

PALO VERDE NUCLEAR GENERATING STATION



EMERGENCY PLAN IMPLEMENTING PROCEDURES

VOLUME I

**ARIZONA PUBLIC SERVICE COMPANY
PROJECT MANAGER AND OPERATING AGENT**

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EMERGENCY PLAN

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APPROVED BY: *A. Paul Rodriguez* DATE 10/4/82
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1.0 OBJECTIVE

- 1.1 To detail the functions and responsibilities of personnel in the PVNGS Emergency Organization both Onshift and Onsite including interface with the Offsite Emergency Organization.

This procedure sets forth the authority and responsibilities of the Emergency Organization positions. Furthermore it describes how various roles will be transferred to different personnel according to the level of emergency staffing required to respond to specific emergency classifications from the following emergency centers:

Control Room (CR)
Satellite Technical Support Center (STSC)
Technical Support Center (TSC)
Operational Support Center (OSC)
Emergency Operations Facility (EOF)
Emergency News Center (ENC)
Service Building (Alternate OSC)

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "PVNGS Emergency Classification"
2.1.2 EPIP-11, "TSC/STSC Activation"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
2.2.2 NUREG-0696, "Functional Criteria for Emergency Response Facilities"
2.2.3 PVNGS Emergency Plan, Rev. 2
2.2.4 PVNGS Physical Security Plan

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3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Operations personnel will perform their duties to place the plant in a safe condition as prescribed by Recovery Operations Procedures. If conflicts in personnel assignments or sequence of actions arise, first priority will be given to preserving the health and safety of the public.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The PVNGS Emergency Organization operates from five onsite emergency centers (CR, STSC, TSC, OSC, and Service Building) and is supported by three offsite centers (EOF, Corporate Emergency Center (CEC), and ENC). It is the responsibility of the Shift Supervisor to initially assess and classify the emergency and notify plant staff personnel. For an UNUSUAL EVENT the emergency is directed from the affected unit Control Room/STSC and command of the situation remains there with the onshift Emergency Coordinator until either deescalation/close-out or reclassification to a more severe emergency level occurs. In the event of an ALERT or more severe classification the TSC, EOF, ENC and OSC are activated. The onsite emergency corrective actions will be directed by the onsite Emergency Coordinator normally located at the TSC. The Emergency Operations Director who will be located at the EOF will provide overall direction of both the onsite and offsite emergency response organizations. The Corporate Emergency Center will be activated and fully operational for a SITE or GENERAL EMERGENCY classification and will provide the Emergency Operations Director and his staff with the resources (i.e., engineering, legal, financial, etc.) available within the APS organization.

4.2 Prerequisites

- 4.2.1 An incident has occurred and has been classified per the provisions of EPIP-02 which requires activation of one of the following Emergency Organizations:

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4.2.1.1 NOTIFICATION OF UNUSUAL EVENT

- o Onshift Emergency Organization (Appendix A)

OR

4.2.1.2 ALERT, SITE EMERGENCY and GENERAL EMERGENCY

- o Initially Onshift Emergency Organization (Appendix A)
- o Subsequently, Onsite and Offsite Emergency Organization (Appendices B and C)

4.3 Instructions

4.3.1 Onshift Emergency Organization

The onshift Emergency Organization as depicted in Appendix A will be the first to be activated in response to an emergency situation at PVNGS. If an ALERT or more severe emergency classification is declared the onsite Emergency Organization will be activated. Until such time that the onsite Emergency Organization is fully staffed, the onshift Emergency Organization shall respond to the emergency as delineated in this section and in accordance with appropriate EPIP's.

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NOTE

In an ALERT or more severe classification, the onshift response organization is supplemented by the onsite response organization. Thus, the Emergency Coordinator role will be transferred from the Duty Manager to the Maintenance and Operations Manager or his alternate, the Technical Support Manager. Once the Emergency Coordinator role transfer has been completed, the Duty Manager shall

* assume his "normal" emergency response assignment.

4.3.1.1 Emergency Coordinator

The Duty Manager shall be the first individual within the Emergency Organization to assume the onshift Emergency Coordinator role. He will be notified by the affected unit Shift Supervisor to report to the Control Room when an emergency condition exists. If the Duty Manager is incapacitated, the Shift Supervisor shall assume the responsibilities of the Emergency Coordinator. The Emergency Coordinator shall direct the utilization of APS resources during an emergency. As director of the onshift Emergency Organization he will normally be stationed in the Control Room or the STSC. The responsibilities and functions of the Emergency Coordinator include:

**a. Notifying:

1. Company emergency response personnel;
2. Local noncompany emergency support groups;
3. Nuclear Regulatory Commission;
4. County and state agencies.

**b. Activating the onsite Emergency Organization for an ALERT or more severe classification.

* The Duty Manager role can be assumed by various PVNGS management personnel. These individuals may be assigned to a "normal" emergency response role (e.g., Radiation Protection Supervisor - Radiological Protection Coordinator).

** The responsibility for the decision to perform these items cannot be delegated.

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- **c. Declaring changes in the emergency classification level.
- **d. Providing protective action recommendations to offsite emergency management agencies regarding evacuation, sheltering or similar protective measures (EPIP-15).
- **e. Authorizing emergency workers to exceed 4000 mrem/year whole body exposure limits (EPIP-18).
- **f. Determining the necessity for evacuation of nonessential personnel from the site (EPIP-19) and for evacuating personnel from onsite emergency centers.
- g. Coordinating and directing emergency operations performed by company personnel within the site boundary.
- h. Maintaining communication with offsite emergency support groups.
- i. Authorizing overtime and other expenses associated with establishing and maintaining emergency response.
- j. Initiating the deployment of emergency teams as needed (i.e., Search and Rescue, Emergency Repair, Field Monitoring).

4.3.1.2 Shift Supervisor

The Shift Supervisor will be responsible for the initial assessment and evaluation of any abnormal or emergency conditions and for initial classification and declaration of the emergency. Additionally, his responsibilities include the following:

** The responsibility for the decision to perform these items cannot be delegated.

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- a. Promptly notifying the Duty Manager of any abnormal or emergency condition.
- b. Maintaining control of unit operations and mitigating accident conditions from the Control Room.
- c. Assuming the responsibilities of Emergency Coordinator in the event the Duty Manager is incapacitated or otherwise unavailable.

The Shift Supervisor will report significant events and actions to the Emergency Coordinator.

4.3.1.3 Assistant Shift Supervisor

During emergency conditions the Assistant Shift Supervisor will maintain his normal duties of directing the Nuclear Operators and assisting the Shift Supervisor. He will continue to report to the Shift Supervisor. In the event of a fire he will act as Fire Team Leader.

4.3.1.4 Shift Technical Advisor (STA)

The STA will report to the STSC of the affected unit. His responsibilities include:

- a. Advising the Shift Supervisor on activities that are occurring, or are being planned, that may impact the safe and proper operation of the plant.
- b. Monitoring the Safety Parameter Display System (SPDS) in the STSC and developing trend data for Control Room personnel use/information.

The STA reports to the Shift Supervisor.

4.3.1.5 Operations Shift Personnel

Operations Shift Personnel (Nuclear Operators III and II) are responsible for the safe and proper operation of the unit and will respond to abnormal and emergency conditions as necessary to mitigate such situations.

Operations Shift Personnel will contact the Control Room and act under the direction of the Shift Supervisor.

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4.3.1.6 Radiation Protection Monitor

This position will be filled by a Radiation Protection Technician from the affected unit's shift complement. The Radiation Protection Monitor is stationed at the STSC and reports to the Emergency Coordinator. His responsibilities include:

- a. Initial onsite and offsite dose projections.
- b. Initial direction of onsite and offsite Field Monitoring Teams.
- c. Provision of technical advice (i.e., onsite radiation levels, radiation exposure criteria, etc.) to the Emergency Coordinator.

In an ALERT or more severe classification, the Radiation Protection Monitor will be relieved of the responsibility for directing Field Monitoring Teams and projecting doses by the Radiological Protection Coordinator (on arrival at the TSC). He will remain in the STSC and monitor the radiological assessment activities being performed in the TSC and keep the Operations Advisor apprised of the situation.

4.3.1.7 Operational Support Center (OSC) Coordinator

This position will be initially assumed by the Shift Maintenance Foreman who will report directly to the Emergency Coordinator. The OSC Coordinator is stationed at the OSC where his responsibilities and functions include:

- a. Coordination of manpower resources available at the OSC.
- b. Deployment of emergency teams (i.e., Search and Rescue, Emergency Repair, Field Monitoring) on direction from the Emergency Coordinator.

In the event of an ALERT or more severe classification, the Shift Maintenance Foreman will be relieved by the designated OSC Coordinator of the onsite Emergency Organization. He will then remain in the OSC and act as Repair Coordinator.

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4.3.1.8 Technical Engineering Coordinator

This position will be initially assumed by the Shift Systems Engineer whose normal work station is in the Maintenance Control Center (located in the TSC). The Technical Engineering Coordinator reports directly to the Emergency Coordinator and is responsible for:

- a. Providing technical input to the Control Room staff.
- b. Physically activating the TSC in accordance with EPIP-11 when an ALERT or more severe emergency classification is declared.

In the event of an ALERT or more severe classification level, the Shift Systems Engineer will be relieved by the designated Technical Engineering Coordinator of the onsite Emergency Organization. Once the Shift Systems Engineer has been relieved of the Technical Engineering Coordinator function, he and the onshift Analysts (see Section 4.3.1.9) will fill the position of Systems Engineers assisting the Emergency Maintenance Coordinator in the TSC.

4.3.1.9 Analysts

These positions will be filled by Maintenance Planner - Coordinators. The Analysts will report to the TSC and assist the Shift Systems Engineer in carrying out his function as Technical Engineering Coordinator. When the onsite Emergency Organization is activated, these individuals will assume the roles of Systems Engineers and report to the Emergency Maintenance Coordinator at the TSC.

4.3.1.10 Security Director

This position will be initially assumed by the Security Shift Captain. To ensure that PVNGS security is maintained the Security Shift Captain will assign a Security Shift Sergeant to the responsibilities of the Security Shift Captain at the Security Building. The Security Director is stationed at the TSC where his responsibilities and functions include:

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- a. Directing the onsite security force in the functions of personnel accountability and site access control.
- b. Maintaining station security and implementing security contingency measures as appropriate per the PVNGS Physical Security Plan.
- c. Calling out station emergency response personnel at the direction of the Emergency Coordinator in accordance with EPIP-07 and EPIP-08, as appropriate to the emergency classification.

The Security Shift Captain acting as the Security Director reports directly to the Emergency Coordinator and will be relieved by the designated Security Director of the onsite Emergency Organization. Upon transferring this function, the Security Shift Captain will assume his emergency duties in the Security Building.

4.3.1.11 Security Force

Security personnel located at the Central Alarm Station, Secondary Alarm Station, and other fixed posts shall maintain their positions unless otherwise directed by the Security Director. Other Security Force members will report to the Security Director for further instructions.

4.3.1.12 Maintenance Technicians

Maintenance Technicians (mechanical, electrical and I&C) will report to the OSC and are responsible for performing emergency maintenance repair and/or corrective actions as coordinated by the OSC Coordinator. They will be members of emergency teams as specified in Section 4.3.1.16.

4.3.1.13 Chemistry Technician

The Chemistry Technician will report to the OSC and is responsible for performing post-accident chemistry samples and analyses and other plant chemistry supporting operations as coordinated by the OSC Coordinator.

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4.3.1.14 Radiation Protection Technician

Radiation Protection Technicians in the onshift Emergency Organization, with the exception of the Radiation Protection Monitor (see Section 4.3.1.6), will report to the OSC and are responsible for radiological controls support such as access control, personnel monitoring, and radiological monitoring. Additionally, Radiological Protection Technicians may be assigned as members of emergency teams as specified in Section 4.3.1.16.

4.3.1.15 Satellite TSC Communicator

The Emergency Coordinator shall designate a Nuclear Operator to act as STSC Communicator. The responsibilities of the STSC Communicator are:

- a. Upon direction from the Emergency Coordinator, commence initial notifications in accordance with EPIP-07 and EPIP-08, as appropriate to the emergency classification.
- b. Maintain records of communications received from or transmitted offsite.

In the event the onsite Emergency Organization is activated (e.g., ALERT or more severe classification), the Nuclear Operator filling this role will be relieved by the designated STSC Communicator.

4.3.1.16 Emergency Teams

Emergency teams (Search and Rescue, Emergency Repair, First-Aid, Field Monitoring) will be formed from Emergency Response Shift Personnel assembled at the OSC. At a minimum, personnel assembled at the OSC include:

- 1 Radiation Protection Technician
- 1 Chemistry Technician
- 2 Mechanical Maintenance Technicians
- 1 Electrical Maintenance Technician
- 1 I&C Maintenance Technician

Emergency teams are formed by the OSC Coordinator at the direction of the Emergency Coordinator and will perform duties as follows:

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a. Search and Rescue Team

A Search and Rescue Team will consist of at least two members, with at least one member being a Radiation Protection Technician. Members of a Search and Rescue Team will, as a minimum, be first-aid trained and Radiation Exposure Permit (REP) qualified and will constitute the First Aid Team when required. Search and Rescue Team members will report to the OSC Coordinator when the onshift Emergency Organization exists. Upon activation of the onsite Emergency Organization, the Search and Rescue Team will report to the Hazards Control Coordinator, who is located in the TSC.

b. Emergency Repair Team

The Emergency Repair Team will consist of at least two Maintenance Technicians. If radiological conditions necessitate, a Radiation Protection Technician will also be assigned to the team. The Emergency Repair Team will initially report to the OSC Coordinator. When the onsite Emergency Organization is activated, the Emergency Repair Team will report to the Repair Coordinator, who is located in the OSC.

c. Field Monitoring Team

A Field Monitoring Team will be formed by the OSC Coordinator upon request from the Radiation Protection Monitor or Radiological Protection Coordinator. This Team will perform onsite and/or offsite monitoring activities. The Team will consist of at least two members, with at least one member being a Radiation Protection Technician. The Field Monitoring Team will report to and take direction from the Radiation Protection Monitor until he is relieved of this responsibility by the Radiological Protection Coordinator in the onsite Emergency Organization.

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4.3.1.17 Fire Team

The Fire Team will consist of assigned shift personnel (the Assistant Shift Supervisor, two Nuclear Operators, one Radiation Protection Technician, and one Chemistry Technician). The Fire Team will report to the Assistant Shift Supervisor who will be the Fire Team Leader. The Fire Team will respond to fire alarms and will respond at the location of the fire with assigned equipment to combat the fire and to assess the need for offsite assistance.

4.3.2 Onsite Emergency Organization

The Emergency Coordinator of the onshift Emergency Organization will order the activation of the onsite Emergency Organization (as depicted in Appendix B) when an ALERT or more severe classification level is declared. The onsite Emergency Organization positions will be manned as soon as possible (generally within 90 minutes) following such a declaration. The activation of the onsite Emergency Organization substantially enhances the station's ability to deal with emergencies by focussing greater manpower resources on the situation.

The primary function of the onsite Emergency Organization will be to manage the emergency by:

- a. Diagnosing plant conditions.
- b. Identifying and implementing corrective actions.
- c. Coordinating onsite emergency activities.
- d. Directing protective action for station personnel.
- e. Communicating with offsite agencies until the Emergency Operations Facility (EOF) is activated.

Specific functional assignments within the onsite Emergency Organization are listed in the following sections.

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4.3.2.1 Emergency Coordinator

After being notified and following arrival onsite, the Operations and Maintenance Manager or his alternate (Technical Support Manager) will be briefed on plant conditions and the status of the emergency by the onshift Emergency Coordinator (Duty Manager). Following this briefing the Operations Maintenance Manager will relieve the Duty Manager of his duties* as Emergency Coordinator and will assume management control of the onsite Emergency Organization. The functions and responsibilities of the onsite Emergency Coordinator in addition to those assumed from the onshift Emergency Coordinator (see Section 4.3.1.1) are:

- a. Manage operations in the TSC. This includes collecting and analyzing the technical information necessary for assessment of plant operational aspects, providing technical counsel to support the Control Room, assessing radiological release potential, monitoring onsite exposure and contamination control, repairing plant components or systems as required by the emergency and/or consequences, and maintaining onsite personnel accountability.
- b. Provide management direction to the Control Room through the Operations Advisor.
- c. Provide management direction to the Operational Support Center through the Operational Support Center Coordinator.
- d. Assign plant staff personnel to positions in the onsite Emergency Organization as appropriate.
- e. Request assistance as necessary for onsite radiation monitoring from federal agencies, either directly or through the county/state emergency response organization once established.

* When the EOF is activated the Emergency Operations Director assumes the following nondelegable responsibilities: (1) communicating plant status updates and radiological release data to NRC/FEMA, county/state, EOC personnel and (2) making protective action recommendations to offsite emergency management authorities.

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4.3.2.2 Radiological Protection Coordinator

This position will be filled by the Radiation Protection Supervisor, his alternate will be a Radiological Engineer. The Radiological Protection Coordinator is stationed at the TSC, where his responsibilities and functions include:

- a. Relieving the Radiation Protection Monitor of the responsibility for overall control and direction of onsite and offsite field monitoring, and for plant radiological controls.
- b. Providing direction to the Radiological Protection Support Staff at the OSC in matters pertaining to plant radiological controls.
- c. Providing technical advice to the Emergency Coordinator on radiological aspects of onsite emergency activities.
- d. Supervising dose rate projection activities at the TSC.
- e. Providing technical advice to the Emergency Coordinator and/or the Radiological Assessment Coordinator concerning recommendations for offsite protective actions based on the results of dose projections.
- f. Evaluating the need for the administration of Potassium Iodide to PVNGS personnel per EPIP-26.
- g. Evaluating conditions requiring emergency radiation exposure.
- h. Directing the decontamination of PVNGS personnel and equipment.
- i. Providing radiological update status to the Radiological Assessment Coordinator in the EOF.

The Radiological Protection Coordinator reports to the Emergency Coordinator. Support provided for the Radiological Protection Coordinator includes:

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1. Field Team Communicator

The Field Team Communicator, located in the TSC, will handle direct radio communications with PVNGS onsite and offsite Field Monitoring Teams. He will assist the Radiological Protection Coordinator by performing onsite and offsite radiological dose rate projections. He will report to and take direction from the Radiological Protection Coordinator.

2. Field Monitoring Team(s)

(Perform as described in Section 4.3.1.16.c).

4.3.2.3 Technical Engineering Coordinator

This position will be filled by the Engineering Manager, his alternate will be the Operations Engineering Supervisor. The Technical Engineering Coordinator is stationed at the TSC where his functions and responsibilities include:

- a. Relieving the onshift Technical Engineering Coordinator following a briefing concerning plant status and conditions.
- b. Directing engineering, system analyses, procedures development, and related licensing efforts concerning the emergency.
- c. Providing updated status of the reactor and the unit to the Technical Analysis Coordinator in the EOF.
- d. Maintaining liaison with offsite technical support, such as NSSS supplier, A-E, NSAC, EPRI, and INPO.

The Technical Engineering Coordinator reports to the Emergency Coordinator. His support staff in the TSC will consist of the following:

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1. Computer Support Coordinator

Provides continuous operations (hardware and software) for support of analyses related to plant conditions and dose assessment. This position will be filled by the Computer Supervisor. His alternate will be a Computer Engineer.

2. Chemistry Coordinator

Provides evaluation of coolant samples to aid in diagnosing reactor core conditions and release potentials and interprets results of chemical analyses for evaluation of plant systems. This position will be filled by the Chemistry Supervisor. His alternate will be a Chemist.

3. Reactor Analyst

Performs detailed analyses of core physics and heat transfer parameters to assess reactor core status and to evaluate the integrity of reactor coolant pressure boundary and fuel cladding. This position will be filled by the Nuclear Supervisor.

4.3.2.4 Emergency Maintenance Coordinator

This position will be filled by the Maintenance Superintendent. His alternate will be the Maintenance Control Center Supervisor. The Emergency Maintenance Coordinator is stationed at the TSC, where his functions and responsibilities include:

- a. Relieving the onshift OSC Coordinator of overall responsibility for emergency plant repair.
- b. Coordinating repair and damage control for plant systems including mechanical, electrical, and instrument and control equipment.
- c. Advising the Emergency Coordinator on matters which deal with repair, maintenance, and deployment of Emergency Repair Teams.
- d. Directing the OSC Coordinator to assemble and dispatch Emergency Repair Teams.

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- e. Assessing mechanical operation of various plant systems and equipment.
- f. Maintaining liaison with the Administrative and Logistics Coordinator in the EOF in matters pertaining to manpower support.

The Emergency Maintenance Coordinator reports to the Emergency Coordinator. His support staff will consist of the following:

1. Systems Engineers

These positions will be filled by Maintenance Planner-Coordination. The Systems Engineers will recommend courses of action for emergency repairs and provide possible alternatives for maintenance operations. The Systems Engineers will be stationed in the TSC to enhance the level of direct support available to the Emergency Maintenance Coordinator.

2. Mechanical Coordinator

This position will be filled by the Mechanical Maintenance Supervisor. His alternate will be a Mechanical Systems Engineer. The Mechanical Coordinator will determine and recommend repair/damage control and corrective actions for plant mechanical, HVAC and piping systems. He will report directly to the Emergency Maintenance Coordinator and will be stationed with a Mechanical Technician at the Service Building to facilitate access to tools and plant system schematics.

3. Electrical Coordinator

This position will be filled by the Electrical Maintenance Supervisor. His alternate will be an Electrical Systems Engineer. The Electrical Coordinator will determine and recommend repair/damage control and corrective actions for plant electrical systems. He will report directly to the Emergency Maintenance Coordinator and will be stationed with an Electrical Technician at the Service Building.

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4. Instrument and Control Coordinator

This position will be filled by the I&C Supervisor. His alternate will be an I&C Systems Engineer. The I&C Coordinator will determine alternative I&C capabilities or configurations, and direct the repair/installation/modification of instrument and control equipment. The I&C Maintenance Supervisor will report to the Emergency Maintenance Coordinator and will be stationed with an I&C Technician at the Service Building.

In the event the Service Building becomes uninhabitable, personnel ordinarily stationed there shall report to the TSC.

4.3.2.5 Hazards Control Coordinator

This position will be filled by the Safety Administrator. His alternate will be a Safety Engineer. The Hazards Control Coordinator is stationed at the TSC, where his functions and responsibilities include:

- a. Advising the Emergency Coordinator on matters concerning the safety of plant personnel during the emergency.
- b. Directing the OSC Coordinator in the assembly and dispatch of Search and Rescue Teams.
- c. Evaluating the hazards of toxic material release and/or chemical spills, should such an event occur or appear imminent.
- d. Providing technical advice to the Fire Team Leader should a fire be the cause of, or occur, during an emergency.

The Hazards Control Coordinator reports to the Emergency Coordinator.

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4.3.2.6 Personnel Resources Coordinator

This position will be filled by the Administrative Services Manager. His alternate will be the Office Supervisor. The Personnel Resources Coordinator will be stationed in the TSC where his functions and responsibilities include:

- a. Relieving the Security Director of the function of calling out additional emergency response personnel (at the direction of the Emergency Coordinator).
- b. Planning for 24 hour emergency response organization staffing throughout the course of the emergency.
- c. Assessing the need for, and assisting the OSC Coordinator in meeting the manning requirements of the OSC.

The Personnel Resources Coordinator reports to the Emergency Coordinator.

4.3.2.7 OSC Coordinator

This position will be filled by the Day Shift Supervisor. The OSC Coordinator is stationed in the OSC where his functions and responsibilities include:

- a. Relieving the Shift Maintenance Foreman of his responsibilities as onshift OSC Coordinator.
- b. Functionally supervising the OSC.
- c. Coordinating manpower resources available at the OSC.
- d. Assembling and dispatching emergency teams (i.e., Search and Rescue, First-Aid, Emergency Repair, or Field Monitoring) at the direction of the Hazards Control, Emergency Maintenance, or Radiological Protection Coordinator respectively.

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The OSC Coordinator reports to the Personnel Resources Coordinator and is assisted by the:

1. Repair Coordinator

This position will be filled by a Shift Maintenance Foreman. The Repair Coordinator will be responsible for ensuring that maintenance technicians and Emergency Repair Teams are dispatched at the direction of the Emergency Maintenance Coordinator. The Repair Coordinator will be stationed at the OSC with Maintenance Technicians and will report to the OSC Coordinator.

Additional personnel resources available at the OSC and coordinated by the OSC Coordinator include:

1. Chemistry Support Staff

The Chemistry Support Staff will be responsible for taking and analyzing post-accident samples according to procedures and providing chemistry support as directed by the Chemistry Coordinator.

2. Radiological Protection Support Staff

The Radiological Protection Support Staff will be dispatched at the direction of the Radiological Protection Coordinator to conduct onsite/offsite radiation surveys. The Radiological Protection Support Staff will also be available for dispatch with Search and Rescue, Emergency Repair Teams and the Fire Team (as required).

3. Emergency Teams

Emergency teams will be assembled and act in accordance with Section 4.3.1.16 of this procedure.

4.3.2.8 Security Director

This position will be filled by the Manager of Operations Security. His alternate will be the Operations Security Supervisor. The Security Director will be stationed at the TSC, where his responsibilities include:

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- a. Relieving the Security Shift Captain of his responsibilities as onshift Security Director.
- b. Maintaining plant security and implementing security contingency measures as appropriate per the PVNGS Physical Security Plan.
- c. Calling out emergency response personnel, until relieved of this responsibility by the Personnel Resources Coordinator.
- d. Directing the onsite security force in personnel accountability, evacuation, access control, and personnel and equipment security control.
- e. Coordinating the movement, clearance, and badging of Emergency Response Personnel entering the station to provide emergency support.

The Security Director reports to the Emergency Coordinator and is assisted by the Security Force as described in Section 4.3.1.11.

4.3.2.9 Operations Advisor

This position will be filled by the affected unit Operations Supervisor. His alternate will be an Operations Supervisor from an unaffected unit. The Operations Advisor will be the management liaison to the Control Room and will be stationed at the Satellite TSC where his functions and responsibilities include:

- a. Providing technical and operational advice to the Shift Supervisor.
- b. Acting as an interface to maintain the flow of information between the TSC and Control Room.
- c. Analyzing conditions (via the SPDS and Chemical and Radiological Analysis Computer System (CRACS)) and developing guidance for the Emergency Coordinator and Operations personnel.
- d. Assisting in the development of emergency operating and other procedures, as necessary for conducting emergency operations.

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The Operations Advisor reports to the Emergency Coordinator. His support staff consists of the following:

1. Radiation Protection Monitor

This position will be filled by a Radiation Protection Technician. The Radiation Protection Monitor will monitor onsite and offsite radiation dose projections in the Satellite TSC. He will maintain communication with the Radiological Protection Coordinator at the TSC and will keep the Operations Advisor apprised of the onsite and offsite radiological conditions. The Radiation Protection Monitor will be stationed in the Satellite TSC and will report directly to the Operations Advisor.

2. Satellite TSC Communicator

This position will be filled by a Nuclear Operator II. The onsite Satellite TSC Communicator will maintain the communications link for the Operations Advisor with the Emergency Coordinator in the TSC. He will relieve the Nuclear Operator II in the onshift emergency organization. He will be stationed in the Satellite TSC, reporting directly to the Operations Advisor.

4.3.2.10 Shift Supervisor

The Shift Supervisor will continue to be responsible for control of unit operations, assessing unit operational aspects, and implementing corrective actions to mitigate the consequences of an emergency, as described in Section 4.3.1.2. The Shift Supervisor reports to the Emergency Coordinator and will direct the activities of shift operating personnel as listed below:

1. Assistant Shift Supervisor

Functions and responsibilities as described in Section 4.3.1.3.

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2. Shift Technical Advisor

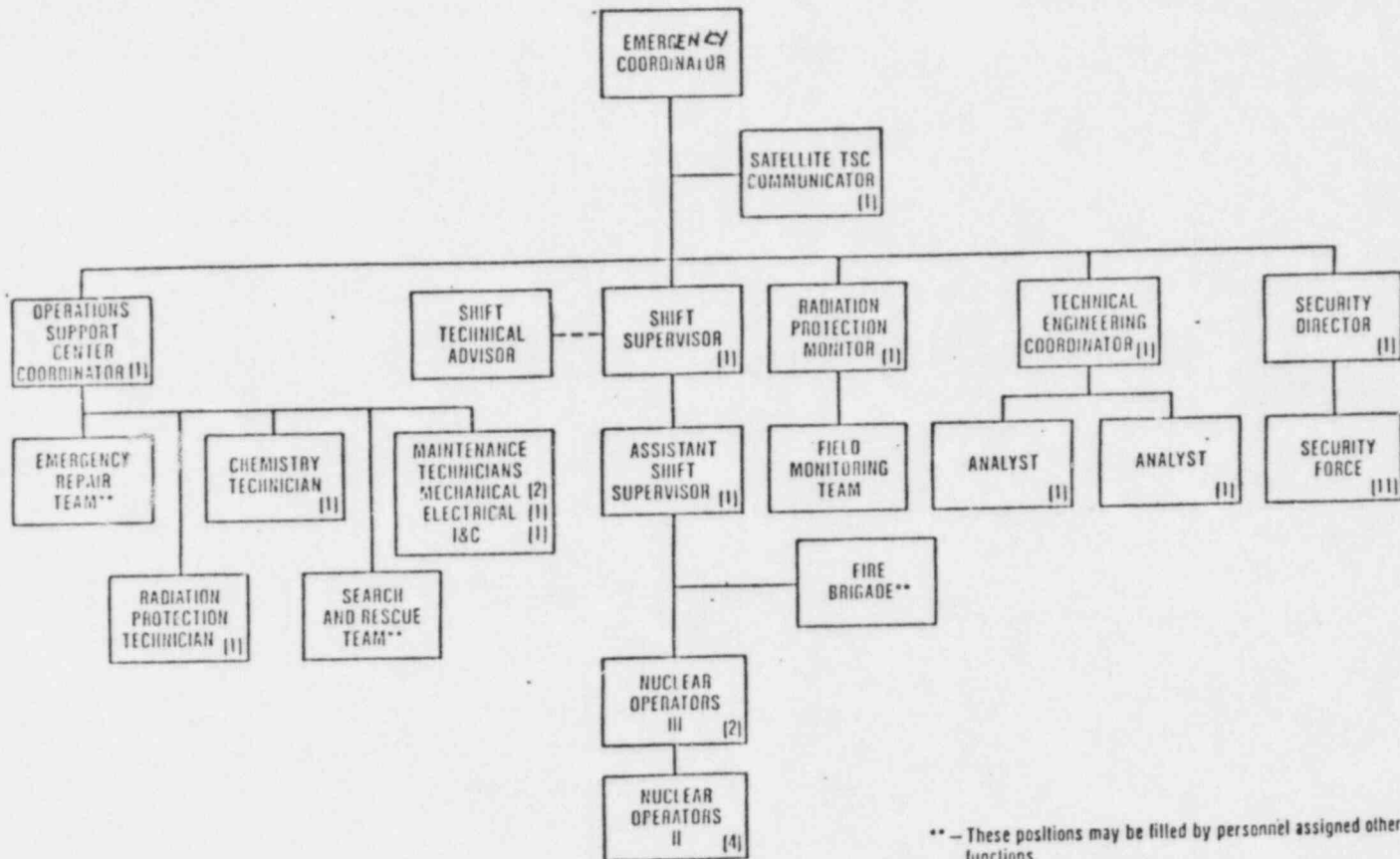
Functions and responsibilities as described in
Section 4.3.1.4.

3. Operations Shift Personnel (Nuclear Operators III
and II).

Functions and responsibilities as described in
Section 4.3.1.5.

4. Fire Team

Functions and responsibilities as described in
Section 4.3.1.17.



** — These positions may be filled by personnel assigned other functions.

() — Minimum number of personnel on shift for position.

ON-SHIFT EMERGENCY ORGANIZATION

Revision 2
February, 1982

Figure 42.1

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ONSITE EMERGENCY ORGANIZATION

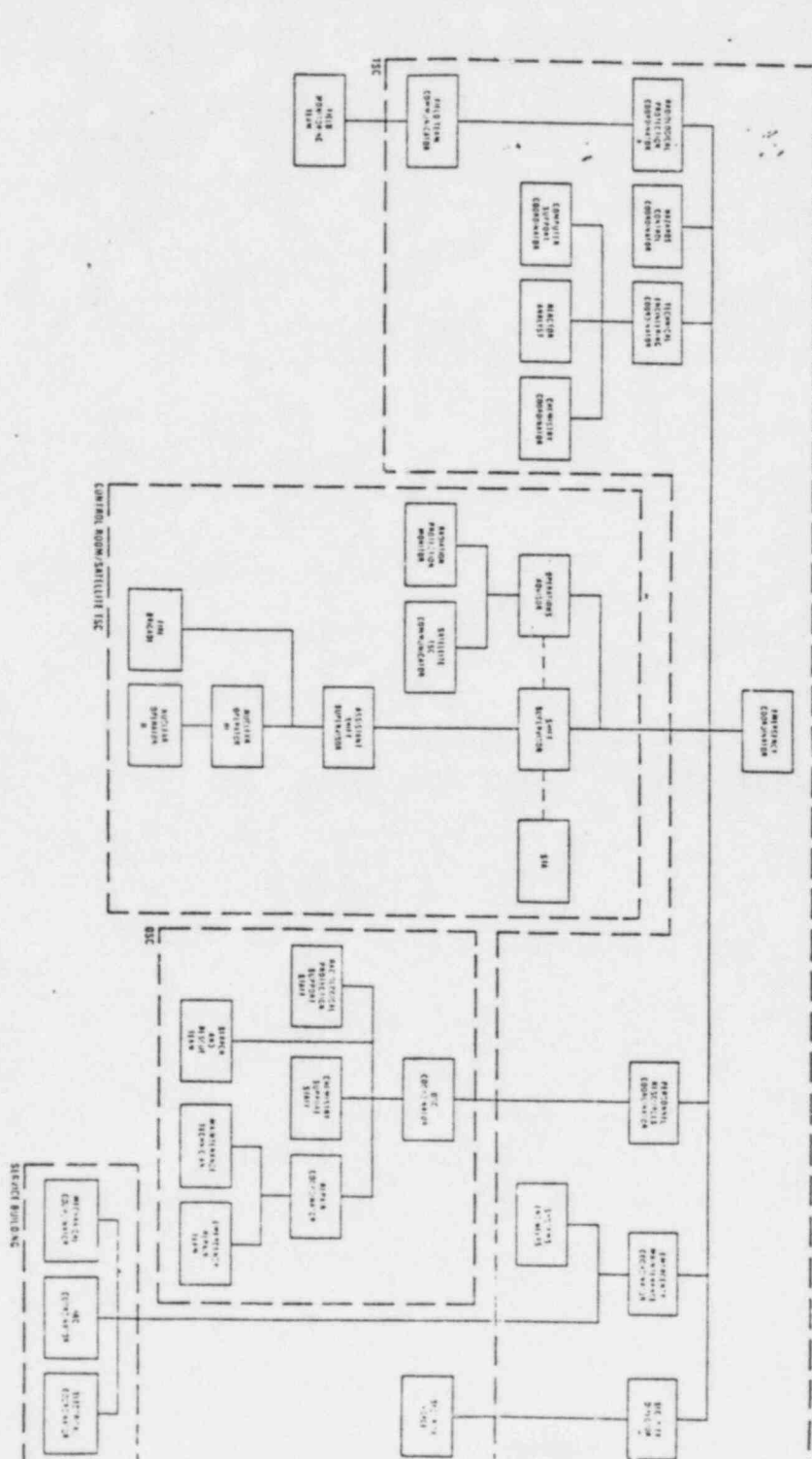


Figure 4-2-2

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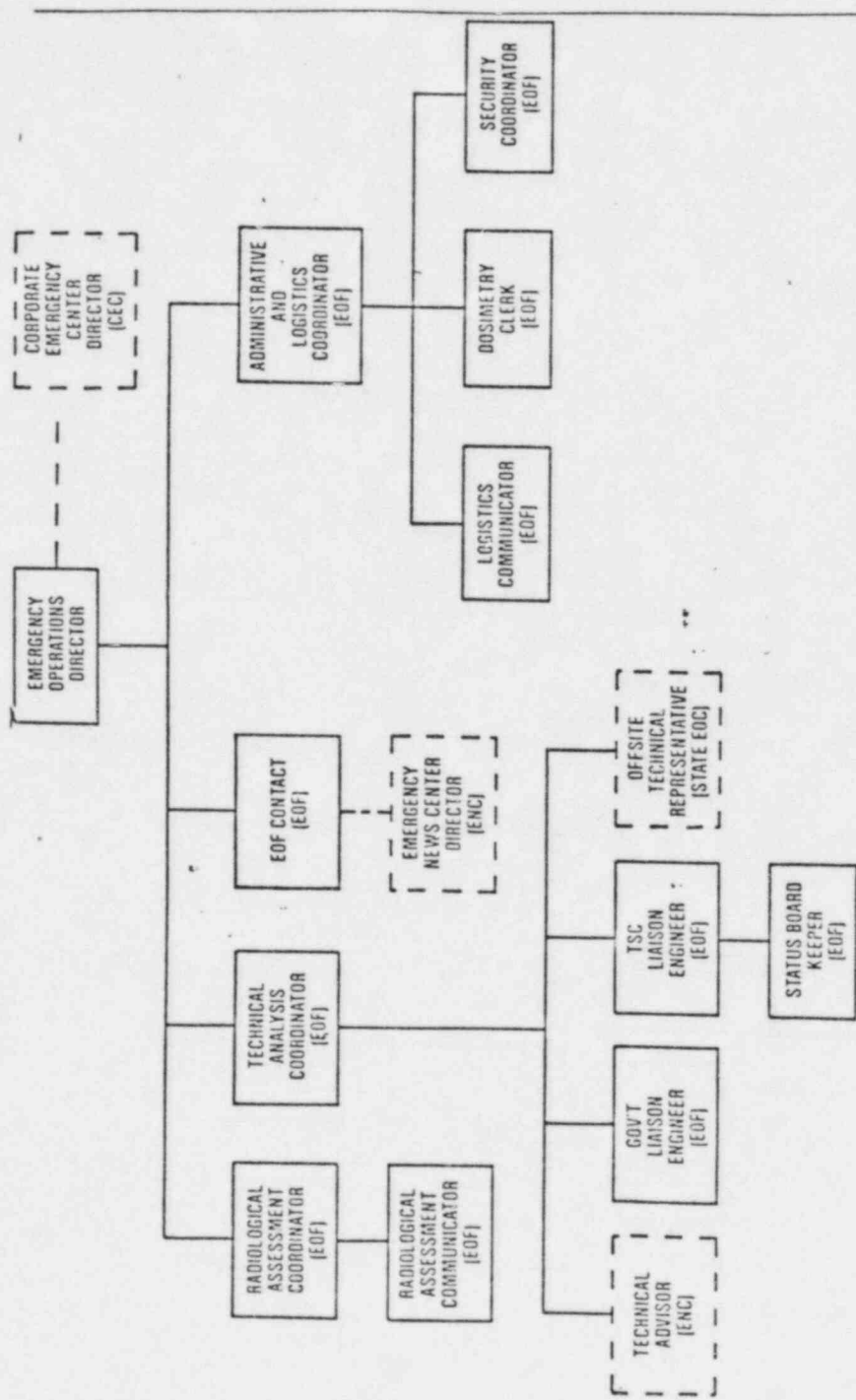


Figure 4-23

OFFSITE EMERGENCY ORGANIZATION

Revision 2
February, 1982

<p>PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-01</p>	<p>APPENDIX D Page 1 of 1</p>
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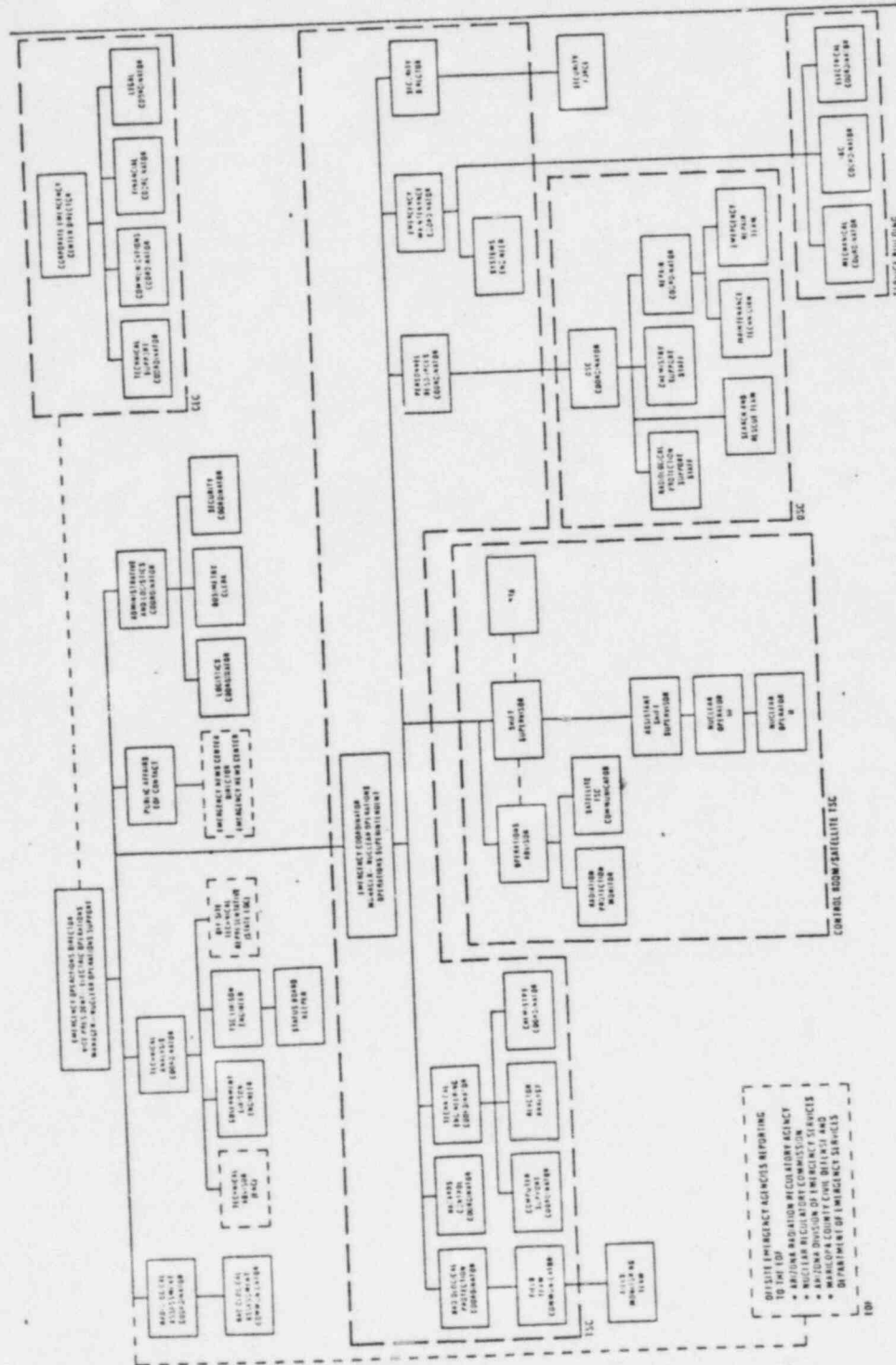


Figure 42-4

PVNGS EMERGENCY ORGANIZATION

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ASSIGNED COPY

PVNGS SM 8-9A

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-1519A/0188A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-02	
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1.0 OBJECTIVE

- 1.1 To provide a means of classifying an event at PVNGS into one of the four emergency classifications as described in PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 Recovery Operations Procedures
- 2.1.2 PVNGS Emergency Plan, Rev. 2, Section 5 "Emergency Conditions."
- 2.1.3 EPIP-31, "Recovery"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, Appendix 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 This procedure will not take priority over the measures required to maintain or restore the plant to a safe condition. Prompt notification of offsite authorities should be given within 15 minutes of declaration of a particular emergency classification. This time is measured from when the Shift Supervisor declares a particular emergency class and notifies the Duty Manager.
- 3.2 Continued surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised as conditions change, or as more information is obtained.
- 3.3 This emergency procedure does not replace any plant operating procedures. During an emergency condition continue to use the appropriate plant procedure in parallel to this and other Emergency Plan Implementing Procedures (EPIP's).

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 Introduction to the Modular Concept

4.1.1.1 The Basic Module

- a. Four emergency classifications have been established. The classes are:
 1. NOTIFICATION OF AN UNUSUAL EVENT
 2. ALERT
 3. SITE EMERGENCY
 4. GENERAL EMERGENCY
- b. The rationale for these classes is to provide early and prompt notification of minor events (the "Basic Module Events") which could lead to more serious consequences, or which might be indicative of more serious conditions which are not yet fully realized. A system of "modules" has been provided to ensure more effective response preparation for more serious indicators.
- c. The Basic Modules are abnormal conditions considered to be the initiating events upon which emergencies discussed within the Emergency Action Levels are based.
- d. Prompt recognition of the occurrence of one or more of the initiating events of the Basic Module may prevent the situation from progressing to either a NOTIFICATION OF UNUSUAL EVENT category or an emergency classification of greater severity.
- e. The 13 Basic Module events as depicted in Appendix A are:
 1. Unplanned or unanticipated change in radiation levels, or release of gaseous effluent.
 2. Fuel handling accident.
 3. Indications leading to or actual loss of fission product barrier.

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4. Steam line break or main steam safety or relief valve failures.
 5. Primary reactor coolant leak, primary to secondary leakage, or pressurizer safety or relief valve failure.
 6. Loss of power or alarms.
 7. Loss of feedwater.
 8. Other limiting conditions for operations.
 9. Reactor Protection System failure.
 10. Control Room evacuation.
 11. Fire.
 12. Natural phenomena and other hazards.
 13. Security threat.
- f. As shown in Appendix A, an emergency (initiating condition) may progress to a particular emergency classification as a result of a combination of one or more of the Basic Module events. In most instances, these elements of the Basic Module will advance to the category of a NOTIFICATION OF UNUSUAL EVENT, and, with continued degradation, could escalate to the more severe classes of ALERT, SITE EMERGENCY, or GENERAL EMERGENCY.
 - g. As shown in Appendix A, each of the four classes of an emergency is indicative of nine or more sets of initiating conditions.
 - h. The events within each class are either identical to, or are slight modifications of, those that exist in Section 5 of the PVNGS Emergency Plan. What the "modularized" system denotes is a graphic reproduction of Tables 5.1-1 through 5.1-4. This module format yields three important advantages.

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1. It affords prompt recognition of an emergency condition and an indication of its severity as defined by the Emergency Action Levels.
2. Prompt recognition leads to prompt action as well as an accelerated process of initial notification and activation of onsite and offsite agencies.
3. It enables reactor operations personnel to effectively move through the recovery procedures and into the EPIP's.

1. The utilization of the "modular" approach in assessing a radiological accident, affords greater probability of responding to a potentially hazardous occurrence in a more timely manner.

4.1.2 Responsibility

- 4.1.2.1 The Shift Supervisor has the responsibility to initially classify an event into one of the four emergency classifications and to notify the Duty Manager.
- 4.1.2.2 The Emergency Coordinator (initially the Duty Manager or Shift Supervisor, if Duty Manager is unavailable or incapacitated) has the responsibility to implement the Emergency Plan and for subsequent reclassification of the emergency.

4.2 Prerequisites

- 4.2.1 A Recovery Operations Procedure has been initiated which warrants activation of the Emergency Plan.
- 4.2.2 An unusual condition exists at or near PVNGS which appears to warrant activation of the Emergency Plan.

4.3 Instructions

4.3.1 Off Normal Plant Condition

- 4.3.1.1 At any time the plant condition is off normal, the Shift Supervisor will perform the following:

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- a. Notify the Duty Manager to report to the affected unit Control Room.
- b. Evaluate the situation and determine if corrective actions are required to place the plant in a stable and safe condition.
- c. Organize the onshift staff to take actions to maintain or return to a safe plant condition.
- d. Classify the event in accordance with Section 4.3.2. If an Emergency Plan classification is not immediately evident, notify unaffected units and shift personnel that an off normal plant condition exists.

4.3.2 Classification

NOTE

If conditions are established such that it is difficult to determine specific classification, classify the incident at the most conservative (i.e., more severe) level.

- 4.3.2.1 Normally the classification guidance contained in the appropriate Recovery Operations Procedure will be used to determine the initial emergency classification. In the event none of the Recovery Operations Procedures are appropriate to the situation, the Shift Supervisor/Emergency Coordinator shall classify the incident in accordance with the following steps.
- 4.3.2.2 Shift Supervisor/Emergency Coordinator select affected module(s) on Emergency Classification Flowchart (Appendix A) and then follow horizontally across to the actual event to recognize the appropriate emergency classification.
- 4.3.2.3 If Appendix A proves to be inadequate for determining a particular emergency classification, the Shift Supervisor/Emergency Coordinator shall refer to the Emergency Action Levels (Appendix D) and select the appropriate emergency classification based on this review.

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- 4.3.2.4 Shift Supervisor/Emergency Coordinator record the date/time of initial classification, as determined from 4.3.2.1, 4.3.2.2, or 4.3.2.3 above, on the Emergency Classification Check List (Appendix B).

NOTE

If there is an uncontrolled release occurring, the Chemical and Radiological Analysis Computer System (CRACS) will project an emergency classification based on release data and dose rate projections.

- 4.3.2.5 Based on the classification of the emergency, the Emergency Coordinator shall initiate the appropriate Emergency Plan Implementing Procedure (EPIP) as follows:

- a. NOTIFICATION OF UNUSUAL EVENT Implementing Actions - EPIP-03
- b. ALERT Implementing Actions - EPIP-04
- c. SITE EMERGENCY Implementing Actions - EPIP-05
- d. GENERAL EMERGENCY Implementing Actions - EPIP-06

4.3.3 Reclassification

- 4.3.3.1 An emergency may escalate to a higher classification as station conditions worsen or additional abnormal station conditions arise. This could also happen as a result of a combination of two or more of the Basic Module events.

- 4.3.3.2 An emergency may be initially classified at one level and, upon further investigation or after corrective actions, may be reclassified to a less severe class of emergency.

- 4.3.3.3 If the Emergency Coordinator determines that reclassification is necessary he shall perform the following:

- a. Repeat the classification steps of 4.3.2 above, recording information in the appropriate reclassification column of Appendix B.

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b. Discuss plant status and reclassification with the following individuals depending upon the emergency class:

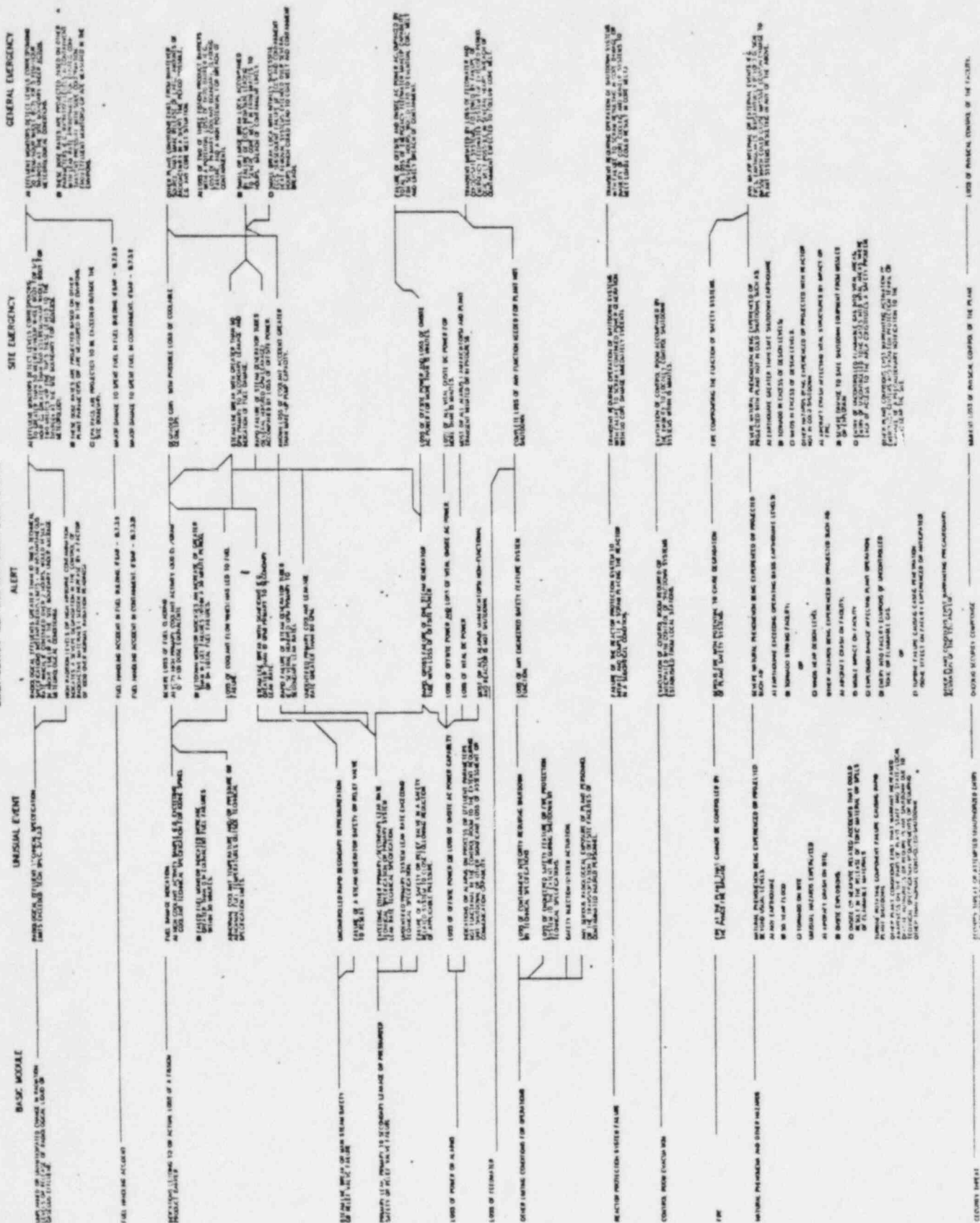
1. SITE or GENERAL EMERGENCY - Emergency Operations Director, Operations Advisor, Radiation Protection Coordinator, and Technical Engineering Coordinator.
2. ALERT - Radiation Protection Coordinator, Operations Advisor, and Technical Engineering Coordinator.
3. UNUSUAL EVENT - Shift Supervisor and Radiation Protection Monitor.

c. If the event is reclassified (either upward or downward) direct a plant operator to announce the status of the emergency over the PA system and insure the appropriate EPIP is implemented per Section 4.3.2.5.

d. If the event is reclassified such that plant status conditions fall within the following guidelines implement EPIP-31.

- o Radiation levels are stable or decreasing with time.
- o Releases of radioactive materials to the environment have ceased or are controlled within permissible license limits.
- o Fire, flooding, or similar emergency conditions no longer constitute a hazard to the plant or station personnel.
- o Measures have been successfully instituted to correct or compensate for malfunctioning equipment.

EMERGENCY CLASSIFICATION FLOW CHART



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EMERGENCY CLASSIFICATION

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CLASSIFICATION CHECK LIST

CATEGORY	INITIAL CLASSIFICATION UE, ALERT, SITE, GENERAL DATE/TIME	RECLASSIFICATION DATE/TIME	RECLASSIFICATION DATE/TIME	RECLASSIFICATION DATE/TIME
1. Unplanned or unanticipated change in radiation levels, or release of radiological liquid or gaseous effluent.	/ /	/ /	/ /	/ /
2. Fuel handling accident.	/ /	/ /	/ /	/ /
3. Indications leading to or actual loss of fission product barrier.	/ /	/ /	/ /	/ /
4. Steam line break or main steam safety or relief valve failure.	/ /	/ /	/ /	/ /
5. Primary reactor coolant leak, primary to secondary leakage, or pressurizer safety or relief valve failure.	/ /	/ /	/ /	/ /
6. Loss of power or alarms.	/ /	/ /	/ /	/ /
7. Loss of feedwater.	/ /	/ /	/ /	/ /
8. Other limiting conditions for operations.	/ /	/ /	/ /	/ /
9. Reactor Protection System failure.	/ /	/ /	/ /	/ /
10. Control Room evacuation.	/ /	/ /	/ /	/ /
11. Fire.	/ /	/ /	/ /	/ /
12. Natural phenomena and other hazards.	/ /	/ /	/ /	/ /
13. Security threat.	/ /	/ /	/ /	/ /

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CRITERIA FOR EMERGENCY CLASSIFICATION

NOTIFICATION OF UNUSUAL EVENT

Unusual events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

Purpose of offsite notification is to (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness, and (3) provide systematic handling of unusual events information and decisionmaking.

ALERT

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

Purpose of offsite alert is to (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide offsite authorities current status information.

SITE EMERGENCY

Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases not expected to exceed EPA Protective Action Guidelines exposure levels except near site boundary.

Purpose of the site area emergency declaration is to (1) assure that response centers are manned, (2) assure that monitoring teams are dispatched, (3) assure that personnel required for evacuation of near-site areas are at duty stations if situation becomes more serious, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities.

GENERAL EMERGENCY

Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

Purpose of the general emergency declaration is to (1) initiate predetermined protective actions for the public, (2) provide continuous assessment of information from licensee and offsite organization measurements, (3) initiate additional measures as indicated by actual or potential releases, (4) provide consultation with offsite authorities and (5) provide updates for the public through offsite authorities.

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EMERGENCY ACTION LEVELS (EAL'S)

NOTIFICATION OF UNUSUAL EVENT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
1. Safety Injection System actuation.	1. HPSI pump running annunciator; various safety equipment status system panel indications.
2. Radiological effluent technical specification limits exceeded.	2. In accordance with Technical Specification Section 3/4.3.3, Radiological Effluent Process Monitors SQN-RU-141, SQB-RU-145, SQN-RU-143 in valid alarm mode.
3. Fuel Damage Indication <ul style="list-style-type: none"> a. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). b. Failed fuel monitor indicates increase greater than 0.1% equivalent fuel failures with 30 minutes. 	3. Process radiation monitor alarms and reactor coolant sample indicates either: <ul style="list-style-type: none"> a. I-131 dose equivalent exceeds fig. 3.4-1 of Technical Specifications Section 3/4.4, or b. Coolant specific activity exceeds $100/\bar{E}$ uci/gm.
4. Abnormal coolant temperatures and/or pressure or abnormal fuel temperatures outside technical specification limits.	4. <ul style="list-style-type: none"> a. Reactor power exceeds Technical Specification limits-Section 2.1; b. High T avg and pressurizer low pressure alarms occur; or c. Subcooling margin monitor indicates less than 5°F margin to saturation when at power; or d. RCS pressure greater than 2350 psia; e. 10% of the operable core exit thermocouples exceed 650°F.

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EMERGENCY ACTION LEVELS (EAL'S)

NOTIFICATION OF UNUSUAL EVENT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>										
6. Exceeding either primary/secondary leak rate technical specification or primary system leak rate technical specification.	6. Primary to secondary leak rate greater than 1 gpm total through both steam generators as identified by RCS water inventory balance.										
7. Unidentified primary system leak rate exceeding technical specification.	7. Unidentified primary system leakage greater than 1 gpm as determined by monitoring containment sump inventory and discharge and by RCS water inventory balance.										
8. Failure of a safety or relief in a related system to close following reduction of applicable pressure.	8. Pressurizer safety valve opens and fails to reset as indicated by: <ul style="list-style-type: none"> a. Pressurizer TRBL alarm at window 4A01A, and b. Increasing reactor drain tank level, temperature and pressure indicated on CHN-LI-268, CHN-TI-268 and CHN-PI-268 on panel B03, and c. Relief line temperature indicator(s) reading greater than alarm set points on one or more of the following indicators on panel B04: <table> <tr> <th><u>Safety Valve</u></th><th><u>Relief Line Temp, Ind.</u></th></tr> <tr> <td>RC-PSV-200</td><td>RCN-TI-107</td></tr> <tr> <td>RC-PSV-201</td><td>RCN-TI-107</td></tr> <tr> <td>RC-PSV-202</td><td>RCN-TI-106</td></tr> <tr> <td>RC-PSV-203</td><td>RCN-TI-106</td></tr> </table>	<u>Safety Valve</u>	<u>Relief Line Temp, Ind.</u>	RC-PSV-200	RCN-TI-107	RC-PSV-201	RCN-TI-107	RC-PSV-202	RCN-TI-106	RC-PSV-203	RCN-TI-106
<u>Safety Valve</u>	<u>Relief Line Temp, Ind.</u>										
RC-PSV-200	RCN-TI-107										
RC-PSV-201	RCN-TI-107										
RC-PSV-202	RCN-TI-106										
RC-PSV-203	RCN-TI-106										
9. Loss of offsite power or loss of onsite AC power capability.	9. AC bus failure annunciators.										

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EMERGENCY ACTION LEVELS (EAL'S)

NOTIFICATION OF UNUSUAL EVENT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
10. Loss of containment integrity requiring shutdown by technical specification.	10. a. Any containment automatic isolation valve found to be inoperable, or b. Any penetration found open that is not capable of being closed by an operable containment automatic isolation valve but required to be closed during accident conditions and normally closed by a valve, blind flange or deactivated automatic valve, or c. Either air lock inoperable, or d. Penetration(s) fail type B and C leak test requirements (as specified by Technical Specifications Section 3/4.6.1).
11. Loss of engineered safety feature or fire protection system to the extent requiring shutdown by technical specifications.	11. a. LCOs for engineered safety features exceeded per tech specs. b. LCOs for Fire Protection System exceeded.
12. Fire at the plant that cannot be controlled by the PVNGS Fire Team.	12. a. Any of various fire protection alarms. b. Verbal report.
13. Indications or alarms on process or effluent parameters not functional in the control room to the extent requiring unit shutdown; or other significant loss of assessment or communication capability.	13. a. ESF process or effluent monitor(s) inop. b. Meteorological instrumentation inop. c. Unit Computer inop.

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EMERGENCY ACTION LEVELS (EAL'S)

NOTIFICATION OF UNUSUAL EVENT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
14. Security threat attempted entry or attempted sabotage.	14. As reported or observed.
15. Natural phenomenon being experienced or projected beyond usual levels: a. any earthquake; b. 50 year flood; c. tornado on site.	15. a. Seismic trigger annunciator; b. as visually observed by or reported to, station personnel; c. as visually observed by or reported to, station personnel.
16. Unusual hazards experienced: a. aircraft crash onsite;- b. onsite explosions; c. onsite or nearsite related accidents that could result in the release of toxic material or spills of flammable materials.	16. As visually observed by or reported to, station personnel.
17. Turbine rotating component failure causing rapid plant shutdown.	17. Turbine trip as evaluated.
18. Other plant conditions exist that warrant increased awareness on the part of state/local offsite authorities or require plant shutdown due to technical specification requirements or require other than normal controlled shutdown.	18. As situations occur.

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EMERGENCY ACTION LEVELS (EAL'S)

NOTIFICATION OF UNUSUAL EVENT

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

19. Any serious radiological exposure of plant personnel or the transportation to offsite facilities of contaminated injured personnel.

19. As situations occur.

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

1. Severe loss of fuel cladding.
2. Rapid gross failure of one steam generator tube with loss of offsite power.

EAL (Alarm, Instrument Reading, etc.)

1.
 - a. Very high primary coolant activity (300 uCi/gram of I-131 dose equivalent.
 - b. Letdown monitor indicates an increase of greater than 1% fuel failures within a 30 minute period, or 5% total fuel failures.
2.
 - a. Shift Supervisor's opinion based on observation of one or more of the following:
 - 1) Decrease in feedwater flow to the damaged steam generator indicated at SGN-FR-1112 (S/G-1) or SGN-FR-1122 (S/G-2) on panel B06, or
 - 2) Decreasing pressurizer pressure indicated at RCN-PR-100 on panel B04, or
 - 3) Decreasing pressurizer level indicated at RCN-LR-110 on panel B04, or
 - 4) Volume control tank level decreasing indicated at CHN-LI-226 on panel B03, or
 - 5) Charging pump flow increasing indicated at CHB-FI-212 on panel B03, or
 - 6) Condenser vacuum pump/gland seal exhaust monitor high alarm from SQN-RU-141 and SQN-RU-142 indicated at cabinet J-SQN-C03, or

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

7. Steam generator blowdown monitor high alarm from SQN-RU-4 (S/G-1) or SQN-RU-5 (S/G-2) indicated at cabinet J-SQN-C03, and
 - b. Offsite power loss to 13.8 kv intermediate buses NAN-S05 and NAN-S06 and momentary loss of 4.16 kv buses NBN-S01 and NBN-S02 indicated by:
 - 1) 13.8 kv Unit 1 SWGR-S05-TRBL alarm at window 1A15A and low voltage indication at NAN-EI-S05 on panel B01, and
 - 2) 13.8 kv Unit 1 SWGR-S06-TRBL alarm at window 1A15A and low voltage indication at NAN-EI-S06 on panel B91, and
 - 3) Momentary LOP/load shed A alarm at window 1A3C, and
 - 4) Momentary LOP/load shed B alarm at window 1C18C.
3. Rapid failure of steam generator tubes (e.g., several hundred gpm primary to secondary leak rate).
3. By the following indicators:
 - a. Pressurizer pressure decreasing uncontrollably at RCA-PI-102A, RCB-PI-102B, RCC-PI-102C, RCD-PI-102D on panel B05, or Reactor trip on low pressure indicated by SNSR Lo alarm at window 4C01D and/or PZR PRESS LOW also at window 4C02A, and

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

- b. Condenser vacuum pump/gland seal exhaust monitor high alarm from SQN-RU-141 and SQN-RU-142 indicated at cabinet J-SQN-C03, or Steam generator blowdown monitor high alarm from SQN-RU-4 (S/G-1) or SQN-RU-5 (S/G-2) indicated at cabinet J-SQN-C03, and
 - c. No significant increase in containment building pressure indicated at:
 - HCA-PI-351A HCA-PI-352A
 - HCB-PI-351B HCB-PI-352B
 - HCC-PI-351C HCC-PI-352C
 - HCD-PI-351D HCD-PI-352D, and
 - d. No significant increase in containment building recirculation sump levels indicated at SIN-LI-10 and SIN-LI-11 on panel B02, and
 - e. No containment atmosphere monitor Ch. B high alarm from SQB-RU-1 indicated at cabinet J-SQN-C03 and by HI CNTMT RAD CH TRIP alarm at window 5A01C.
- 4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate.
- 4. Indicated by:
 - a. Steam generator differential pressure AFAS indication signal indicated on panels B02 and B05 and high containment building pressure indicated by HI CNTMT PRESS PRE-TRIP alarm at window 5A06D and containment atmosphere monitor Ch. B high alarm from SQB-RU-1 indicated at cabinet J-SQN-C03 and by HI CNTMT RAD CH TRIP alarm at window 5A01C, or

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

- b. High steam flow indicated at SGN-FR-1112 (S/G-1) or SGN-FR-1122 (S/G-2) on panel B06 and low T avg indicated at RCN-TR-100 on panel B04 and T avg-T ref. HI-LO alarm at window 4A08B, or
 - c. Low steam generator pressure MSIS indication signal indicated at panels B02 and B05, and
 - d. 1) Condenser vacuum pump/gland seal exhaust monitor high alarm from SQN-RU-141 and SQN-RU-142 indicated at cabinet J-SQN-C03, or
2) Steam generator blowdown monitor high alarm from SQN-RU-4 (S/G-1) or SQN-RU-5 (S/G-2) indicated at cabinet J-SQN-C03.
-
- | | |
|---|--|
| <ul style="list-style-type: none"> 5. Unidentified primary coolant leakage rate greater than 50 gpm. 6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (sudden increase by a factor of 1000 over normal radiation readings). 7. Loss of offsite power <u>and</u> loss of vital onsite AC power. 8. Loss of vital DC power. | <ul style="list-style-type: none"> 5. Containment sump level alarm, area monitor alarm and measured or calculated leakage > 50 gpm. 6. Corresponding alarms and indications on appropriate Area Monitoring System monitors. 7. Loss of lighting, alarms, and annunciator functions. 8. DC bus failure annunciators. |
|---|--|

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
9. Loss of coolant flow which has led to fuel failure.	9. Indication of no coolant flow accompanied by activity levels as determined in item ALERT 1.
10. Loss of any engineered safety feature system function.	10. ESF LCOs exceeded, accompanied by inability to take compensating action.
11. Failure of the reactor protection system to initiate and complete a scram placing the reactor in a subcritical condition.	11. Indication of Rx trip without corresponding decrease in power level.
12. Fuel handling accident in Fuel Building. (FSAR-15.7.3.1)	12. Area radiation alarm, or XJ-SQA-RU-31 or XJ-SQB-RU-32
13. Fuel handling accident in Containment. (FSAR-15.7.3.2)	13. Area radiation alarm, or XJ-SQA-RU-33 or XJ-SQB-RU-34
14. Serious fire with potential to cause degradation of plant safety systems.	14. a. Any of various Fire Protection System alarms b. Verbal reports; c. Fire pump automatic start annunciator.
15. Most or all alarms (annunciators) nonfunctional and reactor is not in shutdown.	15. Control room observation.
16. Radiological effluents greater than 10 times technical specifications instantaneous limits (an instantaneous rate which,	16. Any radiological effluent monitor (e.g., J-SQN-RU-141, J-SQB-RU-145 or SQN-RU-143) confirmed reading 10 times above alarm set point.

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

if continued over 2 hours, would result in about 1 mr at the site boundary under average meteorological conditions).

- | | |
|--|---|
| <p>17. Ongoing security compromise.</p> | <p>17. As observed and reported by security personnel.</p> |
| <p>18. Severe natural phenomenon being experienced or projected, such as:</p> <ul style="list-style-type: none"> a. Earthquake exceeding Operating Basis Earthquake levels; b. Tornado striking facility; <li style="text-align: center;">or c. Winds near design level | <p>18. a. Seismic Trigger Annunciator, followed by Seismic Switch Annunciator, with indication of ground motion greater than 0.18g horizontal, or greater than 0.17g vertical.</p> <ul style="list-style-type: none"> b. As reported; c. Anemometer reading approaching 90 mph. |
| <p>19. Other hazards being experienced or projected such as:</p> <ul style="list-style-type: none"> a. aircraft crash on facility; b. missile impact on facility; c. explosion damage affecting plant operation; d. entry into facility environs of uncontrolled toxic or flammable gas; <li style="text-align: center;">or e. turbine failure causing casing penetration. | <p>19. As reported by, or to, station personnel.</p> |

(Some effect on facility experienced or anticipated.)

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EMERGENCY ACTION LEVELS (EAL'S)

ALERT

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
20. Evacuation of control room required or anticipated with control of shutdown systems established from local stations.	20. As deemed necessary by Shift Supervisor.
21. Other plant conditions exist warranting precautionary activation of the TSC and EOF.	21. As deemed necessary by Emergency Coordinator.

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EMERGENCY ACTION LEVELS (EAL'S)

SITE EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
1. Known loss of coolant accident greater than make-up pump capacity.	1. Decreasing pwr level with 3 charging pumps operating.
2. Degraded core with possible loss of coolable geometry.	2. Gross fuel clad failures (extremely high coolant activity).
3. Rapid failure of steam generator tubes (several hundred gpm leakage) accompanied by loss of offsite power.	3. AC vital bus failure accompanied by 1 above, (and Main Steam radiation monitor alarms).
4. Steam line break with greater than 50 gpm primary to secondary leakage and indication of fuel damage.	4. (Alert #1, plus Alert #4 but leakage 50 gpm).
5. Loss of offsite power <u>and</u> loss of onsite AC power for more than 15 minutes.	5. Alert #7 for \geq 15 minutes.
6. Loss of all vital onsite DC power for more than 15 minutes.	6. Alert #8 for \geq 15 minutes.
7. Complete loss of any function needed for plant hot shutdown.	7. Shutdown margin cannot be made $>$ 1%.
8. Transient requiring operation of shutdown systems with failure to scram (continued power generation with no core damage immediately evident).	8. LSSS exceeded w/o reactor trip but no indication of fuel damage.

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EMERGENCY ACTION LEVELS (EAL'S)

SITE EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
9. <u>Major</u> damage to spent fuel Building. (FSAR-15.7.3.1)	9. Alarm XJ-SQB-RU-32 or XJ-SQA-RU-31 and as reported.
10. <u>Major</u> damage to spent fuel in containment. (FSAR-15.7.3.2)	10. Alarm XJ-SQB-RU-34 or XJ-SQA-RU-33 and as reported.
11. Fire compromising the function of safety systems.	11. a. Fire pump automatic start annunciator; b. Various Fire Protection System alarms; c. Various alarms according to affected safety system; d. Shift Supervisor determines fire to be beyond capability of PVNGS Fire Team.
12. Most or all alarms (annunciators) lost and plant transient initiated or in progress.	12. As observed.
13. a. Effluent monitors detect levels corresponding to greater than 50 mrem/hour whole body for 1/2 hour <u>or</u> greater than 500 mrem/hour whole body for two minutes (or five times these levels to the thyroid) at the site boundary <u>for adverse meteorology</u> . b. These dose rates are projected based on other plant parameters or are measured in the environs. c. EPA PAGs are projected to be exceeded outside the site boundary.	13. Stack monitor alarm with corresponding indications per Station Manual procedures on: XJ-SQN-RU-13 XJ-SQN-RU-11 or XJ-SQN-RU-32

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EMERGENCY ACTION LEVELS (EAL'S)

SITE EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

<u>Initiating Events</u>	<u>EAL (Alarm, Instrument Reading, etc.)</u>
14. Imminent loss of physical control of the plant.	14. Situation evident.
15. Severe natural phenomenon being experienced or projected with plant not in cold shutdown, such as:	15.
a. earthquake greater than Safe Shutdown Earthquake;	a. Seismic Trigger Annunciator followed by Seismic Switch Annunciator with indication of ground motion greater than 0.31g horizontal or greater than 0.34g vertical;
b. tornado in excess of design levels;	b. Rotational Velocity greater than 240mph, translational velocity greater than 60 mph;
c. winds in excess of design levels.	c. Average wind velocity greater than 90 mph or gusts greater than 105 mph.
16. Other hazards being experienced or projected with reactor not in cold shutdown, such as;	16. As observed by, or reported to, station personnel.
a. aircraft crash affecting vital structures by impact or fire;	
b. severe damage to Safe Shutdown equipment from missiles or explosion;	
c. entry of uncontrolled flammable gas into vital areas; entry of uncontrolled toxic into vital areas where lack of access to the area constitutes a safety problem.	

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EMERGENCY ACTION LEVELS (EAL'S)

SITE EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

- | | |
|--|--|
| 17. Evacuation of control room accompanied by the inability to locally control shutdown systems within 15 minutes. | 17. Control room evacuation accompanied by lack of access to local shutdown system controls. |
| 18. Other plant conditions exist warranting activation of emergency centers and radiation protection teams, or issuance of a precautionary notification to the public near the site. | 18. As determined by Emergency Coordinator. |

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EMERGENCY ACTION LEVELS (EAL'S)

GENERAL EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. a. Effluent monitors detect levels corresponding to 1 rem/hour Whole Body (or 5 rem/hour thyroid) at the site boundary under <u>actual</u> meteorological conditions. <li style="margin-left: 2.5em;">b. These dose rates are projected based on other parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure with some confirmation from effluent monitors) or are measured in the environs. 2. Loss of two of three fission product barriers with a potential loss of third barrier (e.g., loss of primary coolant boundary, cladding failure, and a high potential for breach of containment). 3. Loss of physical control of the facility. 4. Small or large break LOCA, accompanied by failure of ECCS initiation, leading to severe core melt in from minutes to hours. Breach of containment likely. | <ol style="list-style-type: none"> 1. a. Stack monitor alarms with corresponding indications per Station Manual procedures:
XJ-SQN-RU-13
XJ-SQN-RU-11
XJ-SQN-RU-32 <li style="margin-left: 2.5em;">b. (See Appendix 10.F). 2. As evaluated-based upon consideration of coolant activity, coolant inventory and makeup rate, and containment pressure. 3. Situation evident. 4. As evaluated-based upon consideration of coolant activity, coolant inventory and makeup rate, and containment pressure. |
|---|---|

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EMERGENCY ACTION LEVELS (EAL'S)

GENERAL EMERGENCY

PALO VERDE NUCLEAR GENERATING STATION

Initiating Events

EAL (Alarm, Instrument Reading, etc.)

- | | |
|--|--|
| <p>5. Transient initiated by loss of feedwater and condensate systems, followed by failure of emergency feedwater system for extended period. Core melt possible in several hours. Breach of containment expected to follow core melt.</p> | <p>5. As evaluated.</p> |
| <p>6. Transient requiring operation of shutdown systems with failure to scram resulting in core damage or inability of core cooling and makeup systems to meet load. (Could result in core melt.)</p> | <p>6. Site Emergency #8 with indication of fuel damage or loss of ECCS.</p> |
| <p>7. Failure of offsite and onsite AC power accompanied by total loss of emergency feedwater makeup capability for several hours. Would lead to eventual core melt and likely breach of containment.</p> | <p>7. Loss of lighting, alarms, and annunciator functions, coupled with loss of steam-driven auxiliary feedwater pump.</p> |
| <p>8. Small break LOCA with initially successful ECCS. Subsequent failure of ECCS and containment heat removal systems extended over several hours which could lead to core melt and containment breach.</p> | <p>8. Site Emergency #1 followed by loss of ECCS and containment spray.</p> |

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-03	
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PVNGS SM # 8-9A

APPROVED BY: *[Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1598A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIF-03	
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Appendix A - Unusual Event Implementing Procedure Check List	6
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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide a series of implementing actions to be taken upon declaration of a NOTIFICATION OF UNUSUAL EVENT. This procedure also directs personnel to the use of additional procedures to adequately respond to those conditions classified as an UNUSUAL EVENT.
- 1.2 This procedure may be considered as a type of immediate action procedure for the timely implementation of pertinent portions of the overall PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-07, "Notification Process - UNUSUAL EVENT"
- 2.1.4 EPIP-11, "TSC/STSC Activation"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.2.2 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Continued surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised as conditions change, or more definitive information is obtained.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 In an UNUSUAL EVENT situation, time is available to take precautionary and constructive steps to prevent a more serious event and/or to mitigate any consequences that may occur. This event status places the plant in a readiness position for possible cessation of routine activities and/or augmentation of onshift resources. No releases of radioactive material requiring offsite response are expected. Appropriate notification of state/county authorities is made.

4.1.2 The Shift Supervisor shall be responsible for initiating this procedure. The Duty Manager, upon assuming the role of Emergency Coordinator, shall be responsible for completing the implementing actions of this procedure.

4.2 Prerequisites

4.2.1 A NOTIFICATION OF UNUSUAL EVENT has been declared per the provisions of EPIP-02.

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

4.3.1.1 Initially classify the emergency per EPIP-02.

4.3.1.2 Notify the Duty Manager. If the Duty Manager is incapacitated, the Shift Supervisor shall assume the role of Emergency Coordinator.

4.3.1.3 Announce the following over the public address system:

"ATTENTION ALL PERSONNEL - AN UNUSUAL EVENT HAS BEEN DECLARED. PERSONNEL ASSIGNED TO THE ONSHIFT EMERGENCY ORGANIZATION, REPORT TO YOUR EMERGENCY STATIONS. ALL OTHER PERSONNEL CONTINUE WITH NORMAL ROUTINE UNTIL FURTHER NOTICE".

(Give a brief description of the event, if appropriate, and repeat the announcement).

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- 4.3.1.4 Ensure the actions of the appropriate recovery or casualty procedures have been implemented.
- 4.3.2 The Emergency Coordinator shall perform the following:
 - 4.3.2.1 Implement EPIP-07 and activate the Satellite TSC in accordance with EPIP-11.
 - 4.3.2.2 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as an UNUSUAL EVENT. Complete the check list as indicated in Appendix A.
 - 4.3.2.3 Determine the need for any additional personnel. Direct the Security Shift Captain to call in additional personnel as needed by utilizing the computer call-out listing.
 - 4.3.2.4 Reevaluate the emergency classification as conditions change by implementing procedure EPIP-02.
- 4.3.3 Emergency response personnel shall assume their emergency roles in accordance with EPIP-01.

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NOTIFICATION OF UNUSUAL EVENT
IMPLEMENTING PROCEDURE CHECK LIST

	<u>IMPLEMENTED⁽¹⁾</u> YES/NO	<u>INITIALS/TIME⁽²⁾</u>
EPIP-01 APS Emergency Organization	X /	/
EPIP-02 PVNGS Emergency Classification	X /	/
EPIP-07 Notification Process - Unusual Event	X /	/
EPIP-11 TSC/STSC Activation	X /	/
EPIP-12 Operational Support Center Activation	/	/
EPIP-32 Public Information/Media	X /	/
	/	/
	/	/
	/	/
	/	/
	/	/

REMARKS: _____

Emergency Coordinator Signature _____

Date _____

NOTE: (1) X indicates that this procedure is required to be implemented.
 (2) Time indicates when procedure is initiated.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
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APPROVED BY: *H. Carl Anderson* DATE *9/29/82*
 DATE EFFECTIVE *10-6-82*

DN-1599A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide a series of implementing actions to be taken upon declaration of an ALERT. This procedure also directs personnel to the use of additional procedures to adequately respond to those conditions classified as an ALERT.

This procedure may be considered as a type of immediate action procedure for the timely implementation of pertinent portions of the overall PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-08, "Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY"
- 2.1.4 EPIP-11, "TSC/STSC Activation"
- 2.1.5 EPIP-12, "Operations Support Center Activation"
- 2.1.6 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.7 EPIP-20, "Personnel Assembly and Accountability"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Continued surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised as conditions change, or more definitive information is obtained.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 In an ALERT situation, limited releases of radioactive material may occur and radiological/meteorological information may have to be obtained for assessment of onsite and offsite consequences. The emergency response for an ALERT includes activation of onsite and offsite emergency centers. An ALERT calls for prompt initial and follow-up notification to offsite emergency management organizations. The ALERT status is maintained until the event is terminated or reclassified.

4.1.2 The Shift Supervisor shall be responsible for initiating this procedure. The Duty Manager, upon assuming the role of Emergency Coordinator, shall be responsible for completing the implementing actions of this procedure.

4.2 Prerequisites

4.2.1 An ALERT has been declared per the provisions of EPIP-02.

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

4.3.1.1 Initially classify the emergency per EPIP-02.

4.3.1.2 Notify the Duty Manager. If the Duty Manager is incapacitated, the Shift Supervisor shall assume the role of Emergency Coordinator.

4.3.1.3 Announce the following over the public address system:

"ATTENTION ALL PERSONNEL - AN ALERT HAS BEEN DECLARED. PERSONNEL ASSIGNED SPECIFIC RESPONSIBILITIES IN THE EMERGENCY ORGANIZATION, REPORT TO YOUR EMERGENCY STATIONS. ALL OTHER PERSONNEL REPORT TO YOUR ASSIGNED ASSEMBLY AREAS".

(Give a brief description of the event, if appropriate, and repeat the announcement).

4.3.1.4 Ensure that the actions of the appropriate recovery or casualty procedures have been implemented.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
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4.3.2 The Emergency Coordinator shall perform the following:

4.3.2.1 Implement EPIP-08 and ensure accountability within the protected area is being performed by implementing EPIP-20.

4.3.2.2 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as an ALERT. Complete the check list as indicated in Appendix A.

4.3.2.3 Direct the Security Shift Captain to call in the Onsite and Offsite Emergency Organization personnel by utilizing the appropriate computer call-out listing.

4.3.2.4 Determine the need for offsite assistance. If assistance is necessary, direct a Communicator to contact the required agency per EPIP-33.

4.3.2.5 Reevaluate the emergency classification as conditions change by implementing procedure EPIP-02.

4.3.2.6 Transfer the Emergency Coordinator function in accordance with EPIP-01.

4.3.3 Emergency response personnel shall assume their emergency roles in accordance with EPIP-01.

4.3.4 Technical Support Center/Satellite Technical Support Center (TSC/STSC) Activation

4.3.4.1 The Emergency Coordinator shall implement EPIP-11 to activate the TSC and STSC.

4.3.5 Operations Support Center (OSC) Activation

4.3.5.1 The OSC Coordinator shall implement EPIP-12.

4.3.6 Emergency Operations Facility (EOF) Activation

4.3.6.1 The Emergency Operations Director shall implement EPIP-13.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	APPENDIX A Page 1 of 2
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ALERT
IMPLEMENTING PROCEDURE CHECK LIST

	<u>IMPLEMENTED</u> ⁽¹⁾ YES/NO	<u>INITIALS/TIME</u> ⁽²⁾
EPIP-01 PVNGS Emergency Organization	X /	/
EPIP-02 PVNGS Emergency Classification	X /	/
EPIP-08 Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY	X /	/
EPIP-11 TSC/STSC Activation	X /	/
EPIP-12 Operational Support Center Activation	X /	/
EPIP-13 Emergency Operations Facility Activation	X /	/
EPIP-14A Release Rate Determination	/	/
EPIP-14B Dose Assessment	/	/
EPIP-15 Protective Action Guidelines	/	/
EPIP-16 Onsite Surveys and Sampling	/	/
EPIP-17 Offsite Surveys and Sampling	/	/
EPIP-18 Emergency Exposure Guidelines	/	/
EPIP-19 Onsite Evacuation	/	/
EPIP-20 Personnel Assembly and Accountability	X /	/
EPIP-21 Search and Rescue	/	/
EPIP-22 Personnel Injury	/	/
EPIP-23 Fire Fighting	/	/
EPIP-24 Security	/	/
EPIP-25 Rentry for Emergency Operations	/	/
EPIP-26 Potassium Iodine (KI) Administration	/	/
EPIP-27 Sample Analysis at the Station	/	/
EPIP-28 Personnel Monitoring and Decontamination	/	/
EPIP-29 Area/Equipment Monitoring and Decontamination	/	/
EPIP-31 Recovery	/	/
EPIP-32 Public Information/Media	X /	/
EPIP-33 Offsite Assistance	/	/
EPIP-34 Transportation Accidents	/	/

NOTE: (1) X indicates that this procedure is required to be implemented.
(2) Time indicates when procedure is initiated.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
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ASSIGNED TO

PVNGS SN 8-9A

APPROVED BY: *H. Paul Rudger* DATE 9/29/82
 DATE EFFECTIVE 10-6-82

DN-1600A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide a series of implementing actions to be taken upon declaration of a SITE EMERGENCY. This procedure also directs personnel to the use of additional procedures to adequately respond to those conditions classified as a SITE EMERGENCY.

This procedure may be considered as a type of immediate action procedure for the timely implementation of pertinent portions of the overall PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-08, "Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY"
- 2.1.4 EPIP-11, "TSC/STSC Activation"
- 2.1.5 EPIP-12, "Operations Support Center Activation"
- 2.1.6 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.7 EPIP-15, "Protective Action Guidelines"
- 2.1.8 EPIP-19, "Onsite Evacuation"
- 2.1.9 EPIP-20, "Personnel Assembly and Accountability"
- 2.1.10 EPIP-32, "Public Information/Media"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan, Rev. 2

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
SITE EMERGENCY IMPLEMENTING ACTIONS	REVISION 0	Page 4 of 8

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Continued surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised as conditions change, or more definitive information is obtained.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 In a SITE EMERGENCY, substantial releases of radioactive material may occur. Consideration of appropriate protective actions, based on actual or projected data, is warranted. All onsite and offsite emergency centers are activated. Onsite evacuation will be initiated if appropriate. The station will provide updated radiological/meteorological information to offsite emergency management organizations. The SITE EMERGENCY status will be maintained until the event is terminated or reclassification takes place.

- 4.1.2 The Shift Supervisor shall be responsible for initiating this procedure. The Duty Manager, upon assuming the role of Emergency Coordinator, shall be responsible for completing the implementing actions of this procedure.

4.2 Prerequisites

- 4.2.1 A SITE EMERGENCY has been declared per the provisions of EPIP-02.

4.3 Instructions

- 4.3.1 The affected unit Shift Supervisor shall perform the following:
- 4.3.1.1 Initially classify the emergency per EPIP-02.
 - 4.3.1.2 Notify the Duty Manager. If the Duty Manager is incapacitated, the Shift Supervisor shall assume the role of Emergency Coordinator.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
SITE EMERGENCY IMPLEMENTING ACTIONS	REVISION 0	Page 5 of 8

- 4.3.1.3 Sound the Emergency Siren and announce the following over the public address system:

"ATTENTION ALL PERSONNEL - A SITE EMERGENCY HAS BEEN DECLARED. PERSONNEL ASSIGNED SPECIFIC RESPONSIBILITIES IN THE EMERGENCY ORGANIZATION, REPORT TO YOUR EMERGENCY STATIONS. ALL OTHER PERSONNEL REPORT TO YOUR ASSIGNED ASSEMBLY AREAS".

(Give a brief description of the event, if appropriate, and repeat the announcement).

- 4.3.1.4 Notify each unit's Control Room and instruct the Shift Supervisor to activate the unit's Emergency Accountability Signal.

- 4.3.1.5 Ensure that the actions of the appropriate recovery or casualty procedures have been implemented.

- 4.3.2 The Emergency Coordinator shall perform the following:

- 4.3.2.1 Implement EPIP-08 and ensure accountability within the protected area is being performed by implementing EPIP-20.

- 4.3.2.2 If conditions warrant, initiate an onsite evacuation in accordance with EPIP-19.

- 4.3.2.3 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as a SITE EMERGENCY. Complete the check list as indicated in Appendix A.

- 4.3.2.4 Direct the Security Shift Captain to call in Onsite and Offsite Emergency Organization personnel by utilizing the appropriate computer call-out listing.

- 4.3.2.5 Determine the need for offsite assistance. If assistance is necessary, direct a Communicator to contact the required agency per EPIP-33.

- 4.3.2.6 Reevaluate the emergency classification as conditions change by implementing procedure EPIP-02.

- 4.3.2.7 Transfer the Emergency Coordinator function in accordance with procedure EPIP-01.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
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4.3.3 Emergency response personnel shall assume their emergency roles in accordance with EPIP-01.

4.3.4 Technical Support Center/Satellite Technical Support Center (TSC/STSC) Activation

4.3.4.1 The Emergency Coordinator shall implement procedure EPIP-11.

4.3.5 Operations Support Center (OSC) Activation

4.3.5.1 The OSC Coordinator shall implement procedure EPIP-12.

4.3.6 Emergency Operations Facility (EOF) Activation

4.3.6.1 The Emergency Operations Director shall implement procedure EPIP-13.

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SITE EMERGENCY
IMPLEMENTING PROCEDURE CHECK LIST

	<u>IMPLEMENTED⁽¹⁾</u> YES/NO	<u>INITIALS/TIME⁽²⁾</u>
EPIP-01 PVNGS Emergency Organization	X /	/
EPIP-02 PVNGS Emergency Classification	X /	/
EPIP-08 Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY	X /	/
EPIP-11 TSC/STSC Activation	X /	/
EPIP-12 Operational Support Center Activation	X /	/
EPIP-13 Emergency Operations Facility Activation	X /	/
EPIP-14A Release Rate Determination	/	/
EPIP-14B Dose Assessment	/	/
EPIP-15 Protective Action Guidelines	/	/
EPIP-16 Onsite Surveys and Sampling	/	/
EPIP-17 Offsite Surveys and Sampling	/	/
EPIP-18 Emergency Exposure Guidelines	/	/
EPIP-19 Onsite Evacuation	/	/
EPIP-20 Personnel Assembly and Accountability	X /	/
EPIP-21 Search and Rescue	/	/
EPIP-22 Personnel Injury	/	/
EPIP-23 Fire Fighting	/	/
EPIP-24 Security	/	/
EPIP-25 Rentry for Emergency Operations	/	/
EPIP-26 Potassium Iodine (KI) Administration	/	/
EPIP-27 Sample Analysis at the Station	/	/
EPIP-28 Personnel Monitoring and Decontamination	/	/
EPIP-29 Area/Equipment Monitoring and Decontamination	/	/
EPIP-31 Recovery	/	/
EPIP-32 Public Information/Media	X /	/
EPIP-33 Offsite Assistance	/	/
EPIP-34 Transportation Accidents	/	/

NOTE: (1) X indicates that this procedure is required to be implemented.
(2) Time indicates when procedure is initiated.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	APPENDIX A Page 2 of 2
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SITE EMERGENCY
IMPLEMENTING PROCEDURE CHECK LIST (CONT'D)

REMARKS: _____

Emergency Coordinator Signature _____

Date _____

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PVNGS SM # 8-9A

APPROVED BY: *H. Carl Anderson* DATE 9/29/82
 DATE EFFECTIVE 10-6-82

DN-1601A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	
GENERAL EMERGENCY IMPLEMENTING ACTIONS	REVISION 0	Page 3 of 8

1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide a series of implementing actions to be taken upon declaration of a GENERAL EMERGENCY. This procedure also directs personnel to the use of additional procedures to adequately respond to those conditions classified as a GENERAL EMERGENCY.

This procedure may be considered as a type of immediate action procedure for the timely implementation of pertinent portions of the overall PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-08, "Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY"
- 2.1.4 EPIP-11, "TSC/STSC Activation"
- 2.1.5 EPIP-12, "Operations Support Center Activation"
- 2.1.6 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.7 EPIP-15, "Protective Action Guidelines"
- 2.1.8 EPIP-19, "Onsite Evacuation"
- 2.1.9 EPIP-20, "Personnel Assembly and Accountability"
- 2.1.10 EPIP-32, "Public Information/Media"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plans"
- 2.2.2 PVNGS Emergency Plan, Rev. 2

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	
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3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Continued surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised as conditions change, or more definitive information is obtained.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 In a GENERAL EMERGENCY, substantial core degradation, with potential loss of containment integrity may occur. Under these conditions, substantial radioactive releases may occur, accordingly prompt consideration of appropriate protective actions, based on actual or projected data, is warranted. Consideration of predetermined protective action recommendations (in the event of potential loss of fission product barriers) may also be warranted. Onsite and offsite emergency centers are activated. Onsite evacuation will be initiated if appropriate. The station will provide updated radiological/meteorological information to offsite emergency management organizations as necessary. The GENERAL EMERGENCY status will be maintained until the event is terminated, or reclassification takes place.

- 4.1.2 The Shift Supervisor shall be responsible for initiating this procedure. The Duty Manager, upon assuming the role of Emergency Coordinator, shall be responsible for completing the implementing actions of this procedure.

4.2 Prerequisites

- 4.2.1 A GENERAL EMERGENCY has been declared per the provisions of EPIP-02.

4.3 Instructions

- 4.3.1 The affected unit Shift Supervisor shall perform the following:

- 4.3.1.1 Initially classify the emergency per EPIP-02.
- 4.3.1.2 Notify the Duty Manager. If the Duty Manager is incapacitated, the Shift Supervisor shall assume the role of Emergency Coordinator.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	
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- 4.3.1.3 Sound the Emergency Siren and announce the following over the public address system:

"ATTENTION ALL PERSONNEL - A GENERAL EMERGENCY HAS BEEN DECLARED. PERSONNEL ASSIGNED SPECIFIC RESPONSIBILITIES IN THE EMERGENCY ORGANIZATION, REPORT TO YOUR EMERGENCY STATIONS. ALL OTHER PERSONNEL REPORT TO YOUR ASSIGNED ASSEMBLY AREAS".

(Give a brief description of the event, if appropriate, and repeat the announcement).

- 4.3.1.4 Notify each unit's Control Room and instruct the Shift Supervisor to activate the unit's Emergency Accountability Signal.

- 4.3.1.5 Ensure that the actions of the appropriate recovery or casualty procedures have been implemented.

- 4.3.2 The Emergency Coordinator shall perform the following:

- 4.3.2.1 Promptly determine the need for recommending that appropriate government agencies implement the predetermined protective actions. EPIP-15 provides specific guidance for this determination and related protective actions.

- 4.3.2.2 Implement EPIP-08 and ensure accountability within the protected area is being performed by implementing EPIP-20.

- 4.3.2.3 If conditions warrant, implement EPIP-19.

- 4.3.2.4 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as a GENERAL EMERGENCY. Complete the check list as indicated in Appendix A.

- 4.3.2.5 Direct the Security Shift Captain to call in Onsite and Offsite Emergency Organization personnel by utilizing the appropriate computer call-out listing.

- 4.3.2.6 Determine the need for offsite assistance. If assistance is necessary, direct a Communicator to contact the required agency per EPIP-33.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	
GENERAL EMERGENCY IMPLEMENTING ACTIONS	REVISION 0	Page 6 of 8

- 4.3.2.7 Reevaluate the emergency classification as conditions change by implementing procedure EPIP-02.
- 4.3.2.8 Transfer the Emergency Coordinator function in accordance with procedure EPIP-01.
- 4.3.3 Emergency response personnel shall assume their emergency roles in accordance with EPIP-01.
- 4.3.4 Technical Support Center/Satellite Technical Support Center (TSC/STSC) Activation
 - 4.3.4.1 The Emergency Coordinator shall implement procedure EPIP-11.
- 4.3.5 Operations Support Center (OSC) Activation
 - 4.3.5.1 The OSC Coordinator shall implement procedure EPIP-12.
- 4.3.6 Emergency Operations Facility (EOF) Activation
 - 4.3.6.1 The Emergency Operations Director shall implement procedure EPIP-13.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	APPENDIX A Page 1 of 2
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GENERAL EMERGENCY
IMPLEMENTING PROCEDURE CHECK LIST

	<u>IMPLEMENTED⁽¹⁾</u> YES/NO	<u>INITIALS/TIME⁽²⁾</u>
EPIP-01 PVNGS Emergency Organization	X /	/
EPIP-02 PVNGS Emergency Classification	X /	/
EPIP-08 Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY	X /	/
EPIP-11 TSC/STSC Activation	X /	/
EPIP-12 Operational Support Center Activation	X /	/
EPIP-13 Emergency Operations Facility Activation	X /	/
EPIP-14A Release Rate Determination	/	/
EPIP-14B Dose Assessment	/	/
EPIP-15 Protective Action Guidelines	/	/
EPIP-16 Onsite Surveys and Sampling	/	/
EPIP-17 Offsite Surveys and Sampling	/	/
EPIP-18 Emergency Exposure Guidelines	/	/
EPIP-19 Onsite Evacuation	/	/
EPIP-20 Personnel Assembly and Accountability	X /	/
EPIP-21 Search and Rescue	/	/
EPIP-22 Personnel Injury	/	/
EPIP-23 Fire Fighting	/	/
EPIP-24 Security	/	/
EPIP-25 Rentry for Emergency Operations	/	/
EPIP-26 Potassium Iodine (KI) Administration	/	/
EPIP-27 Sample Analysis at the Station	/	/
EPIP-28 Personnel Monitoring and Decontamination	/	/
EPIP-29 Area/Equipment Monitoring and Decontamination	/	/
EPIP-31 Recovery	/	/
EPIP-32 Public Information/Media	X /	/
EPIP-33 Offsite Assistance	/	/
EPIP-34 Transportation Accidents	/	/

NOTE: (1) X indicates that this procedure is required to be implemented.
(2) Time indicates when procedure is initiated.

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NOTIFICATION PROCESS - NOTIFICATION OF UNUSUAL EVENT	REVISION 0	Page 1 of 18

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PVNGS SM # 8-9A

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-1986A/0196A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-07	
NOTIFICATION PROCESS - NOTIFICATION OF UNUSUAL EVENT	REVISION 0	Page 4 of 18

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

Upon declaration of a NOTIFICATION OF UNUSUAL EVENT, offsite notification will consist of three primary telephone contacts: the NRC, State/County government, and APS corporate personnel. The NRC will be notified via the Emergency Notification System (ENS) dedicated line; State/County government via the Notification and Alert Net (NAN); and corporate personnel via dedicated telephone fanout, through the Manager, Nuclear Operations and the Vice President, Electric Operations. The National Warning System (NAWAS) will provide a back-up means of notification to State/County government and the Health Physics Network (HPN) will provide a back-up means of notification to the NRC. Primary and alternate communications links for offsite notifications are shown in Appendix F of this procedure. The Notification and Alert Net, NAN Notification Flow and APS Emergency Notification Fanout are illustrated in Appendices A through C.

The Notification Systems User's Guide (Appendix G) provides the instructions necessary to ensure adequate operations of the primary and alternate systems available for offsite notification. The equipment addressed includes: the NAN, ENS, HPN, and PVNGS dedicated telephones; NAWAS, mobile radiotelephone, micro-wave, and pager systems. Callers shall refer to this guide to ensure that successful contact is made in a minimal time period.

Notification of the NRC and State/County government should be completed within 15 minutes after declaration of a NOTIFICATION OF UNUSUAL EVENT. Although there is no time requirement for the notification of corporate personnel, it shall be expedited to allow sufficient time for any subsequent activation and staffing of the onsite and offsite emergency centers.

The Emergency Coordinator is responsible for implementing this procedure upon declaration of a NOTIFICATION OF UNUSUAL EVENT.

4.2 Prerequisites

- 4.2.1 A NOTIFICATION OF UNUSUAL EVENT has been declared, and procedure EPIP-03 is being implemented.

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to describe the notification process required upon declaration of a NOTIFICATION OF UNUSUAL EVENT. This process includes the following:
- Initial and follow-up notification to Federal, State, County, and Corporate offsite emergency organizations.
 - Notification of off-duty personnel to augment the onshift emergency organization.
 - Notification of the PVNGS Visitors Center, APS Site Construction Office, and Bechtel Emergency Control Center.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-03 "NOTIFICATION OF UNUSUAL EVENT Implementing Actions"

2.1.2 APS Emergency Response Facility Equipment Manual

2.2 Developmental References

2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

2.2.2 PVNGS Emergency Plan, Rev. 2

2.2.3 10 CFR 50, Appendix E, "Domestic Licensing of Production and Utilization Facilities"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 The notification of specific offsite agencies, such as emergency medical services and fire departments, is detailed in EPIP-33 "Offsite Assistance".

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4.3 Instructions

4.3.2 Initial Notification

The Emergency Coordinator, or designee, shall perform the following:

- 4.3.1.1 Complete the Initial Message Form (Appendix D) and begin to fill in information as required on the Follow-up Emergency Message Form (Appendix E).
- 4.3.1.2 By means of a single call, on the Notification and Alert Net dedicated telephone, contact the following State/County agencies:

Duty Hours (8:00 a.m. to 5:00 p.m. Monday-Friday)

National Weather Service (NWS)
 Arizona Department of Public Safety (DPS)
 Arizona Radiation Regulatory Agency (ARRA)
 Arizona Department of Emergency Services (ADES)
 Maricopa County Department of Civil Defense and
 Emergency Services (MCCDES)
 Maricopa County Sheriff's Office (MCSO)

NOTE

Subsequent notification of affected agencies during off-duty hours shall be made per internal agency procedure.

Off-Duty Hours (5:00 p.m. to 8:00 a.m. All Day Saturday and Sunday)

NWS
 DPS
 MCSO

- 4.3.1.3 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the Initial Message Content Form (Appendix D).
- 4.3.1.4 When each individual has obtained a copy, read the completed Initial Message Content form, verbatim.

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- 4.3.1.5 Offer to repeat information and reiterate as necessary.
- 4.3.1.6 Obtain the name of each person contacted and record on the Emergency Notification Call Check List, Emergency Coordinator (Appendix F).
- 4.3.1.7 Via the Emergency Notification System (ENS) dedicated telephone, contact the NRC.
- 4.3.1.8 When contact is made, the caller shall identify himself and read the completed Initial Message Content form, verbatim.
- 4.3.1.9 Offer to repeat information and reiterate as necessary.
- 4.3.1.10 Obtain the name of the person contacted and record in Appendix F.
- 4.3.1.11 Notify the NRC Resident Inspector in accordance with Appendix F if unable to contact with the ENS phone.
- 4.3.1.12 When contact is made, the caller shall identify himself and read the Initial Message Content Form, verbatim.
- 4.3.1.13 Offer to repeat information and reiterate as necessary.
- 4.3.1.14 Obtain the name of the person contacted, and record in Appendix F.
- 4.3.1.15 Via the PVNGS emergency telephone, notify the Maintenance and Operations Manager; Manager, Nuclear Operations; and the Vice President, Electric Operations. It is preferred that the Emergency Coordinator personally explain the emergency situation and plant status to these key individuals. For the NOTIFICATION OF UNUSUAL EVENT class, these individuals will provide necessary additional notification of corporate/station personnel.
- 4.3.1.16 Record the name of each person contacted, in Appendix F.

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4.3.1.17 If an individual requests information not contained in the Initial Message Content Form, make reasonable efforts to obtain and give the information only after all initial notifications have been made.

4.3.1.18 Determine the need for additional personnel. Direct the Security Director to call in additional personnel by utilizing the computer call out listing (Appendix G). The Security Director will use the updated (daily) computer print-out as an emergency telephone directory.

4.3.1.19 Notify additional locations as listed in Appendix F, obtain the name of the person contacted, and inform them of the situation.

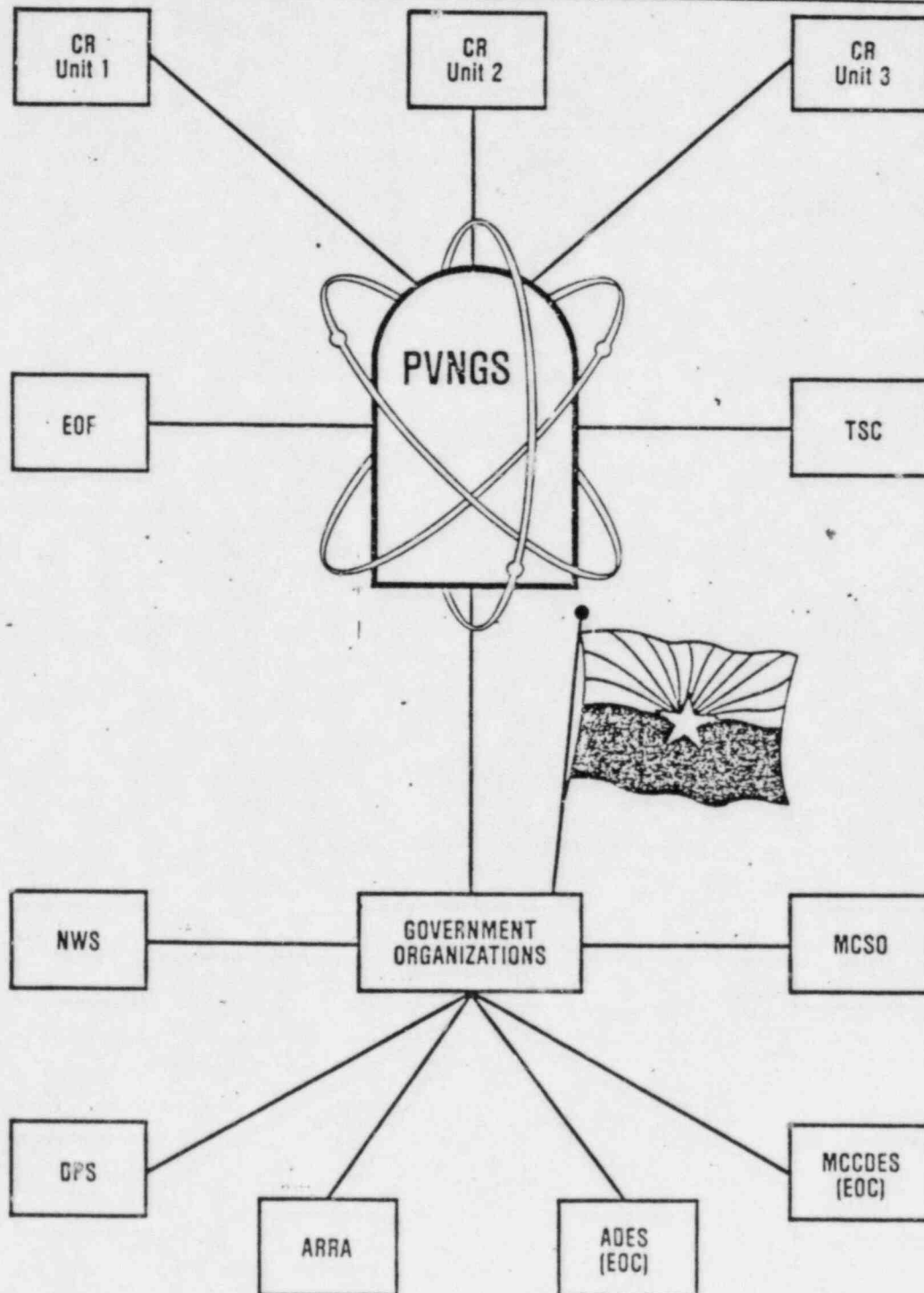
4.3.2 Follow-up Notification

The Emergency Coordinator, or designee, shall perform the following:

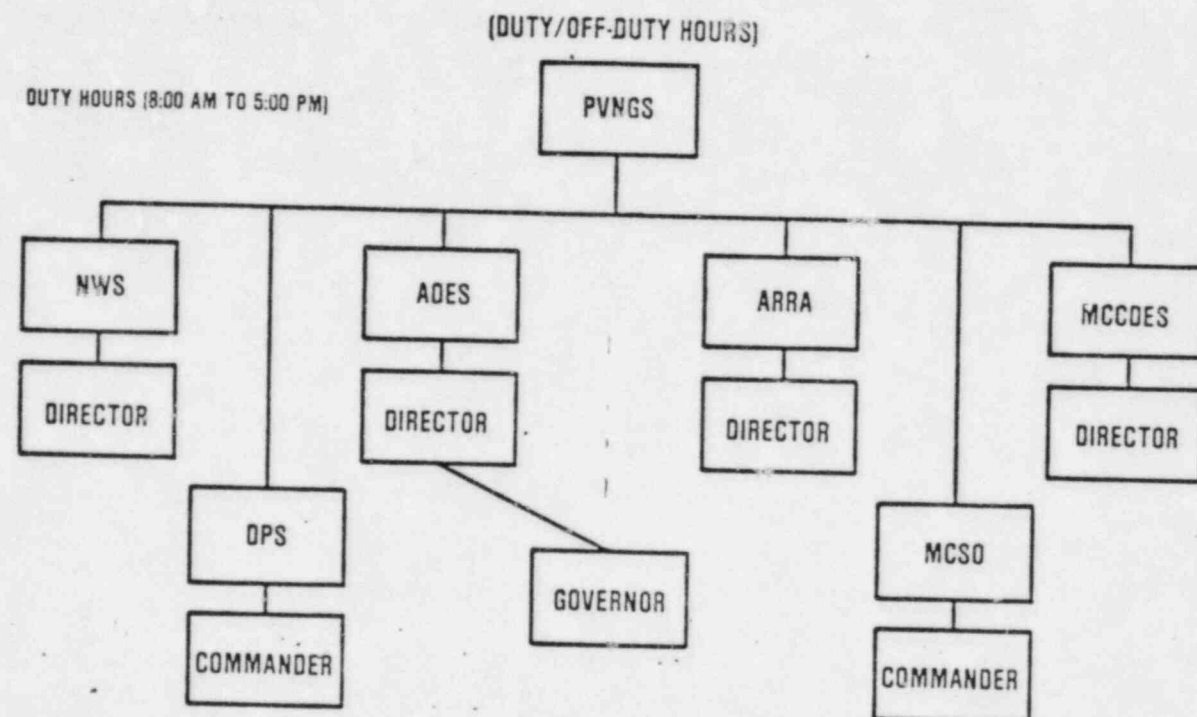
4.3.2.1 Follow-up notification shall be performed at the discretion of the Emergency Coordinator for the NOTIFICATION OF UNUSUAL EVENT emergency classification utilizing Appendix E.

4.3.2.2 Follow-up notification is required if the event escalates to a more severe emergency classification level or the initial event is terminated.

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OFF-DUTY HOURS (BEFORE 8:00 AM AND AFTER 5:00 PM)

During off-duty hours (i.e., outside of normal government work days and hours) the NAN notification flow appears as above, **EXCEPT** MCCDES is notified via MCSO and ARRA is notified via ADES.

MCCDES is Maricopa County Department of Civil Defense & Emergency Services
MCSO is Maricopa County Sheriff's Office
ARRA is Arizona Radiation Regulatory Agency
ADES is Arizona Division of Emergency Services
DPS is Arizona Department of Public Safety
NWS is National Weather Service

The Primary notification points are: ADES and MCSO.
 The Alternate notification points are: DPS and MCCDES.

NAN NOTIFICATION FLOW PALO VERDE NUCLEAR GENERATING STATION—PVNGS

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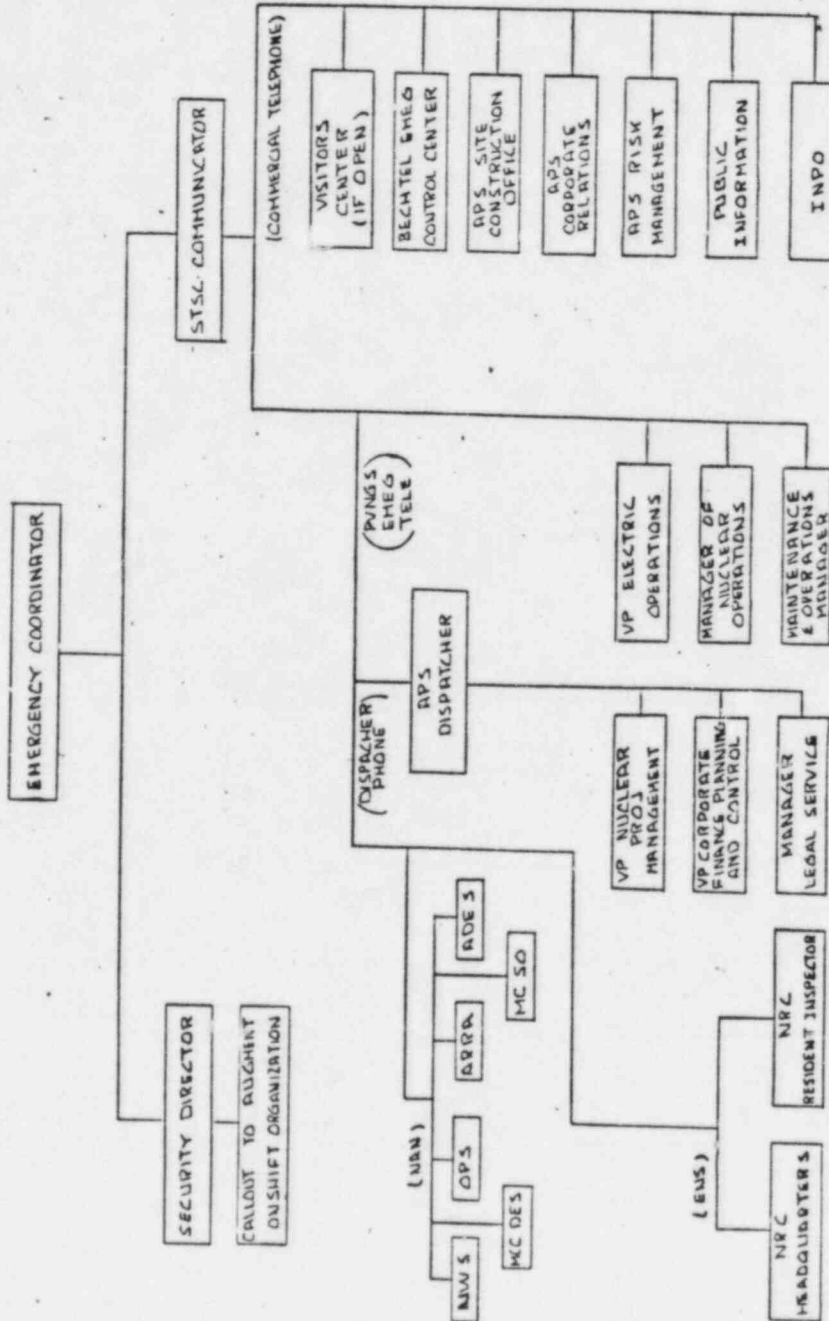
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NOTIFICATION FANOUT FOR
NOTIFICATION OF UNUSUAL EVENT



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FOLLOW-UP EMERGENCY MESSAGE FORM

1. Reactor Operations:

Reactor System Status _____ Power Level _____

Pressure _____ Temp. _____ Flow (Pumps On) _____

Cooling Mode _____ ECCS Operating/Operable _____

Containment Status

Containment Isolated? _____ Containment Temp. _____

Containment Press _____ Containment Radiation _____ R/hr.

Reactivity Controls

Control Rods Inserted _____ Status of Emer. Boration System _____

2. Steam Plant Status:

S/G Levels _____ Equip. Failures _____

Feedwater Source/Flow _____ S/G Isolated? _____

3. Electrical Dist. Status:

Normal Offsite Power Available? _____

Major Busses/Loads Lost _____

Safeguards Busses Power Source _____

D/G Running? _____ Loaded? _____

4. Radioactivity Released (or Increased Release)? _____

Liquid/Gas? _____ Location/Source of Release _____ Elevation _____

Release Rate _____ Duration _____ Stopped? _____

Release Monitored _____ Amount of Release _____

% Tech. Specs. _____

a. Increased Radiation Levels in Plant: Location(s) _____

Radiation Level(s) _____ Areas Evacuated _____

Maximum Offsite Dose Rates _____

Integrated Dose _____ Location _____

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FOLLOW-UP EMERGENCY MESSAGE FORM (CONT'D)

b. Meteorology

Wind Direction From _____
 Wind Speed _____ (Meter/Sec or Miles/Hr)
 T _____ (°C or °F) Sigma Theta _____ Temperature _____ (°C or °F)
 Stability Class A B C D E F Raining (Yes/No) _____

5. Projected Doses:

	<u>Dose Rates</u>	<u>Integrated Dose</u>
Site Boundary	_____	_____
2 miles	_____	_____
5 miles	_____	_____
10 miles	_____	_____
Sectors	_____	_____

Contamination (Surface): Inp' int _____ Onsite _____ Offsite _____

6. Security/Safeguards:

- a. Bomb Threat: Search Conducted? _____
 Search Results _____ Site Evacuated? _____
- b. Extortion: Source (Phone, Letter, etc.)? _____
 Location of Letter _____
- c. Intrusion: Insider? _____ Outsider? _____
 Furthest Point of Intrusion _____
 Fire Arms Related? _____ Stolen/Missing Material? _____
- d. Rx Oper./Demonstration: Size of Group _____ Demands _____
 Violence? _____ Fire Arms Related? _____
- e. Sabotage/Vandalism: Radiological? _____ Arson Involved? _____
 Stolen/Missing Material? _____

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FOLLOW-UP EMERGENCY MESSAGE FORM (CONT'D)

7. Transportation:

Mode (Road/Rail/Air/etc.) _____ Carrier _____
 Exact Location _____
 Type of Material (HEU/Spent Fuel/Cat III/Other) _____
 Description of Shipment _____
 Labels: (On Material Package) _____ (On Vehicle) _____
 Spillage _____ Surveys _____
 Physical Damage to Container _____
 Fire/Smoke _____ Missing Material? _____

8. The Following Emergency Response Actions are Underway:

9. The Following Protective Actions are Recommended:

10. We Request the Following Onsite Support and Assistance from Offsite Sources:

11. Our Prognosis of the Emergency is that Conditions:

____ Are Under Control
 ____ Can be Expected to Terminate Within _____ Hours
 ____ Are Worsening

STSC Communicator/Govt. Liaison Eng. _____

Date/Time _____ / _____

EMERGENCY NOTIFICATION CALL CHECK LIST

EMERGENCY COORDINATOR
(Sheet 1 of 2)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
National Weather Service	_____	NAN	NAWAS		____/____	_____
Arizona Dept. of Public Safety	_____	NAN	NAWAS		____/____	_____
Arizona Radiation Regulatory Agency	_____	NAN	NAWAS		____/____	_____
Arizona Dept. of Emergency Services	_____	NAN	NAWAS		____/____	_____
Maricopa County Dept. of Civil Defense and Emergency Services	_____	NAN	NAWAS		____/____	_____
Maricopa County Sheriff's Office	_____	NAN	NAWAS		____/____	_____
Maintenance and Operations Manager	_____	PVNGS Emerg. Tele.	Pager	Mobile Radio- Telephone	____/____	_____
Manager, Nuclear Operations	_____	PVNGS Emerg. Tele.	Pager	Mobile Radio- Telephone	____/____	_____

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EMERGENCY NOTIFICATION CALL CHECK LIST (CONT'D)

EMERGENCY COORDINATOR
(Sheet 2 of 2)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Vice President, Electric Operations	_____	PVNGS Emer. Tele.		Mobile Radio- Telephone	____/____	_____
NRC Headquarters	_____	ENS		HPN	____/____	_____
NRC Resident Inspector	_____	ENS	Pager	Commercial Telephone	____/____	_____
PVNGS Visitors Center	_____		(none)	(none)	____/____	_____
APS Site Construction Office	_____		(none)	(none)	____/____	_____
Bechtel Emergency Control Center	_____		2-way radio FM channel 3	(none)	____/____	_____
APS Corporate Relations	_____		(none)	(none)	____/____	_____
APS Risk Management	_____		none	none	____/____	_____
Public Information	_____		none	none	____/____	_____
INPO	_____		(none)	(none)	____/____	_____

**PVNGS EMERGENCY PLAN
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NOTIFICATION PROCESS -
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NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System

Operation at plant end of circuit.

A. IDLE State - All lamps on all ENS phones are extinguished.

B. Outgoing call to NRC Operations Center.

1. Control Room or Shift Supervisor or Technical Support Center initiates call.

a. All phones in CR, SSO, and TSC have steady lamps.

b. Ringing tone is heard in handset of initiating phone.

c. EOF ENS phone lamp blinks.

d. Resident Inspector's office phone(s) rings and times out, lamp on phone(s) continues to blink until Resident Inspector answers, or call ends.

2. EOF location initiates call.

a. All phones in CR, SSO, TSC and EOF have a steady lamp.

b. Initiating phone hears ringing tone in handset.

c. Resident Inspector's office phone(s) rings and times out, lamp on phone(s) continues to blink until Resident Inspector answers, or call ends.

3. Resident Inspector's office initiates call.

a. Resident Inspector's office phone(s) - steady lamp appears and ringing tone is heard in handset.

b. No indication at any plant location.

NOTE: The ENS circuit does not have privacy feature.

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NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Incoming call to plant.

1. All ENS phones ring and lamps blink, until call is answered (except Resident Inspector's office).
2. Resident Inspector's office - not answered.

Ring times out after 30 (to 90) seconds but lamp continues to blink until Resident Inspector answers. A re-ring occurs if plant does not answer before time out.

3. ENS line answered at any plant location (except Resident Inspector).
 - a. All phones stop ringing and a steady lamp appears on all ENS phones in CR, SSO, and TSC. Also EOF if answering location.
 - b. EOF ENS phone lamp will continue to blink if not answering location.
 - c. Resident Inspector office phone(s) - lamp will continue to blink until answered, or call ends.
4. Line answered by Resident Inspector.
 - a. Phone(s) in Resident Inspector's office stop ringing and steady lamp appears on phone(s).
 - b. All plant ENS phones continue to ring and blink until answered then see item C-3 above.

D. Troubles: A circuit trouble lite has been installed and labeled in the Control Room area. Suggested label: "ENS Line Failure When Lit."

1. Normal condition: Lamp is extinguished.
2. Trouble condition: Lamp is illuminated. Notify NRCOC immediately by commercial line.

2. Site Package Configuration

- | | |
|------------------|--------------------------------------|
| Main Package | - Control Room (CR) |
| | - Shift Supervisor's Office (SSO) |
| | - Technical Support Center (TSC) |
| EOF Package | - Emergency Operation Facility (EOF) |
| Resident Package | - Resident Inspector's Office (RI) |

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ASSIGNED COPY

PVNGS SM # 8-9A

APPROVED BY: L. E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-1985A/0196A

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to describe the notification process required upon declaration of an ALERT, SITE EMERGENCY, or GENERAL EMERGENCY. This process includes the following:
- Initial and follow-up notification to Federal, State, County, and Corporate offsite emergency organizations.
 - Notification of off-duty personnel to augment the onshift emergency organization.
 - Notification of the PVNGS Visitor's Center, APS Site Construction Office and Bechtel Emergency Control Center.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-04, "ALERT Implementing Actions"
- 2.1.2 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"
- 2.1.4 EPIP-07, "Notification Process - NOTIFICATION OF UNUSUAL EVENT"
- 2.1.5 EPIP-33, "Offsite Assistance"
- 2.1.6 APS Emergency Response Facility Equipment Manual

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan, Rev. 2
- 2.2.3 10 CFR 50, Appendix E, "Domestic Licensing of Production and Utilization Facilities"

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3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 The notification of specific offsite agencies, such as emergency medical services and fire departments, is detailed in EPIP-33, "Offsite Assistance".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 Upon declaration of an ALERT, SITE EMERGENCY, or GENERAL EMERGENCY offsite notification will consist of three primary telephone contacts: the NRC, State/County government, and APS corporate personnel. The NRC will be notified via the Emergency Notification System (ENS) dedicated line; State/County government via the Notification and Alert Net (NAN); and corporate personnel via dedicated telephone fanout, through the Manager, Nuclear Operations and the Vice President, Electric Operations. The National Warning System (NAWAS) will provide a back-up means of notification of State/County government and the Health Physics Network (HPN) will provide a back-up means of notification to the NRC. Primary and alternate communications links for offsite notification are shown in Appendices F and G of this procedure. The Notification and Alert Net, NAN Notification Flow and APS Emergency Notification Fanout are illustrated in Appendices A through C.
- 4.1.2 The Notification Systems User's Guide (Appendix H) provides the instructions necessary to ensure adequate operations of the primary and alternate systems available for offsite notification. The equipment addressed includes the ENS. Callers shall refer to this guide to ensure that successful contact is made in a minimal time period.
- 4.1.3 Notification of the NRC and State/County government should be completed within 15 minutes, after declaration of the emergency class. Although there is no time requirement for the notification of corporate personnel, it shall be expedited to allow sufficient time for any subsequent activation and staffing of the onsite and offsite emergency centers.

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4.2 Prerequisites

- 4.2.1 An ALERT, SITE EMERGENCY, or GENERAL EMERGENCY has been declared, and procedure EPIP-04, 05, or 06 is being implemented.

4.3 Instructions

4.3.1 Initial Notification

The Emergency Coordinator, or designee (STSC Communicator), shall perform the following:

- 4.3.1.1 Complete the Initial Emergency Message Content Form (Appendix D), and begin to fill in as much information as is available, on the Follow-up Emergency Message Form (Appendix E).

- 4.3.1.2 By means of a single call, on the Notification and Alert Net dedicated telephone, contact the following State/County agencies:

Duty Hours (8:00 a.m. to 5:00 p.m. Monday-Friday)

National Weather Service (NWS)
Arizona Department of Public Safety (DPS)
Arizona Radiation Regulatory Agency (ARRA)
Arizona Department of Emergency Services (ADES)
Maricopa County Department of Civil Defense and
Emergency Services (MCCDES)
Maricopa County Sheriff's Office (MCSO)

NOTE

Subsequent notification of affected agencies during off-duty hours shall be made per internal agency procedures.

Off-Duty Hours (5:00 p.m. to 8:00 a.m. all day
Saturday and Sunday)

NWS
DPS
MCSO

- 4.3.1.3 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the Initial Emergency Message Form (Appendix D).

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- 4.3.1.4 When each individual has obtained a copy, read the completed Initial Emergency Message Content Form, verbatim.
- 4.3.1.5 Offer to repeat information and reiterate as necessary.
- 4.3.1.6 Obtain the name of each person contacted and record on the Emergency Notification Call Check List, Emergency Coordinator (Appendix F).
- 4.3.1.7 Contact the NRC via the Emergency Notification System (ENS) dedicated telephone.
- 4.3.1.8 The caller shall identify himself and read the completed Initial Emergency Message Content Form, verbatim.
- 4.3.1.9 Offer to repeat information and reiterate as necessary.
- 4.3.1.10 Obtain the name of the persons contacted and record in Appendix F.
- 4.3.1.11 Notify the NRC Resident Inspector in accordance with Appendix F if unable to contact with the ENS phone.
- 4.3.1.12 When contact is made, the caller shall identify himself and read the Initial Emergency Message Content Form, verbatim.
- 4.3.1.13 Offer to repeat information and reiterate as necessary.
- 4.3.1.14 Obtain the name of the person contacted and record in Appendix F.
- 4.3.1.15 Via the PVNGS emergency telephone, notify the Maintenance and Operations Manager; Manager, Nuclear Operations; and the Vice President, Electric Operations. It is preferred that the Emergency Coordinator personally explain the emergency situation and plant status, to these key individuals.
- 4.3.1.16 Record the name of each person contacted, in Appendix F.
- 4.3.1.17 Notify additional personnel as listed in Appendix F, obtain the name of the person contacted, and inform them of the situation.

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- 4.3.1.18 Determine the need for additional personnel. Direct the Security Director to call in additional personnel by utilizing the computer callout listing. The Security Director will use the updated (daily) computer print-out as an emergency telephone directory.
- 4.3.1.19 If an individual requests information not contained in the Initial Emergency Message Content Form, make reasonable efforts to obtain and give the information only after all initial notifications have been made.
- 4.3.1.20 Contact the APS Dispatcher via the micro-wave system.
- 4.3.1.21 When contact is made, the caller shall identify himself and request that the individual obtain a copy of the Initial Emergency Message Form.
- 4.3.1.22 When the individual has obtained a copy, read the completed Initial Emergency Message Form, verbatim.
- 4.3.1.23 Offer to repeat information and reiterate as necessary.
- 4.3.1.24 Obtain the name of the person contacted and record in Appendix F.
- 4.3.2 The APS Dispatcher shall perform the following:
 - 4.3.2.1 Via commercial telephone, contact the following corporate personnel:
 - a. Vice President, Nuclear Project Management
(Alternate: VP, Engineering and Construction)
 - b. Vice President, Corporate Finance Planning and Control
(Alternate: VP, Economic Planning and Control)
 - c. Manager, Legal Services
(Alternate: Manager, Contract Services)
 - 4.3.2.2 When contact is made, the caller shall identify himself and read the following message:

"THERE IS AN (ALERT, SITE EMERGENCY, or GENERAL EMERGENCY) IN PROGRESS AT THE PALO VERDE NUCLEAR GENERATING STATION. YOUR ASSISTANCE IN THE EMERGENCY ORGANIZATION IS REQUESTED. PLEASE RESPOND ACCORDINGLY".

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- 4.3.2.3 Obtain the name of each person contacted and record on the Emergency Notification Call Check List, APS Dispatcher (Appendix G).

4.3.3 Follow-up Notification

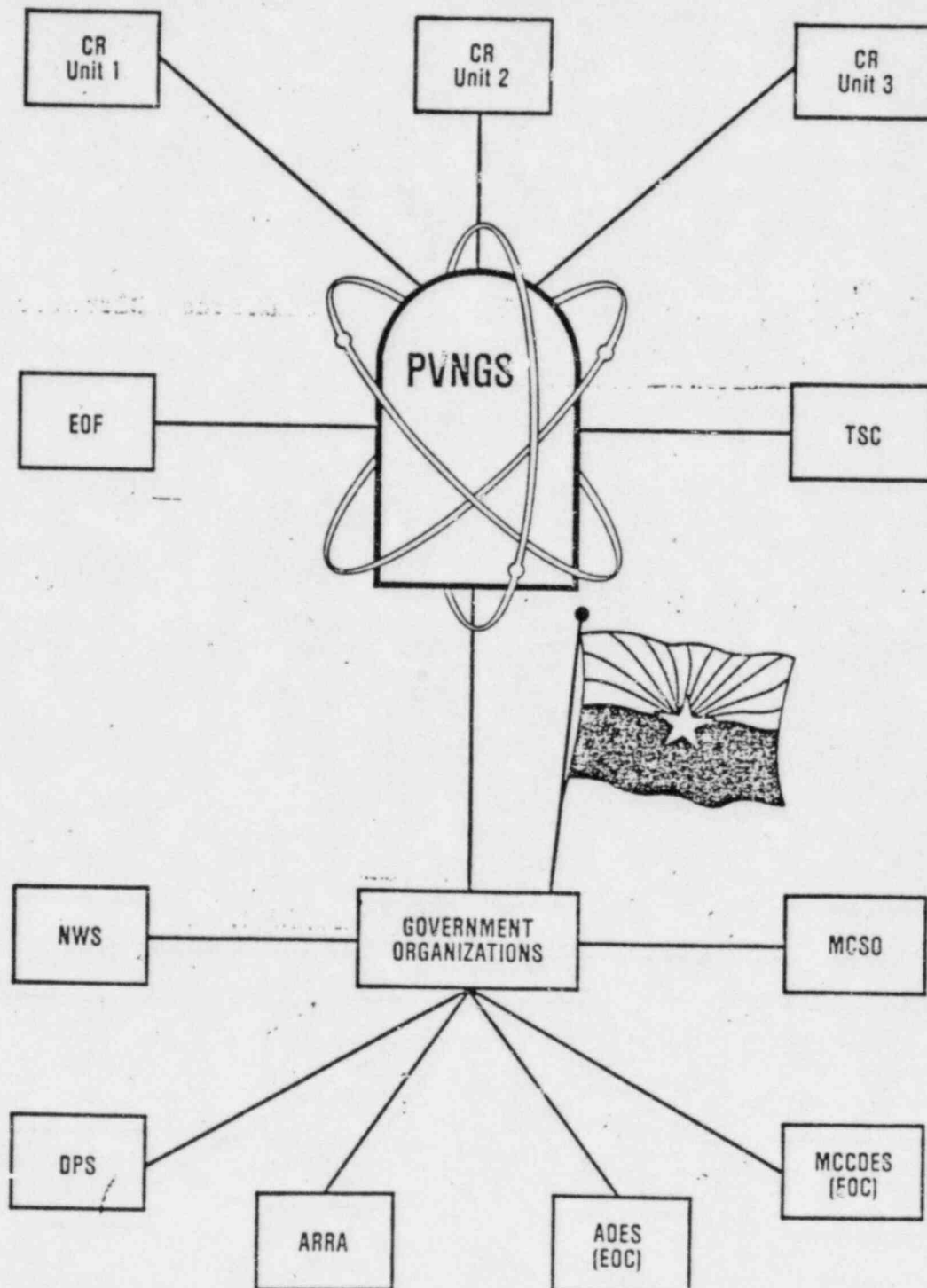
The Emergency Coordinator, or designee, shall perform the following:

- 4.3.3.1 Complete filling out the Follow-up Emergency Message Form (Appendix E).
- 4.3.3.2 Disseminate the information recorded on the Follow-up Emergency Message Form as requested by the offsite emergency management organization (i.e., NRC, ARRA, ADES, MCCDES) or as significant changes occur.

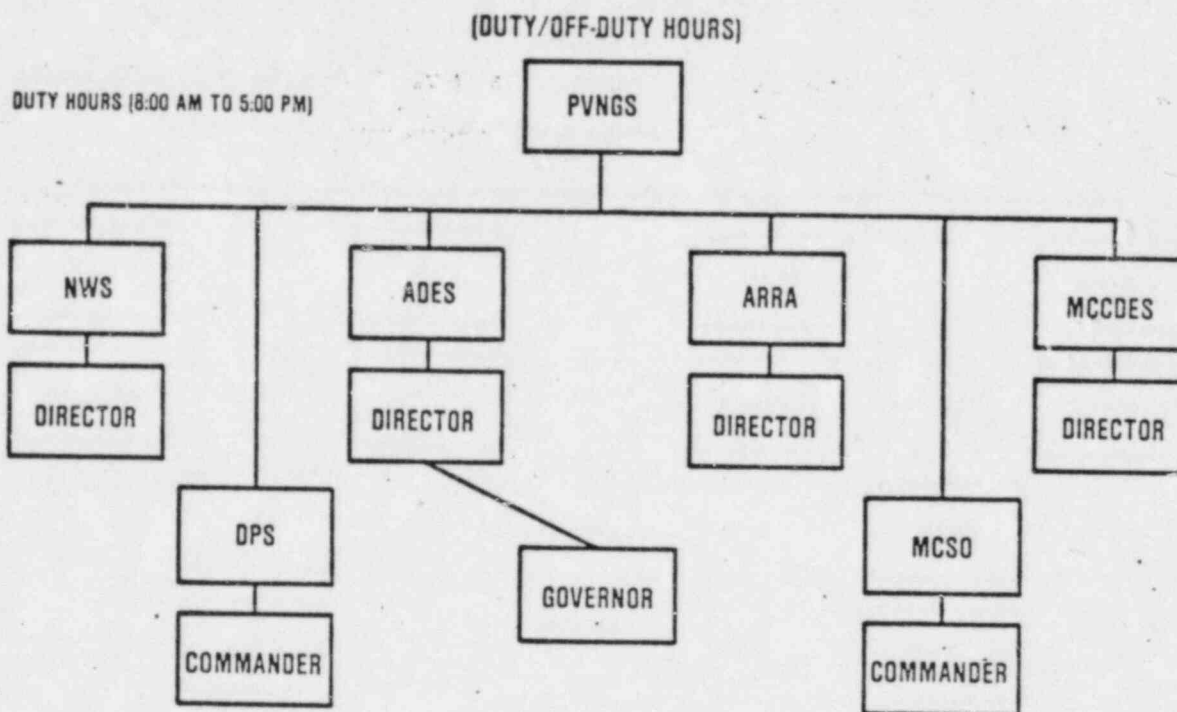
4.3.4 Additional Notification

- 4.3.4.1 If notification of additional offsite agencies (i.e., INPO, NSSS supplies, Bechtel, ambulance, hospital) is required, such notification shall be performed in accordance with EPIP-33.
- 4.3.5 When an emergency is reclassified, the appropriate notification processes (EPIP-07 or EPIP-08) will be initiated.

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OFF-DUTY HOURS (BEFORE 8:00 AM AND AFTER 5:00 PM)

During off-duty hours (i.e., outside of normal government work days and hours) the NAN notification flow appears as above, **EXCEPT** MCCDES is notified via MCSO and ARRA is notified via ADES.

MCCDES is Maricopa County Department of Civil Defense & Emergency Services
MCSO is Maricopa County Sheriff's Office
ARRA is Arizona Radiation Regulatory Agency
ADES is Arizona Division of Emergency Services
DPS is Arizona Department of Public Safety
NWS is National Weather Service

The Primary notification points are: ADES and MCSO.
 The Alternate notification points are: DPS and MCCDES.

NAN NOTIFICATION FLOW PALO VERDE NUCLEAR GENERATING STATION—PVNGS

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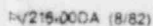
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INITIAL EMERGENCY MESSAGE
 ALERT, SITE EMERGENCY, GENERAL EMERGENCY
 PALO VERDE NUCLEAR GENERATING STATION

1. This is _____, at the Palo Verde Nuclear
 (name/title)
 Generating Station.

2. At _____ we experienced an
 (time/date)
 (ALERT, SITE EMERGENCY, GENERAL EMERGENCY) Class incident.
 (circle one)

 (describe incident)

3. Based on plant conditions, provide one of the following:
 - (a) There is NO, repeat NO, radioactive release taking place and no special protective actions are recommended at this time.

OR
 - (b) A radioactive release IS, repeat IS, taking place. Wind is from _____ at _____ mph. We recommend that people in sectors _____ remain indoors with windows and doors closed.

OR
 - (c) A radioactive release IS, repeat IS, taking place and we recommend that evacuation of sectors _____ be considered.

OR
 - (d) Plant conditions are degrading with potential for fuel damage and breach of containment integrity. Evacuation is recommended for _____ in a two mile radius and sectors _____ five miles downwind from the plant site.

4. Further information on incident conditions will be provided in followup messages.

5. This is Palo Verde Authenticator _____
 Out. (See authenticator code)

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FOLLOW-UP EMERGENCY MESSAGE FORM

1. Reactor Operations:

Reactor System Status _____ Power Level _____

Pressure _____ Temp. _____ Flow (Pumps On) _____
Cooling Mode _____ ECCS Operating/Operable _____

Containment Status

Containment Isolated? _____ Containment Temp. _____
Containment Press _____ Containment Radiation _____ R/hr.

Reactivity Controls

Control Rods Inserted _____ Status of Emer. Boration System _____

2. Steam Plant Status:

S/G Levels _____ Equip. Failures _____
Feedwater Source/Flow _____ S/G Isolated? _____

3. Electrical Dist. Status:

Normal Offsite Power Available? _____
Major Busses/Loads Lost _____
Safeguards Busses Power Source _____
D/G Running? _____ Loaded? _____

4. Radioactivity Released (or Increased Release)? _____

Liquid/Gas? _____ Location/Source of Release _____ Elevation _____
Release Rate _____ Duration _____ Stopped? _____
Release Monitored _____ Amount of Release _____
% Tech. Specs. _____

a. Increased Radiation Levels in Plant: Location(s) _____

Radiation Level(s) _____ Areas Evacuated _____
Maximum Offsite Dose Rates _____
Integrated Dose _____ Location _____

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FOLLOW-UP EMERGENCY MESSAGE FORM (CONT'D)

b. Meteorology

Wind Direction From _____
 Wind Speed _____ (Meter/Sec or Miles/Hr)
 T _____ (°C or °F) Sigma Theta _____ Temperature _____ (°C or °F)
 Stability Class A B C D E F Raining (Yes/No)

5. Projected Doses:

	<u>Dose Rates</u>	<u>Integrated Dose</u>
Site Boundary	_____	_____
2 miles	_____	_____
5 miles	_____	_____
10 miles	_____	_____
Sectors	_____	_____

Contamination (Surface): Inplant _____ Onsite _____ Offsite _____

6. Security/Safeguards:

- a. Bomb Threat: Search Conducted? _____
 Search Results _____ Site Evacuated? _____
- b. Extortion: Source (Phone, Letter, etc.)? _____
 Location of Letter _____
- c. Intrusion: Insider? _____ Outsider? _____
 Furthest Point of Intrusion _____
 Fire Arms Related? _____ Stolen/Missing Material? _____
- d. Rx Oper./Demonstration: Size of Group _____ Demands _____
 Violence? _____ Fire Arms Related? _____
- e. Sabotage/Vandalism: Radiological? _____ Arson Involved? _____
 Stolen/Missing Material? _____

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FOLLOW-UP EMERGENCY MESSAGE FORM (CONT'D)

7. Transportation:

Mode (Road/Rail/Air/etc.) _____ Carrier _____
 Exact Location _____
 Type of Material (HEU/Spent Fuel/Cat III/Other) _____
 Description of Shipment _____
 Labels: (On Material Package) _____ (On Vehicle) _____
 Spillage _____ Surveys _____
 Physical Damage to Container _____
 Fire/Smoke _____ Missing Material? _____

8. The Following Emergency Response Actions are Underway:

9. The Following Protective Actions are Recommended:

10. We Request the Following Onsite Support and Assistance from Offsite Sources:

11. Our Prognosis of the Emergency is that Conditions:

_____ Are Under Control
 _____ Can be Expected to Terminate Within _____ Hours
 _____ Are Worsening

EMERGENCY NOTIFICATION CALL CHECK LIST

EMERGENCY COORDINATOR
(Sheet 1 of 2)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
National Weather Service		NAN	NAWAS		/	
Arizona Dept. of Public Safety		NAN	NAWAS		/	
Arizona Radiation Regulatory Agency		NAN	NAWAS		/	
Arizona Dept. of Emergency Services		NAN	NAWAS		/	
Maricopa County Dept. of Civil Defense and Emergency Services		NAN	NAWAS		/	
Maricopa County Sheriff's Office		NAN	NAWAS		/	
Maintenance and Operations Manager		PVNGS Emerg. Tele.	Pager	Mobile Radio-Telephone	/	
Manager, Nuclear Operations		PVNGS Emerg. Tele.	Pager	Mobile Radio-Telephone	/	
APS Dispatcher		Dispatch Tele.			/	

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE

NOTIFICATION PROCESS ALERT, SITE
EMERGENCY, OR GENERAL EMERGENCY

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EMERGENCY NOTIFICATION CALL CHECK LIST (CONT'D)

EMERGENCY COORDINATOR
(Sheet 2 of 2)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Vice-President, Electric Operations		PVNCS Emer. Tele.		Mobile Radio- Telephone	/	
NRC Headquarters		ENS		HPN	/	
NRC Resident Inspector		ENS	Pager	Commercial Telephone	/	
PVNCS Visitors Center			(none)	(none)	/	
APS Site Construction Office			(none)	(none)	/	
Bechtel Emergency Control Center			2-way radio FM channel 3	(none)	/	
APS Corporate Relations			(none)	(none)	/	
APS Risk Management			none	none	/	
Public Information			none	none	/	
INPO			(none)	(none)	/	

PVNCS EMERGENCY PLAN IMPLEMENTING PROCEDURE

NOTIFICATION PROCESS ALERT, SITE
EMERGENCY, OR GENERAL EMERGENCY

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EMERGENCY NOTIFICATION CALL CHECK LIST

APS DISPATCHER
(Sheet 1 of 1)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
VP, Nuclear Project Management				(none)	/	
VP, Corporate Finance Planning and Control				(none)	/	
Manager, Legal Services				(none)	/	

NOTIFICATION PROCESS ALERT, SITE EMERGENCY, OR GENERAL EMERGENCY	PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-08	APPENDIX G Page 1 of 1
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NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System

Operation at plant end of circuit.

A. IDLE State - All lamps on all ENS phones are extinguished.

B. Outgoing call to NRC Operations Center.

1. Control Room or Shift Supervisor or Technical Support Center initiates call.

a. All phones in CR, SSO, and TSC have steady lamps.

b. Ringing tone is heard in handset of initiating phone.

c. EOF ENS phone lamp blinks.

d. Resident Inspector's office phone(s) rings and times out, lamp on phone(s) continues to blink until Resident Inspector answers, or call ends.

2. EOF location initiates call.

a. All phones in CR, SSO, TSC and EOF have a steady lamp.

b. Initiating phone hears ringing tone in handset.

c. Resident Inspector's office phone(s) rings and times out, lamp on phone(s) continues to blink until Resident Inspector answers, or call ends.

3. Resident Inspector's office initiates call.

a. Resident Inspector's office phone(s) - steady lamp appears and ringing tone is heard in handset.

b. No indication at any plant location.

NOTE: The FNS circuit does not have privacy feature.

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NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Incoming call to plant.

1. All ENS phones ring and lamps blink, until call is answered (except Resident Inspector's office).
2. Resident Inspector's office - not answered.

Ring times out after 30 (to 90) seconds but lamp continues to blink until Resident Inspector answers. A re-ring occurs if plant does not answer before time out. *
3. ENS line answered at any plant location (except Resident Inspector).
 - a. All phones stop ringing and a steady lamp appears on all ENS phones in CR, SSO, and TSC. Also EOF if answering location.
 - b. EOF ENS phone lamp will continue to blink if not answering location.
 - c. Resident Inspector office phone(s) - lamp will continue to blink until answered, or call ends.
4. Line answered by Resident Inspector.
 - a. Phone(s) in Resident Inspector's office stop ringing and steady lamp appears on phone(s).
 - b. All plant ENS phones continue to ring and blink until answered then see item C-3 above.

D. Troubles: A circuit trouble lite has been installed and labeled in the Control Room area. Suggested label: "ENS Line Failure When Lit."

1. Normal condition: Lamp is extinguished.
2. Trouble condition: Lamp is illuminated. Notify NRCOC immediately by commercial line.

Site Package Configuration

Main Package	- Control Room (CR)
	- Shift Supervisor's Office (SSO)
	- Technical Support Center (TSC)
EOF Package	- Emergency Operation Facility (EOF)
Resident Package	- Resident Inspector's Office (RI)

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ASSIGNED COPY

PVNGS SM # 8-9A

APPROVED BY: *[Signature]* DATE 9/24/82
DATE EFFECTIVE 10-6-82

DN-1664A/0196A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-11	
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1.0 OBJECTIVE

1.1 The objective of this procedure is to provide instructions for the activation of the Technical Support Center (TSC) and the Satellite TSC (STSC). This procedure addresses the following:

- o Activation of the affected unit Satellite TSC.
- o Preliminary activation of the Technical Support Center by available onshift personnel.
- o Complete activation of the Technical Support Center by those onsite emergency response personnel assigned to this emergency response facility.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-04, "ALERT Implementing Actions"
- 2.1.3 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"
- 2.1.5 APS Emergency Response Facility Equipment Manual

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 NUREG 0696, Feb. 1981, "Functional Criteria for Emergency Response Facilities"
- 2.2.3 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The Satellite TSC and the TSC may be used by designated personnel for normal daily activities as well as for training and emergency drills. Use of these facilities shall be limited to activities that will not degrade preparedness to react to abnormal conditions or reduce system(s) reliability.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 During a NOTIFICATION OF UNUSUAL EVENT, direction and coordination of onshift emergency operations will be provided by the Emergency Coordinator at the Satellite TSC. During an ALERT, or more severe classification, emergency assessment and control will initially be directed from the Satellite TSC and transferred to the TSC once it has been activated.

4.1.1.1 Prior to activation of the onsite Emergency Organization, the following activities will take place in the Satellite TSC:

- o Environmental assessment (offsite dose projections).
- o Field Monitoring Team direction by the Radiation Protection Monitor.
- o Technical analysis by the Shift Technical Advisor (STA).
- o Emergency management by the Emergency Coordinator (EC).
- o Initial notifications including information regarding protective actions (if required) by the Satellite TSC Communicator.

4.1.2 When the onsite Emergency Organization has been activated, the responsibility for the above listed functions will be transferred to the TSC and/or the Emergency Operations Facility (EOF).

4.1.2.1 The Satellite TSC will then function as an extension of the TSC to provide direct technical support to the Control Room personnel in the areas of:

- o Engineering and technical analytical support.
- o Reactor analytical support.
- o Unit operations support.
- o Radiological analytical support.

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4.1.3 The functions which will be performed in the TSC are as follows:

- o Manage onsite emergency response.
- o Direct onsite radiological protection activities.
- o Direct emergency maintenance.
- o Direct personnel accountability and site security.
- o Direct safety and hazards control.
- o Perform engineering and technical analysis for Control Room support.
- o Perform reactor analysis.
- o Provide emergency I&C support.
- o Provide computer and chemistry technical support.
- o Provide dose rate projections.
- o Direct field monitoring activities.

4.1.4 The TSC emergency supply storage area contains a supply of calibrated radiological monitoring equipment, protective clothing, communications equipment, portable lighting, and additional supplies as listed in EPIP-38.

4.2 Prerequisites

4.2.1 Activation of the Satellite TSC shall take place upon declaration of a NOTIFICATION OF UNUSUAL EVENT.

4.2.2 Activation of the TSC and augmentation of the Satellite TSC staff by the onsite Emergency Organization shall take place upon declaration of an ALERT or more severe emergency.

4.3 Instructions

4.3.1 Activation of the Satellite TSC

4.3.1.1 The following onshift Emergency Organization personnel shall report to the affected unit Satellite TSC and complete their designated check lists:

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1. Emergency Coordinator (Duty Manager) - Appendix A.
2. Shift Technical Advisor - Appendix B.
3. Designated Radiation Protection Technician
(Radiation Protection Monitor) - Appendix C.
4. Designated Nuclear Operator (STSC Communicator) -
Appendix D.

4.3.1.2 The following onsite Emergency Organization personnel shall report to the affected unit Satellite TSC (if required), relieve their respective onshift counterpart, and complete their check lists as necessary.

1. Satellite TSC Communicator - Appendix D.
2. Radiation Protection Monitor - Appendix C.

4.3.1.3 The Operations Advisor shall report to the STSC and provide technical and operational advice to the Shift Supervisor. He will ensure that information flow is maintained between the TSC and the Control Room.

4.3.2 Preliminary Activation of the Technical Support Center

4.3.2.1 The Emergency Coordinator shall contact the Shift Systems Engineer and direct him to perform the preliminary activation of the TSC per Appendix E.

4.3.2.2 The Shift Analysts shall report to the TSC and assist the Shift Systems Engineer in carrying out his function as Technical Engineering Coordinator.

4.2.3.3 The Security Shift Captain shall report to the TSC, assume the duties of Security Director, and complete the check list in Appendix I.

4.3.3 Complete Activation of the Technical Support Center

4.3.3.1 The Technical Engineering Coordinator of the onsite Emergency Organization shall report to the TSC, relieve the Shift Systems Engineer, and complete the check list in Appendix E (as necessary) and Appendix G.

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4.3.3.2 The Security Director of the onsite Emergency Organization shall report to the TSC, relieve the Security Shift Captain, and complete the check list in Appendix I (as necessary).

4.3.3.3 The following onsite Emergency Organization personnel shall report to the TSC and complete their designated check lists:

1. Emergency Coordinator (Manager, Nuclear Operations) - Appendix F.
2. Radiological Protection Coordinator - Appendix H.
3. Emergency Maintenance Coordinator - Appendix J.
4. Hazards Control Coordinator - Appendix K.
5. Personnel Resources Coordinator - Appendix L.
6. Chemistry Coordinator - Appendix M.
7. Reactor Analyst - Appendix N.
8. Computer Support Coordinator - Appendix O.
9. Field Team Communicator - Appendix P.

4.3.4 Declaration of TSC Readiness

4.3.4.1 Upon completion of TSC personnel check lists, the Manager, Nuclear Operations shall complete the TSC Readiness Check List of Appendix O and notify affected onsite emergency response facilities.

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DUTY MANAGER CHECK LIST
(Satellite TSC)

ACTION ITEMS

TIME/INITIALS

1. Contact Shift Supervisor and review:
 - a. The logic used to establish the classification of the event. /
 - b. Status of plant conditions. /
 - c. Corrective actions that are being taken. /
2. Appoint Nuclear Operator to act as Satellite TSC Communicator and commence notification per EPIP-07 and EPIP-08 (as appropriate). /
3. If an ALERT or more severe emergency is declared, instruct the Security Director to commence notification of the Onsite and Offsite Emergency Organization. /
4. Ensure that the following check lists are completed by the appropriate personnel:

Check List B - Shift Technical Advisor
 Check List C - Radiation Protection Monitor
 Check List D - STSC Communicator⁽¹⁾

/
5. As necessary:⁽²⁾
 - a. Determine necessity to evacuate onsite personnel (EPIP-19). /
 - b. Authorize emergency workers to exceed PVNGS administrative exposure limits (EPIP-18). /
 - c. Provide protective action recommendations to offsite emergency management agencies (EPIP-15). /

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DUTY MANAGER CHECK LIST (CONT'D)
(Satellite TSC)

NOTES:

- (1) When this individual arrives at the STSC he will relieve the Nuclear Operator of notification duties.
- (2) These action items would normally be necessary during a high level emergency situation (i.e., SITE and/or GENERAL EMERGENCY) and would normally be the responsibility of the onsite Emergency Coordinator. If this position has not been assumed you must take the appropriate actions. These responsibilities cannot be delegated.

Signature _____

Date _____

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SHIFT TECHNICAL ADVISOR (STA) CHECK LIST
(Satellite TSC)

ACTION ITEMS

TIME/INITIALS

1. Activate the SPDS. /
2. Monitor SPDS Information and develop trend data. /
3. Provide the Shift Supervisor with trend data and assist in determining which corrective actions should be taken to mitigate the event. /

Signature _____

Date _____

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RADIATION PROTECTION MONITOR CHECK LIST
(Satellite TSC)

ACTION ITEMS

TIME/INITIALS

1. As necessary:

- | | |
|--|---|
| a. Perform initial offsite dose rate projection (EPIP-14A and 14B). | / |
| b. Inform Duty Manager of dose rate projection results and assist in determining what type of protective action recommendations are necessary (EPIP-15). | / |
| c. Direct activities of onsite and offsite Field Monitoring Teams (EPIP-16 and 17). | / |
| d. Evaluate the need to administer Potassium Iodide (KI) (EPIP-26). | / |

2. Contact OSC Coordinator and ensure that:

- | | |
|--|---|
| a. Sufficient radiological protection equipment is available to OSC personnel. | / |
| b. That the OSC continuous air monitors and area alarm monitors are functioning and determine initial radiation levels at OSC. | / |

3. When the onsite Emergency Organization is activated provide the following information:

- | | |
|---|---|
| a. Contact the Radiological Protection Coordinator and provide him with (1) OSC radiation protection status (i.e., equipment, "background" levels, etc.); (2) as appropriate, the status of dose projections, protective action recommendations, onsite and offsite Field Monitoring Teams. | / |
| b. Monitor radiological assessment activities of the <u>onsite</u> Emergency Organization and provide Control Room personnel with appropriate information. | / |

Signature _____

Date _____

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SATELLITE TSC COMMUNICATOR CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. As directed by the Emergency Coordinator initiate notification process per EPIP-07 and EPIP-08 (as appropriate).	/
2. When relieved by designated onsite STSC Communicator provide him with status of notification process.	/
3. When notification process is completed inform the Emergency Coordinator.	/
4. Ensure STSC communications equipment is operable.	/
5. Maintain Communication Logbook.	/

Signature _____

Date _____

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SHIFT SYSTEMS ENGINEER CHECK LIST
(Preliminary TSC Activation)

ACTION ITEMS

TIME/INITIALS

1. Ensure communication devices are operable in the TSC in accordance with the APS Emergency Response Facility Equipment Manual.

/

EC/EOD Hotline

Plant & Security Radio

Environmental Assessment Line

Technical Line

Maintenance Control Line

Radiological Line

CR Lines

EOF Dedicated Line

OSC Dedicated Line

STSC Dedicated Line

2. Ensure SPDS is operational.

/

3. Ensure CRACS is operational.

/

4. Ensure TSC computer terminals are operable.

/

5. Break out manual dose projection maps and overlays from emergency lockers.

/

6. Break out onsite/offsite environmental sampling location maps.

/

7. Report TSC readiness to Emergency Coordinator.

/

Signature _____

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-11	APPENDIX F Page 1 of 2
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EMERGENCY COORDINATOR (MANAGER, NUCLEAR OPERATIONS) CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Contact the Duty Manager and review:	
a. The logic used to establish the classification of the event.	/
b. Status of plant conditions.	/
c. Status of notification of Federal, State, and County emergency management agencies.	/
d. Status of onsite/offsite PVNGS Emergency Organization notification process.	/
e. Protective action recommendations made to date and his knowledge of state's action(s) (if necessary).	/
2. Review Personnel Accountability Report (EPIP-20).	/
3. Determine need to evacuate nonessential personnel (required for SITE and/or GENERAL EMERGENCY, EPIP-19).	/
4.* Make protective action recommendations, as appropriate, considering existing plant conditions and potential degradation (EPIP-15).	/
5.* As the situation warrants reclassify the event per EPIP-02.	/
6. Review the results of dose projections.	/
7. Authorize emergency exposure limits as necessary (EPIP-18).	/
8. Authorize dispatch of onsite and offsite Survey Teams as necessary (EPIP-16 and 17).	/
9. Authorize dispatch of Search and Rescue Teams as necessary. (EPIP-21).	/
10. Complete the TSC Readiness Check List, Appendix P of this procedure.	/

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EMERGENCY COORDINATOR (MANAGER, NUCLEAR OPERATIONS) CHECK LIST (CONT'D)

NOTE:

- * These items cannot be delegated; however when the EOF is activated and the Emergency Operations Director assumes control, the responsibility for these items will be transferred to him.

Signature _____

Date _____

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TECHNICAL ENGINEERING COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Access records management and obtain needed technical documents, procedures, blueprints. /

2. Ensure that the following check lists are completed by the appropriate personnel:

Check List J - Emergency Maintenance Coordinator /

Check List K - Hazards Control Coordinator /

Check List M - Chemistry Coordinator /

Check List N - Reactor Analyst /

Check List O - Computer Support Coordinator /

3. Determine the need for additional engineering and technical support personnel. Contact such personnel as necessary. /

Signature _____

Date _____

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RADIOLOGICAL PROTECTION COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Check that all materials needed to perform assessments are available.
 - a. Meteorological overlays and base maps.
 - b. Procedures and forms.
2. Access the Rad/Met computer per the provisions of the APS Emergency Response Facility Equipment Manual.
3. Contact the affected unit's STSC and determine:
 - a. Extent of radiological releases and plant conditions.
 - b. Location of onsite and offsite monitoring teams (if dispatched).
4. Determine the need for additional personnel to assist in performing dose assessment.
5. When sufficient personnel and materials are available, inform the Emergency Coordinator that the TSC is ready to assume the responsibility for dose assessments.

Signature _____

Date _____

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SECURITY DIRECTOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Check station security by contacting the Central Alarm Station Operator. _____
2. Confer with the Security Shift Captain concerning protected area personnel accountability and security measures for station access by offsite assistance personnel. _____
3. Contact personnel at the Firing Range, inform them of the situation and provide instructions as appropriate. _____
4. Determine the need for additional security force personnel. Contact such personnel as necessary. _____

Signature _____

Date _____

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EMERGENCY MAINTENANCE COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Access records management and obtain needed technical documents, procedures, blueprints.
2. Determine the need for additional mechanical support personnel. Contact such personnel as necessary.

_____ / _____

_____ / _____

Signature _____

Date _____

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HAZARDS CONTROL COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Determine areas that may pose a hazard to personnel and inform the Emergency Coordinator, OSC Coordinator of the areas. /
2. Assist the Radiological Protection Coordinator with ALARA efforts. /
3. Direct the formation of Search and Rescue Teams as required. /

Signature _____

Date _____

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-11</p>	<p>APPENDIX M Page 1 of 1</p>
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CHEMISTRY COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Assist the Radiological Protection Coordinator, as necessary, in the set-up of dose assessment materials. /
2. Contact the onshift Chemistry Technician (via station telephone) and obtain pertinent plant chemistry data. /
3. Determine the need for additional chemistry support personnel. /
4. Confer with the Technical Engineering Coordinator to determine needs concerning plant chemistry data for assessment of core conditions and release potentials. /

Signature _____

Date _____

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REACTOR ANALYST CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|---------------|
| 1. Assess core parameters in order to determine current core conditions. | _____ / _____ |
| 2. Inform the Technical Engineering Coordinator of recommendations for operation that would result in safer core conditions. | _____ / _____ |
| 3. Access records management and obtain needed technical documents, procedures, systems, diagrams. | _____ / _____ |
| 4. Determine the need for additional reactor support personnel. | _____ / _____ |

Signature _____

Date _____

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COMPUTER SUPPORT COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Access computers (CRACS, SPDS) in accordance with the APS Emergency Response Facility Equipment Manual and determine plant parameters.
2. Provide requested data to the Emergency Coordinator, as the situation warrants.
3. Determine the need for additional computer support personnel.

_____ / _____

_____ / _____

_____ / _____

Signature _____

Date _____

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FIELD TEAM COMMUNICATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Report to the Radiological Protection Coordinator and obtain information on the deployment of Field Monitoring Teams.
2. Ensure Field Team communications equipment is operable.
3. Assist the Radiological Protection Coordinator in the performance of dose assessment calculations as necessary.

/

/

/

Signature _____

Date _____

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TSC READINESS CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Conduct briefing with available TSC personnel. As a minimum, the following items shall be discussed:

a. Adequacy of activation.

_____ / _____

b. Ability of assigned personnel to assume their emergency duty roles.

_____ / _____

c. Operability of equipment (installed as well as portable emergency).

_____ / _____

2. The Maintenance and Operations Manager or alternate shall:

a. Assume the role of Emergency Coordinator.

_____ / _____

b. Declare the TSC fully operational and inform the following onsite emergency response facilities:

(1) STSC (affected unit)

_____ / _____

(2) Each unit's Control Room

_____ / _____

(3) EOF

_____ / _____

(4) APS Site Construction Office

_____ / _____

(5) Bechtel Emergency Control Center

_____ / _____

Emergency Coordinator Signature _____

Date _____

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-11</p>	<p>APPENDIX R Page 1 of 1</p>
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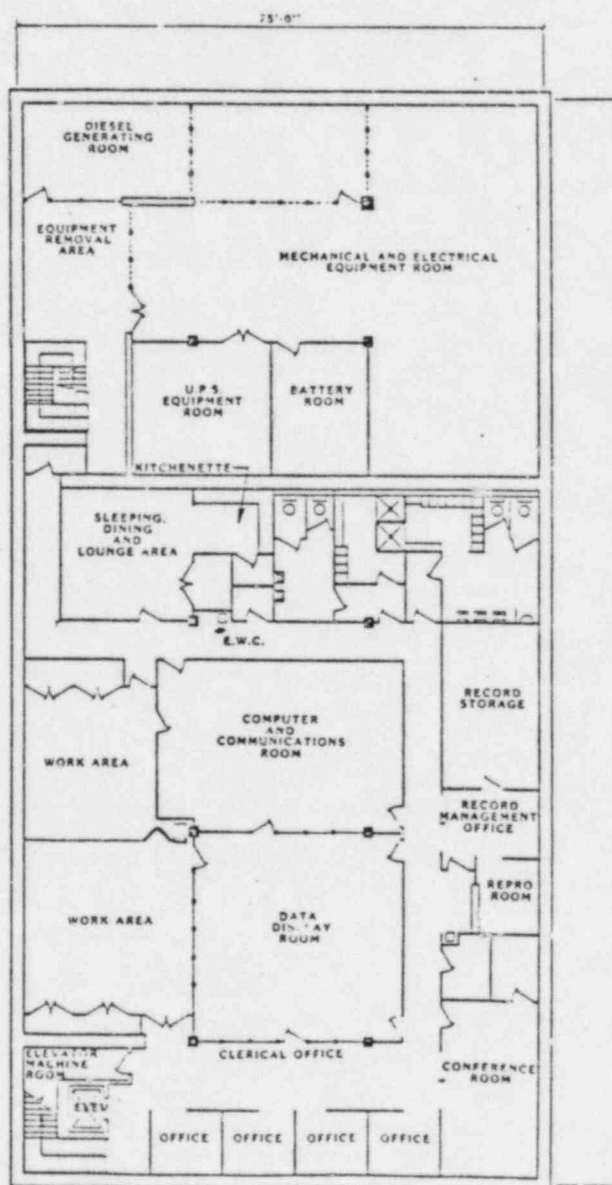


Figure 7.1-1

**FLOORPLAN - TECHNICAL SUPPORT CENTER (TSC)
PALO VERDE NUCLEAR GENERATING STATION (PVNGS)**

Source: Bechtel Power Corporation

NOTE: Details Dependent on Finalization of Plant Design

Revision 1
April, 1981

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APPROVED BY: *[Signature]*

DATE 9/29/82

DATE EFFECTIVE 10-6-82

DN-1666A/0196A

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide instructions for the activation of the Operations Support Centers (OSC's). This procedure addresses the following:

- o Activation of the unit OSC
- o Activation of the alternate OSC (Service Building)

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-04, "ALERT Implementing Actions"
- 2.1.3 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 NUREG 0696, Feb. 1981, "Functional Criteria for Emergency Response Facilities"
- 2.2.3 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Since no habitability criteria are established for the OSC's, evacuation of OSC personnel may be required as dictated by radiological/environmental emergency conditions. If the area alarm monitor and/or the continuous air monitor alarms, an area habitability survey should be conducted. The results of the survey should be transmitted to the Radiological Protection Coordinator who will determine the need to relocate personnel to the Service Building (alternate OSC).

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The OSC is the assembly and staging area for unit/station personnel pooled for emergency response assignments. Designated emergency response personnel will report to the OSC if not specifically assigned to a particular emergency position.

The OSC Coordinator is responsible for:

1. Activating the OSC.
2. Organizing emergency personnel who report to the OSC.
3. Ensuring emergency personnel are available for dispatch.

- 4.1.2 The function of the OSC remains the same for an ALERT, SITE EMERGENCY and GENERAL EMERGENCY classifications. Personnel/equipment augmentation may vary according to specific circumstances.

The functions and personnel responsible for them include:

1. OSC Coordinator - Shift Maintenance Foreman
2. Operating Staff Support - Off-duty Operations Personnel
3. Radiological Surveys (in plant/onsite/offsite) - Radiation Protection Personnel
4. Radiation Protection Teams (Personnel Monitoring/ Dosimetry/Decontamination/Access Control/Reentry Control) - Radiation Protection Personnel
5. Repair Teams (Maintenance/Repair/Damage Control) - Maintenance Staff
6. Chemistry Sampling/Analysis - Chemistry Personnel
7. Search and Rescue Teams/First-Aid Teams - Designated personnel from the above list.
8. Fire Team - Designated personnel from the above list.

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4.1.3 The primary OSC is located in the lunchroom of the affected units' Auxiliary Building. It is located near the units' Radiation Protection Area to provide for a decontamination facility, a fixed radiological counting facility, and access to the station's RE&M system to evaluate, control, and minimize personnel exposure.

4.1.4 The OSC is connected with the inplant and commercial telephone lines for communication with the TSC and Control Room.

4.1.5 The alternate onsite OSC is located in the Service Building. OSC personnel will relocate to this area if the Emergency Coordinator, on the advice of the Radiological Protection Coordinator, determines that this action is necessary.

4.1.6 Emergency radiological monitoring equipment, first aid supplies, decontamination supplies, protective clothing, protective breathing apparatus, field communications equipment, and portable lighting are stored in emergency kits located adjacent to the OSC.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedure EPIP-04, 05, or 06 is being implemented.

4.3 Instructions

4.3.1 Activation of the Primary OSC

4.3.1.1 The Shift Maintenance Foreman shall report to the affected unit OSC and complete the check list in Appendix A.

4.3.1.2 The following personnel shall report to the OSC and follow the directions of the OSC Coordinator:

1. Designated Off-duty Operations Personnel
2. Maintenance Staff
3. Radiation Protection Personnel
4. Chemistry Personnel

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4.3.2 Activation of the Alternate OSC

- 4.3.2.1 In the event the primary OSC becomes uninhabitable (see Appendix B for habitability criteria), the Emergency Coordinator will direct OSC personnel to evacuate/report to the alternate onsite OSC (i.e., Service Building).
- 4.3.2.2 The primary OSC personnel will report/relocate to the alternate OSC and perform steps 4.3.1.1 and 4.3.1.2.
- 4.3.2.3 The OSC Coordinator shall ensure the transport of emergency equipment, including decontamination supplies, necessary to establish the offsite OSC.
- 4.3.2.4 In the event the alternate OSC becomes uninhabitable (see Appendix B for habitability criteria), OSC personnel will report to the TSC.

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OSC COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|------------------------------|
| 1. Activate the continuous air monitor. | <u> / </u> |
| 2. Ensure all communication devices operate. | <u> / </u> |
| 3. If any visitors, contractors, or nonessential personnel report to OSC, dispatch them to the Administration Annex Building First Floor for accountability. | <u> / </u> |
| 4. Conduct personnel accountability per EPIP-20, and report results to Personnel Resources Coordinator. | <u> / </u> |
| 5. Ensure that all emergency equipment and personnel are in a state of readiness. | <u> / </u> |
| 6. Ensure radiation protection support is available to perform surveys, and other assessment functions as required. | <u> / </u> |
| 7. Report OSC readiness to Personnel Resources Coordinator. | <u> / </u> |
| 8. Maintain an Emergency Action Log. | <u> / </u> |

OSC Coordinator
Signature _____

Date _____

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OSC HABITABILITY CRITERIA

The following limits should be considered upper limit habitability criteria.

<u>WHOLE BODY DOSE RATE</u>	<u>AIRBORNE ACTIVITY CONCENTRATION¹</u>	<u>CONSIDER EVACUATION WITHIN</u>
2-10 mrem/hour	1-4 x MPC	48 hours
10-50 mrem/hour	4-20 x MPC	10 hours
50-100 mrem/hour	20-40 x MPC	5 hours
100-500 mrem/hour	40-200 x MPC	1 hour
500 mrem/hour	200 x MPC	Immediately

- ¹ Where MPC is the maximum permissible concentration for areas as defined in Column 1, Table I, Appendix B to 10 CFR 20. This calculation will allow 200 MPC hours which conservatively limits internal exposure. This criteria is based on personnel not wearing respiratory equipment.

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PVNGS SM 8-9A

APPROVED BY:

[Signature]

DATE

10/5/82

DATE EFFECTIVE

10-11-82

DN-1765A/0196A

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1.0 OBJECTIVE

1.1 The objective of this procedure is to provide instructions for the activation of the Emergency Operations Facility (EOF). This procedure addresses the following:

- Complete activation of the Emergency Operations Facility by assigned personnel as they arrive at the EOF.
- Functions of the EOF as an emergency center.
- Coordination between the EOF and other divisions of the emergency organization.
- EOF staffing requirements.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-04, "ALERT Implementing Action"
- 2.1.3 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"
- 2.1.5 APS Emergency Response Facility Equipment Manual

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 NUREG 0696, Feb. 1981, "Functional Criteria for Emergency Response Facilities"
- 2.2.3 PVNGS Emergency Plan, Rev. 2

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3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon activation of the EOF, designated personnel shall report directly to the EOF and achieve full functional operation as soon as possible (generally within 90 minutes).

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The EOF is the focal point for coordination of onsite and offsite emergency response activities. Management and technical personnel assigned to the EOF are responsible for protective action recommendations, liaison with offsite governmental organizations and response facilities, and overall management of the PVNGS emergency organization. The EOF is the central location for the receipt and analysis of field monitoring data and the coordination of further offsite monitoring/sampling by APS Field Survey Teams.

4.1.2 During an ALERT, or more severe accident, overall command of APS emergency operations will be exercised by the Emergency Operations Director (Vice President, Electric Operations) at the EOF. He will provide direction and support for inplant emergency response actions to the Emergency Coordinator (Manager, Nuclear Operations), and coordinate APS headquarters support through the CEC. In addition, he will communicate plant status updates and information for media release to the ENC and the CEC.

4.1.3 Functional assignments at the EOF, in addition to the Emergency Operations Director are:

4.1.3.1 Radiological Analysis

Analyze source term, release, and meteorological information to determine anticipated, or actual, impact on areas of concern. Interface with ARRA representatives in recommending protective action(s) for the population-at-risk.

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4.1.3.2 Technical Liaison

Function as a primary interface with NRC/state/county personnel stationed in the EOF to provide updates on the status of the reactor and unit. Assist APS Corporate Relations personnel at the Emergency News Center by participating in media briefings and interpreting technical aspects of the emergency.

4.1.3.3 Administrative and Logistics Support

Provide needed technical documents, communications and analytical equipment, clerical assistance, transportation/housing support and security for EOF.

4.1.3.4 Public Affairs Support

Gather necessary information for subsequent release to the media from the ENC.

4.1.4 The EOF will be activated and manned for an ALERT or more severe incident classification.

4.1.5 The EOF emergency supply storage area contains a supply of calibrated radiological monitoring equipment, dosimetry, protective clothing, protective breathing apparatus, first aid supplies, communications equipment, cameras, and portable lighting. In addition to the foregoing, the EOF is equipped with a sleeping area, lounge, food preparation facilities, and emergency food and drinking water supplies. A backup Emergency News Center, which may be used to communicate information to the media, is located above the EOF.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and procedure EPIP-04, 05, or 06 is being implemented.

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4.3 Instructions

4.3.1 Activation of the EOF

4.3.1.1 The Administration Annex Building Security Officer will request assignment of an additional Security Officer to the Administration Annex Building from the Security Shift Captain. When the additional Security Officer arrives, he shall relieve the Administration Annex Building Security Officer of his security related duties. The relieved Security Officer shall then proceed to the EOF and perform the following:

- a. Break out tables stored in the Emergency Command Center and install them in accordance with Appendix M.
- b. Connect telephones stored in the Emergency Command Center in accordance with the communications layout of Appendix M.
- c. Break out additional office supplies (nameplates, in-out boxes).
- d. Report completion of above to Security Shift Captain.
- e. Lock door to restrict entrance to EOF by stairs #2 (see Appendix N).

4.3.1.2 The following Offsite Emergency Organization personnel shall report to the EOF and complete their designated check lists:

- o Vice President, Electric Operations - Appendix A
- o Radiological Assessment Coordinator - Appendix B
- o Technical Analysis Coordinator - Appendix C
- o EOF Contact - Appendix D
- o Administration and Logistics Coordinator - Appendix E
- o Radiological Assessment Communicator - Appendix F

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- o Government Liaison Engineer - Appendix G
- o TSC Liaison Engineer - Appendix H
- o Logistics Communicator - Appendix I
- o Dosimetry Clerk - Appendix J
- o Security Coordinator - Appendix K

4.3.2 Declaration of EOF Readiness

- 4.3.2.1 Upon completion of EOF personnel check lists, the Emergency Operations Director shall complete the EOF Readiness Check List of Appendix L.
- 4.3.2.2 The Emergency Operations Director will then contact the Emergency Coordinator, the Corporate Emergency Center (if activated) and the Emergency News Center and inform them that the EOF is operational.

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EMERGENCY OPERATIONS DIRECTOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Contact Emergency Coordinator and review:
 - a. The logic used to establish the event classification.
 - b. Status of plant conditions.
 - c. Corrective actions that are being taken.
2. Ensure that the following positions are staffed:
 - a. Radiological Assessment Coordinator
 - b. Technical Analysis Coordinator
 - c. EOF Contact
 - d. Administrative and Logistics Coordinator
3. Notify the TSC and CEC when the EOF is operational and complete the EOF Readiness Check List, Appendix L.
4. Based on presentations from the Radiological Assessment Coordinator, recommend protective actions to state and county agencies.
5. As necessary, communicate plant status updates and radiological release data to NRC/FEMA, state/county, EOC, CEC, and ENC personnel.

EOD Signature _____

Date _____

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RADIOLOGICAL ASSESSMENT COORDINATOR CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Ensure Radiological Assessment Communicator's position is manned.	/
2. Access CRACS to receive current dose projection data.	/
3. Contact the Radiological Protection Coordinator and determine:	
a. Extent and consequences of radiological releases and plant conditions.	/
b. Protective action recommendations made to date.	/
c. Location of onsite and offsite field monitoring teams, if dispatched.	/
4. Ensure that materials needed to perform manual dose assessments are available.	
a. EPIP-14A and 14B	/
b. Isopleths	/
c. Base Map	/
5. Make recommendations to the Emergency Operations Director as to the need for protective actions.	/
6. Ensure Radiological Status Boards are updated as information becomes available.	/
7. Make recommendations to ARRA officials as to where REAT's should be deployed and what to monitor.	/

Radiological Assessment
Coordinator Signature _____

Date _____

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TECHNICAL ANALYSIS COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|------------------------------|
| 1. Obtain plant status from the TSC. | <u> / </u> |
| 2. Provide updates on the status of the reactor and unit to NRC, state, and county personnel as necessary. | <u> / </u> |
| 3. Provide the Emergency Operations Director with technical guidance as to how plant status may impact offsite emergency response actions. | <u> / </u> |
| 4. Verify the technical accuracy and adequacy of all public information releases prior to dissemination to the media. | <u> / </u> |
| 5. Ensure the following positions are staffed: | |
| a. Government Liaison Engineer | <u> / </u> |
| b. TSC Liaison Engineer | <u> / </u> |

Technical Analysis
Coordinator Signature _____

Date _____

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EOF CONTACT CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Establish and maintain communications with the ENC Director at the ENC.
2. Inform the ENC Director of significant changes in plant status for subsequent release to the news media.
3. Prepare preliminary press releases in accordance with EPIP-32.

/

/

EOF Contact
Signature _____

Date _____

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ADMINISTRATIVE AND LOGISTICS COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Ensure the following equipment is operational:

- a. SPDS
- b. CRACS
- c. EOF Computer Terminals (RE&M, SIMS, RMS, CRACS)

/

/

/

2. Ensure support organizations such as Bechtel, CE, INPO are contacted to obtain necessary technical support per EPIP-33.

/

3. Check that facilities available to emergency response personnel are adequate.

/

4. As necessary provide for additional manpower support by contacting organizations per EPIP-33.

/

5. As necessary obtain required:

- a. Technical documents
- b. Communication equipment
- c. Analytical equipment
- d. Transportation support
- e. Housing and food for emergency response personnel

/

/

/

/

/

6. Contact American Nuclear Insurers and inform them of situation.

/

7. Ensure the following positions are staffed:

- a. Logistics Communicator
- b. Dosimetry Clerk
- c. Security Coordinator

/

/

/

Administrative and Logistics
Coordinator Signature _____

Date _____

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RADIOLOGICAL ASSESSMENT COMMUNICATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Establish and maintain communications with TSC Radiological Assessment personnel.
2. Keep the Radiological Assessment Coordinator informed of changes in radiological status.
3. Maintain records of communications concerning radiological assessment.
4. Maintain the Radiological Status Board in the EOF at the direction of the Radiological Assessment Coordinator.

_____ / _____

_____ / _____

_____ / _____

_____ / _____

Radiological Assessment
Communicator Signature _____

Date _____

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GOVERNMENT LIAISON ENGINEER CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Inform the Satellite TSC Communicator that you are on station and assume the responsibility for offsite notifications.
2. Establish and maintain communications with the NRC until relieved by a designated NRC representative.
3. Report the completion of offsite notifications to the Technical Analysis Coordinator.

_____ / _____

_____ / _____

_____ / _____

Government Liaison
Engineer Signature _____

Date _____

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TSC LIAISON ENGINEER CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Monitor the SPDS terminal in the EOF. /
2. Contact the CR and TSC to obtain operational status of the unit. /
3. Maintain communication with Bechtel and CE personnel at the EOF concerning plant status and recommendations for corrective action. /
4. Inform the Technical Analysis Coordinator of proposed recommendations and of significant changes in plant status. /
5. Ensure the Status Board Keeper position is manned and provide status board updates as necessary. /

TSC Liaison

Engineer Signature _____

Date _____

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LOGISTICS COMMUNICATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. With the assistance of the Radiological Assessment Communicator, ensure all EOF communications equipment is operable.
2. Contact support organizations at the direction of the Administrative and Logistics Coordinator per EPIP-33.

/

/

Logistics Communicator
Signature _____

Date _____

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DOSIMETRY CLERK CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Obtain emergency dosimetry from the EOF emergency locker in preparation for its distribution. /
2. As necessary, provide dosimetry and TLD's to EOF personnel, support personnel reporting to site assignment, and site personnel. /
3. Report the need for additional dosimetry to the Administrative and Logistics Coordinator. /

Dosimetry Clerk
Signature _____

Date _____

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SECURITY COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Contact the Security Director at the TSC to determine present site access conditions. /
2. Inform the Security Director of offsite personnel that are required onsite to expedite the badging process. /
3. Keep the Administrative and Logistics Coordinator informed of site security conditions. /

Security Coordinator
Signature _____

Date _____

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EOF READINESS CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Conduct briefing with available EOF personnel. As a minimum, the following items shall be discussed:

_____ / _____

- a. Adequacy of activation.

_____ / _____

- b. Ability of assigned personnel to assume their emergency duty roles.

_____ / _____

- c. Operability of equipment (installed as well as portable emergency).

_____ / _____

2. The Vice President, Electric Operations shall assume the role of Emergency Operations Director, declare the EOF fully operational and inform the Emergency Coordinator and the Chief Executive Officer at the Corporate Emergency Center.

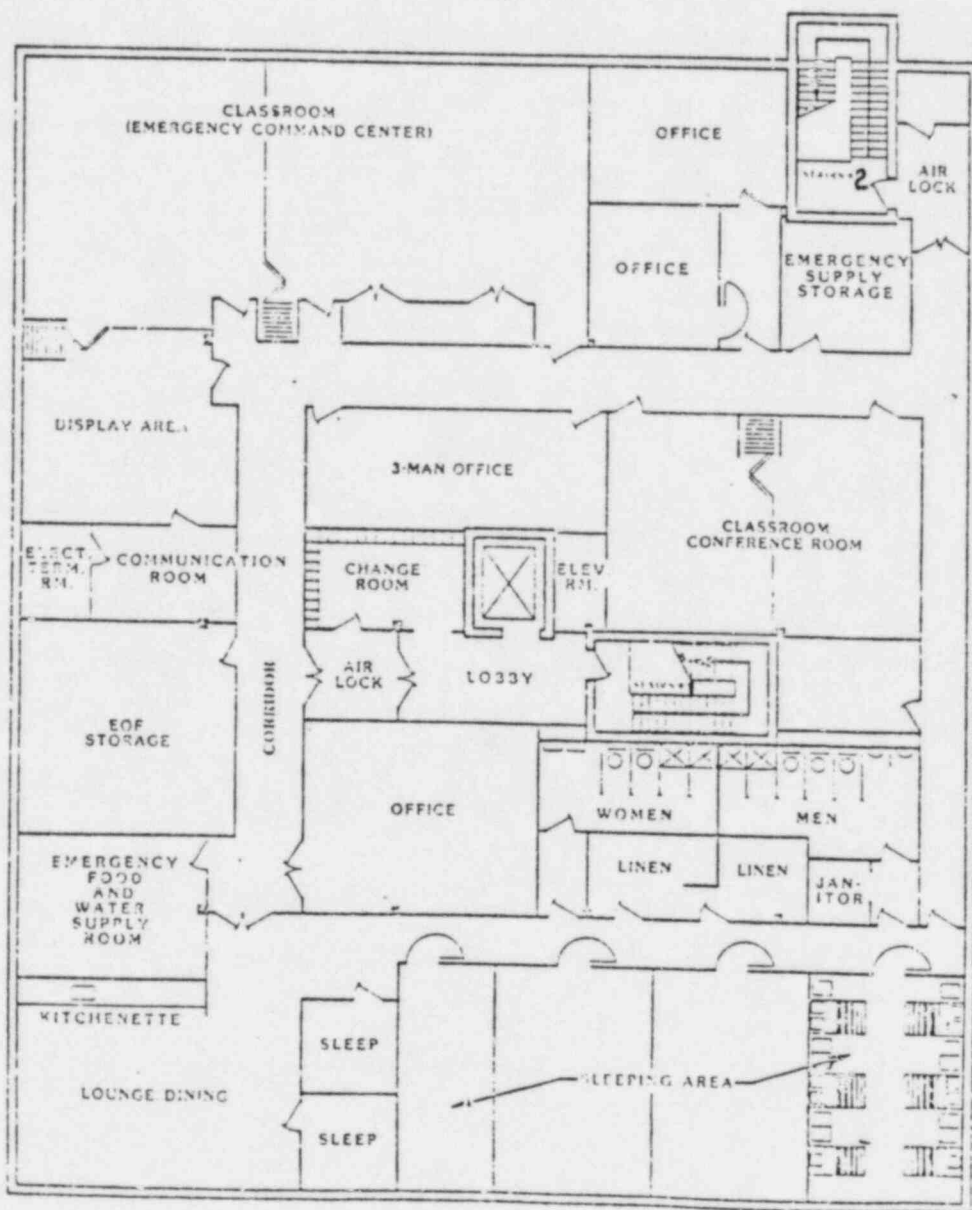
_____ / _____

Emergency Operations
Director Signature _____

Date _____

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EOF FLOORPLAN



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ASSIGNED COPY
PVNGS SM # 8-9A

APPROVED BY: *H. Paul Rodriguez*

DATE 9/6/82

DATE EFFECTIVE 10-6-82

DN-1620A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14A	
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1.0 OBJECTIVE

- 1.1 This procedure describes methodology for the manual determination of airborne radioactive release rates from the turbine building (plant vent and condenser air removal), the fuel building and the main steam lines utilizing effluent monitor readings. If this is not possible, release rates will be inferred indirectly from area radiation monitors or hand-held monitors. Upon determination of release rates, actual or projected plume exposure dose rates, and integrated doses may be calculated in accordance with EPIP-14B, "Dose Assessment".

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-08, "Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY"
- 2.1.2 EPIP-11, "Technical Support Center Activation"
- 2.1.3 EPIP-12, "Operations Support Center Activation"
- 2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2
- 2.2.2 FSAR, Chapter 11, "Process and Effluent Radiological Monitoring and Sampling Systems"
- 2.2.3 NUREG-0737, "Clarification of TMI Action Plan Requirements"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 If an airborne radioactive material release occurs under emergency conditions, the majority of material will be released through the plant vent with the possibility of minor amounts being released through the condenser air removal system, the fuel building exhaust or the main steam lines.

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3.1.1 Activity release rate calculations for the condenser air removal system, fuel building exhaust system, main steam system and the turbine building plant vent should be conducted only if the appropriate monitors indicate elevated activities, and actual releases have occurred or are expected to occur.

3.2 Depending upon release sites, one or more of the following monitors must be properly functioning;

3.2.1 AN-143; Low Range Plant Vent Monitor
Ru-143; Intermediate Range Plant Vent Monitor
Ru-144; High Range Plant Vent Monitor

3.2.2 AN-145; Low Range Fuel Building Exhaust Monitor
Ru-145; Intermediate Range Fuel Building Exhaust Monitor
Ru-146; High Range Fuel Building Exhaust Monitor

3.2.3 AN-141; Low Range Turbine Building Condenser Air Removal Monitor
Ru-141; Intermediate Range Turbine Building Condenser Air Removal Monitor
Ru-142; High Range Turbine Building Condenser Air Removal Monitor

3.2.4 Ru-139A,B; 140A,B; Main Steam Line Monitors

3.2.5 Ru-148 or Ru-149; Containment Area Monitors

3.3 Monitor readings must be obtained from the communication console in the Control Room or the console in the radiation protection office.

3.4 Determination of containment release rates utilizing containment area monitors Ru-148 or Ru-149 or hand-held instruments should be used only if effluent monitors are nonfunctional.

3.4.1 Plant vent releases may be calculated by correlating actual containment exposure rates to projected containment exposure rates and release rates. Projected exposure and release rates were calculated assuming a design basis loss of coolant accident (LOCA) based upon NUREG-0737. The entire release is assumed to be through the plant vent.

3.5 "Effective age" refers to the time after core shutdown. Release rates will vary as a function of "effective age".

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 As delineated in EPIP-01, the Radiation Protection Technician (affected unit) will be responsible for initial offsite dose calculations and/or projections.
- 4.1.2 At an ALERT or more severe level, the Radiological Protection Coordinator (at the TSC) will be responsible for dose calculations and/or projections.

4.2 Prerequisites

- 4.2.1 An Alert or higher level emergency has been classified per the provisions of EPIP-02.
- 4.2.2 An actual or projected release of airborne radioactive material has occurred or will occur.
 - 4.2.2.1 Additionally, release rates shall be determined upon significant changes in monitor readings and at a minimum of every two hours for effective ages 0-10 hours and every 10 hours for effective ages 10-100 hours.

4.3 Instructions

- 4.3.1 Determine release point(s) from effluent monitor reading(s). Proceed to the appropriate section.
 - o Plant Vent Section Utilizing Effluent Monitor, 4.3.2.
 - o Condenser Air Removal System, 4.3.3.
 - o Fuel Building Ventilation Exhaust, 4.3.4.
 - o Main Steam Lines, 4.3.5.
 - o Plant Vent or Containment Utilizing Containment Area Monitors or Hand-Held Instruments, 4.3.6.
- 4.3.2 Determination of activity release rate from the plant vent (Appendix A).

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- 4.3.2.1 Obtain the noble gas air concentration in units of uCi/cc from the gross beta channel (Channel B) of monitor AN-143 (low range), Ru-143 (intermediate range) or Ru-144 (high range). Record this value on Appendix A, Column 2, Section A.
- 4.3.2.2 Obtain the I-131 air concentration, in units of uCi/cc from the I-131 channel of monitor AN-143, Ru-143 or Ru-144. Record this value on Appendix A, Column 2, Section B.
- 4.3.2.3 Multiply the monitor reading (uCi/cc) by the vent flow rate ($6.64 \text{ E}+07$ cc/sec, default value) to obtain the noble gas and/or I-131 release rate in uCi/sec.
- o Convert to Ci/sec utilizing the conversion $1.0\text{E}-06\text{Ci/uCi}$.
- 4.3.2.4 If the I-131 channel is nonfunctional multiply the noble gas release rate by the appropriate conversion factor (Appendices F and G) to obtain the release rates of total radioiodines and I-131 (Section C).

Calculation

$$RR_{NG} = A_{NG} \times \text{Flow Rate cc/sec} \times 1.0\text{E}-06 \text{ Ci/uCi}$$

$$RR_{TI} = RR_{NG} \times C_1$$

$$RR_{I-131} = RR_{TI} \times C_2$$

Where: RR_{NG} = noble gas release rate (Ci/sec)

RR_{TI} = total radioiodine release rate (Ci/sec)

RR_{I-131} = iodine 131 release rate (Ci/sec)

A_{NG} = noble gas air concentration (uCi/cc)
from monitor Ru-143 or Ru-144

Flow Rate = flow rate cc/sec; plant vent flow rate =
 $6.64\text{E}+07$ cc/sec (default value) or
(operating vents \times flow rates)

A_{NG} = noble gas activity (uCi/cc)

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1.0E-06

Ci/uCi = conversion from uCi to Ci

C₁ = ratio of total iodine/noble gas
release rates (Appendix F)

C₂ = ratio of I-131/total iodine
release rates (Appendix G)

4.3.3 Determination of activity release rate from the condenser air removal system (Appendix B).

4.3.3.1 Obtain the noble gas air concentration A(NG), in units
of uCi/cc from the gross B channel (Channel B) of
monitor AN-141 (low range), Ru-141 (intermediate
range) or Ru-142 (high range). Record this value on
Appendix B, Column 2, Section A.

4.3.3.2 Obtain the I-131 air concentration in units of uCi/cc
from the I-131 channel of monitor AN-141, Ru-141 or
Ru-142. Record this value on Appendix B, Column 2,
Section B.

4.3.3.3 Multiply the monitor reading (uCi/cc) by the condenser
flow rate (1.39E + 06 cc/sec, default value) to obtain
the noble gas and/or I-131 release rate (uCi/sec).

o Convert to Ci/sec utilizing the conversion 1.0E-06
Ci/uCi.

4.3.3.4 If the I-131 channel is nonfunctional multiply the
noble gas release rate by the appropriate conversion
factor (Appendices F and G) to obtain the release
rates of total radioiodines and I-131 (Section C).

Calculation

RR_{NG} = ANG x 1.39E+06 cc/sec x 1.0E-06 Ci/uCi

RR_{TI} = RR_{NG} x C₁

RR_{I-131} = R_{TI} x C₂

(Refer to Section 4.3.2.4 for parameter descriptions).

4.3.4 Determination of activity release rate from the fuel building ventilation exhaust (Appendix C).

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4.3.4.1 Obtain the noble gas air concentration, (Channel B), in units of uCi/cc from the gross B channel of monitor AN-145, Ru-145 or Ru-146. Record this value on Appendix C, Column 2, Section A.

4.3.4.2 Obtain the I-131 air concentration in units of uCi/cc from the I-131 channel of monitor AN-145, Ru-145 or Ru-146. Record this value on Appendix C, Column 2, Section B.

4.3.4.3 Multiply the monitor reading (uCi/cc) by the ventilation exhaust rate ($2.17E + 07$ cc/sec for monitor Ru-145 or $2.83E + 06$ cc/sec for monitor Ru-146) to obtain the noble gas and/or I-131 release rate (uCi/sec).

o Convert to Ci/sec utilizing the conversion $1.0E-06$ Ci/uci.

4.3.4.4 If the I-131 channel is nonfunctional multiply the noble gas release rate by the appropriate conversion factor (Appendices F and G) to obtain the release rates of total radioiodines and I-131 (Section C).

Calculation

$$RR_{NG} = A(NG) \times 1.39E+06 \text{ cc/sec} \times 1.0E-06 \text{ Ci/uci}$$

$$RR_{TI} = RR_{NG} \times C_1$$

$$RR_{I-131} = RR_{TI} \times C_2$$

(Refer to section 4.3.2.4 for parameter descriptions)

4.3.5 Determination of Activity Release Rate from the Main Steam Lines (Appendix D).

4.3.5.1 Obtain the exposure rate (R/hr) from the main steam line monitor(s) Ru-139A,B or Ru-140A,B.

4.3.5.2 Multiple this number (R/hr) by the appropriate correction factor below. Record on Appendix D, Column 2.

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<u>Effective Age (hr)</u>	<u>Correction Factor</u>
0 - 0.08	6.2
0.08 - 0.5	6.6
0.5 - 1.0	6.7
1.0 - 8.0	6.9
8.0 - 24.0	8.4
24.0 - 96.0	8.4
96.0 - 192.0	22.0
192 - 720	21.0
720 - 00	14

4.3.5.3 Complete calculations in Appendix D.

4.3.6 Determination of activity release rate from the plant vent utilizing containment area monitors Ru-148 or Ru-149 or hand-held instruments (Appendix E).

4.3.6.1 This method should be utilized only if effluent monitors are nonfunctional.

4.3.6.2 Obtain the actual exposure rate, $E(\text{act})$ from the high range area monitor Ru-148 and/or Ru-149 in R/hr or the sum of both divided by two for an average over the containment. Record this value on Appendix E, Column 2. If these monitors are nonfunctional and radiological conditions allow, as determined by dose rate measurement at outer containment door, obtain a contact dose rate measurement (R/hr) with a hand-held beta/gamma (shield closed) instrument at the inner containment door pyrex viewing window. Multiply by the appropriate correction factor below. Record on Appendix E, Column 2.

<u>Effective Age (hr)</u>	<u>Correction Factor</u>
0 - 0.08	1.40
0.08 - 0.5	1.42
0.5 - 1.0	1.43
1.0 - 8.0	1.53
8.0 - 24.0	1.57
24.0 - 96.0	1.79
96.0 - 192.0	3.4
192 - 720	1.6

4.3.6.3 Determine the projected containment exposure rate (LOCA), $E(\text{pro})$ as a function of "effective age" from Appendix H. Record this value on Appendix E, Column 3.

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4.3.6.4 Determine the projected noble gas release rate (LOCA), R_{NGpro} from Appendix I. Record this value on Appendix E, Column 4.

4.3.6.5 Calculate, release rates as follows:

$$RR_{NG ACT} = E(act) - E(pro) \times R_{NGpro}$$

$$RR_{TI} = RR_{NG ACT} \times C_1$$

$$RR_{I-131} = RR_{TI} \times C_2$$

Where: $RR_{NG ACT}$ = noble gas release rate (Ci/sec)

RR_{TI} = total radioiodine release rate (Ci/sec)

RR_{I-131} = I-131 release rate (Ci/sec)

E_{ACT} = actual high range monitor reading from Ru-148 and/or Ru-149 in R/hr or corrected hand-held instrument reading

$E(pro)$ = projected containment exposure rate (LOCA) at "effective age" from Appendix H

$R_{NG pro}$ = projected Noble Gas release rate (LOCA) at "effective age" j from Appendix I

C_1 = ratio of total iodines/noble gas release rates (Appendix F)

C_2 = ratio of I-131/total iodine release rates (Appendix G)

RELEASE RATE DETERMINATION FROM THE TURBINE BUILDING, PLANT VENT
Monitors AN-143, Ru-143 or Ru-144

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Plant Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)
Section A				
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=

NOTE: If I-131 monitor is inoperable, complete Section C only, otherwise complete only Sections A and B.

Effective Age (hr)	I-131 Air Conc (uCi/cc)	Plant Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	I-131 Release Rate (Ci/sec)
Section B				
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Plant Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)	Tot I/NG App F	Tot Iodine Release Rate (Ci/sec)	I-131/Tot I App G	I-131 Release Rate (Ci/sec)
Section C								
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=

*6.64E+7 = default value

Preparer _____ (signature)
Reviewer _____ (signature)
Date _____ Time _____

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RELEASE RATE DETERMINATION FROM THE CONDENSER AIR REMOVAL SYSTEM
Monitors AN-141, Ru-141 or Ru-142

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Condenser Vacuum Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)
Section A				
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=

NOTE: If I-131 monitor is inoperable, complete Section C only, otherwise complete only Sections A and B.

Effective Age (hr)	I-131 Air Conc (uCi/cc)	Condenser Vacuum Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	I-131 Release Rate (Ci/sec)
Section B				
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=
		x	1.0E-6	=

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Condenser Vacuum Vent Flow Rate (cc/sec)*	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)	Tot I/NG App F	Tot I Release Rate (Ci/sec)	I-131/Tot I App G	I-131 Release Rate (Ci/sec)
Section C								
		x	1.0E-6	=	x	=	x	=
		x	1.0E-6	=	x	=	x	=
		x	1.0E-6	=	x	=	x	=
		x	1.0E-6	=	x	=	x	=
		x	1.0E-6	=	x	=	x	=
		x	1.0E-6	=	x	=	x	=

*1.39E+6 cc/sec = default value

Preparer _____ (signature)
Reviewer _____ (signature)
Date _____ Time _____

**PVNGS EMERGENCY PLAN
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RELEASE RATE DETERMINATION FROM THE FUEL BUILDING VENTILATION EXHAUST
Monitors AN-145, Ru-145 or Ru-146

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Plant Vent Flow Rate * (cc/sec)	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)
Section A				
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=

NOTE: If I-131 monitor is inoperable, complete Section C only, otherwise complete only Sections A and B.

Effective Age (hr)	I-131 Air Conc (uCi/cc)	Plant Vent Flow Rate * (cc/sec)	Conversion Factor (uCi to Ci)	I-131 Release Rate (Ci/sec)
Section B				
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=
		x	x 1.0E-6	=

Effective Age (hr)	Noble Gas Air Conc (uCi/cc)	Plant Vent Flow Rate * (cc/sec)	Conversion Factor (uCi to Ci)	Noble Gas Release Rate (Ci/sec)	Tot I/NG App F	Tot I Release Rate (Ci/sec)	I-131/Tot I App G	I-131 Release Rate (Ci/sec)
Section C								
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=
		x	x 1.0E-6	=	x	=	x	=

*Monitor Ru-145 ventilation exhaust = $2.17E + 7$ (cc/sec)
Monitor Ru-146 ventilation exhaust = $2.87E + 6$ (cc/sec)

Preparer _____ (signature)
Reviewer _____ (signature)
Date _____ Time _____

PVNGS EMERGENCY PLAN
IMPLEMENTING PROCEDURE

RELEASE RATE DETERMINATION

PROCEDURE NO.
EPIP-14A
REVISION
0

APPENDIX C
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<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-14A</p>	<p>APPENDIX D Page 1 of 1</p>
<p align="center">RELEASE RATE DETERMINATION</p>	<p>REVISION 0</p>	<p>Page 14 of 19</p>

EPIP-14A

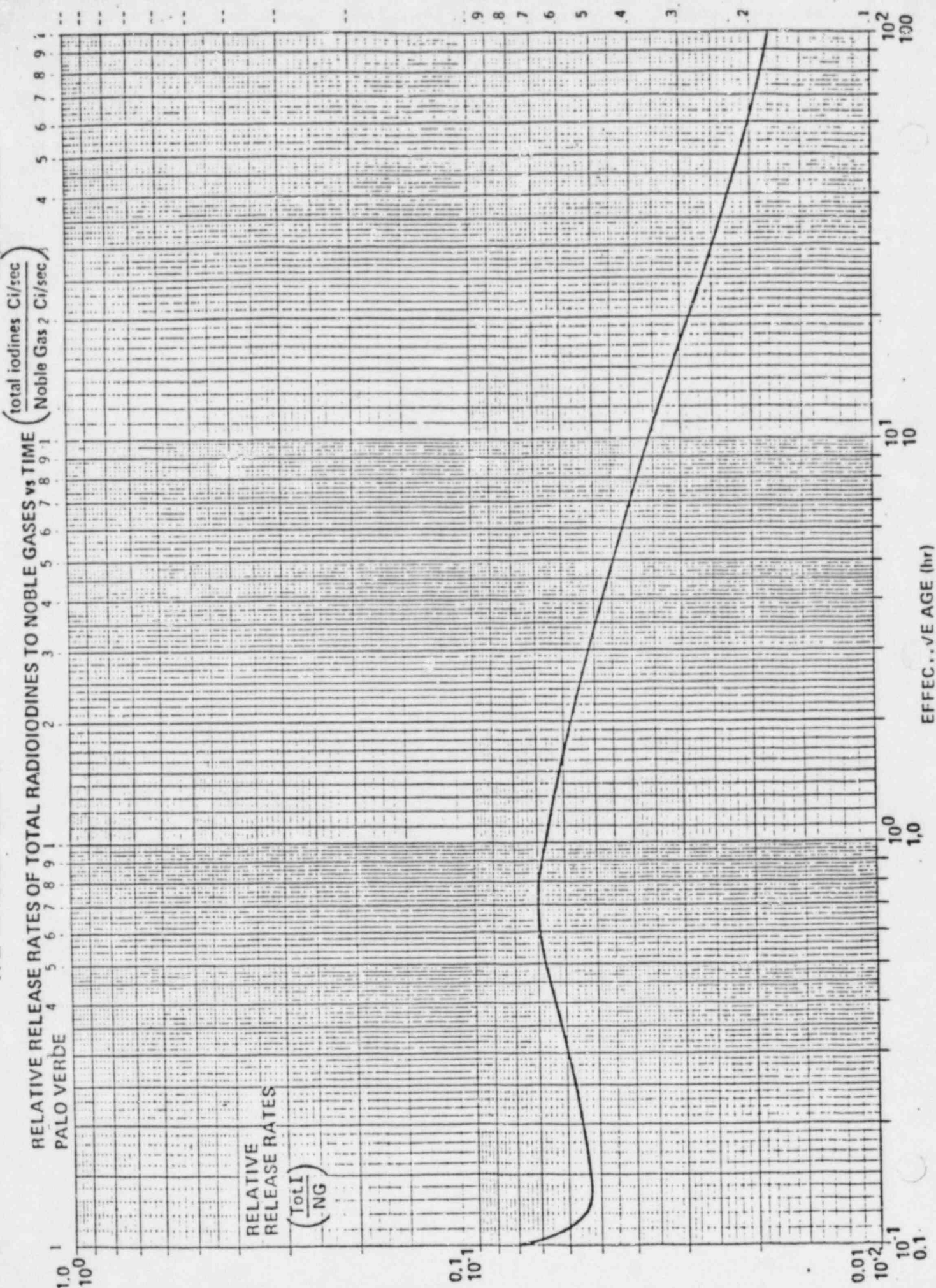
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REVISION

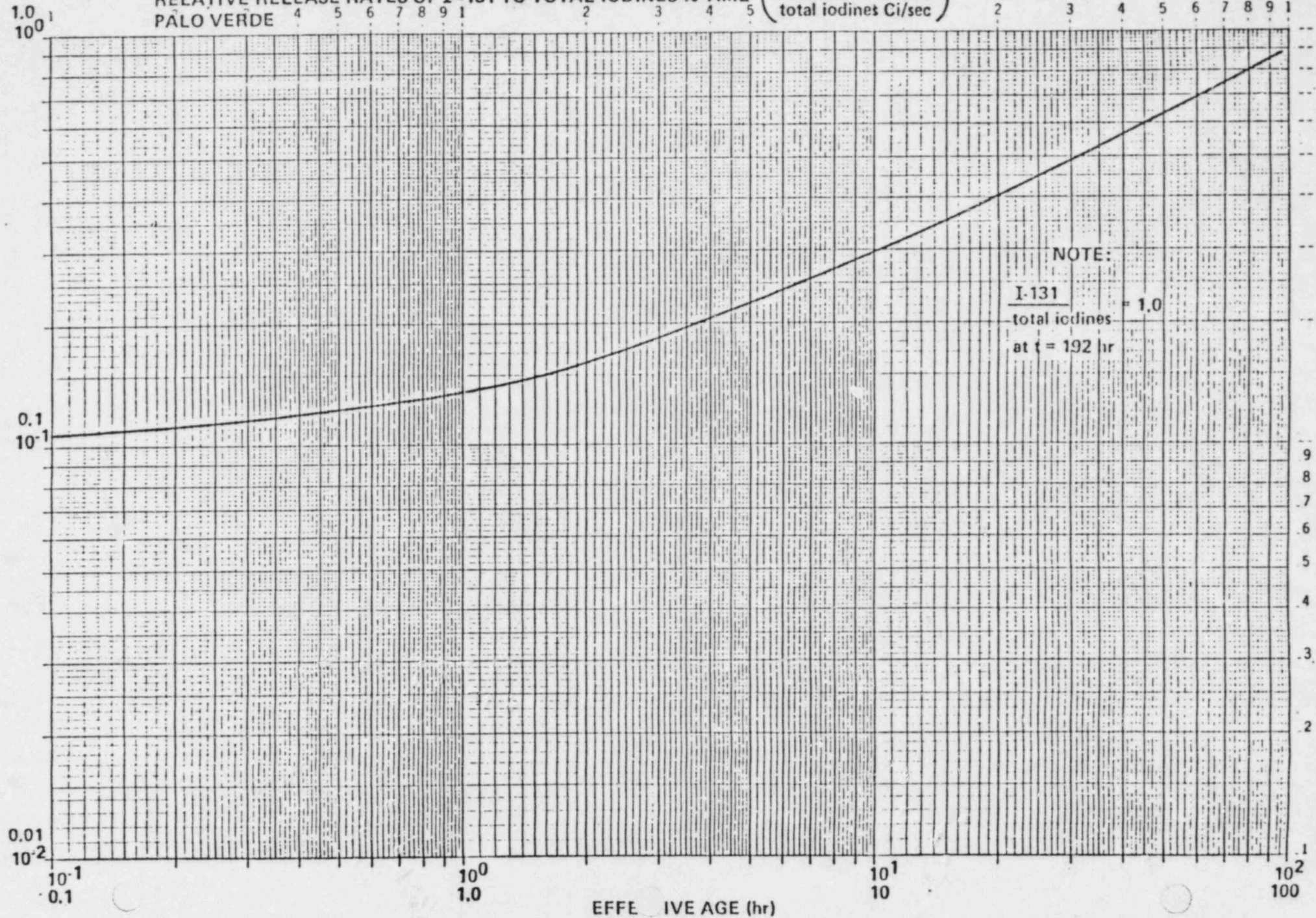
0

Effective Age (hr)	Corrected Monitor Reading (R/hr)	Conversion Factor uCi/cc/R/hr	Flow Rate (cc/sec)	Noble Gas Release Rate (Ci/sec)	Tot I/NG App F	Tot I Release Rate (Ci/sec)	I-131/Tot I App G	I-131 Release Rate (Ci/Sec)
		X	X	=	X	=	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
		X	X	=	X	X4	X	
						X4		
		X	X	=	X			

Date _____ Time _____

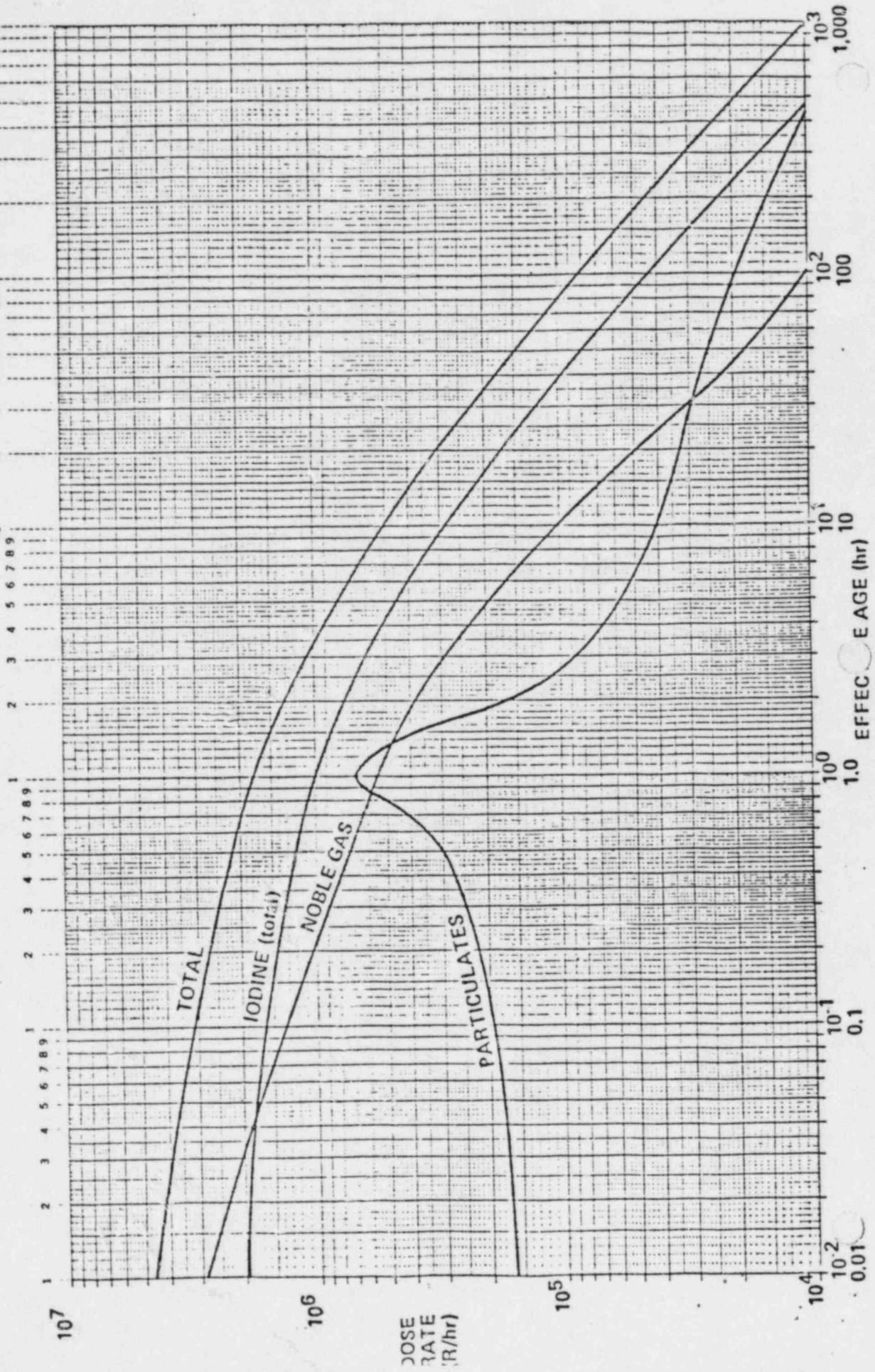


RELATIVE RELEASE RATES OF I-131 TO TOTAL IODINES vs TIME $\left(\frac{\text{I-131 Ci/sec}}{\text{total iodines Ci/sec}} \right)$
PALO VERDE



K-E LOGARITHMIC 3 x 5 CYCLES
HEUFFEL & ESSER CO. MADE IN U.S.A.

CONTAINMENT DOSE RATES (R/hr) vs TIME (hr) AT HIGH-RANGE AREA MONITOR,
PALO VERDE NUCLEAR GENERATING STATION

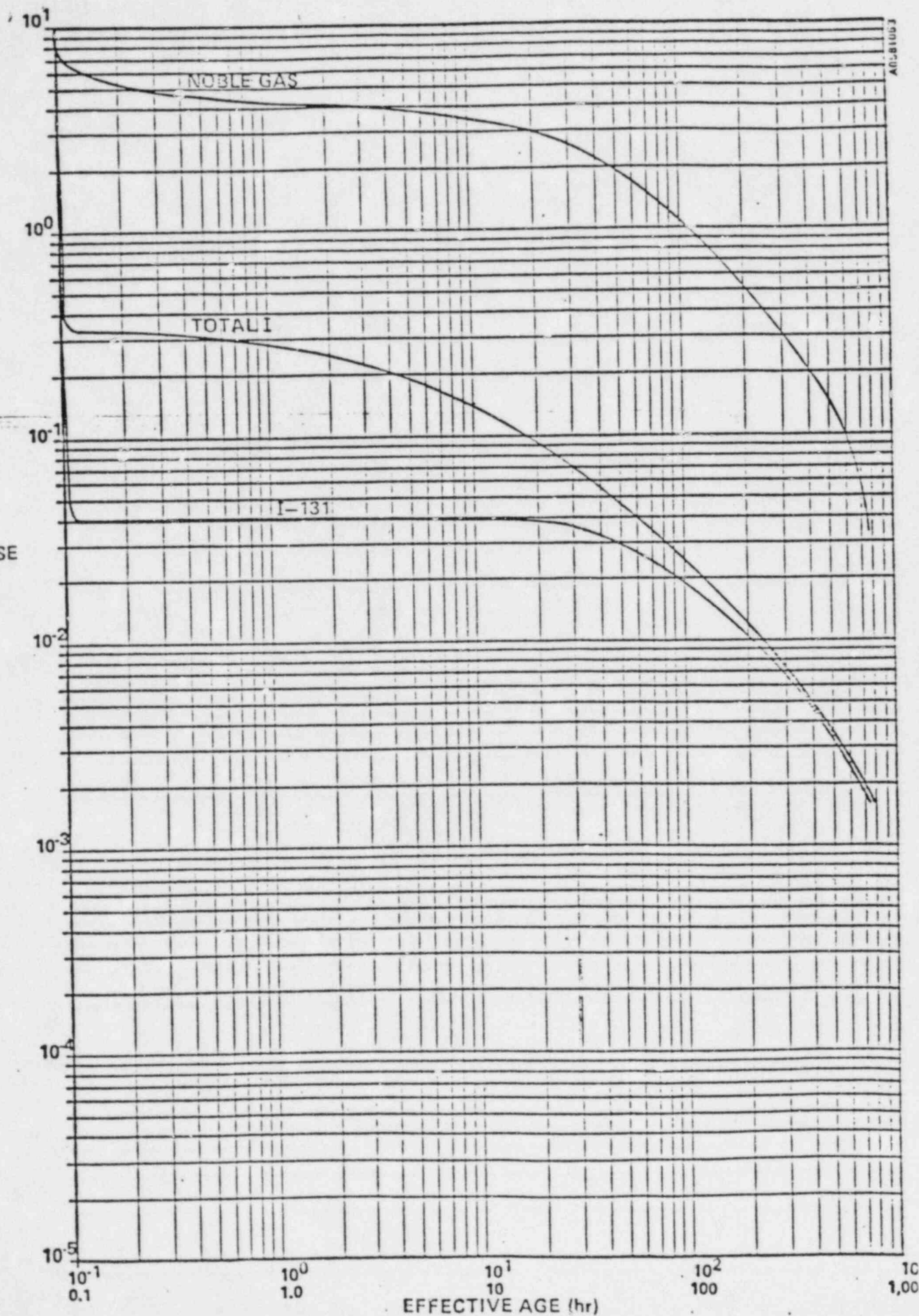


APPENDIX CONTAINMENT NOBLE GAS, TOTAL IODINES, AND I-131 RELEASE RATES
(Ci/sec) AS A FUNCTION OF EFFECTIVE AGE (hr), PVNGS

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EPIP-14A
Rev. 0

RELEASE RATE
(Ci/sec)



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ASSIGNED COPY
PVNGS SM 8-9A

APPROVED BY: *R. B. Bynum* DATE 12/15/82

DATE EFFECTIVE 12-23-82

DN-1614A/0180A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14B	
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1.0 OBJECTIVE

This procedure provides instructions and calculations necessary to determine actual or projected offsite whole body gamma and thyroid inhalation dose commitments based upon actual meteorological data, and noble gas and I-131 release rates (Ci/sec). Actual or projected dose calculations provide a basis for decision making concerning recommendations of appropriate protective actions to county or state authorities.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-08, "Notification Process, ALERT, SITE EMERGENCY, GENERAL EMERGENCY"
- 2.1.2 EPIP-11, "Technical Support Center Activation"
- 2.1.3 EPIP-12, "Operational Support Center Activation"
- 2.1.4 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.5 EPIP-14A, "Release Rate Determination"
- 2.1.6 EPIP-15, "Protective Action Guides"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2
- 2.2.2 NRC Reg Guide 1.145, August 1979; "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants"
- 2.2.3 NRC Reg Guide 1.111, July 1, 1977, Rev 1; "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluent in Routine Releases from Light-Water-Cooled Reactors"
- 2.2.4 Introduction to Nuclear Engineering, John R. LaMarsh, Addison Wesley Publishing Company, December 1977
- 2.2.5 Health Physics Journal, November 1981, Volume 41 No. 5, page 759

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2.2.6 NRC Reg Guide 1.109 "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I"

2.2.7 EPA "Manual of Protective Action Guides and Protective Actions for Nuclear Accidents" Appendix D, May 1980

2.2.8 PVNGS FSAR Section 2.0 Meteorology "Terrain Adjustment Factors Site Boundary X/Q Values"

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Release rate determinations must be conducted in accordance with EPIP-14A, Release Rate Determination.

3.2 Actual dose rates and integrated doses will vary as a function of:

- o the duration of the release;
- o the release rates (dependent upon effective age);
- o the isotopic mixture of the release (dependent upon effective age);
- o existing meteorological conditions.

3.3 The accuracy of atmospheric dispersion calculations will be between a factor of 2 and a factor of 10. Therefore, the accuracy of dose calculations will be between a factor of 2 and 10.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 As delineated in EPIP-01, the Radiation Protection Technician (affected unit) will be responsible for initial offsite dose calculations and/or projections.

4.1.2 At an ALERT or more severe level, the Radiological Protection Coordinator (at the TSC) will be responsible for dose calculations and/or projections.

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4.2 Prerequisites

- 4.2.1 An ALERT or more severe level emergency has been classified per the provisions of EPIP-02.
- 4.2.2 An actual or projected release of airborne radioactive material has occurred or will occur.

4.3 Instructions

- 4.3.1 Calculation of "plume arrival time" and "effective age" of noble gases at the receptor site (Appendix E).

- 4.3.1.1 Calculate "transit time" from the release point to the receptor location as follows:

- a. Determine downwind distance (in miles) to the receptor site and record in column 2 of Appendix E worksheet.
- b. Obtain the 35 ft. level windspeed (mph) from the meteorological tower computer printout and record the value in column 3 of the Appendix E worksheet.
- c. Divide the downwind distance by the windspeed (as indicated on the Appendix E worksheet) and record the resulting "transit time" in column 4 of the Appendix F worksheet.

- 4.3.1.2 Calculate the "effective age at the receptor site as follows:

- a. Record the "effective age at release" (hr) in column 5 of the Appendix E worksheet. The "effective age at release" is the number of hours after core shutdown that the release began.
- b. Add the "transit time" (hr) in column 4 and the "effective age at release" (hr) in column 5 and record the resulting "effective age at receptor site" (hr) in column 6.

- 4.3.1.3 Add "transit time" (hr) to time at which the release began to get "plume arrival time" and record in column 1 of Appendix B.

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4.3.1.4 Record "effective age at receptor site" in column 2 of Appendix B.

4.3.2 Obtain release rates (Ci/sec) of noble gases and I-131 from EPIP-14A and record in column 3 of Appendix B.

4.3.3 Determine the atmospheric stability category.

4.3.3.1 Obtain the delta F° (200ft-35ft) from the meteorological tower computer printout supplied by ERFDADS. Stability categories are defined as follows:

<u>Stability Category</u>	<u>Delta F° (200ft-35ft)</u>
A	-1.72
B	-1.72 to -1.54
C	-1.54 to -1.36
D	-1.36 to -0.45
E	-0.45 to 1.34
F	1.34 to 3.62
G	3.62

NOTE

For alternate stability class determinations, use Appendix F.

4.3.4 Determine the X/Q values for key receptor sites (Appendix A).

4.3.4.1 From the appropriate stability category in Appendix G, obtain Xu/Q values for site boundary; 2, 5 and 10 mile plume centerline locations and record in Appendix A, column 2. Only one sheet (Appendix A) should be used for a given date and time.

4.3.4.2 Obtain the wind speed (mph) at 35ft from the meteorological computer printout and record in Appendix A.

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4.3.4.3 Complete calculations on Appendix A and record the resultant X/Q value on Appendix B, Sections A and B.

4.3.4.4 If necessary, \bar{X}_u/Q values for specific receptor sites can be obtained from the overlay and recorded on Appendix A.

1. Select the appropriate overlay that corresponds to the determined stability category and match the overlay with the release point on the map.
2. Rotate the overlay until the plume centerline is oriented in the direction of the compass heading.
3. Identify key receptor locations in the path of the dispersing plume and record on Appendix A, column 1.
4. \bar{X}_u/Q values on the overlay are shown as isopleth lines printed directly upon the overlay. Each isopleth line is labeled with a capital letter to indicate its relative strength. The numerical value corresponding to the letter is shown in the far, lower right corner of the overlay. Plume centerline values are marked by plus marks (+) directly along the centerline. Each plus mark corresponds to the downwind distance adjacent to the (+) mark. The \bar{X}_u/Q associated with each centerline distance is indicated in the lower right corner of the overlay, directly to the left of the \bar{X}_u/Q value associated with the isopleth lines (capital letter values). Utilizing these values, it is possible to interpolate \bar{X}_u/Q values for any area bounded by the outermost isopleth of each overlay.

Record the appropriate \bar{X}_u/Q for each specific receptor site on Appendix A, column 2.

5. Obtain the wind speed (mph) at 35ft FROM which the wind blows from the meteorological computer printout (angular degrees from due north) and record on Appendix A, column 3.
6. Complete calculations and record X/Q values for the appropriate receptor location on Appendix B, column 4.

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- 4.3.5 Calculate the Whole Body Gamma Dose Commitment from noble gases for each key receptor site, Appendix B, Section A. Only one receptor site should be used for calculation sheet (Appendix B).
 - 4.3.5.1 Obtain the average gamma decay energy (MeV/dis) utilizing the effective age of the noble gas at the receptor site from Appendix C and record on Appendix B, Section A.
 - 4.3.5.2 Complete calculations to determine the dose rate.
 - 4.3.5.3 Determine the exposure time based upon duration of the release and record in column B.
 - 4.3.5.4 Complete calculations in Section A to determine the dose.
- 4.3.6 Calculate the thyroid inhalation dose commitment from all radioiodines, Appendix B, Section B.
 - 4.3.6.1 Complete calculations in Section B to I-131 Int. Dose Rate, column 6.
 - 4.3.6.2 Obtain the ratio of integrated thyroid dose from all iodines to integrated dose from I-131 as a function of effective age at receptor site from Appendix D and record in column 7.
 - 4.3.6.3 Complete calculations of Section B.
- 4.3.7 Update and refine dose calculations every hour and upon significant (as indicated below) changes in one or more of the following parameters using Appendix B, Sections A and B.
 - o Release Rates (± 20% change)
 - o Duration of the Release (± 20%)
 - o Existing Meteorological Conditions
 - (WD - 25° change Stability - ± 1 category)
 - (WS - ± 20% change)
- 4.3.8 Sum previous exposures using Appendix B, Sections A and B.
- 4.3.9 Compare the dose commitments in Appendix B to the protective action guidelines (EPIP-15) to make offsite protective action recommendations to the State.

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DETERMINATION OF X/Q

Receptor Site Location	\bar{X}_u/Q (Overlay)	Windspeed at 35ft (mph) Met Computer	Factor (m/sec/mph)	X/Q sec/m ³
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____
_____	_____ /	_____	/ 0.447 =	_____

Wind Direction _____ (angular degrees from due north)

Stability Category _____

Preparer _____

Reviewer _____

Date/Time _____ / _____

CALCULATION OF WHOLE BODY AND THYROID DOSE COMMITMENTS

Reactor Shutdown Date/Time _____
 Receptor Location _____

Section A: Integrated External Whole Body Dose (Noble Gases)

Plume Arrival Time	Effective*(1) Age at Receptor Site (hr) App F	Noble Gas Release Rate (Ci/sec)	X/Q (sec/cu.m) Appendix A	Gamma Decay Energy (Mev/dis) App C	Dose Conversion Factor rem-dis-cu.m. Mev-Ci-hr	Dose Rate (rem/hr)	Exposure Time (hr)	Dose (rem)
_____	_____	_____	x _____	x _____	9.5 E + 02	= _____	_____	_____
_____	_____	_____	x _____	x _____	9.5 E + 02	= _____	x _____	= _____
_____	_____	_____	x _____	x _____	9.5 E + 02	= _____	x _____	= _____
_____	_____	_____	x _____	x _____	9.5 E + 02	= _____	x _____	= _____
_____	_____	_____	x _____	x _____	9.5 E + 02	= _____	x _____	= _____

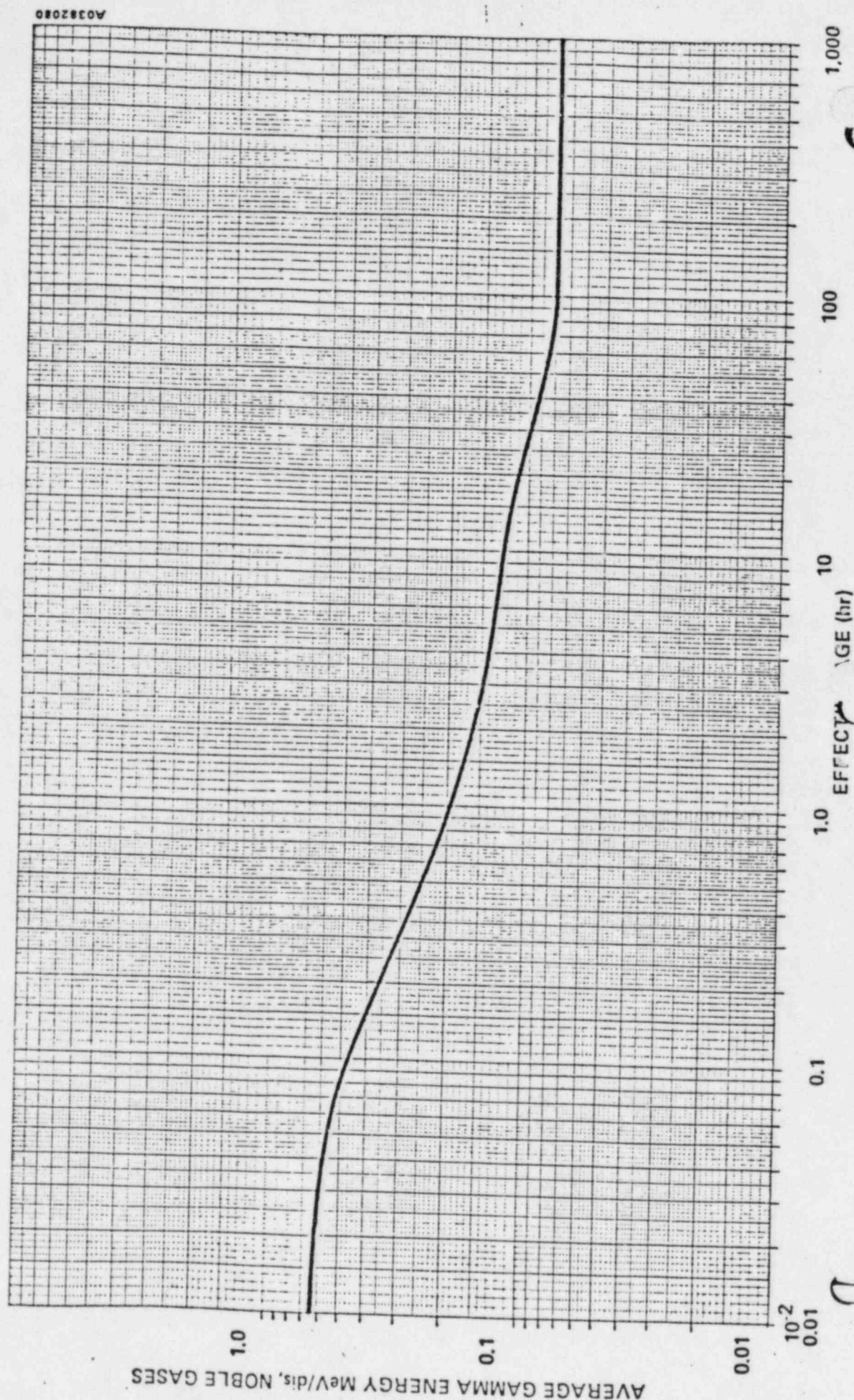
*NOTE (1): From Appendix F

Section B: Thyroid Inhalation Dose Commitment from All Radiodines

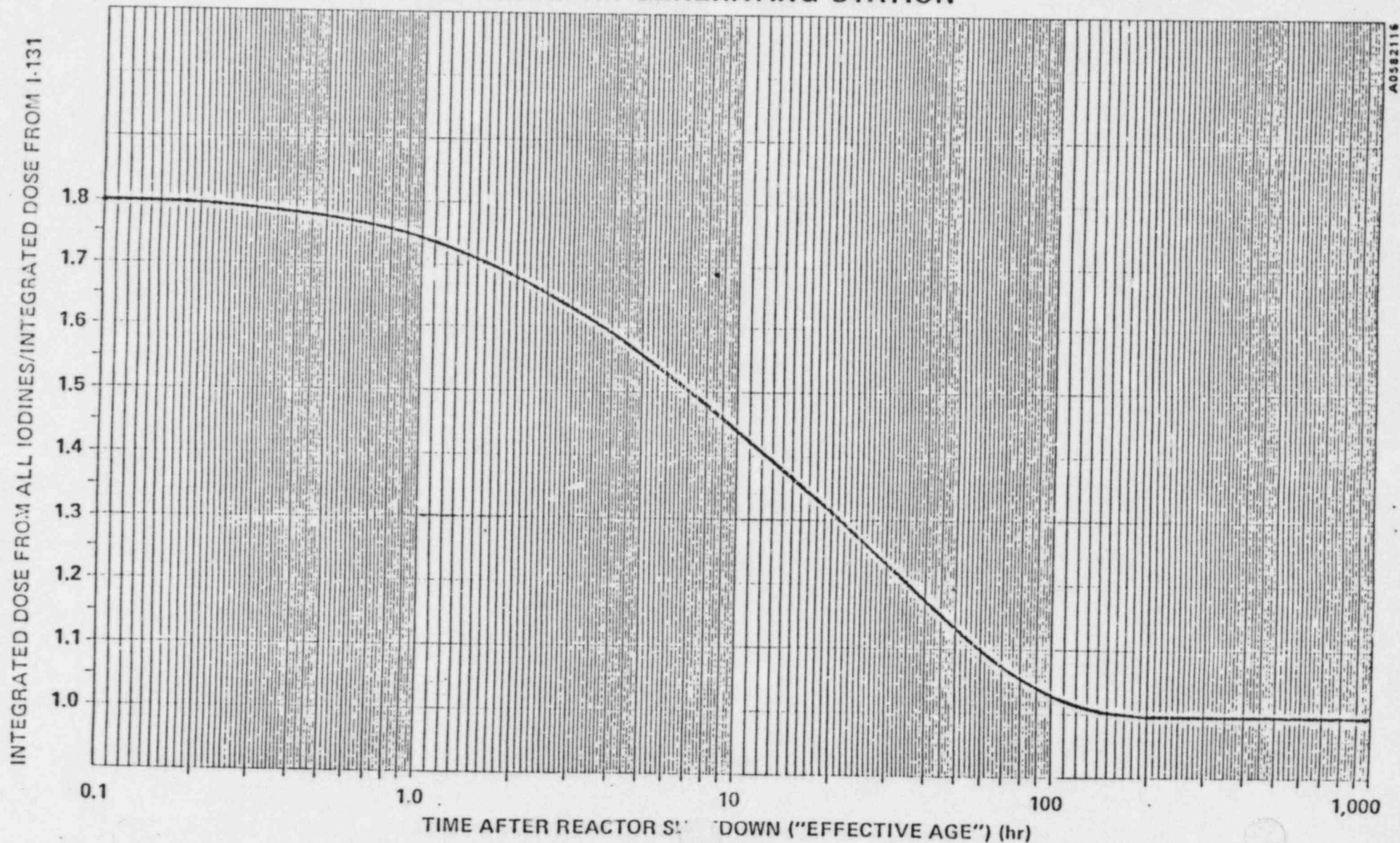
Plume Arrival Time	Effective*(1) Age (hr)	I-131 Release Rate (Ci/sec)	X/Q sec/m(3)	Dose Commitment Conversion Factor I-131*(3) rem-cu.m. hr-Ci	I-131 Int Dose Rate (rem/hr)	Dose Commitment Ratio All Iodines/ I-131 App D	Exposure Time (hr)	Dose Commitment Adult*(2) (rem)	Dose Commitment Child (rem)
_____	_____	_____	x _____	x 1.86E + 06	= _____	_____	_____	_____	_____
_____	_____	_____	x _____	x 1.86E + 06	= _____	x _____	x _____	= _____	x2 = _____
_____	_____	_____	x _____	x 1.86E + 06	= _____	x _____	x _____	= _____	x2 = _____
_____	_____	_____	x _____	x 1.86E + 06	= _____	x _____	x _____	= _____	x2 = _____
_____	_____	_____	x _____	x 1.86E + 06	= _____	x _____	x _____	= _____	x2 = _____

*NOTE (1): From Appendix F

**AVERAGE GAMMA DECAY ENERGY FOR NOBLE GAS MIXTURES,
PALO VERDE NUCLEAR GENERATING STATION**



RATIO OF INTEGRATED THYROID DOSE FROM ALL IODINES TO INTEGRATED
THYROID DOSE FROM I-131 VS "EFFECTIVE AGE" OF MIXTURE,
PALO VERDE NUCLEAR GENERATING STATION



"EFFECTIVE AGE" DETERMINATION OF NOBLE GASES AS A FUNCTION OF TRANSIT TIME AND THE EFFECTIVE AGE AT RELEASE TIME

[illegible]

Name _____

Date _____

Time

(4) Record on Appendix B

(5) Record on Appendix B

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ALTERNATE STABILITY CATEGORY DETERMINATION

Visually observe the windspeed (m/sec) at 35ft. Utilize the following key to determine the atmospheric stability category.

35 Foot Windspeed m/sec)	Day Time Insulation			Thin Overcast or 4/8 Cloudiness	3/8 Cloudiness
	Strong	Moderate	Slight		
2	A	A-B	B		
2-3	A-B	B	C	E	F
3-5	B	B-C	C	D	E
5-6	C	C-D	D	D	D
6	C	D	D	D	D

The neutral class, D, should be assumed for overcast conditions during day or night.

- o Sampling time of ten minutes.
- o Night refers to the period from one hour before sunset to one hour after sunrise.
- o Class D may be assumed for overcast condition during day or night, regardless of windspeed.
- o "Strong" incoming solar radiation; solar altitude greater than 60° with clear skies.
- o "Slight" incoming solar radiation; solar altitude from 15° to 35° with clear skies.

SITE BOUNDARY Xu/Q VALUES

Wind Direction FROM (a)	Distance (mi)	Xu/Q						
		Stability Category						
		A	B	C	D	E	F	G
S (168.75 - 191.25)	0.64	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.4 (E-4)	2.8 (E-4)	4.6 (E-4)
SSW (191.25 - 213.75)	0.66	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.5 (E-5)	2.8 (E-4)	4.6 (E-4)
SW (213.75 - 236.25)	1.37	2.1 (E-7)	3.1 (E-6)	1.4 (E-5)	4.5 (E-5)	8.5 (E-5)	1.7 (E-4)	3.3 (E-4)
WSW (236.75 - 258.75)	1.22	2.1 (E-7)	3.1 (E-6)	1.4 (E-5)	4.5 (E-5)	8.5 (E-5)	1.7 (E-4)	3.3 (E-4)
W (258.75 - 281.75)	1.20	2.1 (E-7)	3.1 (E-6)	1.4 (E-5)	4.5 (E-5)	8.5 (E-5)	1.7 (E-4)	3.3 (E-4)
WNW (281.75 - 303.75)	1.22	2.1 (E-7)	3.1 (E-6)	1.4 (E-5)	4.5 (E-5)	8.5 (E-5)	1.7 (E-4)	3.3 (E-4)
NW (303.75 - 326.25)	1.27	2.1 (E-7)	3.1 (E-6)	1.4 (E-5)	4.5 (E-5)	8.5 (E-5)	1.7 (E-4)	3.3 (E-4)
NNW (326.25 - 348.75)	1.70	6.6 (E-8)	1.4 (E-6)	8.4 (E-6)	2.9 (E-5)	5.7 (E-5)	1.2 (E-4)	2.5 (E-4)
N (348.75 - 11.25)	1.46	6.6 (E-8)	1.4 (E-6)	8.4 (E-6)	2.9 (E-5)	5.7 (E-5)	1.2 (E-4)	2.5 (E-4)
NNE (11.25 - 33.75)	1.00	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.5 (E-5)	2.8 (E-4)	4.6 (E-4)
NE (33.75 - 56.25)	0.66	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.5 (E-5)	2.8 (E-4)	4.6 (E-4)
ENE (56.25 - 78.75)	0.55	1.2 (E-5)	4.3 (E-5)	8.9 (E-5)	2.1 (E-4)	3.3 (E-4)	5.1 (E-4)	1.1 (E-3)
E (78.75 - 101.25)	0.54	1.2 (E-5)	4.3 (E-5)	8.9 (E-5)	2.1 (E-4)	3.3 (E-4)	5.1 (E-4)	1.1 (E-3)
ESE (101.25 - 123.75)	0.55	1.2 (E-5)	4.3 (E-5)	8.9 (E-5)	2.1 (E-4)	3.3 (E-4)	5.1 (E-4)	1.1 (E-3)
SE (123.75 - 146.25)	0.65	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.5 (E-5)	2.8 (E-4)	4.6 (E-4)
SSE (146.25 - 168.75)	0.66	1.1 (E-6)	8.8 (E-6)	2.8 (E-5)	8.1 (E-5)	1.5 (E-5)	2.8 (E-4)	4.6 (E-4)

(a) Based on 22 1/2° sectors.

PLUME CENTERLINE Xu/Q VALUES

Stability Category	Xu/Q Values		
	2 mi	5 mi	10 mi
A	5.5 (E-8)	2.6 (E-8)	1.4 (E-8)
B	7.8 (E-7)	3.6 (E-8)	1.8 (E-8)
C	5.8 (E-6)	1.5 (E-6)	3.9 (E-7)
D	2.1 (E-5)	5.8 (E-6)	2.0 (E-6)
E	4.2 (E-5)	1.3 (E-5)	5.0 (E-6)
F	9.5 (E-5)	3.2 (E-5)	1.4 (E-5)
G	2.0 (E-4)	7.4 (E-5)	3.3 (E-5)

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APPROVED BY:

[Signature]

DATE

9/29/82

DATE EFFECTIVE

10-6-82

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to provide a basis for relating actual or projected plume exposure doses to the Environmental Protection Agencies (EPA) Protective Action Guides (PAG's). With this relationship defined, APS personnel can more effectively recommend appropriate protective actions to county and state agencies.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "PVNGS Emergency Classification"
- 2.1.2 EPIP-14A, "Release Rate Determination"
- 2.1.3 EPIP-14B, "Manual Offsite Dose Projection"
- 2.1.4 EPIP-17, "Offsite and Site Boundary Monitoring"

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents; as revised May, 1980; EPA-520/3-75-001

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 The protective actions determined by this procedure are to be presented to appropriate state/county agencies as recommendations. Only these agencies are authorized to implement the protective actions.
- 3.2 A protection action guide under no circumstances implies an acceptable dose.
- 3.3 PAG's for the general public are given in ranges. The lowest values should be used if there are no major local constraints in providing protection at this level. Local constraints may, however, make the lower values impractical to use, but in no case should the higher value be exceeded in determining a need for protective action.

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3.4 The projected dose and affected offsite areas will depend upon the curies released, release rate, duration of the release, isotopic mixture of the release (varies with effective age) and meteorological conditions.

3.5 At times, selection of protective actions must be considered subjectively as conditions beyond the scope of this procedure exist.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 Dose estimates which population groups may potentially receive, are calculated in accordance with EPIP-14B. This dose estimate is referred to as the projected dose. A protective action is an action taken to avoid or reduce this projected dose when the benefits derived from such action are sufficient to offset any undesirable features of the protective action.

The Protective Action Guide (PAG) is the projected dose to individuals in the population which warrants taking protective action. It is used only in an ex post facto effort to minimize the risk from an event which is occurring or has already occurred.

4.1.2 The authority and responsibility for the decision to notify and recommend protective actions to the appropriate authorities belongs to the Emergency Coordinator until he is relieved of this responsibility by the Emergency Operations Director.

4.1.3 The Radiation Protection Coordinator will be responsible for updating and refining dose assessments for critical receptor site locations and evaluating appropriate protective actions.

4.1.4 The Radiation Protection Coordinator will be responsible for relaying dose assessment and protective action evaluations to the Emergency Coordinator.

4.2 Prerequisites

4.2.1 An ALERT, SITE EMERGENCY, or a GENERAL EMERGENCY has been declared in accordance with EPIP-02.

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4.2.2 Projected whole body and thyroid dose rates and integrated dose for critical receptor site locations have been calculated in accordance with EPIP-14B, and such doses warrant evaluating, and if necessary, recommending protective actions.

4.3 Instructions

4.3.1 Radiological Protection Coordinator/Radiation Protection Monitor

4.3.1.1 Update and refine dose estimates for critical receptor site locations upon significant changes in one or more of the following parameters:

- o Release rates.
- o Duration of the releases.
- o Isotopic mixture of the release (varies as a function of effective age).
- o Meteorological conditions.

4.3.1.2 Should the projected doses indicate that sheltering or evacuation should be considered, determine the effectiveness of these protective actions as described below.

NOTE

PAG's for the general population are contained in Appendix A. Associated thyroid guidance charts and whole body charts are summarized in Appendix B.

- a. Evacuation Effectiveness - The effectiveness of evacuation in limiting radiation dose is a function of the time of exposure if a plume is present. This is dependent upon the time required to evacuate. The evacuation time T(EV) is expressed as:

$$T(EV) = T_D + T_N + T_M + T_T$$

Where:

T_D = Time delay after occurrence of the incident associated with notification of responsible officials, interpretation of data, and the decision to evacuate as a protective action.

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T_N = Time required by officials to notify people to evacuate.

T_M = Time required for people to mobilize and get under way.

T_T = Travel time required to leave the affected areas.

If evacuation is completed before the plume arrives, then evacuation is 100 percent effective. To determine the time of exposure to the plume, it is necessary to calculate the plume arrival time $T(PA)$. The plume arrival time, $T(PA)$ is expressed as:

$$T(PA) = T_B + T_T$$

Where:

T_B = Time projected before release begins.

T_T = Time projected for plume travel for given windspeed and downwind distances from the start of release. To calculate T_T refer to procedure EPIP-14B.

Evaluate constraints against evacuation. Compare the estimated evacuation time $T(EV)$ with the estimated plume arrival time, $T(PA)$. Under the following conditions evaluate the benefits of sheltering vs. the benefits of evacuation.

1. In cases where there is no time to evacuate prior to the arrival of the plume.
2. The projected evacuation time and time before plume arrival are nearly equal.

If evacuation appears to offer a significant reduction in dose (greater than sheltering) recommend evacuation to the appropriate county and/or state officials.

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b. Sheltering Effectiveness

- o If evacuation does not offer significant dose avoidance or if local constraints prevent evacuation recommend that officials warn the affected population to:
 1. Seek shelter.
 2. Close windows.
 3. Turn off ventilation systems.
 4. Seal cracks in doors with wet rags.
- o Control access to the affected area.
- o Evaluate the possibility of evacuation after the plume has passed:
 1. After the plume has passed, evaluate the significance of ground deposition in accordance with EPIP-17.
 - a. Determine if dose rates are sufficient to warrant subsequent evacuation.
 2. Multiply the projected dose by the external shielding factor, Appendix C). Compare the projected dose to the PAG for whole body gamma dose.
- o Evaluate the significance of inhalation dose. (Shielding factors for inhalation doses are presented in Appendix D). Shielding factors are for a sealed, wood-frame house.
 1. Multiply the projected dose by the inhalation shielding factor to determine the reduction in inhalation dose from the plume. Compare the projected dose to the PAG for thyroid dose.
- o Determine the critical organ of concern, the whole body or the thyroid. Compare the PAG for the critical organ to the PAG for that organ.

RECOMMENDED PROTECTIVE ACTIONS TO REDUCE WHOLE BODY AND THYROID DOSE
FROM EXPOSURE TO A GASEOUS PLUME

Projected Dose (rem) to the Population	Recommended Actions(a)	Comments
Whole Body - less than 1.0 Thyroid - less than 5	No planned protective actions (b). Offsite authorities may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Whole Body - 1.0 to 5 Thyroid - 5 to 25	Seek shelter as a minimum. Consider evacuation/unless constraints make it impractical. Monitor environmental radiation levels. Control access to affected areas.	If constraints exist to prevent full-scale evacuation, special consideration should be given for evacuation of children and pregnant women.
Whole body - 5 and above Thyroid - 25 and above	Conduct mandatory evacuation. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. Control access to affected areas.	Sheltering is an alternative if evacuation can not be promptly accomplished.

(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration (e.g., weather, plume arrival time).

(b) At the time of the incident, officials may implement low-impact protective actions in keeping with the principle of maintaining radiation exposures as low as reasonably achievable (ALARA).

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WHOLE BODY GUIDANCE CHART

IF	THEN
Projected dose less than 1 rem	No Action
Shelter dose less than 5 rem.	Shelter*
Shelter dose equal to or greater than 5 rem and evacuation dose equal to or greater than shelter dose.	Shelter*
Shelter dose equal to or greater than 5 rem and evacuation dose less than Shelter dose	Evacuate

NOTE: Considerations and methodologies for assessing protective actions have been discussed. The actual selection of protective actions must be considered subjectively, as many factors beyond the scope of this procedure may exist which, in the judgement of the Emergency Operations Director and/or Emergency Coordinator override the criteria contained in this procedure.

The following guidance Charts summarize protective actions and the conditions dictating each type of action.

THYROID GUIDANCE CHART

IF	THEN
Projected dose is less than 5 rem	No action
Shelter dose is less than 25 rem	Shelter * for children & women of child bearing age.
Shelter dose equal to or greater than 25 rem and evacuation dose equal to or greater than shelter dose.	Shelter*
Shelter dose equal to or greater than 25 rem and evacuation dose equal to or less than shelter dose.	Evacuate

* Shelter is to be with ventilation control. Ventilation control means turning off air-conditioners or fans, closing doors and windows thus preventing access of outside air.

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REDUCTION IN EXTERNAL GAMMA DOSE FROM PASSING CLOUD

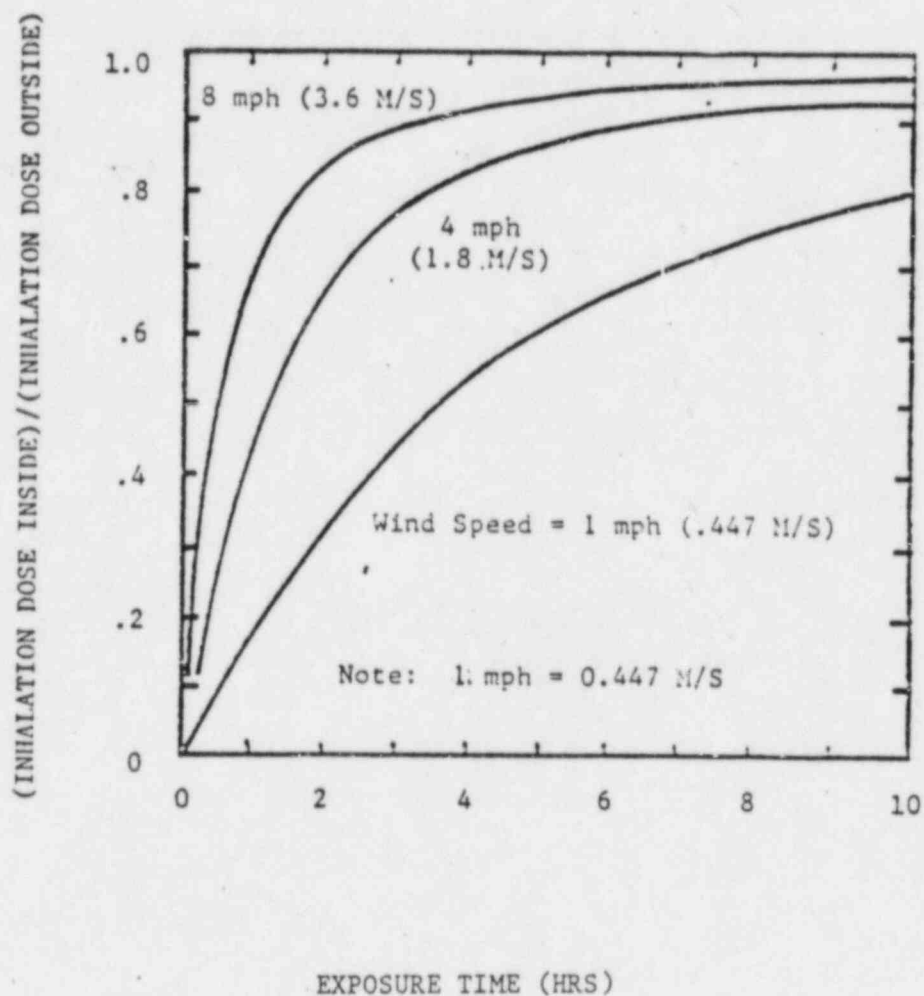
STRUCTURE OR LOCATION	SHIELDING FACTOR ^(a)	
	AVERAGE	RANGE
a. Outside	1.0	--
b. Vehicles	1.0	--
c. Wood frame house (no basement) ^(b)	0.9	--
d. Basement of wood house	0.6	0.1 to 0.7(c)
e. Masonry house (no basement)	0.6	0.4 to 0.7(c)
f. Basement of masonry house	0.4	0.1 to 0.5(c)
g. Large office or industrial building	0.2	0.1 to 0.3(c,d)

NOTES:

- (a) The ratio of the interior dose to the exterior dose
- (b) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.
- (c) This range is mainly due to different wall materials and different geometries.
- (d) The reduction factor depends on where the personnel are located within the building (e.g., the basement or an inside room).

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INHALATION SHIELDING FACTORS FOR A WOOD HOUSE,
SNUG DOORS, CLOSED WINDOWS



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PVNGS SM # 8.9A

APPROVED BY: *Phil Anderson* DATE 9/9/82
DATE EFFECTIVE 10-6-82

DN-1629A/0190A

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1.0 OBJECTIVE

To provide a procedure for emergency onsite radiological monitoring and surveys to be undertaken in the event of a release of radionuclides from PVNGS. Instructions for the implementation of the program, collecting samples, and performing surveys are provided. Onsite emergency monitoring should be performed by PVNGS personnel.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-17, "Offsite Surveys and Sampling"
- 2.1.2 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.3 EPIP-38, "Emergency Equipment and Supplies Inventory"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" USNRC, 11/80
- 2.2.2 NUREG-0737, "Clarification of TMI Action Plan Requirements" USNRC, 11/80
- 2.2.3 75RP-9ZZ48, Airborne Radioactivity Sampling and Measurement
- 2.2.4 75RP-9ZZ17, Radioactive Contamination Survey Procedure

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Emergency radiation exposures in excess of PVNGS administrative limits must be authorized by the Emergency Coordinator in accordance with EPIP-18.
- 3.2 Under the following conditions monitoring personnel should withdraw from the area immediately and relay this information to the Radiological Protection Coordinator.
 - 3.2.1 If the area beta/gamma dose rate is equal to or greater than 10R/hr.

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3.2.2 If airborne activity is suspected at the survey location and the monitoring team is not wearing full protective clothing and respirators. The following conditions may indicate airborne radioactivity:

3.2.2.1 A continuous air monitor is in alarm condition.

3.2.2.2 Observation of steam.

3.3 Use appropriate protective clothing, equipment, and respirators (EPIP-38).

3.4 Clearly label contaminated areas and control access and egress from the area.

3.5 Check batteries and perform source check test on survey instruments to be used.

3.5.1 Allow warm up time for high range survey equipment.

3.6 While in route to the survey location keep the survey meter on, with the meter set on the high scale and switching down as necessary.

3.7 Check fuel level in vehicles to be used.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 As delineated in EPIP-01, the Radiation Protection Monitor until relieved by the Radiological Protection Coordinator is responsible for the implementation of this procedure.

4.1.2 Persons involved in air and environmental gross gamma and beta sampling should be familiar with operation of the air samplers, cartridges, filters, and survey instruments.

4.1.3 Members of Survey Teams should proceed to the Operations Support Center for instructions. The Radiological Protection Coordinator shall:

4.1.3.1 Supervise the formation of Monitoring Teams.

- o The Monitoring Team Leader will communicate with the Radiological Protection Coordinator every one half hour via hand held radio.

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4.1.3.2 Brief and dispatch Monitoring Teams.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been classified per the provisions of EPIP-02.

4.2.2 Don protective clothing and respiratory apparatus if necessary.

4.2.3 Obtain appropriate sampling equipment.

4.2.3.1 Equipment located in the emergency lockers is listed in EPIP-38. As a minimum, each Survey Team should assemble the following types of equipment for the appropriate type of sample collection:

a. All Survey Teams:

- Legal TLD, Job TLD and Alarm Dosimeter
- Low and High Range B/ Survey Meter
- Portable Radio
- (10) Plastic Bags (small)
- Labels
- Tape
- (2) Pens
- Site Area Survey Map (Appendix D)

b. Air Sampling Survey Teams:

- CPM Survey Meter
- Portable Sampler for Particulate and Radioiodine Samples
- (5) Silver Zeolite (AgX) Cartridges for Environmental Samples
- Box of Particulate Filters

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- Manual Air Pump for Noble Gas Samples (i.e., Rubber Bulb)

- Noble Gas Collection Chamber

- Watch (with Second Hand)

c. Soil, Vegetation, and Water Samples, and TLD Monitoring Sampling Teams:

- Shovel

- Tape Measure

- Scissors or Knife

- Liter Bottle

- Pipette with Rubber Bulb

- (6) TLD's

d. Surface Contamination Survey Teams:

- Smear Papers

- Tape Measure

4.2.3.2 In addition, it is suggested that the following items be considered:

- o Protective clothing and/or respirators

Coveralls, hoods, shoe covers

Respiratory equipment (self contained or filter mask)

- o Plastic Sheeting

- o Rope

- o Caution, Radiation Area Sign

- o Inverter (if a vehicle is the power source for air sampler)

- o 100 ft. Extension Cord (for air sampler)

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4.2.4 Record serial numbers of dosimeters, survey instruments and air samplers in Appendices A and B.

4.2.5 Check batteries and perform source check tests on survey instruments. Allow warm up time for high range survey equipment.

4.2.6 Obtain background readings from survey instruments (window open and window closed, if appropriate). Record background values on Appendices A and B.

4.2.7 Complete Appendices A, B, and C headings.

4.3 Instructions

4.3.1 General Instructions

4.3.1.1 Air (radioiodine, particulates, and noble gases), gamma/beta, soil, vegetation should be sampled as directed by the Radiation Protection Monitor or Radiological Protection Coordinator.

4.3.1.2 Time and locations of TLD changes shall be determined by the Radiological Protection Coordinator.

4.3.1.3 Survey meters should be left on while in transit. All inplant readings above 10R/hr and outside readings above 0.2mR/hr should be reported to the Radiological Protection Coordinator.

4.3.2 Gross Radioactivity Measurement

4.3.2.1 Use one of the following instrument types (in order of preference):

- a. Extended probe
- b. 0-5 R/hr survey meter
- c. 0-50 R/hr survey meter

4.3.2.2 While in route to the survey location keep the survey meter on, with the meter set on the high scale, switching down as necessary.

4.3.2.3 Upon arrival at the survey location evaluate radiological conditions:

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a. Visual observation of presence of steam, failed piping or equipment, external radiation levels, surface contamination, airborne contamination; relay this information to the Radiological Protection Coordinator. Record findings on Appendix A.

b. mR/hr at 3 feet above ground level:

- Determine the gross mR/hr at 3 feet with the beta shield closed. Subtract the "Background: window closed" value (from Appendix A). Record the net mR/hr value in Appendix A.

- Determine the gross mR/hr at 3 feet with the beta shield open. Subtract the "background: window open" value (from Appendix A). Record the net mR/hr value in Appendix A.

c. mR/hr at 3 inches above ground level (repeat step b above with the meter at three inches).

d. Net beta dose rates:

The net beta dose rate is the net gamma/beta value (window open) minus the net gamma value (window closed). Record values for beta dose rate in Appendix A.

4.3.3 Particulate and Radioiodine Air Samples (Appendix B)

NOTE - 1

For environmental radioiodine air samples, silver zeolite (AgX) cartridges will be used, and counted in the field.

NOTE - 2

Air sample volumes should be 1 m³ (35.3ft³).

4.3.3.1 Connect the air sampler to a 120V AC power source or:

4.3.3.2 Connect inverter and extension cord to car battery.

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4.3.3.3 Assemble the sample head. The particulate filter should be upstream from the iodine cartridge. Attach the sample head to the air sampler.

4.3.3.4 Start the sampler in the variable position.

4.3.3.5 Adjust the flow rate. The maximum flow rate should be 4 CFM. It is suggested that the flow rate be 3 CFM.

4.3.3.6 Determine the sampling time necessary to collect a sample volume of 36ft³. Record the sampling time (in minutes) on Appendix B.

4.3.3.7 Calculate the flow rate in CFM using the following method:

$$\frac{\text{CFM (Initial)} + \text{CFM (Final)}}{2} = \text{CFM (Sample Collection)}$$

Where: (CFM (Initial), (CFM Final) and CFM (Sample Collection) are the initial flow rate, final flow rate, and mean flow rate, respectively, in CFM. Record the mean flow rate value on Appendix C.

4.3.3.8 Calculate the sample volume as follows and record in Appendix C.

$$V(\text{ft}^3) = \text{CFM (Sample Collection)} \times \text{Sample Collection Time (Minutes)}$$

4.3.3.9 Disassemble the sample head. Place the particulate filter in a plastic bag, and label the bag with the date, time, location, and sample volume.

4.3.3.10 For non-environmental samples, place the charcoal cartridges in a plastic bag, and label with the date, time, location, and sample volume.

4.3.3.11 Environmental samples, Radioiodine Air Conc (uCi/cc).

- a. Hold the meter probe with an open window in contact or within one (1) inch and perform a minimum (1) minute count on the AgX filter immediately after sampling, to obtain a value of gross iodine CPM. Record the value of gross iodine CPM on Appendix B.

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- b. Record the background count rate (CPM) on Appendix B. If NCPM is less than calculated MDA then report MDA.
- c. Utilizing the information on Appendix E determine the gross particulate and gross radioiodine air concentrations. If Appendix E cannot be utilized, calculate the air concentrations from the survey readings (CPM) and sample volume (ft³) utilizing Appendix B and the following equation.
- d. Complete calculations in Appendix B. Calculation:

$$A \frac{\text{uCi}}{\text{cc}} = \frac{\text{Net CPM} \times (1.6\text{E-}11) \times \frac{\text{uCi-ft}^3}{\text{dpm cc}}}{\text{CFM (Sample Coll)} \times \text{Collection Time (Min)} \times E_c (\text{cpm/dpm})}$$

Where:

A = Iodine Activity uCi/cc

Net CPM = Net Count Rate

Conversion Factor = (4.7E-07uCi/dpm) - 2.83E+04cc/ft³
Utilizing a Filter Efficiency of 0.96

CFM = Sample Collection Rate

E_c = Counting Efficiency (cpm/dpm)

- e. Place the AgX filter in a plastic bag, label the bag with the date, time, location, and sample volume.
- f. Submit samples to the Chemistry Lab for analysis after completion of survey.

4.3.4 Noble Gas Air Samples

4.3.4.1 Assemble the filter holder assembly as follows:

- a. Insert AgX cartridge into AgX holder. AgX cartridges may be used repeatedly during a one day period.
- b. Place filter paper upstream of the AgX cartridge in the holder.

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c. Attach holder to the manual gaseous collection chamber.

d. Attach rubber bulb to petcock of gas collection chamber.

4.3.4.2 Collect noble gas air sample as follows:

a. With both petcocks open, compress the rubber bulb slowly at least ten (10) times to collect a representative sample.

b. Close both petcocks on the gas collection chamber.

c. Disconnect the gas collection chamber from the rubber bulb and AgX holder.

d. Place the gas collection chamber in a plastic bag. Label the bag with the sample location, date, and time.

4.3.4.3 Disassemble the AgX holder and contents as radioactive material.

4.3.5 Soil Samples (Appendix C)

4.3.5.1 Measure an area of 1 m² on the ground (if possible).

4.3.5.2 Collect soil from that area to a depth of less than 1/4 inch. Record the area and approximate depth of the sample on Appendix C.

4.3.5.3 Place the soil sample in a bag. Label the sample with the location, date and time of collection.

4.3.6 Vegetation Samples (Appendix C)

4.3.6.1 Measure an area of 1 m².

4.3.6.2 Cut the vegetation to a height of 1-2 cm being careful not to contaminate the vegetation sample with soil.

4.3.6.3 Place the vegetation sample in a bag. Label the sample with the location, date, and time of collection.

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4.3.7 Water Samples (Appendix C)

4.3.7.1 If surface water is available, collect 1 liter of water with a pipet, and place in a 1 liter sample bottle.

4.3.7.2 Seal bottle, and label with the location, date, and time.

4.3.8 Surface Contamination Samples

4.3.8.1 Obtain survey map of area to be surveyed.

4.3.8.2 Number plastic bag and survey map with corresponding number for each location.

4.3.8.3 Smear an area (100 cm²) by making an "S" shaped curve about 12 inches long. If the area is less than 100cm² smear all accessible surfaces. Care should be taken not to cross-contaminate smears.

4.3.8.4 Place smear paper in plastic bag. Label with date, time, location, and area of smear.

4.3.9 Take samples to the Chemistry Laboratory for counting.

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ONSITE SURVEYS AND SAMPLING

Team Leader _____
Team Member _____

Team Member

Team Leader

Serial#

Instrument Type

Time Started

Date _____

Net Dose Rate mR/hr AT 3"

AT 3°

Beta Shield
Open
(Gamma/Beta)

Beta Shield
Closed
(Gamma)

Beta
Shield Open
(Gamma/Beta)

Beta Shield
Closed
(Gamma)

Monitoring
Location

Time

Background shield open (Gamma/Beta) mR/hr

mmR/hr

Background shield closed (Gamma) _____ mR/hr _____

mmR/hr

EMERGENCY ONSITE MONITORING DATA SHEET: PARTICULATE AND RADIOIODINE AIR SAMPLES

Team# _____ Team Leader _____ Team Member _____

Date _____ Time Started _____ Instrument Type _____ Serial# _____

RADIOIODINE SAMPLES

Monitoring Location	Gross Iodine (CPM)	Bkgd (CPM)	Net Iodine (CPM)	Sample Time (min)	Flow Rate CFM	Counting Efficiency (cpm/dpm)	Conversion Factor uCi - ft ³ dpm-cc	Radioactive Activity (uCi/cc)
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____
_____	_____	_____	_____	_____ (_____ x _____)	_____	_____	x 1.6E-11	_____

PARTICULATE SAMPLES

Monitoring Location	Time Started	Time Completed	Sample Time (min)	Flow Rate (CFM)	Sample Volume ft(3)	Gross Gamma/Beta (cpm)	Gross Gamma (cpm)	Gross Beta (cpm)
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

Counter eff X _____ cpm/dpm
 AgX filter eff X _____ (fraction)
 Counter background _____ cpm

ONSITE SURVEYS AND SAMPLING

PVNGS EMERGENCY PLAN
IMPLEMENTING PROCEDURE

PROCEDURE NO.
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<p align="center">ONSITE SURVEYS AND SAMPLING</p>	<p>REVISION 0</p>	<p>Page 15 of 18</p>

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ONSITE SURVEYS AND SAMPLING

Team Leader

Time Started _____

Team _____

Date _____

Size of Sample

Type of Sample
(Veg., Soil, Water, Contamination)

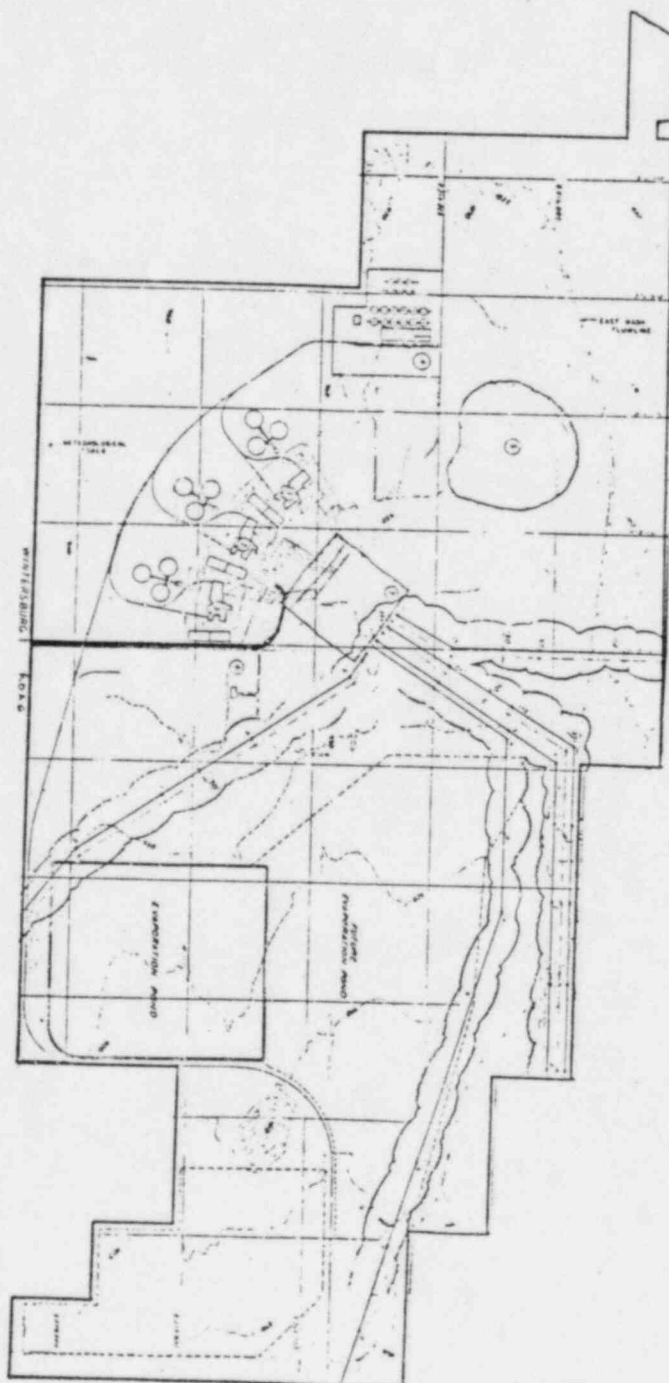
Time

Sampling Location

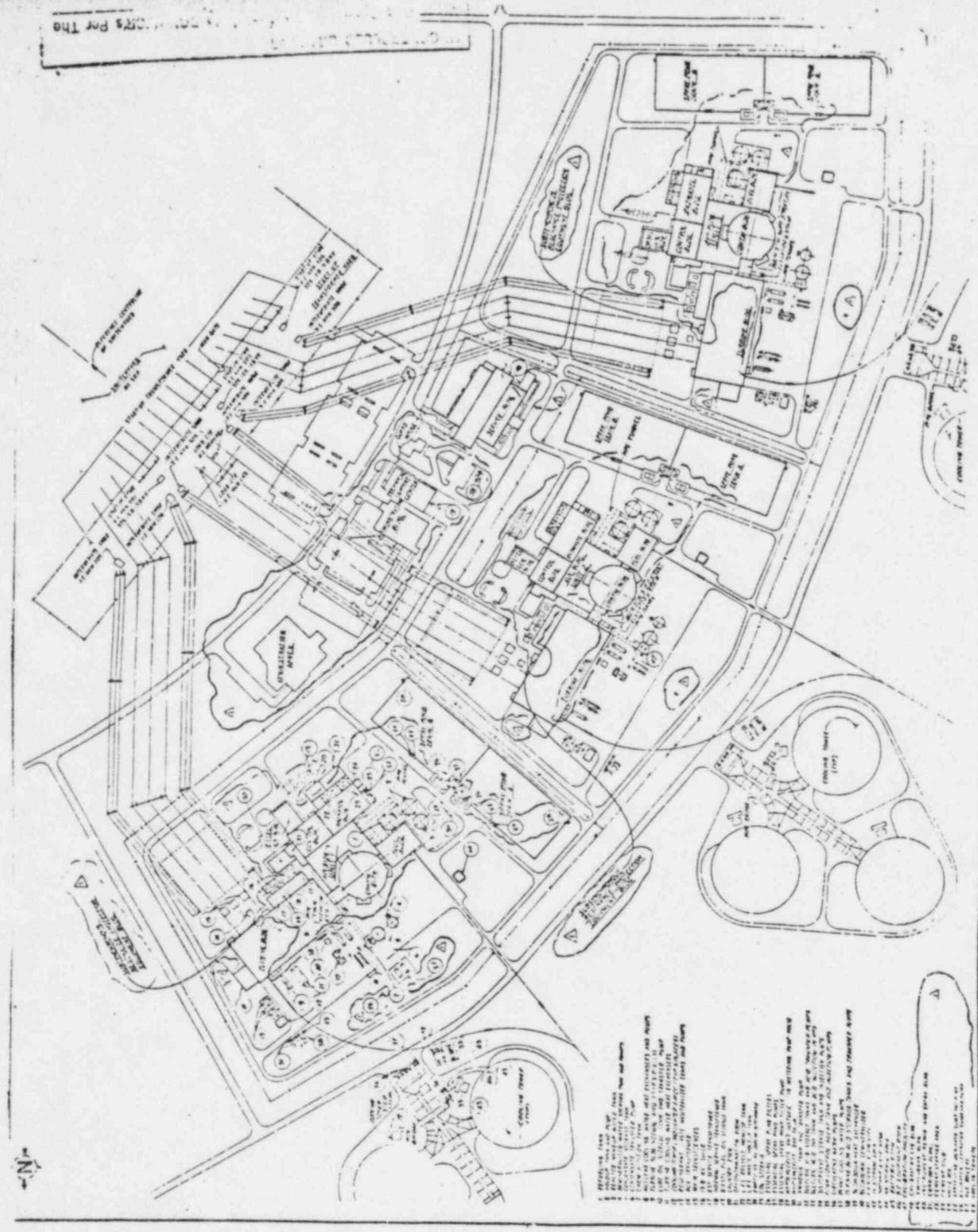
[illegible]

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-16</p>	<p>APPENDIX D Page 1 of 2</p>
<p align="center">ONSITE SURVEYS AND SAMPLING</p>	<p>REVISION 0</p>	<p>Page 16 of 18</p>

SITE AREA SURVEY MAP



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GROSS IODINE AND GROSS PARTICULATE AIR CONCENTRATION*

NCPM	SAMPLE VOLUME			
	10ft ³	20ft ³	30ft ³	40ft ³
	uCi/cc	uCi/cc	uCi/cc	uCi/cc
300	4.80E - 8	2.40E - 8	1.60E - 8	1.20E - 8
400	6.40E - 8	3.20E - 8	2.13E - 8	1.60E - 8
500	8.00E - 8	4.00E - 8	2.67E - 8	2.00E - 8
600	9.60E - 8	4.80E - 8	3.20E - 8	2.40E - 8
700	1.12E - 7	5.60E - 8	3.73E - 8	2.80E - 8
800	1.28E - 7	6.40E - 8	4.27E - 8	3.20E - 8
900	1.44E - 7	7.20E - 8	4.80E - 8	3.60E - 8
1000	1.60E - 7	8.00E - 8	5.33E - 8	4.00E - 8
1500	2.40E - 7	1.20E - 7	8.00E - 8	6.00E - 8
2000	3.20E - 7	1.60E - 7	1.07E - 7	8.00E - 8
3000	4.80E - 7	2.40E - 7	1.60E - 7	1.20E - 7
5000	8.00E - 7	4.00E - 7	2.67E - 7	2.00E - 7
7000	1.12E - 6	5.60E - 7	3.73E - 7	2.80E - 7
10000	1.60E - 6	8.00E - 7	5.33E - 7	4.00E - 7
20000	3.20E - 7	1.60E - 6	1.07E - 6	8.00E - 7
30000	4.80E - 6	2.40E - 6	1.60E - 6	1.20E - 6
40000	6.40E - 6	3.20E - 6	2.13E - 6	1.60E - 6
50000	8.00E - 6	4.00E - 6	2.67E - 6	2.00E - 6

*Assumes a counter efficiency of 0.01 (cpm/dpm).

*Refer to Section 4.3.3.13 for equations and parameter descriptions.

*uCi/cc = Ci/M³

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ASSIGNED COPY

PVNGS SM # 8-9A

APPROVED BY: *[Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1631A/0190A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-17	
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1.0 OBJECTIVES

To provide a procedure for emergency offsite radiological monitoring and field surveys to be undertaken in the event of airborne release of radioactive gases and particulates from PVNGS. Instructions for implementing the program, locating sampling points, collecting samples, and performing field surveys are provided. Offsite emergency sampling will be performed by PVNGS personnel until appropriate state authorities assume responsibility for conducting surveys.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "Emergency Classification"
- 2.1.3 EPIP-14B, "Dose Assessment"
- 2.1.4 Daily Performance Check List (with Counter Efficiencies)
- 2.1.5 EPIP-38, "Emergency Equipment and Supplies Inventory"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" USNRC, 11/80
- 2.2.2 75 RP-9ZZ48, Airborne Radioactivity Sampling and Measurement

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Use appropriate protective clothing, equipment, and respirators (EPIP-38).
- 3.2 Clearly label contaminated areas and material, control access and egress from the area.
- 3.3 Methods of communication between field survey teams and onsite facilities consists of hand-held radios, and/or radio equipped vehicles.
- 3.4 Check fuel level in vehicles to be used.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 As delineated in EPIP-01, the Radiation Protection Monitor until relieved by the Radiological Protection Coordinator is responsible for the implementation of this procedure.

4.1.2 Persons involved in air and gross gamma and beta sampling should be familiar with operation of the air samplers, cartridges and filters, noble gas chambers, and survey instruments.

4.1.3. Members of survey teams should proceed to the Operations Support Center for instructions. The Radiological Protection Coordinator shall:

4.1.3.1 Supervise the formation of Monitoring Teams.

- o The Monitoring Team Leader will communicate with the Radiological Protection Coordinator every one half hour via portable radio.

4.1.3.2 Brief and dispatch Monitoring Teams.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been classified per the provisions of EPIP-02.

4.2.2 Don protective clothing and respiratory apparatus if necessary.

4.2.3 Obtain appropriate sampling equipment.

4.2.3.1 Equipment located in the emergency lockers is listed in EPIP-38. As a minimum, each Survey Team should assemble the following types of equipment:

- o Appendix D and E - Map and Locations of Offsite Sampling Locations
- o Legal TLD, Job TLD and Alarm Dosimeters
- o (2) B/ Survey Meters
- o Portable Air Sampler
- o (6) TLD's (Environmental)

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- o (6) Silver Zeolite (AgX) Filters
- o Box of Particular Filters
- o (20) Plastic Bags (small)
- o (10) Radioactive Material Labels
- o Tape
- o Watch (with Second Hand)
- o Inverter
- o 100 ft. Extension Cord
- o Scissors or Knife
- o Shovel
- o Tape Measure
- o (2) Liter Bottles
- o Pipette with Rubber Bulb
- o Noble Gas Collection Chamber
- o Vehicle

4.2.4 Record serial numbers of survey instruments and air samplers in Appendices A and B.

4.2.5 Check batteries and perform source check tests on survey instruments.

4.2.6 Complete Appendices A, B, and C headings.

4.3 Instructions

4.3.1 General Information

4.3.1.1 The sampling locations are those within a 22.5 degree sector on either side of the wind direction, unless otherwise directed by the Radiological Protection Coordinator. The wind direction is determined for and recorded in EPIP-14B. Sampling locations are indicated on the Map of Offsite Sampling Locations, (Appendix D).

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4.3.1.2 Air (radioiodine, particulates, and noble gases), gamma/beta, soil, vegetation and surface water (if available) should be sampled at each sampling location.

4.3.1.3 Change TLD's at each sampling location. Time and locations of future TLD changes shall be determined by the Radiological Protection Coordinator.

4.3.1.4 Survey meters should be left on while in transit. All offsite readings above 0.2 mR/h should be relayed to the Radiological Protection Coordinator. These sites should be extensively surveyed.

4.3.2 Gross Radioactivity Measurement (Appendix A)

4.3.2.1 mR/h at 3 feet above ground level:

- a. Determine the gross mR/h at 3 feet with the beta shield closed. Subtract the "Background: window closed" value (from Appendix A). Record the net mR/h value in Appendix A.
- b. Determine the gross mR/h at 3 feet with the beta shield open. Subtract the "background: window open" value (from Appendix A). Record the net mR/h value in Appendix A.

4.3.2.2 mR/h at 3 inches above ground level (repeat steps a and b above with the meter at three inches).

4.3.3 Particulate and Radioiodine Air Samples (Appendix B)

NOTE - 1

For environmental radioiodine air samples, silver zeolite (AgX) cartridges should be used, and counted in the field.

NOTE - 2

Air sample volumes should be 1 m³ (35.3ft³).

4.3.3.1 Connect the air sampler to a 120V AC power source or:

4.3.3.2 Connect inverter and extension cord to car battery.

4.3.3.3 Connect air sampler to cord, and turn on car.

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4.3.3.4 Assemble the sample head. The particulate filter should be upstream from the iodine cartridge. Attach the sample head to the air sampler.

4.3.3.5 Start the sampler in the variable position.

4.3.3.6 Adjust the flow rate. The maximum flow rate should be 4 CFM. It is suggested that the flow rate be 3 CFM.

4.3.3.7 Determine the sampling time necessary to collect a sample volume of 36ft³. Record the sampling time (in minutes) on Appendix B.

4.3.3.8 Calculate the flow rate in CFM using the following method:

$$\frac{\text{CFM (Initial)} + \text{CFM (Final)}}{2} = \text{CFM (Sample Collection)}$$

Where: (CFM (Initial), (CFM Final) and CFM (Sample Collection) are the initial flow rate, final flow rate, and mean flow rate, respectively, in CFM.

4.3.3.9 Disassemble the sample head. Place the particulate filter in a plastic bag, and label the bag with the date, time, location, and sample volume.

4.3.3.10 Perform a minimum (1) minute count on the AgX filter immediately after sampling, to obtain a value of gross iodine CPM.

4.3.3.11 Calculate the sample volume as follows.

$$V(\text{ft}^3) = \text{CFM (Sample Collection)} \times \text{Sample Collection Time (Minutes)}$$

4.3.3.12 Calculate the net count rate from the radioiodine sample by subtracting the background count rate.

4.3.3.13 Utilizing the information on Appendix F determine the gross particulate and gross radioiodine air concentrations. If Appendix F cannot be utilized, calculate the air concentrations from the survey readings (CPM) and sample volume (ft³) utilizing Appendix B and the following equation:

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$$A \frac{\text{uCi}}{\text{cc}} = \frac{\text{Net CPM} \times (1.6\text{E}-11) \times \frac{\text{uCi-ft}^3}{\text{dpm cc}}}{\text{CFM (Sample Coll)} \times \text{Collection Time (Min)} \times E_c (\text{cpm/dpm})}$$

Where:

A = Iodine Activity uCi/cc

Net CPM = Net Count Rate

Conversion
Factor = $(4.7\text{E}-07 \text{uCi/dpm}) - 2.83\text{E}+04 \text{cc/ft}^3$
Utilizing a Filter Efficiency of 0.96

CFM = Sample Collection Volume

E_c = Counting Efficiency (cpm/dpm)

4.3.3.14 Place the AgX filter in a plastic bag, label the bag with the date, time, location, and sample volume.

4.3.3.15 Count the particulate filter. Record the gross counts (cpm) on Appendix B.

4.3.4 Noble Gas Air Samples

4.3.4.1 Assemble the filter holder assembly as follows:

- a. Insert AgX cartridge into AgX holder. AgX cartridges may be used repeatedly during a one day period.
- b. Place filter paper upstream of the AgX cartridge in the holder.
- c. Attach holder to the manual gaseous collection chamber.
- d. Attach rubber bulb to petcock of gas collection chamber.

4.3.4.2 Collect noble gas air sample as follows:

- a. With both petcocks open, compress the rubber bulb slowly at least ten (10) times to collect a representative sample.
- b. Close both petcocks on the gas collection chamber.

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c. Disconnect the gas collection chamber from the rubber bulb and AgX holder.

d. Place the gas collection chamber in a plastic bag. Label the bag with the sample location, date, and time.

4.3.4.3 Disassemble the AgX holder and treat contents as radioactive material.

4.3.5 Soil Samples (Appendix C)

4.3.5.1 Measure an area of 1 m² on the ground (if possible).

4.3.5.2 Collect soil from that area to a depth of less than 1/4 inch. Record the area and approximate depth of the sample on Appendix C.

4.3.5.3 Place the soil sample in a bag. Label the sample with the location, date and time of collection.

4.3.6 Vegetation Samples (Appendix C)

4.3.6.1 Measure an area of 1 m².

4.3.6.2 Cut the vegetation to a height of 1-2 cm being careful not to contaminate the vegetation sample with soil.

4.3.6.3 Place the vegetation sample in a bag. Label the sample with the location, date, and time of collection.

4.3.7 Water Samples (Appendix C)

4.3.7.1 If surface water is available, collect 1 liter of water with a pipet, and place in a 1 liter sample bottle.

4.3.7.2 Seal bottle, and label with the location, date, and time.

4.3.8 Milk Samples (Appendix C)

4.3.8.1 At milk sampling locations collect one liter of milk and place in a 1 liter sample bottle.

4.3.8.2 Seal bottle, and label with the location, date, and time.

4.3.9 Take samples to the Chemistry Laboratory for counting.

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-17</p>	<p>APPENDIX A Page 1 of 1</p>
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EMERGENCY OFFSITE MONITORING DATA SHEET: BETA/GAMMA DOSE RATE MEASUREMENTS

Serial#

Serial# _____

Instrument Type

AT 3'	Net Dose Rate mR/hr AT 3"
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	0.000
20	0.000
21	0.000
22	0.000
23	0.000
24	0.000
25	0.000
26	0.000
27	0.000
28	0.000
29	0.000
30	0.000
31	0.000
32	0.000
33	0.000
34	0.000
35	0.000
36	0.000
37	0.000
38	0.000
39	0.000
40	0.000
41	0.000
42	0.000
43	0.000
44	0.000
45	0.000
46	0.000
47	0.000
48	0.000
49	0.000
50	0.000
51	0.000
52	0.000
53	0.000
54	0.000
55	0.000
56	0.000
57	0.000
58	0.000
59	0.000
60	0.000
61	0.000
62	0.000
63	0.000
64	0.000
65	0.000
66	0.000
67	0.000
68	0.000
69	0.000
70	0.000
71	0.000
72	0.000
73	0.000
74	0.000
75	0.000
76	0.000
77	0.000
78	0.000
79	0.000
80	0.000
81	0.000
82	0.000
83	0.000
84	0.000
85	0.000
86	0.000
87	0.000
88	0.000
89	0.000
90	0.000
91	0.000
92	0.000
93	0.000
94	0.000
95	0.000
96	0.000
97	0.000
98	0.000
99	0.000
100	0.000

AT 3:

AT 3"

•

Beta Shield
Open
(Gamma/Beta)

Peta Shield
Closed
(Gamma)

Beta
Shield Open
(Gamma/Beta)

Beta Shield
Closed
(Closed)

Monitoring Location	Time
------------------------	------

Time

Background: Childhood onset (Gamma/Beta)

mR/hr

Background shield closed (Gamma) mR/hr

mmR/hr

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PROCEDURE
NO.

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OFFSITE SURVEYS AND SAMPLING

EMERGENCY OFFSITE MONITORING DATA SHEET: PARTICULATE AND RADIOIODINE AIR SAMPLES

Team# _____ Team Leader _____ Time Started _____ Instrument Type _____ Serial# _____
Date _____ Team Member _____

RADIOIODINE SAMPLES

Monitoring Location	Gross Iodine (CPM)	Bkgd (CPM)	Net Iodine (CPM)	Sample Time (min)	Flow Rate (CFM)	Counting Efficiency (cpm/dpm)	Conversion Factor uCi - ft ³ dpm-cc	Radioactive Activity (uCi/cc)
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	
							1.6E-11	

PARTICULATE SAMPLES

Monitoring Location	Time Started	Time Completed	Sample Time (min)	Flow Rate (CFM)	Sample Volume ft(3)	Gross Gamma/Beta (cpm)	Gross Gamma (cpm)	Gross Beta (cpm)

Counter eff X _____ cpm/dpm
AgX filter eff X _____ (fraction)
Counter background _____ cpm

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-17</p>	<p>APPENDIX C Page 1 of 1</p>
<p align="center">OFFSITE SURVEYS AND SAMPLING</p>	<p>REVISION 0</p>	<p>Page 12 of 16</p>

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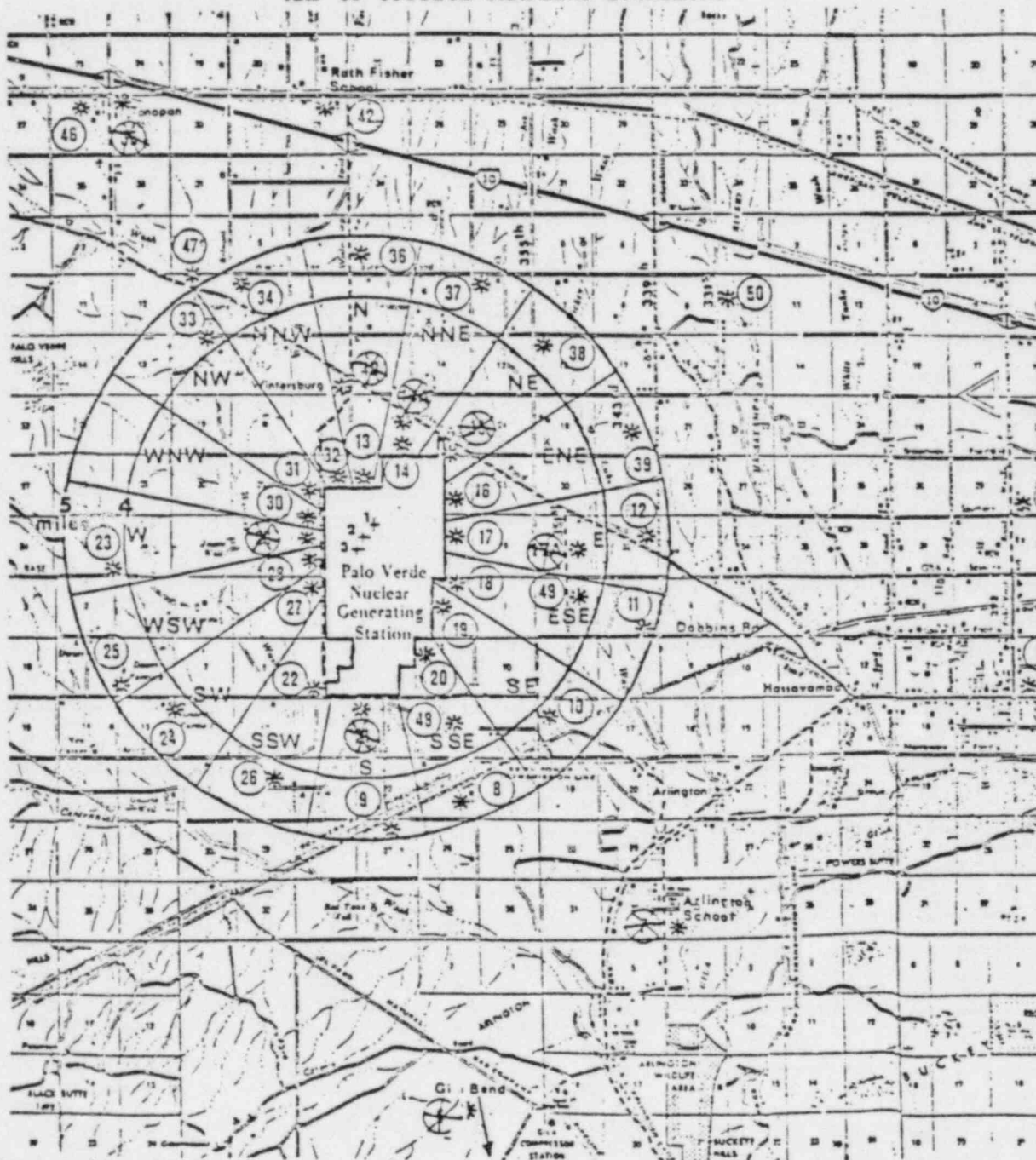
Page 12 of 16

Team# _____
Date _____
Team Leader _____
Time Started _____

[illegible]

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MAP OF OFFSITE SAMPLING LOCATIONS*



*Site 1-45 = TLD

*- Indicates TLD and Air Sampler

SAMPLE TYPES AND LOCATIONS

Sample Site #	Sample Type	Location Designation (a)	Location Description
1	TLD, Air	E30	APS Goodyear Office
2	TLD	ENE24	Scott-Libby School
3	TLD	E25	Liberty School
4	TLD, Air	E20	APS Buckeye Office
5	TLD	ESE15	Palo Verde
6	TLD, Air	SSE35	APS Gila Bend Substation
7	TLD, Air	SE8	Arlington School
8	TLD	SSE5	Corner of 363rd Ave. & SPP Rd.
9	TLD	S5	Corner of 371st Ave. & SPP Rd.
10	TLD	SE5	Corner of 355th Ave. & Ward Rd.
11	TLD	ESE5	Corner of 339th Ave. & Dobbins Rd.
12	TLD	E5	Corner of 339th Ave. & B-S Rd.
13	TLD	W1	N Site Boundary
14	TLD	NNE 2	NNE Site Boundary
14A	TLD	NNE2	Buckeye-Salome Rd. & 371st Ave.
15	TLD, Air	NE2	NE Site Boundary
16	TLD	ENE2	ENE Site Boundary
17	TLD	E2	E Site Boundary
17A	Air	E4	351st Ave., 1 mi. S of B-S Rd.
18	TLD	ESE2	ESE Site Boundary
19	TLD	SE2	SE Site Boundary
20	TLD	SSE2	SSE Site Boundary
21	TLD, Air	S3	S Site Boundary
22	TLD	SSW3	SSW Site Boundary
23	TLD	W5	Benchmark at Baseline
24	TLD, Water	SW5	Ward Rd. @ Well 18bbb
25	TLD	WSW5	Ward Rd. @ DF Well 2 Rd.
26	TLD, Water	SSW5	Well 21 Cbb(2)
27	TLD	SW2	SW Site Boundary
28	TLD	WSW1	WSW Site Boundary
29	TLD, Air	W1	W Site Boundary
30	TLD	WNW1	WNW Site Boundary
31	TLD	NW2	NW Site Boundary
32	TLD	NNW1	NNW Site Boundary
33	TLD	NW5	Yuma Rd., 1/2 mi. W of Belmont Rd.

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SAMPLE TYPES AND LOCATIONS (CONT'D)

Sample Site #	Sample Type	Location Designation (a)	Location Description
34	TLD	NNW5	Corner Belmont Rd. & Van Buren Rd.
35	TLD, Air	NNW9	Tonopah, Palo Verde Inn Fire Station
36	TLD	N5	Corner of Wintersburg Rd. & Van Buren
37	TLD	NNE5	Corner of 363rd Ave. & Van Buren
38	TLD	NE5	Corner or 355th Ave. & Yuma Rd.
39	TLD	ENE5	343rd Ave., 1/2 mi. S of L. Buckeye
40	TLD, Air, Water	N3	Trailer Park; Water at Red Quail Str.
41	TLD	WNW20	Harquahala Valley School
42	TLD	N8	Ruth Fisher School
43	TLD	N45	Vulture Mine Rd. School, Wickenburg
44	TLD, Air	ENE35	APS El Mirage Office (Sun City)
45	TLD	ENE50	APS Deer Valley Office
46	Water, Beg.	NNW9	McArthurs Farm, Tonopah
47	Water	NNW6	Winters' Wells
48	Water	SSE4	Well 14dbb
49	Water	ESE4	Glover Residence, 351st Ave. & Dobbins Road
50	Milk	NE7	Balsley Dairy, 331st Ave. & Van Buren
51	Milk, Veg.	E15	Butler Dairy, Palo Verde Rd. & Southern
52	Vegetation	E15	Cambron Farm, Miller Rd. & Broadway
53	Milk	E20	Kerr Dairy, Dean & Buckeye Rds.
54	Milk	E25	Hoffman Dairy, Airport & Dobbins
55	Milk	F25	Lueck Dairy, Jackrabbit & Hazen Rds.
56	Milk	E50	Mineso Dairy, Kyrene & Guadalupe Rds.

(a) Table J-1, NUREG-0654; distances (in miles) are from centerline of Unit 2 containment.

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GROSS IODINE AND GROSS PARTICULATE AIR CONCENTRATION*

CPM	SAMPLE VOLUME			
	10ft ³	20ft ³	30ft ³	40ft ³
	uCi/cc	uCi/cc	uCi/cc	uCi/cc
300	4.80 - 8	2.40 - 8	1.60 - 8	1.20 - 8
400	6.40 - 8	3.20 - 8	2.13 - 8	1.60 - 8
500	8.00 - 8	4.00 - 8	2.67 - 8	2.00 - 8
600	9.60 - 8	4.80 - 8	3.20 - 8	2.40 - 8
700	1.12 - 7	5.60 - 8	3.73 - 8	2.80 - 8
800	1.28 - 7	6.40 - 8	4.27 - 8	3.20 - 8
900	1.44 - 7	7.20 - 8	4.80 - 8	3.60 - 8
1000	1.60 - 7	8.00 - 8	5.33 - 8	4.00 - 8
1500	2.40 - 7	1.20 - 7	8.00 - 8	6.00 - 8
2000	3.20 - 7	1.60 - 7	1.07 - 7	8.00 - 8
3000	4.80 - 7	2.40 - 7	1.60 - 7	1.20 - 7
5000	8.00 - 7	4.00 - 7	2.67 - 7	2.00 - 7
7000	1.12 - 6	5.60 - 7	3.73 - 7	2.80 - 7
10000	1.60 - 6	8.00 - 7	5.33 - 7	4.00 - 7
20000	3.20 - 7	1.60 - 6	1.07 - 6	8.00 - 7
30000	4.80 - 6	2.40 - 6	1.60 - 6	1.20 - 6
40000	6.40 - 6	3.20 - 6	2.13 - 6	1.60 - 6
50000	8.00 - 6	4.00 - 6	2.67 - 6	2.00 - 6

*Assumes a counter efficiency of 0.01 (cpm/dpm).

*Refer to Section 4.3.3.13 for equations and parameter descriptions.

*uCi/cc = Ci/M³

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ASSIGNED CDM

PVNGS SM 8-9A

APPROVED BY: *Lyndal Budgenn* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1632A/0190A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-18	
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1.0 OBJECTIVE

- 1.1 This procedure addresses required authorization (Emergency Coordinator), guidance, and maximum exposure criteria in the event of a radiological emergency where it becomes necessary for emergency workers to exceed established PVNGS or 10CFR20 quarterly or annual exposure limits.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.2 EPIP-26, "Potassium Iodide (KI) Administration"

2.2 Developmental References

- 2.2.1 NCRP Report #39, 1971 Basic Radiation Protection Criteria
- 2.2.2 EPA-520/1-75-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
- 2.2.3 10CFR20, Standards for Protection Against Radiation
- 2.2.4 PVNGS Quarterly and Annual Exposure Limits

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 The Emergency Coordinator must authorize doses in excess of PVNGS Administration and/or 10 CFR 20 Limits but not greater than 100 rem. Emergency exposure limits are contained in Appendix C.
- 3.2 Personnel authorized to receive exposures in excess of occupational limits established by PVNGS (Appendix B) should meet the following criteria:
 - 3.2.1 Personnel shall be volunteers.
 - 3.2.2 Women of child-bearing age and capability shall not be permitted to receive emergency exposures (i.e., exposure greater than PVNGS Administrative Limits).
 - 3.2.3 Personnel shall be familiar with the hazards of exposure received under emergency conditions.

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3.2.4 Radiation exposure history of volunteers should be known.

3.2.5 Use of volunteers above age 45 should receive first consideration.

3.2.6 Emergency exposures should be limited to one occurrence in a life time.

3.3 Administrative methods to minimize personnel exposure (such as ALARA) should remain in force to the extent consistent with timely rescue, corrective and protective actions.

3.4 Personnel shall wear dosimeters appropriate for the measurement of anticipated exposure levels. These shall include:

3.4.1 Thermoluminescent Dosimeter (Legal).

3.4.2 Thermoluminescent Dosimeter (Job).

3.4.3 Extremity Dosimeters, if appropriate (Appendix B, Note 2).

3.4.4 Alarm Dosimeters (in high radiation areas).

3.5 If necessary, potassium iodide (KI) tablets should be administered in accordance with EPIP-26.

3.6 Protective clothing and/or respirators should be used as appropriate.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The Emergency Coordinator is required to authorize emergency exposures, up to but not exceeding the limits specified in Appendix C.

4.1.2 During an emergency, radiation exposures in excess of occupational limits may be necessary.

4.1.3 Emergency dose limits (Appendix C) are defined for three categories: 1) lifesaving actions, 2) corrective and/or protective actions, and 3) sampling under emergency conditions.

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4.1.4 Emergency exposures are justifiable only if the doses are commensurate with the significance of the objective and every reasonable effort is made to maintain emergency worker's doses as low as is reasonably achievable.

4.2 Prerequisites

4.2.1 An emergency condition has resulted in the need to conduct lifesaving actions, and/or corrective or protective actions and/or sampling activities which might result in doses exceeding PVNGS occupational limits.

4.3 Instructions

4.3.1 Authorization

NOTE

The following actions shall be performed to document emergency radiation exposures. Although it is preferable to perform these steps before the exposure is received, the Emergency Coordinator may, at his discretion, verbally authorize the emergency exposure with documentation to be completed at a later time.

4.3.1.1 The Radiological Protection Coordinator will provide the Emergency Coordinator with a radiological evaluation of the situations and conditions requiring emergency exposures.

4.3.1.2 The Radiological Protection Coordinator or his designee shall complete and sign a Radiation Exposure Permit (REP, Appendix A), detailing specific protective equipment, procedures and allowable emergency doses.

4.3.1.3 The Emergency Coordinator shall authorize the emergency exposure by: a) signing the REP, or b) through verbal authorization to the Radiological Protection Coordinator who will then initial the time of approval.

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4.3.1.4 Individual(s) authorized to receive emergency exposures shall sign the REP, thereby agreeing to all conditions contained in the permit.

- a. Individuals shall obtain all equipment specified in the REP (Appendix A).

4.3.2 Personnel Exposure Control

4.3.2.1 Individuals shall abide to all conditions specified in the REP.

4.3.2.2 Individuals shall not enter any area where dose rates are unknown or unmeasurable with instruments immediately available. Prior to entering any radiation area:

- a. Allow time for meter warm up.
- b. Check meter response with a check source.
- c. Enter suspected radiation areas with the meter set on the high scale, switching to lower scales as necessary.

4.3.2.3 Personnel shall complete the assigned task.

4.3.2.4 Personnel unable to complete the task within the allotted stay time or allotted dose shall exit the radiation area.

4.3.3 Subsequent Actions

4.3.3.1 The Radiological Protection Coordinator shall:

- a. Obtain initial estimates of the radiation dose of exposed personnel as quickly as possible.
- b. Update and refine dose estimates at a later time.
- c. Immediately report exposures in excess of 10CFR20 (Appendix B) to the Manager of Nuclear Operations who will then report to the NRC per 10CFR20.403 and 10CFR20.405.

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STANDARD RADIATION EXPOSURE PERMIT

PVNGS Unit: _____ REP #: _____
 VALID FROM: _____ TO _____ JOB #: _____
 REP STATUS: _____ REP TYPE: _____
 TASK #: _____ COMPONENT: _____
 JOB DESCRIPTION: _____
 MAP #: _____ LOCATION: _____
 REP REQUIRED BY: _____
 PROCESSING PRIORITY: _____

RADIATION SURVEY CONDITIONS:

MAP #: _____ SURVEY #: _____
 AIR SAMPLE ID #: _____ TOTAL MPC FRACTION: _____
 BETA/GAMMA (mr/hr): _____ CONTAMINATION (DPM): _____
 WET/DRY: _____

RADIATION PROTECTION REQUIREMENTS:

- P.C. Requirements**

_____ No Personal Outer Clothing	_____ Rubber Gloves (___ 2 pr)
_____ Lab Coat	_____ Surgeons Cap
_____ Plastic Shoe Covers	_____ Full Hood
_____ Plastic Booties	_____ P.C. Coveralls (___ 2 pr)
_____ Rubber Shoe Covers (___ 2 pr)	_____ Plastic Suit
- Respiratory Requirements**

_____ Full Face w/Cannister	_____ Bubble Hood
_____ Full Face w/Supplied Air	_____ Stay Time _____ min/hr
_____ SCBA R.G. 1.16 Class _____	
- Dosimetry Devices**

_____ Legal TLD	_____ Radiation Survey Inst.
_____ Job TLD	_____ Special Dosimetry
_____ Self-Indicating Dosimeter	_____

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STANDARD RADIATION EXPOSURE PERMIT (CONT'D)

4. Special Instructions:

5.

SIGNOFFS AND APPROVALS:

Requested by: _____ SS/Unit Ready _____
 RP Preparation: _____ Withdrawn/Canceled by: _____
 RP Approval: _____ Completed by: _____

PERSONNEL ASSIGNED TO REP:

			FIRST IN _____	LAST OUT _____			
CODE #	NAME	DEPT	AVAIL WB (MR)	AVAIL MPC HR	TOT RES TIME HR	TOTAL WB(R)	TOTAL MPC HR
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

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PVNGS ADMINISTRATIVE DOSE LIMITS AND MAXIMUM PERMISSIBLE
DOSE EQUIVALENT FOR OCCUPATIONAL WORKERS (10CFR20)

<u>Critical Organ</u>	<u>DOSE LIMITS</u> <u>PVNGS ADMINISTRATIVE LIMITS</u>		<u>10CFR20 LIMITS</u>	
	<u>mrem/quarter</u>	<u>mrem/year</u>	<u>mrem/quarter</u>	<u>mrem/year</u>
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,000	4,000	1,250 ¹	5,000
Hands, Forearms, Ankles, Feet	15,000	N/A	18,750 ²	
Skin of Whole Body	6,000	N/A	7,500 ²	
Other Organs (Thyroid), Tissues and Organ Systems			5,000 ⁴	
Pregnant Women (With Respect to the Fetus)	$\frac{500\text{mrem}}{9 \text{ months}}$ ³		$\frac{500\text{mrem}}{9 \text{ months}}$ ³	$\frac{500\text{mrem}}{9 \text{ months}}$ ³

1. 3,000 millirem is permitted in a calendar quarter or 12,000 millirem in a year as long as the accumulative occupational dose to the whole body does not exceed 5,000 millirem x (age - 18) and the individual's lifetime exposure history is recorded on the NRC's Form 4 or equivalent. Doses exceeding 1,250 mrem/quarter must be reported to the NRC per 10CFR20.403 and 10CFR20.405.
2. The licensee is required to supply appropriate personnel monitoring equipment and shall require the use of such equipment by each individual that receives or is likely to receive a dose in any calendar quarter in excess of 25% of the applicable 10CFR20 value.
3. NCRP, ICRP Guidance.
4. NUREG 0737.

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EMERGENCY EXPOSURE LIMITS

	<u>Sampling Under Accident Conditions*</u>	<u>Corrective or Protective Actions</u>	<u>Lifesaving Actions***</u>
Whole Body (rem)	5	25	100
Thyroid (rem)	25	125	NO LIMIT****
Extremities (rem)	75	100**	200**

* NUREG 0737, Nov. 1980

** NCRP Report #39, 1971

*** EPA Protective Action Guides, July 1980

**** Thyroid exposure should be minimized to the extent feasible by the use of respiratory protection and/or thyroid prophylaxis. However, no upper limit is specified for lifesaving action since complete loss of thyroid function may be considered an acceptable risk for saving life.

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ASSIGNED COPY

PVNGS SM # 8-9A

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-1586A/0188A

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-19	
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1.0 OBJECTIVE

- 1.1 To provide guideline information pertinent to evacuation of onsite personnel including company, construction, contractors and visitors who are not engaged in emergency response activities.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "PVNGS Emergency Classification"
- 2.1.2 EPIP-15, "Protective Action Recommendations"
- 2.1.3 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.4 EPIP-20, "Personnel Accountability"

2.2 Developmental References

- 2.2.1 NUREG-0654 Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan, Rev. 2
- 2.2.3 Bechtel/PVNGS Pre-Evacuation Assembly Plan
- 2.2.4 APS Construction Personnel Accountability and Assembly Implementing Procedure

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 This procedure must be conducted in an orderly fashion to avoid personnel injury.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 In the event of an emergency at PVNGS, it may be desirable to minimize the number of nonessential personnel onsite. If the emergency involves a radiological release or the potential for a release then evacuation of nonessential personnel is desirable, or may be required, to minimize exposure. The Emergency Coordinator will have the responsibility for making this decision.
- 4.1.2 This procedure is intended to apply to evacuations where persons may receive abnormal external exposure and/or persons or automobiles/buses may be contaminated. It assumes a major event has occurred at Unit 1 and Unit 2 and/or Unit 3 is under construction. In the event of an emergency it may be desirable to send individuals home; cases of this nature would be handled as an early dismissal from work. An orderly sequence of dismissal should be given by the Emergency Coordinator and Security should provide traffic control in this event.

4.2 Prerequisites

- 4.2.1 The plant is in an emergency condition where the potential or actual levels of a major radiological release is evident or a SITE or GENERAL EMERGENCY has been declared. Personnel accountability has been completed per EPIP-20.
- 4.2.2 Personnel under the direction of the Bechtel Field Construction Manager have assembled at their assigned locations per the "Bechtel/PVNGS Pre-Evacuation Assembly Plan" (Appendix A) and are awaiting further instructions.
- 4.2.3 Personnel under the direction of the APS Nuclear Construction Manager have assembled at their assigned locations per "APS Construction Personnel Accountability and Assembly Implementing Procedure" (Appendix B) and are awaiting further instructions.
- 4.2.4 APS Nuclear Department Operations personnel are at their assigned emergency organization positions. All nonessential personnel are assembled at one of the following locations:

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- a. Operational Support Center/Access Control Point
- b. Service Building
- c. Administration Annex Building First Floor
- d. Water Reclamation Facility
- e. Visitors Center
- f. Security Firing Range

4.2.5 The Emergency Coordinator has determined per EPIP-15 that the emergency situation warrants evacuation of nonessential personnel.

4.3 Instructions

4.3.1 The Emergency Coordinator will determine the deployment of emergency response personnel within the Operational Support Center and the Service Building. It may be necessary to direct emergency response personnel in the OSC and Service Building to hardened facilities, i.e., the Control Room, Technical Support Center and Emergency Operations Facility based upon radiological conditions.

4.3.2 If the Emergency Coordinator determines that evacuation is warranted, the Security Director will monitor and supervise the evacuation process.

4.3.3 The Security Director will:

- a. Assess emergency conditions with the Emergency Coordinator to determine the expediency needed in evacuation and, if radiological conditions warrant, the evacuation route in which to take.
- b. Arrange with the Bus Transportation Supervisor to deploy buses to the assembly areas where required.
- c. Coordinate with the Bechtel Field Construction Manager and the APS Nuclear Construction Manager for evacuation of their personnel and inform them if offsite reassembly will take place and where.
- d. Estimate on the number of vehicles and personnel involved in the evacuation and determine if any further personnel accountability is required at the site prior to the evacuation.

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- e. Inform the Security Force of the evacuation and announce over the station Public Address System for nonessential personnel to evacuate, the evacuation route and if conditions warrant, evacuate to an offsite reassembly location (give location).
- 4.3.4 Nonessential personnel will evacuate the site in a safe and orderly fashion and will await return until further notification.
- 4.3.5 The Security Director will have Security Guards routinely check APS trailers and buildings outside the protected area to ensure all nonessential personnel have left the premises.
 - a. If nonessential personnel are found on the premises identify the individual(s) and report their presence to the Security Director.
 - b. Instruct and ensure that the personnel evacuate the premises if evacuation is/has taken place or have them report to their designated assembly area.
- 4.3.6 Reassemble at an offsite area.
 - 4.3.6.1 The Emergency Coordinator in conjunction with the Radiological Protection Coordinator, will determine the evacuation route. If radiological conditions warrant reassembly of evacuating personnel, one offsite assembly area may be used (Palo Verde Inn in Tonopah). A suggested route to each is shown on Figure 1. Ample water and space is available at each location to set up decontamination areas and personnel and equipment monitoring points.
 - 4.3.6.2 The Security Director upon organizing transportation and receiving instruction from the Emergency Coordinator as to evacuation route will:
 - a. Contact the Radiological Protection Coordinator and assure that qualified monitoring personnel are dispatched for monitoring at the offsite assembly area.
 - b. Appoint an Evacuation Team Leader for each major assembly area. Bechtel and APS Construction will assist for areas under their control.

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- c. Send emergency supplies to offsite assembly areas as required.
- d. Inform the Evacuation Team Leaders of the location of the offsite assembly area and the route to follow.

4.3.6.3 The Security Director will determine from the Emergency Coordinator whether assistance will be required from the county and/or State, to clear the evacuation route and/or the offsite assembly area. He will notify the offsite assembly area in advance of the arrival of the evacuation group.

4.3.6.4 The Evacuation Team Leaders should instruct personnel evacuating to:

- a. Proceed in caravan fashion along the designated route to the offsite assembly area.
- b. Personnel without their own transportation should either obtain a ride with a driver in their assembly area or ride the bus.

4.3.6.5 At the offsite assembly area, each assembly area Evacuation Team Leader will assure that personnel are monitored and cleared before release and individuals names and social security numbers are recorded (on Appendix C).

4.3.6.6 The names and addresses of evacuees suspected of having received a dose in excess of 250 mrem and those requiring any decontamination shall be obtained before the persons are allowed to leave the assembly area.

4.3.6.7 The Evacuation Team Leader shall keep the Security Director informed of the activities at the offsite assembly area. The results of the decontamination effort will be reported to the Emergency Coordinator for his evaluation.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN

Purpose

Alert, assemble and account for all Bechtel employees of Bechtel Subcontractors, and Bechtel visitors in the event of an emergency at PVNGS, and prior to a site evacuation.

Scope

This plan describes the methods and procedures necessary to alert, assemble and account for employees should an evacuation be necessary.

General

A safe and orderly process is necessary to assemble and account for personnel in preparation for an emergency that may require site evacuation. The locations for assembly are outlined in this plan. Accountability of personnel at these assembly areas will be the responsibility of appointed supervisors. These supervisors will report their findings to the Emergency Control Center either by phone or radio. Phone numbers are _____, radio FM Channel 3 (general use) UHF _____ MHZ. Missing persons must be named. All personnel will remain in their appointed assembly areas until notification from the Emergency Control Center.

Search and rescue for unaccounted personnel within the protected area will be conducted by APS personnel. Outside the protected area, Bechtel will be responsible for accountability, search and rescue of Bechtel employees.

Alerting

Sirens will be used to alert personnel on the jobsite to proceed to their appointed assembly areas. A continuous tone (2 minutes or longer if necessary) will signal the start of the assembly process. Sirens will be used to give the "all clear" signal which is three (3) short blasts from the siren. Flashing lights or horns will be installed in areas where the sirens are not audible. All vehicle traffic will stop during assembly.

EMERGENCY CONTROL CENTER (ECC)

This center will coordinate all Bechtel site emergency operations excluding the protected area. The center is located at the Field Construction Managers office area. All accountability reporting from assembly areas will be directed to either the Project Superintendent or the Project Services Superintendent, who will record and report to the Field Construction Manager.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

The Project Superintendent or the Project Services Superintendent will assume the responsibilities of the FCM in his absence. Shift Superintendents will assume the responsibilities of this plan on the off shifts. The ECC will then report personnel accountability status to the Security Director of the PVNGS Emergency Organization and will be relayed to the Bechtel ECC for action.

A. Assembly Areas and Procedures

1. When the protected area (Unit 1) is established (a short period prior to fuel load), all personnel covered in the purpose and scope of this plan and working within the protected area will assemble as follows:
 - a. Bechtel manual employees will clear the Unit 1 security gate and report to their respective craft shacks and await additional instruction.
 - b. Bechtel non-manual personnel will clear the Unit 1 security gate and report to their discipline at the Unit 1 Field Office and await additional instruction.
 - c. Bechtel subcontractor manuals and non-manuals will clear the Unit 1 security gate and report to their respective offices or shacks and await additional instruction.
 - d. All other personnel will report to their respective disciplines.
 - e. Visitors will accompany their hosts.
2. Protected Area Procedures
 - a. The alerting procedure will be confined to the protected area only and will not be audible to other areas of the jobsite.
 - b. The process of removing personnel from the protected area (Unit 1) is merely an alert and does not mean that a site emergency has been established. The alert for a site pre-evacuation assemble is outlined under "Alerting" in this plan.
 - c. Personnel evacuated from the protected area (Unit 1) and assembled in their assigned areas, may then be subject to the site plan, and would proceed as the balance of this plan indicates.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

3. Manual Employees

All Bechtel and Bechtel Subcontractor manual employees will proceed to the parking lots by going through their regularly assigned badge alley. Employees must brass out and remain in the parking lots. The appointed supervisor will report "unaccounted badges" to the ECC by phone or radio.

4. Non-Manual Employees

a. Construction Office Personnel

These persons will report to their discipline assembly areas located around the perimeter of the building (see map for location). The supervisor will report accountability to the ECC by phone or radio.

b. Personnel Assigned in the Field

These persons will assemble at their assigned discipline field office. The supervisor will report accountability to ECC by phone or radio.

c. Bechtel Subcontractor Non-Manuals

These persons will assemble at the receiving dock area on the north side of the main warehouse. Members of the Bechtel Subcontractor group will be present and will be responsible for an accountability report to the ECC by phone or radio.

d. Procurement and Warehouse Personnel

All procurement and warehouse personnel will assemble directly north of the Procurement Office. The supervisor will report accountability to the ECC by phone or radio.

e. Safety and First Aid Personnel

These persons will assemble at the Safety Office. The supervisor will report accountability to the ECC by phone or radio.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

f. Water Reclamation Personnel

These persons will assemble at the WRF Field Office. The supervisor will report to the ECC by phone or radio.

g. Timekeeping Personnel

All Timekeeping personnel will report to their assigned badge alley/timekeeping office. The supervisor will report accountability to the ECC by phone or radio. Timekeeping personnel will aid in manual personnel accountability.

h. Visitors

All visitors will be the responsibility of their hosts and must remain in their company. Supervisors will report all visitors in their assembly areas, by name, to the ECC, by phone or radio along with routine reports.

B. General Accountability

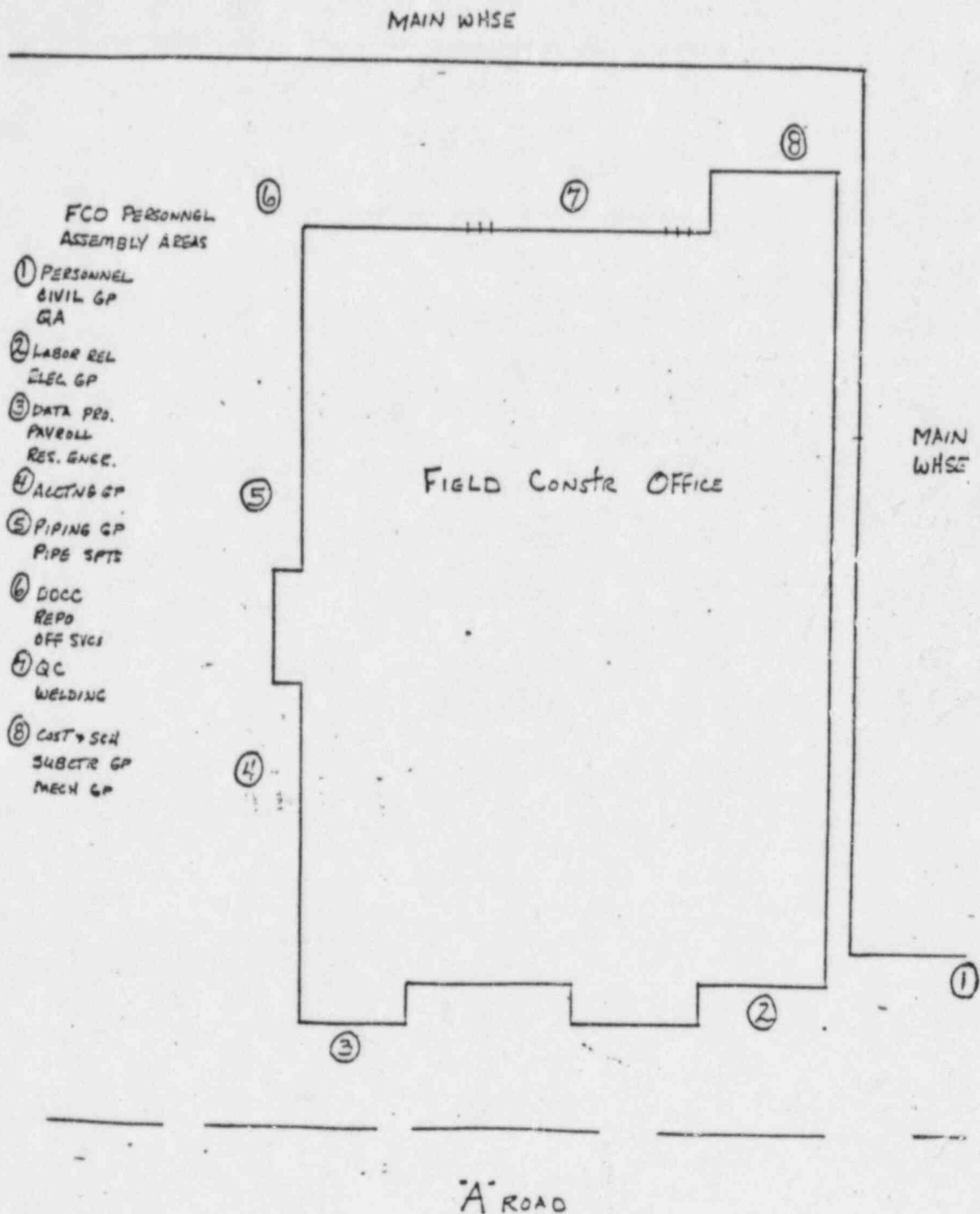
Unit and Area Superintendents, Lead Engineers and Craft Supervisors will be assigned reporting duties to provide coverage at the assembly areas, etc. Their responsibilities will be to report accountability and provide general supervision and coordination of activities. Accountability reports to the ECC will be accomplished by Unit or Area Superintendents.

C. Education and Training

- a. A pamphlet will be dispersed to all site personnel (including subcontractors) to inform them of the procedures established in this plan.
- b. An explanation of this plan will be incorporated into the manual and non-manual new hire orientations.
- c. The job-wide Safety Tool Box meetings will be used to present the plan to the jobsite. These meetings may be used to provide a refresher for the plan if needed.
- d. APS will train Bechtel employees who enter the protected area, concerning accountability response within the protected area.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)



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APS CONSTRUCTION

PVNGS

EMERGENCY PLAN

PERSONNEL ACCOUNTABILITY AND ASSEMBLY

IMPLEMENTING PROCEDURE

SCOPE

This procedure describes the immediate emergency personnel assembly and accountability actions to be taken by the following groups of onsite personnel:

- o APS Nuclear Construction Department employees
- o APS Site Quality Assurance employees
- o APS Visitor's Center employees
- o SRP Switchyard Construction employees
- o Construction Security Guards
- o Visitors, vendors, APS contractors, tour guests under the jurisdiction of the above groups.

This procedure is based on the situation of a Unit 1 emergency while Unit 1 is operational and Units 2 and 3 are still in the construction stage.

ACCOUNTABILITY

1. Employees of the Nuclear Construction and Site Quality Assurance Departments routinely log in and out of the Site Construction Office such that their whereabouts are known to the Nuclear Construction Manager or his designee at all times. The locations of visitors and contractor personnel who are the responsibility of these two groups are also included in the log. APS Visitor's Center employees and visitors are the responsibility of the Visitor's Center Director or his alternate. He is accountable to the Nuclear Construction Manager for purposes of accountability when this procedure is in effect. SRP Switchyard construction employees are also accountable to the Nuclear Construction Manager and are logged in and out of the construction area.

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2. Employees and visitors who enter the Unit 1 controlled area or the Water Reclamation Plant become the responsibility of the Nuclear Operations Department and for purposes of this procedure, are considered visitors to that group.
3. Personnel located outside the chain-link construction fence are considered to be outside the owner-controlled area. Accountability is not required. Nuclear Construction personnel outside this area but onsite will carry a portable radio, however, for direction in the event of a site evacuation.
4. Personnel such as SP Railroad employees who may not be escorted will be issued a card which advises them of actions required in the event of an emergency.
5. The Nuclear Construction Manager will appoint a designee to act for him during his absence and outside of normal day-shift hours.

IMMEDIATE ACTIONS

1. When Nuclear Construction, Site QA personnel and their visitors located in Unit 1 are directed to evacuate, they will do so either through the Security Building or the Security Trailer exit located at plant north of the Fuel Building.
 - a. Personnel exiting via the Security Building will assemble at Area #2 (see Figure 1).
 - b. Personnel exiting via the Security Trailer will proceed to Area #1 to assemble.
2. SRP and other personnel located in the switchyard will assemble in Area #3.
3. Personnel located elsewhere within the chain-link fenced construction area will assemble in Area #1, which is the APS Nuclear Construction Office.
4. Visitor's Center personnel will assemble at the Visitor's Center parking lot, Area #4. Tour guests within the construction area will be escorted by their host/guide out to Area #4.
5. APS contractor personnel having site access badges will have received training in emergency procedures and will proceed to the appropriate area as though they were employees of Nuclear Construction.

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SUBSEQUENT ACTIONS

1. Personnel accountability measures are the responsibility of the Nuclear Construction Manager. It is the responsibility of each supervisor to know the general location of his personnel, visitors and contractors at all times.
2. The Nuclear Construction Manager or his alternate will appoint a Nuclear Construction Department staff member for each assembly area to go to his area and identify the head count and personnel not accounted for by name and last known location. The results will be forwarded to the Nuclear Construction Manager or his designee.
3. The status of personnel accountability will be forwarded by the Nuclear Construction Manager to the Security Director or his alternate (located in the Security Building) for relay to the PVNGS Emergency Coordinator.
4. Unaccounted for personnel will then be subject to the action described in Emergency Plan Implementing Procedure No. 21.

J. R. Mann
February 12, 1982

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE

PROCEDURE
NO.

EPIP-19

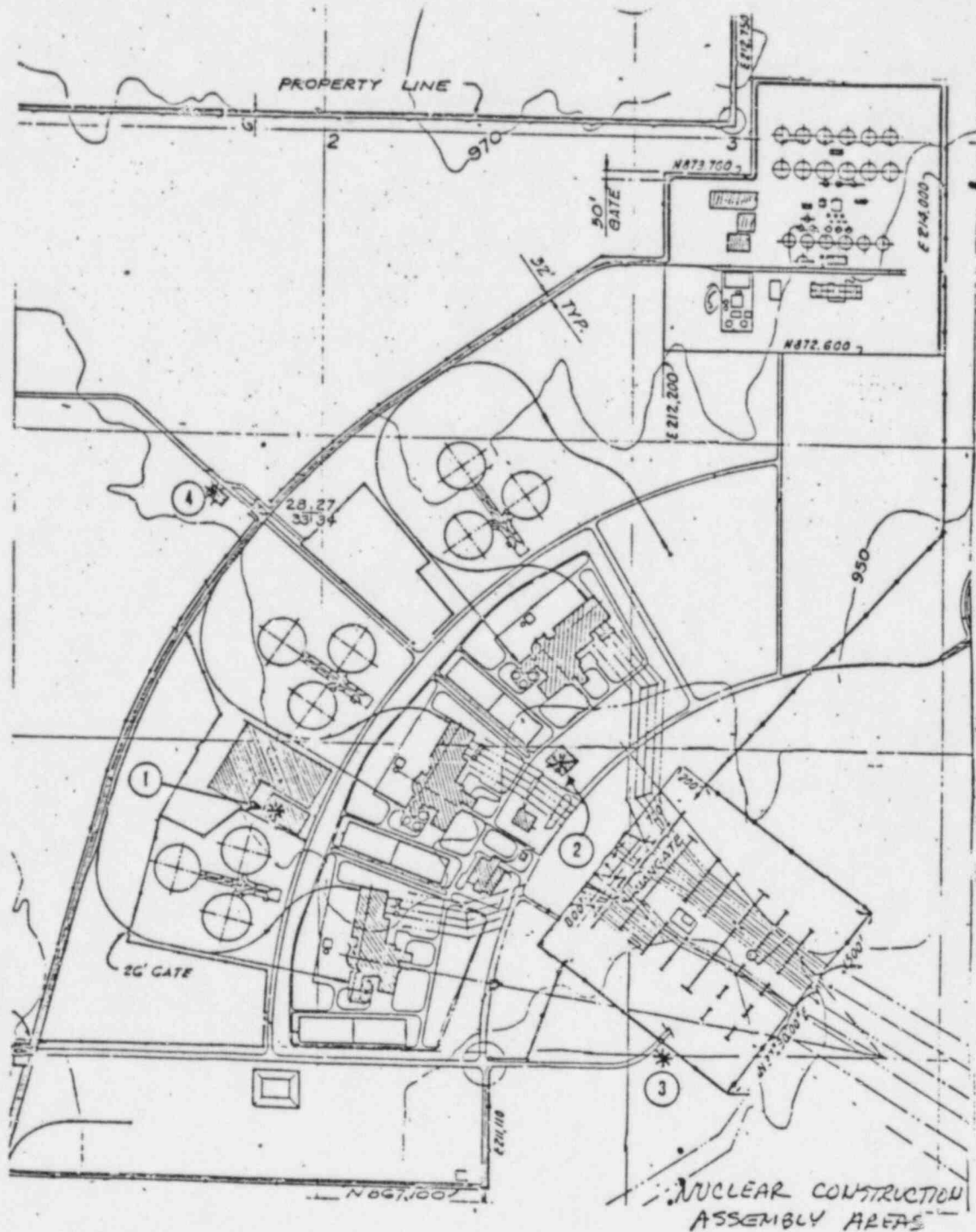
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ONSITE EVACUATION



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EMERGENCY COORDINATOR'S
ONSITE EVACUATION CHECK-OFF SHEET

Action	Initials/Time
1. Personnel Assembly/Accountability has been completed (APS, APS Construction, Bechtel, Water Reclamation, protected area).	/
2. Security check to ensure all personnel have evacuated the Administration Building and trailers outside the protected area.	/
3. SITE or GENERAL EMERGENCY has been declared or the situation, as determined by the Emergency Coordinator, warrants evacuation.	/
4. Arrange for bus transportation offsite for nonessential personnel.	/
5. Inform the Bechtel's Emergency Control Center, 5051, 5056 of the evacuation and evacuation route in conditions warrant.	/
6. Inform APS Nuclear Construction Office of the evacuation.	/
7. Announce the evacuation of the Public Address System (if warranted, the evacuation route).	/
8. Activate the site siren for evacuation (2 minutes continuous tone).	/
9. If reassembly at an offsite location is necessary, inform the offsite location and ensure that Emergency Kits are delivered.	/

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FIGURE 1
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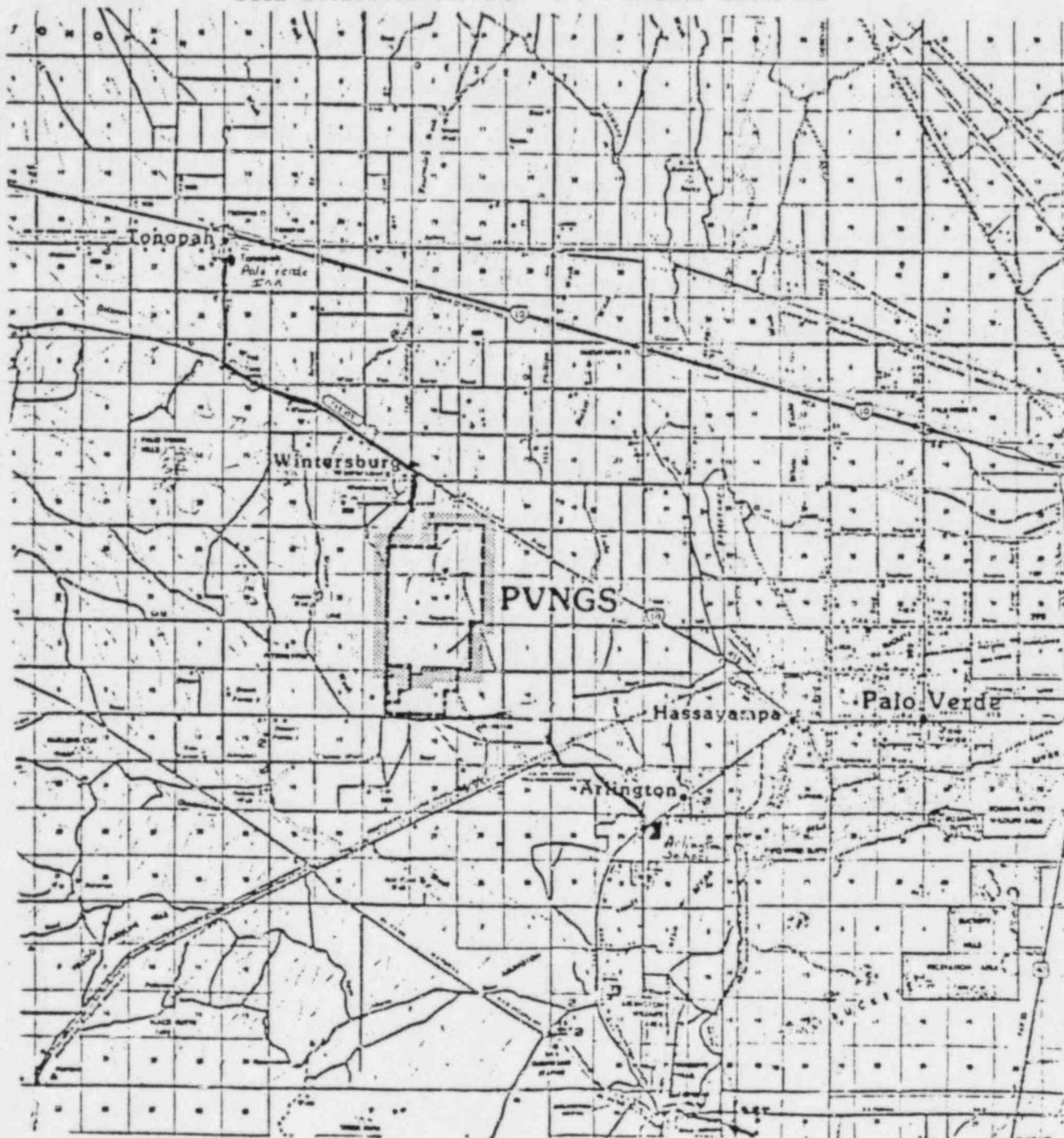
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ON-SITE EVACUATION

FIGURE 1
SITE EXCLUSION BOUNDARY AND PROPERTY BOUNDARY



1 0 1 2 3 4 5
Scale in Miles



LEGEND:

--- Site Boundary

— Exclusion Boundary

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FIGURE 1
OFFSITE ASSEMBLY AREA

Palo Verde Inn

When exiting from the west side of the plant site, travel north on Wintersburg Road. Turn west on the Buckeye-Salome intersection. Follow the Buckeye-Salome Road to Tonopah, Arizona. Entrance to the Palo Verde Inn is located approximately 1/2 mile south of Interstate 10 at the south side of the Palo Verde Trailer Park.

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ASSIGNED COPY

PVNGS SW 8-9A

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-1588A/0180A

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1.0 OBJECTIVE

- 1.1 To provide for personnel accountability within 30 minutes from the time the emergency accountability signal is activated (i.e., ALERT or higher classification).
- 1.2 To maintain personnel accountability for the duration of the emergency condition.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "PVNGS Emergency Classification"
- 2.1.2 EPIP-04, "ALERT Implementing Actions"
- 2.1.3 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"
- 2.1.5 EPIP-19, "Onsite Evacuation"
- 2.1.6 EPIP-21, "Search and Rescue"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan, Rev. 2
- 2.2.3 Bechtel PVNGS Pre-Evacuation Plan
- 2.2.4 APS Construction Personnel Accountability and Assembly Implementing Procedure

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 This procedure must be implemented in an orderly fashion to avoid confusion and personnel injury.

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- 3.2 Instructions for plant security personnel assumes that the emergency is not security related. If a breach of security exists, the appropriate PVNGS Security Plan Implementing Procedures shall be implemented.
- 3.3 If during this procedure an assembly area outside the protected area appears likely to exceed 2 mR/hr, a site evacuation in accordance with EPIP-19, "Onsite Evacuation", will be initiated.
- 3.4 Personnel performing critical operations such as fire fighting, giving aid to injured, performing work which could endanger the life or safety of personnel if left unattended, do not need to immediately report to their accountability area. However, they should do one of the following:
 - a. Secure the operation to a safe condition and then proceed to their accountability area.
 - b. If the operation will take more than five minutes to secure, notify the Security Shift Captain at ext. 4444.
- 4.0 DETAILED PROCEDURE
 - 4.1 Personnel Indoctrination
 - 4.1.1 In the event of an emergency situation at an operating unit, it is imperative that personnel onsite are notified of the situation, their whereabouts identified for safety and security purposes, and that they respond in a coordinated effort to the emergency.
 - 4.1.2 An emergency accountability signal is provided to alert personnel within the protected area of the affected unit that an emergency exists.
 - 4.1.2.1 The accountability signal will be broadcast over the affected unit's Emergency Public Address system. A tone generator, activated from the Control Room, allows for the selection of a preset emergency signal through the PA system. A verbal announcement may follow, providing specific instructions.

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4.1.2.2 If there are two or more units within the protected area, and the situation does not necessitate activation of the emergency siren, the Emergency Coordinator will notify the unaffected unit(s) to initiate the emergency accountability signal for that/those unit. This will ensure that personnel accountability, within the protected area, is achieved.

4.1.2.3 Flashing red lights have been provided in containment and other areas where background noise levels may preclude auditory perception of the PA system.

4.1.2.4 Actuation of the emergency PA system requires specific approval of the Shift Supervisor or the Emergency Coordinator. It will be activated for an ALERT or more severe classification.

4.1.3 If the emergency condition is such that the entire plant site should initiate protective actions, the emergency siren will be used. Activation of the siren will result in the assembly and accountability of all site personnel. For an UNUSUAL EVENT or ALERT, this siren may be sounded from any of the unit Control Rooms at the discretion of the Shift Supervisor or Emergency Coordinator; activation of the siren is mandatory for a SITE EMERGENCY or more severe classification.

4.1.3.1 When hearing the emergency siren each site employee, APS visitor, Bechtel Construction, contractors, APS Construction, and visitors will report to designated assembly areas. Each area will have an Assembly Area Supervisor, who shall notify the Security Shift Captain at ext. of personnel accountability results.

4.2 Prerequisites

The Shift Supervisor or Emergency Coordinator declares an ALERT, SITE EMERGENCY or GENERAL EMERGENCY per EPIP-02, or determines personnel accountability is desirable and activates the emergency accountability signal and/or emergency siren, depending upon the scope of required response.

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4.3 Instructions

4.3.1 Upon activation of the accountability signal, plant security personnel shall respond as follows:

- 4.3.1.1 Those assigned to the Central Alarm Station (CAS), the Secondary Alarm Station (SAS), the perimeter posts, and other fixed posts shall remain at their assigned areas and await further instructions.
- 4.3.1.2 Those on routine patrol within the protected area shall report to the Security Building via portable radio for accountability and further instructions.
- 4.3.1.3 Those on routine patrol outside the protected area shall call into the Security Building for instructions.

4.3.2 Upon activation of the accountability signal, other personnel within the protected area shall respond as follows:

- 4.3.2.1 Personnel assigned emergency organization positions at the Control Room, Satellite Technical Support Center, Operational Support Center, Technical Support Center, Service Building, or Emergency Operations Facility will report to their respective emergency locations.
- 4.3.2.2 Personnel within the radiation control area shall proceed through access control in a normal manner and report to the Operational Support Center Coordinator for accountability and further instructions.
- 4.3.2.3 APS personnel and visitors within the protected area and not engaged in emergency recovery actions (i.e., non-essential personnel) shall proceed to the nearest security exit, "badge out", and proceed to the Administration Annex Building First Floor.

Figure 1 is a diagram of the Administration Annex Building First Floor showing designated assembly areas.

- 4.3.2.4 Bechtel and APS Construction, contractors, and visitors within the protected area, will proceed to the security exit and proceed to assigned locations per Attachments 1 and 2 of this procedure.

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4.3.3 Upon activation of the emergency siren, plant security personnel shall respond as follows:

4.3.3.1 Those assigned to the CAS, SAS, perimeter posts and other fixed posts shall remain at their assigned areas and await further instructions.

4.3.3.2 Other security force personnel shall report to the Security Building via portable radio for accountability and further instructions.

4.3.3.3 Personnel at the Security Firing Range will be contacted by the Security Shift Captain, informed of the situation, and provided instructions as necessary.

4.3.4 Upon activation of the emergency siren, personnel identified in Section 4.3.2 shall respond in the same manner as for "activation of the accountability signal". Personnel outside the protected area shall respond as follows:

4.3.4.1 Nuclear Operations personnel including contractors and visitors, outside the protected area and near one of the following facilities shall report to:

(1) Visitor's Information Center Auditorium (8:00 a.m. to 4:30 p.m., 7 days a week)

(2) Water Reclamation Facility

(3) First Floor, Administration Annex Building

whichever is closest.

4.3.4.2 Nuclear Operations nonessential personnel located outside the protected area will report to the Administration Annex Building First Floor.

4.3.4.3 Bechtel and APS Construction, contractors, and visitors will proceed to their assigned locations per Attachments 1 and 2.

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4.3.5 Personnel accountability within the protected area will be accomplished as follows:

- 4.3.5.1 Each assembly area has an Assembly Area Supervisor responsible for determining personnel accountability within that area (see Appendix A).
- 4.3.5.2 The Security Director will obtain a copy of the computer printout of personnel who were in the protected area when the emergency (ALERT or more severe) was declared.
- 4.3.5.3 The Assembly Area Supervisor (AAS) in the Control Room(s), TSC, OSC(s) Main Access Control Point(s), Services Building, and EOF obtains the names and badge numbers of individuals who have reported to the area by completing the Individual Accountability Sheet (Appendix B). The AAS then advises the Security S.C. at ext. 4444 of the personnel and their badge numbers that are accounted for.
- 4.3.5.4 If individuals are not accounted for, the Security S.C. has those individuals' names announced over the unit's intercom system, requesting a response. If there is a response, that individual will be told to report to one of the accountability areas. If there is no response, a Search and Rescue Team will be assembled per EPIP-21, "Search and Rescue".
- 4.3.5.5 From these reports the Security S.C. will inform the Security Director who will determine overall accountability within the protected area and report it to the Emergency Coordinator within 30 minutes after the emergency was declared.

4.3.6 Personnel accountability outside the protected area will be accomplished as follows:

- 4.3.6.1 The AAS at the Administration Annex Building, Visitor's Information Center and Water Reclamation Facility will obtain and have completed the Individual Accountability Sheets (Appendix B) which will contain the names and badge numbers of individuals who have reported to that assembly area.

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- 4.3.6.2 When accountability is completed, the AAS will notify the Security Director and inform him that accountability is complete.
- 4.3.6.3 The Security Director will arrange to pick up the Individual Accountability Sheets for each area.
- 4.3.6.4 To ensure that personnel outside the protected area have been accounted for, the Security Director will have the APS controlled buildings routinely checked to ensure that they are not occupied. If the building is occupied, the Security Guard will inform the personnel to report to the nearest accountability area.
- 4.3.6.5 The Security Director, after determining the accountability within the protected area, will contact the Bechtel Emergency Control Center and APS Construction Office to determine accountability for those organizations.
- 4.3.6.6 The Security Director will report overall accountability outside the protected area to the Emergency Coordinator as soon as practicable.

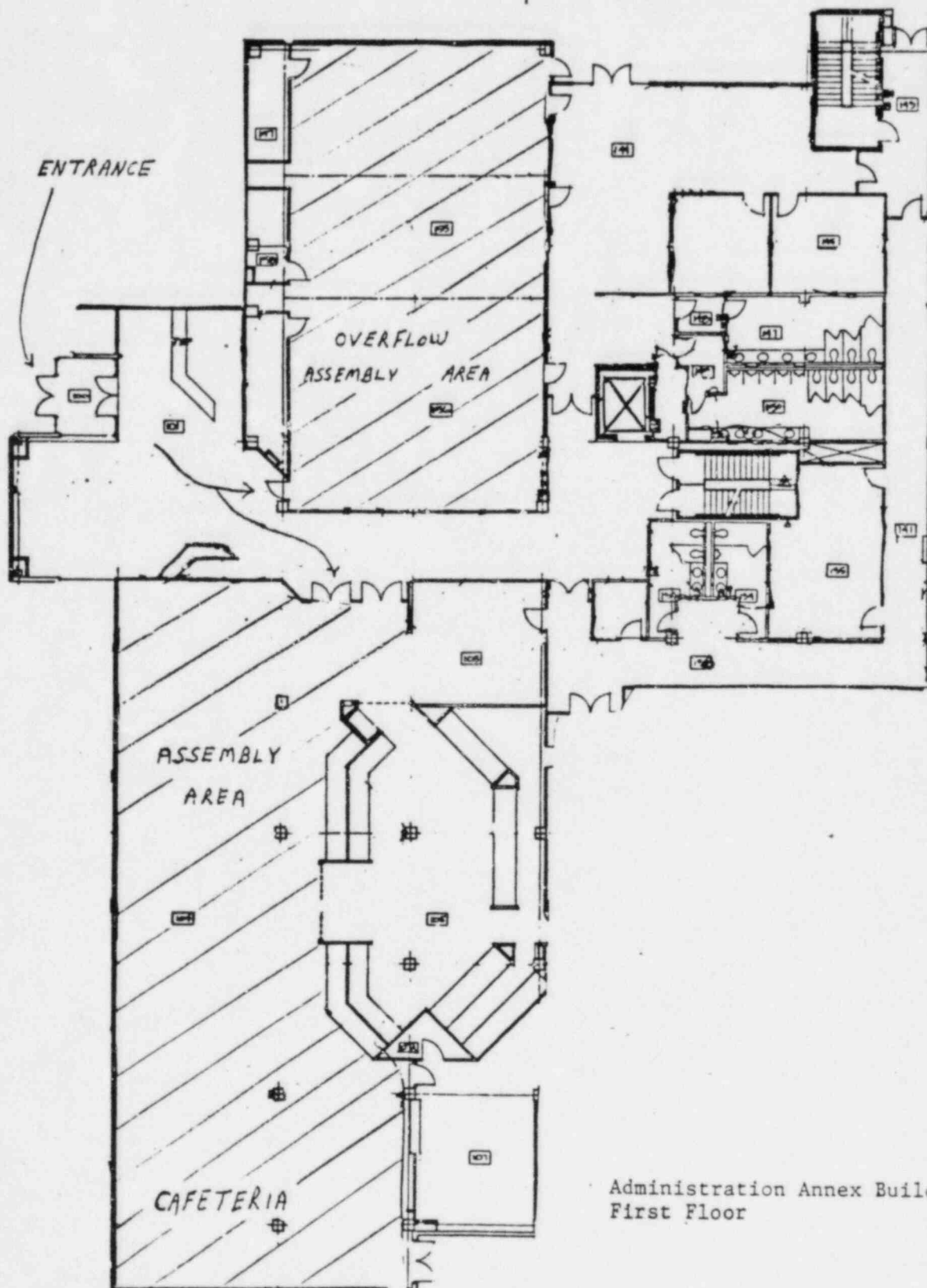
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PERSONNEL ACCOUNTABILITY RESPONSIBILITY

The first person listed in each group below is designated as the primary Assembly Area Supervisor (AAS) to determine the accountability of personnel at the respective assembly areas. Using a telephone or runner, he shall inform the Security Director of accountability status of his area as soon as practicable (but within 20 minutes of the initiation of the alarm). Other personnel listed are alternate AAS's at each location.

1. Control Room/Satellite TSC
 - a. Assistant Shift Supervisor
 - b. Nuclear Operator III
2. Technical Support Center
 - a. Personnel Resources Coordinator
 - b. Emergency Maintenance Coordinator
 - c. Hazard Control Coordinator
 - d. Field Team Communicator
3. Operations Support Center
 - a. OSC Coordinator
 - b. Repair Coordinator
4. Service Building
 - a. Mechanical Coordinator
 - b. I&C Coordinator
 - c. Electrical Coordinator
5. Emergency Operations Facility
 - a. Security Coordinator
 - b. Administrative and Logistics Coordinator
6. Administration Annex Building First Floor
Administration Annex Building Security Guard
7. Protected Area
 - a. Security Shift Captain
8. Water Reclamation Facility
 - a. WRF Shift Foreman
 - b. Chemist

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Administration Annex Building
First Floor

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN

Purpose

Alert, assemble and account for all Bechtel employees of Bechtel Subcontractors, and Bechtel visitors in the event of an emergency at PVNGS, and prior to a site evacuation.

Scope

This plan describes the methods and procedures necessary to alert, assemble and account for employees should an evacuation be necessary.

General

A safe and orderly process is necessary to assemble and account for personnel in preparation for an emergency that may require site evacuation. The locations for assembly are outlined in this plan. Accountability of personnel at these assembly areas will be the responsibility of appointed supervisors. These supervisors will report their findings to the Emergency Control Center either by phone or radio. Phone numbers are _____, radio FM Channel 3 (general use) UHF _____ MHZ. Missing persons must be named. All personnel will remain in their appointed assembly areas until notification from the Emergency Control Center.

Search and rescue for unaccounted personnel within the protected area will be conducted by APS personnel. Outside the protected area, Bechtel will be responsible for accountability, search and rescue of Bechtel employees.

Alerting

Sirens will be used to alert personnel on the jobsite to proceed to their appointed assembly areas. A continuous tone (2 minutes or longer if necessary) will signal the start of the assembly process. Sirens will be used to give the "all clear" signal which is three (3) short blasts from the siren. Flashing lights or horns will be installed in areas where the sirens are not audible. All vehicle traffic will stop during assembly.

EMERGENCY CONTROL CENTER (ECC)

This center will coordinate all Bechtel site emergency operations excluding the protected area. The center is located at the Field Construction Managers office area. All accountability reporting from assembly areas will be directed to either the Project Superintendent or the Project Services Superintendent, who will record and report to the Field Construction Manager.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

The Project Superintendent or the Project Services Superintendent will assume the responsibilities of the FCM in his absence. Shift Superintendents will assume the responsibilities of this plan on the off shifts. The ECC will then report personnel accountability status to the Security Director of the PVNGS Emergency Organization and will be relayed to the Bechtel ECC for action.

A. Assembly Areas and Procedures

1. When the protected area (Unit 1) is established (a short period prior to fuel load), all personnel covered in the purpose and scope of this plan and working within the protected area will assemble as follows:
 - a. Bechtel manual employees will clear the Unit 1 security gate and report to their respective craft shacks and await additional instruction.
 - b. Bechtel non-manual personnel will clear the Unit 1 security gate and report to their discipline at the Unit 1 Field Office and await additional instruction.
 - c. Bechtel subcontractor manuals and non-manuals will clear the Unit 1 security gate and report to their respective offices or shacks and await additional instruction.
 - d. All other personnel will report to their respective disciplines.
 - e. Visitors will accompany their hosts.
2. Protected Area Procedures
 - a. The alerting procedure will be confined to the protected area only and will not be audible to other areas of the jobsite.
 - b. The process of removing personnel from the protected area (Unit 1) is merely an alert and does not mean that a site emergency has been established. The alert for a site pre-evacuation assembly is outlined under "Alerting" in this plan.
 - c. Personnel evacuated from the protected area (Unit 1) and assembled in their assigned areas, may then be subject to the site plan, and would proceed as the balance of this plan indicates.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

3. Manual Employees

All Bechtel and Bechtel Subcontractor manual employees will proceed to the parking lots by going through their regularly assigned badge alley. Employees must brass out and remain in the parking lots. The appointed supervisor will report "unaccounted badges" to the ECC by phone or radio.

4. Non-Manual Employees

a. Construction Office Personnel

These persons will report to their discipline assembly areas located around the perimeter of the building (see map for location). The supervisor will report accountability to the ECC by phone or radio.

b. Personnel Assigned in the Field

These persons will assemble at their assigned discipline field office. The supervisor will report accountability to ECC by phone or radio.

c. Bechtel Subcontractor Non-Manuals

These persons will assemble at the receiving dock area on the north side of the main warehouse. Members of the Bechtel Subcontractor group will be present and will be responsible for an accountability report to the ECC by phone or radio.

d. Procurement and Warehouse Personnel

All procurement and warehouse personnel will assemble directly north of the Procurement Office. The supervisor will report accountability to the ECC by phone or radio.

e. Safety and First Aid Personnel

These persons will assemble at the Safety Office. The supervisor will report accountability to the ECC by phone or radio.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

f. Water Reclamation Personnel

These persons will assemble at the WRF Field Office. The supervisor will report to the ECC by phone or radio.

g. Timekeeping Personnel

All Timekeeping personnel will report to their assigned badge alley/timekeeping office. The supervisor will report accountability to the ECC by phone or radio. Timekeeping personnel will aid in manual personnel accountability.

h. Visitors

All visitors will be the responsibility of their hosts and must remain in their company. Supervisors will report all visitors in their assembly areas, by name, to the ECC, by phone or radio along with routine reports.

B. General Accountability

Unit and Area Superintendents, Lead Engineers and Craft Supervisors will be assigned reporting duties to provide coverage at the assembly areas, etc. Their responsibilities will be to report accountability and provide general supervision and coordination of activities. Accountability reports to the ECC will be accomplished by Unit or Area Superintendents.

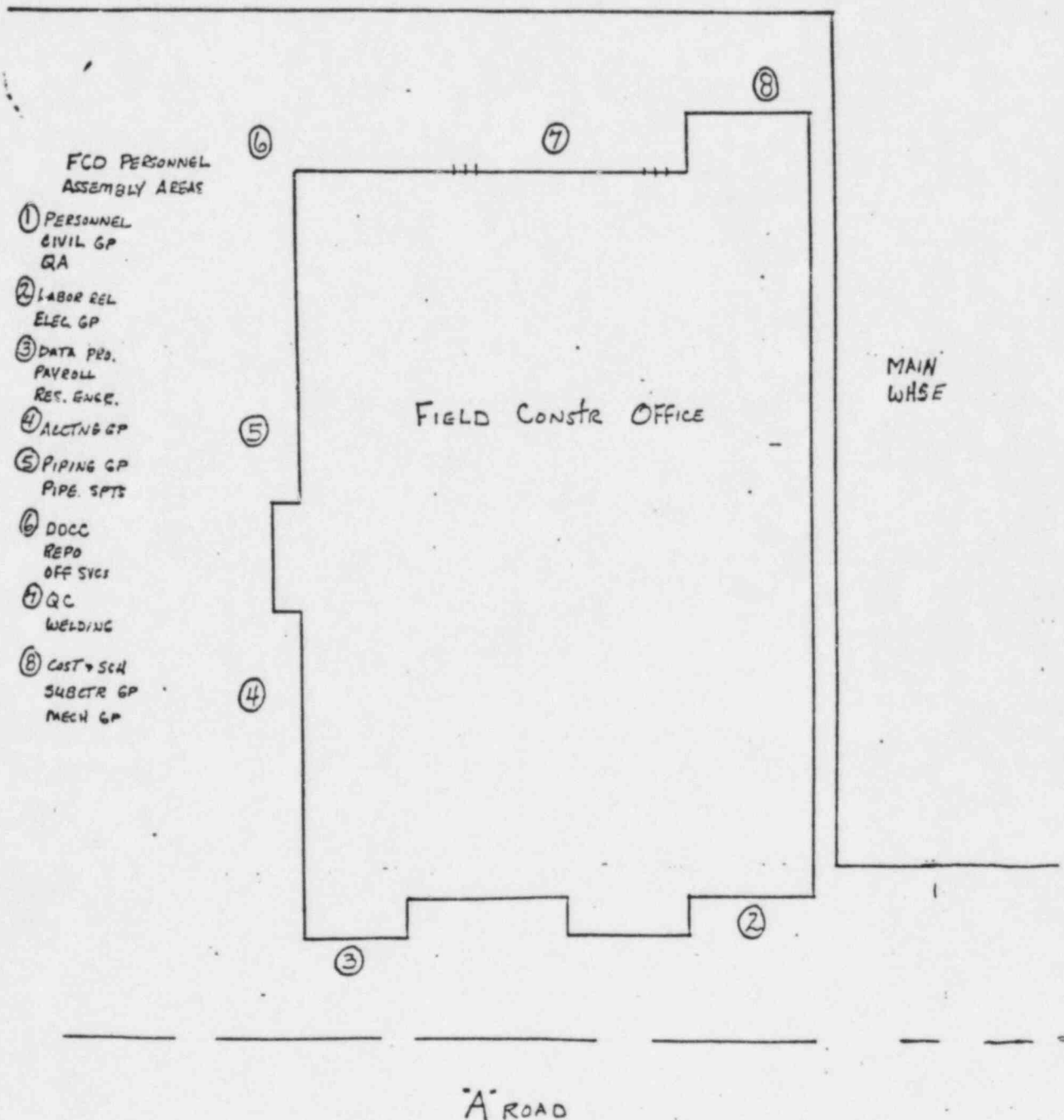
C. Education and Training

- a. A pamphlet will be dispersed to all site personnel (including subcontractors) to inform them of the procedures established in this plan.
- b. An explanation of this plan will be incorporated into the manual and non-manual new hire orientations.
- c. The job-wide Safety Tool Box meetings will be used to present the plan to the jobsite. These meetings may be used to provide a refresher for the plan if needed.
- d. APS will train Bechtel employees who enter the protected area, concerning accountability response within the protected area.

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BECHTEL'S
PVNGS PRE-EVACUATION ASSEMBLY PLAN (CONT'D)

MAIN WHSE



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APS CONSTRUCTION

PVNGS

EMERGENCY PLAN

PERSONNEL ACCOUNTABILITY AND ASSEMBLY

IMPLEMENTING PROCEDURE

SCOPE

This procedure describes the immediate emergency personnel assembly and accountability actions to be taken by the following groups of onsite personnel:

- o APS Nuclear Construction Department employees
- o APS Site Quality Assurance employees
- o APS Visitor's Center employees
- o SRP Switchyard Construction employees
- o Construction Security Guards
- o Visitors, vendors, APS contractors, tour guests under the jurisdiction of the above groups.

This procedure is based on the situation of a Unit 1 emergency while Unit 1 is operational and Units 2 and 3 are still in the construction stage.

ACCOUNTABILITY

1. Employees of the Nuclear Construction and Site Quality Assurance Departments routinely log in and out of the Site Construction Office such that their whereabouts are known to the Nuclear Construction Manager or his designee at all times. The locations of visitors and contractor personnel who are the responsibility of these two groups are also included in the log. APS Visitor's Center employees and visitors are the responsibility of the Visitor's Center Director or his alternate. He is accountable to the Nuclear Construction Manager for purposes of accountability when this procedure is in effect. SRP Switchyard construction employees are also accountable to the Nuclear Construction Manager and are logged in and out of the construction area.

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2. Employees and visitors who enter the Unit 1 controlled area or the Water Reclamation Plant become the responsibility of the Nuclear Operations Department and for purposes of this procedure, are considered visitors to that group.
3. Personnel located outside the chain-link construction fence are considered to be outside the owner-controlled area. Accountability is not required. Nuclear Construction personnel outside this area but onsite will carry a portable radio, however, for direction in the event of a site evacuation.
4. Personnel such as SP Railroad employees who may not be escorted will be issued a card which advises them of actions required in the event of an emergency.
5. The Nuclear Construction Manager will appoint a designee to act for him during his absence and outside of normal day-shift hours.

IMMEDIATE ACTIONS

1. When Nuclear Construction, Site QA personnel and their visitors located in Unit 1 are directed to evacuate, they will do so either through the Security Building or the Security Trailer exit located at plant north of the Fuel Building.
 - a. Personnel exiting via the Security Building will assemble at Area #2 (see Figure 1)
 - b. Personnel exiting via the Security Trailer will proceed to Area #1 to assemble.
2. SRP and other personnel located in the switchyard will assemble in Area #3.
3. Personnel located elsewhere within the chain-link fenced construction area will assemble in Area #1, which is the APS Nuclear Construction Office.
4. Visitor's Center personnel will assemble at the Visitor's Center parking lot, Area #4. Tour guests within the construction area will be escorted by their host/guide out to Area #4.
5. APS contractor personnel having site access badges will have received training in emergency procedures and will proceed to the appropriate area as though they were employees of Nuclear Construction.

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SUBSEQUENT ACTIONS

1. Personnel accountability measures are the responsibility of the Nuclear Construction Manager. It is the responsibility of each supervisor to know the general location of his personnel, visitors and contractors at all times.
2. The Nuclear Construction Manager or his alternate will appoint a Nuclear Construction Department staff member for each assembly area to go to his area and identify the head count and personnel not accounted for by name and last known location. The results will be forwarded to the Nuclear Construction Manager or his designee.
3. The status of personnel accountability will be forwarded by the Nuclear Construction Manager to the Security Director or his alternate (located in the Security Building) for relay to the PVNGS Emergency Coordinator.
4. Unaccounted for personnel will then be subject to the action described in Emergency Plan Implementing Procedure No. 21.

J. R. Mann
February 12, 1982

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APPROVED BY: *[Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

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1.0 OBJECTIVE

- 1.1 To provide instructions for the search and rescue of individuals who may be missing or disabled in some part of the station.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.2 EPIP-20, "Personnel Assembly and Accountability"
- 2.1.3 EPIP-22, "Personnel Injury"
- 2.1.4 EPIP-26, "Potassium Iodide Administration"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Section 6.0 "Emergency Measures"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Proper radiological controls should be adhered to during search and rescue operations.
- 3.2 Personnel involved should be knowledgeable of the consequences of exposure in excess of PVNGS administrative and/or 10 CFR 20 limits.
 - a. Women of child bearing age and capability should not take part.
 - b. Use of personnel above age 45 should receive first consideration.
 - c. Best available respiratory protection should be used when necessary.
 - d. Protective clothing should be worn when necessary.
- 3.3 Planned exposures in excess of PVNGS administrative limits (Appendix A) shall be approved by the Emergency Coordinator prior to receiving the exposures and in accordance with EPIP-18.

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3.4 A portable radio should be provided to the Search and Rescue Team.

3.5 Search and Rescue Team members should keep within sight or voice range of each other.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 If personnel are noted to be missing or disabled based on the results of EPIP-20, the Security Director shall notify the Emergency Coordinator. The Emergency Coordinator is responsible for implementing this procedure and shall direct the OSC Coordinator to form a Search and Rescue Team.

4.2 Prerequisites

4.2.1 Personnel have been reported missing per EPIP-20 or are known to be disabled and need assistance.

4.3 Instructions

4.3.1 The OSC Coordinator shall:

4.3.1.1 Assemble a Search and Rescue Team(s), each team consisting of two members. At least one member shall be a Radiation Protection Technician. Both members must be familiar with the plant.

4.3.1.2 Appoint one team member as the Team Leader.

4.3.1.3 Within the limits allowed by the urgency of the situation, make every reasonable effort to provide the Search and Rescue Team(s) with the following information (if known):

- a. Identification of missing individual(s).
- b. Last known location of each individual (check REP if one is issued).
- c. The job each individual was working on.

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- d. Any significant details of the plant status that may affect the search and any special instructions.
 - e. With the Radiation Protection Monitor or Radiological Protection Coordinator, ascertain radiation levels if possible, and determine the approximate stay times for team members in the area.
 - f. Inform Search and Rescue Team members of radiation exposure limits if deemed necessary in accordance with EPIP-18.
 - g. Instruct the team(s) to notify the Hazards Control Coordinator, located in the TSC, immediately upon location and/or removal of personnel from the hazardous area. The Hazards Control Coordinator will notify the Emergency Coordinator of the results of the search and rescue efforts.
- 4.3.1.4 Coordinate all Search and Rescue Teams so that duplication of effort and unnecessary radiation exposure does not occur.
- 4.3.1.5 Recall the Search and Rescue Team(s) when search and rescue operations are no longer necessary as determined by the Emergency Coordinator or when all missing personnel are accounted for.
- 4.3.2 The Search and Rescue Team Leader is in charge of the team and shall:
- 4.3.2.1 Ensure that the team is equipped as necessary utilizing the check list of Appendix B.
 - 4.3.2.2 Keep the Hazards Control Coordinator informed of significant actions via appropriate communication equipment. The Hazards Control Coordinator will keep the OSC Coordinator informed of all significant events, and complete the check list of Appendix C as appropriate.
 - 4.3.2.3 Inform the Hazards Control Coordinator immediately upon locating any missing and/or disabled personnel.

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4.3.3 The Radiation Protection Technician shall be equipped with appropriate radiation measuring instruments and insure that team members do not receive whole body doses greater than those authorized.

4.3.4 The Search and Rescue Team members shall:

4.3.4.1 Proceed to the last known location of the missing individual(s) and if necessary, expand the search to adjacent areas.

4.3.4.2 Keep within sight or voice range of each other.

4.3.4.3 Employ the following guidelines during the rescue effort:

- a. If the area is known to be contaminated or if a massive escape of steam or explosion is involved in an area where it can be contaminated, protective clothing and respiratory protection shall be worn.
- b. If the area is smoke or steam filled, or if the area is in disarray because of fire or explosion, team members shall use lifelines and respiratory protection as necessary.
- c. If there is potential radiation in the area, radiation levels shall be monitored as the area is entered.
- d. On the basis of the inspection of the area, the rescue should be completed or if the rescue is complicated by the condition of the area, the Search and Rescue Team will return to a safe area and plan the method of rescue (see 4.3.5).

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4.3.5 Special Situations

4.3.5.1 High Radiation

NOTE

The Emergency Coordinator's permission is required prior to Search and Rescue Team members exceeding PVNGS exposure limits except in immediate life or death situations. Such exposures are allowed provided the criteria of EPIP-18 are followed.

- a. If an individual is trapped or disabled in an area in which the dose received during rescue will exceed 300 mrem or dose rates exceed 100 mrem/hr., Search and Rescue Team members will wear self-alarmed dosimetry and using a high range beta/gamma detector, enter the area and complete the rescue.
- b. If the individual's condition is known to be such that excessive time is required to remove him from the area, consider portable shielding or other steps to reduce the exposure of the personnel involved.

4.3.5.2 Fire

- a. Rescue of an individual shall take precedence over fire fighting unless the fire can be extinguished without detrimental effect on the victim, or if it is necessary to suppress the fire to perform the rescue.
- b. Consider obtaining rainsuits from fire fighting supplies and having one team member spray water (using a hose and spray nozzle) over the team member performing the rescue.

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4.3.5.3 Steam or Hot Water

- a. Rescue of an individual shall take precedence over system isolation unless:
 - o To perform the rescue system isolation is required.
 - o Failure to isolate the system will seriously affect reactor safety or place the lives of other personnel in immediate danger.
- b. Consider performing the actions of 4.3.5.2.(b) to perform the rescue.

4.3.5.4 Wreckage

- a. Obtain the tools necessary to perform the rescue.
- b. Enter the area and perform the rescue.

4.3.6 Action Following Rescue

- 4.3.6.1 Transport or escort the victim(s) to a safe location as soon as possible and perform any required first aid.
- 4.3.6.2 If the victim is injured, advise the Hazards Control Coordinator and perform EPIP-22 as necessary.
- 4.3.6.3 The OSC Coordinator will inform the Hazards Control Coordinator when the team has concluded its search and rescue activities and returned to the OSC.

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PVNGS ADMINISTRATIVE DOSE LIMITS AND MAXIMUM PERMISSIBLE
DOSE EQUIVALENT FOR OCCUPATIONAL WORKERS (10CFR20)

<u>Critical Organ</u>	<u>DOSE LIMITS</u> <u>PVNGS ADMINISTRATIVE LIMITS</u>		<u>10CFR20 LIMITS</u>	
	<u>mrem/quarter</u>	<u>mrem/year</u>	<u>mrem/quarter</u>	<u>mrem/year</u>
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,000	4,000	1,250 ¹	5,000
Hands, Forearms, Ankles, Feet	15,000	N/A	18,750 ²	
Skin of Whole Body	6,000	N/A	7,500 ²	
Other Organs (Thyroid), Tissues and Organ Systems			5,000 ⁴	
Pregnant Women (With Respect to the Fetus)	$\frac{500\text{mrem}^3}{9 \text{ months}}$		$\frac{500\text{mrem}^3}{9 \text{ months}}$	$\frac{500\text{mrem}^3}{9 \text{ months}}$

1. 3,000 millirem is permitted in a calendar quarter or 12,000 millirem in a year as long as the accumulative occupational dose to the whole body does not exceed 5,000 millirem x (age - 18) and the individual's lifetime exposure history is recorded on the NRC's Form 4 or equivalent. Doses exceeding 1,250 mrem/quarter must be reported to the NRC per 10CFR20.403 and 10CFR20.405.
2. The licensee is required to supply appropriate personnel monitoring equipment and shall require the use of such equipment by each individual that receives or is likely to receive a dose in any calendar quarter in excess of 25% of the applicable 10CFR20 value.
3. NCRP, ICRP Guidance.
4. NUREG 0737.

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SEARCH AND RESCUE TEAM CHECK LIST

1. Obtain the following equipment as required:

- a. Portable Radio _____
- b. Radiation Survey Instruments _____
- c. High Range Beta/Gamma Survey Meter _____
- d. Dosimetry (Self-Alarming) _____
- e. Lifelines _____
- f. Protective Clothing _____
- g. SCBA _____
- h. First Aid Kit _____
- i. Flashlights _____
- j. Stretcher _____
- k. Other (Specify) _____

Signature: _____
 (Team Leader)

Date: _____

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SEARCH AND RESCUE HAZARDS COORDINATOR CHECK LIST

1. Date _____ Time _____

2. OSC Coordinator _____

3. Team Members: a. _____ (Leader)

b. _____

4. Identity of Missing Individual(s) Probable Location

_____	_____
_____	_____
_____	_____
_____	_____

5. Potential Conditions at Location (circle):

- | | |
|-------------------|-------------------|
| a. Contamination | f. Steam Filled |
| b. High Radiation | g. Wreckage |
| c. Fire | h. Loss of Lights |
| d. Smoke Filled | i. Other |
| e. Steam Leak | (Specify) _____ |
| | _____ |

6. If required, emergency and exposure limits authorized _____
(Hazards Control Coordinator)

7. Radiation levels and stay times determined, if necessary _____
(Hazards Control Coordinator)

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PVNGS SM 8-9A

APPROVED BY: JR Byrnum DATE 11/5/82
 DATE EFFECTIVE 11-12-82

DN-1634A/0190A

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1.0 OBJECTIVE

- 1.1 This procedure details actions necessary for the treatment of injured or contaminated/injured personnel. The treatment of contaminated open wounds, and the handling and transport of contaminated personnel are also addressed in this procedure.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.4 EPIP-28, "Personnel Monitoring and Decontamination"
- 2.1.5 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.6 EPIP-21, "Search and Rescue"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 NUREG-0696, Final Report, Feb. 1981, "Functional Criteria for Emergency Response Facilities"
- 2.2.3 PVNGS Emergency Plan, Rev. 2
- 2.2.4 Maryvale Samaritan Hospital, "Plan for Determination and Treatment of the Radioactivity Contaminated Patient (Palo Verde Plan)"

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3.0 LIMITATIONS AND PRECAUTIONS

CAUTION

MEDICAL ATTENTION TO SERIOUS INJURIES TAKES
PRIORITY OVER THE REMOVAL OF CONTAMINATION OR
RADIATION CONTROL.

3.1 Emergency radiation exposures in excess of PVNGS administrative limits or 10CFR20 occupational limits must be authorized by the Emergency Coordinator, in accordance with EPIP-18.

3.1.1 For lifesaving actions, the dose limits are 100 rem (whole body) and 200 rem (extremities), EPIP-18.

3.2 One member of each Search and Rescue Emergency Team should carry a radiation survey instrument during rescue/first aid operations in radiation areas.

3.3 If possible, prevent the spread of contamination.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 As delineated in EPIP-01, the Emergency Coordinator is responsible for the implementation of this procedure.

4.1.2 A Radiological Support Staff member shall coordinate the rescue activities of volunteers if any of the following conditions are present: high area dose rates, surface contamination, airborne contamination or contaminated injured personnel.

4.2 Prerequisites

4.2.1 An incident has occurred which has been classified per the provisions of EPIP-02.

4.2.2 A personnel injury has occurred.

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4.2.3 Emergency exposures, if necessary, have been authorized by the Emergency Coordinator, in accordance with EPIP-18.

4.3 Instructions

4.3.1 At the scene - person discovering the injured individual shall:

4.3.1.1 Render first aid, if life or limb of an injured person(s) appears to be endangered.

NOTE

Medical attention to serious injuries should take priority over contamination control or personnel decontamination.

4.3.1.2 Promptly assess and report the following information to the Control Room:

- a. Number of injured individual(s).
- b. Injury description(s), type and severity.
- c. Radiological conditions, if known (high external radiation levels, surface or airborne contamination, contamination of injured personnel).
- d. Other emergency conditions and hazards (fire, chemical, etc.).
- e. Estimate of time, skills, equipment and manpower necessary to treat and evacuate injured individual(s).

4.3.2 The Emergency Coordinator shall ensure the following are performed:

- 4.3.2.1 If necessary, implement EPIP-18.
- 4.3.2.2 If necessary, complete Radiation Exposure Permits (REP) per EPIP-18.
- 4.3.2.3 Contact the First-Aid Station and inform on-duty personnel of situation.

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4.3.3 Emergency Team Action - Treat injured personnel in accordance with appropriate section.

- o Absence of radiological aspects - 4.3.3.1
- o Possibility of radiological aspects - 4.3.3.2
- o Transport and hospital treatment of contaminated injured individuals - 4.3.4.1

4.3.3.1 Absence of radiological aspects - treatment of injured personnel:

- a. Emergency Team - Implement normal first aid procedures.
- b. Emergency Team - Upon approval from the Emergency Team Leader, move the injured party to the nearest first aid station.
- c. Radiological Support Staff member - If hospitalization is required, perform the actions of section 4.3.4.1.

4.3.3.2 Possibility of high external radiation levels, surface contamination, or airborne contamination - treatment of injured personnel:

CAUTION

IF THE INJURY IS SEVERE, IMMEDIATE MEDICAL TREATMENT IS OF THE HIGHEST PRIORITY AND RADIOLOGICAL CONTROLS ARE CONSIDERED SECONDARY.

- a. Radiological Support Staff member (preferably the Radiological Protection Coordinator with the advice of the Plant Nurse) - Determine the order of priorities of treatment, evacuation, decontamination and the necessity of protective clothing/respiratory protection, etc., as dictated by existing radiological and/or other hazardous conditions.

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- b. Emergency Team - If necessary, don protective clothing and equipment. If a REP was completed, perform actions in accordance with the permit.
- c. Emergency Team - Reevaluate radiological conditions. If any of the following conditions exist: high area dose rates, surface contamination, airborne contamination, etc., move the injured individual(s) from the area upon approval from the Emergency Team Leader.
- d. Emergency Team - Survey the injured party using a beta/gamma survey instrument, and complete a body map (Appendix C).
 - o If the injury involves a wound, survey the wound area with a pancake detector or wound probe.
 - o If equipment caused the wound, survey and smear the equipment. If equipment is contaminated, assume the wound is contaminated.
 - o If the above steps indicate the presence of wound contamination, gently smear the area around the wound, taking precautions to prevent the spreading or imbedding of possible contamination.
- e. If patient condition warrants, decontaminate the individual in accordance with EPIP-28, Personnel Monitoring and Decontamination.
- f. If decontamination is not possible and hospitalization is required, the Emergency Team Leader shall direct the following activities:
 - o If time allows, circle contaminated areas with a magic marker and cover with absorbent material. DO NOT use plastic for wrapping.
 - o If time allows, complete Appendix B and C to document known wound and contamination locations. These should accompany the patient to the hospital.
 - o If time allows, place "Caution, Radioactive Contamination" tags on the individual in the following manner; left wrist (yellow and

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magenta tag) containing the following information: patient's name, patient's external contamination levels and locations.

- o Remove contaminated clothing if the wound or injury will not be aggravated.
- o Notify the Radiological Protection Staff member that the individual is ready for transport to the hospital.
- o After transport to the hospital, survey all surfaces and areas of patient contact and decontaminate in accordance with EPIP-29, Area/Equipment Monitoring and Decontamination.

4.3.4 Hospital Treatment of Contaminated Injured Individual(s)

4.3.4.1 Transport to Hospital

- a. Transport the injured individual(s) to Maryvale Samaritan Hospital by onsite ambulance, offsite ambulance or helicopter service.
- b. A Radiological Protection Staff member shall telephone the hospital, in accordance with EPIP-33) and speak directly to the Emergency Room Supervisor or the Floor Supervisor. When calling the hospital (complete Appendix D):
 - o Identify yourself by name and association to PVNGS.
 - o State the nature of the injury and contamination levels.
 - o State the estimated time of arrival at the hospital (one hour and 15 minutes under normal driving conditions).
- c. A Radiological Protection Staff member (preferably the Radiological Protection Coordinator) shall:
 - o Direct the use of onsite emergency vehicle(s).

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- o If time permits, designate one person to make ready the station ambulance to transport the patient to the hospital, i.e., protective covering inside the ambulance (herculite sheeting).
 - o If onsite emergency vehicle(s) are unavailable and offsite vehicles are to be used, notify Security. Security shall call the appropriate ambulance service and provide dosimetry to ambulance personnel.
 - o Designate one person to meet and accompany the ambulance to the patient's location.
 - o Determine the emergency route and hospital entrance to be used. Provide this information to ambulance personnel and personnel accompanying the injured party (Appendix A).
 - o Designate one or more persons to accompany the patient to the hospital. These persons shall carry and be qualified in the use of G-M survey instruments and radiation control procedures.
- d. Radiological Protection personnel shall:
- o If the patient is ambulatory, escort the patient to the ambulance.
 - o If necessary, supervise the casualty stretcher removal. If time allows, the stretcher should be placed on a sheet of clean plastic on the clean side of the control point at the boundary of the contamination zone. The plastic should then be brought up around the stretcher to contain and prevent contamination spread along the path to the ambulance.
 - o If necessary, set up temporary shielding in the ambulance.

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4.3.4.2 Hospital Procedures - Radiological Protection Personnel

- o PVNGS personnel shall assist hospital personnel as necessary with surveys, setting up temporary shielding, etc. (refer to Maryvale Samaritan Hospital Radiological Procedures).
- o Decontamination procedures will be carried out by PVNGS personnel as follows:
 - a. Survey ambulance attendants and decontaminate (if necessary) prior to leaving the hospital. Collect dosimeters if personnel are not returning to PVNGS.
 - b. Survey the ambulance. If decontamination is necessary and is not feasible at the hospital site, the ambulance and attendants shall return to the plant site for decontamination.
 - c. Survey the hospital entrance, emergency room and any areas, supplies and equipment used in the treatment of the contaminated patient. Decontaminate as necessary.
 - d. Supervise and assist in the decontamination of hospital personnel.
 - e. Collect hospital dosimeters and return to PVNGS.
 - f. Collect all radioactive waste in sealed containers and return to PVNGS.
 - g. Make arrangements to replace all contaminated clothing, supplies, and equipment.

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FIRST AID INFORMATION

NOTE

This information should be sent with personnel to medical centers or hospitals.

Name of Injured Party _____

Address of Injured Party _____

Phone Number of Injured Party _____

Date of Accident _____ Time of Accident _____

Type of Injury _____

Cause of Injury _____

Complicating Factors* _____

Treatment Administered _____

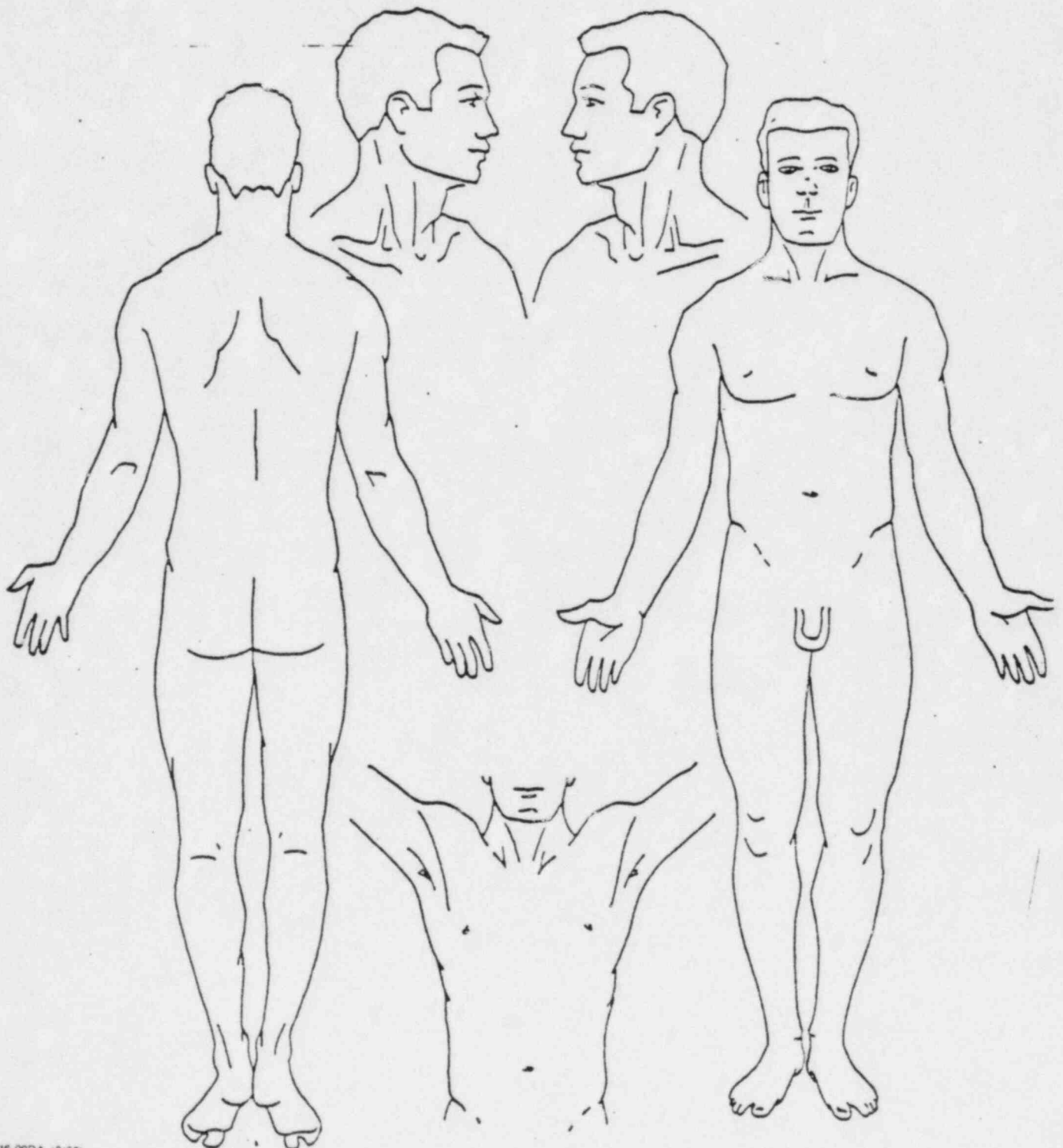
Time of Treatment _____

Rescue/First Aid Personnel _____

*i.e., high radiation levels (give R/h), containment (type, amount), etc.

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BODY MAP



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MARYVALE SAMARITAN HOSPITAL
HOSPITAL NOTIFICATION FORM

Date/Time of Call: _____

Person Calling:

Name: _____

Address: _____

Telephone Number: _____

Accident Information:

Location: _____

Date and Time: _____

Number of Injured Patients: _____

Type of Radioisotope Involved: _____

Number of Contaminated/Injured Patients: _____

Description of Injured: _____

Expected Time of Arrival at Hospital: _____

REMARKS: _____

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APPROVED BY:

[Signature]

DATE

9/29/82

DATE EFFECTIVE

10-6-82

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1.0 OBJECTIVE

- 1.1 This procedure details actions necessary for the efficient, orderly, and expedient treatment of a fire situation within the boundaries of PVNGS.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "PVNGS Emergency Classification"
- 2.1.2 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.3 EPIP-24, "Security"
- 2.1.4 PVNGS Prefire Strategies

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 NUREG 0696 (Final Report), "Functional Criteria for Emergency Response Facilities"
- 2.2.3 PVNGS Emergency Plan, Rev. 2
- 2.2.4 NFPA 1975 Code Pamphlet 27
- 2.2.5 83AC-0ZZ12, Fire Team Training

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 As this procedure deals with the handling of emergency situations it is intended to be used as a guide. The actual conditions at the station could alter emergency and subsequent actions.
- 3.2 This procedure assumes plant operators have successfully completed the PVNGS Fire Training Program.
- 3.3 SCBA must be worn at all times while fighting fires within any radiologically controlled and/or confined areas.

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3.4 While fighting any fire in a radiologically controlled area, radiation exposure levels in excess of PVNGS administrative limits shall be approved by the Emergency Coordinator prior to receiving the exposure and in accordance with EPIP-18.

3.5 Conventional fire fighting clothing can be used in lieu of standard radiological protective clothing.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The Emergency Coordinator as delineated in EPIP-01 has overall responsibility for implementation of this procedure.

4.1.2 The Fire Team will be assembled at the onset of any fire. The Assistant Shift Supervisor will act as the Fire Team Leader and is in charge of the fire fighting effort. In situations where local fire departments may be summoned, the Fire Team Leader shall retain his leadership role at the fire scene. Additional personnel are assigned to the Fire Team as follows:

- a. 2 Nuclear Operators
- b. 1 Chemistry Technician
- c. 1 Radiation Protection Technician

4.2 Prerequisites

4.2.1 A fire is in progress, that has reached or exceeded an Emergency Action Level per EPIP-02:

4.3 Instructions

4.3.1 At the scene of the fire:

4.3.1.1 Person discovering the fire, go to the nearest phone and report the following to the Control Room:

- a. Type (if known) and size of fire,
- b. Location,
- c. Any injuries,
- d. Any other pertinent information (e.g., source of fire, recommendations).

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4.3.1.2 Person discovering fire, maintain communication with the Control Room unless otherwise directed, or if bodily harm is imminent.

4.3.1.3 Knowledgeable personnel, attempt to fight the fire with available equipment while awaiting arrival of the Fire Team.

4.3.1.4 Unnecessary personnel, evacuate the area.

4.3.2 Control Room

4.3.2.1 Upon receipt of information of a fire on site announce the following over the station PA system.

"THERE IS A CLASS (A, B, C) (IF KNOWN) FIRE AT (LOCATION). FIRE TEAM RESPOND AND REPORT TO FIRE LOCKER AT (LOCATION)".

4.3.2.2 Take operational actions outlined in the Prefire Strategies according to the fire location, intensity, and plant conditions.

4.3.2.3 The Emergency Coordinator shall ensure the Hazards Control Coordinator (Safety Administrator) is kept informed of the situation.

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4.3.3 Fire Team

4.3.3.1 Fire Team Leader, make a preliminary investigation of the fire to determine what equipment is needed to fight the fire, or if offsite assistance is needed.

- a. Fire Team members, report to the directed fire locker, breakout equipment, and standby for directions from Fire Team Leader.
- b. Fire Team Leader, direct the Fire Team in the following:
 - o Ensuring appropriate automatic fire protection systems have started.
 - o Establishing a strategy for fighting the fire and ensuring that each member of the Fire Team knows his function.
 - o Establishing fire boundaries.
 - o De-energizing and isolating affected equipment.
- c. Fire Team Leader ensure the Control Room is informed of the status of the fire.

4.3.4 Security Director

4.3.4.1 At the direction of the Emergency Coordinator, the Security Director shall contact the Bechtel Fire Department and provide the following information.

- a. Type and location of fire.
- b. Extent of fire (if known).
- c. Special precautions, if required.
- d. Special equipment required.

4.3.4.2 The Security Director shall inform the security force that offsite fire fighting assistance is expected and designate personnel to escort the Bechtel Fire Department personnel and equipment to the scene of the fire in accordance with EPIP-24.

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4.3.4 Radiological Protection Coordinator

- 4.3.4.1 Upon notification by the Emergency Coordinator, the Radiological Protection Coordinator shall dispatch a monitoring team to the scene of the fire, to assist with radiological aspects of the emergency.
- 4.3.4.2 If outside fire fighting assistance was required the monitoring team shall survey all personnel and equipment prior to their release from the site following termination of the emergency.
- 4.3.4.3 The monitoring team shall supervise any decontamination evaluations that are required prior to release of offsite personnel or equipment.

4.3.5 When the fire has been extinguished:

- 4.3.5.1 Fire Team Leader, inform the Emergency Coordinator and station a reflash watch as necessary.
- 4.3.5.2 Plant Operator, announce over the PA system:
"SECURE FROM FIRE AT (LOCATION), RESTORE FIRE EQUIPMENT".
- 4.3.5.3 Emergency Coordinator, secure offsite response groups after completion of any required radiological monitoring and/or decontamination.

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APPROVED BY:

J. R. Byrnes

DATE

11/9/82

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1.0 OBJECTIVE

- 1.1 To provide methods for expediting access of offsite emergency response personnel (i.e., NRC representatives, vendors, A/E, etc.) and emergency vehicles to PVNGS.
- 1.2 To provide methods for controlling access to the Control Room, Technical Support Center (TSC), and Emergency Operations Facility (EOF) during an emergency.
- 1.3 To provide a means for identifying personnel assigned to the PVNGS Emergency Organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 PVNGS Security Plan
- 2.1.2 EPIP-28, "Personnel Monitoring and Decontamination"
- 2.1.3 EPIP-29, "Area/Equipment Monitoring and Decontamination"
- 2.1.4 75RP-9ZZ01, "TLD Issue, Exchange, and Termination"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

None

4.0 DETAILED RESPONSE

4.1 Personnel Indoctrination

- 4.1.1 In the event of a radiological emergency at PVNGS, security measures may have to be lessened to provide for immediate station access by offsite emergency personnel and vehicles.

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4.1.2 The Security Director is responsible for implementing this procedure and for insuring that only those personnel properly authorized access in accordance with this procedure and/or appropriate security directives are permitted within the protected area.

4.1.3 The cognizant supervisor is responsible for authorizing and controlling access to the emergency facility over which he has authority.

- a. Control Room/STSC - Shift Supervisor
- b. Technical Support Center - Emergency Coordinator
- c. PVNGS Protected Area - Security Director
- d. Emergency Operations Facility - Emergency Operations Director

4.2 Prerequisites

4.2.1 The PVNGS Emergency Plan has been implemented, and emergency response facilities have been activated.

4.2.2 Offsite emergency response vehicles and personnel have been called to PVNGS.

4.3 Instructions

4.3.1 Emergency Vehicle Access (Fire, Ambulance, Etc.)

4.3.1.1 The Security Director at the direction of the Emergency Coordinator shall make call-outs for emergency response vehicles/personnel (i.e., fire fighting assistance, ambulance, etc.). When making such a call-out he shall obtain as much information about the vehicles to be used as possible and report the information to the Security Building personnel.

- a. Type Vehicle(s)
- b. License Number or Other Identifying Number
- c. Color
- d. Number of Occupants

4.3.1.2 Upon arrival at PVNGS a cursory inspection of the vehicle(s) shall be performed by the Security Force to verify that it is in fact the requested vehicle, and the number of occupants shall be noted.

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NOTE

Personal dosimetry shall be issued to individuals requiring access to radiation controlled areas in accordance with 75RP-9ZZ01.

- 4.3.1.3 The vehicle(s) shall then be admitted to the protected area. The emergency vehicle(s)/personnel shall be escorted at all times while within the protected area in accordance with normal security procedures.

NOTE

If contamination of vehicles or personnel is suspected monitoring and decontamination should be performed in accordance with EPIP-28 and EPIP-29 as necessary prior to vehicle/personnel departure.

- 4.3.1.4 Upon completion of required casualty actions the emergency vehicle(s) shall proceed to the gate requested, where the number of occupants shall be noted and compared to the number who entered the station.
- 4.3.1.5 If there is any discrepancy between the number of offsite assistance personnel admitted and those departing, Security Force personnel shall contact the Security Director for further action prior to releasing the vehicle(s).

4.3.2 Emergency Personnel Access

- 4.3.2.1 The Emergency Coordinator may at any time direct the Security Director to limit access to the station.
- 4.3.2.2 At the declaration of an ALERT, SITE or GENERAL EMERGENCY and/or the initiation of personnel assembly, the Security Shift Captain will take immediate steps to limit access to the protected area.
- a. The Security Building Search Officers will not admit anyone not named on the Emergency Personnel Access List to the protected area without authorization from the Security Director.

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4.3.2.3 Personnel who are assigned to the PVNGS Emergency Organization and named on the access list will be expeditiously admitted to the protected area by the Security Building Search Officers after undergoing routine screening.

4.3.2.4 APS personnel who are called to the station and who have not been previously assigned and identified in the Emergency Personnel Access List will report to the Security Building. The Emergency Coordinator via the Security Director will notify the Security Building of those personnel reporting to the station so that they may be admitted to the protected area.

4.3.2.5 Vendor, contractor, NRC, A-E and other personnel not specified in the Emergency Personnel Access List shall only be admitted to the protected area following routine visitor badging procedures and must be escorted in accordance with established security procedures.

4.3.2.6 If conditions warrant, the Emergency Coordinator may direct the Security Director to contact the Maricopa County Sheriff's Office for assistance in controlling access to the PVNGS area.

4.3.3 Technical Support Center Access

4.3.3.1 The TSC may be totally or partially activated at an UNUSUAL EVENT, and will be totally activated at the ALERT, SITE EMERGENCY and GENERAL EMERGENCY conditions.

4.3.3.2 Upon activation of the TSC, the Security Director shall have the key-card system reset so that only designated individuals will be able to directly access the TSC.

4.3.3.3 All other personnel requesting access to the TSC will receive verbal authorization from the Personnel Resources Coordinator who will in turn notify the Security Director to grant the access.

4.3.3.4 If the Emergency Coordinator or Personnel Resources Coordinator has requested personnel to report to the TSC who have not previously been granted access, the Security Director should be immediately notified so that access can be arranged.

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4.3.3.5 The TSC staff will obtain their Emergency Personnel Identification Badge (Appendix A) from its storage location in the TSC and wear it in addition to their security badge. This badge will be transferred whenever functional responsibility is transferred from one individual to another.

4.3.4 Control Room/STSC Access

4.3.4.1 Normal key-card Control Room access procedures will be in effect during emergency conditions with the following stipulations:

- a. The Shift Supervisor may at his discretion upon the declaration of an UNUSUAL EVENT limit access to the Control Room to those Operations personnel onshift and only those other personnel specifically authorized by him, or the Emergency Coordinator.
- b. During ALERT, SITE EMERGENCY and GENERAL EMERGENCY conditions access will be limited to assigned Emergency Organization personnel and only those other personnel specifically authorized by the Shift Supervisor, or the Emergency Coordinator.

4.3.5 Emergency Operations Facility Access

4.3.5.1 The EOF will be activated for an ALERT or more severe level emergency.

4.3.5.2 Upon activation of the EOF, the Security Officer assigned to the Administration Annex shall request assignment for additional Security Officer to restrict EOF access to those personnel named on the EOF Access List.

4.3.5.3 A Security Officer will proceed to the EOF and lock the stairway door on the Plant northeast side to restrict entrance to the EOF.

4.3.5.4 Additional actions to be performed by the EOF Security Officer are addressed in EPIP-13, "Emergency Operations Facility Activation".

4.3.5.5 The Security Coordinator on arrival at the EOF shall assume responsibility for EOF access.

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4.3.5.6 All other personnel requesting access to the EOF will receive verbal authorization from the Administrative and Logistics Coordinator who will in turn notify the Security Coordinator to grant access.

4.3.5.7 If the Emergency Operations Director or the Administrative and Logistics Coordinator requests personnel to report to the EOF who have not been previously granted access, the Security Coordinator should be immediately notified that access can be arranged.

4.3.5.8 The EOF staff will obtain their Emergency Personnel Identification Badge (Appendix A) from its storage location in the EOF and wear it in addition to their security badge. This badge will be transferred whenever functional responsibility is transferred from one individual to another.

4.3.6 Emergency Personnel Identification

4.3.6.1 Each functional assignment in the PVNGS Emergency Response Organization will have a badge.

4.3.6.2 Emergency personnel identification will be reviewed and updated concurrently with the annual PVNGS Emergency Plan review.

4.3.6.3 Emergency Personnel Identification Badges will be worn in station emergency response facilities: TSC, STSC, EOF, OSC and Service Building (alternate OSC).

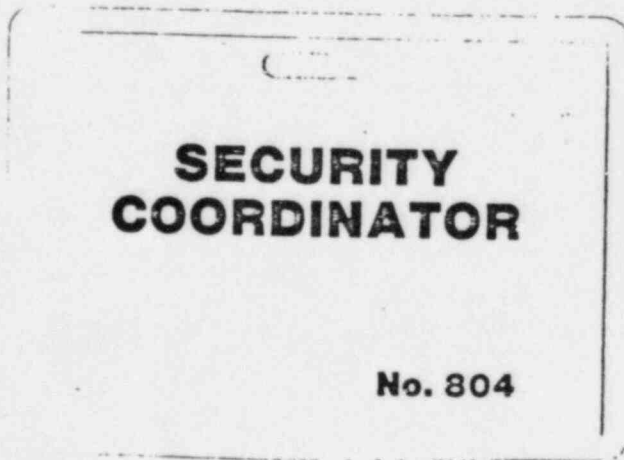
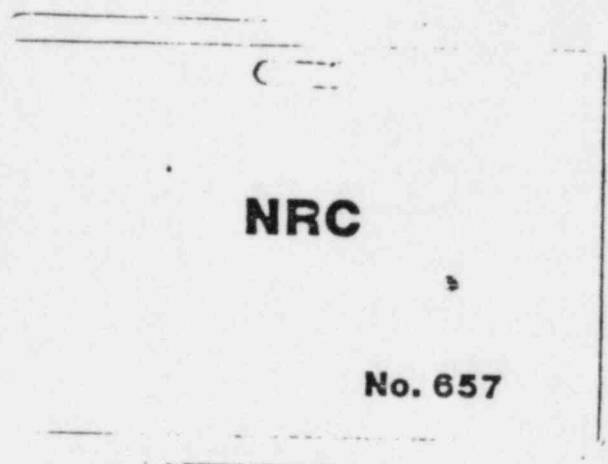
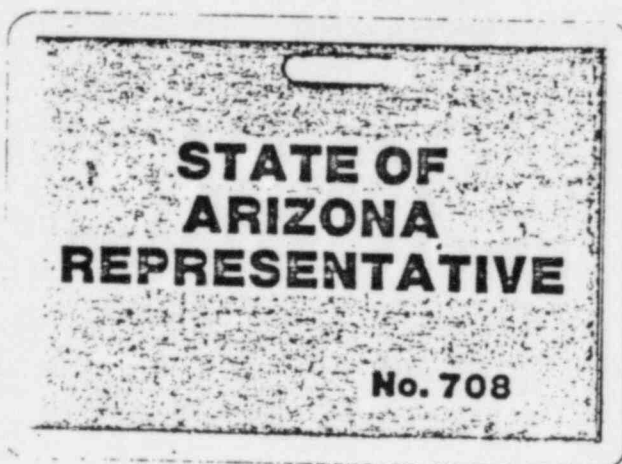
4.3.6.4 The Emergency Personnel Identification Badges are not to be confused with the PVNGS Security Badge.

4.3.6.5 The Emergency Personnel Identification Badges are to be used to identify the functional responsibility of the individual and to transfer that responsibility when relieved.

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EMERGENCY PERSONNEL IDENTIFICATION BADGE

Sample



Sample

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DATE 9/29/82

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1.0 OBJECTIVE

- 1.1 This procedure addresses required authorization, guidance and maximum exposure criteria in the event it becomes necessary to enter high radiation or contaminated areas for the purpose of crew relief or emergency repair/operations.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "PVNGS Emergency Organization"
- 2.1.2 EPIP-02, "PVNGS Emergency Classification"
- 2.1.3 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.4 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.5 EPIP-26, "Potassium Iodide (KI) Administration"
- 2.1.6 EPIP-28, "Personnel Monitoring and Decontamination"
- 2.1.5 EPIP-29, "Area, Equipment Monitoring and Decontamination"

2.2 Developmental References

- 2.2.1 NCRP Report #39, 1971 Basic Radiation Protection Criteria
- 2.2.2 EPA-520/1-75-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
- 2.2.3 PVNGS Quarterly and Annual Exposure Limits and 10CFR20 Standards for Protection Against Radiation, "Occupational Exposure Limits"
- 2.2.4 PVNGS Area and Equipment Contamination Limits

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Emergency radiation exposures in excess of PVNGS administrative limits or 10CFR20 occupational limits, must be authorized by the Emergency Coordinator, in accordance with EPIP-18.

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3.2 Administrative methods to minimize personnel exposure (such as ALARA) should remain in force to the extent consistent with timely corrective or protective actions.

3.3 Personnel shall wear dosimeters appropriate for the measurement of anticipated exposure levels. These shall include:

3.3.1 Thermoluminescent Dosimeter (Legal)

3.3.2 Thermoluminescent Dosimeter (Job)

3.3.3 Extremity Dosimeters, if appropriate (Appendix B, Note 2)

3.3.4 Alarm Dosimeters

3.4 Potassium Iodide (KI) tablets, if necessary, should be administered in accordance with EPIP-26.

3.5 Protective clothing and/or respirators should be used as appropriate.

3.6 Emergency exposures are justifiable only if the doses are commensurate with the significance of the objective.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The Emergency Coordinator is required to authorize emergency exposures, up to but not exceeding the limits specified in Appendix A.

4.1.1.1 Emergency dose limits are defined for:

- a. corrective and/or protective actions;
- b. sampling under emergency conditions.

4.1.2 The Operations Support Center Coordinator will deploy emergency repair teams, as directed from the Control Room in the onshift organization and/or the TSC in the onsite organization.

4.1.3 Emergency Repair Teams shall consist of one Radiation Protection Technician (Team Leader) and necessary chemical, mechanical, electrical, or I & C technicians.

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4.1.3.1 The Radiation Protection Technician shall be responsible for communicating with the OSC Coordinator every one half hour via portable radios.

4.1.3.2 The Radiation Protection Technician shall be responsible for assessing radiological conditions.

4.2 Prerequisites

4.2.1 An incident has occurred which has been classified per the provisions of EPIP-02.

4.2.2 The onsite Emergency Coordinator, the Emergency Maintenance Coordinator or the Radiation Protection Coordinator has determined emergency repair/operations are crucial to the needs of the Emergency Organization.

4.2.3 Emergency exposures, if necessary, have been authorized by the Emergency Coordinator in accordance with EPIP-18.

4.3 Instructions

4.3.1 Authorization

4.3.1.1 The onsite Emergency Coordinator/Emergency Maintenance Coordinator/Radiological Protection Coordinator will provide the OSC Coordinator with a description of:

- a. The work to be performed;
- b. How many people the work requires;
- c. What tools, spare parts, equipment, etc. are needed;
- d. Radiological conditions, if known.

4.3.1.2 If emergency exposures are required, the Radiological Protection Coordinator shall provide the Emergency Coordinator with a radiological evaluation of the situation(s) requiring emergency exposure(s). A Radiation Exposure Permit (REP) (Appendix C) authorizing emergency exposure, shall be completed in accordance with EPIP-18.

- a. The Emergency Team shall conduct repair activities in accordance with the REP.

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4.3.1.3 If emergency exposures are not required, the Radiological Protection Coordinator or his designee shall complete the REP (Appendix C), detailing specific protective equipment, allowable doses and the following ALARA procedures:

- o Preplanning
- o Detailed Work Procedures
- o Special Task Training, if time allows
- o Dryrun, if time allows
- o Stay Time
- o Route to Take to the Repair Operation Location
- o Adequate Ventilation, Lighting, Water, etc.

4.3.2 Personnel Exposure Control

4.3.2.1 The Emergency Repair Team shall abide by all conditions specified in the REP.

4.3.2.2 The Emergency Repair Team shall not enter any area where dose rates are unknown or unmeasurable with instruments immediately available (high range beta/gamma detectors are recommended).

- a. Prior to entering any radiation area, allow time for the meter to warm up.
- b. Check meter response with a check source.
- c. Enter suspected radiation areas with the meter set on the high scale, switching to lower scales as necessary.

4.3.2.3 Upon entering the operation/repair location, the Emergency Team Leader shall reevaluate radiological conditions.

- o High area dose rates and, if necessary, recalculate stay time. $\text{Time} = \text{Dose Limit} / \text{Dose Rate}$.

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- o Surface contamination.

- o Airborne contamination.

4.3.2.4 If radiological conditions permit, perform the required operations/maintenance, etc.

- o Decontamination of area(s)/equipment should be conducted in accordance with EPIP-29.

4.3.2.5 Personnel unable to complete the task within the allotted stay time or allotted dose shall exit the radiation area.

- o The Emergency Team Leader shall immediately report this information to the OSC Coordinator.

4.3.3 Subsequent Actions

4.3.3.1 Emergency Team Leader, check personnel for contamination. Decontaminate as necessary per EPIP-28.

4.3.3.2 Emergency Team Leader, check equipment for contamination. Decontaminate as necessary per EPIP-29.

4.3.3.3 The Radiological Protection Coordinator shall:

- a. Promptly obtain initial estimates of the radiation dose of exposed personnel.
- b. Update and refine dose estimates at a later time.
- c. Immediately report exposures in excess of 10CFR20 (Appendix B) to the Manager, Nuclear Operations who will then report to the NRC per 10CFR20.403 and 10CFR20.405.

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REENTRY FOR EMERGENCY OPERATIONS

EMERGENCY EXPOSURE LIMITS

	<u>Sampling Under Accident Conditions*</u>	<u>Corrective or Protective Actions</u>
Whole Body (rem)	5	25
Thyroid (rem)	25	125
Extremities (rem)	75	100**

*NUREG 0737, November 1980

**NCRP Report #39, 1971

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PVNGS ADMINISTRATIVE DOSE LIMITS AND MAXIMUM PERMISSIBLE
DOSE EQUIVALENT FOR OCCUPATIONAL WORKERS (10CFR20)

<u>Critical Organ</u>	<u>DOSE LIMITS</u> <u>PVNGS ADMINISTRATIVE LIMITS</u>		<u>10CRF20</u>	
	<u>mrem/quarter</u>	<u>mrem/year</u>	<u>mrem/quarter</u>	<u>mrem/year</u>
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,000	4,000	1,250 ¹	5,000
Hands, Forearms, Ankles, Feet	15,000	N/A	18,750 ²	
Skin of Whole Body	6,000	N/A	7,500 ²	
Other Organs (Thyroid), Tissues and Organ Systems			5,000 ⁴	
Pregnant Women (With Respect to the Fetus)	$\frac{500\text{mrem}^3}{9 \text{ months}}$		$\frac{500\text{mrem}^3}{9 \text{ months}}$	$\frac{500\text{mrem}^3}{9 \text{ months}}$

1. 3,000 millirem is permitted in a calendar quarter or 12,000 millirem in a year as long as the accumulative occupational dose to the whole body does not exceed 5,000 millirem x (age - 18) and the individual's lifetime exposure history is recorded on the NRC's Form 4 or equivalent. Doses exceeding 1,250 mrem/quarter must be reported to the NRC per 10CFR20.403 and 10CFR20.405.
2. The licensee is required to supply appropriate personnel monitoring equipment and shall require the use of such equipment by each individual that receives or is likely to receive a dose in any calendar quarter in excess of 25% of the applicable 10CFR20 value.
3. NCRP, ICRP Guidance.
4. NUREG 0737.

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STANDARD RADIATION EXPOSURE PERMIT

PVNGS Unit: _____ REP #: _____
 VALID FROM: _____ TO _____ JOB #: _____
 REP STATUS: _____ REP TYPE: _____
 TASK #: _____ COMPONENT: _____
 JOB DESCRIPTION: _____
 MAP #: _____ LOCATION: _____
 REP REQUIRED BY: _____
 PROCESSING PRIORITY: _____

RADIATION SURVEY CONDITIONS:

MAP #: _____ SURVEY #: _____
 AIR SAMPLE ID #: _____ TOTAL MPC FRACTION: _____
 BETA/GAMMA (mr/hr): _____ CONTAMINATION (DPM): _____
 WET/DRY: _____

RADIATION PROTECTION REQUIREMENTS:

1. P.C. Requirements

<input type="checkbox"/> No Personal Outer Clothing <input type="checkbox"/> Lab Coat <input type="checkbox"/> Plastic Shoe Covers <input type="checkbox"/> Plastic Booties <input type="checkbox"/> Rubber Shoe Covers (___ 2 pr)	<input type="checkbox"/> Rubber Gloves (___ 2 pr) <input type="checkbox"/> Surgeons Cap <input type="checkbox"/> Full Hood <input type="checkbox"/> P.C. Coveralls (___ 2 pr) <input type="checkbox"/> Plastic Suit
--	---
2. Respiratory Requirements

<input type="checkbox"/> Full Face w/Cannister <input type="checkbox"/> Full Face w/Supplied Air <input type="checkbox"/> SCBA R.G. 1.16 Class _____	<input type="checkbox"/> Bubble Hood <input type="checkbox"/> Stay Time _____ min/hr
--	---
3. Dosimetry Devices

<input type="checkbox"/> Legal TLD <input type="checkbox"/> Job TLD <input type="checkbox"/> Self-Indicating Dosimeter	<input type="checkbox"/> Radiation Survey Inst. <input type="checkbox"/> Special Dosimetry
--	---

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STANDARD RADIATION EXPOSURE PERMIT (CONT'D)

4. Special Instructions:

5.

SIGNOFFS AND APPROVALS:

Requested by: _____ SS/Unit Ready _____
 RP Preparation: _____ Withdrawn/Canceled by: _____
 RP Approval: _____ Completed by: _____

PERSONNEL ASSIGNED TO REP:

			FIRST IN _____	LAST OUT _____			
CODE #	NAME	DEPT	AVAIL WB (MR)	AVAIL MPC HR	TOT RES TIME HR	TOTAL WB(R)	TOTAL MPC HR
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

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ASSIGNED COPY

PVNGS SM 8-9A

APPROVED BY:

A. Carl Anderson

DATE

9/29/82

DATE EFFECTIVE

10-6-82

DN-1622A/0188A

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to define under what emergency conditions Potassium Iodide (KI) should be administered to emergency personnel, and who has the authority to determine when it should be taken.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.2 EPIP-17, "Offsite Surveys and Sampling"
- 2.1.3 EPIP-27, "Sample Analysis at the Station"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.2.2 NCRP 55, "Protection of the Thyroid Gland in the Event of Release of Radiiodine", National Council on Radiation Protection and Measurements, 1977

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Potassium Iodide should not be used by people allergic to iodine. Seafood allergies do not constitute an iodine allergy.
- 3.2 The "shelf life" of KI is three years.
- 3.3 Side Effects of KI
 - 3.3.1 Usually, side effects of KI (iodism) happen when doses are administered in greater amounts and for longer periods of time than recommended.

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3.3.2 Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

3.3.3 Active reactions to low doses are usually limited to angioedema (swelling of hives).

3.4 Procedure for Those Allergic to Iodine

3.4.1 If personnel allergic to iodine must enter an area where iodine inhalation is possible, administer 10 mg Tapazole every (two) hours for (two) days, then five mg daily for six days.

3.4.2 If the side effects are severe, or if an allergic reaction is experienced, stop taking potassium iodide and contact a doctor for further instructions.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 Potassium Iodide is administered to personnel who may be exposed to radioiodine. Potassium Iodide if administered in the proper time frame prevents/reduces the uptake of radioiodine by the thyroid gland.

4.1.2 The Emergency Coordinator, on the advice of the Radiological Protection Coordinator or Radiological Assessment Coordinator, is responsible for implementing this procedure.

4.2 Prerequisites

4.2.1 Potassium Iodide is to be administered if any of the following conditions exists:

4.2.1.1 Whenever a calculated iodine dose commitment of 20 rem or greater to the thyroid is likely to be received by an individual (Appendix A).

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NOTE

In all cases where airborne contamination is anticipated, personnel should be fitted with full face respirators as a minimum.

- 4.2.2.2 If possible, prior to undertaking a life-saving operation where high levels of radioiodine are suspected, and no current air analysis is available.
- 4.2.2.3 Refer to Appendix A of this procedure to determine thyroid dose as a function of the airborne I-131 concentration. If isotopic I-131 analysis is not available utilize gross iodine concentration as determined from EPIP-16 and/or EPIP-17.
- 4.2.3.4 Appendix A is to be utilized exclusively for this procedure.

4.3 Instructions

NOTE

If possible, KI (130mg tablet) should be administered approximately one day to one-half hour before exposure for maximum blockage. Final uptake is halved if KI is administered within 3-4 hours after exposure. Little benefit is gained with KI administration 10-12 hours after exposure. Once taken and the concentration is verified or the calculated dose determined, the tablets should be administered for ten (10) days post-exposure. Dosage is one tablet, once a day. Individuals suspected of inhalation of airborne contaminants should receive thyroid counts on a regular basis throughout the KI treatment period to verify effectiveness of treatment and to estimate dose commitment.

- 4.3.1 The Emergency Coordinator, acting on advice from the Radiological Protection Coordinator (or Radiological Assessment Coordinator) shall designate when and who shall receive KI.

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4.3.2 The Radiological Protection Coordinator or designee shall:

4.3.2.1 Obtain bottle(s) of 130 mg KI tablets from the Service Building warehouse.

4.3.2.2 Dispense one (1) tablet to each individual that has emergency team assignments and could enter a high-level airborne radioiodine environment.

4.3.2.3 Insure that records are maintained for those people who were administered the KI tablets, Appendix B, Record of Potassium Iodide Distribution.

4.3.3 KI treatment may be terminated if the Iodine release has ceased and thyroid counts indicate no iodine present.

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Thyroid dose rate (rem/hr) as a function of I-131 airborne concentrations (uCi/cc).*

<u>I-131 Air Concentration uCi/cc</u>	<u>Effective Age of Mixture (hr)</u>	<u>Integrated I-131 Dose Commitment Rate** (rem/hr Inhalation)</u>	<u>Integrated Total I Dose Commitment Rate** (rem/hr Inhalation)</u>
1.0E-08	0-0.1	0.02	0.036
1.0E-06		1.86	3.35
1.0E-04		186	335
1.0E-08	0.1-1.0	0.02	0.036
1.0E-06		1.86	3.35
1.0E-04		186	335
1.0E-08	1.0-2.0	0.02	0.034
1.0E-06		1.86	3.16
1.0E-04		186	316
1.0E-08	2.0-5.0	0.02	0.032
1.0E-06		1.86	2.97
1.0E-04		186	297
1.0E-08	5.0-10.0	0.02	0.03
1.0E-06		1.86	2.79
1.0E-04		186	279
1.0E-08	10.0-120.0	0.02	0.026
1.0E-06		1.86	2.42
1.0E-04		186	242
1.0E-08	120.0-0.0	0.02	0.02
1.0E-06		1.86	1.86
1.0E-04		186	186

* If I-131 isotopic analysis is not available utilize gross iodine concentrations as determined from EPIP-16 and/or EPIP-17.

** 50 year dose commitment per hour of inhalation.

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RECORD OF DISTRIBUTION OF POTASSIUM IODIDE

RECORD OF DISTRIBUTION OF POTASSIUM IODIDE

[illegible]

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ASSIGNED COPY

PVNGS SM # 8-9A

APPROVED BY: *H. Paul R. [Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1668A/0196A

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1.0 OBJECTIVE

- 1.1 This procedure provides instructions for evaluating samples taken during the course of onsite and interim offsite sampling. Major samples considered are: smear samples for loose surface contamination and particulate, radioiodine, and noble gas air samples.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-02, "Emergency Classification"
- 2.1.2 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.3 EPIP-17, "Offsite Surveys and Sampling"
- 2.1.4 EPIP-29, "Area, Equipment, Monitoring and Decontamination"
- 2.1.5 75RP-9ZZ42, Calibration and Performance Testing of Radiation Protection Laboratory Counting Equipment
- 2.1.6 75RP-9ZZ68, Operation of Lab Counting Equipment
- 2.1.7 74CH-9ZZ85, Gross Activity and Isotopic Analysis of Particulate and Iodine Filters
- 2.1.8 75CH-9ZZ63, Gamma Energy Analytical System Operation and Calibration

2.2 Developmental References

- 2.2.1 APS Accident Prevention Manual
- 2.2.2 75RP-9ZZ17, Radioactive Contamination Survey Procedure
- 2.2.3 75RP-9ZZ19, Airborne Radioactivity Sampling and Measurement

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Observe standard safety precautions as contained in the APS Accident Prevention Manual for work with electrical equipment.
- 3.2 Rubber gloves should be worn when contamination is suspected.

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3.3 Applying excessive voltage to detectors can cause equipment failure.

3.4 Highly contaminated smears should not be counted in an automated system.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The Supervising Radiation Physicist or his designee shall:

4.1.1.1 Supervise the counting procedures.

4.1.1.2 Determine the counting order of samples.

4.1.1.3 Report results to the Radiological Protection Coordinator.

4.1.2 Radiation Protection Technicians shall perform sample analysis and record results.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been classified per the provisions of EPIP-02.

4.2.2 All Radiation Protection Laboratory counting equipment to be used have been calibrated in accordance with 75RP-9ZZ42 and necessary calibration charts are available.

4.2.3 Persons performing sample analyses are familiar with the necessary procedures contained in 75RP-9ZZ68, Operation of Lab Counting Equipment, and 74CH-9ZZ85, Gross Activity and Isotopic Analysis of Particulate and Iodine Filters.

4.2.4 Smear samples and airborne particulate and iodine samples have been obtained in accordance with EPIP-16, Onsite Surveys and Sampling, and EPIP-17, Offsite Surveys and Sampling.

4.3 Instructions

4.3.1 Smear Analysis - Radiation Protection Technicians.

4.3.1.1 Scan smears with a portable hand-held beta/gamma detector. DO NOT count highly contaminated smears in automated systems.

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4.3.1.2 Count the smears in accordance with procedures contained in 75RP-9ZZ68 and record survey location and results (dpm) on normal operations sample counting form.

4.3.1.3 Compare results (dpm) with limits contained in Appendix A to determine contaminated area and/or equipment.

4.3.1.4 Notify the Radiological Protection Coordinator of any contaminated areas and/or equipment.

4.3.2 Airborne Particulate Sample Measurement - Radiation Protection Technicians.

4.3.2.1 Obtain and record the sample volume (ft³) from the attached label in Appendix B.

NOTE

Decay particulate samples for 20 minutes after completing sample collection.

NOTE

Samples should be counted no more than 30 minutes after collection.

NOTE

All steps in this section must be completed, however, their order is interchangeable.

4.3.2.2 Select a calibrated beta/gamma and/or alpha counting instrument.

4.3.2.3 Place the sample, collection side up, in a two inch planchet.

4.3.2.4 Perform a minimum one minute count for beta/gamma activity and if applicable a one minute count for alpha activity in accordance with the posted instructions for the counting instrument used. Record gross counts (CPM) on Appendix B.

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4.3.2.5 Complete calculations in Appendix B, where:

NOTE

Airborne radioactivity calculations for radioiodines and noble gases are performed in the same manner.

$$\frac{\text{uCi}}{\text{cc}} \times \frac{\text{Net CPM} \times 1.6\text{E-11} \frac{\text{uCi-ft}^3}{\text{dpm-cc}}}{\text{Sample Volume (ft}^3\text{)} \times \text{Counter Eff.} \times \text{Filter Efficiency}}$$

- o Counter efficiency is posted on the daily performance check sheet.
- o Filter efficiency is [later].

4.3.2.6 If gross activity is greater than 3.0E-09uCi/cc beta gamma forward the sample to the chemistry section for isotopic analysis in accordance with 74CH-9ZZ85.

4.3.2.7 From the same isotopic analysis determine the MPC factor per procedure 75RP-9ZZ22.

4.3.2.8 If alpha airborne radioactivity is greater than 2.0E-12uCi/cc perform a recount one hour after original count.

4.3.2.9 Determine alpha activity half life using the formula:

$$T_{1/2} = \frac{-0.693 T}{\ln (A/A_0)}$$

Where:

- T_{1/2} = half-life
- T = time between initial count and recount
- A = recount (CPM)
- A₀ = original count (CPM)

4.3.2.10 Determine the alpha airborne activity uci/cc, allowing for physical decay, using the formula:

$$A = A_0 \exp \left[\frac{-0.693 T}{T_{1/2}} \right]$$

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Where:

- A = alpha activity (uci/cc)
- A₀ = initial alpha activity (uci/cc), determined in step 4.3.2.5
- T 1/2 = alpha activity half life, determined in step 4.3.2.9
- T = time between initial count activity determination (4.3.2.5) and present time

4.3.2.11 If alpha activity is greater than 2.0E-12uCi/cc notify the Supervising Radiation Physicist.

4.3.3 Airborne Radioiodine Measurements - Radiation Protection Technicians

- 4.3.3.1 Obtain and record the sample volume (ft³) from the attached label and record in Appendix B.
- 4.3.3.2 Perform a minimum one minute count for beta/gamma activity utilizing a calibrated beta/gamma instrument. Record gross counts (CPM) on Appendix B and complete calculations.
- 4.3.3.3 If isotopic analysis is necessary, forward the sample cartridge (AgX) to the Chemistry Section for analysis in accordance with 74CH-9ZZ85.
- 4.3.3.4 Determine individual iodine activities (CPM) and record in Appendix B. Complete calculations in Appendix B.
- 4.3.3.5 Determine the iodine MPC factor (75RP-9ZZ22) from the sample isotopic analysis.
- 4.3.3.6 Record the individual iodine activities and MPC factors on normal operations counting forms.

4.3.4 Airborne Noble Gas Activity Measurements - Radiation Protection Technicians

- 4.3.4.1 Obtain and record the sample volume (ft³) from the attached label and record in Appendix B.
- 4.3.4.2 If isotopic analysis is necessary forward the sample to the Chemistry Section for counting in accordance with procedure 74CH-9ZZ63.

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4.3.4.3 Record activity of sample (CPM) in Appendix B and complete calculations.

4.3.5 Waste Disposal

4.3.5.1 Dispose of smears, particulate filters, and cartridges as radioactive waste.

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AREA AND EQUIPMENT CONTAMINATION LIMITS
TOOL AND EQUIPMENT CONTAMINATION LIMITS

LOOSE SURFACE:	BETA/GAMMA	100 dpm/100 cm ²
CONTAMINATION	ALPHA	20 dpm/100 cm ²
FIXED SURFACE:	0.1 mR/hr	
CONTAMINATION		

POSTING DESIGNATION	LOOSE SURFACE BETA/GAMMA	LOOSE SURFACE ALPHA	FIXED (CONTACT) BETA/GAMMA	FIXED (CONTACT) ALPHA
Restricted Area	1000 dpm/ 100 cm ²	20 dpm/ 100 cm ²	0.1 mR/hr	20 dpm/probe*
Contamination Area	1000 dpm/ 100 cm ²	20 dpm/ 100 cm ²		
High Contamination Area	50,000 dpm/ 100 cm ²	1000 dpm/ 100 cm ²		

*Probe - surface area of the probe.

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AIRBORNE RADIOACTIVITY CALCULATION FORM

Particulate Samples

Monitoring Location	Gross Gamma/Beta or Alpha Activity (CPM)	Bckg Activity (CPM)	Net Activity (CPM)	Sample Volume (ft3)	Counting* Efficiency (cpm/dpm)	Conversion uCi-ft3 dpm-cc	Particulate Conc (uCi/cc)
					x	1.6E-11	
					x	1.6E-11	
					x	1.6E-11	
					x	1.6E-11	
					x	1.6E-11	
					x	1.6E-11	

Radioiodine Samples

Monitoring Location	Type of Cartridge	Gross Iodine or Isotope	Gross Sample Activity (CPM)	Bckg Activity (CPM)	Net Activity (CPM)	Sample Volume (ft3)	Counting* Efficiency (cpm/dpm)	Conversion uCi-ft3 dpm-cc	Gross or Isotopic Conc (uCi/cc)
							x	1.6E-11	
							x	1.6E-11	
							x	1.6E-11	
							x	1.6E-11	
							x	1.6E-11	
							x	1.6E-11	

Noble Gas

Monitoring Location	Gross NG or Isotope	Gross Sample Activity (CPM)	Bckg Activity (CPM)	Net Activity (CPM)	Sample Volume (ft3)	Counting* Efficiency (cpm/dpm)	Conversion uCi-ft3 dpm-cc	Gross or Isotopic Conc (uCi/cc)
						x	1.6E-11	
						x	1.6E-11	
						x	1.6E-11	
						x	1.6E-11	
						x	1.6E-11	

*Counting efficiency is posted on the daily performance check sheet.

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REVISION 8-9A

APPROVED BY: *[Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1635A/0190A

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1.0 OBJECTIVE

- 1.1 This procedure provides instructions for decontamination of station personnel during emergency conditions or during normal operating conditions. The objectives of personnel decontamination techniques are; to promptly reduce radiation exposure, to minimize the absorption of radionuclides into the body, and to prevent the spread of localized contamination.

2.0 REFERENCES

2.1 Implementing References

- 2.1.4 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.3 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.6 EPIP-19, "Onsite Evacuation"
- 2.1.1 EPIP-21, "Search and Rescue"
- 2.1.2 EPIP-22, "Personnel Injury"
- 2.1.5 EPIP-26, "Potassium Iodide (KI) Administration"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2
- 2.2.2 75RP-9ZZ01, Radiation Protection Program

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Medical attention to serious injuries takes priority over the removal of contamination or radiation control.
- 3.2 Emergency radiation exposures exceeding 10CFR20 occupational limits must be authorized by the Emergency Coordinator in accordance with EPIP-18, Emergency Exposure Guidelines.
- 3.3 Administrative methods to minimize personnel exposures (such as ALARA) should remain in force to the extent consistent with timely procedures for rescue, corrective, protective, and decontamination actions.

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3.3.1 Observe radiological precautions and wear appropriate protective clothing as specified in the Radiation Exposure Permit (REP).

3.4 Decontamination may cause airborne contamination and/or the spread of loose surface contamination.

3.4.1 Care should be taken to prevent or minimize the spread of contamination.

3.5 Personnel monitoring areas should have a background level less than or equal to 300 cpm.

3.6 Personnel contamination should be removed whenever it is found in amounts greater than normal background.

3.7 The need to improvise decontamination facilities may be necessary during emergency conditions in the event large numbers of people become contaminated or have to be evacuated from the site.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 As delineated in EPIP-01 the onsite Emergency Coordinator shall implement this procedure.

4.1.2 The Supervising Radiation Physicist or his designee shall supervise personnel monitoring and decontamination activities.

4.1.2.1 Radiation Protection Technicians shall perform personnel monitoring and decontamination activities.

4.2 Prerequisites

4.2.1 Personnel are suspected or known to be contaminated.

4.2.2 If necessary, the Supervising Radiation Physicist shall complete, date, and sign a Radiation Exposure Permit (REP).

4.2.3 Radiation Protection Technicians involved in decontamination procedures shall review, date and sign the Radiation Exposure Permit (REP).

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4.2.3.1 Radiation Protection Technicians shall obtain materials specified in the Radiation Exposure Permit (REP).

4.2.3.2 Radiation Protection Technicians shall comply with the conditions stipulated in the Radiation Exposure Permit (REP).

4.3 Instructions

4.3.1 In the event of a serious injury involving contamination, immediate medical treatment is of the highest priority.

4.3.2 Radiation Protection Technicians perform surveys, as required, prior to, during, and after decontamination.

4.3.3 Radiation Protection Technicians prepare decontamination area(s) as necessary

4.3.3.1 Utilize normal decontamination facilities if available.

4.3.3.2 If plant conditions do not require site evacuation and normal decontamination facilities are not available:

- a. Select a suitable location where drains will be routed to the radwaste drain system.
- b. Personnel monitoring areas should have a background level less than or equal to 300 cpm.
- c. Provide water supply to area with hoses if necessary.
- d. Barricade area with yellow and magenta rope and establish an access control area. Take measures to avoid the further spread of contamination by either laying plastic down in the pathway to the assembly point or providing temporary shoe covers.

4.3.4.3 If necessary, establish decontamination facilities outside the plant boundary:

- a. Establish a control access point at the designated evacuation re-assembly point.
- b. Include a barricaded area large enough to accommodate personnel to be decontaminated and take measures to avoid the further spread of contamination.

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- c. Provide a separate control exit point for personnel as they leave the decontamination area.
- d. Provide for the collection of contaminated fluids and disposable supplies.

4.3.4.4 If no structures are available, improvise temporary decontamination facilities.

- a. Select an area where contaminated drains can be collected, (i.e., low point in paved parking lot or a hole lined with plastic).
- b. Barricade area with yellow and magenta rope.
- c. If local water supply is not available, arrange for a water truck.
- d. Provide a control entry and exit point arranged to minimize the spread of contamination.
- e. Provide clothing to replace contaminated clothing.

4.3.5 Assemble individuals that need to be decontaminated.

4.3.5.1 Radiation Protection Technicians shall escort personnel known or suspected to be contaminated to the appropriate decontamination area.

- a. Care should be taken to prevent or minimize the spread of contamination by either laying plastic down or providing temporary shoe covers.

4.3.6 Radiation Protection Technicians perform personnel contamination surveys.

4.3.6.1 The methods and instruments used for personnel contamination surveys do not significantly differ from those used for other contamination surveys.

- a. If necessary, cover the probe with plastic.
- b. Do not contaminate the probe by allowing it to come in contact with the person.

4.3.6.2 Due to the response time of most GM monitors, pass the probe of the GM survey meter slowly over the area to be monitored (4-5 seconds for each area).

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Skin Breaks

- a. Survey, record results on Appendix A.
- b. Irrigate wound with copious amounts of warm water making sure no contamination is washed into the wound.
- c. Carefully decontaminate intact skin surface around wound.
- d. Continue irrigation with water and survey until no radioactivity is detectable.
- e. Treat wound in usual medical fashion.
- f. Contact the Radiological Protection Coordinator/Monitor.

General Body Decontamination Techniques

Step I

- a. Survey entire body and record results on Appendix A and B.
- b. Mark very high level areas of the body to receive priority.
- c. Contaminated persons should shower.
 1. Make effort not to contaminate hairy areas if initially free of radioactivity.
 2. Use precautions to prevent contamination from entering body openings.
- d. Resurvey entire body, again marking highest levels found.
- e. Repeat the above steps until contamination is removed. If contamination cannot be removed proceed to Step II.

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4.3.7 Decontamination of Personnel

NOTE

Contamination should be removed whenever it is found in amounts greater than background. Personnel with the highest levels of contamination should receive priority in the decontamination process.

- 4.3.7.1 Radiation Protection Technicians perform decontamination procedures in accordance with the following instructions.

Localized Skin Decontamination

- a. Survey, paying particular attention to fingernails and skin folds.
- b. Record survey results on Appendix A.
- c. Localize area of contamination with plastic sheet or other suitable material and tape to prevent contamination spread.
- d. Wipe off loose contamination.
- e. Wash contaminated area with soap and warm water.
- f. Rinse, pat dry, and resurvey.
- g. Repeat cleansing until contamination is removed or until level of contamination does not appreciably decrease. If necessary, scrub with soft brush. Do not break the skin. Resurvey and record the results.
- h. If after a single scrubbing, contamination is still present, apply a thick paste of titanium dioxide and water, keep moist. Remove the paste (with towels) after two minutes, wash with soap and water. Resurvey and record the results.
- i. If contamination persists, paint the skin with 4% potassium permanganate (preparation instructions are in the emergency lockers). Paint three times, allowing each application to dry. Wash, resurvey and record the results. Skin discoloration may be removed with a 4% solution of sodium bisulfite.

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Step II

- a. For general body contamination with high levels of radioactivity, localized areas of contamination usually remain. When showering becomes ineffective and localized areas of contamination remain, shift to localized skin decontamination techniques above.

- b. Repeat surveys and record results frequently

Hair Decontamination Techniques

- a. Survey and record results on Appendix A.
- b. Individual performing decontamination put on surgeon's gloves.
- c. Wrap or position patient to avoid spread of contamination.
- d. Carefully examine the skin in the area of contamination for cuts and abrasions. If cuts are present:
 1. Wearing surgeon gloves and using scissors, carefully trim the hair from the wound. Save the hair for survey.
 2. Gently clean the area.
 3. If necessary, seek medical attention.
- e. If there is no wound:
 1. Have the patient massage soap mixture into hair with gloved hands, rinse.
 2. Dry with clean uncontaminated towel.
 3. Survey the hair, face and neck after the hair is dry.
 4. If contamination cannot be removed by three successive applications of the above procedure, notify the Radiological Protection Coordinator/Monitor.

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Mouth Decontamination

If the mouth is contaminated, begin flushing immediately with water. Keep head bent down to prevent water from reaching the throat and being swallowed. If possible, save rinsings. Contact the Radiation Protection Supervisor immediately.

Eye Decontamination

Apply the same principles as for mouth decontamination. Shift to normal saline as soon as possible. If possible, save rinsings. Survey eye with end window GM tube. Contact the Radiation Protection Supervisor immediately.

Nose Decontamination

- a. DO NOT perform nasal irrigation as this increases the chances of ingestion.
- b. Obtain a direct beta/gamma radiation measurement at the nostrils before the individual blows nose or otherwise clears it. This measurement should be while exhaling.
- c. Have individual blow nose repeatedly.
- d. Obtain nasal smears using "Q" tips. Two smears should be taken in each nostril. The first one dry and second wet. Place in plastic bags and mark for gamma/beta analysis.
- e. Contact the Radiological Protection Coordinator/Monitor immediately.

Wounds and Injuries

- a. Medical attention to serious injuries should take priority over the removal of contamination. If it is not possible to decontaminate a severe wound or injured area, cover with absorbent material to prevent spread of contamination.
- b. Observe the condition of the skin before decontamination. If there are breaks or abrasions observed, flush with copious amounts of water. Pat dry and resurvey. Cover with plastic to

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prevent spread of contamination. Save all gauze, etc., which may have blood samples in a labeled plastic bag.

- c. Contact the Radiation Protection Supervisor immediately.

Body Entrance Cavities

- a. Survey and record results on Appendix A.
- b. Make sure that cavity is really contaminated and not just surrounding area. Take wipes if necessary.
- c. Evaluate and decontaminate surrounding area. If necessary, irrigate with copious amounts of water or normal saline.
- d. Contact the Radiological Protection Coordinator/Monitor immediately.

Personal Effects Decontamination

Shoes

- a. If it is suspected that the contaminant is particulate matter, masking tape may remove it. Press the gummy side of the tape to the area of the shoe that is contaminated. Remove and repeat until no substantial reduction in radiation level is observed or until the shoe is free of contamination.
- b. If the contamination cannot be removed with tape, leather soles should be scraped with a wire brush or emery paper until clean.
- c. If contamination cannot be removed with tape, rubber soles may be scrubbed with decontamination soap. A wire or stiff bristle brush should be used. Wipe off, rinse, dry and resurvey. Repeat if necessary. Wire brushes should be washed with clean soapy water to prevent the spread of contamination.

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- d. Shoes that cannot be decontaminated by these methods should be confiscated, placed in a plastic bag, and labeled as radioactive material.

Clothing

- a. Contaminated clothing will be confiscated, placed in a plastic bag and labeled as radioactive material.
- b. A body survey for skin contamination will be made and results recorded on Appendix A and B.
- c. Temporary clothing will be issued.

4.3.8 Analyze nasal smears, sputum samples, nose blows, etc. as soon as possible.

4.3.8.1 Alpha activity greater than 20 dpm or beta-gamma activity greater than 100 dpm, measured in a well counter, may indicate possible internal deposition. Contact the Radiological Protection Coordinator/ Monitor immediately.

4.3.9 Waste Disposal

4.3.9.1 Contaminated material shall be processed as radioactive waste.

- o Collect contaminated fluids in appropriate receptacles and label.
- o Place contaminated disposable supplies in plastic bags and label.

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PERSONNEL MONITORING AND DECONTAMINATION

SURVEY RECORD - PERSONNEL DECONTAMINATION

DATE _____ CONTAMINATED INDIVIDUAL _____
 FILM BADGE OR TLD NUMBER _____ POCKET DOSIMETER READINGS _____ (if available)

Survey #	Time	Description (body part)	Net dose rate (mr/hr)		
			Gamma Shield closed	Beta/Gamma Shield open	Alpha
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Instruments Used:	
SURVEY TYPE	TYPE DETECTOR
Gamma (shield closed)	_____
Beta/Gamma (shield open)	_____
Neutron	_____
Alpha	_____

SERIAL NO.	BKGD COUNT RATE (mr/hr)
_____	_____
_____	_____
_____	_____
_____	_____

DECON SOLUTIONS & SUPPLIES USED:

COMMENTS:

RECOMMENDATIONS:

SURVEYED BY _____

Print Name

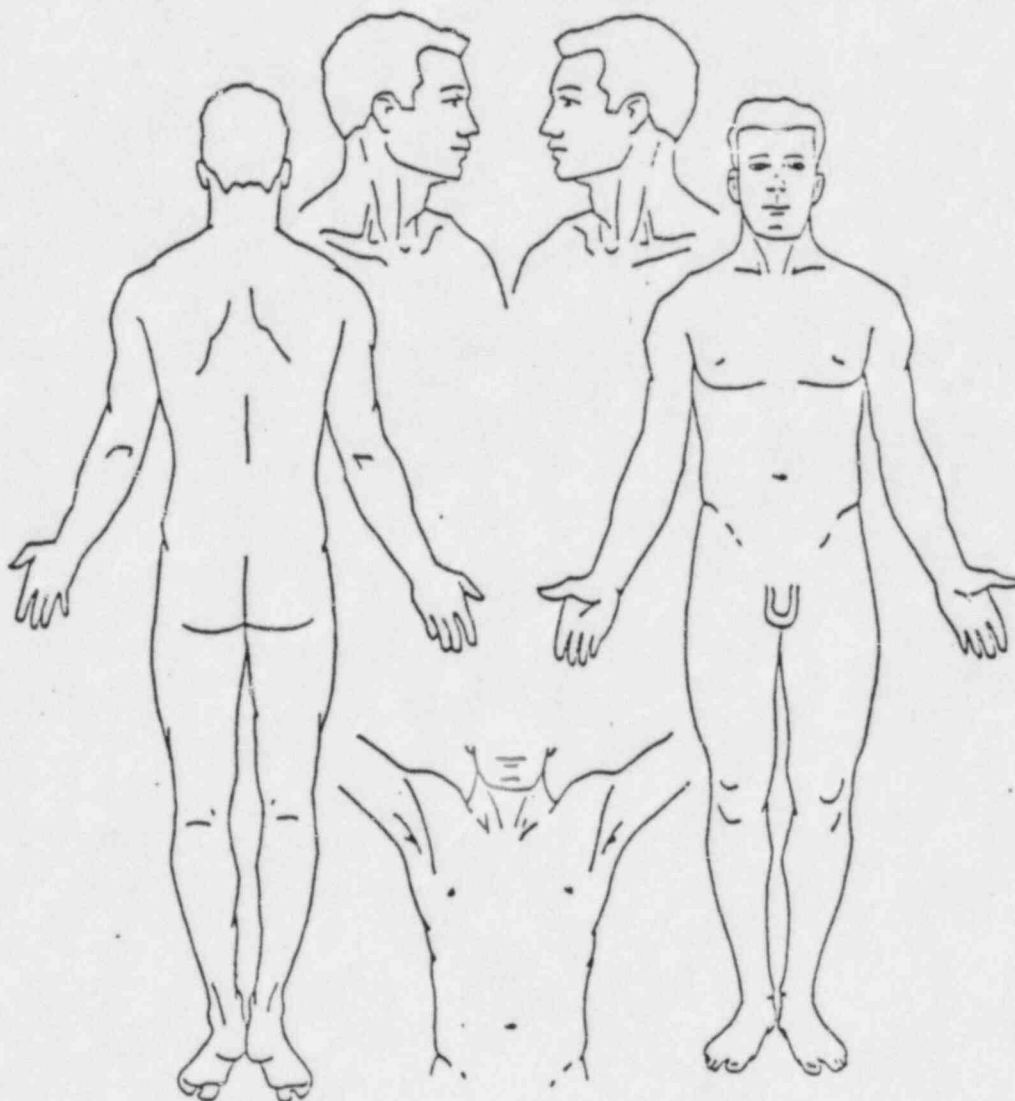
Date

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BODY MAP

INDICATE WOUNDS AND/OR CONTAMINATED AREAS
(BEFORE AND AFTER DECONTAMINATION)

11281821



NAME OF CONTAMINATED PERSON: _____ DATE: _____
 SURVEYED BY: _____
 DETECTOR TYPE: _____
 SERIAL NO.: _____

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APPROVED BY: _____

DATE

DATE EFFECTIVE

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1.0 OBJECTIVE

To provide instructions for the monitoring and decontamination of crucial areas and/or equipment during an emergency.

2.0 REFERENCES

2.1 Implementing Procedures

- 2.1.1 EPIP-16, "Onsite Surveys and Sampling"
- 2.1.2 EPIP-18, "Emergency Exposure Guidelines"
- 2.1.3 EPIP-27, "Sample Analysis at the Station"
- 2.1.4 EPIP-26, "Potassium Iodide (KI) Administration"
- 2.1.5 EPIP-28, "Personnel Monitoring and Decontamination"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2
- 2.2.2 75RP-9ZZ01, Radiation Protection Program
- 2.2.3 10CFR20, "Standards for Protection Against Radiation"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 This procedure shall be implemented only if the area and/or equipment is crucial to the needs of the emergency organization as determined by the Emergency Coordinator, the Emergency Maintenance Coordinator or the Radiological Protection Coordinator.
- 3.2 Emergency radiation exposures in excess of PVNGS administrative limits or 10CFR20 occupational limits must be authorized by the Emergency Coordinator in accordance with EPIP-18, Emergency Exposure Guidelines.
- 3.3 ALARA procedures to minimize personnel exposure should remain in force to the extent consistent with timely procedures for decontamination actions.
- 3.4 Potassium Iodine (KI) tablets, if necessary, should be administered in accordance with EPIP-26.

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- 3.5 Protective clothing and/or respirators should be used as appropriate.
- 3.6 Clearly label contaminated material and areas, control access and egress from the area.
- 3.7 Decontamination may cause airborne contamination and/or the spread of loose surface contamination. Care should be taken to prevent or minimize the spread of contamination.
- 3.8 If needed, personnel monitoring and decontamination activities shall be conducted in accordance with EPIP-28.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 Authorization by the Emergency Coordinator is required if emergency exposures in excess of PVNGS or 10CFR20 Occupational Limits (EPIP-18) are to be exceeded.
- 4.1.2 The Operations Support Center Coordinator will deploy Decontamination Teams upon guidance from the Control Room in the onshift organization and/or the TSC in the onsite organization.
- 4.1.3 Decontamination Teams shall consist of at least one Radiation Protection Technician and necessary chemical, mechanical, electrical or maintenance technicians.

4.2 Prerequisites

- 4.2.1 As determined by the Emergency Coordinator, the Emergency Maintenance Coordinator or the Radiological Protection Coordinator an area and/or equipment is crucial to the needs of the emergency organization.
 - 4.2.1.1 Levels of contamination are known to exceed or thought to exceed contamination limits in Appendix B.
 - 4.2.1.2 The Radiological Protection Coordinator shall complete, date, and sign the Radiation Exposure Permit, Appendix A.
 - a. The method of decontamination shall be stipulated in the REP (decontamination methods are described in Appendix D).

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4.2.1.3 Personnel involved in decontamination procedures shall, review, date and sign the Radiation Exposure Permit.

a. Personnel shall obtain equipment specified in the Radiation Exposure Permit.

b. Personnel shall comply with conditions established in the Radiation Exposure Permit.

4.3 Instructions

4.3.1 The Decontamination Team shall perform comprehensive surveys of the affected areas and/or equipment prior to, during and after decontamination. Surveys shall be performed in accordance with EPIP-16.

4.3.2 The Decontamination Team shall provide for the collection of used decontamination supplies.

4.3.3 The Decontamination Team, if necessary, shall perform tool and equipment decontamination.

NOTE

Decontamination of tools and equipment with fixed contamination of greater than (50m/hr) will be disposed of as directed by the Supervising Radiation Physicist.

4.3.3.1 Perform tool and equipment surveys. Record results in Appendix C.

4.3.3.2 Perform tool and equipment decontamination as stipulated by the Radiation Exposure Permit.

4.3.3.3 Resurvey tools and equipment and repeats steps necessary to decontaminate. Record results in Appendix C.

4.3.3.4 Decontamination of tools and equipment will be complete when loose surface contamination is less than 1000 dpm/100cm² beta/gamma, fixed contamination is less than 0.1 mr/hr or as specified by the Supervising Radiation Physicist.

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4.3.4 The Decontamination Team shall perform area decontamination.

4.3.4.1 Perform appropriate area surveys in accordance with EPIP-16.

4.3.4.2 Perform area decontamination in accordance with the Radiation Exposure Permit.

4.3.4.3 Perform area surveys and repeat steps necessary to decontaminate. Record results on Appendix C.

4.3.4.4 Area decontamination is complete when contamination is less than limits listed in Appendix B.

4.3.5 Waste Disposal

4.3.5.1 Contaminated fluids will be collected in appropriate receptacles.

4.3.5.2 Contaminated disposable supplies will be placed in plastic bags.

4.3.5.3 Contaminated equipment and/or supplies will remain or be placed in an appropriate controlled area until decontaminated or processed as radioactive waste.

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RADIATION EXPOSURE PERMIT

PVNGS Unit: _____ REP #: _____
 VALID FROM: _____ TO _____ JOB #: _____
 REP STATUS _____ REP TYPE: _____
 TASK #: _____ COMPONENT: _____
 JOB DESCRIPTION: _____
 MAP #: _____ LOCATION: _____
 REP REQUIRED BY: _____
 PROCESSING PRIORITY: _____

RADIATION SURVEY CONDITIONS:

MAP #: _____ SURVEY #: _____
 AIR SAMPLE ID #: _____ TOTAL MPC FRACTION: _____
 BETA/GAMMA (mr/hr): _____ CONTAMINATION (DPM): _____
 WET/DRY: _____

RADIATION PROTECTION REQUIREMENTS:

1. P.C. Requirements

_____ No Personal Outer Clothing	_____ Rubber Gloves (___ 2 pr)
_____ Lab Coat	_____ Surgeons Cap
_____ Plastic Shoe Covers	_____ Full Hood
_____ Plastic Booties	_____ P.C. Coveralls (___ 2 pr)
_____ Rubber Shoe Covers (___ 2 pr)	_____ Plastic Suit

2. Respiratory Requirements

_____ Full Face w/Cannister	_____ Bubble Hood
_____ Full Face w/Supplied Air	_____ Stay Time _____ min/hr
_____ SCBA R.G. 1.16 Class _____	

3. Dosimetry Devices

_____ Legal TLD	_____ Radiation Survey Inst.
_____ Job TLD	_____ Special Dosimetry
_____ Self-Indicating Dosimeter	

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RADIATION EXPOSURE PERMIT (CONT'D)

4. Special Instruction:

5.

SIGNOFFS AND APPROVALS:

Requested by: _____ SS/Unit Ready _____
 RP Preparation: _____ Withdrawn/Canceled by: _____
 RP Approval: _____ Completed by: _____

PERSONNEL ASSIGNED TO REP:

FIRST IN _____ LAST OUT _____

CODE#	NAME	DEPT	AVAIL WB (MR)	AVAIL MPC HR	TOT RES TIME HR	TOTAL WB(R)	TOTAL MPC HR
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

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AREA AND EQUIPMENT CONTAMINATION LIMITS

TOOL AND EQUIPMENT CONTAMINATION LIMITS

LOOSE SURFACE: CONTAMINATION	BETA/GAMMA ALPHA	1000 dpm/100cm ² 20 dpm/100 cm ²
FIXED SURFACE: CONTAMINATION	0.1 mr/hr	

AREA CONTAMINATION LIMITS

Posting Designation	LOOSE SURFACE BETA/GAMMA	LOOSE SURFACE ALPHA	FIXED (Contact) BETA/GAMMA	FIXED (Contact) ALPHA
Restricted Area	1000 dpm/ 100cm ²	20 dpm/ 100cm ²	0.1mR/hr	20dpm/probe*
Contamination Area	1000 dpm/ 100cm ²	20 dpm/ 100cm ²		
High Contamination Area	50,000 dpm/ 100cm ²	1000 dpm/ 100cm ²		

*Probe - surface area of the probe

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-29</p>	<p>APPENDIX D Page 1 of 4</p>
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METHODS OF DECONTAMINATION

1. Manual Cleaning

Manual cleaning includes such procedures as wiping, scrubbing, mopping, etc., and in general, is an effective method of removing low or moderate levels of contamination on nonporous or nearly nonporous surfaces. Water or a variety of detergents, solvents, chelating agents, and other chemicals may be used. Manual cleaning usually presents minimal airborne and surface contamination control problems.

2. Mechanical Cleaning

Mechanical cleaning includes such decontamination methods as vacuuming, high-pressure steam and water cleaning, soaking, and ultrasonics. These methods are generally associated with the decontamination of highly contaminated equipment but have application with lower levels of contamination.

- a. Vacuuming, Wet or Dry. Vacuuming is generally effective in removing loose particulate contamination and is frequently used as an initial decontamination step preparatory to manual cleaning. Vacuum systems should be properly filtered to prevent the spread of contamination to surrounding areas and to reduce the hazard of airborne contamination.

Care should be taken to ensure that the concentration of radioactive material in the vacuum system does not create unusually high radiation exposure rates to personnel.

- b. Jet Cleaning. High-pressure steam and water used alone or mixed with chemicals and detergents are effective in attaining high decontamination factors. Commercial systems using the jet cleaning principle are available. Equipment of this type is ideally suited for remote operation and for cleaning large surface areas. High-pressure jet cleaning has the disadvantage of spreading contamination over a large area and is more effective when used in a cave or cell designed especially for this purpose.

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METHODS OF DECONTAMINATION (CONT'D)

- c. Soaking and Spraying. Soaking and spraying are used extensively for decontamination of small and moderate size material and equipment. Both methods make use of chemical solutions and may require support features such as catch tanks, liquid recycle ability, and filtered ventilation systems. Spraying has the advantage of combining mechanical as well as chemical action; however, in some cases the shape of the object being cleaned prevents effective cleaning action on all surfaces. Soaking provides good access to surfaces but does not provide mechanical action.
- d. Ultrasonic Cleaning. Ultrasonic cleaning combines the advantage of chemical action and mechanical energy for cleaning. It is best suited for small components and offers the advantage of remote operation and rapid decontamination of objects with irregular shapes and crevices.

3. Grinding and Abrasive Action

Cleaning procedures employing grinding or abrasive action are effective means of decontaminating metal and concrete surfaces, provided alteration of the surface area of the object being cleaned can be tolerated.

- a. Grinding. Grinding of surfaces to remove contamination is usually limited to small objects or isolated spots of contamination where the surface is reasonably smooth. Grinding normally produces a high decontamination factor and is economical. A variety of commercial grinders may be used. Grinding inherently leaves residual contamination on the surface of the object being cleaned and therefore usually requires final cleaning by some other method (vacuuming, wiping, etc.). A disadvantage of grinding is that it may generate airborne contamination and spread surface contamination; however this can be minimized by wet grinding, vacuum systems, or filtered enclosures.
- b. Abrasive Blasting. Abrasive blasting has a number of advantages over grinding. It is rapid, provides a high DF, is effective on irregular shaped surfaces and can be used for large areas.

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METHODS OF DECONTAMINATION (CONT'D)

Abrasive blasting makes use of a large variety of abrasives (sand, shells, glass beads, metals etc.) with velocity, shape, and size of the abrasive, influencing surface-removal characteristics. A prime disadvantage of abrasive blasting is that it usually generates high airborne contamination and spreads surface contamination; however, this can be minimized by wet blasting techniques, vacuum systems, or filtered enclosures.

- c. Destructive Decontamination. Destructive decontamination procedures include physical removal of contaminated parts or sections. Generally, little or no effort is made to clean the contaminated parts before disposal as waste. Containment and other radiological controls associated with destructive cleaning are dependent on contamination levels, the nature of the containment, and the physical characteristics of the parts being removed.

Table 1 provides decontamination efficiencies for the methods described on a variety of surfaces.

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TABLE 1
HARD SURFACE DECONTAMINATION EFFICIENCIES IN PERCENT (a)

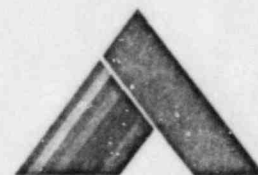
Material	Vacuum (D+2)(b)	Hi-Pressure Water (D+3)(b)	Hi-Pressure Wtr./Scrub (D+12)(b)	Hi-Pressure Wtr. and Detergent (D+4)(b)	Hi-Press. Wtr. and Detergent (D+5)(b)	Sand- Blasting (D+9)(b)	Steam Cleaning (D+14)(b)
Glass	98.95	98.85	97.79	100.00	99.76	100.00	97.86
Stucco	48.00	97.94	95.22	100.00	99.59	100.00	27.00
Painted Wood	99.28	98.43	96.77	99.69	99.97	100.00	91.61
Unpainted Wood	36.00	85.00	93.18	99.54	95.54	99.90	85.00
Aluminum	89.00	99.45	97.33	99.62	100.00	98.49	84.00
Plate Steel	93.04	97.25	94.19	100.00	93.83	99.72	91.46
Unpainted Wood Shingles	61.00	97.16	90.49	95.01	57.93	99.82	71.00
Brick	29.99	99.46	99.32	99.14	99.56	99.92	97.50
Tarpaper	55.00	98.66	95.00	95.32	95.83	99.51	52.00
Galvanized Roofing	89.00	99.36	91.19	99.73	99.86	100.00	85.00
Highway Asphalt	32.00	99.90	96.25	99.82	99.48	99.90	44.00
Highway Asphalt (10x10ft)	72.00	92.45	94.95	98.85	96.34	92.73	22.00
Steel Asphalt	71.00	98.67	90.00	100.00	99.72	99.61	84.00
Steel Asphalt (10x10ft)	64.00	90.00	82.00	96.31	97.54	90.42	48.00
Steel Trowel Concrete	74.00	98.94	--	96.91	99.53	100.00	--
Steel Trowel Concrete (10x10ft)	--	73.00	97.34	--	99.58	98.96	27.00
Wood Float Concrete	--	98.00	92.03	100.00	97.47	100.00	65.00
Wood Float Concrete (10x10ft)	56.00	97.84	--	98.09	98.28	98.78	85.00
Average of all Surfaces	65.40	96.12	94.59	98.61	98.64	98.83	67.80

(a) - Decontamination Factor (DF) = 100/[100 - Decontamination Efficiency (%)]

(b) - (n/a) = Number of Days Between Contamination and Decontamination

WASH 1400, Appendix XI, October, 1979, "Nuclear Safety Study"

PALO VERDE NUCLEAR GENERATING STATION



EMERGENCY PLAN IMPLEMENTING PROCEDURES

VOLUME II

**ARIZONA PUBLIC SERVICE COMPANY
PROJECT MANAGER AND OPERATING AGENT**

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-31	
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PVNGS SM # 8-9B

- VOL 2 -

APPROVED BY: L.E. Brown

DATE 12-7-82

DATE EFFECTIVE

12-10-82

DN-1667A/0196A

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1.0 OBJECTIVE

- 1.1 The objective of this procedure is to prescribe those recovery operations necessary to (1) identify the extent of station damage and radiological contamination (if any) and (2) return the station to an operating status which is in compliance with the unit(s) technical specifications.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, PVNGS Emergency Organization
- 2.1.2 EPIP-02, PVNGS Emergency Classification

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.2.2 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Following any emergency involving radiological hazards, exposure to personnel should be kept as low as reasonably achievable consistent with the nature of the recovery operation required.
- 3.2 Recovery operations will begin when the unit is in a controlled, stable condition. No action shall be taken which might perturb this situation without the express approval of the Recovery Manager.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 Recovery Operations for PVNGS will be conducted in two phases. Phase I efforts will involve recovery measures undertaken during and immediately following the emergency. These measures are a functional responsibility of the emergency organization delineated in EPIP-01 and may be augmented by corporate and short term contract support. Phase II recovery operations include the longer term post-emergency efforts that follow a major incident. These operations will be performed by station and other APS personnel, contract experts and specialists, and qualified engineers - contractors under the direction of the Recovery Organization.

4.1.2 The Emergency Operations Director, with the advice of the Emergency Coordinator, is responsible for implementing this procedure.

4.2 Prerequisites

4.2.1 Radiation levels are stable or decreasing with time.

4.2.2 Releases of radioactive materials to the environment have ceased or are controlled within permissible license limits.

4.2.3 Fire, flooding, or similar emergency conditions no longer constitute a hazard to the unit or unit personnel.

4.2.4 Measures have been successfully instituted to correct or compensate for malfunctioning equipment.

4.3 Instructions

4.3.1 Upon recognition that the Prerequisites (Section 3.0) have been established the Emergency Operations Director shall establish the Recovery Organization as depicted in Appendix A. The Emergency Operations Director shall assume the duties and responsibilities of the Recovery Manager and notify, via NAN, affected offsite emergency management organizations that Recovery Operations are in progress.

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4.3.2 For known or suspected significant unit damage, and at the discretion of the Recovery Manager, survey teams will be formed consisting of Operations, Engineering, Maintenance, and Radiation Protection personnel.

4.3.3 These teams will perform an organized, search of the unit to ascertain the extent of physical damage and areas of contamination/high radiation. The results of these surveys will be used by the Recovery Manager, the Plant Operations Manager (Manager of Nuclear Operations or designated alternate), and Radcon/Radwaste Manager (Radiation Protection Supervisor or designated alternate) in planning the approach to be utilized in repairing and bringing the unit back into operation.

4.3.4 Planning

4.3.4.1 Under the direction of the Recovery Manager, pertinent recovery organization members, as well as selected offsite personnel, will address the planning and coordination of the recovery effort. Such activities as the repair and maintenance of existing station system/components, modification, installation, and decontamination, as well as determining the need for portable shielding and special procedures, will be discussed, prioritized, and planned.

4.3.4.2 The Planning/Scheduling Manager (Planning/Scheduling Supervisor or designated alternate) will develop an overall schedule to guide the recovery effort.

4.3.5 Recovery Implementation

4.3.5.1 Upon definition of the problems to be faced, finalization of the overall recovery plan, development of any special procedures, and allocation of adequate repair equipment and properly trained personnel; actual recovery operations will begin. In lieu of any special requirements in place at the time, normal unit practices will be followed concerning maintenance, repair, modification, decontamination, and personnel exposure control.

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- 4.3.5.2 The Radcon/Radwaste Manager will in addition to developing plans to process and control liquid, gaseous, and solid wastes, periodically estimate total population exposure in conjunction with state and federal authorities.
- 4.3.5.3 The Station Operations Manager (Manager of Nuclear Operations or designated alternate) manages day-to-day inplant operations and during recovery is responsible for ensuring that repairs and modifications will optimize post-recovery plant operational effectiveness and safety.
- 4.3.5.4 The Design and Construction Support Manager (Vice President, Nuclear Project Management or designated alternate), focuses necessary engineering, design, and construction resources on those aspects of plant recovery requiring redesign, modification, or new construction and directs and coordinates NSSS and balance-of-plant engineering and construction/repair work.
- 4.3.5.5 The Technical Support Manager (Technical Support Manager or designated alternate) provides analysis, plans, schedules, and procedures in direct support of plant operations.
- 4.3.5.6 The Quality Assurance Manager (Operational Quality Assurance Manager or designated alternate) assumes that the overall conduct of recovery operations is performed in accordance with corporate policy and rules and regulations governing activities which may affect public health and safety.
- 4.3.5.7 The Administrative/Logistics Manager (Administrative Support Manager or designated alternate) supplies administrative, logistic, communications, and personnel support for the recovery operation.
- 4.3.5.8 The Media Relations Manager (Vice President, Customer, Employee and Corporate Relations or designated alternate) coordinates the flow of media information concerning recovery operations.

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4.3.5.9 As the recovery operation proceeds, any unforeseen problems which are encountered will be evaluated and factored into the overall recovery plan. The schedule will be adjusted accordingly.

4.3.5.10 Upon completion of the recovery effort, technical specifications compliance will be verified prior to beginning normal unit operations.

4.3.6 Training

4.3.6.1 In consideration of the situation to be handled, special training material will be developed and training conducted for special work tasks to the maximum extent possible.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE

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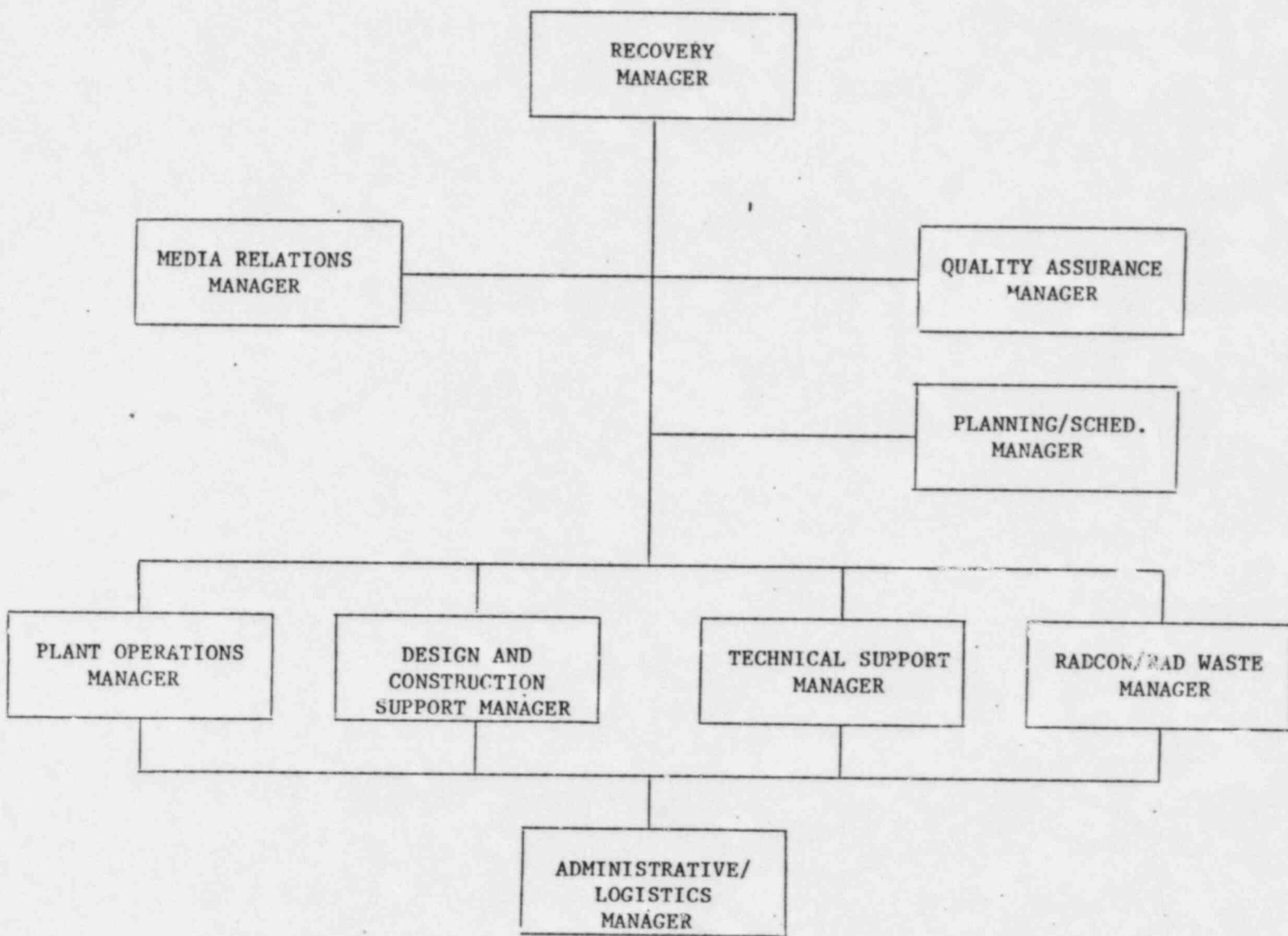
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POST-EMERGENCY RECOVERY ORGANIZATION PALO VERDE NUCLEAR GENERATING STATION (PVNGS)



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PVNGS SM # 8-90

APPROVED BY: JR Byrum DATE 11/29/82

DATE EFFECTIVE 12-6-82

DN-1625A/0180A

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1.0 OBJECTIVE

- 1.1 To provide guidance for obtaining offsite support and assistance in the event of an emergency at PVNGS.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-07, "Notification Process - UNUSUAL EVENT"
- 2.1.2 EPIP-08, "Notification Process - ALERT, SITE EMERGENCY, or GENERAL EMERGENCY"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 The NRC, State/County government, and APS personnel will be notified via dedicated communication links (e.g., ENS, NAN, NAWAS) in accordance with EPIP-07 and 08.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 In the event of an emergency at PVNGS, various offsite agency support may be required. Local services could include: backup ambulance, hospital, fire fighting and law enforcement. Contract support could include: Bechtel (A-E), Combustion Engineering (NSSS supplier), decontamination firms, radwaste disposal firms, and dosimetry and laboratory support. Additionally, the Institute for Nuclear Power Operations (INPO) will provide equipment and personnel upon request.
- 4.1.2 Local and federal government support shall be contacted as required in accordance with EPIP-07 and 08.

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4.1.3 The Emergency Coordinator shall be responsible for determining the need for, and requesting offsite assistance.

4.2 Prerequisites

4.2.1 The Emergency Coordinator determines there is a need for offsite assistance.

4.3 Instructions

4.3.1 The Emergency Coordinator shall direct a communicator to call the primary telephone number of the required offsite assistance as listed in Appendix A. If no response, call the secondary number, if available.

4.3.1.1 When the party answers, record the name of the individual contacted and time of the telephone conversation on the Telephone Communication Log Sheet, Appendix B.

4.3.1.2 Inform the Emergency Coordinator of the contact or lack of contact.

4.3.1.3 Inform the contacted offsite assistance party of the support required by PVNGS or transfer the call to the Emergency Coordinator or his designee as necessary to clarify the need for offsite assistance.

4.3.1.4 Determine the scope of offsite assistance which will be provided and the estimated time of arrival of support responding to the station.

4.3.2 The Emergency Coordinator shall inform the Security Director of offsite assistance that will be responding to the site and their estimated time of arrival onsite.

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OFFSITE ASSISTANCE TELEPHONE NUMBERS

The following telephone numbers provide an up-to-date list for agencies and personnel that may be required to give assistance to PVNGS in an emergency.

<u>ASSISTANCE</u>	<u>TELEPHONE NUMBER</u>
1. <u>Hospitals</u>	
Maryvale Samaritan Hospital - Emergency Dept. Nurse Samaritan Health Service	
2. <u>Law Enforcement</u>	
Maricopa County Sheriff's Department	
3. <u>Fire Support</u>	
Bechtel Power Corporation	
4. <u>Meteorological Information</u>	
National Weather Service	
5. <u>Radiological Assistance</u>	
a. Laboratory	
ASU, Dr. John McKlveen	
b. Environmental Monitoring	
ASU, Dr. John McKlveen	
c. Radiation Health Physics	
ASU, Dr. John McKlveen	
d. Chemistry Support	
ASU, Dr. John McKlveen	
e. TLD Processing	
ASU, Dr. John McKlveen	
f. Whole Body Counting	
Helgeson Nuclear Services	

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OFFSITE ASSISTANCE TELEPHONE NUMBERS

ASSISTANCE	TELEPHONE NUMBER
6. <u>Industry Assistance</u>	
a. Combustion Engineering	
b. Bechtel Power Corporation Bechtel Security	
c. INPO	
d. Southern California Edison	
1) VP, Nuclear Eng. and Operations	
2) Manager, Nuclear Engineering	
e. Pacific Gas and Electric	
1) VP, Nuclear Generation	
2) Manager, Nuclear Plant Operations	
f. Sacramento Municipal Utilities District	
1) Shift Technical Advisor	
g. Portland General Electric	
1) VP, Nuclear	
2) Assistant VP	
h. Washington Public Power System	
1) Director, Power Operations	
2) Director, Administrative Services	

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TELEPHONE COMMUNICATION LOG SHEET

	AGENCY OR INDIVIDUAL	PERSON CONTACTED	DATE/TIME	CALLER	REMARKS
1.			/		
2.			/		
3.			/		
4.			/		
5.			/		
6.			/		
7.			/		
8.			/		
9.			/		
10.			/		

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PVNGS SM # 8-98

APPROVED BY: *[Signature]* DATE 9/29/82
DATE EFFECTIVE 10-6-82

DN-1604A/0180A

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-34	
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1.0 OBJECTIVE

- 1.1 To provide guidelines for the response of PVNGS personnel to offsite transportation accidents involving shipments of radioactive material.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-18, "Emergency Exposure Guidelines"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Rev. 2

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 PVNGS personnel sent to the scene of a transportation accident should assist state/local officials to the maximum extent practical, yet realize they are acting in a strictly advisory role.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 Prior to arrival and after departure from PVNGS, radioactive material shipments are the responsibility of the common carrier. If a transportation accident involving radioactive material occurs, recovery actions are the responsibility of the common carrier and state/local officials. Because of the knowledge, experience and equipment available to PVNGS personnel, state/local officials may request PVNGS assistance to recover from the accident.
- 4.1.2 If it is decided to provide PVNGS assistance to a transportation accident the Duty Manager is responsible for implementing this procedure.

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4.2 Prerequisites

- 4.2.1 The Duty Manager is notified that a transportation accident involving a shipment of radioactive material has occurred and PVNGS assistance has been requested.

4.3 Instructions

- 4.3.1 The individual notified of the transportation accident should try to gather the following information, utilizing Appendix A, and notify the Duty Manager as soon as possible.

- a. Location of accident.
- b. Type of radioactive material involved.
- c. Type of container involved.
- d. Extent of damage.
- e. Results of any preliminary radiation/contamination assessments.
- f. Personnel injuries.
- g. Who is on scene and in charge.
- h. Shipper's identity.
- i. Caller's name and phone number.

- 4.3.2 If the Duty Manager deems PVNGS assistance is required he shall:

- a. Report the situation to the Manager, Nuclear Operations and the Radiation Protection Supervisor.
- b. With the assistance of the Radiation Protection Supervisor, notify and assemble a two man Survey Team to be sent to the scene.
- c. Utilize Appendix A as necessary to document PVNGS actions in response to the incident.

- 4.3.3 The Survey Team should proceed to the scene with the following equipment as a minimum:

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- a. G-M Survey Instrument
- b. Dose Rate Instrument
- c. Alpha Survey Instrument
- d. Smears (for Both Beta/Gamma and Alpha Surveys)
- e. Plastic Bags
- f. Radiation Barrier Rope
- g. Radiation Warning Signal
- h. Self-Alarming Dosimetry in Addition to the Team Member's Personal Dosimetry (TLD)
- i. Portable Radio
- j. Survey Forms
- k. Protective Clothing
- l. Respiratory Equipment

4.3.4 Upon arrival at the scene the Survey Team shall report to and act under the direction of state/local officials.

4.3.5 The Survey Team shall maintain exposure as low as reasonably achievable and should not exceed PVNGS administrative limits without prior authorization. Such exposures shall be in accordance with the guidelines of EPIP-18.

4.3.6 The Survey Team shall report back to the Duty Manager or designee after initially assessing the situation, and thereafter as conditions dictate.

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TRANSPORTATION ACCIDENT CHECK LIST

1. Accident Location: _____
2. Material Involved: New Fuel, Spent Fuel, Liquid Radwaste, Solid Radwaste, Sources, Medical, Other _____
3. Container Type: _____
4. Extent of Damage: _____

5. Radiation/Contamination Levels: _____

6. Personnel Injuries: _____
7. In Charge at Scene: _____
8. Common Carrier's Name: _____
9. Caller's Name/Phone Number _____
10. Manager, Nuclear Operations, Notified: Date _____ Time _____
11. Radiation Protection Supervisor Notified: Date _____ Time _____
12. Survey Team Selected: Name _____

13. Survey Team Equipped as Required in 4.3.3: Date _____ Time _____
14. Survey Team Dispatch to Scene: Date _____ Time _____
15. Remarks: _____

Duty Manager _____
Date _____

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PVNGS SM 8-9B

APPROVED BY:

JR Byrum

DATE 10/26/82

DATE EFFECTIVE

11-2-82

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1.0 OBJECTIVE

- 1.1 To establish guidelines for providing technical and administrative review and update of the PNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-37A, "Emergency Preparedness Drills"
- 2.1.2 EPIP-37B, "Emergency Preparedness Exercises"
- 2.1.3 70AC-OZZ01, "Writer's Guide"
- 2.1.4 10AC-OZZ02, "Accountability of Controlled Documents"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Section 8, "Maintaining Emergency Preparedness", Rev. 2
- 2.2.2 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Revisions to or update of the PVNGS Emergency Plan and Implementing Procedures shall be handled in accordance with document control procedures of 10AC-OZZ02.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The PVNGS Emergency Plan and Implementing Procedures shall be reviewed and updated annually.
- 4.1.2 On a quarterly basis the telephone numbers utilized to contact state/county government, emergency response personnel, and other offsite assistance groups shall be verified.

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4.1.3 Independent audits of the various aspects of the emergency preparedness program shall be conducted annually, either by an outside consulting firm or by an internal AFS group who is not immediately responsible for the emergency preparedness program.

4.1.4 The Onsite Emergency Planning Coordinator (EPC) shall be responsible for initiating and coordinating the review and independent audit of 4.1.1, 4.1.2, and 4.1.3 above. Additionally the Onsite EPC shall be responsible for updating or revising the Emergency Plan Implementing Procedures (EPIP's) per the findings of the review and for modifying aspects of the procedures found deficient, as a result of independent audits or identified by emergency drills and exercises.

4.2 Prerequisites

4.2.1 Review, update, and revision of the PVNGS Emergency Plan and Implementing Procedures shall be conducted in accordance with the PVNGS Emergency Plan, Section 8, "Maintaining Emergency Preparedness".

4.3 Instructions

4.3.1 The Onsite Emergency Planning Coordinator shall initiate an annual review of the Emergency Plan and Implementing Procedures. The Onsite EPC may be assisted in this effort by appropriate PVNGS personnel and AFS management.

4.3.2 The review and any subsequent revisions will consider the following items:

- a. Deficiencies in training, procedures, personnel, and equipment which have been discovered during drills/exercises;
- b. Changes in personnel assignments within the emergency organization;
- c. Changes in the functions, assignments, or response capabilities of supporting agencies, to include maintaining agreements or contracts current;
- d. Changes in applicable federal or state statutes, regulations, or policies;

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- e. Recommended modifications to procedures or equipment from other agencies such as INPO, EPRI, ANSI;
- f. Modifications to the plant or site area;
- g. Changes in construction or operating status;
- h. Results of Emergency Preparedness Appraisals/Reviews by the NRC, INPO, or independent review organization.

4.3.3 Quarterly, the Onsite EPC shall initiate a verification of the telephone numbers listed in the Emergency Plan Implementing Procedures (EPIP's).

- a. Verification procedures may be conducted in conjunction with the monthly communications drill (see EPIP-37A) or the annual joint emergency exercise (see EPIP-37B).
- b. Verification shall be accomplished utilizing EPIP-07, EPIP-08, and EPIP-33 to dial the listed number and receiving concurrence from the answering party that said number is the current number for the location listed in the EPIP's.

4.3.4 The Onsite EPC shall initiate an annual independent audit of the emergency preparedness program. This audit will be by competent individuals, either from within APS or an outside consulting firm, who are not immediately responsible for the emergency preparedness program. This audit will include, but not be limited to, the following:

- a. The PVNGS Emergency Plan and Implementing Procedures;
- b. Emergency preparedness training;
- c. Emergency drills and exercises;
- d. Emergency response facilities;
- e. Emergency supplies and equipment; and
- f. Coordination with offsite agencies and state/county government.

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The results of this audit will be prepared in a written report and presented directly to the Vice President, Electric Operations. The results will also be made available to appropriate APS and PVNGS management as it pertains to their routine and emergency functions. In addition cognizant state/county officials will be informed of comments effecting their organizations. Copies of the audit report will be retained by the Onsite EPC for five years.

- 4.3.5 Revisions to or update of the PVNGS Emergency Plan Implementing Procedures necessitated as a result of the reqired reviews and audits will be initiated by the Onsite EPC.
- 4.3.6 Revisions to the EPIP's shall be forwarded to the Corporate Emergency Planner to insure that there is no conflict with the PVNGS Emergency Plan or so that changes may be incorporated into the Emergency Plan.
- 4.3.7 The Plant Review Board (PRB) and Manager, Nuclear Operations will review and approve changes prior to their distribution to controlled copy holders.
- 4.3.8 Procedure 70AC-OZZ01, Writer's Guide provides specifiiec instructions (i.e., physically marking changes in text, distributing changed material) for incorporating revisions into the PVNGS Emergency Plan Implementing Procedures and shall be utilized by the EPC to update the plan.

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APPROVED BY: *A. Paul Anderson*

DATE 9/29/82

DATE EFFECTIVE 10-6-82

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1.0 OBJECTIVE

- 1.1 To familiarize personnel with the PVNGS Emergency Plan and Implementing Procedures and with their assignments during an emergency.
- 1.2 To provide for the initial and periodic retraining of all personnel assigned to the emergency response organization.
- 1.3 To provide for the training of those offsite emergency organizations who may support the plant in the event of an emergency.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-37A, "Emergency Drills"
- 2.1.2 EPIP-37B, "Emergency Exercises"

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Section 8, "Maintaining Emergency Preparedness"
- 2.2.2 80PR-0ZZ01 PVNGS Training Program
- 2.2.3 NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plan and Preparedness in Support of Nuclear Power Plants"

3.0 LIMITATIONS AND PRECAUTIONS

None

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Onsite Emergency Planning Coordinator, with the assistance of the Training Manager, is responsible for the development of the PVNGS emergency response training program.

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4.1.2 The Corporate Health Physicist and Emergency Planner, with the assistance of the Training Manager, shall be responsible for coordinating the training for offsite agencies involved in rendering assistance to PVNGS.

4.2 Prerequisites

4.2.1 Training shall be conducted in accordance with Section 8 of the PVNGS Emergency Plan and 80PR-0ZZ01.

4.3 Instructions

4.3.1 Basic Training and Indoctrination

4.3.1.1 Each PVNGS employee shall receive general instructions on emergency plan and supporting procedures consisting of the following:

- a. Overview of the purpose and scope of the plan.
- b. Emergency classifications and their significance.
- c. Emergency warning devices and their meaning.
- d. Personnel assembly, accountability, evacuation and reassembly.
- e. Radiation exposure control, decontamination, medical care and emergency dosimetry.

4.3.1.2 The format may be an audiovisual slide, tape or similar program augmented as necessary by classroom lectures.

4.3.1.3 The above training shall be conducted as part of new employee indoctrination and annually thereafter.

4.3.2 Emergency Organization Training

4.3.2.1 Personnel assigned to the PVNGS Emergency Organization shall receive training specific to their assignments.

4.3.2.2 The training will be conducted annually, and whenever necessitated by significant revisions to the Emergency Plan, EPIP's or emergency equipment.

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4.3.2.3 In addition to formal classroom instruction, drills and exercises will be conducted to enable personnel to further develop their skills in handling an emergency.

4.3.2.4 The training program for Emergency Organization personnel is detailed in Appendix A.

4.3.3 Offsite Agency Training

4.3.3.1 The Corporate Health Physicist and Emergency Planner will coordinate special training for members of the following offsite support agencies:

- a. Maricopa County Sheriff's Department
- b. Arizona Radiation Regulation Agency
- c. Maryvale Samaritan Hospital
- d. Backup Ambulance Service
- e. Bechtel Fire Department (PVNGS)
- f. Others as deemed necessary

4.3.3.2 The training will be specific to the agencies' response assignment and at a minimum will include the following:

- a. Basic radiation protection and emergency dosimetry.
- b. Emergency site access procedures.
- c. Interface with the PVNGS emergency organization.

4.3.3.3 The Training Manager will assist the Corporate Health Physicist and Emergency Planner as necessary to conduct the training.

4.3.4 Media Familiarization

4.3.4.1 On an annual basis, in cooperation with the state/county government, a training program will be given to the local/regional news media. The program will include:

- a. PVNGS Emergency Plan and EPIP's.
- b. Basic information concerning PVNGS operation and radiation.
- c. Locations and means for release of public information in an emergency.

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d. Familiarization tour of the Emergency News Center (ENC) and Corporate Headquarters Information Center (CHIC).

4.3.4.2 The Media Relations Department with the assistance of the Corporate Health Physicist and Emergency Planner shall conduct the news media familiarization.

4.3.5 Documentation

4.3.5.1 All APS conducted emergency planning training will be documented in accordance with 80PR-0ZZ01. The Training Department will maintain these records.

4.3.5.2 Lesson plans will be used for all classroom instruction.

4.3.5.3 Written examinations will be administered, as required, with an established minimum passing score. Individuals failing the written examination will be provided retraining.

Figure 8.1-1
SPECIALIZED TRAINING
MATRIX*
Palo Verde Nuclear
Generating Station

*Content and degree of training may vary dependent upon whether personnel are assigned "Lead" or "Team" functions.
For details on lesson content, frequency, and documentation, consult PVNGS training program.

PVNGS EMERGENCY PLAN

STATION EMERGENCY PLAN	REQUIRED READING, INCL ADMIN GUIDES, EMERG PROCEDURES	COMMUNICATION LINKS	DOSE CALC. EXPOSURE DETERMINATION	EVACUATION & PERSONNEL ACCOUNTABILITY	FIRE FIGHTING	FIRST AID	JOB-RELATED HEALTH PHYSICS	RESPIRATOR USE	OFFSITE SUPPORT	TRANSPORTATION OF INJURED & CONTAMINATED PERSONNEL	PROTECTIVE ACTION RECOMMENDATIONS
EMERGENCY DIRECTORS/ COORDINATORS	X	X	X	X			X	X	X	X	X
ACCIDENT ASSESSMENT PERSONNEL (INCL CR SHIFT PERSONNEL)	X	X	X	X			X	X			X
RADIOLOGICAL ANALYSIS & MONITORING PERSONNEL	X	X	X				X	X			
FIRE & HAZARDUS CONTROL TEAMS	X	X			X	X	X	X	X		
REPAIR & DAMAGE CONTROL TEAMS	X	X			X	X	X	X			
POLICE & SECURITY PERSONNEL	X	X		X		X	X	X		X	
LOCAL SUPPORT PERSONNEL					X		X	X	X		
MEDICAL SUPPORT PERSONNEL						X	X	X		X	
HQ SUPPORT PERSONNEL	X		X								
COMMUNICATIONS PERSONNEL	X	X					X				
FIRST AID & RESCUE	X	X				X	X	X		X	

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Revision 2
February, 1982

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APPROVED BY:

[Signature]

DATE

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1.0 OBJECTIVE

- 1.1 To establish guidelines for developing, conducting, evaluating and documenting emergency preparedness drills.
- 1.2 To test emergency response personnel, equipment, communications and procedures, as an extension of classroom training.
- 1.3 To verify the adequacy of the PVNGS Emergency Plan and Implementing Procedures and the overall effectiveness of emergency preparedness at PVNGS.

2.0 REFERENCES

2.1 Implementing References

None

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan Section 8 "Maintaining Emergency Preparedness".
- 2.2.2 80PR-OZZ01 PVNGS Training Program
- 2.2.3 NUREG 0654 Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 A drill in the context of Emergency Preparedness is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation.
- 3.2 Drills shall be conducted on a periodic basis for each unit (see Appendix A) and include:
 - o Fire (Section 5.0)
 - o Communications (Section 6.0)
 - o Medical Emergency (Section 7.0)
 - o Radiological Monitoring/Health Physics (Section 8.0)

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4.0 DETAILED RESPONSE

4.1 Personnel Indoctrination

- 4.1.1 Regular participation by station personnel in drills is required to maintain emergency preparedness and to test and evaluate specific aspects of emergency plans, procedures and equipment. To accomplish the above, the Onsite Emergency Planning Coordinator is responsible for ensuring that drills are developed, conducted, evaluated and documented in a timely manner.

4.2 Prerequisites

- 4.2.1 Drills shall be conducted in accordance with the guidance in the PVNGS Emergency Plan, Section 8, "Maintaining Emergency Preparedness".
- 4.2.2 The Onsite Emergency Planning Coordinator shall ensure that the items identified in the Predrill Check-Off Sheet (Appendix B) have been completed prior to the initiation of the drill.

4.3 Instructions

- 4.3.1 The Onsite Emergency Planning Coordinator will coordinate the planning and scheduling of each drill.
- 4.3.2 The Onsite Emergency Planning Coordinator with the assistance of the Safety Director, Radiation Protection Supervisor, and Training Manager as necessary, will ensure that the development and approval of the drill scenario is in accordance with the guidelines presented in Appendix C. The drill scenario will include the following:
- o Basic objectives
 - o Date, time, location and participating organizations
 - o Simulated events
 - o Initiating events
 - o Narrative summary
 - o Description of arrangements for drill observers
- 4.3.2.1 Drill scenarios may be developed on a real time basis or on an accelerated schedule so that more activities are tested in a shorter time frame.

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4.3.2.2 Emergency information messages (Appendix D) may be developed to be given to emergency personnel at predetermined times.

4.3.3 The Onsite Emergency Planning Coordinator will submit the drill senario (Appendix C) to the Manager, Nuclear Operations, for review and approval.

4.3.4 The Onsite Emergency Planning Coordinator shall coordinate assignment of observers/controllers based on expertise and availability.

4.3.5 Prior to the drill, the Onsite Emergency Planning Coordinator shall:

- o Ensure that the Predrill Check-Off Sheet (Appendix B) has been completed.
- o Conduct a predrill briefing to inform the observers/controllers of the objectives of the drill, which portions of the scenario require strong observer control, and which portions of the scenario permit free play.
- o Distribute Simulated Message Forms (Appendix D), if necessary, and Drill Observer's Evaluation (Appendix E).
- o Allow assigned observers/controllers ample time to reach their assigned location.

4.3.6 Guidance from the observers/controllers may be provided at any time during a drill regarding the use of emergency procedures and equipment.

4.3.7 Following the drill, the Onsite Emergency Planning Coordinator will meet with all observers/controllers and conduct a drill critique, where all aspects of drill performance will be discussed, and recommended corrective actions will be noted.

4.3.8 Upon completion of the critique the Onsite Emergency Planning Coordinator will brief APS management personnel on the results of the drill, and identify those items where corrective actions were recommended.

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- 4.3.9 The Onsite Emergency Planning Coordinator shall then submit to the Manager, Nuclear Operations a written report, Appendix F with the scenarios, simulated messages and additional drill documentation forms attached.
- 4.3.10 The Manager, Nuclear Operations shall review the drill report, assign deficiencies as action items and task them to the affected department.
- 4.3.11 The Manager, Nuclear Operations shall review the corrective actions and if the appropriate actions are completed, sign off the Drill Report.
- 4.3.12 Records of all drills will be maintained by the Training Department.

5.0 FIRE DRILLS

5.1 Personnel Indoctrination

- 5.1.1 The Safety Director is responsible for the fire training of the fire brigade and the Bechtel Fire Department with regards to combatting a fire at PVNGS.
- 5.1.2 The Onsite Emergency Planning Coordinator is responsible for interfacing the station fire brigade training and drill program with the requirements of the emergency plan.
- 5.1.3 Fire drills will be conducted quarterly for each shift Fire Brigade of each unit.
- 5.1.4 The Bechtel Fire Department provides assistance in the event of major fires. On a periodic (annual) basis, a drill will be held for the Department. The Safety Director will conduct the drill in accordance with this procedure to provide a check of Bechtel fire equipment compatibility and fire department personnel plant familiarization.

5.2 Prerequisites

- 5.2.1 Fire drills will be conducted in accordance with the guidance of the PVNGS Emergency Plan, Section 8.

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5.3 Instructions

- 5.3.1 The Onsite Emergency Planning Coordinator with the assistance of the Safety Director shall coordinate the planning, scheduling and if required, the preparing of a drill scenario, for fire drills.
- 5.3.2 Drill scenarios shall be prepared in accordance with the guidelines of Section 4.3.2.
- 5.3.3 Predrill actions, drill critiques, reports of drill performance and corrective actions shall be conducted in accordance with Section 4.3.3 through 4.3.12.

6.0 COMMUNICATIONS DRILLS

6.1 Personnel Indoctrination

- 6.1.1 Communications links and notification procedures with offsite state and local agencies are periodically tested. The Onsite Emergency Planning Coordinator is responsible for developing, conducting and documenting communications drills.
- 6.1.2 The Corporate Health Physicist and Emergency Planner is responsible for coordinating the efforts of the Training Manager with the offsite state and local agencies, to ensure that communications drills are conducted in a timely manner and offsite corrective actions are completed as required.
- 6.1.3 A monthly communications drill will be conducted with State and County agencies within the Plume Exposure Pathway (10 mile EPZ). Appendix G and EPIP 07 and 08 (Notification procedures) shall be utilized to perform the drill.
- 6.1.4 An annual communications drill will test the communications capability of the:
 - o Control Room
 - o Satellite TSC
 - o TSC
 - o OSC
 - o Service Building (Alternate OSC)
 - o EOF
 - o ENC

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- o CEC
- o State (ARRA & ADES)
- o County EOC and Sheriff's Offices
- o Field Monitoring Teams

6.1.4.1 The annual communications drill should normally be performed in conjunction with the joint exercise.

6.1.4.2 Appendix H and EPIP 07 and 08 (Notification procedures) shall be utilized to perform the annual drill.

6.1.5 Nuclear Regulatory Commission (NRC) communications links (WPN & ENS) shall be tested by the NRC in accordance with 10CFR50.

6.2 Prerequisites

6.2.1 Communications drills shall be conducted in accordance with the guidance of the PVNGS Emergency Plan, Section 8.

6.3 Instructions

6.3.1 The Onsite Emergency Planning Coordinator will determine the date, time and scope of the communications drill.

6.3.2 Written notice of the drill date and approximate time will be sent to the participating government agencies 7 days prior to communications testing.

6.3.3 Simulated emergency messages should be used to ensure that the message's content can be understood.

6.3.4 Actual equipment checks should be conducted by members of the Emergency Organization as a training exercise.

6.3.5 Equipment found to be inoperable will be replaced or repaired in a timely manner. Mitigating actions will be performed until the equipment is operable.

6.3.6 A written report, Appendix F, with appropriate documentation attached will be submitted to the Manager, Nuclear Operations, by the Onsite Emergency Planning Coordinator.

6.3.7 Corrective actions and signoff will be performed in accordance with Sections 4.3.10 through 4.3.12.

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7.0 MEDICAL DRILLS

7.1 Personnel Indoctrination

- 7.1.1 Medical emergency drills with Maryvale Samaritan Hospital shall be conducted annually. The drill shall involve treatment of a simulated contaminated person and may include participation of local backup ambulance services.
- 7.1.2 The Corporate Health Physicist and Emergency Planner is responsible for developing, conducting and documenting medical drills.
- 7.1.3 The Corporate Health Physicist and Emergency Planner is responsible for coordinating with the backup offsite ambulance, hospital, or other services to ensure that medical drills are conducted in a timely manner and offsite corrective actions are completed as required.

7.2 Prerequisites

- 7.2.1 Medical drills shall be conducted in accordance with the guidance of the PVNGS Emergency Plan, Section 8.

7.3 Instructions

- 7.3.1 The Corporate Health Physicist and Emergency Planner, with the assistance of the Onsite Emergency Planning Coordinator, shall prepare the medical drill scenario.
- 7.3.2 Drill scenarios shall be prepared in accordance with the guidelines of Section 4.3.2.
- 7.3.3 Predrill actions, drill critiques and reports of drill performance shall be conducted in accordance with Section 4.3.3 through 4.3.12.

8.0 RADIOLOGICAL MONITORING/HEALTH PHYSICS DRILLS (Rad-Mon/HP)

8.1 Personnel Indoctrination

- 8.1.1 Radiological monitoring drills shall be conducted annually to evaluate the Radiological Survey and Monitoring Teams involving the use of survey instruments and field communications equipment, calculation of dose rates and the collection of sample media (soil, air, water and vegetation).

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8.1.2 Health physics drills involving the use of the post-accident sampling system will be conducted annually.

8.1.3 Health physics drills involving the analysis of simulated and actual airborne samples with elevated radiation levels, as well as direct radiation measurements in the environment, will be conducted semi-annually.

8.1.4 The Onsite Emergency Planning Coordinator is responsible for developing, conducting and documenting radiological monitoring and health physics drills.

8.2 Prerequisites

8.2.1 Radiological monitoring and health physics drills shall be conducted in accordance with the guidance of the PVNGS Emergency Plan, Section 8.

8.3 Instructions

8.3.1 The Onsite Emergency Planning Coordinator with the assistance of the Radiation Protection Supervisor and Chemistry Supervisor shall prepare the Radiological Monitoring and Health Physics Drill Scenarios.

8.3.2 The Rad-Mon/HP Drill Scenarios may be combined to meet the requirements of Appendix A.

8.3.3 Drill scenarios shall be prepared in accordance with Section 4.3.2 and Appendix C.

8.3.4 Predrill actions, drill critiques and reports of drill performance shall be conducted in accordance with Section 4.3.3 through 4.3.12.

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DRILL/EXERCISE FREQUENCIES

1. MONTHLY

- a. Communications links and notification procedures with offsite state and local agencies within the plume ingestion pathway (10 mile EPZ) are tested on a monthly basis.

2. QUARTERLY

- a. An onsite fire drill is conducted quarterly in accordance with plant Technical Specifications.

3. SEMI-ANNUALLY

- a. Health physics drills are conducted semi-annually generally in conjunction with exercises or radiological monitoring drills. HP drills involve analysis of simulated and actual samples with elevated radiation levels both liquid and airborne, as well as direct radiation measurements in the environment.

4. ANNUALLY

- a. Communications between PVNGS, federal and state emergency response organizations, and field assessment teams are tested annually generally in conjunction with the joint exercise.
- b. Medical emergency drills involving treatment of a simulated contaminated person with provision for participation by offsite support service agencies (ambulance or helicopter) and Maryvale Samaritan Hospital are conducted annually.
- c. Radiological monitoring drills for personnel assigned to Radiation Survey and Monitoring teams, involving communications, use of instruments, calculation of offsite dose projections and the collection of sample media are conducted annually.
- d. Health physics drills involving analysis of implant liquid samples with actual elevated radiation levels, including usage of the post-accident sampling system are conducted annually.
- e. Joint emergency exercises involving participation of offsite emergency management organizations are conducted annually (See EPIP 37B).

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PREDRILL CHECK-OFF (CONT'D)

	<u>Initials/Date</u>
d. Administration Support Manager	/
e. Site Security	/
f. Palo Verde Energy Information Center	/
g. Public Information Department	/
h. Telephone Operators	/
i. Others (specify) _____	/
_____	/
_____	/
6. Predrill briefing conducted, Simulated Message Forms and Drill Observer's Evaluations distributed.	/

Reviewed _____
Onsite Emergency Planning Coordinator

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DRILL SCENARIO

Developed by:

	NAME	TITLE	DATE
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

Approved by:

	NAME	TITLE	DATE
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	Manager, Nuclear Operations	_____

(Signature)

Type of Drill: _____

Date and Time to be Conducted: _____

Participating Organizations: _____

Observer/Controller assignments: _____

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DRILL SCENARIO (CONT'D)

OVERVIEW OF SCENARIO EVENTS:

INITIAL STATION CONDITIONS:

PRECAUTIONS: (i.e., safety, ensure that significant construction, maintenance, repair work is not interrupted, etc.)

SCENARIO: (Use additional sheets if necessary)

<u>Time</u>	<u>Event</u>	<u>Key Plant Condition</u>	<u>Expected Response Actions</u>
-------------	--------------	----------------------------	----------------------------------

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SIMULATED MESSAGE FORM

THIS IS A DRILL

DO NOT TAKE ANY ACTIONS THAT WILL AFFECT
STATION OPERATIONS OR ACTIVITIES IN PROGRESS.

TO:
LOCATION:
MESSAGE:

MESSAGE NO:
TIME:

1. Keep your controller informed of actions to be taken.
2. Request clarification from your controller if the message is not fully understood.
3. Request additional information if you feel it is needed.

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DRILL REPORT

To: Manager, Nuclear Operations

From: Onsite Emergency Planning Coordinator

Subject: _____ Drill

1. A _____ Drill was conducted on _____ (Date).

2. The drill was held on _____ shift.

3. Offsite assistance utilized was _____

4. A critique was conducted and the following recommendations for corrective action were noted:

-- Continue on additional sheets as necessary --

Signature (Onsite Emergency
Planning Coordinator)

Date

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DRILL REPORT (CONT'D)

Corrective Action

Assigned To

Date Completed

Corrective actions reviewed and completed.

Signature (Manager, Nuclear
Operations)

Date

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MONTHLY COMMUNICATIONS DRILL RECORD

Month Tested _____

NAN DRILL MESSAGE: THIS IS A TEST OF THE NOTIFICATION AND ALERT NETWORK,
THE FOLLOWING STATION REPORT IN:

<u>NAN</u>	<u>TESTED SAT/UNSAT</u>	<u>COMMENTS</u>
STSC Unit 1	_____	_____
Unit 2	_____	_____
Unit 3	_____	_____
TSC	_____	_____
EOF	_____	_____
NWS	_____	_____
ADES	_____	_____
ARRA	_____	_____
MCCDES	_____	_____
DPS	_____	_____
MCSO	_____	_____

THIS CONCLUDES THE MONTHLY TEST OF THE NOTIFICATION
AND ALERT NETWORK.

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MONTHLY COMMUNICATIONS DRILL RECORD (CONT'D)

DEDICATED LEASED
CIRCUIT DRILL
MESSAGE:

THIS IS A TEST OF THE DEDICATED LEASED CIRCUIT PHONE
SYSTEM, THE FOLLOWING STATIONS REPORT IN:

<u>DEDICATED LEASED CIRCUIT</u>	<u>TESTED SAT/UNSAT</u>	<u>COMMENTS</u>
STSC Unit 1	_____	_____
Unit 2	_____	_____
Unit 3	_____	_____
TSC Phone 1	_____	_____
Phone 2	_____	_____
EOF Phone 1	_____	_____
Phone 2	_____	_____
411 Corp. Office	_____	_____
ARRA	_____	_____
ADES	_____	_____

THIS CONCLUDES THE MONTHLY TEST OF THE DEDICATED
LEASED CIRCUIT.

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MONTHLY COMMUNICATIONS DRILL RECORD (CONT'D)

<u>DEDICATED FACSIMILE</u>	<u>TESTED SAT/UNSAT</u>	<u>COMMENTS</u>
STSC Unit 1	_____	_____
Unit 2	_____	_____
Unit 3	_____	_____
TSC	_____	_____
EOF	_____	_____
411 Corp. Office	_____	_____
ARRA	_____	_____
ADES	_____	_____
 <u>BACKUP DEDICATED FACSIMILE</u>	 <u>TESTED SAT/UNSAT</u>	 <u>COMMENTS</u>
TSC	_____	_____
EOF	_____	_____
411 Corp. Office	_____	_____
ARRA	_____	_____
ADES	_____	_____

Corrective Actions: _____

Completed By/Date _____

Reviewed/Date _____

Onsite Emergency Planning Coordinator

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ANNUAL COMMUNICATIONS DRILL RECORD

Date Tested _____

	CR UNIT 1 / 2 / 3	STSC 1 / 2 / 3	TSC	EOF	OSC/ALT. OSC	HP OFFICE
TECHNICAL LINE *	/ /	/ /			NA / NA	NA
RADIOLOGICAL ASSESSMENT LINE *	NA / NA / NA	/ /		NA	/	
ENVIRONMENTAL ASSESSMENT LINE *	NA / NA / NA	/ /			NA / NA	NA
EC/EOD HOTLINE *	NA / NA / NA	/ /			NA / NA	NA
DEDICATED LINES*						
CR Unit 1	NA / /	/ /			/	NA
Unit 2	/ NA /	/ /			/	NA
Unit 3	/ / NA	/ /			/	NA
STSC Unit 1	/ /	NA / /			/	NA
Unit 2	/ /	/ NA /			/	NA
Unit 3	/ /	/ / NA			/	NA
TSC	/ /	/ /	NA		/	NA
EOF	/ /	/ /		NA	/	NA
OSC	/ /	/ /			NA /	NA
ALT. OSC	/ /	/ /			/ NA	NA
MAINTENANCE CONTROL LINE *	/ / NA	/ / NA		NA	/	NA
COMMENTS:						

*Indicate if satisfactory or unsatisfactory for each facility.
NA = Not Applicable

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ANNUAL COMMUNICATIONS DRILL RECORD (CONT'D)

	<u>TESTED SAT/UNSAT</u>	<u>COMMENTS</u>
ENC LINE FROM EOF	_____	_____
ENC FACSIMILE FROM EOF	_____	_____
EOF BASE STATION RADIO	_____	_____
TSC BASE STATION RADIO	_____	_____
STSC BASE STATION RADIO	_____	_____

COMPLETE AND ATTACH THE MONTHLY COMMUNICATIONS DRILL RECORD

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PVNGS SM # 8-90

APPROVED BY:

JR Byrum

DATE 10/26/82

DATE EFFECTIVE

11-2-82

DN-1539A/0188A

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1.0 OBJECTIVE

- 1.1 To establish guidelines for developing, conducting, evaluating and documenting NRC/FEMA emergency preparedness exercises.
- 1.2 To test both onsite and offsite emergency personnel, equipment, communications and procedures, including the coordination and interface with federal, state and county government.
- 1.3 To verify the adequacy of the Palo Verde Emergency Plan, and the overall effectiveness of onsite and offsite emergency preparedness.

2.0 REFERENCES

2.1 Implementing References

None

2.2 Developmental References

- 2.2.1 PVNGS Emergency Plan, Section 8, "Monitoring Emergency Preparedness".
- 2.2.2 80PR-0ZZ01, PVNGS Training Program
- 2.2.3 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.4 NRC/FEMA Joint Memorandum No. 17

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 An exercise is an event that tests the emergency preparedness of onshift, onsite and offsite response groups.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 Joint emergency exercises simulating events resulting in offsite radiological releases to the extent requiring response by offsite authorities shall be conducted (i.e. Site or General Emergency).

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4.1.2 The Corporate Health Physicist and Emergency Planner with the assistance of the Onsite Emergency Planning Coordinator, is responsible for coordinating the development, conduct, evaluation, and documentation of emergency preparedness exercises.

4.1.3 Joint emergency exercises shall be conducted annually. During a six-year period, two exercises shall be scheduled to commence offshift - one between 6:00 p.m. and midnight and another between midnight and 6:00 a.m.

4.2 Prerequisites

4.2.1 Exercises shall be conducted in accordance with the guidelines of the PVNGS Emergency Plan, Section 8, "Maintaining Emergency Preparedness".

4.2.2 The Corporate Health Physicist and Emergency Planner shall ensure that the exercise milestone dates defined in Appendix A are met.

4.2.3 The Corporate Health Physicist and Emergency Planner shall ensure that the Pre-Exercise Check-Off Sheet (Appendix B) is completed prior to the initiation of the exercise.

4.3 Instructions

4.3.1 The Corporate Health Physicist and Emergency Planner, with the assistance of state/county emergency planning personnel, will develop the objectives to be met for each exercise.

4.3.2 The Corporate Health Physicist and Emergency Planner, with the cooperation of the Arizona Division of Emergency Services, will ensure that the exercise scenario is developed within the time frame of Appendix A. They will also ensure that the scenarios' simulated events and station initial conditions are developed in a manner that will adequately test the level of emergency preparedness of the groups involved in the exercise.

4.3.2.1 The Corporate Health Physicist and Emergency Planner shall ensure that:

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- a. The exercise will simulate an emergency that results in offsite radiological releases which require response by offsite authorities.
 - b. The scenario is varied from year to year so that all major elements of the response plans and preparedness organizations are tested within a five-year period.
 - c. Once every six years, the exercise shall start between 6:00 p.m. and midnight, and another between midnight and 6:00 a.m.
- 4.3.3 The Onsite Emergency Planning Coordinator shall submit the exercise objectives and an overview of the scenario to the Manager, Nuclear Operations, for review and approval.
- 4.3.4 The Corporate Health Physicist and Emergency Planner and the Onsite Emergency Planning Coordinator shall determine the number of observers/controllers needed to adequately evaluate the exercise.
- 4.3.5 Prior to the exercise, the Corporate Health Physicist and Emergency Planner shall:
- o Ensure that the Pre-Exercise Check-Off Sheet has been completed (Appendix B).
 - o Conduct a pre-exercise briefing to inform the observers of the objectives of the exercise, which portions of the scenario require strong control, and which portions of the scenario permit free play.
 - o Distribute Simulated Message Forms (Appendix C) and Exercise Observer's Evaluation Forms (Appendix D).
- 4.3.6 Following the exercise, critiques shall be conducted by FEMA, NRC, and state observers. PVNGS observer comments shall be included in these critiques.
- 4.3.7 A written report (Appendix E) with critique results, scenario, simulated messages, and additional exercise documentation attached shall be prepared by the Corporate Health Physicist and Emergency Planner and submitted to the Manager, Nuclear Operations.

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- 4.3.8 The Manager, Nuclear Operations, shall review the exercise report, assign deficiencies as action items, and task them to the appropriate department.
- 4.3.9 The Onsite Emergency Planning Coordinator shall insure that Emergency Plan Implementing Procedures are revised as a result of deficiencies identified by emergency drills and exercises.
- 4.3.10 The Vice President, Electric Operations shall review the corrective actions and if the appropriate actions are completed, sign off the Exercise Report.
- 4.3.11 Records of all exercises will be maintained by the Training Department.

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MILESTONES FOR EXERCISE OBSERVATION AND CRITIQUES

- 75 days State and licensee jointly submit exercise objective to FEMA and NRC Regional Offices.
- 60 days FEMA and NRC Regional Offices discuss and meet with licensee/state as necessary to prepare response.
- 45 days State and licensee scenario developers submit exercise scenario to FEMA and NRC regions for review.
- 35 days FEMA and NRC regions notify state and licensee of scenario acceptability.
- 30 days FEMA and NRC regions develop specific post exercise critique schedule with the state and advise FEMA and NRC headquarters.
- 15 days The RAC Chairman and NRC Team Leader will meet to develop observer action plan (where stationed, how many from each organization, what to look for).
- 1 day Meeting, in the exercise area, of all Federal observers both onsite and offsite to finalize assignments, and give instructions.
- E day Exercise.
- E day FEMA and RAC observers caucus to collate observations. NRC observers also caucus to collate observations.
- E day RAC Chairman and NRC Team Leader meet, as soon after their respective caucuses as practical, to coordinate federal participation in critique.
- E to + 1 day Joint RAC/NRC critique.

General Agenda

- a. State, locals and licensee present their views.
- b. Critique of offsite actions, by RAC Chairman.
- c. Critique of onsite actions, by NRC.
- d. Critique of federal response (if applicable) by RAC Chairman.
- e. Opportunity for clarification questions or comments by licensee, state and locals (press and public questions will not be entertained during the critique).
- + 15 days Written critiques by FEMA region to state, with copies to FEMA headquarters and NRC and by NRC region to licensee with copies to NRC headquarters and FEMA.

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PRE-EXERCISE CHECK-OFF SHEET (CONT'D)

Initials/Date

7. APS departments notified as necessary:

- | | |
|---|---|
| a. Manager, Nuclear Operations | / |
| b. Maintenance and Operations Supervisor | / |
| c. Technical Support Manager | / |
| d. Administration Support Manager | / |
| e. V.P. Electric Operations | / |
| f. Site Security | / |
| g. Community Relations and Consumer Affairs
Department | / |
| h. Public Information Department | / |
| i. Telephone Operators | / |
| j. System Control Department | / |
| k. Others (specify) _____ | / |
| _____ | / |
| _____ | / |

8. Pre-exercise briefing conducted, Simulated Message Forms and Exercise Observer's Evaluations distributed.

/

Reviewed _____

Emergency Planner and Site Emergency Coordinator

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SIMULATED MESSAGE FORM

THIS IS AN EXERCISE

DO NOT TAKE ANY ACTIONS THAT WILL AFFECT
STATION OPERATIONS OR ACTIVITIES IN PROGRESS.

TO:

MESSAGE NO:

LOCATION:

TIME:

MESSAGE:

-
1. Keep your controller informed of actions to be taken.
 2. Request clarification from your controller if the message is not fully understood.
 3. Request additional information if you feel it is needed.

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EXERCISE REPORT

To: Vice President, Electric Operations

From: Corporate Health Physicist and Emergency Planner

Subject: Emergency Preparedness Exercise

1. An Emergency Preparedness Exercise was conducted on _____.
(Date)

2. The exercise was held on _____ shift.

3. Offsite assistance utilized was _____

4. A critique was conducted and the following recommendations for
corrective action were noted:

-- Continue on additional sheets as necessary --

Signature _____

Corporate Health Physicist and Emergency Planner

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EXERCISE REPORT (CONT'D)

Corrective Action
Date Completed

Assigned To

Corrective actions reviewed and completed.

 Signature (Vice President, Electric
 Operations)

 Date

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PVNGS SM 8-98

APPROVED BY:

[Signature]

DATE

10/4/82

DATE EFFECTIVE

10-11-82

DN-1670A/0196A

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1.0 OBJECTIVE

- 1.1 To provide a means of insuring the operational readiness and availability of equipment required for implementation of the EPIP's.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-03, "NOTIFICATION OF UNUSUAL EVENT Implementing Actions"
- 2.1.2 EPIP-04, "ALERT Implementing Actions"
- 2.1.3 EPIP-05, "SITE EMERGENCY Implementing Actions"
- 2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.2 Developmental References

- 2.2.1 NUREG 0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.2.2 NUREG 0696, Feb. 1981, Functional Criteria for Emergency Response Facilities
- 2.2.3 PVNGS Emergency Plan, Rev. 2, Section 7.0, "Emergency Facilities and Equipment"

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 First-Aid equipment and supplies shall be maintained under the direction of the Safety Director.
- 3.2 Equipment and supplies utilized on a daily basis but which may be used during an emergency shall be maintained through existing surveillance procedures.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 In order to insure that availability may be required during the course of an

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PVNGS, the Radiation Protection Supervisor shall be responsible for conducting a quarterly inventory of emergency equipment and supplies.

4.2 Prerequisites

- 4.2.1 Emergency equipment and supplies inventory will be conducted in accordance with the PVNGS Emergency Plan, Section 7.

4.3 Instructions

- 4.3.1 Dedicated emergency equipment and supplies located in the emergency lockers shall be inventoried quarterly. Emergency lockers/kits are maintained at the following locations:
- a. Control Room/STSC of Each Unit
 - b. Operations Support Center of Each Unit
 - c. Service Building (alternate OSC)
 - d. TSC
 - e. EOF
 - f. Emergency Radiological Vehicle
 - g. Maryvale Samaritan Hospital
- 4.3.3 Inventory is accomplished utilizing Appendices A through C. Each appendix contains the designated equipment for a specified emergency storage location. Calibration required, battery recharge/replacement, and date/initial blanks must be filled in when inventoried.
- 4.3.4 Instruments and communications equipment stored in the emergency lockers shall be tested quarterly and after each use. Calibration of radiation survey instruments shall be conducted at intervals established by the Radiation Protection Section.
- 4.3.5 Equipment or supplies found to be deficient or inoperable shall be repaired or replaced promptly.
- 4.3.6 Records of the inventory and checks of emergency equipment will be maintained by the Radiation Protection Supervisor with a copy forwarded to the Onsite Emergency Planning Coordinator and the Corporate Health Physicist and Emergency Planner.
- 4.3.7 Calibration records of radiation survey instruments will be maintained by the Radiation Protection Section.

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EMERGENCY STORAGE AT THE EOF, OSC, TSC, CR (ONE EACH UNIT),
AND THE SERVICE BUILDING

A. MAPS AND FORMS

- 5 Plant Layout Drawings
- 2 Onsite Monitoring Maps
- 2 Offsite Monitoring Maps
- 5 Emergency Onsite and Offsite Monitoring Data Sheet (Dose Rate, Particulate and Iodine, and Soil, Milk, Water and Veg. Samples)

B. EMERGENCY KIT EQUIPMENT - (Office Supplies)

- 1 Log Book - 9 1/2" x 6" (Accounting Book)
- 1 Box Pencils (Sharpened)
- 1 Ream of Paper (Yellow Tablets)
- 1 Box Colored Pencils
- 1 Box Grease Pencils
- 3 Clip Boards
- 1 Stopwatch
- 1 Box "D" Size Batteries
- 1 Roll of Quarters

EMERGENCY KIT EQUIPMENT - (Tools)

- 2 Flashlights
- 2 Pocket Knives
- 1 18" Boltcutter
- 1 8" Common Screwdriver
- 1 8" Phillips Screwdriver
- 1 Diagonal Pliers
- 1 Regular Pliers
- 1 Long Nose Pliers
- 2 Portable 2-Way Radios
- 2 Radio Chargers

C. PEPSONNEL DECONTAMINATION SUPPLIES

- 5 Bars of Soap
- 2 Bottles of Shampoo
- 2 Razors
- 3 Packages Razor Blades
- 2 Packages of Q-Tips
- 1 Scissors
- 1 Nail File
- 1 Hand Operated Hair Clipper

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EMERGENCY STORAGE AT THE EOF, OSC, TSC, CR (ONE EACH UNIT),
AND THE SERVICE BUILDING (CONT'D)

2 Cans Shaving Cream
7 Rolls Bath Towels (Disposable)
4 Hand Towels
4 Washcloths
2 Packages Absorbant Wipes
KMnO4

D. PERSONNEL PROTECTION ITEMS

10 Pair Coveralls
10 Hoods
20 Plastic Shoe Covers
10 Cotton Liners
10 Rubber Shoe Covers
10 Rubber Gloves
5 Respirators
10 Charcoal Respirator Filters
3 Rolls Duct Tape Rolls
7 Boxes Disposable Gloves

E. RADIOLOGICAL CONTROL EQUIPMENT

1 E520 w/Probes
1 E530 w/Probes
1 PLC 6A
2 Air Samplers, High Volume
2 Air Samplers, Battery Powered
1 Frisker w/Probes and Cords
2100' Yellow Poly Barrier Rope
24 Large Yellow Poly Bags - 24" x 36"
12 Barrier Signs with Inserts
20 Yellow Poly Bags
25 TLD's and Issue Forms
10 Dosimeters 0-1 R
10 Dosimeters 0-200 mR
1 Dosimeter Charger
1 Box Ziplock Bags
1 Roll Glad Wrap
200 Smears and Envelopes
50 Charcoal Cartridges (Air Sampler)
10 Silver Zeolite Cartridges (Air Sampler)
4 Air Sampler Filter Heads

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EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 0	Page 7 of 12

EMERGENCY RADIOLOGICAL VEHICLE SUPPLY INVENTORY

A. MAPS AND FORMS

- 2 Onsite Monitoring Maps
- 2 Offsite Monitoring Maps
- 5 Sets of Emergency Onsite and Offsite Monitoring Data Sheets

B. EMERGENCY KIT EQUIPMENT - (Office Supplies)

- 1 Log Book - 9 1/2" x 6" (Accounting Book)
- 1 Box Pencils (Sharpened)
- 1 Ream of Paper (Yellow Tablets)
- 1 Box Colored Pencils
- 1 Box Grease Pencils
- 3 Clip Boards
- 1 Stopwatch
- 1 Box "D" Size Batteries
- 1 Roll of Quarters

EMERGENCY KIT EQUIPMENT - (Tools)

- 2 Flashlights
- 2 Pocket Knives
- 1 18" Boltcutter
- 1 8" Common Screwdriver
- 1 8" Phillips Screwdriver
- 1 Diagonal Pliers
- 1 Regular Pliers
- 1 Long Nose Pliers
- 2 Portable 2-Way Radios
- 2 Radio Chargers

C. PERSONNEL DECONTAMINATION SUPPLIES

- 5 Bars of Soap
- 2 Bottles of Shampoo
- 2 Razors
- 3 Packages Razor Blades
- 2 Packages of Q-Tips
- 1 Scissors
- 1 Nail File
- 1 Hand Operated Hair Clipper

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIF-38	APPENDIX B Page 2 of 2
EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 0	Page 8 of 12

EMERGENCY RADIOLOGICAL VEHICLE SUPPLY INVENTORY (CONT'D)

2 Cans Shaving Cream
 7 Rolls Bath Towels (Disposable)
 4 Hand Towels
 4 Washcloths
 2 Packages Absorbant Wipes
 KMnO₄

D. PERSONNEL PROTECTION ITEMS

10 Pair Coveralls
 10 Hoods
 20 Plastic Shoe Covers
 10 Cotton Liners
 10 Rubber Shoe Covers
 10 Rubber Gloves
 5 Respirators
 10 Charcoal Respirator Filters
 3 Rolls Duct Tape Rolls
 7 Boxes Disposable Gloves

E. RADIOLOGICAL CONTROL EQUIPMENT

1 E520 w/Probes
 1 E530 w/Probes
 1 PIC 6A
 2 Air Samplers, High Volume
 2 Air Samplers, Battery Powered
 1 Frisker w/Probes and Cords
 2100' Yellow Poly Barrier Rope
 24 Large Yellow Poly Bags - 24" x 36"
 12 Barrier Signs with Inserts
 20 Yellow Poly Bags
 25 TLD's and Issue Forms
 10 Dosimeters 0-1 R
 10 Dosimeters 0-200 mR
 1 Dosimeter Charger
 1 Box Ziplock Bags
 1 Roll Glad Wrap
 200 Smears and Envelopes
 50 Charcoal Cartridges (Air Sampler)
 10 Silver Zeolite Cartridges (Air Sampler)
 4 Air Sampler Filter Heads

<p align="center">PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE</p>	<p>PROCEDURE NO. EPIP-38</p>	<p>APPENDIX C Page 1 of 1</p>
<p align="center">EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY</p>	<p>REVISION 0</p>	<p>Page 9 of 12</p>

MARYVALE SAMARITAN HOSPITAL EMERGENCY LOCKER INVENTORY

1 Roll Herculite, Green - 54" x 100 Yards
 3 Roll Herculite, Yellow - 54" x 100 Yards
 1 Roll Herculite, White - 54" x 100 Yards
 1 Eberline PIC-6A Survey Meter
 1 Frisker w/Pancake Probe and Cord
 15 0 to 1R Dosimeters, Self-Reading
 15 0 to 200 mR Dosimeters, Self-Reading
 1 Dosimeter Charger
 15 TLD Badges
 15 TLD Rings
 1 Lead Pig
 1 Decon Table Top
 1 30 Gallon Container w/Wheels
 24 Rools of Yellow Tape, Pressure Sensitive w/Radiation Symbols
 150' Yellow and Magenta Barrier Rope
 12 Rope Stanchions
 5 Dosimetry Distribtution and Exposure Forms
 12 Barrier Signs w/Inserts

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-33	APPENDIX D Page 1 of 3
EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 0	Page 10 of 12

TYPICAL EQUIPMENT AND SUPPLY LIST
(NEAR ACCESS CONTROL POINT AND OSC)

PERSONNEL DECONTAMINATION AREAS (2)

Bars of Soap
 Bottles of Shampoo
 Razors
 Razor Blades, Sets
 Cotton Swabs
 Scissors
 Nail Files
 Hair Clippers
 Shaving Cream
 Spray Foam Decontaminant
 Bath Towels (Disposable Rolls)
 Hand Towels
 Washcloths
 Absorbant Wipes
 KMnO₄
 Adhesive Strips
 1 Liter Polyethelene Bottles

RESPIRATORY ISSUE ROOM

Respirator
 Respirator Filter
 Self-Contained Breathing Device
 Geiger Counters, Portable Beta/Gamma 0-200 mR/hr
 Geiger Counters, Portable Beta/Gamma 0-2000 mR/hr
 Ion Chambers, Portable Beta/Gamma 1 mR/hr - 1000 R/hr
 Air Samplers, Portable, High Volume
 Friskers

CLOTHING ISSUE ROOM

Anti-C Coveralls
 Anti-C Hoods
 Plastic Shoe Covers
 Rubber Shoe Covers
 Rubber Gloves
 Cotton Liners

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-38	APPENDIX D Page 2 of 3
EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 0	Page 11 of 12

TYPICAL EQUIPMENT AND SUPPLY LIST
(NEAR ACCESS CONTROL POINT AND OSC) (CONT'D)

RADIATION PROTECTION OFFICE

Dosimeters 0-1 R, Self-Reading
 Dosimeters 0-200 mR, Self-Reading
 Dosimeter Charger
 Swipes and Envelopes
 Charcoal Cartridges (Air Sampler)
 Silver Zeolite Iodine Cartridges (Air Sampler)
 Air Sampler Filter Holders
 Barrier Rope
 Large Yellow Poly Bags
 Flashlights
 Plastic Bags
 TLD's and Issue Forms
 Pocket Camera, Instamatic
 Film, Unexposed, 24 Exposure (2)
 Various Unit Maps
 Two-Way Radios

FIRST AID ROOM

Decontamination Kit
 Sample Taking Kit
 Decontamination Table Top w/Water Collection Containers
 Stretcher
 Stethoscope
 Sphygmomanometer
 Kit Oxygen Emergency
 Resuscitator Bag
 #2 Air Way
 #5 Air Way
 Set Inflatable Splints
 Blankets
 Pillow
 Surgical Gloves
 Scissors
 Bath Towel
 Hand Towel
 Face Towel
 Ace Bandage
 Combine Dressing - 5" x 9"

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-38	APPENDIX D Page 3 of 3
EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 0	Page 12 of 12

TYPICAL EQUIPMENT AND SUPPLY LIST
(NEAR ACCESS CONTROL POINT AND OSC) (CONT'D)

FIRST AID ROOM (CONT'D)

Elastic Bandage
 Cotton Balls
 Cotton Tipped Applicators
 Eye Pads
 Triangular Bandages
 4 x 4 Gauze Pads
 2 x 2 Gauze Pads
 Adhesive Tape
 Alcohol Wipes
 Betadine Wipes
 Rubbing Alcohol
 3M Disposable Hand Brush
 3M Betadine Hand Brush
 Merthiolate Swabs
 Orthopedic Stretcher

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 1 of 9

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PVNGS SM # 8-98

APPROVED BY: L. E. Brown DATE 12-7-82
DATE EFFECTIVE 12-10-82

DN-7712A/0295A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 3 of 9

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Emergency Operations Director (EOD) to complete his responsibility for overall command of the APS onsite and offsite emergency functions.

This procedure addresses the following responsibilities:

- o Coordinate all APS onsite and offsite emergency functions;
- o Interface between APS and federal/state/local emergency response agencies;
- o Communicate plant status updates and radiological release data to APS, federal, state and county personnel;
- o Notify state and county agencies concerning recommended protective actions;
- o Provide administrative, technical, and logistical support to station emergency operations; and,
- o Ensure continuity of emergency organization resources.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-08 "Notification Process Alert, Site Emergency, or General Emergency"
- 2.1.3 EPIP-13 "Emergency Operations Facility Activation"
- 2.1.4 EPIP-15 "Protective Action Guidelines"
- 2.1.5 EPIP-31 "Recovery"
- 2.1.6 EPIP-54 "Government Staffing at EOF"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 4 of 9

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Emergency Operations Director shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The Emergency Operations Director shall contact the Emergency Coordinator and receive a full briefing before declaring the EOF operational. He shall notify the Emergency Coordinator as soon as he assumes overall command.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Emergency Operations Director exercises overall command of APS emergency operations during an ALERT, or more severe accident once the EOF is operational.
- 4.1.2 The Vice President, Electric Operations (or his alternates, Technical Support Manager or Manager of Nuclear Operations Support) assumes the position of Emergency Operations Director at the EOF. He ensures that all other necessary EOF functional assignments have been made and that all positions are operational.
- 4.1.3 The Emergency Operations Director directs all APS emergency functions; coordinates onsite, offsite and corporate response organization; and assumes from the Emergency Coordinator the responsibility for (1) notifying and communicating with offsite emergency management agencies and (2) making protective action recommendations to offsite emergency management agencies, as necessary.
- 4.1.4 The Emergency Operations Director commands the offsite organization at the EOF directly and the onsite organization at the Technical Support Center and Control Room through the Emergency Coordinator. He also communicates with the Corporate Emergency Center Director at corporate headquarters and keeps him informed.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 5 of 9

4.2 Prerequisites

- 4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The Emergency Operations Director has been fully briefed by the Emergency Coordinator before assuming command.

4.3 Instructions

- 4.3.1 The Emergency Coordinator shall notify (or orders the notification) of the Vice President, Electric Operations (or, if he is unavailable, his alternates, Technical Support Manager or Manager of Nuclear Operations Support). The emergency situation and plant status shall be explained.
- 4.3.2 The Vice President, Electric Operations (or his alternates, Technical Support Manager or Manager of Nuclear Operations Support) shall report to the EOF as soon as possible and assume the position of Emergency Operations Director (EOD).
- 4.3.3 The EOD shall complete the designated checklist (Appendix A) as soon as possible and shall review the checklist periodically to assure completion of required updates and continuing tasks.
- 4.3.4 On a periodic basis and when the emergency class changes, the EOD shall provide plant status updates and radiological release data to APS, federal, state and county personnel in accordance with EPIP-08, using the FOLLOWUP EMERGENCY MESSAGE FORM (Appendix E to EPIP-08) and EMERGENCY NOTIFICATION CALL CHECKLIST (Appendix F to EPIP-08) and EPIP-54 for Federal and State personnel present at the EOF.
- 4.3.5 On a periodic basis and when the emergency class changes, the EOD shall recommend protective actions to state and county agencies in accordance with EPIP-08, and EPIP-15 using the FOLLOWUP EMERGENCY MESSAGE FORM (Appendix E to EPIP-08).
- 4.3.6 As part of his ongoing activities, the EOD shall consult with EOF staff and the Emergency Coordinator and communicate with the Corporate Emergency Center Director.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	APPENDIX A Page 1 of 4
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 6 of 9

EMERGENCY OPERATIONS DIRECTOR CHECKLIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Report to the EOF (or TSC, initially), for briefing.	/
2. Contact Emergency Coordinator and review:	
a. Basis for classification of event.	/
b. Status of plant conditions.	/
c. Corrective actions being implemented.	/
d. Status of notifications to other APS offsite staff and offsite emergency management agencies.	/
3. Ensure that the following positions are staffed and review readiness:	
a. Radiological Assessment Coordinator.	/
b. Technical Analysis Coordinator.	/
c. EOF Contact.	/
d. Administrative and Logistics Coordinator.	/
4. Conduct briefing with available EOF personnel. As a minimum, the following items shall be discussed:	
a. Adequacy of activation.	/
b. Ability of assigned personnel to assume their emergency duty roles.	/
c. Operability of equipment.	/

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	APPENDIX A Page 2 of 4
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EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION	Page 7 of 9
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EMERGENCY OPERATIONS DIRECTOR CHECKLIST (CONT'D)

<u>ACTION ITEMS</u>		<u>TIME/INITIALS</u>
5.	Notify the TSC and CEC when the EOF is operational.	/
6.	Notify the Emergency Coordinator and the Corporate Emergency Center Director that EOD has assumed control and responsibility for offsite communications.	/
7.	Complete the FOLLOWUP EMERGENCY MESSAGE FORM in accordance with EPIP-08 in anticipation of next offsite update and recommendation of protective actions.	/
8.	Contact the following offsite agencies and notify that EOF is operational and that EOD is in command and has offsite communication responsibilities. Provide plant status update and protective action recommendations using completed FOLLOWUP EMERGENCY MESSAGE FORM in accordance with EPIP-08 and EPIP-13.	
	Arizona Dept. of Emergency Services (Using NAN or alternate, NAWAS)	/
	Arizona Radiation Regulatory Agency (Using NAN or alternate, NAWAS)	/
	Maricopa County Dept. of Civil Defense and Emergency Services (Using NAN or alternate, NAWAS)	/
	NRC Headquarters (Using ENS or alternate, HPN)	/
	Federal and State Staff at EOF per EPIP-54	/
9.	Review onsite actions and requirements periodically with the Emergency Coordinator.	/

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	APPENDIX A Page 3 of 4
EMERGENCY OPERATIONS DIRECTOR (EOD).	REVISION 0	Page 8 of 9

EMERGENCY OPERATIONS DIRECTOR CHECKLIST (CONT'D)

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
10. Communicate with Corporate Emergency Center Director as necessary.	/
11. Consult with EOF Staff as necessary.	/
12. Repeat steps 6-9 periodically as necessary and whenever the emergency class changes.	
(Update No. 2)	/
(Update No. 3)	/
(Update No. 4)	/
(Update No. 5)	/
13. Declare the emergency over when the unit is in a controlled stable condition; notify offsite agencies as in Step 8 and the APS emergency organization.	/
14. Relinquish control of the situation to the Recovery Manager in accordance with Procedure EPIP-31.	/
15. Collect all EOF personnel check lists and logs.	/

PVNG3 EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	APPENDIX A Page 4 of 4
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 0	Page 9 of 9

EMERGENCY OPERATIONS DIRECTOR CHECKLIST (CONT'D)

Emergency Operations
Director Signature _____

Date _____

EOD RELIEF

At _____ on _____ I relinquished the EOD role to
(time) (date)

_____ for _____
(name) (reason)

Emergency Operations
Director Signature _____

I acknowledge assumption of the EOD role as noted above.

Relieving EOD
Signature _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 1 of 7

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PVNGS SM # 8-98

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 2 of 7

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 3 of 7

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Administrative and Logistics Coordinator (ALC) to complete his responsibility for the planning and provision of logistical support to the APS emergency organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-08 "Notification Process Alert, Site Emergency or General Emergency"
- 2.1.3 EPIP-13 "Emergency Operations Facility Activation"
- 2.1.4 EPIP-33 "Offsite Assistance"
- 2.1.5 EPIP-54 "Government Staffing at EOF"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated ALC shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The ALC shall contact the Emergency Operations Director (EOD) and receive a briefing on the emergency status. The ALC shall provide the EOD with a briefing on his operational status.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 4 of 7

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The ALC will be located at the EOF and will be responsible for calling in offsite resources and for the planning and provision of logistical support for the APS emergency organization. When he becomes operational, he will work with the Emergency Coordinator in implementing EPIP-33.
- 4.1.2 The ALC shall provide, at a minimum, the following logistical support:
 - a. Provision of needed technical documents.
 - b. Provision of any additional communications and analytical equipment.
 - c. Provision of additional security support.
 - d. Provision of manpower support.
 - e. Provision of transportation.
 - f. Provision of housing and food needs.
 - g. Act as liaison to any reporting support personnel.
 - h. Act as liaison with American Nuclear Insurers.
- 4.1.3 The ALC is responsible to the EOD.
- 4.1.4 The ALC directs the activities of the Logistics Communicator, the Security Coordinator and the Dosimetry Clerk.
- 4.1.5 The ALC is a designated person from the Nuclear Operations Support Staff with ALC training.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The EOD and ALC have conducted an initial briefing.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 5 of 7

4.3 Instructions

- 4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the ALC shall report to the EOF as soon as possible.
- 4.3.2 The ALC shall contact the EOD and receive an initial briefing.
- 4.3.3 The ALC shall complete the designated checklist (Appendix A) and report readiness to the EOD.
- 4.3.4 The ALC shall provide continuing logistics support to the APS emergency organization as necessary.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	APPENDIX A Page 1 of 2
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ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	EPIP-40	
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ADMINISTRATIVE AND LOGISTICS COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Ensure that the following equipment is operational:
 - a. SPDS
 - b. CRACS
 - c. EOF Computer Terminals (RE&M, SIMS, RMS, CRACS)
2. Ensure support organizations such as Bechtel, CE, INPO are contacted to obtain necessary technical support per EPIP-33 (assume this function from Emergency Coordinator).
3. Check that facilities available to emergency response personnel are adequate.
4. Provide readiness briefing to Emergency Operations Director.
5. Provide for additional manpower support as necessary by contacting organizations per EPIP-33.
6. As necessary obtain required:
 - a. Technical documents
 - b. Communication equipment
 - c. Analytical equipment
 - d. Transportation support
 - e. Housing and food for emergency response personnel
7. Contact American Nuclear Insurers and inform them of situation.
8. Ensure that the following positions are staffed and fully briefed:
 - a. Logistics Communicator
 - b. Dosimetry Clerk
 - c. Security Coordinator

*Continuing Activities.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	APPENDIX A Page 2 of 2
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION 0	Page 7 of 7

ADMINISTRATIVE AND LOGISTICS COORDINATOR CHECK LIST (CONT'D)

ACTION ITEMS

TIME/INITIALS

9. Assist government staff with logistics as necessary per EPIP-54.
10. Submit checklist, logs and other data to EOD when emergency is cancelled.

/

/

Administrative and Logistics
Coordinator Signature _____
Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 1 of 6

ASSIGNED COPY
 PVNGS SM # 89B

APPROVED BY: L.E. Brown

DATE 12-7-82

DATE EFFECTIVE 12-10-82

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 2 of 6

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 3 of 6

1.0 OBJECTIVE

The objective of this procedure is to provide instruction for the Radiological Assessment Coordinator (RAC) to complete his responsibility for monitoring and assessing radiological releases. This procedure addresses the following:

- o Responsibilities of the RAC
- o Activities to be carried out by the RAC during an emergency
- o Coordination between the RAC and other members of the emergency organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-13 "EOF Activation"
- 2.1.3 EPIP-14A, 14B "Release Rate Determination" and "Dose Assessment"
- 2.1.4 EPIP-15 "Protective Action Guidelines"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 2.2.2 PVNGS Emergency Plan.

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated RAC shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 4 of 6

- 3.2 Upon arrival at the EOF, the RAC shall fully familiarize himself with the situation [via briefings from the Emergency Operations Director (EOD), the Radiation Protection Coordinator (RPC) at the Technical Support Center (TSC) and others] before assuming his responsibilities.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The RAC is the principal liaison of the PVNGS emergency response organization with the Arizona Radiation Regulatory Agency (ARRA).
- 4.1.2 The primary responsibility of the RAC is to receive and evaluate dose rate projections from the RPC and advise the EOD of the need for protective actions.
- 4.1.3 The RAC coordinates offsite monitoring efforts. He makes recommendations to ARRA officials as to what to monitor and where REAT's should be deployed.
- 4.1.4 The RAC is a Health Physicist who has received RAC training.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, 05, or 06 and EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The EOD and RAC have conducted an initial briefing.

4.3 Instructions

- 4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the RAC shall report to the EOF as soon as possible.
- 4.3.2 The RAC shall contact the EOD and receive an initial briefing.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 5 of 6

- 4.3.3 The RAC shall complete the designated check list (Appendix A) and report readiness status to the EOD. Those action items marked with a "*" are activities to be continued throughout the emergency by the RAC. The time of initial activity on those items should be entered on the check list.
- 4.3.4 Throughout the emergency the RAC shall analyze source term, meteorological and field monitoring data to determine the reasonableness and consistency of those data with the dose projections being used as the basis for protective actions.
- 4.3.5 The RAC shall continually evaluate plant conditions to determine the probability and magnitude of possible emission increases. He shall also assist the Radiological Protection Coordinator with dose projections.
- 4.3.6 The RAC shall provide protective action recommendations to the Emergency Operations Director.
- 4.3.7 The RAC shall advise the Arizona Radiation Regulatory Agency as to where and what to monitor and where to deploy field monitoring teams.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	APPENDIX A Page 1 of 1
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 0	Page 6 of 6

RADIOLOGICAL ASSESSMENT COORDINATOR CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Ensure that the Radiological Assessment Communicator's position is staffed and fully briefed and that communication systems are operational.	/
2. Access CRACS to receive current dose projection data.	/ *
3. Contact the Radiological Protection Coordinator and determine:	
a. Extent and consequence of radiological releases and plant conditions.	/ *
b. Protective action recommendations made to date.	/
c. Potential for future radiological releases.	/
d. Location of onsite and offsite field monitoring teams, if dispatched.	/ *
4. Ensure that the following materials needed to perform manual dose assessments are available:	
a. EPIP-14A and 14B	/
b. Isopleths	/
c. Base Map	/
5. Advise the Emergency Operations Director as to the need for protective actions.	/ *
6. Ensure Radiological Status Boards are updated as information becomes available.	/ *
7. Advise ARRA officials as to where and what to monitor and where REAT's should be deployed.	/ *
8. Submit check list, logs and other data to EOD when emergency is cancelled.	/

Radiological Assessment

Coordinator Signature _____

Date _____

*Continuing Activities

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 0	Page 1 of 6

ASSIGNED COPY
 PVNGS SM 8-9B

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-7733A/0295A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 0	Page 2 of 6

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APPROVED BY: _____

DATE: _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 0	Page 3 of 6

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Technical Analysis Coordinator (TAC) to complete his responsibility for providing technical guidance on the impact of plant status on offsite emergency response actions. This procedure addresses the following:

- o Responsibilities of the TAC.
- o Activities of the TAC to be implemented during an emergency.
- o Coordination between the TAC and other members of the emergency organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-13, "EOF Activation"

2.2 Developmental Reference

- 2.2.1 NUREG-0654, Rev. 1. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated TAC shall report to the Emergency Operations Facility (EOF) and achieve full functional operations as soon as possible (generally within 90 minutes).
- 3.2 The TAC shall contact the Emergency Operations Director (EOD) and receive a briefing on the emergency status. The TAC shall provide the EOD with a briefing on his operational status.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 0	Page 4 of 6

4.0 DETAILED PROCEDURE

4.1 Personal Indoctrination

- 4.1.1 The TAC is the primary interface with NRC and state personnel stationed in the EOF and provides updates on the status of the reactor and unit.
- 4.1.2 The TAC shall be a suitably trained person from the NOS Licensing/Operations Support Group.
- 4.1.3 The TAC reports to the Emergency Operations Director (EOD).
- 4.1.4 The Government Liaison Engineer (GLE) and the TSC Liaison Engineer (TLE) report directly to the TAC. The Technical Advisor (at the ENC) takes technical direction from the TAC. The Offsite Technical Representative (OTR) at the state EOC reports to the TAC.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, 05, or 06 and EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The EOD and TAC have conducted an initial briefing.

4.3 Instructions

- 4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the TAC shall report to the EOF immediately.
- 4.3.2 The TAC shall contact the EOD and receive an initial briefing.
- 4.3.3 Upon arrival at the EOF, the TAC shall complete the designated check list in Appendix A. For "continuing activities," as indicated by an asterisk in the check list, the time of commencing the activity should be noted.
- 4.3.4 The TAC shall supervise the TSC Liaison Engineer in maintaining contact with the TSC and Architect-Engineer. The TAC will be kept informed of technical changes and recommendations by the TSC Liaison Engineer.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 0	Page 5 of 6

- 4.3.5 The TAC, along with the Emergency News Center Director, shall supervise the ENC Technical Advisor.
- 4.3.6 The TAC shall communicate with the NRC and state personnel in the EOF frequently throughout the emergency to keep them informed of plant status and to answer questions. The Government Liaison Engineer shall assist the TAC in this task.
- 4.3.7 The TAC shall inform the Offsite Technical Representative of plant status and supervise the OTR's activities as necessary.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-42	APPENDIX A * Page 1 of 1
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TECHNICAL ANALYSIS COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

1. Obtain information on plant status from the TSC. ____/____*
2. Provide updates to NRC, state, and county personnel as necessary on the status of the reactor and unit. ____/____*
3. Provide the Emergency Operations Director with technical guidance on how plant status may impact offsite emergency response actions. ____/____*
4. Verify the technical accuracy and adequacy of all public information releases prior to dissemination to the news media. ____/____*
5. Ensure that the following positions are staffed and fully briefed:
 - a. Government Liaison Engineer ____/____
 - b. TSC Liaison Engineer ____/____
 - c. Offsite Technical Representative ____/____
 - d. ENC Technical Advisor ____/____
6. Submit check list, logs and other data to EOD when emergency is cancelled. ____/____

Technical Analysis
Coordinator Signature _____
Date _____

*Continuing Activities

11-20

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 1 of 6

DOCUMENT:

EPIP-43

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PVNGS SM # 8-93

APPROVED BY: L.E. Brown

DATE 12-7-82

DATE EFFECTIVE 12-10-82

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 2 of 6

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APPROVED BY: _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 3 of 6

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Radiological Assessment Communicator (RACom) to complete his responsibility for coordinating and maintaining communications regarding radiological assessment. This procedure addresses the following:

- o Responsibilities of the RACom.
- o Activities to be carried out by the RACom during an emergency.
- o Coordination between the RACom and other members of the emergency organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-13 "EOF Activation"
- 2.1.3 EPIP-41 "Radiological Assessment Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated RACom shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The RACom shall contact the Radiological Assessment Coordinator and receive an initial briefing.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 4 of 6

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The RACom maintains a record (status board and log) of matters pertaining to radiological assessment. He also maintains communications with radiological assessment personnel at the TSC and Satellite TSC.
- 4.1.2 The RACom reports to, and receives direction from, the Radiological Assessment Coordinator (RAC).
- 4.1.3 The RACom is assigned from the Radiation Protection Section.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, 05, or 06 EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The RAC and RACom have conducted an initial briefing.

4.3 Instructions

- 4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated RACom shall report to the EOF immediately.
- 4.3.2 Upon arrival at the EOF the RACom shall report to the RAC.
- 4.3.3 The RACom shall determine operability of communications circuits (normal phone, dedicated voice circuits, Environmental Line, base station radio) and report any inoperable circuits to the RAC and to the Administrative and Logistics Coordinator (ALC).
- 4.3.4 The RACom shall keep the Radiological Status Board and log current (as directed by the RAC) throughout the emergency.
- 4.3.5 The RACom shall maintain communications with the Radiation Protection personnel in the TSC and satellite TSC as required by the RAC and advise the RAC of changes in Radiological Status.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 5 of 6

- 4.3.6 The RACom shall complete the check list in Appendix A. For "continuing activities," as indicated by an asterisk in the check list, the time of commencing activity should be noted.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	APPENDIX A Page 1 of 1
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 0	Page 6 of 6

RADIOLOGICAL ASSESSMENT COMMUNICATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|--------------------------------|
| 1. Establish and maintain communications with TSC Radiological Assessment personnel. | <u> / </u> * |
| 2. Inform the Radiological Assessment Coordinator of changes in radiological status. | <u> / </u> * |
| 3. Maintain records of communications concerning radiological assessment. | <u> / </u> * |
| 4. Maintain the Radiological Status Board in the EOF as directed by the Radiological Assessment Coordinator. | <u> / </u> * |
| 5. Submit check list and logs to RAC when emergency is cancelled. | <u> / </u> |

Radiological Assessment

Communicator Signature _____

Date _____

*Continuing Activities

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	
TSC LIAISON ENGINEER (TLE)	REVISION 0	Page 1 of 5

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PVNGS SM 8-90

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-7746A/0295A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	
TSC LIAISON ENGINEER (TLE)	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the TSC Liaison Engineer (TLE) to complete his responsibility for monitoring plant system data and coordinating the activities of other emergency organization members. This procedure addresses the following:

- o Responsibilities of the TLE.
- o Activities of the TLE to be implemented during an emergency.
- o Coordination between the TLE and other members of the emergency organization.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-08, "Notification Process - Alert, Site Emergency or General Emergency"
- 2.1.3 EPIP-11, "TSC/Satellite TSC Activation"
- 2.1.4 EPIP-13, "EOF Activation"
- 2.1.5 EPIP-42, "Technical Analysis Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated TLE shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes)

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	
TSC LIAISON ENGINEER (TLE)	REVISION 0	Page 4 of 5

3.2 The TLE shall contact the Technical Analysis Coordinator and receive an initial briefing.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The TLE monitors plant system data via SPDS, CRACS and voice communication with the TSC.

4.1.2 The TLE maintains communication with the Architect-Engineer concerning technical status and recommendations.

4.1.3 The TLE reports to the Technical Analysis Coordinator (TAC).

4.1.4 The TLE shall be a suitably trained person from the NOS Licensing/Operations Support Group.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.

4.3 Instructions

4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated TLE shall report immediately to the EOF.

4.3.2 The TLE shall contact the TAC and receive an initial briefing.

4.3.3 The TLE shall complete the designated check list in Appendix A. For "continuing activities", as indicated by an asterisk in the check list, the time of commencing the activity should be noted.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	APPENDIX A Page 1 of 1
TSC LIAISON ENGINEER (TLE)	REVISION 0	Page 5 of 5

TSC LIAISON ENGINEER CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Monitor the SPDS terminal in the EOF.	/ *
2. Contact the TSC to obtain operational status of the unit.	/ *
3. Maintain communication with Bechtel and CE personnel at the EOF concerning plant status and recommendations for corrective action.	/ *
4. Inform the Technical Analysis Coordinator of proposed recommendations and of significant changes in plant status.	/ *
5. Ensure that the Status Board Keeper position is staffed and provide status board updates as necessary.	/ *
6. Submit check list, logs and status board to TAC when emergency is cancelled.	/

TSC Liaison
 Engineer Signature _____
 Date _____

*Continuing Activities

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	
GOVERNMENT LIAISON ENGINEER (GLE)	REVISION 0	Page 1 of 5

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PVNGS SM # 8-9B

APPROVED BY: L.E. Brown DATE 12-7-82

DATE EFFECTIVE 12-10-82

DN-7753A/0295A

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	
GOVERNMENT LIAISON ENGINEER (GLE)	REVISION 0	Page 2 of 5

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	
GOVERNMENT LIAISON ENGINEER (GLE)	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Government Liaison Engineer (GLE) to assume his responsibility of assisting with notifications and communications to offsite emergency management agencies.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-08, "Notification Process - Alert, Site Emergency, General Emergency"
- 2.1.3 EPIP-13, "EOF - Activation"
- 2.1.4 EPIP-42, "Technical Analysis Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Government Liaison Engineer (GLE) shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The GLE shall contact the Technical Analysis Coordinator and receive an initial briefing.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The GLE is the primary communication interface with NRC, state and local government agencies.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	
GOVERNMENT LIAISON ENGINEER (GLE)	REVISION 0	Page 4 of 5

- 4.1.2 Until an NRC representative relieves the GLE, the GLE maintains communications with the NRC (Region V and Washington).
- 4.1.3 The GLE notifies governmental agencies of changes in emergency classification.
- 4.1.4 The GLE reports to the Technical Analysis Coordinator (TAC).
- 4.1.5 The GLE is a properly trained person assigned from the NOS Licensing/Operations group.
- 4.2 Prerequisites
 - 4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.
 - 4.2.2 The GLE and TAC have conducted an initial briefing.
- 4.3 Detailed Instructions
 - 4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated GLE shall report to the EOF immediately.
 - 4.3.2 Upon arriving at the EOF, the GLE shall obtain a briefing on the current status of the plant and emergency from the TAC.
 - 4.3.3 Upon arrival at the EOF, the GLE shall complete the designated check list in Appendix A.
 - 4.3.4 The GLE shall maintain contact with the NRC until an NRC representative arrives.
 - 4.3.5 The GLE shall make notifications to NRC, state and local agencies whenever a change in emergency classification is made.
 - 4.3.6 The GLE shall assist the TAC with briefings of Federal and State staff located at the EOF.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	APPENDIX A Page 1 of 1
GOVERNMENT LIAISON ENGINEER (GLE)	REVISION 0	Page 5 of 5

GOVERNMENT LIAISON ENGINEER CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|---|--------------------------------|
| 1. Inform the Satellite TSC Communicator that you are on station and assume the responsibility for offsite notifications. | <u> / </u> |
| 2. Establish and maintain communications with offsite agencies per EPIP-08. | <u> / </u> * |
| 3. Establish and maintain communications with the NRC until relieved by a designated NRC representative. | <u> / </u> * |
| 4. Maintain log of communications per EPIP-08. | <u> / </u> * |
| 5. Assist the TAC with briefings of government staff at the EOF. | <u> / </u> * |
| 6. Submit check list, logs and other data to the TAC when emergency is cancelled. | <u> / </u> |

Government Liaison

Engineer Signature _____

Date _____

*Continuing Activities

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	
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PVNGS SM 2 8-90

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DATE 12-7-82

DATE EFFECTIVE 12-10-82

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	
EOF CONTACT	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the EOF Contact to complete his responsibility for gathering necessary information for subsequent release to the media from the Emergency News Center.

2.0 REFERENCES

2.1 Implementing Procedures

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.3 EPIP-32, "Public Information/Media"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan
- 2.2.3 Emergency Public Information Procedure

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated EOF Contact shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The EOF Contact shall contact the Emergency Operations Director (EOD) and receive a briefing on the emergency status.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The EOF Contact is assigned to the EOF and gathers necessary information for subsequent release to the media from the Emergency News Center (ENC).

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	
EOF CONTACT	REVISION 0	Page 4 of 5

4.1.2 The ENC Director prepares news releases on the basis of information provided by the EOF Contact.

4.1.3 The EOF Contact reports jointly to the ENC Director and the Emergency Operations Director.

4.1.4 The EOF Contact is the Supervisor of Licensed Operations Training. Senior Nuclear Instructors with EOF Contact training serve as alternates.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, 05 or 06, EPIP-08 and EPIP-13 are being implemented.

4.2.2 The EOF Contact has been briefed by the Emergency Operations Director.

4.3 Instructions

4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated EOF Contact shall report to the EOF as soon as possible.

4.3.2 The EOF Contact shall contact the Emergency Operations Director and receive an initial briefing.

4.3.3 The EOF Contact shall complete the designated check list in Appendix A and provide continuing support to the Emergency Operations Director and the ENC Director.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	APPENDIX A Page 1 of 1
EOF CONTACT	REVISION 0	Page 5 of 5

EOF CONTACT CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | | |
|---|---|---|
| 1. Establish and maintain communications with the ENC Director at the ENC. | / | |
| 2. Provide a readiness report to the Emergency Operations Director. | / | |
| 3. Inform the ENC Director of significant changes in plant status for subsequent release to the news media. | / | * |
| 4. Prepare preliminary press releases in accordance with EPIP-32. | / | * |
| 5. Submit check list, logs and other data to EOD when emergency is cancelled. | / | |

EOF Contact

Signature _____

Date _____

*Continuing Activities

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	
	EP IP-47	
LOGISTICS COMMUNICATOR	REVISION	
	0	Page 1 of 5

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APPROVED BY: L.E. Brown

DATE 12-7-82

DATE EFFECTIVE 12-10-82

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	
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1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Logistics Communicator to complete his responsibility of assisting the Administrative and Logistics Coordinator as necessary to obtain logistics support.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.3 EPIP-33, "Offsite Assistance"
- 2.1.4 EPIP-40, "Administrative and Logistics Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Logistics Communicator shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The Logistics Communicator shall contact the Administrative and Logistics Coordinator before completing any actions.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Logistics Communicator is assigned to the EOF and assists the Administrative and Logistics Coordinator as necessary.

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4.1.2 The Logistics Coordinator maintains at the EOF, a record (log and status board) of logistic support that has been obtained and is required.

4.1.3 The Logistics Communicator reports to the Administrative and Logistics Coordinator.

4.1.4 The Logistics Communicator is assigned from the Materials Control Section and has Logistics Communicator training.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, 05 or 06, EPIP-08 and EPIP-13 are being implemented.

4.2.2 The Logistics Communicator has been briefed by the Administrative and Logistics Coordinator.

4.3 Instructions

4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated Logistics Communicator shall report to the EOF as soon as possible.

4.3.2 The Logistics Communicator shall contact the Administrative and Logistics Coordinator and receive an initial briefing.

4.3.3 The Logistics Communicator shall complete the designated check list in Appendix A and provide continuing support to the Administrative and Logistics Coordinator.

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LOGISTICS COMMUNICATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|---|------------------------------|
| 1. Ensure <u>all</u> EOF communications equipment is operable, with the assistance of the Radiological Assessment Communicator. | <u> / </u> |
| 2. Establish logistics log and status board. | <u> / </u> |
| 3. Provide readiness report to the Administrative and Logistics Coordinator. | <u> / </u> |
| 4. Contact support organizations at the direction of the Administrative and Logistics Coordinator per EPIP-33. | <u> / </u> |
| 5. Maintain the logistics log and status board. | <u> / </u> |
| 6. Submit check list, logs and status board to the Administrative and Logistics Coordinator when the emergency is cancelled. | <u> / </u> |

Logistics
 Communicator Signature _____
 Date _____

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	
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SECURITY COORDINATOR	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Security Coordinator to complete his responsibility for processing personnel necessary for site support prior to site entry.

2.0 REFERENCES

2.1 Implementing Procedures

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-08, "Notification Process Alert, Site Emergency or General Emergency"
- 2.1.3 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.4 EPIP-24, "Security"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Security Coordinator shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The Security Coordinator shall contact the Administrative and Logistics Coordinator before completing any actions.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-48	
SECURITY COORDINATOR	REVISION 0	Page 4 of 5

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Security Coordinator is assigned to the EOF and processes personnel necessary for site support prior to site entry.
- 4.1.2 The Security Coordinator maintains communications with the Security Director concerning personnel that have been granted access to the site.
- 4.1.3 The Security Coordinator reports to the Administrative and Logistics Coordinator.
- 4.1.4 The Security Coordinator is assigned from the Security Department and has Security Coordinator training.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe level emergency has been declared and procedures EPIP-04, 05 or 06, EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The Security Coordinator has been briefed by the Administrative and Logistics Coordinator and the Security Director.

4.3 Instructions

- 4.3.1 Upon notification that an ALERT or more severe emergency has been declared, the designated Security Coordinator shall report to the EOF as soon as possible.
- 4.3.2 The Security Coordinator shall contact the Administrative and Logistics Coordinator and receive an initial briefing.
- 4.3.3 The Security Coordinator shall complete the designated check list in Appendix A and provide continuing support to the Administrative and Logistics Coordinator.

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SECURITY COORDINATOR

SECURITY COORDINATOR CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|------------------------------|
| 1. Contact the Security Director at the TSC to determine present site access conditions. | <u> / </u> |
| 2. Provide readiness report to the Administrative and Logistics Coordinator. | <u> / </u> |
| 3. Inform the Security Director of offsite personnel that are required onsite to expedite the badging process. | <u> / </u> |
| 4. Inform the Administrative and Logistics Coordinator of site security conditions. | <u> / </u> |
| 6. Submit the check list to the Administrative and Logistics Coordinator when the emergency is cancelled. | <u> / </u> |

Security Coordinator

Signature _____

Date _____

11-23

PVNGS EMERGENCY PLAN * IMPLEMENTING PROCEDURE	PROCEDURE NO.	
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DATE 12-7-82

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12-10-82

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DOSIMETRY CLERK	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Dosimetry Clerk to complete his responsibility for providing proper dosimetry to personnel at the Emergency Operations Facility (EOF), to support personnel reporting for site assignment and to site personnel.

2.0 REFERENCES

2.1 Implementing Procedures

- 2.1.1 EPIP-01, "APS Emergency Organization"
- 2.1.2 EPIP-13, "Emergency Operations Facility Activation"
- 2.1.3 EPIP-40, "Administrative and Logistics Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Dosimetry Clerk shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The Dosimetry Clerk shall contact the Administrative and Logistics Coordinator before completing any actions.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Dosimetry Clerk is assigned to the EOF and provides, as necessary, proper dosimetry and TLD's to EOF personnel, support personnel reporting for site assignment, and site personnel.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-49	
DOSIMETRY CLERK	REVISION 0	Page 4 of 5

4.1.2 The Dosimetry Clerk reports to the Administrative and Logistics Coordinator.

4.1.3 The Dosimetry Clerk is assigned from the Radiation Protection Section and has Dosimetry Clerk training.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and procedures EPIP-04, 05 or 06, EPIP-08 and EPIP-13 are being implemented.

4.2.2 The Dosimetry Clerk has been briefed by the Administrative and Logistics Coordinator.

4.3 Instructions

4.3.1 Upon being notified that an ALERT or more severe level emergency has been declared, the designated Dosimetry Clerk shall report to the EOF as soon as possible.

4.3.2 The Dosimetry Clerk shall contact the Administrative and Logistics Coordinator and receive an initial briefing.

4.3.3 The Dosimetry Clerk shall complete the designated check list in Appendix A and provide continuing support to the Administrative and Logistics Coordinator.

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DOSIMETRY CLERK

DOSIMETRY CLERK CHECK LIST

ACTION ITEMS

TIME/INITIALS

- | | |
|--|------------------------------|
| 1. Obtain emergency dosimetry from the EOF emergency locker in preparation for its distribution. | <u> / </u> |
| 2. Provide readiness report to the Administrative and Logistics Coordinator. | <u> / </u> |
| 3. Provide dosimetry and TLDs, as necessary, to EOF personnel, support personnel reporting to site assignment, and site personnel. | <u> / </u> |
| 4. Maintain dosimetry issuance records. | <u> / </u> |
| 5. Report the need for additional dosimetry to the Administrative and Logistics Coordinator. | <u> / </u> |
| 6. Submit check list and other records to the Administrative and Logistics Coordinator when the emergency is cancelled. | <u> / </u> |

Dosimetry Clerk

Signature _____

Date _____

11-23

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-50	
STATUS BOARD KEEPER (SBK)	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Status Board Keeper (SBK) to maintain a record on the Emergency Operations Facility (EOF) status board of emergency actions taken.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-01 "APS Emergency Organization"

2.1.2 EPIP-13 "Emergency Operations Facility Activation"

2.1.3 EPIP-44 "TSC Liaison Engineer"

2.2 Developmental References

2.2.1 NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Upon notification, the designated Status Board Keeper shall report to the Emergency Operations Facility (EOF) and achieve full functional operation as soon as possible (generally within 90 minutes).

3.2 The Status Board Keeper shall contact the TSC Liaison Engineer and receive a briefing before becoming operational. He shall notify the TSC Liaison Engineer when he becomes operational.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 The Status Board Keeper maintains a record on the EOF status board of emergency actions taken by the APS emergency organization, logistics support requirements and records the status of the emergency on a continual basis.

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STATUS BOARD KEEPER (SBK)	REVISION	
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4.1.2 A designated Technical Support Department person with Status Board Keeper training will assume the position of Status Board Keeper of the EOF.

4.1.3 The Status Board Keeper reports to the TSC Liaison Engineer.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.

4.2.2 The Status Board Keeper has been fully briefed by the TSC Liaison Engineer.

4.3 Instructions

4.3.1 Upon being notified that an ALERT or more severe emergency has been declared, the Status Board Keeper shall report to the EOF as soon as possible.

4.3.2 The Status Board Keeper shall report to the TSC Liaison Engineer and receive a briefing.

4.3.3 The Status Board Keeper shall complete the designated check list (Appendix A) as soon as possible.

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STATUS BOARD KEEPER (SBK)	REVISION	
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STATUS BOARD KEEPER CHECKLIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Report to the EOF and obtain briefing from TSC Liaison Engineer.	/
2. Locate Status Board and associated supplies. Determine operational status.	/
3. Report operational status to TSC Liaison Engineer.	/
4. Record the status of the emergency as expressed by TSC Liaison Engineer.	/
5. Repeat step 4 periodically as status changes.	/
6. Submit this check list to TSC Liason Engineer when emergency is cancelled.	/

Status Board
Keeper Signature _____
Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-51	
OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 1 of 7

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DR. B. B. B.

DATE

1/20/83

DATE EFFECTIVE

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-51	
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PALO VERDE NUCLEAR GENERATING STATION MANUAL	PROCEDURE NO. EPIP-51	
OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 3 of 7

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the Offsite Technical Representative (OTR) to coordinate APS emergency response activities with Federal/State/local agencies at the State EOC/TOC.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-13 "Emergency Operations Facility Activation"
- 2.1.3 EPIP-42 "Technical Analysis Coordinator"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated Offsite Technical Representative shall report to the Technical Operations Center (TOC) at the State Emergency Operations Center (EOC) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The Offsite Technical Representative shall contact the Technical Analysis Coordinator and receive a briefing before becoming operational. he shall notify the Technical Analysis Coordinator when he has arrived at the State EOC/TOC.

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OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 4 of 7

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The Offsite Technical Representative reports to the State EOC/TOC at the Arizona Division of Emergency Services headquarters at 5636 East McDowell Road in Phoenix. He will coordinate APS emergency response activities with Federal/State/local agencies at the State EOC/TOC. He will provide up-to-date site information and interpret data regarding PVNGS emergency status and conditions for emergency response agencies assigned to the State EOC/TOC.
- 4.1.2 The designated Nuclear Operations Support Licensing/Operations person with Offsite Technical Representative training will assume the position of Offsite Technical Representative at the State EOC/TOC.
- 4.1.3 The Offsite Technical Representative reports to the Technical Analysis Coordinator.
- 4.1.4 Other APS staffing at the State EOC/TOC will include a member of the Corporate Relations staff and supporting clerical personnel, if needed.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe emergency has been declared and EPIP-04, 05, or 06, EPIP-08 and EPIP-13 are being implemented.
- 4.2.2 The Offsite Technical Representative has been briefed by the Technical Analysis Coordinator.

4.3 Instructions

- 4.3.1 Upon being notified that an ALERT or more severe emergency has been declared, the Offsite Technical Representative shall report to the State EOC/TOC at the Arizona Division of Emergency Services headquarters at 5636 East McDowell Road in Phoenix as soon as possible.
- 4.3.2 Once at the State EOC/TOC, the Offsite Technical Representative shall report his presence to the Director of Radiological Technical Operations (Arizona Radiological Regulatory Agency).

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OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 5 of 7

- 4.3.3 The Offsite Technical Representative shall then contact the Technical Analysis Coordinator at the EOF by dedicated voice circuit to receive a briefing.
- 4.3.4 The Offsite Technical Representative shall coordinate emergency response activities, provide site information and interpret data as necessary in the State EOC/TOC.
- 4.3.5 The Offsite Technical Representative shall coordinate his activities with those of the Corporate Relations Representative at the State EOC/TOC.
- 4.3.6 In the conduct of his activities, the Offsite Technical Representative shall maintain a check list and log as shown in Appendix A and Appendix B. The log shall identify the time of contacts, information received and person with whom the contact was made.

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OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 6 of 7

OFFSITE TECHNICAL REPRESENTATIVE CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Report to the State EOC/TOC at ADES headquarters at 5636 East McDowell in Phoenix.	/
2. Report presence to State Director of Radiological Technical Operations (ARRA).	/
3. Contact the Technical Analysis Coordinator at the EOF for briefing using dedicated voice circuit.	/
4. Maintain communications with and coordinate actions between the State Director of Radiological Technical Operations and the APS Technical Analysis Coordinator.	/ *
5. Coordinate with APS Corporate Relations Representative.	/ *
6. Maintain attached log as necessary.	/ *
7. Repeat steps 4, 5 and 6 as necessary.	/ *
8. Submit check list and log to Technical Analysis Coordinator when emergency is cancelled.	/

Offsite Technical
Representative Signature _____
Date _____

*Continuing Activities

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-51	APPENDIX B Page 1 of 1
OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 0	Page 7 of 7

OFFSITE TECHNICAL REPRESENTATIVE LOG

	<u>Time</u>	<u>Person Contacted</u>	<u>Information Related</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

Signed _____
Date _____

11-23

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO.	
	EPJP-52	
ENC TECHNICAL ADVISOR	REVISION	
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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-52	
ENC TECHNICAL ADVISOR	REVISION 0	Page 3 of 5

1.0 OBJECTIVE

The objective of this procedure is to provide instructions for the ENC Technical Advisor to provide technical explanations and support to the Emergency News Center (ENC) Director.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-32 "Public Information/Media"
- 2.1.3 PVNGS Emergency Plan, Appendix I "APS Emergency Public Information Procedures"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan
- 2.2.3 Emergency Public Information Procedure

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Upon notification, the designated ENC Technical Advisor shall report to the Emergency News Center (ENC) and achieve full functional operation as soon as possible (generally within 90 minutes).
- 3.2 The ENC Technical Advisor shall contact the ENC Director when he arrives at the ENC.
- 3.3 The ENC Technical Advisor shall contact the Technical Analysis Coordinator and receive a briefing before becoming operational.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-52	
ENC TECHNICAL ADVISOR	REVISION 0	Page 4 of 5

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

- 4.1.1 The ENC Technical Advisor reports to the Emergency News Center (ENC) at the Palo Verde Inn. He provides necessary technical explanation to the ENC Director (and to the media, if requested by ENC Director), provides background information and reviews technical content of all media releases.
- 4.1.2 A designated Training Department person with ENC Technical Advisor training will assume the position of ENC Technical Advisor at the ENC.
- 4.1.3 The ENC Technical Advisor reports jointly to the Technical Analysis Coordinator and the ENC Director.

4.2 Prerequisites

- 4.2.1 An ALERT or more severe emergency has been declared and EPIP-04, 05, or 06, EPIP-08 and APS Emergency Public Information Procedures are being implemented.
- 4.2.2 The ENC Technical Advisor has been briefed by the Technical Analysis Coordinator.

4.3 Instructions

- 4.3.1 Upon notification of an ALERT or more severe emergency, the ENC Technical Advisor shall report to the Emergency News Center (ENC) at the Palo Verde Inn.
- 4.3.2 Upon arrival, he shall report to the ENC Director and then contact the Technical Analysis Coordinator at the EOF by dedicated voice circuit to receive a briefing.
- 4.3.3 The ENC Technical Advisor shall complete assignments as directed by the ENC Director or the Technical Analysis Coordinator.
- 4.3.4 In the conduct of his activities, the ENC Technical Advisor shall maintain a check list (Appendix A).

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ENC TECHNICAL ADVISOR	REVISION	Page 5 of 5
	0	

ENC TECHNICAL ADVISOR CHECK LIST

<u>ACTION ITEMS</u>	<u>TIME/INITIALS</u>
1. Report to the ENC at Palo Verde Inn.	/
2. Report presence to ENC Director.	/
3. Contact the Technical Analysis Coordinator at the EOF for briefing by dedicated voice circuit.	/
4. Complete assignments as directed by ENC Director or Technical Analysis Coordinator.	/
5. Submit check list to Technical Analysis Coordinator when emergency is cancelled.	/

ENC Technical Advisor Signature _____
Date _____

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PVNGS SM # 8-98

APPROVED BY: L.E. Brown DATE 12-7-82

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1.0 OBJECTIVE

The objective of this procedure is to provide instructions for identifying emergency response personnel according to their emergency organization position by the use of a badge system.

2.0 REFERENCES

2.1 Implementing References

- 2.1.1 EPIP-01 "APS Emergency Organization"
- 2.1.2 EPIP-11 "Technical Support Center/Satellite TSC Activation"
- 2.1.3 EPIP-13 "Emergency Operations Facility Activation"
- 2.1.4 EPIP-24 "Security"

2.2 Developmental References

- 2.2.1 NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- 2.2.2 PVNGS Emergency Plan

3.0 LIMITATIONS AND PRECAUTIONS

- 3.1 Emergency Personnel Identification badges shall be used by all TSC and EOF personnel with emergency organization position titles.
- 3.2 Emergency Personnel Identification badges shall be transferred along with the transfer of responsibility when an individual is relieved.
- 3.3 Emergency Personnel Identification badges must not be confused with the PVNGS Security badge or APS Security badge.

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination

4.1.1 There are a large number of emergency functions to be carried out at the TSC and EOF. Emergency Personnel Identification badges will identify each person's emergency organization title (e.g., Emergency Coordinator, Radiological Protection Coordinator, etc.) so that communication and coordination can proceed more effectively.

4.1.2 The Security Department is responsible for implementing this procedure.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-11 and EPIP-13 are being implemented.

4.3 Instructions

4.3.1 Upon activation of the TSC and EOF, the Security Coordinator shall order a member of the Security Team to locate the Emergency Personnel Identification badges and distribute them properly at the TSC and EOF.

4.3.2 Individuals with functional responsibilities and emergency organization position titles shall obtain the appropriate Emergency Personnel Identification badge upon reporting to the TSC and EOF.

4.3.3 The Security Coordinator shall periodically determine if badges are being properly displayed.

4.3.4 Individuals shall transfer the Emergency Personnel Identification badges to those relieving them at the time the functional responsibility is transferred.

4.3.5 The Security Coordinator shall collect the Emergency Personnel Identification badges when the emergency is cancelled.

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TSC PERSONNEL IDENTIFICATION LIST

1. Emergency Coordinator
2. Shift Supervisor
3. Shift Technical Advisor
4. Radiation Protection Monitor
5. OSC Coordinator
6. Technical Engineering Coordinator
7. Reactor Analyst
8. Computer Support Coordinator
9. Chemistry Coordinator
10. Hazards Control Coordinator
11. Radiological Protection Coordinator
12. Field Team Communicator
13. Personnel Resources Coordinator
14. Emergency Maintenance Coordinator
15. Systems Engineer
16. Security Director
17. Operations Advisor
18. Satellite TSC Communicator
19. NRC (5)

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EOF PERSONNEL IDENTIFICATION LIST

1. Emergency Operations Director
2. Radiological Assessment Coordinator
3. Radiological Assessment Communicator
4. Technical Analysis Coordinator
5. ENC Technical Advisor
6. Government Liaison Engineer
7. TSC Liaison Engineer
8. Status Board Keeper
9. Offsite Technical Representative
10. EOF Contact
11. Administrative and Logistics Coordinator
12. Logistics Communicator
13. Dosimetry Clerk
14. Security Coordinator
15. Arizona Radiation Regulatory Agency (2)
16. FEMA (1)
17. NRC (3)