging - Personnel awaiting assignment should be staged in the secondary chemistry laboratory.