LIST I

EPIP NO. Change List-09/20/84 (#14B) REVISION 2 DATE 09/20/84

A	
V. Elish	6-8
G. Fiorelli	8-1
R. Selman	5-37
M. A. Cates	5-103
Compliance	5-17
Leon Brown	5-33
J. G. Sarver	5-102
V. Rhodes	1-1
John Schlag	5-15
T. Exum	5-40
DDC Library	1-2
M. W. Lantz	5-35
M. A. Hill	5-91
Harry Bieling	17-9
E. J. Hayes	5-34
J. Cederquist	5-20
T. Shriver	5-8
T. Barsuk	5-86
D. Best	5-88
R. Johnson	5-42
Sec Cpt	15-1
E. Cullen	5-41
EOF	17-1A
EOF	17-1B
EOF	17-1C
EOF	17-1D
EOF (Room 12)	17-1E
EOF	17-1F
Unit 2 Rad Protection	5-95
Jack Sims	17-2
Sharyn Eklund	17-3
Mike Crusa	17-4
Bob Page	17-5
Jerry Self	5-79
Marv Gerdes	13-12
Dennis Yows	5-36
Bill Knighton	15-2
Russ Papworth	5-7
Bruce Rash	13-18
Dan Phillips	13-16

B	
J. M. Allen	5-31
W. Fernow	5-14
C. Anderson	6-7
Sim Obs Rm	5-89
C. R. Dunaway	5-9
D. Nelson	5-18
M. Whitaker	5-38
J. Tench	5-19
A. Perouthka	6-6
J. R. Bynum	5-22
B. Simmons	6-10
F. Hicks	6-9

C	
Unit 1 Control Room	5-2B
Kris Oberdorf	5-6
G. Olson	3-2
Unit 1 Radwaste	5-43
OSC Coordinator	3-15
A. Porter	3-3
T. Warren	5-21

D	
B. Rogers/TSC	5-94
John Cole	3-10
TSC	3-5
Les Barlow	3-8
Steve Grove	3-4
Greg Roettger	5-99
Maintenance Manager	3-11
TSC E Plan Anal	3-5A
John Kirby	2-4
Unit 2 Control Room	5-25

E	
D. Fasnacht	19-1
M. Zimmerman	20-1

F	
WRF/DDC	1-7

G	
Bob Adney/Unit II	5-39
John Scott	5-32

FOR NRC	
TAKE TO KARL GROSS ON R/A	
Jack Martin/Adm.	8-8
Document Cont. Desk	8-9A
[redacted]	[redacted]
Ray Fish	8-5
Perry Robinson	8-6

PROCEDURE GROUP	
Dennis Yows	5-36A thru 5-36I
Emergency Kits coordinate w/ J. Sims	

CONTROLLED DOCUMENT

EMERGENCY PLAN IMPLEMENTING PROCEDURE TRANSMITTAL

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J. G. Sarver	5-102
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M. W. Lantz	5-35
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PROCEDURE GROUP	
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Emergency Kits coordinate w/ J. Sims	

010 [redacted]

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9-17-84

PROCEDURE NUMBER	PROCEDURE TITLE	PROCEDURE REVISION	PROCEDURE EFFECTIVE DATE	CHANGE NOTICE NUMBER	CHANGE NOTICE DATE	NUCLEAR SAFETY REVIEW REQUIRED	PERIODIC REVIEW DATE
EPIP-01	EMERGENCY ORGANIZATION	02	840123			Y	850123 Z
EPIP-02	EMERGENCY CLASSIFICATION	A	840217			Y	850217 Z
EPIP-03	NOTIFICATION OF UNUSUAL EVENT IMPLEMENTING ACTIONS	03	840716			Y	850716 Z
EPIP-04	ALERT IMPLEMENTING ACTIONS	03	840716			Y	850716 Z
EPIP-05	SITE AREA EMERGENCY IMPLEMENTING ACTIONS	03	840713			Y	850713 Z
EPIP-06	GENERAL EMERGENCY IMPLEMENTING ACTIONS	03	840806			Y	850806 Z
EPIP-07	NOTIFICATION PROCESS	02	840123			Y	850123 Z
EPIP-09	EMERGENCY COORDINATOR	01	840716			Y	850716 Z
EPIP-10	SHIFT SUPERVISOR	00	830405			Y	840405 Z
EPIP-11	TECHNICAL SUPPORT CENTER/SATELLITE TSC ACTIVATION	02	840713			Y	850713 Z
EPIP-12	OPERATIONS SUPPORT CENTER ACTIVATION	02	840716			Y	850716 Z
EPIP-13	EMERGENCY OPERATIONS FACILITY ACTIVATION	02	840716			Y	850716 Z
EPIP-14A	RELEASE RATE DETERMINATION	03	840917			Y	850917 Z
EPIP-14B	DOSE ASSESSMENT	01	821223			Y	831223 Z
EPIP-15	PROTECTIVE ACTION GUIDELINES	02	840713			Y	850713 Z
EPIP-16	INPLANT SURVEYS AND SAMPLING	02	840726			Y	850726 Z
EPIP-17	ONSITE/OFFSITE SURVEYS AND SAMPLING	02	840801			Y	850801 Z
EPIP-18	EMERGENCY EXPOSURE GUIDELINES	02	840530			Y	850530 Z
EPIP-19	ONSITE EVACUATION	02	840629			Y	850629 Z
EPIP-20	PERSONNEL ASSEMBLY AND ACCOUNTABILITY	02	840716			Y	850716 Z
EPIP-21	SEARCH AND RESCUE	02	840716			Y	850716 Z
EPIP-22	PERSONNEL INJURY	02	840530			Y	850530 Z
EPIP-23	FIRE FIGHTING	02	840530			Y	850530 Z
EPIP-24	SECURITY	02	840716			Y	850716 Z
EPIP-25	REENTRY FOR EMERGENCY OPERATIONS	02	840716			Y	850716 Z
EPIP-26	POTASSIUM IODINE (KI) ADMINISTRATION	02	840716			Y	850716 Z
EPIP-27	POST ACCIDENT SAMPLING AND ANALYSIS	02	840917			Y	850917 Z
EPIP-28	PERSONNEL MONITORING AND DECONTAMINATION	02	840716			Y	850716 Z
EPIP-29	AREA/EQUIPMENT MONITORING AND DECONTAMINATION	02	840716			Y	850716 Z
EPIP-30	RADIOLOGICAL EMERGENCY RESPONSE VEHICLE OPERATIONS	00	840716			Y	850716 Z
EPIP-31	RECOVERY	02	840530			Y	850530 Z
EPIP-33	OFFSITE ASSISTANCE	02	840716			Y	850716 Z

EMERGENCY PLAN IMPLEMENTING
PROCEDURES INDEX
9-17-84

PROCEDURE NUMBER	PROCEDURE TITLE	PROCEDURE REVISION	PROCEDURE EFFECTIVE DATE	CHANGE NOTICE NUMBER	CHANGE NOTICE DATE	NUCLEAR SAFETY REVIEW REQUIRED	PERIODIC REVIEW DATE	
EPIP-35	REVIEW AND REVISION OF THE PVNGS EMERGENCY PLAN AND IMPLEMENTING PROCEDURES	02	831230			Y	841230	Z
EPIP-36	EMERGENCY PREPAREDNESS TRAINING	01	830325			Y	840325	Z
EPIP-37A	EMERGENCY PREPAREDNESS DRILLS	01	830325			Y	840325	Z
EPIP-37B	EMERGENCY PREPAREDNESS EXERCISES	01	830325			Y	840325	Z
EPIP-38	EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	03	840629			Y	850629	Z
EPIP-39	EMERGENCY OPERATIONS DIRECTOR (EOD)	02	840716			Y	850716	Z
EPIP-40	ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	02	840530			Y	850530	Z
EPIP-41	RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	02	840530			Y	850530	Z
EPIP-42	TECHNICAL ANALYSIS COORDINATOR (TAC)	02	840530			Y	850530	Z
EPIP-43	RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACOM)	02	840530			Y	850530	Z
EPIP-44	TSC LIAISON ENGINEER (TLE)	02	840731			Y	850731	Z
EPIP-45	GOVERNMENT LIAISON ENGINEER (GLE)	02	840530			Y	850530	Z
EPIP-46	EOF CONTACT	02	840530			Y	850530	Z
EPIP-47	LOGISTICS COMMUNICATOR	02	840530			Y	850530	Z
EPIP-48	SECURITY COORDINATOR	02	840530			Y	850530	Z
EPIP-49	DOSIMETRY CLERK	02	840530			Y	850530	Z
EPIP-50	STATUS BOARD KEEPER (SBK)	02	840530			Y	850530	Z
EPIP-51	OFFSITE TECHNICAL REPRESENTATIVE (OTR)	02	840530			Y	850530	Z
EPIP-52	JENC TECHNICAL ADVISOR	02	840530			Y	850530	Z
EPIP-53	GOVERNMENT STAFFING AT TSC	02	840530			Y	850530	Z
EPIP-54	GOVERNMENT STAFFING AT EOF	01	840530			Y	850530	Z
EPIP-55	TSC/EOF PERSONNEL IDENTIFICATION	02	840530			Y	850530	Z
EPIP-56	ULTIMATE HEAT SINK EMERGENCY WATER SUPPLY	00	840530			Y	850530	Z
EPIP-57	CORPORATE EMERGENCY RESPONSE	00	840716			Y	850716	Z

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CONTROLLED DOCUMENT

PALO VERDE NUCLEAR GENERATING STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES

CHANGE LIST DATE 09/20/84

Procedure Number	Procedure Title	Rev.	Date Effective
EPIP 14B	INITIAL DOSE ASSISSMENT	2	09/20/84

ASSIGNED COPY

PVNGS # 8-9B

CONTROLLED DOCUMENT

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-03	
NOTIFICATION OF UNUSUAL EVENT IMPLEMENTING ACTIONS	REVISION 3	Page 1 of 26

ASSIGNED COPY

PVNGS #8-90

DEPT. HEAD C. R. Lundquist DATE 7/6/84

PRB/PRG REVIEW M. D. Clyde DATE 7-11-84

APPROVED BY C. N. Allen DATE 7/12/84

EFFECTIVE DATE ~~07-20-84~~ JM 07-16-84
07-16-84

DN-1598A/0787A

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1.0 OBJECTIVE

1.1 This procedure provides a series of implementing actions to be taken upon declaration of a NOTIFICATION OF UNUSUAL EVENT.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-09, "Emergency Coordinator"

2.1.3 EPIP-11, "Technical Support Center/Satellite TSC 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. 3

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Continued surveillance and assessment of plant conditions are 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/Responsibilities

4.1.1 In a NOTIFICATION OF 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 NRC and state/county authorities is made.

4.1.2 The Shift Supervisor shall be responsible for initiating this procedure. The Emergency Coordinator shall be responsible for completing the implementing actions of this procedure.

4.2 Prerequisites

4.2.1 The emergency has been classified per EPIP-02, "Emergency Classification."

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

NOTE

Designated Unaffected Unit Shift Supervisor to assume the role of the Emergency Coordinator in the Onshift Emergency Organization are:

Affected Unit	Unaffected Unit Shift Supervisor
Unit 1	Unit 2
Unit 2	Unit 1
Unit 3	Unit 2
Entire Site	Unit 1

4.3.1.1 Notify the Shift Supervisor of the designated unaffected unit (or Shift Supervisor of an unaffected unit) to report to the Control Room of the affected unit and assume the duties of the onshift Emergency Coordinator. For notification of unusual events, it will be at the discretion of the affected unit shift supervisor if he is to be relieved as Emergency Coordinator by the shift supervisor of an unaffected unit.

4.3.1.2 Announce the following over the public address system:

"ATTENTION ALL PERSONNEL - A NOTIFICATION OF UNUSUAL EVENT HAS BEEN DECLARED. SATELLITE TECHNICAL SUPPORT CENTER EMERGENCY PERSONNEL FOR UNIT _____, REPORT TO YOUR EMERGENCY STATION. OTHER PERSONNEL ASSIGNED TO THE EMERGENCY ORGANIZATION - STANDBY. ALL OTHER PERSONNEL CONTINUE WITH NORMAL ROUTINE UNTIL FURTHER NOTICE".

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

NOTE

Protective Action recommendations (Appendix D) are based on plant and containment conditions and these recommendations are made to offsite officials even when no release is in progress.

4.3.1.3 Direct the Satellite TSC Communicator to fill out Appendix A, "Initial Emergency Message Form", in accordance with instructions provided in Appendix B.

4.3.1.4 Notify the Control Rooms of the unaffected units.

4.3.1.5 Ensure the actions of the appropriate Recovery procedures have been implemented.

4.3.2 The Emergency Coordinator/Shift Supervisor shall perform the following:

4.3.2.1 Ensure actuation of the Satellite TSC in accordance with EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.2.2 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as a NOTIFICATION OF UNUSUAL EVENT. Procedures that shall be implemented and others which may be appropriate are identified in Appendix E.

4.3.2.3 Determine the need for any additional personnel. If needed, additional personnel should be requested by the existing on-shift organization.

4.3.2.4 Reevaluate the emergency classification and perform licensee actions as conditions change by implementing EPIP-02.

4.3.2.5 When the situation warrants downgrading/upgrading a NOTIFICATION OF UNUSUAL EVENT, proceed to appropriate implementing and notification procedures and direct the Shift Supervisor to announce the reclassification over the public address system and inform the other Control Rooms.

4.3.2.6 The Emergency Coordinator shall initiate and complete implementing actions of EPIP-09, "Emergency Coordinator".

4.3.3 Emergency Situation Terminated

4.3.3.1 The Shift Supervisor (or Emergency Coordinator) shall sound the "All Clear" signal for approximately (1) minute, Silence the signal, and Provide the following announcement over the plant wide telephone paging system:

"Attention all personnel, the emergency situation declared in Unit _____ has now been terminated." (Provide special instructions as necessary).

4.3.3.2 Repeat signal and announcement once.

4.3.4 Updating of the Emergency Notification Call List

4.3.4.1 The telephone numbers and responsible contacts listed in the Emergency Notification Call List shall be reviewed, verified and updated as required on a quarterly basis.

4.3.5 Record Retention

4.3.5.1 Appendix A shall be retained for the life of the plant.

INITIAL EMERGENCY MESSAGE FORM NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One) THIS IS PALO VERDE NUCLEAR GENERATING STATION (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
(cross out notifications above not applicable)

declared at _____ (time) - _____ (date) - Wind is from _____ degrees - At _____ (speed) mph.

PALO VERDE AUTHENTICATOR _____ (authenticator letters)

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

3. (Circle One)

(a) There is NO, repeat NO, radioactive release taking place and no special protective actions are recommended at this time.

OR

(b) There is NO, repeat NO, radioactive release taking place; however, the following protective actions are recommended at this time.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(c) A radioactive release IS, repeat IS, taking place. We recommend that people in affected sectors remain indoors with windows and doors closed.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(d) A radioactive release IS, repeat IS, taking place. We recommend that evacuation of affected sectors be considered.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

FOLLOW-UP EMERGENCY MESSAGE FORM

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One)
THIS IS A PALO VERDE NUCLEAR GENERATING STATION follow-up information message concerning the (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
(cross out notifications above not applicable)

declared at _____ - _____
(time) (date)

PALO VERDE AUTHENTICATOR _____
(authenticator letters)

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

3. Meteorological Data

a. Wind direction from _____ (degrees) - at _____ miles per hour
(direction) (speed)

from _____ to _____
(sector) (sector)

b. Stability Class: A B C D E F G
(Circle One)

c. Precipitation ---- Yes No
(Circle One)

4. Radiological Data

a. Radioactvity (check one)

( ) Has been released
( ) Has not been released

4. b. Release Time _____

c. Reactor Trip Time _____

d. Location/Source of Release _____

5. Current Release Rates

a. I-131 Equivalent _____ Ci/second
b. Noble Gas _____ Ci/second
c. Particulates _____ Ci/second

6. Two-hour plume centerline projected dose at:

Distance	Sector	Whole Body Dose (REM)	Child Thyroid Dose Commitment (REM)
Site Boundary			
2 miles			
5 miles			
10 miles			

7. Plume arrival time offsite:

_____ 2 mi
_____ 5 mi
_____ 10 mi
_____ Ruth Fisher School
_____ Arlington School

8. Estimated duration of release _____ minutes

9. The Following Emergency Measures Including Protective Actions are Recommended:

_____

_____

_____

10. The Following Emergency Reponse Actions are Underway:

_____

_____

_____

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

_____

_____

_____

12. Our Prognosis of the Emergency is that Conditions:

_____Are Under Control
_____Can Be Expected to Terminate Within _____hours
_____Are Worsening

13. Other Information:

_____

_____

_____

14. THIS IS (IS NOT) A DRILL!! (Circle One)

EMERGENCY NOTIFICATION: CALL LIST

EMERGENCY COORDINATOR/STSC COMMUNICATOR (Sheet 1 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Arizona Department of Public Safety	_____	MAN	Radio System Channel	_____	__/__	_____
Arizona Radiation Regulatory Agency	_____	MAN	Radio System Channel	_____	__/__	_____
Arizona Division of Emergency Services	_____	MAN	Radio System Channel 8 Frequency	_____	__/__	_____
Maricopa County Department of Civil Defense and Emergency Services	_____	MAN	Radio System Channel 8 Frequency	_____	__/__	_____
Maricopa County Sheriff's Office	_____	MAN	Radio System Channel 8 Frequency	_____	__/__	_____
Director, Nuclear Operations	Joe Brown (Primary)			Mobile Radio Telephone	__/__	_____
	O.J. Zeringue (Alt.)			Mobile Radio Telephone	__/__	_____
Assistant Vice President, Nuclear	Don Karner (Primary)			Mobile Radio Telephone	__/__	_____
	John Allen (Alt.)			Mobile Radio Telephone	__/__	_____
	John Voiers (Alt.)			(None)	__/__	_____

PV216 000A (8/82)

EMERGENCY NOTIFICATION CALL LIST (cont'd)

EMERGENCY COORDINATOR/STSC COORDINATOR (Sheet 2 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Nuclear Admin. (Notify during day shift only)	Telephone Operator	ENS	(None)	FTS	__/__	_____
NRC Headquarters	_____				__/__	_____
NRC Sr. Resident Inspector	[Ray Zimerman]			(None)	__/__	_____
Executive Vice President, Nuclear Operations	[Tom Woods, Jr.]			(None)	__/__	_____
Public Information	Alt Security (Alt.)			(None)	__/__	_____
APS Communications Department	Duty Public Info			(None)	__/__	_____
PVNGS Visitors Center	[Jane Brand (Primary)]			(None)	__/__	_____
APS Site Construction	[Jack Swift (Alt.)]			(None)	__/__	_____
Bechtel Emergency Control Center	_____		(None)	(None)	__/__	_____
INPO	_____		2-Way Radio FM Channel 3	(None)	__/__	_____
APS Dispatcher	_____	Dispatch Telephone		(None)	__/__	_____

INSTRUCTIONS FOR COMPLETING APPENDIX A

1.0 INITIAL EMERGENCY MESSAGE FORM

1.1 Fill in data required by steps 1 and 2 of Appendix A, "Initial Emergency Message Form". Obtain authenticator from the confidential envelope marked on the outside with the appropriate month and drill sequence number (if it is a drill).

1.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete step 3 of Appendix A.

1.3 Circle appropriate wording of step 4 of Appendix A.

1.4 Contact the NRC via the Emergency Notification System (ENS) dedicated telephone within 15 minutes of declaring an emergency. If the ENS phone fails, use commercial phone or FTS phone as an alternate line (see Appendix C).

1.5 When contact is made, the caller shall identify himself and read the completed Emergency Message Form verbatim (omit the Palo Verde Authenticator).

1.6 Offer to repeat information and reiterate as necessary.

1.7 Obtain the name of the person contacted and record in Appendix A, Emergency Notification Call List, Emergency Coordinator/STSC Communicator.

NOTE

When the NAN ring button is pushed and it appears that all the receiving stations are on line, or, the ring has stopped, the PVNGS originating station shall initiate a roll call in the order listed below. (Consider the time of day.)

1.8 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)

Maricopa County Sheriffs Office
Maricopa County Department of Civil Defense and Emergency Services
Arizona Department of Public Safety
Arizona Division of Emergency Services
Arizona Radiation Regulatory Agency

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: a.m., Monday-Friday, all day Saturday and Sunday)

Maricopa County Sheriff's Office
Department of Public Safety

1.9 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the Appropriate Emergency Message Form.

1.10 When each individual has obtained a copy, read the completed Emergency Message Form verbatim and request MCSO to read back verbatim.

1.11 Offer to repeat information and reiterate as necessary.

1.12 Obtain the name of each person contacted and record on Appendix A.

1.13 Notify additional personnel as listed in Appendix A as necessary, obtain the name of the person contacted, and inform them of the situation.

1.14 If an individual requests information not contained in the Emergency Message Form, make reasonable efforts to obtain and give the information only after all initial notification have been made.

2.0 FOLLOW-UP EMERGENCY MESSAGE FORM

2.1 Fill in data required by steps 1 and 2 of Appendix A, "Follow-up Emergency Message Form". Use the same authenticator code obtained for the "Initial Emergency Message Form".

2.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete steps 3-9.

2.3 Obtain from the Emergency Coordinator (onshift) data required to complete steps 10-13.

2.4 Circle appropriate wording in step 14.

2.5 Notify NRC, state and county agencies per steps 1.4-1.14 of this Appendix.

NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System (ENS)

Operation at plant end of circuit.

A. ENS Characteristics

1. Red color

2. Used for notifications of NRC Headquarters. Region V NRC Office can be patched into this line.

3. Commercial telephones and FTS backup the ENS.

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

C. Outgoing call to NRC Operations Center.

1. Control Room (CR) or Shift Supervisor's Office (SSO) or Technical Support Center (TSC) initiates call.

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

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

c. Emergency Operations Facility (EOF) ENS phone lamp blinks.

d. NRC 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. No indication at any plant location.

NOTE: The ENS circuit does not have privacy feature.

D. 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.

E. 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

F. Site Package Configuration

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

2. Notification and Alert Net

A. NAN Characteristics

1. Gold color

2. Group Ring-down Circuit which may bypass onsite and local offsite switches.

3. PVNGS onsite NAN locations:

a. STSCs

b. TSC

4. Offsite NAN locations

a. EOF

b. State EOC

c. ARRA

d. DPS

e. MSCO

f. County EOC

5. Battery backup is provided for all terminals and conference bridges.

B. Description

1. Phone terminal sets are equipped with "Push to Call" pushbucton and "Call Received" lamp as well as standard straight line ringer.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

2. A loop-back function is provided to check both transmit and receive legs of each terminal from any point in the system.

3. The Interface/Controller contains a front panel meter and two green LEDs for battery capacity and battery charger status. Depress the pushbutton to check voltage level.

C. Operation

1. To originate a call, depress "Push to Call" button momentarily. This provides ringing to associated phones and turns on the "Call Received" lamp. Taking the phone off the hook cancels both bell and lamp.

2. A very low ringback signal is returned to the caller from all ringing phones to assure that the call is received by all parties. The signal is sufficiently low to allow conversation among all off-hook phones although others are still in the ringing mode.

3. Radio System

A. Characteristics

1. Eight channel system. Channel eight is backup for NAN.

2. System includes: two speaker amplifier, transmit VU meter; digital clock, microphone, amplifier for all transmit audio, interlocking channel select switches.

3. One speaker monitors all unselected channels, second speaker monitors the selected channel.

4. Selective and group call capabilities.

B. Operation

1. Depress eight channel button.

2. Depress TRANSMIT switch.

3. Utilize MONITOR, CALL, MUTE, BUSY and other functions as appropriate.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Locations

1. STSC
2. EOF
3. TSC
4. ARRA
5. ADES

4. Group Ring-Down Voice Circuits

A. Characteristics

1. Gold color
2. Used for transmission of technical information to office agencies, public affairs communications and communications of protective action recommendations to offsite agencies.
3. NAN is backup for communication of protective action recommendations.
4. Two independent circuits using Mountain Bell leased-lines and bypasing onsite and offsite switches - primary links.
5. Two independent circuits using APS microwave system - backup links.
6. Group call communications only.
7. Locations

Leased-Line Circuits		APS Microwave Circuits	
#1	#2	#1	#2
TSC	TSC	TSC	TSC
EOF	EOF	EOF	EOF
STSCs		STSCs	
ADES	ADES	ADES	ADES
ARRA	ARRA	ARRA	ARRA

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

5. Ring-Down Facsimile Circuits

A. Characteristics

1. Two independant circuits used for transmission of technical drawing and data. Primary circuit uses Mountain Bell leased lines bypassing onsite and offsite switches. Backup circuit utilizes APS microwave system.

2. STSC telecopier can connect to either the primary or backup circuits. The STSC machines must be lined to the proper circuit to receive transmissions. Telecopier is auto-answer with phone in parallel for voice communications.

3. Capabilities include group or station-to-station transmission.

4. Locations (leased-line and APS microwave)

a. EOF

b. TSC

c. STSC (must be switched to proper circuit)

d. CEC

e. ADES

f. ARRA

6. Federal Telecommunications System (FTS)

A. FTS Characteristics

1. Brown color

2. Used for transmittal of radiological information by NRC personnel onsite to NRC personnel at Bethesda and Regional Offices.

3. Backup to ENS and commercial lines for NRC notifications.

4. PVNGS onsite locations

a. EOF - NRC Office

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. TSC - NRC Office and Data Display Room

c. EOF - Emergency Command Center Data Display Area

d. NRC Resident Inspector's Office

e. Radiation Protection Office

7. Mobile Radio Telephone System

A. Operation

1. Dial the designated seven digit number.

---

8. Paging System

A. Characteristics

1. Two systems operated from Phoenix Microwave Center and PVNGS. The PVNGS System can access the Phoenix System via microwave ties.

2. Activation of onsite pagers used in plant operation takes precedence over system-wide orders for pager activation.

B. Operation

1. Select appropriate six digit address. From PVNGS, use the 81 prefix prior to accessing the Phoenix terminal and dial the six digit number.

2. The first two digits of the six digit number access the paging terminal; 46 for Phoenix and 88 for PVNGS.

3. The third digit is a priority digit. Priority One (1) will activate two or more paging transmitters. Priority Two (2) will activate the transmitter nearest the paged individuals work area.

4. The last three digits are the specific address of individuals to receive the calls.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

9. Call-Out System (Auto Dialer)

A. Characteristics

1. Used by the Security Director to call in PVNGS emergency response personnal.

2. Capability to contact by telephone, radio, or voice pocket pager.

3. After dialing, the System will speak the appropriate message and record acknowledgment. If acknowledgment does not occur (no answer or busy), the system will periodically retry the number.

B. Operations

1. Turn enable/disable switch to enable position.

2. Select operating instructions from display.

"P" Program Phone Lists
"S" Start Notification Sequence
"C" Compose Message
"T" Time Set
"N" Notification Repetition Programming
"A" Acknowledge Code Programming
"M" Message Repetition Programming

3. Select appropriate preprogrammed telephone number list (1 to 8) or "new" for lists not programmed.

4. If message and telephone number list are preprogrammed, selection of that list and message may be accomplished on the front panel or by depressing "S".

5. If a new message is required, type the message on the terminal keyboard and enter.

6. The printer records acknowledgment status and time.

7. The System continues dialing and message delivery attempts until either all numbers acknowledge or the programmed number of repetitions has been completed.

THE PHONETIC ALPHABET

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIETT	W	WHISKEY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU

PROTECTIVE ACTION RECOMMENDATIONS

Classification Category	Protective Actions Recommendations
Notification of Unusual Event- events are in progress which indicate a potential degradation of the level of safety of the plant; however, no releases of radioactive material requiring offsite response/monitoring are expected unless further degradation of safety s'stems occur.	Inform state and county authorities of NUE status/ cause and based on the situation recommend that no protective action is necessary or to standby for an update due to potential degredation of plant safety.

NOTIFICATION OF UNUSUAL EVENT
IMPLEMENTING PROCEDURES

EPIP-02	*Emergency Classification
EPIP-09	*Emergency Coordinator
EPIP-11	*Technical Support Center/Satellite TSC Activation
EPIP-12	Operational Support Center Activation
EPIP-20	Personnel Assembly and Accountability
EPIP-23	Fire Fighting
EPIP-24	Security
EPIP-33	Offsite Assistance

* This procedure shall be implemented for a NOTIFICATION OF UNUSUAL EVENT classification.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-04	
ALERT IMPLEMENTING ACTIONS	REVISION 3	Page 1 of 28

3

ASSIGNED COPY

PVNGS # 8-9B

DEPT. HEAD O. R. Zimmer DATE 5/3/84

PRB/PRG REVIEW [illegible] DATE 7/16/84

APPROVED BY O. R. Zimmer DATE 7/16/84

EFFECTIVE DATE ~~07-20-84~~ JM 07-16-84
07-16-84

DN-1599A/0180A

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1.0 OBJECTIVE

1.1 This procedure provides a series of implementing actions to be taken upon declaration of an ALERT.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-09, "Emergency Coordinator"

2.1.3 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.4 EPIP-12, "Operations Support Center Activation"

2.1.5 EPIP-13, "Emergency Operations Facility Activation"

2.1.6 EPIP-15, "Protective Action Guidelines"

2.1.7 EPIP-20, "Personnel Assembly and Accountability"

2.1.8 EPIP-33, "Offsite Assistance"

2.1.9 EPIP-39, "Emergency Operations Director (EOD)"

2.1.10 EPIP-40, "Adminstrative and Logistics Coordinator (ALC)"

2.1.11 EPIP-41, Radiological Assessment Coordinator (RAC)"

2.1.12 EPIP-42, "Technical Analysis Coordinator (TAC)"

2.1.13 EPIP-43, "Radiological Assessment Communicator (RACom)"

2.1.14 EPIP-44, "TSC Liaison Engineer (TLE)"

2.1.15 EPIP-45, "Government Liaison Engineer (GLE)"

2.1.16 EPIP-46, "EOF Contact"

2.1.17 EPIP-47, "Logistics Communicator"

2.1.18 EPIP-48, "Security Coordinator"

2.1.19 EPIP-49, "Dosimetry Clerk"

2.1.20 EPIP-50, "Status Board Keeper (SBK)"

2.1.21 EPIP-51, "Offsite Technical Representative (OTR)"

2.1.22 EPIP-52, "JENC Technical Advisor"

2.1.23 EPIP-55, "TSC/EOF Personnel Identification"

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. 3

2.2.3 78AC-0ZZ06, "Document And Record Turnover Control", Rev. 0.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Continued surveillance and assessment of plant conditions are 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/Responsibilities

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 or Emergency Coordinator shall be responsible for initiating and completing implementing actions of this procedure.

4.2 Prerequisites

4.2.1 The emergency has been classified per EPIP-02, "Emergency Classification".

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

NOTE

Designated Unaffected Unit Shift Supervisor to assume the role of the Emergency Coordinator in the Onshift Emergency Organization are:

Affected Unit	Unaffected Unit Shift Supervisor
Unit 1	Unit 2
Unit 2	Unit 1
Unit 3	Unit 2
Entire Site	Unit 1

4.3.1.1 Notify the Shift Supervisor of the designated unaffected unit (or Shift Supervisor of an unaffected unit) to report to the Control Room of the affected unit and assume the duties of the Emergency Coordinator.

NOTE

Initial notifications shall be made from the Satellite TSC by the Satellite TSC Communicator until activation of the EOF. At that time, all subsequent initial and follow up notifications shall be made by the government Liaison Engineer in the EOF.

NOTE

Protective action recommendations (Appendix D) are based on plant and containment conditions and these recommendations are made to offsite officials even when no release is in progress.

4.3.1.2 Direct the Satellite TSC Communicator to fill out Appendix A, "Initial Emergency Message Form," in accordance with instructions provided in Appendix B.

4.3.1.3 Sound the Unit Area Accountability Signal for 1 minute to alert personnel within the protected area. If the entire plant site requires notification, the Site Area Accountability Signal shall be activated.

4.3.1.4 Silence the signal and provide the following announcement over the plant wide telephone page:

"Attention all plant personnel, an emergency situation classified as an Alert exists in Unit _____. Assembly and Accountability for the Protected Area is now in progress. All affected Unit Emergency Response Personnel and alternates report to your emergency location. All other personnel in the Protected Area are ordered to leave the Protected Area and report to your assigned assembly area." (Provide instructions on route(s) or area(s) to avoid as appropriate).

4.3.1.5 Resound the Accountability signal and repeat the announcement.

4.3.1.6 Notify the Control Rooms of the unaffected units.

4.3.1.7 Ensure that the actions of the appropriate Recovery procedures have been implemented.

4.3.2 The Emergency Coordinator/Shift Supervisor shall perform the following:

4.3.2.1 Ensure activation of the Satellite TSC in accordance with EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.2.2 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as an ALERT. Procedures that shall be implemented and those which may be appropriate are identified in Appendix E.

4.3.2.3 Direct the Security Director to call in the Onsite and Offsite Emergency Organization personnel by utilizing the appropriate 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, "Offsite Assistance".

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

4.3.2.6 When the situation warrants downgrading/upgrading an ALERT, proceed to appropriate implementing and notification procedures and direct the Shift Supervisor to announce the reclassification over the public address system and inform the other Control Rooms.

4.3.2.7 The Emergency Coordinator shall initiate and complete implementing actions of EPIP-09, "Emergency Coordinator".

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

4.3.3.1 The Emergency Coordinator shall implement EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.4 Operations Support Center (OSC) Activation

4.3.4.1 The OSC Coordinator shall implement EPIP-12, "Operations Support Center Activation".

4.3.5 Emergency Operations Facility (EOF) Activation

4.3.5.1 The Emergency Operations Director shall implement EPIP-13, "Emergency Operations Facility Activation".

3

4.3.6 Emergency Situation Terminated

4.3.6.1 The Shift Supervisor (or Emergency Coordinator) shall Sound the "All Clear signal for approximately (1) minute, Silence the signal, and Provide the following announcement over the plant wide telephone paging system: "Attention all personnel. The emergency situation declared in Unit _____ has now been terminated". (Provide special instructions as necessary).

4.3.6.2 Repeat signal and announcement once.

4.3.7 Updating of the Emergency Notification Call List

4.3.7.1 The telephone numbers and responsible contacts listed in the Emergency Notification Call List shall be reviewed, verified, and updated as required on a quarterly basis.

4.3.8 Record Retention

4.3.8.1 Appendix A shall be retained for the life of the plant.

INITIAL EMERGENCY MESSAGE FORM
NOTIFICATION OF UNUSUAL EVENT,
ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One) THIS IS PALO VERDE NUCLEAR GENERATING STATION (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
(cross out notifications above not applicable)

declared at _____ (time) - _____ (date) - Wind is from _____ degrees - At _____ (speed) mph.

PALO VERDE AUTHENTICATOR _____
(authenticator letters)

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

3. (Circle One)

(a) There is NO, repeat NO, radioactive release taking place and no special protective actions are recommended at this time.

(b) There is NO, repeat NO, radioactive release taking place; however, the following protective actions are recommended at this time.

Sectors	Distance (Miles)
_____	_____
_____	_____

OR

(c) A radioactive release IS, repeat IS, taking place. We recommend that people in affected sectors remain indoors with windows and doors closed.

Sectors	Distance (Miles)
_____	_____
_____	_____

OR

(d) A radioactive release IS, repeat IS, taking place. We recommend that evacuation of affected sectors be considered.

Sectors	Distance (Miles)
_____	_____
_____	_____

4. THIS IS (IS NOT) A DRILL!! (Circle One)

3

FOLLOW-UP EMERGENCY MESSAGE FORM

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One) THIS IS A PALO VERDE NUCLEAR GENERATING STATION follow-up information message concerning the (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
   (cross out notifications above not applicable)

   declared at _____ - _____
   (time) (date)

   PALO VERDE AUTHENTICATOR _____
   (authenticator letters)

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

3. Meteorological Data

   a. Wind direction from _____ (degrees) - at _____ miles per hour
   (direction) (speed)

   from _____ to _____
   (sector) (sector)

   b. Stability Class: A B C D E F G
   (Circle One)

   c. Precipitation Yes No
   (Circle One)

4. Radiological Data

   a. Radioactvity (check one)

   ( ) Has been released
   ( ) Has not been released

3

4. b. Release Time _____

c. Reactor Trip Time _____

d. Location/Source of Release _____

5. Current Release Rates

a. I-131 Equivalent _____ Ci/second
b. Noble Gas _____ Ci/second
c. Particulates _____ Ci/second

6. Two-hour plume centerline projected dose at:

Distance	Sector	Whole Body Dose (REM)	Child Thyroid Dose Commitment (REM)
Site Boundary			
2 miles			
5 miles			
10 miles			

7. Plume arrival time offsite:

_____ 2 mi
_____ 5 mi
_____ 10 mi
_____ Ruth Fisher School
_____ Arlington School

8. Estimated duration of release _____ minutes

3

9. The Following Emergency Measures Including Protective Actions are Recommended:

_____

_____

_____

10. The Following Emergency Reponse Actions are Underway:

_____

_____

_____

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

_____

_____

_____

12. Our Prognosis of the Emergency is that Conditions:

_____Are Under Control
_____Can Be Expected to Terminate Within _____hours
_____Are Worsening

13. Other Information:

_____

_____

_____

14. THIS IS (IS NOT) A DRILL!! (Circle One)

EMERGENCY NOTIFICATION CALL LIST

EMERGENCY COORDINATOR/STSC COMMUNICATOR
(Sheet 1 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Arizona Department of Public Safety	________	NAN	Radio System Channel & Frequency	[redacted]	__/__	________
Arizona Radiation Regulatory Agency	________	NAN	Radio System Channel & Frequency		__/__	________
Arizona Division of Emergency Services	________	NAN	Radio System Channel & Frequency		__/__	________
Maricopa County Department of Civil Defense and Emergency Services	________	NAN	Radio System Channel & Frequency		__/__	________
Maricopa County Sheriff's Office	________	NAN	Radio System Channel & Frequency		__/__	________
Director, Nuclear Operations	Joe Bynum (Primary)	[redacted]			__/__	________
	O.J. Zeringue (Alt.)				__/__	________
Assistant Vice President, Nuclear	Don Karner (Primary)				__/__	________
	John Allen (Alt.)				__/__	________
	John Vorees (Alt.)			(None)	__/__	________
					__/__	________

3

EMERGENCY NOTIFICATION CALL LIST (cont'd)

EMERGENCY COORDINATOR/SISC COMMUNICATOR
(Sheet 2 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Nuclear Admin. (Notify during day shift only)	Telephone Operator	(None)	(None)		__/__	
NRC Headquarters		ENS	FTS			
NRC Sr. Resident Inspector	Roy Zimmerman			(None)	__/__	
Executive Vice President, Nuclear Operations	Tom Woods, Jr.			(None)	__/__	
Public Information	All Security (Alt.)			(None)	__/__	
APS Communications Department	Duty Public Info			(None)	__/__	
PVNGS Visitors Center	Jane Brand (Primary)			(None)	__/__	
APS Site Construction	Jack Swift (Alt.)			(None)	__/__	
Bechtel Emergency Control Center				(None)	__/__	
INPO				(None)	__/__	
APS Dispatcher		Dispatch Telephone				

PV216-000A (8/82)

3

INSTRUCTIONS FOR COMPLETING APPENDIX A

1.0 Initial Emergency Message Form

1.1 Fill in data required by Steps 1 and 2 of Appendix A, "Initial Emergency Message Form". Obtain Authenticator from the confidential envelope marked on the outside with the appropriate month and a drill sequence number (if it is a drill).

1.2 Obtain from the Radiation Protection Monitor (onshift) or the Radiological Assessment Coordinator (if EOF is activated) data required to complete Step 3 of Appendix A.

1.3 Circle appropriate wording of Step 4 of Appendix A.

1.4 Contact the NRC via the Emergency Notification System (ENS) dedicated telephone within 15 minutes of declaring an emergency. If the ENS fails, use the commercial telephone or FTS phone as an alternate link (see Appendix C).

1.5 When contact is made, the caller shall identify himself and read the completed Emergency Message Form verbatim (omit the Palo Verde Authenticator).

1.6 Offer to repeat information and reiterate as necessary.

1.7 Obtain the name of the person contacted and record in Appendix A, Emergency Notification Call List, Emergency Coordinator/STSC Communicator.

NOTE

When the NAN ring button is pushed and it appears that all the receiving stations are on line or the ring has stopped, the PVNGS originating station shall initiate a roll call in order listed below. (Consider the time of day.)

1.8 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)

Maricopa County Sheriff's Office
Maricopa County Department of Civil Defense and Emergency Services
Arizona Department of Public Safety
Arizona Division of Emergency Services
Arizona Radiation Regulatory Agency.

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., Monday-Friday, all day Saturday and Sunday)

Maricopa County Sheriff's Office
Department of Public Safety

1.9 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the appropriate Emergency Message Form.

1.10 When each individial has obtained a copy, read the completed Emergency Message Form verbatim and request MCSO to read back verbatim.

1.11 Offer to repeat information and reiterate as necessary.

1.12 Obtain the name of each person contacted and record on Appendix A.

1.13 Notify additional personnel as listed in Appendix A as necessary, obtain the name of the person contacted, and inform them of the situation.

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

3

2.0 Follow-up Emergency Message Form

2.1 Fill in data required by Steps 1 and 2 of Appendix A, "Follow-up Emergency Message Form". Use the same Authenticator code obtained for the "Initial Emergency Message Form".

2.2 Obtain the Radiation Protection Monitor (Onshift) or the Radiological Assessment Coordinator (if EOF is activated) data required to complete Steps 3-9.

2.3 Obtain the Emergency Coordinator (Onshift) or the Technical Analysis Coordinator (if EOF is activated) data required to complete Steps 10-13.

2.4 Circle appropriate wording in Step 14.

2.5 Notify NRC, State and County Agencies per Steps 1.4, 1.14 of this Appendix.

3

NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System (ENS)

Operation at plant end of circuit.

A. ENS Characteristics

1. Red color

2. Used for notifications of NRC Headquarters. Region V NRC Office can be patched into this line.
3. Commercial telephones and FTS backup the ENS.

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

C. Outgoing call to NRC Operations Center.

1. Control Room (CR) or Shift Supervisor's Office (SSO) or Technical Support Center (TSC) initiates call.

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

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

c. Emergency Operations Facility (EOF) ENS phone lamp blinks.

d. NRC 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.

3

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. No indication at any plant location.

NOTE: The ENS circuit does not have privacy feature.

D. 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.

E. 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

F. Site Package Configuration

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

2. Notification and Alert Net

A. NAN Characteristics

1. Gold color

2. Group Ring-down Circuit which may bypass onsite and local offsite switches.

3. PVNGS onsite NAN locations:

a. STSCs

b. TSC

4. Offsite NAN locations

a. EOF

b. State EOC

c. ARRA

d. DPS

e. MSCO

f. County EOC

5. Battery backup is provided for all terminals and conference bridges.

B. Description

1. Phone terminal sets are equipped with "Push to Call" pushbutton and "Call Received" lamp as well as standard straight line ringer.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

2. A loop-back function is provided to check both transmit and receive legs of each terminal from any point in the system.

3. The Interface/Controller contains a front panel meter and two green LEDs for battery capacity and battery charger status. Depress the pushbutton to check voltage level.

C. Operation

1. To originate a call, depress "Push to Call" button momentarily. This provides ringing to associated phones and turns on the "Call Received" lamp. Taking the phone off the hook cancels both bell and lamp.

2. A very low ringback signal is returned to the caller from all ringing phones to assure that the call is received by all parties. The signal is sufficiently low to allow conversation among all off-hook phones although others are still in the ringing mode.

3. Radio System

A. Characteristics

1. Eight channel system. Channel eight is backup for NAN.

2. System includes: two speaker amplifier, transmit VU meter; digital clock, microphone, amplifier for all transmit audio, interlocking channel select switches.

3. One speaker monitors all unselected channels, second speaker monitors the selected channel.

4. Selective and group call capabilities.

B. Operation

1. Depress eight channel button.

2. Depress TRANSMIT switch.

3. Utilize MONITOR, CALL, MUTE, BUSY and other functions as appropriate.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Locations

1. STSC
2. EOF
3. TSC
4. ARRA
5. ADES

4. Group Ring-Down Voice Circuits

A. Characteristics

1. Gold color
2. Used for transmission of technical information to office agencies, public affairs communications and communications of protective action recommendations to offsite agencies.
3. NAN is backup for communication of protective action recommendations.
4. Two independent circuits using Mountain Bell leased-lines and bypasing onsite and offsite switches - primary links.
5. Two independent circuits using APS microwave system - backup links.
6. Group call communications only.
7. Locations

Leased-Line Circuits	
#1	#2
TSC	TSC
EOF	EOF
STSCs	
ADES	ADES
ARRA	ARRA

APS Microwave Circuits	
#1	#2
TSC	TSC
EOF	EOF
STSCs	
ADES	ADES
ARRA	ARRA

3

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

5. Ring-Down Facsimile Circuits

A. Characteristics

1. Two independant circuits used for transmission of technical drawing and data. Primary circuit uses Mountain Bell leased lines bypassing onsite and offsite switches. Backup circuit utilizes APS microwave system.

2. STSC telecopier can connect to either the primary or backup circuits. The STSC machines must be lined to the proper circuit to receive transmissions. Telecopier is auto-answer with phone in parallel for voice communications.

3. Capabilities include group or station-to-station transmission.

4. Locations (leased-line and APS microwave)

a. EOF

b. TSC

c. STSC (must be switched to proper circuit)

d. CEC

e. ADES

f. ARRA

6. Federal Telecommunications System (FTS)

A. FTS Characteristics

1. Brown color

2. Used for transmittal of radiological information by NRC personnel onsite to NRC personnel at Bethesda and Regional Offices.

3. Backup to ENS and commercial lines for NRC notifications.

4. PVNGS onsite locations

a. EOF - NRC Office

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. TSC - NRC Office and Data Display Room

c. EOF - Emergency Command Center Data Display Area

d. NRC Resident Inspector's Office

e. Radiation Protection Office

7. Mobile Radio Telephone System

A. Operation

1. Dial the designated seven digit number.

8. Paging System

A. Characteristics

1. Two systems operated from Phoenix Microwave Center and PVNGS. The PVNGS System can access the Phoenix System via microwave ties.

2. Activation of onsite pagers used in plant operation takes precedence over system-wide orders for pager activation.

B. Operation

1. Select appropriate six digit address. From PVNGS, use the 81 prefix prior to accessing the Phoenix terminal and dial the six digit number.

2. The first two digits of the six digit number access the paging terminal; 46 for Phoenix and 88 for PVNGS.

3. The third digit is a priority digit. Priority One (1) will activate two or more paging transmitters. Priority Two (2) will activate the transmitter nearest the paged individuals work area.

4. The last three digits are the specific address of individuals to receive the calls.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

9. Call-Out System (Auto Dialer)

A. Characteristics

1. Used by the Security Director to call in PVNGS emergency response personnel.

2. Capability to contact by telephone, radio, or voice pocket pager.

3. After dialing, the System will speak the appropriate message and record acknowledgment. If acknowledgment does not occur (no answer or busy), the system will periodically retry the number.

B. Operations

1. Turn enable/disable switch to enable position.

2. Select operating instructions from display.

"P" Program Phone Lists
"S" Start Notification Sequence
"C" Compose Message
"T" Time Set
"N" Notification Repetition Programming
"A" Acknowledge Code Programming
"M" Message Repetition Programming

3. Select appropriate preprogrammed telephone number list (1 to 8) or "new" for lists not programmed.

4. If message and telephone number list are preprogrammed, selection of that list and message may be accomplished on the front panel or by depressing "S".

5. If a new message is required, type the message on the terminal keyboard and enter.

6. The printer records acknowledgment status and time.

7. The System continues dialing and message delivery attempts until either all numbers acknowledge or the programmed number of repetitions has been completed.

3

THE PHONETIC ALPHABET

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIETT	W	WHISKEY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU

3

PROTECTIVE ACTION RECOMMENDATIONS

Classification Category	Protective Actions Recommendations
Alert- any releases are expected to be limited to a small fraction of the EPA/PAG exposure levels at the site boundary unless further degradation of safety systems occur.	Inform the state and county authorities of the ALERT status/cause and recommend that the public be appraised of the situation and stay tuned to EBS/KTAR radio station.

ALERT
IMPLEMENTING PROCEDURES LIST

EPIP-02 *Emergency Classification
EPIP-09 *Emergency Coordinator
EPIP-11 *Technical Support Center/Satellite TSC Activation
EPIP-12 *Operations Support Center Activation
EPIP-13 *Emergency Operations Facility Activation
EPIP-14A Release Rate Determination
EPIP-14B Dose Assessment
EPIP-15 Protective Action Guidelines
EPIP-16 Inplant Surveys and Sampling
EPIP-17 Onsite/Offsite Surveys and Sampling
EPIP-18 Emergency Exposure Guidelines
EPIP-19 Onsite Evacuation
EPIP-20 *Personnel Assembly and Accountability
EPIP-21 Search and Rescue
EPIP-22 Personnel Injury
EPIP-23 Fire Fighting
EPIP-24 Security
EPIP-25 Reentry for Emergency Operations
EPIP-26 Potassium Iodine (KI) Administration
EPIP-27 Sample Analysis at the Station
EPIP-27A Handling, Transfer and Shipment of Post Accident Grab Samples
EPIP-28 Personnel Monitoring and Decontamination
EPIP-29 Area/Equipment Monitoring and Decontamination
EPIP-30 Radiological Emergency Response Vehicle Operations
EPIP-31 Recovery
EPIP-33 Offsite Assistance
EPIP-39 *Emergency Operations Director (EOD)
EPIP-40 *Administrative and Logistics Coordinator (ALC)
EPIP-41 *Radiological Assessment Coordinator (RAC)"
EPIP-42 *Technical Analysis Coordinator (TAC)
EPIP-43 *Radiological Assessment Communicator (RACom)
EPIP-44 *TSC Liaison Engineer (TLE)
EPIP-45 *Government Liaison Engineer (GLE)
EPIP-46 *EOF Contact
EPIP-47 *Logistics Communicator
EPIP-48 *Security Coordinator
EPIP-49 *Dosimetry Clerk
EPIP-50 *Status Board Keeper (SBK)
EPIP-51 *Offsite Technical Representative (OTR)
EPIP-52 *JENC Technical Advisor
EPIP-53 Government Staffing at TSC
EPIP-54 Government Staffing at EOF
EPIP-55 *TSC/EOF Personnel Identification

* This procedure shall be implemented for an ALERT classification.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-05	
SITE AREA EMERGENCY IMPLEMENTING ACTIONS	REVISION 3	Page 1 of 28

ASSIGNED COPY

PVNGS #8-9B

DEPT. HEAD O.P. Zimmerman DATE 5/3/84

PRB/PRG REVIEW M.K. Clyde DATE 7-3-84

APPROVED BY O.P. Zimmerman DATE 7/6/84

EFFECTIVE DATE 7-13-84

DN-1600A/0787A

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1.0 OBJECTIVE

1.1 This procedure provides a series of implementing actions to be taken upon declaration of a SITE AREA EMERGENCY.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-09, "Emergency Coordinator"

2.1.3 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.4 EPIP-12, "Operations Support Center Activation"

2.1.5 EPIP-13, "Emergency Operations Facility Activation"

2.1.6 EPIP-15, "Protective Action Guidelines"

2.1.7 EPIP-19, "Onsite Evacuation"

2.1.8 EPIP-20, "Personnel Assembly and Accountability"

2.1.9 EPIP-33, "Offsite Assistance"

2.1.10 EPIP-39, "Emergency Operations Director (EOD)"

2.1.11 EPIP-40, "Adminstrative and Logistics Coordinator (ALC)"

2.1.12 EPIP-41, Radiological Assessment Coordinator (RAC)"

2.1.13 EPIP-42, "Technical Analysis Coordinator (TAC)"

2.1.14 EPIP-43, "Radiological Assessment Communicator (RACom)"

2.1.15 EPIP-44, "TSC Liaison Engineer (TLE)"

2.1.16 EPIP-45, "Government Liaison Engineer (GLE)"

2.1.17 EPIP-46, "EOF Contact"

2.1.18 EPIP-47, "Logistics Communicator"

2.1.19 EPIP-48, "Security Coordinator"

2.1.20 EPIP-49, "Dosimetry Clerk"

2.1.21 EPIP-50, "Status Board Keeper (SBK)"

2.1.22 EPIP-51, "Offsite Technical Representative (CTR)"

2.1.23 EPIP-52, "JENC Technical Advisor"

2.1.24 EPIP-55, "TSC/EOF Personnel Identification"

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. 3

2.2.3 78AC-0ZZ06, "Documentation and Record Turnover Control" Rev. 0

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Continued surveillance and assessment of plant conditions are 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/Responsibilities

4.1.1 In a SITE AREA EMERGENCY, substantial releases of radioactive material may occur. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels beyond the site boundary. 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 shall provide updated radiological/meteorological information to offsite emergency management organizations. The SITE AREA EMERGENCY status shall be maintained until the event is terminated or reclassification takes place.

4.1.2 The Shift Supervisor or Emergency Coordinator shall be responsible for initiating and completing the implementing actions of this procedure.

4.2 Prerequisites

4.2.1 The emergency has been classified per EPIP-02, "Emergency Classification."

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

NOTE

Designated Unaffected Unit Shift Supervisor to assume the role of the Emergency Coordinator in the Onshift Emergency Organization are:

Affected Unit	Unaffected Unit Shift Supervisor
Unit 1	Unit 2
Unit 2	Unit 1
Unit 3	Unit 2
Entire Site	Unit 1

4.3.1.1 Notify the Shift Supervisor of the designated unaffected unit (or Shift Supervisor of an unaffected unit) to report to the Control Room of the affected unit and assume the duties of the Emergency Coordinator.

NOTE

Initial notifications shall be made from the satellite TSC by the Satellite TSC Communicator until activation of the EOF. At that time all subsequent initial and follow up notifications shall be made by the Government Liaison Engineer in the EOF.

NOTE

Protective Action recommendations (Appendix D) are based on plant and containment conditions and these recommendations are made to offsite officials even when no release is in progress.

4.3.1.2 Direct the Satellite TSC Communicator to fill out Appendix A, "Initial Emergency Message Form", in accordance with instructions provided in Appendix B.

4.3.1.3 Sound the Site Area Accountability signal for approximately one minute.

4.3.1.4 Silence the signal and provide the following announcement over the plant wide telephone page:

"Attention all plant Personnel, an emergency situation classified as a Site Area Emergency exists in Unit _____. Assembly and accountability for the Site Area is now in progress. All affected Unit Emergency Response Personnel and alternates report to your emergency location. All other personnel report to your original assembly area". (Provide instructions on routes or areas to avoid as appropriate).

4.3.1.5 Resound the Accountability Signal and repeat the announcement.

4.3.1.6 Notify the Control Rooms of the unaffected units.

4.3.1.7 Ensure that actions of the appropriate Recovery procedures have been implemented.

4.3.2 The Emergency Coordinator shall perform the following:

4.3.2.1 Ensure activation of the satellite TSC in accordance with EPIP-11, "Technical Support Center/Satellite TSC Activation."

4.3.2.2 Following accountability, and if conditions warrant per EPIP-15, "Protective Action Guidelines", initiate EPIP-19, "Onsite Evacuation".

4.3.2.3 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as a SITE AREA EMERGENCY. Procedures that shall be implemented and others which may be appropriate are identified in Appendix E.

4.3.2.4 Direct the Security Director 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 the STSC Communicator (onshift) or the Administrative and Logistics Coordinator to contact the required agency per EPIP-33, "Offsite Assistance".

4.3.2.6 Reevaluate the emergency classification and perform licensee actions as conditions change by implementing procedure EPIP-02.

4.3.2.7 When the situation warrants downgrading/upgrading the SITE AREA EMERGENCY, proceed to appropriate implementing and notification procedures and direct the Shift Supervisor to announce the reclassification over the public address system and inform the other Control Rooms.

4.3.2.8 The Emergency Coordinator shall initiate and complete implementing actions of EPIP-09 "Emergency Coordinator".

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

4.3.3.1 The Emergency Coordinator shall implement EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.4 Operations Support Center (OSC) Activation

4.3.4.1 The OSC Coordinator shall implement EPIP-12, "Operations Support Center Activation".

4.3.5 Emergency Operations Facility (EOF) Activation

4.3.5.1 The Emergency Operations Director shall implement EPIP-13, "Emergency Operations Facility Activation".

4.3.6 Emergency Situation Terminated

4.3.6.1 The Shift Supervisor (or Emergency Coordinator) shall Sound the "All Clear" signal for approximately (1) minute, Silence the signal, and Provide the following announcement over the plant wide telephone paging system: "Attention all personnel. The emergency situation declared in Unit _____ has now been terminated". (Provide special instructions as necessary.)

4.3.6.2 Repeat signal and announcement once.

4.3.7 Updating of the Emergency Notification Call List

4.3.7.1 The telephone numbers and responsible contacts listed in the Emergency Notification Call List shall be reviewed, verified, and updates as required on a quarterly basis.

4.3.8 Record Retention

4.3.8.1 The forms of Appendix 'A' shall be turned into the Emergency Coordinator/Emergency Operations Director who shall ensure they are forwarded to DDC for proper storage.

INITIAL EMERGENCY MESSAGE FORM
NOTIFICATION OF UNUSUAL EVENT,
ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One) THIS IS PALO VERDE NUCLEAR GENERATING STATION (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
(cross out notifications above not applicable)

declared at _____ (time) - _____ (date) - Wind is from _____ degrees - At _____ (speed) mph.

PALO VERDE AUTHENTICATOR _____
(authenticator letters)

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

3. (Circle One)

(a) There is NO, repeat NO, radioactive release taking place and no special protective actions are recommended at this time.

(b) There is NO, repeat NO, radioactive release taking place. However, the following protective actions are recommended at this time.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(c) A radioactive release IS, repeat IS, taking place. We recommend that people in affected sectors remain indoors with windows and doors closed.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(d) A radioactive release IS, repeat IS, taking place. We recommend that evacuation of affected sectors be considered.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

4. THIS IS (IS NOT) A DRILL!! (Circle One)

FOLLOW-UP EMERGENCY MESSAGE FORM

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One)
   THIS IS A PALO VERDE NUCLEAR GENERATING STATION follow-up information message concerning the (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
   (cross out notifications above not applicable)

   declared at _____ - _____
   (time) (date)

   PALO VERDE AUTHENTICATOR _____
   (authenticator letters)

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

3. Meteorological Data

   a. Wind direction from _____ (degrees) - at _____ miles per hour
   (direction) (speed)

   from _____ to _____
   (sector) (sector)

   b. Stability Class: A B C D E F G
   (Circle One)

   c. Precipitation Yes No
   (Circle One)

4. Radiological Data

   a. Radioactivity (check one)

   ( ) Has been released
   ( ) Has not been released

4. b. Release Time _____

   c. Reactor Trip Time _____

   d. Location/Source of Release _____

5. Current Release Rates

   a. I-131 Equivalent _____ Ci/second
   b. Noble Gas _____ Ci/second
   c. Particulates _____ Ci/second

6. Two-hour plume centerline projected dose at:

Distance	Sector	Whole Body Dose (REM)	Child Thyroid Dose Commitment (REM)
Site Boundary			
2 miles			
5 miles			
10 miles			

7. Plume arrival time offsite:

   _____ 2 mi
   _____ 5 mi
   _____ 10 mi
   _____ Ruth Fisher School
   _____ Arlington School

8. Estimated duration of release _____ minutes

9. The Following Emergency Measures Including Protective Actions are Recommended:

_____

_____

_____

10. The Following Emergency Reponse Actions are Underway:

_____

_____

_____

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

_____

_____

_____

12. Our Prognosis of the Emergency is that Conditions:

_____Are Under Control
_____Can Be Expected to Terminate Within _____hours
_____Are Worsening

13. Other Information:

_____

_____

_____

14. THIS IS (IS NOT) A DRILL!! (Circle One)

EMERGENCY NOTIFICATION CALL LIST

EMERGENCY COORDINATOR/STSC COMMUNICATOR
(Sheet 1 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINE	ALTERNATE LINE	ALTERNATE LINE	DATE/TIME	CALLER
Arizona Department of Public Safety	______	NAN	Radio System Channel & Frequency	[redacted]	__/__	______
Arizona Radiation Regulatory Agency	______	NAN	Radio System Channel & Frequency	[redacted]	__/__	______
Arizona Division of Emergency Services	______	NAN	Radio System Channel & Frequency	[redacted]	__/__	______
Maricopa County Department of Civil Defense and Emergency Services	______	NAN	Radio System Channel & Frequency	[redacted]	__/__	______
Maricopa County Sheriff's Office	______	NAN	Radio System Channel & Frequency	[redacted]	__/__	______
Director, Nuclear Operations	[Joe Bynum (Primary)]	[redacted]	[redacted]	[redacted]	__/__	______
	[G.J. Zeringue (Alt.)]	[redacted]	[redacted]	[redacted]	__/__	______
Assistant Vice President, Nuclear	[Don Karner (Primary)]	[redacted]	[redacted]	[redacted]	__/__	______
	[John Allen (Alt.)]	[redacted]	[redacted]	[redacted]	__/__	______
	[John Vorees (Alt.)]	[redacted]	[redacted]	(None)	__/__	______
NRC Headquarters	______	[redacted]	[redacted]	FTS		
					__/__	______
NRC Resident Inspector	[Gaston Fiorelli]	[redacted]	[redacted]	(None)	__/__	______
Executive Vice President, Nuclear Operations	[Tom Woods, Jr.]	[redacted]	[redacted]	(None)	__/__	______
	All Security (Alt.)	[redacted]	[redacted]	(None)	__/__	______

EMERGENCY NOTIFICATION CALL LIST (CONT'D)

EMERGENCY COORDINATOR/SISC COMMUNICATOR (Sheet 2 of 2)

AGENCY or DIVISION	PERSON CONTACTED	PRIMARY LINK	ALTERNATE LINK	ALTERNATE LINK	DATE/TIME	CALLER
Public Information	Duty Public Info		(None)	(None)	__/__	_____
APS Communications Department	Tone Brand (Primary)			(None)	__/__	_____
	Jack Swift (Alt.)			(None)	__/__	_____
PVNGS Visitors Center	_____			(None)	__/__	_____
APS Site Construction	_____		(None)	(None)	__/__	_____
Bechtel Emergency Control Center	_____		2-Way Radio FM Channel 3	(None)	__/__	_____
EOF	_____			(None)	__/__	_____
APS Dispatcher	_____	Dispatch Telephone			__/__	_____

PV216-000A (8/82)

INSTRUCTIONS FOR COMPLETING APPENDIX A

1.0 INITIAL EMERGENCY MESSAGE FORM

1.1 Fill in data required by steps 1 and 2 of Appendix A, "Initial Emergency Message Form". Obtain authenticator from the confidential envelope marked on the outside with the appropriate month and drill sequence number (if it is a drill).

1.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete step 3 of Appendix A.

1.3 Circle appropriate wording of step 4 of Appendix A.

1.4 Contact the NRC via the Emergency Notification System (ENS) dedicated telephone within 15 minutes of declaring an emergency. If the ENS fails, use commercial phone or FTS phone as an alternate link (see Appendix C).

1.5 When contact is made, the caller shall identify himself and read the completed Emergency Message Form verbatim (omit the Palo Verde Authenticator).

1.6 Offer to repeat information and reiterate as necessary.

1.7 Obtain the name of the person contacted and record in Appendix A, Emergency Notification Call List, Emergency Coordinator/STSC Communicator.

NOTE

When the NAN ring button is pushed and it appears that all the receiving stations are on line, or, the ring has stopped, the PVNGS originating station shall initiate a roll call in the order listed below. (Consider the time of day.)

1.8 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)

Maricopa County Sheriffs Office
Maricopa County Department of Civil Defense and Emergency Services
Arizona Department of Public Safety
Arizona Division of Emergency Services
Arizona Radiation Regulatory Agency

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: a.m., Monday-Friday, all day Saturday and Sunday)

Maricopa County Sheriff's Office
Department of Public Safety

1.9 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the Appropriate Emergency Message Form.

1.10 When each individual has obtained a copy, read the completed Emergency Message Form verbatim and request MCSO to read back verbatim.

1.11 Offer to repeat information and reiterate as necessary.

1.12 Obtain the name of each person contacted and record on Appendix A.

1.13 Notify additional personnel as listed in Appendix A as necessary, obtain the name of the person contacted, and inform them of the situation.

1.14 If an individual requests information not contained in the Emergency Message Form, make reasonable efforts to obtain and give the information only after all initial notification have been made.

2.0 FOLLOW-UP EMERGENCY MESSAGE FORM

2.1 Fill in data required by steps 1 and 2 of Appendix A, "Follow-up Emergency Message Form". Use the same authenticator code obtained for the "Initial Emergency Message Form".

2.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete steps 3-9.

2.3 Obtain from the Emergency Coordinator (onshift) data required to complete steps 10-13.

2.4 Circle appropriate wording in step 14.

2.5 Notify NRC, state and county agencies per steps 1.4-1.14 of this Appendix.

NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System (ENS)

   Operation at plant end of circuit.

   A. ENS Characteristics

      1. Red color

      2. Used for notifications of NRC Headquarters. Region V NRC Office can be patched into this line.

      3. Commercial telephones and FTS backup the ENS.

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

   C. Outgoing call to NRC Operations Center.

      1. Control Room (CR) or Shift Supervisor's Office (SSO) or Technical Support Center (TSC) initiates call.

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

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

         c. Emergency Operations Facility (EOF) ENS phone lamp blinks.

         d. NRC 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. No indication at any plant location.

NOTE: The ENS circuit does not have privacy feature.

D. 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.

E. 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

F. Site Package Configuration

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

2. Notification and Alert Net

A. NAN Characteristics

1. Gold color

2. Group Ring-down Circuit which may bypass onsite and local offsite switches.

3. PVNGS onsite NAN locations:

a. STSCs

b. TSC

4. Offsite NAN locations

a. EOF

b. State EOC

c. ARRA

d. DPS

e. MSCO

f. County EOC

5. Battery backup is provided for all terminals and conference bridges.

B. Description

1. Phone terminal sets are equipped with "Push to Call" pushbutton and "Call Received" lamp as well as standard straight line ringer.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

2. A loop-back function is provided to check both transmit and receive legs of each terminal from any point in the system.

3. The Interface/Controller contains a front panel meter and two green LEDs for battery capacity and battery charger status. Depress the pushbutton to check voltage level.

C. Operation

1. To originate a call, depress "Push to Call" button momentarily. This provides ringing to associated phones and turns on the "Call Received" lamp. Taking the phone off the hook cancels both bell and lamp.

2. A very low ringback signal is returned to the caller from all ringing phones to assure that the call is received by all parties. The signal is sufficiently low to allow conversation among all off-hook phones although others are still in the ringing mode.

3. Radio System

A. Characteristics

1. Eight channel system. Channel eight is backup for NAN.

2. System includes: two speaker amplifier, transmit VU meter; digital clock, microphone, amplifier for all transmit audio, interlocking channel select switches.

3. One speaker monitors all unselected channels, second speaker monitors the selected channel.

4. Selective and group call capabilities.

B. Operation

1. Depress eight channel button.

2. Depress TRANSMIT switch.

3. Utilize MONITOR, CALL, MUTE, BUSY and other functions as appropriate.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Locations

1. STSC
2. EOF
3. TSC
4. ARRA
5. ADES

4. Group Ring-Down Voice Circuits

A. Characteristics

1. Gold color
2. Used for transmission of technical information to office agencies, public affairs communications and communications of protective action recommendations to offsite agencies.
3. NAN is backup for communication of protective action recommendations.
4. Two independant circuits using Mountain Bell leased-lines and bypasing onsite and offsite switches - primary links.
5. Two independant circuits using APS microwave system - backup links.
6. Group call communications only.
7. Locations

Leased-Line Circuits		APS Microwave Circuits	
#1	#2	#1	#2
TSC	TSC	TSC	TSC
EOF	EOF	EOF	EOF
STSCs		STSCs	
ADES	ADES	ADES	ADES
ARRA	ARRA	ARRA	ARRA

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

5. Ring-Down Facsimile Circuits

A. Characteristics

1. Two independant circuits used for transmission of technical drawing and data. Primary circuit uses Mountain Bell leased lines bypassing onsite and offsite switches. Backup circuit utilizes APS microwave system.

2. STSC telecopier can connect to either the primary or backup circuits. The STSC machines must be lined to the proper circuit to receive transmissions. Telecopier is auto-answer with phone in parallel for voice communications.

3. Capabilities include group or station-to-station transmission.

4. Locations (leased-line and APS microwave)

a. EOF

b. TSC

c. STSC (must be switched to proper circuit)

d. CEC

e. ADES

f. ARRA

6. Federal Telecommunications System (FTS)

A. FTS Characteristics

1. Brown color

2. Used for transmittal of radiological information by NRC personnel onsite to NRC personnel at Bethesda and Regional Offices.

3. Backup to ENS and commercial lines for NRC notifications.

4. PVNGS onsite locations

a. EOF - NRC Office

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. TSC - NRC Office and Data Display Room

c. EOF - Emergency Command Center Data Display Area

d. NRC Resident Inspector's Office

e. Radiation Protection Office

7. Mobile Radio Telephone System

A. Operation

1. Dial the designated seven digit number.

8. Paging System

A. Characteristics

1. Two systems operated from Phoenix Microwave Center and PVNGS. The PVNGS System can access the Phoenix System via microwave ties.

2. Activation of onsite pagers used in plant operation takes precedence over system-wide orders for pager activation.

B. Operation

1. Select appropriate six digit address. From PVNGS, use the 81 prefix prior to accessing the Phoenix terminal and dial the six digit number.

2. The first two digits of the six digit number access the paging terminal; 46 for Phoenix and 88 for PVNGS.

3. The third digit is a priority digit. Priority One (1) will activate two or more paging transmitters. Priority Two (2) will activate the transmitter nearest the paged individuals work area.

4. The last three digits are the specific address of individuals to receive the calls.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

9. Call-Out System (Auto Dialer)

A. Characteristics

1. Used by the Security Director to call in PVNGS emergency response personnel.

2. Capability to contact by telephone, radio, or voice pocket pager.

3. After dialing, the System will speak the appropriate message and record acknowledgment. If acknowledgment does not occur (no answer or busy), the system will periodically retry the number.

B. Operations

1. Turn enable/disable switch to enable position.

2. Select operating instructions from display.

"P" Program Phone Lists
"S" Start Notification Sequence
"C" Compose Message
"T" Time Set
"N" Notification Repetition Programming
"A" Acknowledge Code Programming
"M" Message Repetition Programming

3. Select appropriate preprogrammed telephone number list (1 to 8) or "new" for lists not programmed.

4. If message and telephone number list are preprogrammed, selection of that list and message may be accomplished on the front panel or by depressing "S".

5. If a new message is required, type the message on the terminal keyboard and enter.

6. The printer records acknowledgment status and time.

7. The System continues dialing and message delivery attempts until either all numbers acknowledge or the programmed number of repetitions has been completed.

THE PHONETIC ALPHABET

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIETT	W	WHISKEY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU

PROTECTIVE ACTION RECOMMENDATIONS

Classification Category	Protective Actions Recommendations
Site Area Emergency- any releases are not expected to exceed EPA/PAG exposures levels beyond the site boundary unless further degradation of safety systems occur.	Inform state and county authorities of Site Area Emergency status/cause and recommend seeking shelter within a 2 mile radius of the plant and within 10 miles in affected sectors as warranted based on plant/containment conditions and projected and/or actual releases.

SITE AREA EMERGENCY IMPLEMENTING PROCEDURES

EPIP-01*	Emergency Organization
EPIP-02*	Emergency Classification
EPIP-09*	Emergency Coordinator
EPIP-11*	Technical Support Center/Satellite TSC Activation
EPIP-12*	Operations Support Center Activation
EPIP-13*	Emergency Operations Facility Activation
EPIP-14A	Release Rate Determination
EPIP-14B	Dose Assessment
EPIP-15*	Protective Action Guidelines
EPIP-16	Inplant Surveys and Sampling
EPIP-17	Onsite/Offsite Surveys and Sampling
EPIP-18	Emergency Exposure Guidelines
EPIP-19	Onsite Evacuation
EPIP-20*	Personnel Assembly and Accountability
EPIP-21	Search and Rescue
EPIP-22	Personnel Injury
EPIP-23	Fire Fighting
EPIP-24	Security
EPIP-25	Reentry for Emergency Operations
EPIP-26	Potassium Iodine (KI) Administration
EPIP-27	Sample Analysis at the Station
EPIP-27A	Handling, Transfer and Shipments of Postaccident Grab Samples
EPIP-28	Personnel Monitoring and Decontamination
EPIP-29	Area/Equipment Monitoring and Decontamination
EPIP-30	Radiological Emergency Response Vehicle Operations
EPIP-31	Recovery
EPIP-33	Offsite Assistance
EPIP-39*	Emergency Operations Director (EOD)
EPIP-40*	Administrative and Logistics Coordinator (ALC)
EPIP-41*	Radiological Assessment Coordinator (RAC)"
EPIP-42*	Technical Analysis Coordinator (TAC)
EPIP-43*	Radiological Assessment Communicator (RACom)
EPIP-44*	TSC Liaison Engineer (TLE)
EPIP-45*	Government Liaison Engineer (GLE)
EPIP-46*	EOF Contact
EPIP-47*	Logistics Communicator
EPIP-48*	Security Coordinator
EPIP-49*	Dosimetry Clerk
EPIP-50*	Status Board Keeper (SBK)
EPIP-51*	Offsite Technical Representative (OTR)
EPIP-52*	JENC Technical Advisor
EPIP-53	Government Staffing at TSC
EPIP-54	Government Staffing at EOF
EPIP-55*	TSC/EOF Personnel Identification

* This procedure shall be implemented for a SITE AREA EMERGENCY classification.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-06	3
GENERAL EMERGENCY IMPLEMENTING ACTIONS	REVISION 3	Page 1 of 29

ASSIGNED COPY

PVNGS # 8-9B

DEPT. HEAD D. F. Lundgren DATE 7/6/84

PRB/PRG REVIEW D. F. Lundgren DATE 7/16/84

APPROVED BY D. F. Lundgren DATE 7/26/84

EFFECTIVE DATE 8-6-84

DN-160[illegible]/0787A

PV216-00DA (8/82)

3

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3

1.0 OBJECTIVE

1.1 This procedure provides a series of implementing actions to be taken upon declaration of a GENERAL EMERGENCY.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-09, "Emergency Coordinator"

2.1.3 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.4 EPIP-12, "Operations Support Center Activation"

2.1.5 EPIP-13, "Emergency Operations Facility Activation"

2.1.6 EPIP-15, "Protective Action Guidelines"

2.1.7 EPIP-19, "Onsite Evacuation"

2.1.8 EPIP-20, "Personnel Assembly and Accountability"

2.1.9 EPIP-33, "Offsite Assistance"

2.1.10 EPIP-39, "Emergency Operations Director (EOD)"

2.1.11 EPIP-40, "Adminstrative and Logistics Coordinator (ALC)"

2.1.12 EPIP-41, Radiological Assessment Coordinator (RAC)"

2.1.13 EPIP-42, "Technical Analysis Coordinator (TAC)"

2.1.14 EPIP-43, "Radiological Assessment Communicator (RACom)"

2.1.15 EPIP-44, "TSC Liaison Engineer (TLE)"

2.1.16 EPIP-45, "Government Liaison Engineer (GLE)"

2.1.17 EPIP-46, "EOF Contact"

2.1.18 EPIP-47, "Logistics Communicator"

2.1.19 EPIP-48, "Security Coordinator"

2.1.20 EPIP-49, "Dosimetry Clerk"

2.1.21 EPIP-50, "Status Board Keeper (SBK)"

2.1.22 EPIP-51, "Offsite Technical Representative (OTR)"

2.1.23 EPIP-52, "JENC Technical Advisor"

2.1.24 EPIP-55, "TSC/EOF Personnel Identification"

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. 3

2.2.3 78AC-0ZZ06, "Document and Record Turnover Control", Rev. 0

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Continued surveillance and assessment of plant conditions are 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, events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Radioactive releases which may occur can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. There is prompt notification of NRC and appropriate State and County authorities of the General Emergency status.

4.1.2 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 shall be initiated if appropriate. The station shall provide updated radiological/meteorological information to offsite emergency management organizations as necessary. The GENERAL EMERGENCY status shall be maintained until the event is terminated or reclassification takes place.

4.1.3 The Shift Supervisor or the Emergency Coordinator shall be responsible for initiating and completing the implementing actions of this procedure.

4.2 Prerequisites

4.2.1 The emergency has been classified per EPIP-02, "Emergency Classification".

4.3 Instructions

4.3.1 The affected unit Shift Supervisor shall perform the following:

NOTE

Designated Unaffected Unit Shift Supervisor to assume the role of the Emergency Coordinator in the Onshift Emergency Organization are:

Affected Unit	Unaffected Unit Shift Supervisor
Unit 1	Unit 2
Unit 2	Unit 1
Unit 3	Unit 2
Entire Site	Unit 1

4.3.1.1 Notify the Shift Supervisor of the designated unaffected unit (or Shift Supervisor of an unaffected unit) to report to the Control Room of the affected unit and assume the duties of the Emergency Coordinator.

3

NOTE

Initial notifications shall be made from the Satellite TSC by the Satellite TSC Communicator until activation of the EOF. At that time all subsequent initial and follow up notifications shall be made by the Government Liaison Engineer in the EOF.

NOTE

Protective Action recommendations (Appendix D) are based on plant and containment conditions and these recommendations are made to offsite officials even when no release is in progress.

4.3.1.2 Direct the Satellite TSC Communicator to fill out Appendix A, "Initial Emergency Message Form", in accordance with instructions provided in Appendix B.

4.3.1.3 Sound the Site Area Accountability signal for approximately one minute.

4.3.1.4 Silence the signal and provide the following announcement over the plant wide telephone page:

"Attention all plant personnel, an emergency situation classified as a General Emergency exists in Unit _____. Assembly and accountability for the site area is now in progress. All affected Unit Emergency Response Personnel and alternates report to your emergency location. All other personnel report to your assigned assembly area". (Provide instructions on routes or areas to avoid as appropriate).

4.3.1.5 Resound the accountability signal and repeat the announcement.

4.3.1.6 Notify the Control Rooms of the unaffected units.

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

3

4.3.2 The Emergency Coordinator shall perform the following:

4.3.2.1 Ensure activation of the satellite TSC in accordance with EPIP-11, "Technical Support Center/Satellite TSC Activation."

4.3.2.2 Following accountability, and if conditions warrant per EPIP-15, "Protective Action Guidelines", initiate EPIP-19, "Onsite Evacuation".

4.3.2.3 Implement additional Emergency Plan Implementing Procedures according to the situation that resulted in the emergency being classified as a GENERAL EMERGENCY. Procedures that shall be implemented and others which may be appropriate are identified in Appendix E.

4.3.2.4 Direct the Security Director 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 the STSC Communicator (onshift) or Administrative and Logistics Coordinator to contact the required agency per EPIP-33, "Offsite Assistance".

4.3.2.6 Reevaluate the emergency classification and perform licensee actions as conditions change by implementing procedure EPIP-02.

4.3.2.7 When the situation warrants downgrading from a GENERAL EMERGENCY, proceed to appropriate implementing and notification procedures and direct the Shift Supervisor to announce the downgrading over the public address system and inform the other Control Rooms.

4.3.2.8 The Emergency Coordinator shall initiate and complete implementing actions of EPIP-09 "Emergency Coordinator".

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

4.3.3.1 The Emergency Coordinator shall implement procedure EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.4 Operations Support Center (OSC) Activation

4.3.4.1 The OSC Coordinator shall implement procedure EPIP-12, "Operations Support Center Activation".

4.3.5 Emergency Operations Facility (EOF) Activation

4.3.5.1 The Emergency Operations Director shall implement procedure EPIP-13, "Emergency Operations Facility Activation".

4.3.6 Emergency Situation Terminated

4.3.6.1 The Shift Supervisor (or Emergency Coordinator) shall Sound the "All Clear" signal for approximately (1) minute, Silence the signal, and Provide the following announcements over the plant wide paging system: "Attention all personnel. The emergency situation declared in Unit _____ has now been terminated. (Provide special instructions as necessary.)

4.3.6.2 Repeat signal and announcement once.

4.3.7 Updating of the Emergency Notification Call List

4.3.7.1 The telephone numbers and responsible contacts listed in the Emergency Notification Call List shall be reviewed, verified, and updated as required on a quarterly basis.

4.3.8 Record Retention

4.3.8.1 The forms of Appendix A shall be turned into the Emergency Coordinator/Emergency Operations Director who shall ensure they are forwarded to DDC for proper storage.

INITIAL EMERGENCY MESSAGE FORM
NOTIFICATION OF UNUSUAL EVENT,
ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One)
THIS IS PALO VERDE NUCLEAR GENERATING STATION (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
(cross out notifications above not applicable)

declared at _____ (time) - _____ (date) - Wind is from _____ degrees - At _____ (speed) mph.

PALO VERDE AUTHENTICATOR _____ (authenticator letters)

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

3. (Circle One)

(a) There is NO, repeat NO, radioactive release taking place and no special protective actions are recommended at this time.

OR

(b) There is NO, repeat NO, radioactive release taking place, however, the following protective actions are recommended at this time.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(c) A radioactive release IS, repeat IS, taking place. We recommend that people in affected sectors remain indoors with windows and doors closed.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

OR

(d) A radioactive release IS, repeat IS, taking place. We recommend that evacuation of affected sectors be considered.

Sectors	Distance (Miles)
_____	_____
_____	_____
_____	_____

4. THIS IS (IS NOT) A DRILL!! (Circle One)

FOLLOW-UP EMERGENCY MESSAGE FORM

1. Verbatim text of Message: THIS IS (IS NOT) A DRILL!! (Circle One)
   THIS IS A PALO VERDE NUCLEAR GENERATING STATION follow-up information message concerning the (NOTIFICATION OF UNUSUAL EVENT) (ALERT) (SITE AREA EMERGENCY) (GENERAL EMERGENCY)
   (cross out notifications above not applicable)

   declared at _____ - _____
   (time) (date)

   PALO VERDE AUTHENTICATOR _____
   (authenticator letters)

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

3. Meteorological Data

   a. Wind direction from _____ (degrees) - at _____ miles per hour
      (direction) (speed)

      from _____ to _____
      (sector) (sector)

   b. Stability Class: A B C D E F G
      (Circle One)

   c. Precipitation Yes No
      (Circle One)

4. Radiological Data

   a. Radioactvity (check one)

      ( ) Has been released
      ( ) Has not been released

3

4. b. Release Time _____

   c. Reactor Trip Time _____

   d. Location/Source of Release _____

5. Current Release Rates

   a. I-131 Equivalent _____ Ci/second
   b. Noble Gas _____ Ci/second
   c. Particulates _____ Ci/second

6. Two-hour plume centerline projected dose at:

Distance	Sector	Whole Body Dose (REM)	Child Thyroid Dose Commitment (REM)
Site Boundary			
2 miles			
5 miles			
10 miles			

7. Plume arrival time offsite:

   _____ 2 mi
   _____ 5 mi
   _____ 10 mi
   _____ Ruth Fisher School
   _____ Arlington School

8. Estimated duration of release _____ minutes

3

9. The Following Emergency Measures Including Protective Actions are Recommended:

_____

_____

_____

10. The Following Emergency Reponse Actions are Underway:

_____

_____

_____

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

_____

_____

_____

12. Our Prognosis of the Emergency is that Conditions:

_____Are Under Control
_____Can Be Expected to Terminate Within _____hours
_____Are Worsening

13. Other Information:

_____

_____

_____

14. THIS IS (IS NOT) A DRILL!! (Circle One)

3

EMERGENCY NOTIFICATION CALL LIST

EMERGENCY COORDINATOR/ETSC COMMUNICATOR (Sheet 1 of 2)

AGENCY OR INDIVIDUAL	PERSON CONTACTED	PRIMARY LINE	ALTERNATE LINE	ALTERNATE LINE	DATE/TIME	CALLER
Arizona Department of Public Safety	_____	NAR	Radio System Channel 8 Frequency		__/__	_____
Arizona Radiation Regulatory Agency	_____	NAR	Radio System Channel 8 Frequency		__/__	_____
Arizona Division of Emergency Services	_____	NAR	Radio System Channel 3 Frequency		__/__	_____
Maricopa County Department of Civil Defense and Emergency Services	_____	NAR	Radio System Channel 8 Frequency		__/__	_____
Maricopa County Sheriff's Office	_____	NAR	Radio System Channel 8 Frequency		__/__	_____
Director, Nuclear Operations	[Jon Brons (Primary)]			(None)	__/__	_____
	[G.J. Arlington (Alt.)]			FTS	__/__	_____
Assistant Vice President, Nuclear	[Don Karner (Primary)]				__/__	_____
	[John Allen (Alt.)]				__/__	_____
	[John Vorees (Alt.)]				__/__	_____
NRC Headquarters	_____			(None)	__/__	_____
NRC Resident Inspector	[Gaston Fiorelli]			(None)	__/__	_____
Executive Vice President, Nuclear Operations	[Tom Woodyard, Jr.]			(None)	__/__	_____
	[All Security (Alt.)]			(None)	__/__	_____

3

EMERGENCY NOTIFICATION CALL LIST (CONT'D)

ENLARGENCY COORDINATOR/STSC COMMUNICATOR (Sheet 2 of 2)

AGENCY or INDIVIDUAL	PERSON CONTACTED	PRIMARY LINE	ALTERNATE LINE	DATE/TIME	CALLER
Public Information	Duty Public Info		(None)	__/__	_____
APS Communications Department		Gene Brand (Primary)	(None)	__/__	_____
		Jack Swift (Alt.)	(None)	__/__	_____
PVNGS Visitors Center	_____		(None)	__/__	_____
APS Site Construction	_____		(None)	__/__	_____
Buckeye Emergency Control Center	_____		(None)	__/__	_____
INPO	_____		(None)	__/__	_____
APS Dispatcher	_____	Dispatch Telephone		__/__	_____

INSTRUCTIONS FOR COMPLETING APPENDIX A

1.0 INITIAL EMERGENCY MESSAGE FORM

1.1 Fill in data required by steps 1 and 2 of Appendix A, "Initial Emergency Message Form". Obtain authenticator from the confidential envelope marked on the outside with the appropriate month and drill sequence number (if it is a drill).

1.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete step 3 of Appendix A.

1.3 Circle appropriate wording of step 4 of Appendix A.

1.4 Contact the NRC via the Emergency Notification System (ENS) dedicated telephone within 15 minutes of declaring an emergency. If the ENS fails, use commercial phone or FTS phone as an alternate link (see Appendix G).

1.5 When contact is made, the caller shall identify himself and read the completed Emergency Message Form verbatim (omit the Palo Verde Authenticator).

1.6 Offer to repeat information and reiterate as necessary.

1.7 Obtain the name of the person contacted and record in Appendix A, Emergency Notification Call List, Emergency Coordinator/STSC Communicator.

NOTE

When the NAN ring button is pushed and it appears that all the receiving stations are on line, or, the ring has stopped, the PVNGS originating station shall initiate a roll call in the order listed below. (Consider the time of day.)

1.8 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)

Maricopa County Sheriffs Office
Maricopa County Department of Civil Defense and Emergency Services
Arizona Department of Public Safety
Arizona Division of Emergency Services
Arizona Radiation Regulatory Agency

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: a.m., Monday-Friday, all day Saturday and Sunday)

Maricopa County Sheriff's Office
Department of Public Safety

1.9 When contact is made, the caller shall identify himself and request that the individuals obtain a copy of the Appropriate Emergency Message Form.

1.10 When each individual has obtained a copy, read the completed Emergency Message Form verbatim and request MCSO to read back verbatim.

1.11 Offer to repeat information and reiterate as necessary.

1.12 Obtain the name of each person contacted and record on Appendix A.

1.13 Notify additional personnel as listed in Appendix A as necessary, obtain the name of the person contacted, and inform them of the situation.

1.14 If an individual requests information not contained in the Emergency Message Form, make reasonable efforts to obtain and give the information only after all initial notification have been made.

3

2.0 FOLLOW-UP EMERGENCY MESSAGE FORM

2.1 Fill in data required by steps 1 and 2 of Appendix A, "Follow-up Emergency Message Form". Use the same authenticator code obtained for the "Initial Emergency Message Form".

2.2 Obtain from the Radiation Protection Monitor (onshift) data required to complete steps 3-9.

2.3 Obtain from the Emergency Coordinator (onshift) data required to complete steps 10-13.

2.4 Circle appropriate wording in step 14.

2.5 Notify NRC, state and county agencies per steps 1.4-1.14 of this Appendix.

NOTIFICATION SYSTEMS USER'S GUIDE

1. Emergency Notification System (ENS)

Operation at plant end of circuit.

A. ENS Characteristics

1. Red color

2. Used for notifications of NRC Headquarters. Region V NRC Office can be patched into this line.

3. Commercial telephones and FTS backup the ENS.

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

C. Outgoing call to NRC Operations Center.

1. Control Room (CR) or Shift Supervisor's Office (SSO) or Technical Support Center (TSC) initiates call.

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

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

c. Emergency Operations Facility (EOF) ENS phone lamp blinks.

d. NRC 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. No indication at any plant location.

NOTE: The ENS circuit does not have privacy feature.

D. 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.

E. 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.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

F. Site Package Configuration

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

2. Notification and Alert Net

A. NAN Characteristics

1. Gold color

2. Group Ring-down Circuit which may bypass onsite and local offsite switches.

3. PVNGS onsite NAN locations:

a. STSCs

b. TSC

4. Offsite NAN locations

a. EOF

b. State EOC

c. ARRA

d. DPS

e. MSCO

f. County EOC

5. Battery backup is provided for all terminals and conference bridges.

B. Description

1. Phone terminal sets are equipped with "Push to Call" pushbutton and "Call Received" lamp as well as standard straight line ringer.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

2. A loop-back function is provided to check both transmit and receive legs of each terminal from any point in the system.

3. The Interface/Controller contains a front panel meter and two green LEDs for battery capacity and battery charger status. Depress the pushbutton to check voltage level.

C. Operation

1. To originate a call, depress "Push to Call" button momentarily. This provides ringing to associated phones and turns on the "Call Received" lamp. Taking the phone off the hook cancels both bell and lamp.

2. A very low ringback signal is returned to the caller from all ringing phones to assure that the call is received by all parties. The signal is sufficiently low to allow conversation among all off-hook phones although others are still in the ringing mode.

3. Radio System

A. Characteristics

1. Eight channel system. Channel eight is backup for NAN.

2. System includes: two speaker amplifier, transmit VU meter; digital clock, microphone, amplifier for all transmit audio, interlocking channel select switches.

3. One speaker monitors all unselected channels, second speaker monitors the selected channel.

4. Selective and group call capabilities.

B. Operation

1. Depress eight channel button.

2. Depress TRANSMIT switch.

3. Utilize MONITOR, CALL, MUTE, BUSY and other functions as appropriate.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

C. Locations

1. STSC
2. EOF
3. TSC
4. ARRA
5. ADES

4. Group Ring-Down Voice Circuits

A. Characteristics

1. Gold color
2. Used for transmission of technical information to office agencies, public affairs communications and communications of protective action recommendations to offsite agencies.
3. NAN is backup for communication of protective action recommendations.
4. Two independant circuits using Mountain Bell leased-lines and bypasing onsite and offsite switches - primary links.
5. Two independant circuits using APS microwave system - backup links.
6. Group call communications only.
7. Locations

Leased-Line Circuits	
#1	#2
TSC	TSC
EOF	EOF
STSCs	
ADES	ADES
ARRA	ARRA

APS Microwave Circuits	
#1	#2
TSC	TSC
EOF	EOF
STSCs	
ADES	ADES
ARRA	ARRA

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

5. Ring-Down Facsimile Circuits

A. Characteristics

1. Two independant circuits used for transmission of technical drawing and data. Primary circuit uses Mountain Bell leased lines bypassing onsite and offsite switches. Backup circuit utilizes APS microwave system.

2. STSC telecopier can connect to either the primary or backup circuits. The STSC machines must be lined to the proper circuit to receive transmissions. Telecopier is auto-answer with phone in parallel for voice communications.

3. Capabilities include group or station-to-station transmission.

4. Locations (leased-line and APS microwave)

a. EOF

b. TSC

c. STSC (must be switched to proper circuit)

d. CEC

e. ADES

f. ARRA

6. Federal Telecommunications System (FTS)

A. FTS Characteristics

1. Brown color

2. Used for transmittal of radiological information by NRC personnel onsite to NRC personnel at Bethesda and Regional Offices.

3. Backup to ENS and commercial lines for NRC notifications.

4. PVNGS onsite locations

a. EOF - NRC Office

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

b. TSC - NRC Office and Data Display Room

c. EOF - Emergency Command Center Data Display Area

d. NRC Resident Inspector's Office

e. Radiation Protection Office

7. Mobile Radio Telephone System

A. Operation

1. Dial the designated seven digit number.

8. Paging System

A. Characteristics

1. Two systems operated from Phoenix Microwave Center and PVNGS. The PVNGS System can access the Phoenix System via microwave ties.

2. Activation of onsite pagers used in plant operation takes precedence over system-wide orders for pager activation.

B. Operation

1. Select appropriate six digit address. From PVNGS, use the 81 prefix prior to accessing the Phoenix terminal and dial the six digit number.

2. The first two digits of the six digit number access the paging terminal; 46 for Phoenix and 88 for PVNCS.

3. The third digit is a priority digit. Priority One (1) will activate two or more paging transmitters. Priority Two (2) will activate the transmitter nearest the paged individuals work area.

4. The last three digits are the specific address of individuals to receive the calls.

NOTIFICATION SYSTEMS USER'S GUIDE (CONT'D)

9. Call-Out System (Auto Dialer)

A. Characteristics

1. Used by the Security Director to call in PVNGS emergency response personnel.

2. Capability to contact by telephone, radio, or voice pocket pager.

3. After dialing, the System will speak the appropriate message and record acknowledgment. If acknowledgment does not occur (no answer or busy), the system will periodically retry the number.

B. Operations

1. Turn enable/disable switch to enable position.

2. Select operating instructions from display.

"P" Program Phone Lists
"S" Start Notification Sequence
"C" Compose Message
"T" Time Set
"N" Notification Repetition Programming
"A" Acknowledge Code Programming
"M" Message Repetition Programming

3. Select appropriate preprogrammed telephone number list (1 to 8) or "new" for lists not programmed.

4. If message and telephone number list are preprogrammed, selection of that list and message may be accomplished on the front panel or by depressing "S".

5. If a new message is required, type the message on the terminal keyboard and enter.

6. The printer records acknowledgment status and time.

7. The System continues dialing and message delivery attempts until either all numbers acknowledge or the programmed number of repetitions has been completed.

3

THE PHONETIC ALPHABET

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIETT	W	WHISKEY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU

3

PROTECTIVE ACTION RECOMMENDATIONS

Classification Category	Protective Actions Recommendations
1. A General Emergency has been declared if: (imminent/actual loss of physical control of the plant)	Consider a (2) mile precautionary evacuation.
2. A General Emergency has been declared and large amounts of fission products are in the containment atmosphere. The projected dose using containment area monitor readings is calculated to be: a) whole body > 5 rem b) thyroid > 25 rem	In addition to considering a 2) mile evacuation, consider a 5 mile downwind evacuation of potentially affected sectors.*
3. A General Emergency has been declared and containment failure leading to a direct atmospheric release is likely in the sequence but <u>not</u> imminent and large amounts of fission products in addition to noble gases are in the containment atmosphere. The projected does using containment area monitor readings is calculated to be: a) whole body > 5 rem b) thyroid > 25 rem	In addition to considering a two (2) mile 360° precautionary evacuation, consider a precautionary 360° evacuation to 5 miles and a downwind evacuation to 10 miles of potentially affected sectors. *
4. A General Emergency has been declared and large amounts of fission products other than noble gases in the containment atmosphere and containment <u>failure</u> is <u>judged imminent</u>. The projected dose using containment area monitor readings is calculated to be: a) whole body > 5 rems b) thyroid > 25 rems	In addition to considering a two (2) mile 360° precautionary evacuation consider a precautionary 360° evacuation to 5 miles and a downwind evacuation to 10 miles of potentially affected sectors,* and consider shelter for areas where evacuation cannot be completed before the transport of activity to those areas.

* Plume width is equal to 3 sigma y (as a minimum, the downwind sectors and adjacent sectors).

3

PROTECTIVE ACTION RECOMMENDATIONS (CONT'D)

Classification Category	Protective Actions Recommendations
5. An actual release has occured and the projected does to individuals in the population is calculated to be: a) whole body $\geq$ 0.5 to $<$ 1 rem b) thyroid 1.0 to $<$ 5 rems	Recommend seeking shelter 360° for two (2) miles and in affected sectors out to 10 miles.
6. An actual release has occured and the projected does to individuals in the population is calculated to be: a) whole body $>$ 1 rem to $\leq$ 5 rems b) thyroid $>$ 5 rems to $\leq$ 25 rems	Recommend a 360° evacuation for two (2) miles and in affected sectors* out to 10 miles. Recommend seeking shelter 360° out to 10 miles.
7. An actual release has occured and the projected does to individuals in the population is calculated to be: a) whole body $>$ 5 rems b) thyroid $>$ 25 rems	Recommend a 360° evacuation for five (5) miles and in affected sectors* out to 10 miles. Recommend seeking shelter 360° out to 10 miles.

* Plume width is equal to 3 sigma y (as a minimum, the downwind sector(s) and adjacent sectors).

3

GENERAL EMERGENCY IMPLEMENTING PROCEDURES

EPIP-02 *Emergency Classification
EPIP-09 *Emergency Coordinator
EPIP-11 *TSC/STSC Activation
EPIP-12 *Operations Support Center Activation
EPIP-13 *Emergency Operations Facility Activation
EPIP-14A Release Rate Determination
EPIP-14B Dose Assessment
EPIP-15 *Protective Action Guidelines
EPIP-16 Inplant Surveys and Sampling
EPIP-17 Onsite/Offsite Surveys and Sampling
EPIP-18 Emergency Exposure Guidelines
EPIP-19 Onsite Evacuation
EPIP-20 *Personnel Assembly and Accountability
EPIP-21 Search and Rescue
EPIP-22 Personnel Injury
EPIP-23 Fire Fighting
EPIP-24 Security
EPIP-25 Reentry for Emergency Operations
EPIP-26 Potassium Iodine (KI) Administration
EPIP-27 Sample Analysis at the Station
EPIP-27A Handling, Transfer and Shipment of Postaccident Grab Samples
EPIP-28 Personnel Monitoring and Decontamination
EPIP-29 Area/Equipment Monitoring and Decontamination
EPIP-30 Radiological Emergency Response Vehicle Operations
EPIP-31 Recovery
EPIP-33 Offsite Assistance
EPIP-39 *Emergency Operations Director (EOD)
EPIP-40 *Administrative and Logistics Coordinator (ALC)
EPIP-41 *Radiological Assessment Coordinator (RAC)"
EPIP-42 *Technical Analysis Coordinator (TAC)
EPIP-43 *Radiological Assessment Communicator (RACom)
EPIP-44 *TSC Liaison Engineer (TLE)
EPIP-45 *Government Liaison Engineer (GLE)
EPIP-46 *EOF Contact
EPIP-47 *Logistics Communicator
EPIP-48 *Security Coordinator
EPIP-49 *Dosimetry Clerk
EPIP-50 *Status Board Keeper (SBK)
EPIP-51 *Offsite Technical Representative (OTR)
EPIP-52 *JENC Technical Advisor
EPIP-53 Government Staffing at TSC
EPIP-54 Government Staffing at EOF
EPIP-55 *TSC/EOF Personnel Identification

* This procedure shall be implemented for a GENERAL EMERGENCY classification.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-09	
EMERGENCY COORDINATOR	REVISION 1	Page 1 of 49

ASSIGNED COPY

PVNCS # 8-9B

DEPT. HEAD O.K. Zimmerman DATE 7/6/84

PRB/PRG REVIEW M.L. Clyde DATE 7-11-84

APPROVED BY O.K. Zimmerman DATE 7/12/84

EFFECTIVE DATE ~~07-18-84~~ JM 07-16-84
07-16-84

DN-2348V/0569V

PV216-00DA (8/82)

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APPENDICES

Appendix A - Emergency Coordinator Checklist

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1.0 OBJECTIVE

To provide guidance to the Emergency Coordinator for overall control and coordination of onsite emergency response.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-01, "Emergency Organization"

2.1.2 EPIP-02, "Emergency Classification"

2.1.3 EPIP-03, "NOTIFICATION OF UNUSUAL EVENT Implementing Actions"

2.1.4 EPIP-04, "ALERT" Implementing Actions"

2.1.5 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.6 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.7 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.8 EPIP-12, "Operations Support Center Activation"

2.1.9 EPIP-13, "Emergency Operations Facility Activation"

2.1.10 EPIP-14A, "Release Rate Determination"

2.1.11 EPIP-14B, "Dose Assessment"

2.1.12 EPIP-15, "Protective Action Guidelines"

2.1.13 EPIP-16, "Inplant Surveys and Sampling"

2.1.14 EPIP-17, "Onsite/Offsite Surveys and Sampling"

2.1.15 EPIP-18, "Emergency Exposure Guidelines"

2.1.16 EPIP-19, "Onsite Evacuation"

2.1.17 EPIP-20, "Personnel Assembly and Accountability"

2.1.18 EPIP-21, "Search and Rescue"

2.1.19 EPIP-22, "Personnel Injury"

2.1.20 EPIP-23, "Fire Fighting"

2.1.21 EPIP-24, "Security"

2.1.22 EPIP-25, "Reentry for Emergency Operations"

2.1.23 EPIP-26, "Potassium Iodide (KI) Administration"

2.1.24 EPIP-27, "Sample Analysis at the Station"

2.1.25 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.26 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.27 EPIP-31, "Recovery"

2.1.28 EPIP-33, "Offsite Assistance"

2.1.29 EPIP-39, "Emergency Operations Director (EOD)"

2.1.30 78AC-0ZZ06, "Document And Record Turnover Control"

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. 3

2.2.3 ANSI N45.2.9-1974 "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 This procedure shall not take priority over the measures required to maintain or restore the plant to a safe operating condition.

3.2 This procedure does not replace any plant operating procedure or Emergency Plan Implementing Procedure. During an emergency condition, continue to use appropriate plant procedures in parallel with this and other Emergency Plan Implementing Procedures.

3.3 Notification of offsite authorities (federal, state and county) shall be provided within 15 minutes of declaring an emergency.

3.4 Continue surveillance and assessment of plant conditions is necessary to ensure that the emergency classification is appropriately revised. When conditions make the distinction between reclassification levels difficult, reclassify the event at the more conservative (severe) level.

3.5 After the Emergency Operations Facility (EOF) has been activated and the Emergency Operations Director (EOD) is in command, the Emergency Coordinator transfers responsibilities for notification of offsite agencies and protective action recommendations to the EOD.

3.6 The Emergency Coordinators Check List shall be retained for the life of the plant.

TS 7.6.3d 3.7 THE EMERGENCY COORDINATORS CHECK LIST SHALL BE TRANSMITTED TO DOC IN ACCORDANCE WITH 7943-02206.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

NOTE

The position of Emergency Coordinator (Onshift) is normally filled by the Shift Supervisor of the designated unaffected unit. In the Onsite organization the Emergency Coordinator position is filled by the Director of Nuclear Operations or his alternate, (Manager, Technical Support).

4.1.1 The Emergency Coordinator is the individual onsite with the responsibility and authority to immediately, and unilaterally initiate emergency actions, including providing notification and protective action recommendations to Governmental authorities responsible for implementing offsite emergency measures. The Emergency Coordinator provides overall direction and control of ONSHIFT emergency response and coordination of ONSITE emergency response.

4.1.2 During a NOTIFICATION OF UNUSUAL EVENT, direction and coordination of onshift emergency operations shall be provided by the Emergency Coordinator at the Satellite Technical Support Center (Satellite TSC). During an ALERT or more severe classification, emergency assessment and control shall initially be directed by the Emergency Coordinator from the Satellite TSC and transferred to the Technical Support Center (TSC) once it has been activiated as part of the onsite Emergency Organization.

4.1.3 The Emergency Coordinator has the following nondelegable responsibilities:

(1) Notifying emergency response personnel (both company and offsite emergency management agencies) until relieved of this responsibility by the Emergency Operations Director (EOD)

(2) Initiating activation of onsite and offsite emergency response organizations for an ALERT or higher level emergency classifications.

(3) Declaring changes in the emergency classification level.

(4) Providing protective action recommendations to offsite emergency management agencies until relieved of this responsibility by the Emergency Operations Director (EOD).

(5) Authorizing emergency worker exposures in excess of 10CFR20 limits up to emergency exposure limits of Appendix C, EPIP-18, "Emergency Exposure Guidelines".

(6) Determining the necessity for evacuation of non-essential personnel from the site and for evacuation of personnel from onsite emergency centers.

4.1.4 In addition, the Emergency Coordinator has the responsibility to:

(1) Coordinate all <u>onsite</u> emergency operations.

(2) Maintain communications with offsite emergency support groups.

(3) Authorize overtime and other expenses.

(4) Initiate the deployment of emergency teams as needed (i.e., search and rescue, emergency repair, field monitoring).

(5) In the absence of the Emergency Operations Director, make appropriate exceptions to QA/QC and plant Administrative Procedures during an ALERT or higher level emergency.

4.2 Prerequisites

4.2.1 The Shift Supervisor of the affected unit has declared an emergency of any level and he (or his designee) has notified the Shift Supervisor of the designated unaffected unit.

4.3 Insturctions

NOTE

Details related to the following instructions have been incorporated into Appendix A, "Emergency Coordinator Check List."

4.3.1 The Shift Supervisor of the designated unaffected unit should report immediately to the Control Room/Satellite TSC of the affected unit, assume the position of the Onshift Emergency Coordinator and begin completing the Emergency Coordinator Check List, Appendix A.

4.3.2 Per EPIP-11, "Technical Support Center/Satellite TSC Activation", ensure that the STSC emergency positions are staffed.

NOTE

Ensure that Federal, State and County emergency response organizations receive notification within 15 minutes of declaring an emergency.

4.3.3 For a NOTIFICATION OF UNUSUAL EVENT classification, the Emergency Coordinator implements EPIP-03, "NOTIFICATION OF UNUSUAL EVENT Implementing Actions".

4.3.4 For an ALERT or more sever classification, initiate, implementation of the following as appropriate: EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", EPIP-06, "GENERAL EMERGENCY Implementing Actions".

4.3.5 Reevalute the emergency classification as conditions change and as necessary reclassify the event per EPIP-02, "Emergency Classification."

4.3.6 Determine the need for offsite assistance and direct the STSC Communicator to make appropriate contacts per EPIP-33, "Offsite Assistance." Ensure the Security Director is informed to provide access for offsite assistance groups.

NOTE

Assembly and accountability of personnel in the protected area are mandatory for an ALERT or more severe classification. It is mandatory for all personnel onsite for SITE AREA EMERGENCY or GENERAL EMERGENCY. The Emergency Coordinator may authorize assembly and accountability at any time regardless of the emergency classification.

4.3.7 Per EPIP-20, "Personnel Assembly and Accountability," determine if the Shift Supervisor of the affected unit has sounded the proper emergency accountability signal. If not, do so.

4.3.8 Per EPIP-19, "Onsite Evacuation," determine the necessity for onsite evacuation for a SITE AREA EMERGENCY or GENERAL EMERGENCY classification.

4.3.9 As required, in conjunction with the TSC staff, direct the deployment of the Emergency Teams per:

(1) EPIP-16, Inplant Surveys and Sampling"

(2) EPIP-17, "Onsite/Offsite Surveys and Sampling"

(3) EPIP-21, "Search and Rescue"

(4) EPIP-22, "Personnel Injury"

(5) EPIP-23, "Fire Fighting

(6) EPIP-25, "Reentry for Emergency Operations"

(7) EPIP-28, "Personnel Monitoring and Decontamination"

(8) EPIP-29, "Area/Equipment Monitoring and Decontamination"

4.3.9.1 Per EPIP-18, "Emergency Exposure Guidelines," authorize exposures in excess of 10 CFR 20 limits up to Emergency Exposure Limits. Exposures in excess of Emergency Exposure Limits shall not be authorized.

4.3.9.2 Per EPIP-26, "Potassium Iodide (KI) Administration," authorize administration of KI to emergency workers desiring to use it.

4.3.10 Direct the Security Director to limit access and/or expedite access to the plant site and emergency facilities per EPIP-24, "Security."

4.3.11 In accordance with EPIP-01, "Emergency Organization," EPIP-13, "Emergency Operations Facility Activation," and EPIP-39, "Emergency Operations Director", transfer the following responsibilities to the Emergency Operations Director upon activation of the EOF:

4.3.11.1 Overall command of APS emergency response

4.3.11.2 Notifications to federal, state and county response agencies.

4.3.11.3 Protective action recommendations

4.3.12 Advise the Emergency Operations Director when recovery is appropriate per EPIP-31, "Recovery."

CHECKLIST
NOTIFICATION OF UNUSUAL EVENT
STSC ACTIVATED

CAUTION

THIS CHECKLIST DOES NOT REPLACE ANY EMERGENCY PLAN IMPLEMENTING PROCEDURES NOR PLANT PROCEDURES.

POSITION FILLED BY: Onshift Organization

1) Shift Supervisor of the designated unaffected unit
2) Shift Supervisor of the affected unit

RESPONSIBILITY: The individual onsite with the responsibility and authority to immediately and unilaterally initiate emergency actions, including providing notification and protective action recommendations to Governmental Authorities responsible for implementing offsite emergency measures. Provide overall direction and control of the ONSHIFT Emergency response.

NOTE

Refer to the following pages for the appropriate emergency classification:

Classification	Appendix A Page
NOTIFICATION OF UNUSUAL EVENT	1 - 3
ALERT	4 - 7
SITE AREA EMERGENCY	8 - 11
GENERAL EMERGENCY	12 - 15

INITIAL RESPONSE TIME/INITIALS

1. Receive notification from the Shift Supervisor and report to the Control Room of the affected unit. _____/_____

CHECKLIST
NOTIFICATION OF UNUSUAL EVENT
STSC ACTIVATED

	TIME/INITIALS
2. Review plant status, initiating event, corrective actions and emergency classification with the Shift Supervisor per EPIP-02, "Emergency Classification."	____/____
3. Assume position of the onshift Emergency Coordinator per EPIP-01, "Emergency Organization."	____/____
4. Activate the Satellite STSC per EPIP-11, "Technical Support Center/Satellite TSC Activation."	____/____
5. Commence notification process per EPIP-03, "NOTIFICATION OF UNUSUAL EVENT Implementing Actions" or the direct STSC Communicator to do same.	____/____
(1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations.	____/____
(2) Notify federal, state and county agencies within 15 minutes from the time declaring an emergency.	____/____
(3) Notify the Director of Nuclear Operations and Assistant Vice President, Nuclear Production or direct STSC Communicator to do so.	____/____
(4) Notify Site Security	____/____
(5) Notify other locations in EPIP-03.	____/____
6. Verify personnel resources are on standby in the OSC	____/____
SUBSEQUENT RESPONSE	
7. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."	
(1) For a fire, dispatch the Fire Term and order the Security Director to contact the Bechtel or alternate Fire Department for assistance (if required).	____/____

CHECKLIST
NOTIFICATION OF UNUSUAL EVENT
STSC ACTIVATED

	TIME/INITIALS
(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance.	____/____
8. Determine the need for additional personnel and direct the Security Director to initiate call out.	____/____
9. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5.	____/____
10. Reevaluate the emergency classification as conditions change per EPIP-02, reclassify as necessary, use appropriate check list.	____/____
11. Reassess corrective and protective actions. Verify activities underway.	____/____
Recovery	
12. Consult with the Director of Nuclear Operations and federal state and county officials prior to closing out emergency.	____/____
13. Complete notification per EPIP-03 when emergency is closed out.	____/____
14. Within 24 hours of closeout from the NOTIFICATION OF UNUSUAL EVENT Classification, provide a written summary to offsite authorities.	____/____

Performed By _____ Date _____
Signature

CHECKLIST
ALERT
STSC ACTIVATED

INITIAL RESPONSE	TIME/INITIALS
1. Receive notification from the Shift Supervisor and report to the Control Room of the affected unit.	____/____
2. Review plant status, initiating event, corrective actions and emergency classification with the Shift Supervisor per EPIP-02, "Emergency Classification."	____/____
3. Assume position of the onshift Emergency Coordinator per EPIP-01, "Emergency Organization."	____/____
4. Activate the Satellite STSC per EPIP-11, "Technical Support Center/Satellite TSC Activation."	____/____
5. Commence notification process per EPIP-04, "ALERT IMPLEMENTING Actions" or direct the STSC Communicator to do so.	____/____
(1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations.	____/____
(2) Notify federal, state and county agencies within 15 minutes from the time of declaring an emergency.	____/____
(3) Notify the Director of Nuclear Operations and the Assistant Vice President, Nuclear Production or direct the Communicator to do so.	____/____
(4) Notify the APS Dispatcher and other locations in of EPIP-04.	____/____
(5) Notify Site Security.	____/____
(6) Direct the Security Director to call in the PVNGS onsite and offsite Emergency Organization personnel.	____/____
6. Verify personnel resources are on standby in the OSC.	____/____

CHECKLIST
ALERT
STSC ACTIVATED

SUBSEQUENT RESPONSE — TIME/INITIALS

7. Reevaluate the emergency classification as conditions change per EPIP-02 "Emergency Classification," reclassify as necessary, use appropriate check list. ____/____

8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."

   (1) For a fire, dispatch the Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required). ____/____

   (2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance. ____/____

9. Determine if protective action recommendations should be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines." ____/____

10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5. ____/____

11. Determine the need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance" and arrange access with the Security Director per EPIP-24, "Security." ____/____

Personnel Assembly and Accountability

12. Within 30 minutes of the protected area or site area Accountability Signal, receive a report on accountability in the protected area from the Security Director. ____/____

13. Be prepared to implement EPIP-21, "Search and Rescue." by providing necessary data to the OSC Coordinator. ____/____

Emergency Exposures and KI

14. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

CHECKLIST
ALERT
STSC ACTIVATED

		TIME/INITIALS
15.	As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiation Protection Monitor or Radiological Protection Coordinator.	____/____
	TSC Activation and Transfer to Authority	
16.	When relieved by the onsite Emergency Coordinator, provide a briefing and transfer responsibilities.	____/____
	OSC Activation	
17.	If a release is occurring, consult Appendix B or EPIP-12, "Operations Support Center Activation," to determine habitability of primary OSC.	____/____
18.	If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF).	____/____
	Security	
19.	As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact the Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system.	____/____
20.	Ensure the Security Director is appraised of offsite assistance reqests to arrange access.	____/____
	Corrective Actions	
21.	Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations."	____/____

CHECKLIST
ALERT
STSC ACTIVATED

TIME/INITIALS

Assessment Actions

22. Ensure that the Radiation Protection Monitor is obtaining needed data using EPIP-14A, "Release Rates Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Implant Surveys and Sampling" and EPIP-17, "Onsite/Offsite Surveys and Sampling." _____/_____

Protective Actions

23. Continue to evalute the need for providing Protective Action Recommendations to state and county agencies. _____/_____

24. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." _____/_____

Performed By _____ Date _____
Signature

CHECKLIST
SITE AREA EMERGENCY
STSC ACTIVATED

INITIAL RESPONSE	TIME/INITIALS
1. Receive notification from the Shift Supervisor and report to the Control Room of affected unit.	____/____
2. Review plant status, initiating event, corrective actions and emergency classification with the Shift Supervisor.	____/____
3. Assume the position of onshift Emergency Coordinator per EPIP-01, "Emergency Organization."	____/____
4. Activate the Satellite TSC per EPIP-11, "Technical Support Center/Satellite TSC Activation."	____/____
5. Commence notification process per EPIP-05, "SITE AREA EMERGENCY Implementing Actions" or the direct STSC Communicator to do so.	____/____
(1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations.	____/____
(2) Notify federal, state and county agencies within 15 minutes from the time of declaring an emergency.	____/____
(3) Notify the Director of Nuclear Operations and the Assistant Vice President, Nuclear Production or direct the STSC Communicator to do so.	____/____
(4) Notify the APS Dispatcher and other locations in EPIP-05.	____/____
(5) Notify Site Security.	____/____
(6) Direct the Security Director to call in the PVNGS onsite and offsite Emergency Organization Personnel.	____/____
6. Verify personnel resources are on standby in the OSC.	____/____

CHECKLIST
SITE AREA EMERGENCY
STSC ACTIVATED

SUBSEQUENT RESPONSE — TIME/INITIALS

7. Reevalute the emergency classification as conditions change per EPIP-02, reclassify as necessary, use appropriate checklist. ____/____

8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury." ____/____

   (1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required). ____/____

   (2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance. ____/____

9. Determine if protective action recommendations should be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines." ____/____

10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5. ____/____

11. Determine the need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance" and arrange access with the Security Director per EPIP-24, "Security." ____/____

Personnel Assembly and Accountability

12. Within 30 minutes of the Site Area Accountability Signal, receive a report on accountability in the protected area from the Security Director. ____/____

13. Receive a report on site accountability later.

14. Be prepared to implement EPIP-21, "Search and Rescue", by providing necessary data to the OSC Coordinator. ____/____

CHECKLIST
SITE AREA EMERGENCY
STSC ACTIVATED

TIME/INITIALS

Emergency Exposures and KI

15. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

16. As necessary, authorize administration of KI or emergency workers desiring to use it. Consult with the Radiation Protection Monitor. ____/____

TSC Activation and Transfer to Authority

17. When relieved by onsite Emergency Coordinator, provide a briefing and transfer responsibilities. ____/____

OSC Activation

18. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC. ____/____

19. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also unihabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF). ____/____

Security

20. As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system. ____/____

21. Ensure the Security Director is appraised of offsite assistance request to arrange access. ____/____

CHECKLIST
SITE AREA EMERGENCY
STSC ACTIVATED

TIME/INITIALS

Corrective Actions

22. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations." ____/____

Assessment Actions

23. Ensure that the Radiation Protection Monitor is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assesment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/Offsite Surveys and Sampling." ____/____

Protective Actions

24. Continue to evaluate the need for providing Protective Action recommendations to state and county agencies. ____/____

25. Determine need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." ____/____

26. Establish evacuation order, offsite reassembly area, evacuation route and inform the Security Director. ____/____

27. Order evacuation signal when the Security Director reports that preparations are complete. ____/____

Perform By _____ Date ____
Signature

CHECKLIST
GENERAL EMERGENCY
STSC ACTIVATED

INITIAL RESPONSE — TIME/INITIALS

1. Receive notification from the Shift Supervisor and report to the Control Room of affected unit. ____/____

2. Review plant status, initiating event, corrective actions and emergency classification with the Shift Supervisor. ____/____

3. Assume the position of onshift Emergency Coordinator per EPIP-01, "Emergency Organization." ____/____

4. Activate the Satellite TSC per EPIP-11, "Technical Support Center/Satellite TSC Activation." ____/____

5. Commence notification process per EPIP-06, "GENERAL EMERGENCY Implementing Actions" or direct STSC Communicator to do so. ____/____

   (1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations. ____/____

   (2) Notify federal, state and county agencies within 15 minutes from the time of declaring an emergency. ____/____

   (3) Notify the Director of Nuclear Operations and the Assistant Vice President, Nuclear Production or direct the STSC Communicator to do so. ____/____

   (4) Notify the APS Dispatcher and other locations in EPIP-06. ____/____

   (5) Notify Site Security.

   (6) Direct the Security Director to call in the PVNGS onsite and offsite Emergency Organization personnel. ____/____

6. Verify personnel resources are on standby in the OSC.

CHECKLIST
GENERAL EMERGENCY
STSC ACTIVATED

SUBSEQUENT RESPONSE — TIME/INITIALS

7. Reevaluate the emergency classification as conditions change per EPIP-02, reclassify as necessary, use appropriate checklist. ____/____

8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."

   (1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire dept. for assistance (if required). ____/____

   (2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance. ____/____

9. Determine if protective action recommendations should be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines." ____/____

10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5. ____/____

11. Determine need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance" and arrange access with the Security Director per EPIP-24, "Security." ____/____

Personnel Assembly and Accountability

12. Within 30 minutes of the Site Area Accountability Signal, receive a report on accountability in the protected area from the Security Director. ____/____

13. Receive a report on site accountability later. ____/____

14. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator. ____/____

CHECKLIST
GENERAL EMERGENCY
STSC ACTIVATED

TIME/INITIALS

Emergency Exposures and KI

15. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

16. As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiation Protection Monitor or Radiological Protection Coordinator. ____/____

TSC Activation and Transfer of Authority

17. When relieved by the onsite Emergency Coordinator provide a briefing and transfer responsibilities. ____/____

OSC Activation

18. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of primary OSC. ____/____

19. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF). ____/____

Security

20. As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system. ____/____

21. Ensure the Security Director is appraised of offsite assistance requests to arrange access. ____/____

22. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations." ____/____

CHECKLIST
GENERAL EMERGENCY
STSC ACTIVATED

		TIME/INITIALS
	Assessment Actions	
23.	Ensure that the Radiation Protection Monitor or is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling."	____/____
	Protective Actions	
24.	Continue to evaluate the need for providing Protective Action Recommendations to state and county agencies.	____/____
25.	Determine need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation."	____/____
26.	Establish evacuation order, offsite reassembly area, evacuation route and inform the Security Director.	____/____
27.	Order evacuation signal when the Security Director reports that preparations are complete.	____/____

Performed By _____ Date _____
Signature

CHECKLIST
ALERT
TSC ACTIVATED

CAUTION

THIS CHECK LIST DOES NOT REPLACE OTHER EMERGENCY PLAN IMPLEMENTING PROCEUDRES NOR PLANT PROCEDURES.

POSITION FILLED BY: Onsite Organization

1) Director of Nuclear Operations
2) Manager, Technical Support

RESPONSIBILITY: The individual onsite with the responsibility and authority to immediately and unilaterally initiate emergency actions, including providing notification and protective action recommendations to Governmental Authorities responsible for implementing offsite emergency measures. Provide for the control and Coordination of onsite emergency response.

NOTE

Refer to the following pages for the appropriate emergency classification:

Classification	Appendix A Page
ALERT	16 - 20
SITE AREA EMERGENCY	21 - 24
GENERAL EMERGENCY	25 - 28

CHECKLIST
ALERT
TSC ACTIVATED

INITIAL RESPONSE — TIME/INITIALS

1. Receive notification from the onshift Emergency Coordinator and report to TSC. Upon arrival, sign in on the TSC Staffing Board. ____/____

2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities per EPIP-01. ____/____

3. Brief TSC staff and evaluate adequacy of TSC activation. ____/____

4. Declare the TSC operational and inform the STSC, Control Rooms, EOF, APS Site Construction Office, Bechtel Emergency Control Center and Site Security. ____/____

5. As necessary, continue with or commence notification process per EPIP-04, "ALERT Implementing Actions," or direct a Communicator to do so. ____/____

   (1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations. ____/____

   (2) Notify federal, state and county agencies within 15 minutes from the time declaring an emergency. ____/____

   (3) Notify the APS Dispatcher and other locations in EPIP-04. ____/____

6. Verify personnel resources are on standby in the OSC. ____/____

SUBSEQUENT RESPONSE

7. Reevaluate the emergency classifications conditions change per EPIP-02, "Emergency Classification, "reclassify as necessary, use appropriate checklist. ____/____

8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury." ____/____

   (1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required). ____/____

CHECKLIST
ALERT
TSC ACTIVATED

TIME/INITIALS

(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance. ____/____

9. Determine if protective action recommendations should be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines." ____/____

10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5. ____/____

11. Determine the need for offsite support and direct a Communicator to call locations(s) in EPIP-33, "Offsite Assistance" and arrange access with the Security Director per EPIP-24, "Security." ____/____

Personnel Assembly and Accountability

12. Within 30 minutes of the Protected Area or Site Area Accountability Signal, receive a report on accountability in the protected area from the Security Director. ____/____

13. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator). ____/____

Emergency Exposures and KI

14. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

15. As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiological Protection Coordinator. ____/____

OSC Activation

16. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC. ____/____

CHECKLIST
ALERT
TSC ACTIVATED

		TIME/INITIALS
17.	If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF).	/
	EOF Activation	
18.	Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations.	/
	Security	
19.	As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system.	/
20.	Ensure the Security Director is appraised of offsite assistance requests to arrange access.	/
	Corrective Actions	
21.	Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations."	/
	Assessment Actions	
22.	Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling."	/

CHECKLIST
ALERT
TSC ACTIVATED

TIME/INITIALS

Protective Actions

23. Continue to evaluate the need for providing Protective Action recommendations to state and county agencies. ____/____

24. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." ____/____

Recovery

25. After the EOF is activated consult with Emergency Operations Director concerning implementing EPIP-31, "Recovery." ____/____

Performed By _____ Date _____
Signature

CHECKLIST
SITE AREA EMERGENCY
TSC ACTIVATED

	TIME/INITIALS
INITIAL RESPONSE	
1. Receive notification from the onshift Emergency Coordinator and report to the TSC. Upon arrival, sign in on the TSC staffing Board.	____/____
2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities.	____/____
3. Brief TSC and staff and evaluate adequacy of TSC activation.	____/____
4. Declare the TSC operational and inform the STSC, Control Rooms, EOF, APS Site Construction Office Bechtel Emergency Control Center and Site Security.	____/____
5. As necessary, continue with or commence notification process per EPIP-05, "SITE AREA EMERGENCY Implementing Actions," or direct a Communicator to do so.	____/____
(1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations.	____/____
(2) Notify federal, state and county agencies within 15 minutes from the time of declaring an emergency.	____/____
(3) Notify the APS Dispatcher and other locations in EPIP-05.	____/____
6. Verify personnel resources in standby in the OSC.	____/____
SUBSEQUENT RESPONSE	
7. Reevaluate the emergency classification as conditions change per EPIP-02 "Emergency Classification," reclassify as necessary, use appropriate check list.	____/____

CHECKLIST
SITE AREA EMERGENCY
TSC ACTIVATED

	TIME/INITIALS
8. As necessary, direcxt implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."	/
(1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required).	/
(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance.	/
9. Determine additional protective action recommendations to be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines."	/
10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5.	/
11. Determine the need for offsite support and direct a Communicator to call location(s) in EPIP-33, "Offsite Assistance, "arrange access with the Security Director per EPIP-24, "Security,"	/
Personnel Assembly and Accountability	
12. Within 30 minutes of the Acccountability Signal, receive a report on accountability in the protected area from the Security Director.	/
13. Receive a report on site accountability later.	/
14. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator).	/
Emergency Exposures and KI	
15. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures.	/

CHECKLIST
SITE AREA EMERGENCY
TSC ACTIVATED

TIME/INITIALS

16. As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiological Protection Coordinator. ____/____

OSC Activation

17. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC. ____/____

18. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to protected area (control room/STSC, TSC or EOF). ____/____

EOF Activation

19. Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations. ____/____

Security

20 As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system. ____/____

21. Ensure the Security Director is appraised of offsite assistance requests to arrange access. ____/____

Corrective Actions

22. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations." ____/____

CHECKLIST
SITE AREA EMERGENCY
TSC ACTIVATED

TIME/INITIALS

Assessment Actions

23. Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment" EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling." ____/____

Protective Actions

24. Continue to evaluate the need for providing Protective Action recommendations to state and county agencies. ____/____

25. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." ____/____

26 Establish evacuation order, offiste reassembly area, evacuation route and inform the Security Director. ____/____

27. Order evacuation signal when the Security Director reports that preparations are complete. ____/____

Recovery

28. After the EOF is activated, consult with the Emergency Operations director concerning implementing EPIP-31, "Recovery." ____/____

Performed By _____ Date _____
Signature

CHECKLIST
GENERAL EMERGENCY
TSC ACTIVATED

	TIME/INITIALS
INITIAL RESPONSE	
1. Receive notification from the onshift Emergency Coordinator and report to the TSC. Upon arrival, sign in on the TSC Staffing Board	____/____
2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities.	____/____
3. Brief TSC staff and evaluate adequacy of TSC activation.	____/____
4. Declare the TSC operational and inf[illegible] the STSC, Control Rooms, EOF, APS Site Construction Of[illegible]ce Bechtel Emergency Control Center and Site Security.	____/____
5. As necessary continue with or commence notification process per EPIP-06, "GENERAL EMERGENCY Implementing Actions," or direct a Communicator to do so.	____/____
(1) Complete Initial Emergency Message Form including authenticator code and protective action recommendations.	____/____
(2) Notify federal, state and county agencies within 15 minutes from the time of declaring an emergency.	____/____
(3) Notify the APS Dispatcher and other locations in EPIP-06.	____/____
6. Verify Personnel resources in standby in the OSC.	____/____
SUBSEQUENT RESPONSE	
7. Reevaluate the emergency classification as conditions change per EPIP-02 "Emergency Classification," reclassify as necessary, use appropriate check list.	____/____
8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."	

CHECKLIST
GENERAL EMERGENCY
TSC ACTIVATED

TIME/INITIALS

(1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required). ____/____

(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance ____/____

9. Determine additional protective action recommendations to be provided to state and county response agencies per EPIP-15, "Protective Action Guidelines." ____/____

10. As appropriate, complete Follow-up Emergency Message Form and re-notify above groups per step 5. ____/____

11. Determine the need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance," arrange access with the Security Director per EPIP-24, "Security," and coordinate with the Administrative and Logistics Coordinator at the EOF. ____/____

Personnel Assembly and Accountabilit

12. Within 30 minutes of the Accountability Signal, receive a report on accountability in the protected area from the Security Director. ____/____

13. Receive a report on site accountability later. ____/____

14. Be prepared to implement EPIP-21, Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator). ____/____

Emergency Exposures and KI

15. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

CHECKLIST
GENERAL EMERGENCY
TSC ACTIVATED

		TIME/INITIALS
16.	As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiological Protection Coordinator.	____/____
	OSC Activation	
17.	If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC.	____/____
18.	If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (service Building). If this is also unihabitable, direct the OSC Coordinator to relocat to a protected area (control room/ STSC, TSC or EOF).	____/____
	EOF Activation	
19.	Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations.	____/____
	Security	
20.	As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system.	____/____
21.	Ensure the Security Director is appraised of offsite assistance requests to arrange access.	____/____
	Corrective Actions	
22.	Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations."	____/____

CHECKLIST
GENERAL EMERGENCY
TSC ACTIVATED

TIME/INITIALS

Assessment ctions

23. Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling." ____/____

Protective Actions

24. Continue to evaluate the need for providing Protective Action Recommendations to state and county agencies. ____/____

25. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." ____/____

26. Establish evacuation order, offsite reassembly area, evacuation route and inform the Security Director. ____/____

27 Order evacuation signal when the Security Director reports that preparations are complete. ____/____

Recovery

28. After the EOF is activated, consult with the Emergency Operations Director concerning implementing EPIP-31, "Recovery." ____/____

Performed By _____ Date _____
Signature

CHECKLIST
ALERT
TSC AND EOF ACTIVATED

CAUTION

THIS CHECK LIST DOES NOT REPLACE OTHER EMERGENCY PLAN IMPLEMENTING PROCEUDRES NOR PLANT PROCEDURES.

POSITION FILLED BY: Onsite Organization

1) Director of Nuclear Operations
2) Manager, Technical Support

RESPONSIBILITY: The individual onsite with the responsibility and authority to immediately and unilaterally initiate emergency actions, including providing notification and protective action recommendations to Governmental Authorities responsible for implementing offsite emergency measures. Provide for the control and Coordination of onsite emergency response

NOTE

Refer to the following pages for the appropriate emergency classification:

Classification	Appendix A Page
ALERT	29 - 32
SITE AREA EMERGENCY	33 - 36
GENERAL EMERGENCY	37 - 40

INITIAL RESPONSE — TIME/INITIALS

1. Receive notification from the onshift Emergency Coordinator and report to the TSC or Control Room of affected unit. Upon arrival at the TSC, sign in on the TSC Staffing Board. _____/_____

CHECKLIST
ALERT
TSC AND EOF ACTIVATED

	TIME/INITIALS
2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities.	/
3. Brief TSC staff and evaluate adequacy of TSC activation.	/
4. Declare the TSC operational and inform the STSC, Control Rooms, EOF, APS Site Construction Office, and Bechtel Emergency Control Center and Site Security.	/
5. Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations.	/
6. Verify personnel resources are on standby in the OSC.	/
SUBSEQUENT RESPONSE	
7. Reevaluate the emergency classification as conditions change per EPIP-02, Reclassify as necessary, use appropriate check list.	/
8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."	
(1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required).	/
(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance.	/
9. Determine need for offsite support and direct a Communicator to call location(s) in EPIP-33, "Offsite Assistance," arrange access with the Security Director per EPIP-24, "Security," and coordinate with the Administration and Logistics Coordinator at the EOF.	/

CHECKLIST
ALERT
TSC AND EOF ACTIVATED

TIME/INITIALS

Personnel Assembly and Accountability

10. Within 30 minutes of the Protected Area or Site Area accountability signal, receive a report on accountability in the protected area from the Security Director. ____/____

11. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator). ____/____

Emergency Exposures and KI

12. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

13. As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiological Protection Coordinator. ____/____

OSC Activation

14. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC. ____/____

15. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF). ____/____

Security

16. As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station contact the Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system. ____/____

CHECKLIST
ALERT
TSC AND EOF ACTIVATED

	TIME/INITIALS
17. Ensure the Security Director is appraised of offsite assistance requests to arrange access.	____/____
Corrective Actions	
18. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations."	____/____
Assessment Actions	
19. Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling."	____/____
Protective Actions	
20. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation."	____/____
Recovery	
21. Consult with the Emergency Operations Director concerning implementing EPIP-31, "Recovery."	____/____

Performed By _____ Date _____
Signature

CHECKLIST
SITE AREA EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

INITIAL RESPONSE

1. Receive notification from the onshift Emergency Coordinator and report to TSC. Upon arrival, sign in on the TSC Staffing Board. ____/____

2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities. ____/____

3. Brief TSC staff and evaluate adequacy of TSC activation. ____/____

4. Declare the TSC operational and inform the STSC, Control Rooms, EOF, APS Site Construction Office, Bechtel Emergency Control Center and Site Security. ____/____

5. Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations. ____/____

6. Verify personnel resources are on standby in the OSC. ____/____

SUBSEQUENT RESPONSE

7. Reevaluate the emergency as conditions change per EPIP-02 "Emergency Classification," reclassify as necessary, use appropriate check list. ____/____

8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."

   (1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (if required). ____/____

   (2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offsite assistance. ____/____

CHECKLIST
SITE AREA EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

9. Determine the need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance" and arrange access with the Security Director per EPIP-24, "Security," and coordinate with the Administrative and Logistics Coordinator at the EOF. ____/____

Personnel Assembly and Accountability

10. Within 30 minutes of the Site Area Accountability Signal, receive a reort on accountability in the protected area from the Security Director. ____/____

11. Receive a report on site accountability later. ____/____

12. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator). ____/____

Emergency Exposures and KI

13. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

14. As necessary, authorize administration of KI to emergency workers desiring to use it. Consult with the Radiological Protection Coordinator. ____/____

OSC Activation

15. If a release is occurring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of the primary OSC. ____/____

16. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/ STSC, TSC or EOF). ____/____

CHECKLIST
SITE AREA EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

Security

17. As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access list and/or not having access to the protected area via card-key system. ____/____

18. Ensure the Security Director is appraised of offsite assistance requests to arrange access. ____/____

Corrective Actions

19. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations." ____/____

Assessment Actions

20. Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling." ____/____

Protective Actions

21. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Eavcuation." ____/____

22. Establish evacuation order, offsite reassembly area, evacuation route and inform the Security Director. ____/____

23. Order evacuation signal when the Security Director reports that preparations are complete. ____/____

CHECKLIST
SITE AREA EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

Recovery

24. Consult with the Emergency Operations Director concerning implementing EPIP-31, "Recovery." _____/_____

Performed By _____ Date _____
Signature

CHECKLIST
GENERAL EMERGENCY
TSC and EOF ACTIVATED

	TIME/INITIALS
INITIAL RESPONSE	
1. Receive notification form the onshift Emergency Coordinator and report to TSC. Upon arrival, sign in on the TSC Staffing Board.	____/____
2. Receive a briefing from the onshift Emergency Coordinator and assume responsibilities.	____/____
3. Brief TSC staff and evaluate adequacy of TSC activation.	____/____
4. Declare the TSC operational and inform the STSC, Control Rooms, EOF, APS Site Construction Office, Bechtel Emergency Control Center and Site Security.	____/____
5. Per EPIP-13, "Emergency Operations Facility Activation," brief the Emergency Operations Director and transfer the responsibilities for notifications and protective action recommendations.	____/____
6. Verify personnel resources in standby in the OSC.	____/____
SUBSEQUENT RESPONSE	
7. Reevaluate the emergency as conditions change per EPIP-02, "Emergency Classification," reclassify as necessary, use appropriate check list.	____/____
8. As necessary, direct implementation of EPIP-23, "Fire Fighting" and EPIP-22, "Personnel Injury."	____/____
(1) For a fire, dispatch Fire Team and order the Security Director to contact the Bechtel or alternate offsite fire department for assistance (fi required).	____/____
(2) For personnel injury, contact the First Aid Station and inform them of the situation. Dispatch a First Aid Team, if necessary, and coordinate any required offiste assistance.	____/____

CHECKLIST
GENERAL EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

9. Determine the need for offsite support and direct the STSC Communicator to call location(s) in EPIP-33, "Offsite Assistance," arrange access with the Security Director per EPIP-24, "Security," and coordinate with the Administration and Logistics Coordinator at the EOF. ____/____

Personnel Assembly and Accountability

10. Within 30 minutes of the Site Area Accountabilty Signal, receive a report on accountability in the protected area from the Security Director. ____/____

11. Receive a report on site accountability later. ____/____

12. Be prepared to implement EPIP-21, "Search and Rescue," by providing necessary data to the OSC Coordinator (via Hazards Control Coordinator). ____/____

Emergency Exposures and KI

13. Per EPIP-18, "Emergency Exposure Guidelines," and as necessary, authorize emergency exposures. ____/____

14. As necessary, authorize administration of KI to emergency workers desiring to us it. Consult with the Radiological Protection Coordinator. ____/____

OSC Activation

15. If a release is occuring, consult Appendix B of EPIP-12, "Operations Support Center Activation," to determine habitability of primary OSC. ____/____

16. If uninhabitable, direct the OSC Coordinator to relocate staff and equipment/ supplies to the alternate OSC (Service Building). If this is also uninhabitable, direct the OSC Coordinator to relocate to a protected area (Control Room/STSC, TSC or EOF). ____/____

CHECKLIST
GENERAL EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

Security

17. As necessary, implement EPIP-24, "Security," and order the Security Director to limit access to the station, contact Maricopa County Sheriff's Office for assistance in controlling site access, and arrange access for necessary personnel not on the Emergency Personnel Access List and/or not having access to the protected area via card-key system. ____/____

18. Ensure the Security Director is appraised of offsite assistance requests to arrange access. ____/____

Corrective Actions

19. Determine needs, consult with staff, authorize reentry per EPIP-25, "Reentry for Emergency Operations." ____/____

Assessment Actions

20. Ensure that the Radiological Protection Coordinator is obtaining needed data using EPIP-14A, "Release Rate Determination," EPIP-14B, "Dose Assessment," EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/ Offsite Surveys and Sampling." ____/____

Protective Actions

21. Determine the need for early dismissal/evacuation of non-essentials per EPIP-19, "Onsite Evacuation." ____/____

22. Establish eavcuation order, offsite reassembly area, evacuation route and infdorm the Security Director. ____/____

23. Order evacuation signal when the Security Director report that prepartions are complete. ____/____

CHECKLIST
GENERAL EMERGENCY
TSC and EOF ACTIVATED

TIME/INITIALS

Recovery

24. Consult with the Emergency Operations Director concerning implementing EPIP-31, "Recovery." _____/_____

Performed By _____ Date _____
Signature

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP 11	
TECHNICAL SUPPORT CENTER/SATELLITE TSC ACTIVATION	REVISION 2	Page 1 of 46

ASSIGNED COPY

PVNGS #8-9B

DEPT. HEAD O.D. Bennett DATE 6/18/84

PRB/PRG REVIEW M.F. Clyde DATE 7-3-84

APPROVED BY O.D. Bennett DATE 7-6-84

EFFECTIVE DATE 7-13-84

DN-1664A/0296A

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1.0 OBJECTIVE

1.1 To provide instructions for the activation and operation of the Technical Support Center (TSC) and the Satellite TSC (STSC).

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 AREA EMERGENC. Implementing Actions"

2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.5 EPIP-09, "EMERGENCY COORDINATOR"

2.1.6 EPIP-14A, "RELEASE RATE DETERMINATION"

2.1.7 EPIP-14B, "DOSE ASSESSMENT"

2.1.8 EPIP-15A, "PROTECTIVE ACTION GUIDELINES"

2.1.9 EPIP-16, "INPLANT SURVEYS AND SAMPLING

2.1.10 EPIP-17, "ONSITE/OFFSITE SURVEYS AND SAMPLING

2.1.11 EPIP-18, "EMERGENCY EXPOSURE GUIDELINES"

2.1.12 EPIP-20, "PERSONNEL ASSEMBLY AND ACCOUNTABILITY"

2.1.13 EPIP-21, "SEARCH AND RESCUE"

2.1.14 EPIP-25, "REENTRY FOR EMERGENCY OPERATIONS"

2.1.15 EPIP-26, "POTASSIUM IODIDE (KI) ADMINISTRATION"

2.1.16 EPIP-28, "PERSONNEL MONITORING AND DECONTAMINATION"

2.1.17 EPIP-29, "AREA/EQUIPMENT MONITORING AND DECONTAMINATION"

2.1.18 78AC-0ZZ06, "DOCUMENT AND RECORD TURNOVER CONTROL"

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. 3

2.2.4 75AC-9ZZ01, "Radiation Exposure Authoriztion, Permits and Control".

2.2.5 ANSI N45.2.9-1974, " Requirements For Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants"

2.2.6 76AC-9ZZ03, "EMERGENCY ORGANIZATION"

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Activation of the TSC should be completed within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 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.

3.3 All Checklists and Logs associated with this procedure shall be retained for the life of the plant.

3.4 Each individual in the TSC/STSC upon event termination shall submit their checklist and other written documentation to the Emergency Coordinator who ensures they are forwarded to DDC for storage in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 During a NOTIFICATION OF UNUSUAL EVENT, direction and coordination of onshift emergency operations shall be provided by the Emergency Coordinator at the Satellite TSC. During an ALERT or more severe classification, emergency assessment and control shall 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 and offsite Emergency Organizations, the following activities take place in the Satellite TSC:

(1) Environmental assessment (offsite dose projections).

(2) Field Monitoring Team direction by the Radiation Protection Monitor.

(3) Technical analysis by the Shift Technical Advisor (STA).

(4) Emergency management by the Emergency Coordinator (EC).

(5) Initial notifications including information regarding protective actions (if required) by the Satellite TSC Communicator.

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

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

(1) Engineering and technical analytical support.

(2) Reactor analytical support.

(3) Unit operations support.

(4) Radiological analytical support.

4.1.3 The functions performed in the TSC are:

(1) Manage onsite emergency response.

(2) Direct onsite radiological protection activities.

(3) Direct emergency maintenance.

(4) Direct personnel accountability and site security.

(5) Direct safety and hazards control.

(6) Perform engineering and technical analysis for Control Room support.

(7) Perform reactor analysis.

(8) Provide emergency I&C support.

(9) Provide computer and chemistry technical support.

(10) Provide dose rate projections.

(11) Direct field monitoring activities.

4.1.4 The TSC radiological emergency kit contains a supply of calibrated radiological monitoring equipment, protective clothing, communications equipment, portable lighting, and additional supplies.

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

4.1.6 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.

4.2 Prerequisites

4.2.1 A NOTIFICATION OF UNUSUAL EVENT or higher emergency classification has been made.

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:

(1) Shift Supervisor of the designated unaffected unit (Onshift Emergency Coordinator) - EPIP-09, "Emergency Coordinator".

(2) Shift Technical Advisor - Appendix A, "Shift Technical Advisor Check List".

(3) Designated Radiation Protection Technician, Radwaste (Radiation Protection Monitor) - Appendix B, "Radiation Protection Monitor Check List".

(4) Designated Nuclear Operator (STSC Communicator) - Appendix C, "STSC Communicator Check List".

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 C.

(2) Radiation Protection Monitor - Appendix B.

4.3.1.3 The designated Operations Superintendent shall report to the STSC and assume the position of Operations Advisor. He provides technical and operational advice to the Shift Supervisor, and ensure that information flow is maintained between the TSC and the Control Room. He shall also complete Appendix K, "Operations Advisor (Onsite) Check List".

4.3.2 Preliminary Activation of the Technical Support Center

4.3.2.1 The Shift Systems Engineer shall perform the preliminary activation of the TSC per Appendix D, "Technical Engineering Coordinator (Onshift) Check List".

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, per Appendix E, "Analyst (Onshift)/Systems Engineer (Onsite)".

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 F, "Security Director Check List".

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 D (as necessary) and Appendix G.

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 F (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 - EPIP-09, Appendix A, "Emergency Coordinator Check List".

(2) Radiological Protection Coordinator - Appendix H, "Radiological Protection Coordinator (Onsite) Check List".

(3) Emergency Maintenance Coordinator - Appendix I, "Emergency Maintenance Coordinator (Onsite) Check List".

(4) Hazards Control Coordinator - Appendix J, "Hazards Control Coordinator (Onsite) Check List".

(5) Operations Coordinator - Appendix Q, "Operations Coordinator (Onsite) Check List".

(6) Personnel Resources Coordinator - Appendix L, "Personnel Resources Coordinator (Onsite) Check List".

(7) Chemistry Coordinator - Appendix M, "Chemistry Coordinator (Onsite) Check List".

(8) Reactor Analyst - Appendix N, "Reactor Analyst (Onsite) Check List"

(9) Computer Support Coordinator - Appendix O, "Computer Support Coordinator (Onsite) Check List".

(10) Field Team Communicator - Appendix P, "Field Team Communicator (Onsite) Check List".

4.3.4 Declaration of TSC Readiness

4.3.4.1 The onsite Emergency Coordinator shall assure TSC readiness and notify the onsite emergency response facilities that the TSC is activated.

4.3.4.2 Upon activation of the TSC, the onsite Emergency Coordinator shall relieve the onshift Emergency Coordinator of the Emergency Coordinator functions.

SHIFT TECHNICAL ADVISOR CHECK LIST

POSITION FILLED BY: (1) Shift Technical Advisor

RESPONSIBILITY: Advise and assist the Shift Supervisor on assessing plant conditions. Activate and monitor SPDS, develop trend data and provide these data to Control Room personnel.

ACTIONS	TIME/INITIALS
1. Report to STSC.	____/____
2. Activate the SPDS.	____/____
*3. Monitor the SPDS.	_____
*4. Develop trend data and provide these data to the Shift Supervisor and other Control Room personnel.	_____
*5. Advise the Shift Supervisor of corrective actions.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

RADIATION PROTECTION MONITOR CHECK LIST

POSITION FILLED BY: (1) Radiation Protection Technician (Radwaste) from affected unit

RESPONSIBILITY: Provide initial onsite and offsite dose projections. Initially direct field monitoring teams. Provide technical advice to Emergency Coordinator concerning radiological conditions and protective action recommendations. Monitor radiological assessment activities of onsite Emergency Organization upon being relieved of dose assessment and field monitoring responsibilities by Radiological Protection Coordinator. Provide Control Room with appropriate information.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to the STSC upon notification	____/____
2. Ensure operational status of dose calculation computer.	____/____
3. Perform initial offsite dose rate projection per EPIP-14A, "Release Rate Determination", and 14B, "Dose Assessment", if a release has occurred.	____/____
4. Inform onshift Emergency Coordinator of dose rate projection results and assist in determining what protective actions are necessary per EPIP-15, "Protective Action Guidelines".	____/____
*5. Direct activities of onsite/offsite Field Monitoring Teams per EPIP-16, "Inplant Surveys and Sampling", and and EPIP-17, "Onsite/Offsite Surveys and Sampling".	_____
*6. Evaluate need to administer Potassium Iodide (KI) per EPIP-26, "Potassium Iodide (KI) Administration".	_____
7. If OSC is activated, contact OSC Coordinator, using the Radiological Assessment Line, to ensure that:	
(1) Sufficient radiological protection equipment is available to OSC personnel.	____/____
(2) Continuous air monitors and area alarm monitors are functioning and indicate radiation levels at OSC.	____/____

* Continuing Activity

SUBSEQUENT ACTIONS

Complete the following until relieved of these responsibilities by the Radiological Protection Coordinator at the TSC or the Radiological Assessment Coordinator at the EOF.

Onsite and Offsite Surveys and Sampling

TIME/INITIALS

8. Supervise formation, briefing, and dispatch of monitoring teams per EPIP-16 and EPIP-17. ____/____

9. Change offsite sampling locations, if necessary. ____/____

*10. Direct that appropriate surveys and sampling be performed. _____

*11. Receive reports from monitoring teams every one-half hour via portable radio. _____

Protective Action Guidelines

*12. Update and refine dose assessments for critical receptor site locations upon significant changes in: _____

(1) Release rates
(2) Duration of releases
(3) Isotopic mixture of release
(4) Meteorological conditions

*13. Determine effectiveness of protective actions in accordance with EPIP-15 and recommend to Emergency Coordinator. _____

Search and Rescue

14. Assist OSC Coordinator in determining radiation levels and approximate stay times for teams in contaminated areas. ____/____

* Continuing Activity

Activation of Emergency Organization

TIME/INITIALS

*15. Contact Radiological Protection Coordinator at TSC, using the Radiological Assessment line or Environmental Assessment Line, to provide the following: _____

(1) OSC radiation protection status

(2) Status of dose projections, protective action recommendations, onsite/offsite field monitoring teams

(3) Transfer of responsibility for above to Radiological Protection Coordinator

*16. Monitor radiological assessment activities of onsite Emergency Organization and provide Control Room personnel with appropriate information. _____

*17. Perform dose rate measurements and air samples in STSC/CR, as required. _____

* Continuing Activity

Performed By _____
Signature

Date _____

STSC COMMUNICATOR CHECK LIST

POSITION FILLED BY: (1) Nuclear Operator II from affected unit
(2) Nuclear Operator from affected unit

RESPONSIBILITY: Initiate the notification process as directed by the onshift Emergency Coordinator. Ensure operability of communications equipment. Maintain communications logbook.

IMMEDIATE ACTIONS — TIME/INITIALS

STSC Activation

1. Report to the STSC upon notification. ____/____

2. Check operability of the following communications equipment: [Consult the Notification Systems User's Guide (EPIP-03, 04, 05, or 06)] ____/____
   (1) Notification Alert Net (NAN) ____/____
   (2) NRC Emergency Notification System (ENS). ____/____
   (3) PVNGS Private Branch Exchange (PBX). ____/____
   (4) Technical Line. ____/____
   (5) Radiological Assessment Line. ____/____
   (6) Environmental Assessment Line. ____/____
   (7) Emergency Coordinator/Emergency Operations Director (EC/EOD) Line. ____/____
   (8) Dedicated Voice Circuits. ____/____
   (9) Base Station Radio. ____/____
   (10) Facsimile Machine ____/____

Notification of UNUSUAL EVENT

3. Assist Onshift Emergency Coordinator or Shift Supervisor with completing the Initial Emergency Message Form. ____/____

4. Initiate notification process as directed by Emergency Coordinator (or Shift Supervisor, in his absence). ____/____

TIME/INITIALS

(1) Notify designated State/County agencies and NRC within 15 minutes by utilizing NAN and ENS, respectively. ____/____

(2) Ensure that State/County agencies and NRC use Initial Message Form to record message. ____/____

(3) At direction of the Emergency Coordinator, notify Director of Nuclear Operations, Assistant Vice President, Nuclear and other individuals listed in EPIP-03 using the normal telephone (See EPIP-03, Emergency Call Out List for phone number). ____/____

(4) Record names of persons contacted on "Emergency Notification Call Check List". ____/____

5. Inform Emergency Coordinator when initial notifications are complete. ____/____

6. Contact the Security Director and inform him to call in additional personnel if so directed by Emergency Coordinator. ____/____

7. Assist the Emergency Coordinator in preparing the Follow-up Message Form. ____/____

*8. Provide follow-up information when directed by the Emergency Coordinator. ____/____

*9. Maintain records of communications received or transmitted offsite. ____/____

Notification of ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY

10. Assist the Onshift Emergency Coordinator or Shift Supervisor with completing the Initial Message Form ____/____

11. Initiate notification process as directed by the Emergency Coordinator (or Shift Supervisor in his absence). ____/____

* Continuing Activity

TIME/INITIALS

(1) Notify designated State/County agencies and NRC within 15 minutes from the time of declaring an emergency. ____/____

(2) Ensure that State/County agencies and NRC use Initial Message Form to record message. ____/____

(3) Record names of persons contacted on "Emergency Notification Call Check List". ____/____

12. Inform the Emergency Coordinator when initial notifications are complete. ____/____

13. Contact the Security Director and inform him to call in additional personnel if so directed by the Emergency Coordinator. ____/____

14. Assist the Emergency Coordinator in preparing the "Follow-up Message Form". ____/____

*15. Provide follow-up information when directed by the Emergency Coordinator. _____

*16. Maintain records of communications received or transmitted offsite. _____

Offsite Assistance

17. Contact required offsite assistance (EPIP-33, "Offsite Assistance", Appendix A) via telephone if directed by the Emergency Coordinator. ____/____

18. Record name and time on "Telephone Communication Log Sheet", (EPIP-33, Appendix B). ____/____

19. Transfer call to Emergency Coordinator for clarification, if necessary. ____/____

20. Inform the Emergency Coordinator of contact/lack of contact, scope of offsite assistance and estimated time of arrival. ____/____

* Continuing Activity

SUBSEQUENT ACTIONS

		TIME/INITIALS
21.	Review status of notifications and transfer responsibilities when relieved by onsite STSC Communicator.	____/____
*22.	Maintain Communications Logbook for all communications received or transmitted offsite.	_____
23.	Transfer responsibility for notifying State County agencies and NRC to Government Liaison Engineer at EOF upon notification.	____/____
24.	Notify the Emergency Coordinator when responsibilities have been transferred to the onsite STSC Communicator and/or Government Liaison Engineer.	____/____

Performed By _____
Signature

Date _____

TECHNICAL ENGINEERING COORDINATOR (ONSHIFT)
CHECK LIST

POSITION FILLED BY: Shift Systems Engineer

RESPONSIBILITY: Perform preliminary TSC activation and ensure that communication lines and Data Display Systems are operational. Provide technical input to Control Room staff. Assist Emergency Maintenance Coordinator in TSC upon being relieved by onsite Technical Engineering Coordinator.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Ensure that the following communication lines are operable:	
(1) Emergency Coordinator/Emergency Operations Director (EC/EOD) Line.	____/____
(2) Base Radio Station.	____/____
(3) Environmental Assessment Line.	____/____
(4) Technical Line.	____/____
(5) Maintenance Control Line.	____/____
(6) Radiological Assessment Line.	____/____
(7) Control Room Lines.	____/____
(8) EOF Dedicated Lines.	____/____
(9) OSC Dedicated Line.	____/____
(10) STSC Dedicated Line.	____/____
(11) Facsimile	____/____
2. Ensure SPDS is operational.	____/____
3. Ensure CRACS is operational.	____/____
4. Ensure TSC computer terminals are operable.	____/____
5. Report TSC readiness to Emergency Coordinator.	____/____

SUBSEQUENT ACTIONS

		TIME/INITIALS
6.	Obtain list of equipment out of commission prior to emergency from Maintenance Control Center.	____/____
*7.	Maintain list of equipment out of commission during emergency (or Status Board for same).	_____
*8.	Provide Technical input to Control Room staff.	_____
*9.	Assist Emergency Coordinator in TSC after being relieved by onsite Technical Engineering Coordinator.	_____

* Continuing Activity

Performed By _____ _____
Signature

Date _____

ANALYST (ONSHIFT)/SYSTEMS ENGINEER (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Maintenance Planner-Coordinator

RESPONSIBILITY: Assist Emergency Maintenance Coordinator by recommending courses of action for emergency repairs and alternatives for maintenance operations. Analysts in the onshift organization serve as Systems Engineers in the onsite organization.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board	____/____
2. Assist Onshift Technical Engineering Coordinator (Shift Systems Engineer) in physically activating TSC in accordance with EPIP-11, "Technical Support Center/ Satellite TSC Activation".	____/____
SUBSEQUENT ACTIONS	
3. Assume role of Systems Engineer upon activation of onsite emergency organization.	____/____
*4. Report to and assist Emergency Maintenance Coordinator at TSC.	____/____
*5. Recommend actions for emergency repairs and provide alternatives for maintenance operations.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

SECURITY DIRECTOR CHECK LIST

POSITION FILLED BY: Security Shift Captain (Onshift)
Manager, Operations Security (Onsite)
Security Shift Captain (Alternate)

RESPONSIBILITY: Provide for site security, access control, personnel accountability, evacuation and medical transportation. Call out the Emergency Organization upon direction from the Emergency Coordinator.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. If necessary, assign a Security Shift Sergeant to act as Security Shift Captain. Have him report to Security Building and prepare for accountability per EPIP-20, "Personnel Assembly and Accountability".	____/____
3. Inform the Security Access Point Guard by normal phone [redacted] and Craft Security Access Point Guard [redacted] to prepare exit turnstiles in event of protected area evacuation per EPIP-20, "Personnel Assembly and Accountability". (ALERT or higher).	____/____
4. Inform Access Point Guards to limit protected area access to those on Emergency Access List. Have them direct all personnel leaving protected area to use card-key reader.	____/____
5. Call in additional personnel appropriate to the emergency classification as directed by Emergency Coordinator (EC) by utilizing automatic dialing system.	____/____
6. If the Auto Dialer List One shows no acknowledgement by either the primary or alternate respondent for an Emergency Organization position, then manuallly call and notify the backup respondent for that position.	____/____
SUBSEQUENT ACTIONS	
7. Contact Security Shift Captain by plant phone [redacted] and establish security measures for station access by arriving offsite assistance personnel (ALERT or higher).	____/____

SECURITY DIRECTOR
CHECK LIST (Continued)

		TIME/INITIALS
	TSC Access	
8.	Determine need for additional security personnel and contact as necessary.	____/____
9.	Remain at TSC and complete following, as necessary, until relieved by Onsite Security Director.	____/____
10.	Direct a member of the Security Force to be stationed at the TSC Entrance and to limit access to the TSC to only those authorized personnel.	____/____
*11.	Grant access to emergency personnel who have been verbally authorized by Emergency Coordinator.	____/____
	Personnel Assembly and Accountability	
12.	Dispatch guard to unlock Visitor's Center, if necessary.	____/____
13.	Contact the Maricopa County Sheriff's Office by dedicated telephone line or radio to request traffic control north and south of plant on Wintersburg Road.	____/____
14.	Approximately 20 minutes after the accountability signal has sounded, obtain copies of computer print-outs of personnel who were in protected area when ALERT or more severe level emergency was declared. (If computer or card-key unoperable, see EPIP-20.)	____/____
15.	Receive accountability reports from Security Shift Captain for Assembly Areas in protected area.	____/____
16.	Report protected area accountability to Emergency Coordinator within 30 minutes.	____/____
17.	Receive accountability reports from Security Shift Captain from site Assembly Area.	____/____
18.	Direct security to routinely check APS controlled buildings to ensure they are not occupied.	____/____

* Continuing Activity

TIME/INITIALS

19. Report overall accountability outside protected area to EC as soon as practicable. ____/____

20. Arrange to pick up Individual Accountability Sheets for each area as soon as practicable. ____/____

Search and Rescue

21. Inform EC of missing or disabled personnel and last known location so that Search and Rescue can begin. ____/____

22. Obtain information from Emergency Coordinator on assembly area evacuation order, reassembly area and evacuation route. ____/____

23. Contact Maricopa County Sheriff's Office by dedicated telephone or radio to request traffic assistance at key evacuation route points and also at the offsite reassembly area. ____/____

Onsite Evacuation

24. Dispatch a Security vehicle with one Security Force Member as Evacuation Team Leader to Bechtel Gate. No. 1 to prepare to lead the Bechtel manuals to the reassembly area. ____/____

25. Contact Corporate Site Security by telephone [redacted] and request a Security Team to control traffic at the various exit gates. ____/____

26. Contact the Bus Transportation Supervisor by telephone at ext. [redacted] to deploy buses to the APS/Bechtel Construction Office pickup point, the Nuclear Operations pickup point, and the Water Reclamation Facility pickup point. Have him inform the drivers of the reassembly area and evacuation route. ____/____

27. Dispatch Security Force to bus pickup points and gates to assure the following order of evacuation (unless a different order is specified by the Emergency Coordinator):

    (1) Bechtel parking lots (personal vehicles) via Gate No. 1, 2, and 3 ____/____

SECURITY DIRECTOR
CHECK LIST (Continued)

TIME/INITIALS

(2) APS/Bechtel Construction Office buses via Gate No. 3 ____/____

(3) APS van pools via Gate No. 1A ____/____

(4) APS parking lots (personal vehicles) via Gate No. 3A ____/____

(5) APS Nuclear Operations buses via Gate No. 3A ____/____

(6) APS Water Reclamation Facility via Gate No. 2 ____/____

28. Contact the Radiological Protection Coordinator and assure that a monitoring/decontamination team has been dispatched to the assembly area. ____/____

29. Contact the reassembly area by telephone (Palo Verde Inn [redacted] and Hassayampa Pump Station [redacted] or [redacted] and inform them of the impending evacuation. ____/____

30. Contact Assembly Area Supervisor at the following locations to inform them of the impending evacuation signal and the location of bus pickups.

(1) APS Construction Office [redacted] ____/____

(2) Bechtel Emergency Control Center [redacted] ____/____

(Have Bechtel inform Bechtel Fire Team and Bechtel Medical Staff to remain in their facilities and not to evacuate).

(3) Admin. Annex Bldg. Assembly Area [redacted] ____/____

(4) Water Reclamation Facility [redacted] ____/____

(5) Visitor's Center [redacted] ____/____

31. Notify the Emergency Coordinator that preparations have been made and the evacuation signal can be given. ____/____

SECURITY DIRECTOR
CHECK LIST (Continued)

TIME/INITIALS

32. Dispatch Security Force to routinely check APS trailers and buildings in the Administration area outside the protected area to ensure all non-essential personnel have left the premises. ____/____

33. Request Corporate Site Security by telephone [redacted] to routinely check the Visitor's Center, construction offices, Bechtel Warehouse and associated areas. ____/____

34. Contact the Evacuation Team Leader by radio or telephone (Palo Verde Inn [redacted] Hassayampa Pump Station [redacted] at the offsite reassembly area to determine if any emergency supplies are needed. Report all needs to Administrative and Logistics Coordinator. ____/____

Emergency Vehicle Offsite Personnel Access to PVNGS

35. Obtain following information about emergency vehicles that will be used, and inform the Security Shift Captain. ____/____

    (1) Vehicle type
    (2) License or other identification number
    (3) Color
    (4) Number of occupants

36. Dispatch a Security Force Member to accompany all vehicles. ____/____

37. Direct Security Access Point by telephone [redacted] to allow entry to protected area of those APS personnel or contractors called to PVNGS and who have not been previously assigned or named on Access List. ____/____

Fire Fighting

38. Call Bechtel Fire Department, at [redacted] upon direction from EC, and inform of type of fire, location and extent of fire, special precautions, and special equipment. ____/____

SECURITY DIRECTOR
CHECK LIST (Continued)

	TIME/INITIALS
39. Direct Security to assign personnel to escort Bechtel Fire Team to fire.	____/____

Performed By _____
Signature

Date _____

TECHNICAL ENGINEERING COORDINATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Manager, OPS Engineering
(2) Supervisor, OPS Engineering - Mech.

RESPONSIBILITY: Relieve the onshift Technical Engineering Coordinator. Direct engineering and systems analyses, procedures development and related licensing efforts. Maintain contact with offsite technical support groups.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board.	____/____
2. Relieve onshift Technical Engineering Coordinator at TSC following briefing and establish responsible area.	____/____
3. Complete check list of "Technical Engineering Coordinator (Onshift)", (EPIP-11, "Technical Support Center/Satellite TSC Activation", Appendix D) for Preliminary TSC Activation as necessary.	____/____
4. Obtain list of equipment out of commission prior to emergency from onshift Technical Engineering Coordinator.	____/____
*5. Maintain list of equipment out of commission during emergency (or Status Board for same).	_____
*6. Access records management and obtain needed technical materials throughout emergency.	_____
7. Ensure that the following personnel complete their check lists:	
(1) Chemistry Coordinator	____/____
(2) Reactor Analyst	____/____
(3) Computer Support Coordinator	____/____

* Continuing Activity

TIME/INITIALS

*8. Determine need for additional engineering and technical support personnel, and inform Personnel Resources Coordinator. _____

9. Determine estimated length of release. _____

SUBSEQUENT ACTIONS

*10. Assist Emergency Coordinator as needed to determine corrective actions. _____

*11. Assist Emergency Coordinator as needed during reclassification activities. _____

*12. Provide updated status of reactor and unit to Technical Analysis Coordinator in the EOF using the Technical Line. _____

*13. Brief NRC representative on plant status and corrective actions periodically. _____

*14. Assist in determination of need for offsite technical support. _____

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* Continuing Activity

Performed By _____
Signature

Date _____

RADIOLOGICAL PROTECTION COORDINATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Superintendent, Radiological Services
(2) Radiological Engineer

RESPONSIBILITY: Relieve Radiation Protection Monitor of dose rate projection and onsite and offsite field monitoring supervision responsibilities. Direct onsite and offsite field monitoring activities and inplant radiological controls. Supervise dose rate projections.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Ensure that the following are available: (1) Meteorological overlays and base maps (2) Procedures and forms	____/____
3. Ensure operational status of dose calculation computer.	____/____
4. Contact Radiation Protection Monitor at STSC using the Radiological Assessment Line or Environmental Assessment Line and determine: (1) Extent of radiological releases and plant conditions (2) Location of onsite and offsite monitoring teams (if dispatched) (3) Status of dose assessments and protective action recommendations	____/____
5. Determine need for additional personnel to assist in dose assessment.	____/____
6. Relieve Radiation Protection Monitor of responsibility for control of: (1) Onsite/offsite field monitoring (2) Inplant radiological controls (3) Release rate determination and dose calculations (EPIP-14A, "Release Rate Determination", and EPIP-14B, "Dose Assessment")	____/____

TIME/INITIALS

7. Inform Emergency Coordinator when TSC is ready to conduct dose assessments. ____/____

SUBSEQUENT ACTIONS

Onsite and Offsite Surveys and Sampling

8. Form, brief, and dispatch Monitoring Teams through OSC Coordinator per EPIP-16, Inplant Survey and Sampling", and EPIP-17, "Onsite/Offsite Survey and Sampling". ____/____

9. Change offsite sampling locations, if necessary. ____/____

10. Direct that appropriate surveys and sampling be performed. ____/____

*11. Receive reports from monitoring teams. _____

*12. Receive reports of sample analysis from Supervising Radiation Physicist or Radiation Protection Technicians. _____

*13. Receive reports on contaminated areas and/or equipment from Radiation Protection Technicians. _____

Protection Action Guidelines

*14. Update and refine dose assessments for critical receptor site locations upon significant changes in: _____

(1) Release rates
(2) Duration of releases
(3) Isotopic mixture of release
(4) Meteorological conditions

15. Determine effectiveness of protective actions in accordance with EPIP-15, "Protective Action Guidelines", and make recommendations to the Emergency Coordinator. ____/____

Onsite Evacuation

16. Determine evacuation route in conjunction with Emergency Coordinator. ____/____

* Continuing Activity

TIME/INITIALS

17. Dispatch personnel for monitoring at offsite assembly areas through the OSC Coordinator. ____/____

Emergency Exposure Guidelines

*18. Authorize doses up to the limits of 10CFR20. _____

19. Provide the Emergency Coordinator with radiological evaluation of situation and conditions requiring emergency exposures in excess of 10CFR20 limits. ____/____

20. Complete and sign Radiation Exposure Permit (75RP-9ZZ44, "Radiation Exposure Permits") or designate individual to complete this task. ____/____

21. Obtain initial estimates of radiation dose of exposed personnel as quickly as possible. ____/____

22. Report exposures in excess of 10CFR20 (refer to EPIP-18, Appendix B) to Emergency Coordinator. ____/____

23. Update and refine dose estimates when time permits. ____/____

Potassium Iodide (KI) Administration

24. Advise Emergency Coordinator as to <u>when</u> and <u>who</u> may voluntarily receive KI. ____/____

25. Obtain bottle(s) of 130mg KI tablets from Service Building Warehouse or a Radiological Emergency Kit. ____/____

26. Dispense one (1) tablet to each individual designated by Emergency Coordinator to voluntarily use KI (task may be delegated). ____/____

*27. Maintain record of Potassium Iodide Distribution as per EPIP-26, "Potassium Iodide (KI) Administration", Appendix B (task may be delegated). _____

Search and Rescue

*28. Assist OSC Coordinator in determining radiation levels and approximate stay times for teams in Radiologically Controlled areas. _____

* Continuing Activity

Personnel Injury

The following check list items should be performed by the Radiological Protection Coordinator, if possible, or by a member of the Radiological Support Staff.

TIME/INITIALS

29. Determine, with advice of plant nurse, the order of priorities for: ____/____

    (1) Treatment
    (2) Evacuation
    (3) Decontamination
    (4) Necessity or protective clothing/respiratory protection
    (5) Other priorities dictated by radiological/hazardous conditions.

30. Direct use of onsite emergency vehicle(s). ____/____

31. Designate an individual to prepare the station ambulance (with protective covering inside) to transport injured personnel to hospital. ____/____

32. Request Security to call offsite ambulance service, if onsite vehicles are unavailable, and to issue dosimetry to ambulance personnel. ____/____

33. Designate individual to meet and accompany ambulance to patient's location. ____/____

34. Determine emergency route to be used per EPIP-22, "Personnel Injury", Appendix A. ____/____

35. Designate one or more individuals qualified in use of G-M survey instruments and radiation control procedures to accompany patient to hospital. ____/____

Personnel and Area/Equipment Monitoring and Decontamination

[illegible]ine need for personnel monitoring and decontami- ____/____
per EPIP-28, "Personnel Monitoring and
ntamination".

TIME/INITIALS

37. Determine if crucial areas and/or equipment requires monitoring and decontamination in accordance with EPIP-29, "Area/Equipment Monitoring and Decontamination". ____/____

38. Complete, date, and sign Radiation Exposure Permit. ____/____

39. Stipulate method of decontamination as described in EPIP-29. ____/____

Fire Fighting

40. Dispatch, upon notification by Emergency Coordinator, a monitoring team to assist with radiological aspects of fire emergency. ____/____

41. Instruct monitoring team to survey all outside fire fighting assistance personnel and supervise decontamination evaluations prior to release from site. ____/____

Reentry for Emergency Operations

42. Contact OSC Coordinator using the OSC Dedicated Phone, and provide (in conjunction with Emergency Coordinator and Emergency Maintenance Coordinator) description of: ____/____

    (1) Work to be performed
    (2) Number of people work requires
    (3) Necessary tools, spare parts, and equipment
    (4) Radiological conditions, if known

43. Provide Emergency Coordinator, if required, with radiological evaluation of situation(s) requiring emergency exposure(s) and complete Radiation Exposure Permit authorizing emergency exposure in accordance with EPIP-18. ____/____

44. Complete or designate individual to complete the Radiation Exposure Permit detailing specific protective equipment, allowable doses and ALARA procedures outlined in EPIP-25. ____/____

45. Obtain initial estimates of radiation dose of exposed personnel as soon as possible. ____/____

TIME/INITIALS

46. Report exposures in excess of 10CFR20 limits (EPIP-25, Appendix B) and report to Emergency Coordinator. ____/____

47. Update and refine dose estimates when time permits. ____/____

Habitability Surveys of TSC

*48. Designate Radiation Protection personnel in TSC to perform dose rate measurements and air samples as required. _____

NRC Briefing

*49. Provide periodic briefing to NRC Staff concerning radiological assessment and protective actions. _____

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* Continuing Activity

Performed By _____
Signature

Date _____

EMERGENCY MAINTENANCE COORDINATOR (ONSITE) CHECK LIST

POSITION FILLED BY: (1) Manager, Maintenance
(2) Superintendent MCC

RESPONSIBILITY: Assume responsibility for plant emergency repair. Coordinate repair and damage control including directing the OSC Coordinator to assemble/dispatch Emergency Repair Teams.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Report to TSC upon notification. Upon Arrival, sign in on the TSC Staffing Board and establish responsible area. ____/____

2. Access records management and obtain needed materials. ____/____

3. Determine need for additional mechanical support personnel and inform the Personnel Resources Coordinator. ____/____

SUBSEQUENT ACTIONS

Emergency Reentry and Repair

*4. Assess operation of plant systems including mechanical, electrical, and I&C equipment. _____

*5. Advise Emergency Coordinator on matters dealing with repair, maintenance, and deployment of Emergency Repair Teams. _____

Reentry for Emergency Operations

*6. Determine if emergency repair operations are crucial to needs of Emergency Organization and inform Emergency Coordinator. _____

*7. Confer with Emergency Coordinator and Radiological Protection Coordinator prior to contacting OSC Coordinator using Maintenance Control Line with a description of: _____

* Continuing Activity

TIME/INITIALS

(1) Work to be performed.

(2) Number of personnel required.

(3) Tools, spare parts and equipment needed.

(4) Radiological conditions, if known.

*8. Direct OSC Coordinator using Maintenance Control Line, to assemble and dispatch Emergency Repair Teams, as necessary. _____

Area/Equipment Monitoring and Decontamination

9. Determine if contaminated areas and/or equipment are crucial to needs of Emergency Organization and inform Emergency Coordinator to arrange for decontamination. _____/_____

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* Continuing Activity

Performed By _____
Signature

Date _____

HAZARDS CONTROL COORDINATOR (ONSITE) CHECK LIST

POSITION FILLED BY: (1) Administrator Health and Safety
(2) Safety Engineer

RESPONSIBILITY: Advise Emergency Coordinator concerning industrial safety of plant personnel. Evaluate hazards of potential or actual toxic material releases and/or chemical spills.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Determine areas that pose industrial hazards to personnel and inform Emergency Coordinator and OSC Coordinator using the OSC Dedicated Phone.	____/____
3. Assist Radiological Protection Coordinator with ALARA considerations.	____/____

SUBSEQUENT ACTIONS

Search and Rescue

4. Direct OSC Coordinator using the OSC Dedicated Phone to assemble and dispatch Search and Rescue Teams.	____/____
5. Complete Search and Rescue information sheet in EPIP-21, "Search and Rescue", Appendix D.	____/____
6. Notify Emergency Coordinator of results of search and rescue efforts.	____/____
7. Inform OSC Coordinator using OSC Dedicated Phone of all significant events.	____/____

Fire Fighting

8. Provide technical advice to Fire Team Leader during an emergency.	____/____

Performed By _____
Signature

Date _____

OPERATIONS ADVISOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Operations Superintendent of affected unit
(2) Operations Superintendent of unaffected unit

RESPONSIBILITY: Act as management liaison with Control Room. Analyze plant conditions and advise Shift Supervisor and Emergency Coordinator. Ensure information flow between TSC and Control Room. Assist in development of procedures for conducting emergency operations.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to STSC upon notification.	____/____

SUBSEQUENT ACTIONS

STSC Activation/Operation

*2. Provide technical and operational advice to Shift Supervisor and Emergency Coordinator, as necessary.	_____
*3. Analyze conditions using SPDS and CRACS and provide guidance to Emergency Coordinator and Operations personnel.	_____
*4. Establish communications with the Operations Coordinator (Onsite) in the TSC.	_____
*5. Assist in developing emergency procedures as necessary for conducting emergency operations.	_____

Emergency Classification

*6. Advise Emergency Coordinator via the Operations Coordinator (Onsite) as to plant status and re-classification of emergency for ALERT, SITE AREA or GENERAL EMERGENCY.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

PERSONNEL RESOURCES COORDINATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Manager, Administrative Services
(2) Supervisor Office Services

RESPONSIBILITY: Relieve Security Director of responsibility for callout of additional emergency personnel. Plan for 24 hour emergency response organization staffing. Assist OSC Coordinator in meeting the manning requirements of OSC. Serve as primary Assembly Area Supervisor in TSC.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area. ____/____

2. Assist Security Director with Accountability per EPIP-20, "Personnel Assembly and Accountability". ____/____

3. Develop 24-hour manning requirements and augment staffing as required. ____/____

4. Assess and assist OSC Coordinator in meeting the Manning Requirements of the OSC. ____/____

SUBSEQUENT ACTIONS

Personnel Assembly and Accountability

5. Assume role of primary Assembly Area Supervisor for TSC. ____/____

6. Record names and badge numbers of personnel who have reported to TSC on Individual Accountability Sheet per EPIP-20. ____/____

7. Contact Security Shift Captain and inform of personnel and badge numbers accounted for. ____/____

Security

*8. Grant verbal authorization to personnel requesting access to TSC and notify Security Director to grant access. _____

* Continuing Activity

Performed By _____
Signature

Date _____

CHEMISTRY COORDINATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Superintendent Chemical Services
(2) Chemist

RESPONSIBILITY: Provide evaluation of coolant samples and air samples to aid in diagnosing reactor core conditions and release potentials. Interpret results of chemical analyses for evaluation of plant systems.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Contact onshift Chemistry Technician using regular phone line and obtain pertinent chemistry plant data.	____/____
3. Determine the need for additional chemistry support personnel, and inform the Technical Engineering Coordinator.	____/____
4. Confer with Technical Engineering Coordinator to determine needs concerning plant chemistry data.	____/____
SUBSEQUENT ACTIONS	
*5. Evaluate coolant samples and air samples and interpret results of chemical analyses and assist Technical Engineering Coordinator, as necessary.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

REACTOR ANALYST (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Supervisor Reactor Engineering
(2) Lead Reactor Engineer

RESPONSIBILITY: Perform detailed analyses of core physics and heat transfer parameters. Assess reactor core status and evaluate the integrity of and fuel cladding.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Assess core parameters.	____/____
3. Access records managements and obtain needed technical materials.	____/____
4. Determine need for additional reactor support personnel and inform the Technical Engineering Coordinator.	____/____
5. Inform Technical Engineering Coordinator of recommendations for operation.	____/____
SUBSEQUENT ACTION	
*6. Continue to conduct analyses and assess and evaluate the integrity of plant systems and assist Technical Engineering Coordinator, as necessary.	_____
*7 Contact Corporate Analytical Support (Deer Valley) as needed by normal phone [redacted]	_____

* Continuing Activity

Performed By _____
Signature

Date _____

COMPUTER SUPPORT COORDINATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Computer Supervisor
(2) Computer Engineer

RESPONSIBILITY: Provide continuous support of analyses pertaining to plant conditions and dose assessment.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Access CRACS and SPDS as requested.	____/____
3. Determine need for additional computer support personnel and inform the Technical Engineering Coordinator.	____/____
SUBSEQUENT ACTIONS	
*4. Provide computer support to TSC staff, when requested.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

FIELD TEAM COMMUNICATOR (ONSITE)
CHECK LIST

POSITION FILLED BY: (1) Radiation Protection Section Staff Member

RESPONSIBILITY: Maintain direct radio contact with PVNGS onsite/offsite Field Monitoring Teams. Assist the Radiological Protection Coordinator with dose rate projections.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC upon notification. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Report to Radiological Protection Coordinator and obtain information on deployment of Field Monitoring Teams.	____/____
3. Ensure that Field Team communications equipment is operable.	____/____
4. Synchronize TSC clocks with affected unit clock.	____/____
SUBSEQUENT ACTIONS	
*4. Maintain communications with Field Monitoring Teams using portable radio.	_____
*5. Assist Radiological Protection Coordinator in performance of dose assessment calculations as necessary.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

OPERATIONS COORDINATOR (ONSITE) CHECK LIST

POSITION FILLED BY: (1) Day Shift Supervisor of affected unit
(2) Day Shift Supervisor of designated unaffected unit.

RESPONSIBILITY: Receive technical and operational input from the Operations Advisor and maintain the flow of information between the TSC and Control Room. Report to and assist the Emergency Coordinator.

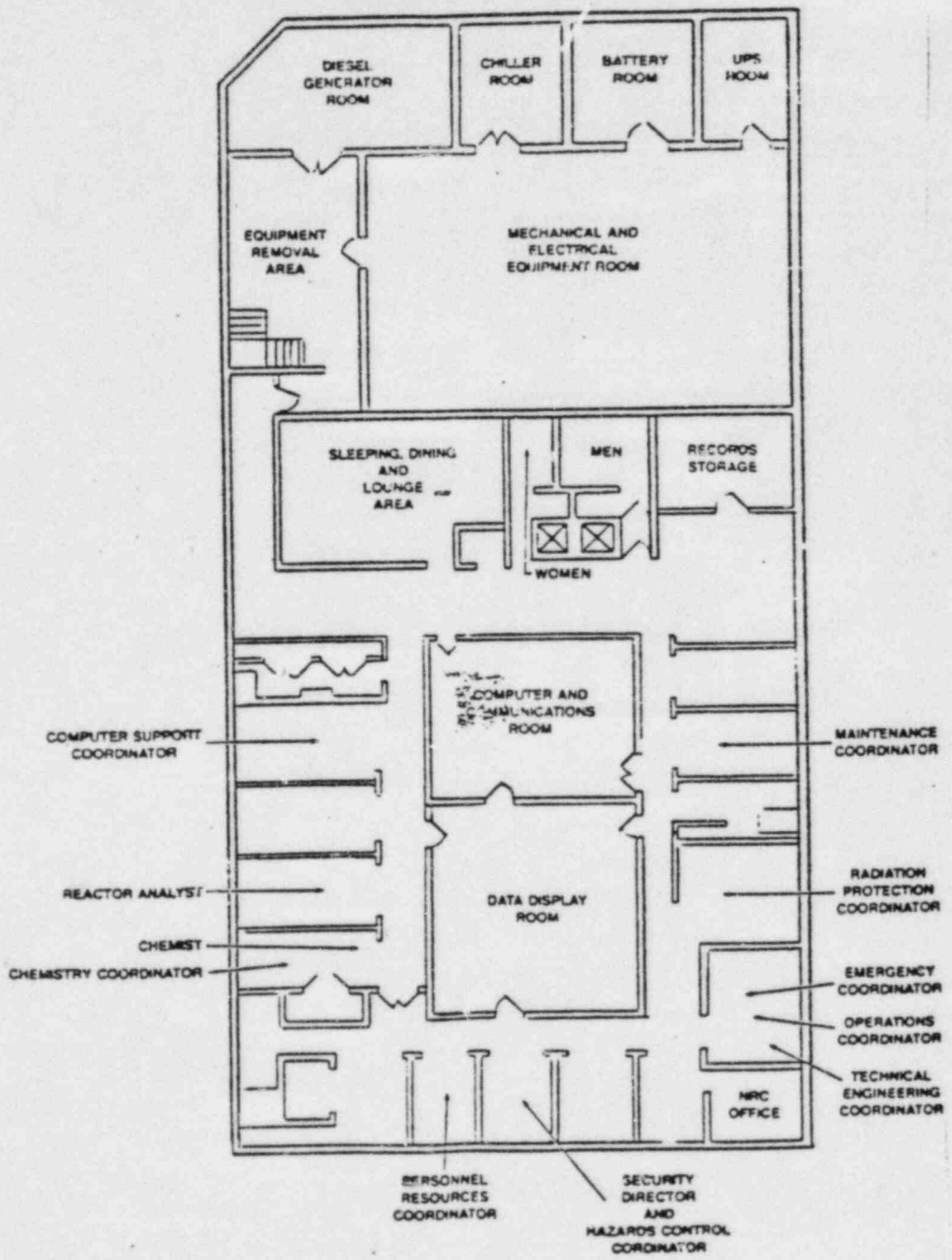
IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to TSC. Upon arrival, sign in on the TSC Staffing Board and establish responsible area.	____/____
2. Establish communications with the Operations Advisor (Onsite) in the STSC.	____/____
*3 Receive data from the Operations Advisor (Onsite) and report it to the Emergency Coordinator.	_____

* Continuing Activity

Performed By _____
Signature

Date _____

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



PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-12	
OPERATIONS SUPPORT CENTER ACTIVATION	REVISION 2	Page 1 of 12

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PRB/PRG REVIEW _____ DATE 7-6-84

APPROVED BY _____ DATE 7/6/84

EFFECTIVE DATE 07-16-84

DN-1666A/0196A

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Appendix B	- OSC Habitability Criteria	12

1.0 OBJECTIVE

This procedure provides instructions for the activation of the Operations Support Center (OSC) and alternate OSC (Service Building).

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-18, "Emergency Exposure Guidelines"

2.1.5 EPIP-20, "Personnel Assembly and Accountability"

2.1.6 EPIP-21, "Search and Rescue"

2.1.7 EPIP-25, "Reentry for Emergency Operations"

2.1.8 EPIP-29, "Area/Equipment Monitoring and Decontamination"

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. 3

2.2.4 10CFR20, "Standards for Protection Against Radiation", 1983.

2.2.5 ANSI N45.2.9 - 1974, "Requirements For Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants.

3.0 LIMITATIONS AND PRECAUTIONS

NOTE

In the onshift emergency organization, the Radiation Protection Monitor at the STSC determines the need to relocate the OSC staff and so informs the Emergency Coordinator.

3.1 Appendix B lists the habitability criteria established for the OSC. Habitability checks shall be conducted upon initial manning and as required thereafter. The results of the survey are to be transmitted to the Emergency Coordinator, via the Radiological Protection Coordinator, who determines the need to relocate personnel to the alternate OSC (Service Building).

3.2 If the Service Building is also uninhabitable, the Emergency Coordinator shall direct OSC personnel to report to one of the protected facilities (Control Room/Satellite Technical Support Center, Technical Support Center or Emergency Operations Facility). 2

3.3 At the direction of the Emergency Coordinator, the OSC may be partially activated to provide manpower resources for Emergency Teams (e.g., Search and Rescue, Emergency Repair) for a NOTIFICATION OF UNUSUAL EVENT emergency classification.

3.4 The OSC Coordinator's Checklist and associated log shall be retained for the life of the plant. 2

3.5 The OSC Coordinator shall forward his checklist and other written documentation along with any OSC team checklist and other written documentation to the Emergency Coordinator after event termination.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities 2

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

4.1.2 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.

4.1.3 The function of the OSC remains the same for an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY classification. Personnel/equipment augmentation may vary according to specific circumstances.

4.1.4 The OSC emergency positions and personnel primarily responsible for them include:

(1) OSC Coordinator -I&C Shift Maintenance Foreman.

(2) Field Monitoring Teams and Radiological Surveys (in plant/onsite/offsite) - Radiation Protection Personnel.

(3) Radiation Protection Teams (Personnel Monitoring/ Dosimetry/Decontamination/Access Control/Reentry Control) - Radiation Protection Personnel.

(4) Repair Teams (Maintenance/Repair/Damage Control) - Maintenance Staff.

(5) Chemistry Sampling/Analysis - Chemistry Personnel.

(6) Search and Rescue Teams/First-Aid Teams - Designated personnel from the above list.

(7) Fire Team - Designated personnel from the above list.

(8) Repairs Coordinator - Mechanical Shift Maintenance Foreman (onsite emergency organization).

(9) Assignment to the various teams formed from the OSC may include any personnel reporting to the OSC.

2

4.1.5 The primary OSC is located in the lunchroom of the affected unit's Auxiliary Building.

4.1.6 The OSC is equipped with dedicated telephone lines for communication with the TSC, Control Room, STSC and EOF.

4.1.7 The alternate OSC is located in the Service Building. OSC personnel shall relocate to this area if the Emergency Coordinator determines that this action is necessary.

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

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedure EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", is being implemented.

4.3 Instructions

4.3.1 Activation of the Primary OSC

4.3.1.1 The I&C Shift Maintenance Foreman shall report to the affected unit OSC and complete the check list in Appendix A, "OSC Coordinator (Onshift and Onsite) Check list".

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

(1) Maintenance Staff

(2) Radiation Protection Personnel

(3) Chemistry Personnel

4.3.1.3 Direct onshift Radiation Protection, Chemistry and Maintenance Technicians to contact their immediate Supervisor and discuss the emermgency situation including any additional manpower (Technicians) that is required.

4.3.1.4 If any additional manpower is required, call security at [redacted] and request the required technicians be manually notified to report to the OSC or as otherwise directed.

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 shall direct OSC personnel to evacuate/report to the alternate OSC (i.e., Service Building).

4.3.2.2 The OSC Coordinator shall ensure the transport of emergency equipment, including decontamination supplies, necessary to establish the alternate OSC.

4.3.2.3 In the event the alternate OSC becomes uninhabitable (see Appendix B for habitability criteria), OSC personnel shall report to one of the protected facilities (i.e., Control Room/Satellite Technical Support Center, Technical Support Center, Emergency Operations Facility) per the Emergency Coordinator's direction.

OSC COORDINATOR (ONSHIFT AND ONSITE)
CHECK LIST

POSITION FILLED BY: (1) I & C Shift Maintenance Foreman

RESPONSIBILITY: Activate OSC. Coordinate, assemble and dispatch manpower and equipment resources available at OSC. Serve as OSC Assembly Area Supervisor.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to OSC upon notification.	____/____
2. Ensure that communication devices are operable.	
(1) Radiological Line	____/____
(2) Maintenance Control Line	____/____
(3) Dedicated CR Line	____/____
(4) Dedicated TSC Line	____/____
(5) Dedicated STSC Line	____/____
(6) PBX Telephone	____/____
(7) Radio System	____/____
3. Conduct personnel accountability per EPIP-20, "Personnel Assembly and Accountability."	
(1) Obtain badge numbers and names of emergency personnel reporting to OSC and complete Individual Accountability Sheet.	____/____
(2) Inform Security Director of accountability within 20 minutes of initiation of signal.	____/____

TIME/INITIALS

4. Ensure that OSC emergency equipment and supplies are in a state of readiness in accordance with the posted inventory list. ____/____

5. Ensure that OSC reporting personnel have signed in on the OSC Staffing Board. ____/____

6. Report OSC readiness to Emergency Coordinator at STSC/CR (Onshift) using a dedicated phone line or at the TSC (Onsite) using the TSC dedicated phone line. ____/____

SUBSEQUENT ACTIONS

ALTERNATE OSC

7. If the primary OSC is uninhabitable, relocate OSC staff and necessary equipment to the alternate OSC, as directed by the Emergency Coordinator.

   (1) Service Building is the first alternate. ____/____

   (2) If the Service Building is also uninhabitable, relocate to one of the protected facilities (i.e., STSC/CR, TSC, EOF) per the Emergency Coordinator's direction. ____/____

SEARCH AND RESCUE

8. Upon direction from Emergency Coordinator, form Search and Rescue Team(s) per EPIP-21, "Search and Rescue". ____/____

   (1) Each team consists of 2 members.

   (2) Assign one member as Team Leader.

9. Obtain information from the Emergency Coordinator concerning identification and location of missing persons. ____/____

TIME/INITIALS

10. Provide Team(s) with search and rescue data: ____/____

    (1) I.D. of missing person(s).

    (2) Last known location (check REP if one was issued).

    (3) Job the individual was working.

    (4) Pertinent details of plant status.

11. Determine radiation levels and stay times with Radiation Protection Monitor (STSC) using the Radiological line or with Radiological Protection Coordinator (TSC, when activated) also using the Radiological line. ____/____

12. Inform the Team(s) of radiation exposure limits, if necessary, in accordance with EPIP-18, "Emergency Exposure Guidelines". ____/____

13. Direct Team(s) to notify Hazards Control Coordinator by radio (at TSC when activated) of location and/or removal of missing personnel. ____/____

14. Recall Team via radio when search and rescue operations are no longer necessary. ____/____

15. Inform the Hazards Control Coordinator at the TSC using the TSC dedicated phone line when Team has concluded its activities and returned to OSC. ____/____

RE-ENTRY FOR EMERGENCY OPERATIONS

16. Deploy Emergency Repair Team, per EPIP-25, "Re-entry for Emergency Operations", upon direction from Control Room (Onshift) or TSC (Onsite). ____/____

    (1) Team shall consist of at least two Maintenance Technicians and if radiological conditions necessitate, assign a Radiation Protection Technician to the team.

    (2) Designate one member the Team Leader.

TIME/INITIALS

17. Receive information from Emergency Coordinator, Emergency Maintenance Coordinator and Radiological Protection Technician on: ____/____

    (1) Work to be performed.

    (2) Number of people required.

    (3) Equipment needed.

    (4) Radiation conditions, if known.

18. Receive 1/2 hour reports from Team Leader via portable radio. ____/____

19. Receive report from Team Leader upon leaving if task cannot be completed in allotted stay time or allotted dose. ____/____

AREA/EQUIPMENT MONITORING AND DECONTAMINATION

20. Deploy Decontamination Teams, per EPIP-29, "Area/Equipment Monitoring and Decontamination", upon guidance from Control Room (Onshift) and/or TSC (Onsite). ____/____

    (1) Team shall consist of one Radiation Protection Technician and necessary Chemical, Mechanical, Electrical, or Maintenance Technicians. ____/____

PERSONNEL

*21. Coordinate OSC personnel requirements with the Personnel Resources Coordinator at the TSC, using the TSC dedicated phone line. ____/____

LOG

*22. Maintain an Emergency Action Log throughout emergency. ____/____

---

* Continuing Activity

Performed By _____ Date _____
Signature

2

OSC HABITABILITY CRITERIA

The following limits should be considered upper limit habitability criteria.

WHOLE BODY DOSE RATE	AIRBORNE ACTIVITY CONCENTRATION[1]	CONSIDER EVACUATION WITHIN
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 10CFR20. 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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EMERGENCY OPERATIONS FACILITY ACTIVATION	REVISION 2	Page 1 of 11

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DEPT. HEAD [signature] DATE 4/21/84

PRB/PRG REVIEW [signature] DATE 7-6-84

APPROVED BY [signature] DATE 7-6-84

EFFECTIVE DATE 07-16-84

DN-1765A/0196A

PV216-000A (9/82)

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- -

1.0 OBJECTIVE

2

1.1 To provide instructions for the activation of the Emergency Operations Facility (EOF).

2.0 REFERENCES

2

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Action"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-39, "Emergency Operations Director"

2.1.5 EPIP-40, "Administrative and Logistics Coordinator"

2.1.6 EPIP-41, "Radiological Assessment Coordinator"

2.1.7 EPIP-42, "Technical Analysis Coordinator"

2.1.8 EPIP-43, "Radiological Assessment Communicator"

2.1.9 EPIP-44, "TSC Liaison Engineer"

2.1.10 EPIP-45, "Government Liaison Engineer"

2.1.11 EPIP-46, "EOF Contact"

2.1.12 EPIP-47, "Logistics Communicator"

2.1.13 EPIP-48, "Security Coordinator"

2.1.14 EPIP-49, "Dosimetry Clerk"

2.1.15 EPIP-50, "Status Board Keeper"

2.1.16 EPIP-51, "Offsite Technical Representative"

2.1.17 EPIP-52, "JENC Technical Advisor"

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. 3.

2.2.4 ANSI N45.2.9 - 1974, "Requirements for the Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Activation of the EOF should be completed within the time augmentation goals as set forth in the PVNGS Emergency Plan.

3.2 The Security Force Member Checklist (Appendix C) shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

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.

4.1.2 During an ALERT, or more severe accident, overall command and coordination of APS emergency operations shall be exercised by the Emergency Operations Director at the EOF. He shall provide direction and support for inplant emergency response actions to the Emergency Coordinator, and coordinate APS headquarters support through the CEC. In addition, he shall communicate plant status updates and radiological release data to the Joint ENC and the CEC.

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

4.1.3.1 Radiological Analysis

Receive and evaluate source term, release and meteorological information from the TSC. Interface with ARRA representatives to recommend protective action(s) for the population-at-risk.

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.

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 Information Support

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

4.1.4 The EOF shall be activated and manned for an ALERT or more severe emergency classification.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and procedure EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions" is being implemented.

4.3 Instructions

4.3.1 Activation of the EOF

4.3.1.1 The Security Director shall assign a Security Force Member to the EOF to lock the door by stairway #2. The Security Force Member shall then station himself inside the Annex Building basement air lock to restrict entrance into the EOF only to authorized personnel and complete checklist in Appendix C.

2

NOTE

Each individual listed is responsible for set up of their working area of the EOF. This includes phone hook-up (if necessary) and breaking out from the storage closet all required material to function properly.

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

a. Emergency Operations Director - EPIP-39

b. Administration and Logistics Coordinator - EPIP-40

c. Radiological Assessment Coordinator - EPIP-41

d. Technical Analysis Coordinator - EPIP-42

e. Radiological Assessment Communicator - EPIP-43

f. TSC Liaison Engineer - EPIP-44

g. Government Liaison Engineer - EPIP-45

h. EOF Contact - EPIP-46

i. Logistics Communicator - EPIP-47

j. Security Coordinator - EPIP-48

k. Dosimetry Clerk - EPIP-49

l. Status Board Keeper - EPIP-50

4.3.1.3 The Offsite Technical Representative shall report to the Technical Operations Center (TOC) at the State Emergency Operations Center (EOC) and complete the check list in EPIP-51.

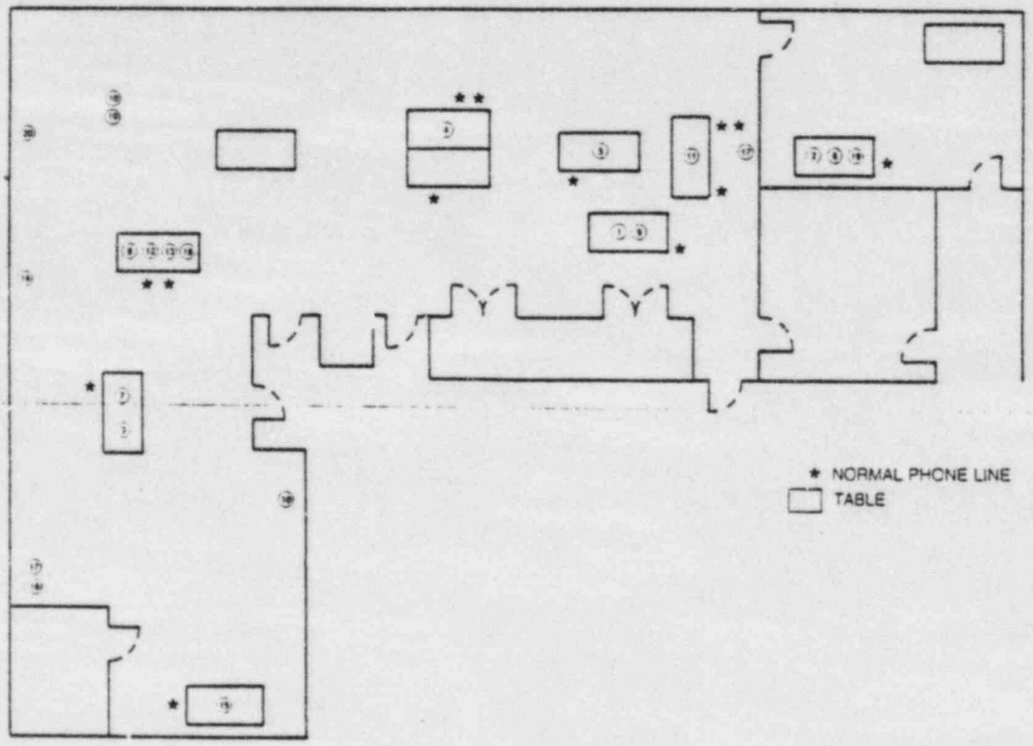
4.3.1.4 The JENC Technical Advisor shall report to the Joint Emergency News Center and complete the check list in EPIP-52.

4.3.1.5 Appendices A, B and D are provided to show EOF layout and floorplan.

4.3.2 Declaration of EOF Readiness

4.3.2.1 Upon completion of EOF staffing and readiness checks, the Emergency Operations Director shall contact the Emergency Coordinator, the Corporate Emergency Center (if activated) and the Joint Emergency News Center and inform them that the EOF is operational.

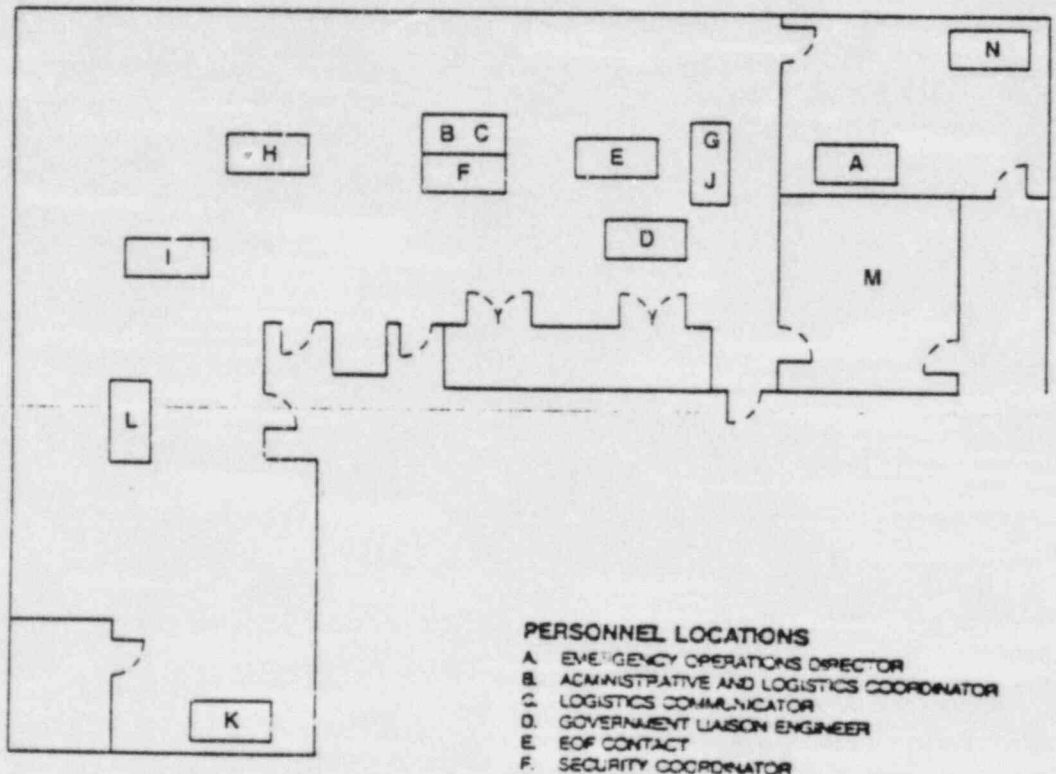
EMERGENCY COMMAND CENTER EQUIPMENT LAYOUT



COMMUNICATIONS

1. NAN
2. EC EOD LINE
3. STATE RADIO
4. OSC LINE
5. PUBLIC INFORMATION #1
6. VOICE CIRCUIT #1
7. VOICE CIRCUIT #2
8. VOICE CIRCUIT #3
9. VOICE CIRCUIT #4
10. FACSIMILE
11. TECHNICAL LINE
12. TSC LINE
13. ENVIRONMENTAL ASSESSMENT LINE
14. CRACS TERMINAL
15. BASE STATION RADIO
16. CR LINE
17. SPDS TERMINAL
18. STSC LINE
19. EXECUTIVE PRIVATE LINE
20. SIMS TERMINAL

EMERGENCY COMMAND CENTER LAYOUT



PERSONNEL LOCATIONS

A. EMERGENCY OPERATIONS DIRECTOR
B. ADMINISTRATIVE AND LOGISTICS COORDINATOR
C. LOGISTICS COMMUNICATOR
D. GOVERNMENT LIAISON ENGINEER
E. EOF CONTACT
F. SECURITY COORDINATOR
G. TECHNICAL ANALYSIS COORDINATOR
H. STATUS BOARD KEEPER
I. RADIOLOGICAL ASSESSMENT COORDINATOR
J. TSC LIAISON ENGINEER
K. RADIOLOGICAL ASSESSMENT COMMUNICATOR
L. STATE OF ARIZONA / FEMA
M. NRC OFFICE
N. LICENSING COORDINATOR

SECURITY FORCE MEMBER
CHECK LIST

POSITION FILLED BY: Security Personnel

RESPONSIBILITY: Restrict access to EOF.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Upon being relieved by the reporting Security Officer proceed to EOF and perform the following:

   (1) Lock door by stairway #2 (see Appendix D) to restrict entrance to the EOF. ____/____

   (2) Man post outside of the Annex Building basement lobby to restrict entrance into the EOF. ____/____

2. Report completion of EOF readiness to Security Captain at Security Building. ____/____

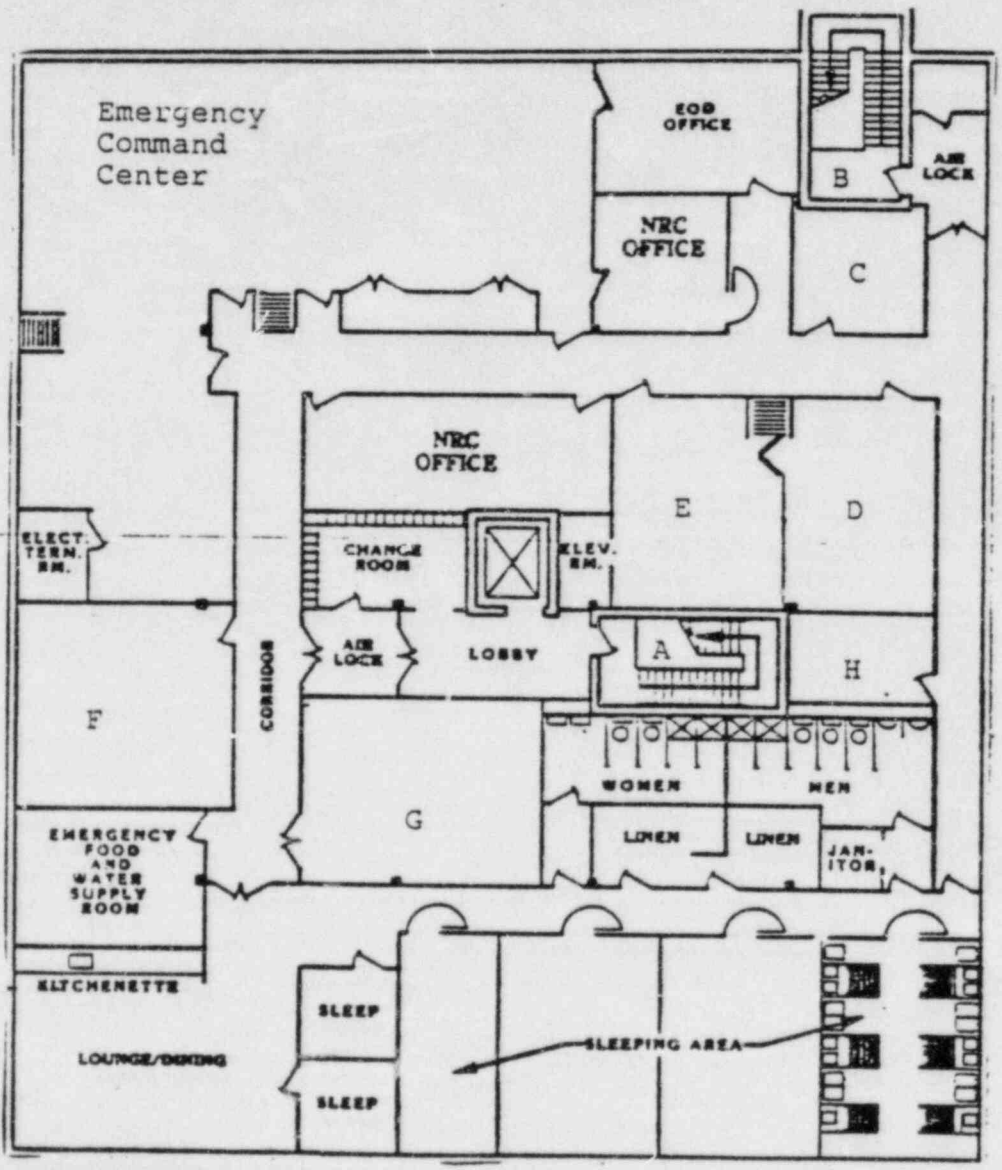
SUBSEQUENT ACTIONS

3. Submit checklist to Security Coordinator when emergency is terminated. ____/____

Performed By _____
Signature

Date _____

FLOORPLAN - EMERGENCY OPERATIONS FACILITY (EOF) PALO VERDE NUCLEAR GENERATING STATION (PVNGS)



A) Stairway #1
B) Stairway #2
C) Document Storage
D) E Plan Staff Office
E) E Plan Staff Office
F) Dosimetry Office
G) Respiratory Fit Test Office
H) Pump Room

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14A	
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PVNGS # B-9B

DEPT. HEAD [signature] DATE 9/19/84

PRB/PRG REVIEW [signature] DATE 9/16/84

APPROVED BY [signature] DATE 9/19/84

EFFECTIVE DATE 9-27-84

DN-1620A/0651A

PV216-00DA (8/82)

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14A	
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REVISION HISTORY

Rev. No.	Date	Revised Pages	Comments

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CONTROLLED DOCUMENT

1.0 OBJECTIVE

This procedure permits determination of radioactive release rates (Sections 4.3.1 and 4.3.2) or the projection of release rates using design basis containment leak rates (Sections 4.3.3 and 4.3.4).

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-14B, "Initial Dose Assessment"

2.1.2 78AC-0ZZ06, "Document and Record Turnover Control"

2.1.3 74CH-9ZZ47, "Core Damage Assessment"

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 FSAR, Chapter 11, "Process and Effluent Radiological Monitoring and Sampling Systems", Section 11.5, August 1981.

2.2.3 NUREG-0737, "Clarification of TMI Action Plan Requirements", October 1980.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The accuracy of plant vent monitors is 25% and the accuracy of containment area monitors is 20%. Therefore, release rate calculations may be limited to two significant figures.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 Monitor readings and monitor channel number should be obtained from the communication console in the Control Room or the console in the Radiation Protection office.

4.1.2 "Effective age" refers to the time between core shutdown and start of the release. Release rates will vary as a function of "effective age".

3

4.1.3 When selecting values from the appendices, data corresponding to 1% failed fuel shall be used unless plant conditions indicates severe fuel cladding failure. When the effective age falls between two listed values, an effective age that yields the higher value shall be used.

4.1.4 The Radiation Protection Technician, Radwaste (affected unit) shall be responsible for the initial offsite dose calculations (EPIPs-14A, 14B).

4.1.5 The Radiological Protection Coordinator shall be responsible for dose assessment when the TSC is activated (EPIPs-14A, 14C).

4.1.6 All release rate determination/projection documents shall be processed in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

4.2 Prerequisites

None

4.3 Instructions

NOTE

Use Section 4.3.1 for actual releases through the Plant Vent, Fuel Building Vent Exhaust and/or Condenser Air Removal System. If the release is through the main steam lines only, proceed to Section 4.3.2. If it is desired to predict release rates from containment, proceed to Section 4.3.3.

4.3.1 Determination of Activity Release Rate From an Effluent Release Point (Appendix A)

4.3.1.1 Complete Section A of Appendix A, "Release Rate Determination From an Effluent Release Point" and obtain RMS data and monitor channel number from RP office to determine the monitor correction factor from Appendix B.

4.3.1.2 From the Control Room, determine which fans are operating and complete Section B. If fan operating information is not available, assume that all fans are running. Total plant release rate is the sum of the individual pathway release rates.

4.3.1.3 Complete Section C using the Total Noble Gas Release Rate from Section B and the values listed in Appendix C.

4.3.1.4 If a release is in progress via the main steam lines, continue with Section 4.3.2; if not, perform offsite dose projections in accordance with EPIP-14B, "Initial Dose Assessment".

4.3.2 Determination of Activity Release Rate From the Main Steam Lines (Appendix D)

4.3.2.1 Complete Section A of Appendix D, "Release Rate Determination from Main Steam System".

4.3.2.2 Multiply monitor readings from RU-139 A&B and RU-140 A&B by the Correction Factor shown below to obtain Corrected Monitor Reading. Record in Section B both Correction Factor used and Corrected Monitor Reading.

Effective Age (Hours)	Correction Factor
0.0 - 0.49	2.55
0.5 - 23.9	3.07
24.0 - 719.9	3.74
> 720	3.33

#020 0

NOTE

Appendix D, page 2 and page 3 are default values based on hypothetical source terms. Projections based on the use of these numbers should be verified as soon as possible utilizing field measurements and/or lab analysis.

4.3.2.3 Using page 2 of Appendix D, Main Steam Line Data, select the nearest numbered line to the intersection of lines drawn through Effective Age and Corrected Monitor Reading.

4.3.2.4 Using page 3 of Appendix D, determine the Noble Gas

Concentration by traveling vertically from the Effective Age on the x-axis to the intersection of the numbered line selected in 4.3.2.3 and then horizontally to the y-axis.

4.3.2.5 Record Noble Gas Concentration for each monitor in Section B.

4.3.2.6 Obtain from the Control Room the Reactor Coolant System (RCS) temperature and steam line flow rates. Record flow rates in Section B.

4.3.2.7 Using RCS temperature and page 4 of Appendix D, select the appropriate Conversion Factor and record in Section B.

4.3.2.8 Complete Section B by multiplying Noble Gas Concentration by Conversion Factor and Steam Flow Rate.

4.3.2.9 Complete Section C using Total Noble Gas Release Rate from Section B and values listed in Appendix C.

4.3.2.10 Add noble gas and I-131 release rates to those determined in Section 4.3.1 and perform offsite dose projections in accordance with EPIP-14B.

NOTE

This section is to be performed using information from area monitors (RU-148 or RU-149). Appendix E, pages 2 - 4 are default values based on hypothetical source terms. Projections based on the use of these numbers should be verified as soon as possible utilizing field measurements and/or lab analysis. If release rate projection is to be based on RU-1 (containment atmosphere monitor) proceed to Section 4.3.4.)

4.3.3 Release Rate Determination From an Isolated Containment Using Design Basis Leak Rates and Area Monitors or RU-1 (Appendix E)

4.3.3.1 Complete Section A of Appendix E, page 1. Appendix E provides data for 1% failed fuel and total core inventory. If plant conditions indicate potential fuel failure, base projected/actual dose projections on data for 1% failed fuel. Should conditions worsen prior to obtaining chemistry data, extrapolate data from Appendix E if sufficient plant parameters allow; otherwise, assume worst case/total core inventory.

4.3.3.2 Record the average monitor reading in Section B and using predicted values from Appendix E, pages 2 - 4, calculate Projected Noble Gas Release Rate.

4.3.3.3 Complete Section C using Projected Noble Gas Release Rate and values listed in Appendix C.

3

4.3.4 Release Rate Determination From an Isolated Containment Using Design Basis Leak Rates and RU-1

4.3.4.1 Complete Section A of Appendix E, page 1, disregarding area monitor readings.

4.3.4.2 Calculate Projected Noble Gas Release Rate in Section D of Appendix E using RU-1 Channel 1 monitor reading.

4.3.4.3 Calculate Projected I-131 Release Rate in Section E using Projected Noble Gas Release Rate from Section D and values listed in Appendix C.

4.3.5 To calculate release rate based on grab sample data use the IBM-PC in conjunction with information obtained per procedure 74CH-9ZZ47, "Core Damage Assessment".

3

RELEASE RATE DETERMINATION FROM AN EFFLUENT RELEASE POINT

Section A: Release Data

RX SHUTDOWN: Date _____ Time _____ EFFECTIVE AGE _____

REL START: Date _____ Time _____

Section B: Noble Gas Release Rate Determination

Part 1. Plant Vent (Aux & Radwaste Bldg, Cntmt Refueling & Cntmt Power Access Purge)

HAN-J01A (30,000 cfm)	_____				
HAN-J01B (30,000 cfm)	_____				
HRN-J01A (25,500 cfm)	_____				
HRN-J01B (25,500 cfm)	_____		Noble Gas Conc		
CPN-J01A (16,500 cfm)	_____	Effective Age	(RU-143 or	Conversion Constant	Noble Gas Release
CPN-J01B (16,500 cfm)	_____	Correction	RU-144)	(cc-Ci/cfm	Rate
CPN-J02 (2,200 cfm)	_____	Factor (App B)	(uCi/cc)	sec-uCi	(Ci/sec)

TOTAL FLOW RATE (cfm) _____ X _____ X _____ X 4.72E-04 = _____

Part 2. Condenser Air Removal System

Vacuum Pump A (60 cfm)	_____				
Vacuum Pump B (60 cfm)	_____		Noble Gas Conc		
Vacuum Pump C (60 cfm)	_____	Effective Age	(RU-141 or	Conversion Constant	Noble Gas Release
Vacuum Pump D (60 cfm)	_____	Correction	RU-142)	(cc-Ci/cfm	Rate
Steam Packing Exhaust	_____	Factor (App B)	(uCi/cc)	sec-uCi	(Ci/sec)

TOTAL FLOW RATE (cfm) _____ X _____ X _____ X 4.72E-04 = _____

Part 3. Fuel Building Vent

HFN-J01A (21,750 cfm)	_____				
HFN-J01B (21,750 cfm)	_____		Noble Gas Conc		
HFA-J01 (6,000 cfm)	_____	Effective Age	(RU-145 or	Conversion Constant	Noble Gas Release
HFB-J01 (6,000 cfm)	_____	Correction	RU-146)	(cc-Ci/cfm	Rate
		Factor (App B)	(uCi/cc)	sec-uCi	(Ci/sec)

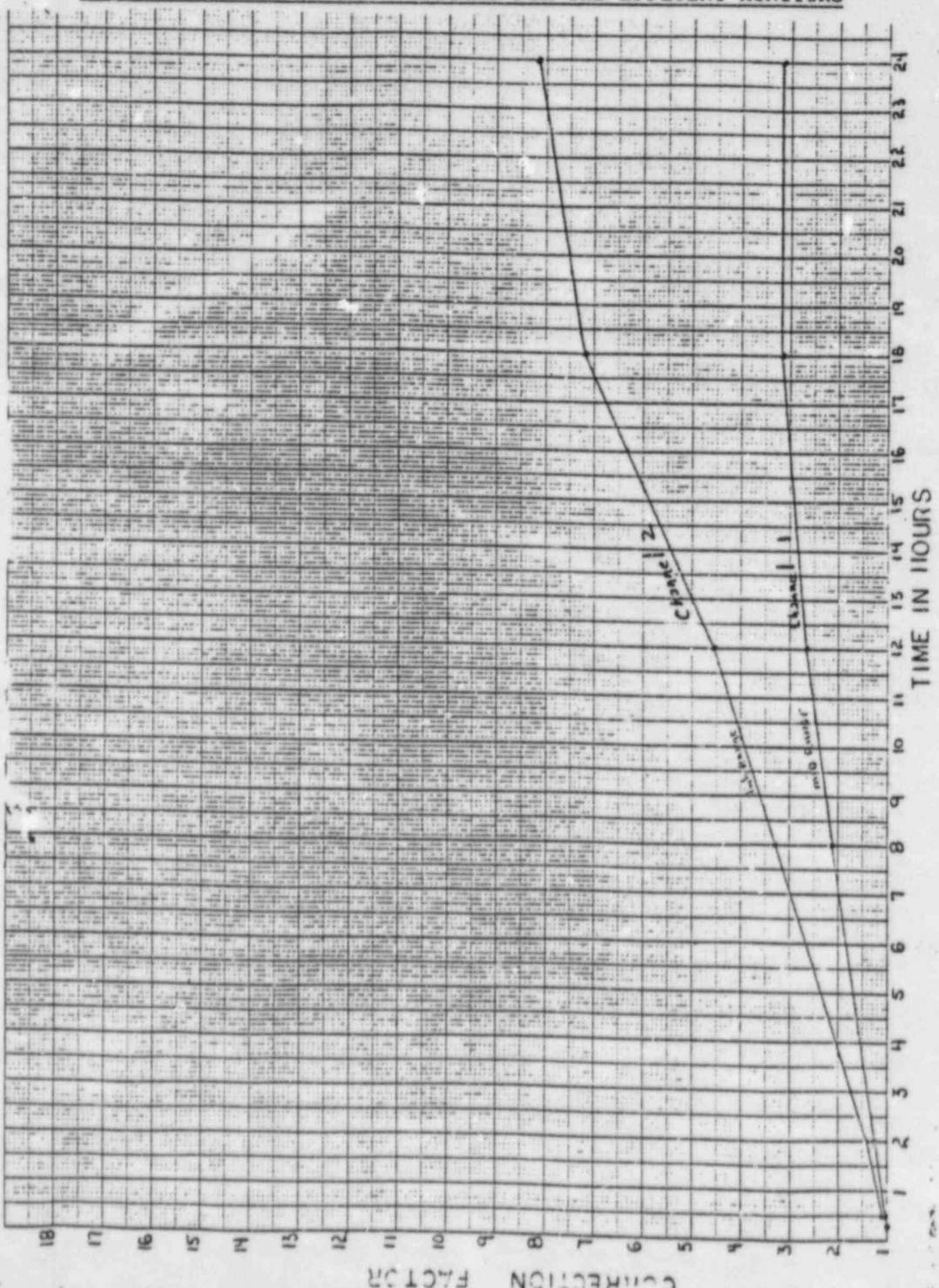
TOTAL FLOW RATE (cfm) _____ X _____ X _____ X 4.72E-04 = _____

TOTAL PLANT VENT NOBLE GAS RELEASE RATE (Ci/sec) = _____

Section C: I-131 Release Rate Determination

Noble Gas Release Rate (Section B) (Ci/sec)		Total Iodine to Noble Gas Ratio (Appendix C)		Volatile Factor		I-131 to Total Iodine Ratio (Appendix C)		I-131 Release Rate (Ci/sec)
_____	X	_____	X	.25	X	_____	=	_____

EFFECTIVE AGE CORRECTION FACTORS FOR THE EFFLUENT MONITORS



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NOBLE GAS AND IODINE RADIOLOGICAL DATA

Effective Age	1% FAILED FUEL Relative Release Rate Ratios of Tot I /NG	1% FAILED FUEL Relative Release Rate Ratios of I-131 /Tot I	Effective Age	TOTAL CORE INVENTORY Relative Release Rate Ratios of Tot I /NG	TOTAL CORE INVENTORY Relative Release Rate Ratios of I-131 /Tot I
0	0.291	0.264	0	0.894	0.121
0.1	0.291	0.267	0.1	1.188	0.124
0.2	0.290	0.269	0.2	1.371	0.128
0.3	0.290	0.272	0.3	1.481	0.131
0.4	0.289	0.274	0.4	1.553	0.134
0.5	0.288	0.276	0.5	1.603	0.137
0.6	0.287	0.279	0.6	1.640	0.141
0.7	0.286	0.281	0.7	1.668	0.144
0.8	0.285	0.283	0.8	1.688	0.147
0.9	0.284	0.285	0.9	1.701	0.150
1	0.283	0.287	1	1.710	0.153
2	0.275	0.306	2	1.680	0.180
3	0.269	0.323	3	1.623	0.202
4	0.263	0.338	4	1.580	0.221
5	0.258	0.352	5	1.547	0.237
6	0.253	0.366	6	1.517	0.252
7	0.248	0.378	7	1.488	0.266
8	0.244	0.391	8	1.459	0.279
9	0.240	0.403	9	1.430	0.292
10	0.235	0.415	10	1.401	0.305
20	0.203	0.521	20	1.149	0.420
30	0.181	0.612	30	0.977	0.521
40	0.166	0.688	40	0.865	0.609
50	0.155	0.753	50	0.789	0.685
60	0.148	0.807	60	0.737	0.750
70	0.143	0.851	70	0.700	0.805
80	0.140	0.886	80	0.677	0.848
90	0.139	0.913	90	0.663	0.884
100	0.138	0.934	100	0.655	0.911
200	0.156	0.997	200	0.719	0.995
300	0.187	1.000	300	0.853	1.000
400	0.225		400	1.009	
500	0.269		500	1.177	
600	0.320		600	1.344	
700	0.378		700	1.483	
800	0.440		800	1.561	
900	0.501		900	1.546	
1000	0.552		1000	1.426	

3

RELEASE RATE DETERMINATION FROM MAIN STEAM SYSTEM

Section A: Release Data

REACTOR SHUTDOWN: Date _____ Time _____

RELEASE START: Date _____ Time _____

EFFECTIVE AGE: _____

Section B: Noble Gas Release Rate Determination

	RU-139A	RU-139B	RU-140A	RU-140B
Monitor Reading (mr/hr)				
Monitor Correction Factor (Step 4.3.2.2)				
Corrected Monitor Reading (mr/hr)				
Noble Gas Concentration (Appendix D) (uCi/cc)				
Conv Factor (App D) (cc-Ci-hr/lb-uCi-sec)				
Steam Flow Rate Control Rm (E+06 lbs/hr)				
Noble Gas Release Rate (Ci/sec)				

TOTAL STEAM LINE NOBLE GAS RELEASE RATE = _____

Section C: I-131 Release Rate Determination

Noble Gas Release Rate (Section B) (Ci/sec)		Total Iodine to Noble Gas Ratio (Appendix C)		Volatile Factor		I-131 to Total Iodine Ratio (Appendix C)		I-131 Release Rate (Ci/sec)
_____	X	_____	X	1.00	X	_____	=	_____

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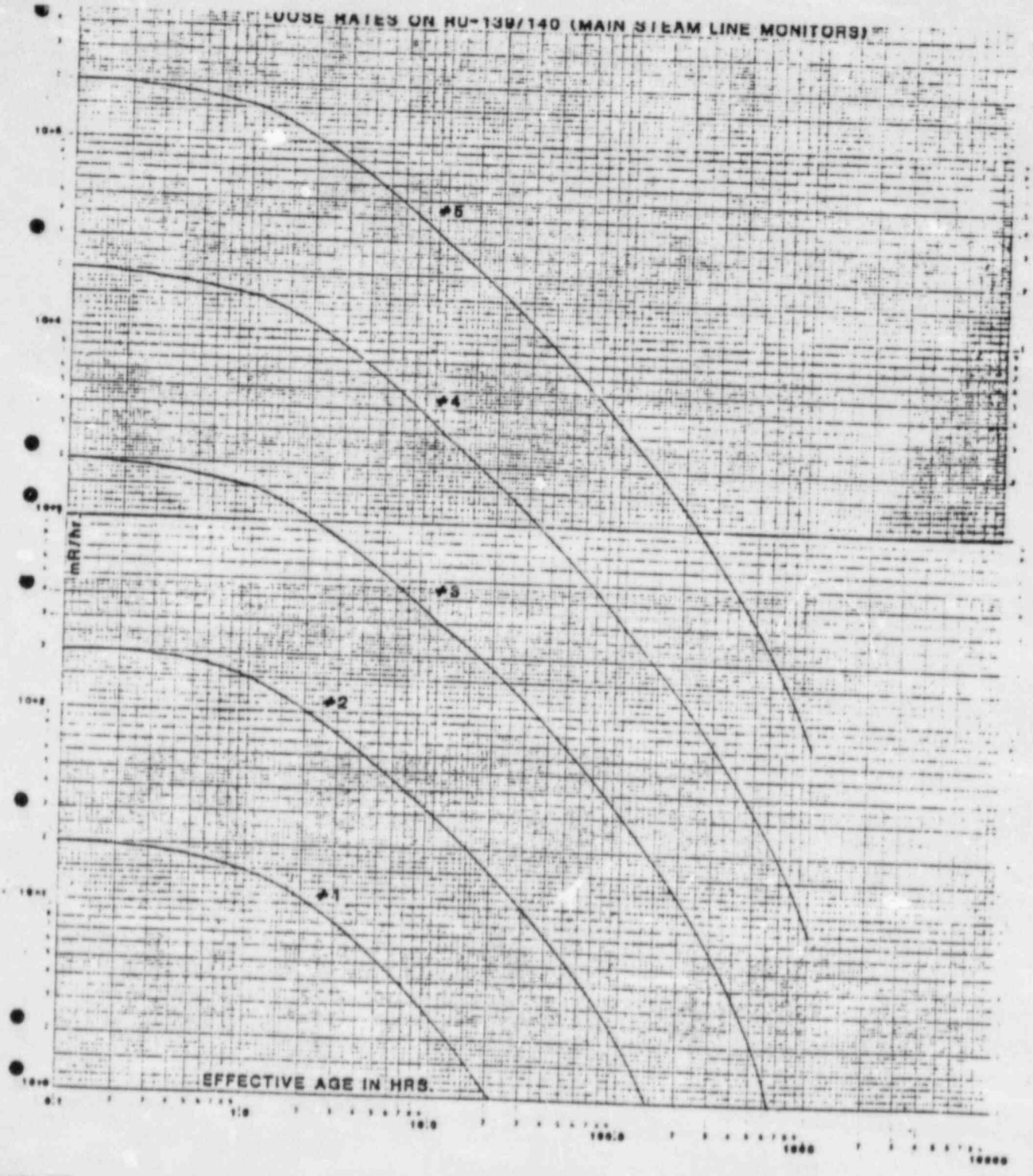

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14A	APPENDIX D Page 3 of 4
RELEASE RATE DETERMINATION	REVISION 3	Page 16 of 21

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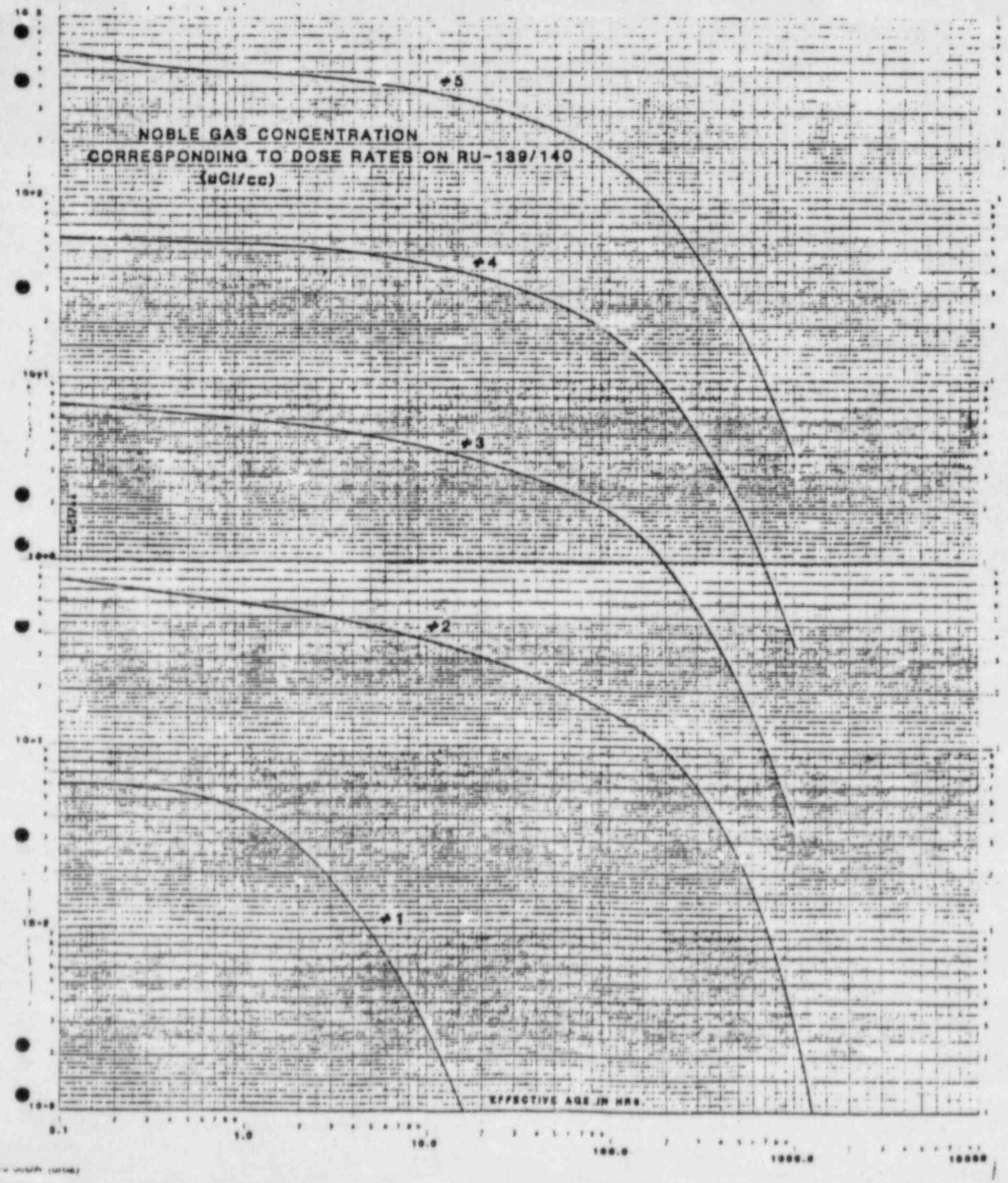

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Reactor Coolant System Temperature	Conversion Factor (cc-Ci-hr/lb-uCi-sec)
200	2.65E-04
220	1.82E-04
240	1.28E-04
260	9.25E-05
280	6.81E-05
300	5.08E-05
320	3.86E-05
340	2.97E-05
360	2.33E-05
380	1.84E-05
400	1.47E-05
420	1.18E-05
440	9.58E-06
460	7.81E-06
480	6.42E-06
500	5.31E-06
520	4.39E-06
540	3.67E-06
560	3.06E-06
580	2.53E-06
600	2.10E-06
620	1.74E-06
640	1.42E-06
660	1.14E-06
680	8.75E-07

3

RELEASE RATE DETERMINATION FROM AN ISOLATED CONTAINMENT USING DESIGN BASIS LEAK RATES AND AREA MONITORS OR RU-1

Section A: Plant Data

REACTOR SHUTDOWN: Date _____ Time _____

RELEASE START: Date _____ Time _____

EFFECTIVE AGE: _____

RU-148 reading: _____ RU-149 reading: _____

Section B: Noble Gas Release Rate Projection based on area monitors

Average of Monitor Readings (Section A) (mr/hr)		Expected Monitor Reading (Appendix E,p.2) (mr/hr)		Expected Nobel Gas Release Rate (Appendix E,p.3/4) (Ci/sec)		Projected Noble Gas Release Rate (Ci/sec)
_____	/	_____	X	_____	=	_____

Section C: I-131 Release Rate Projection based on area monitors

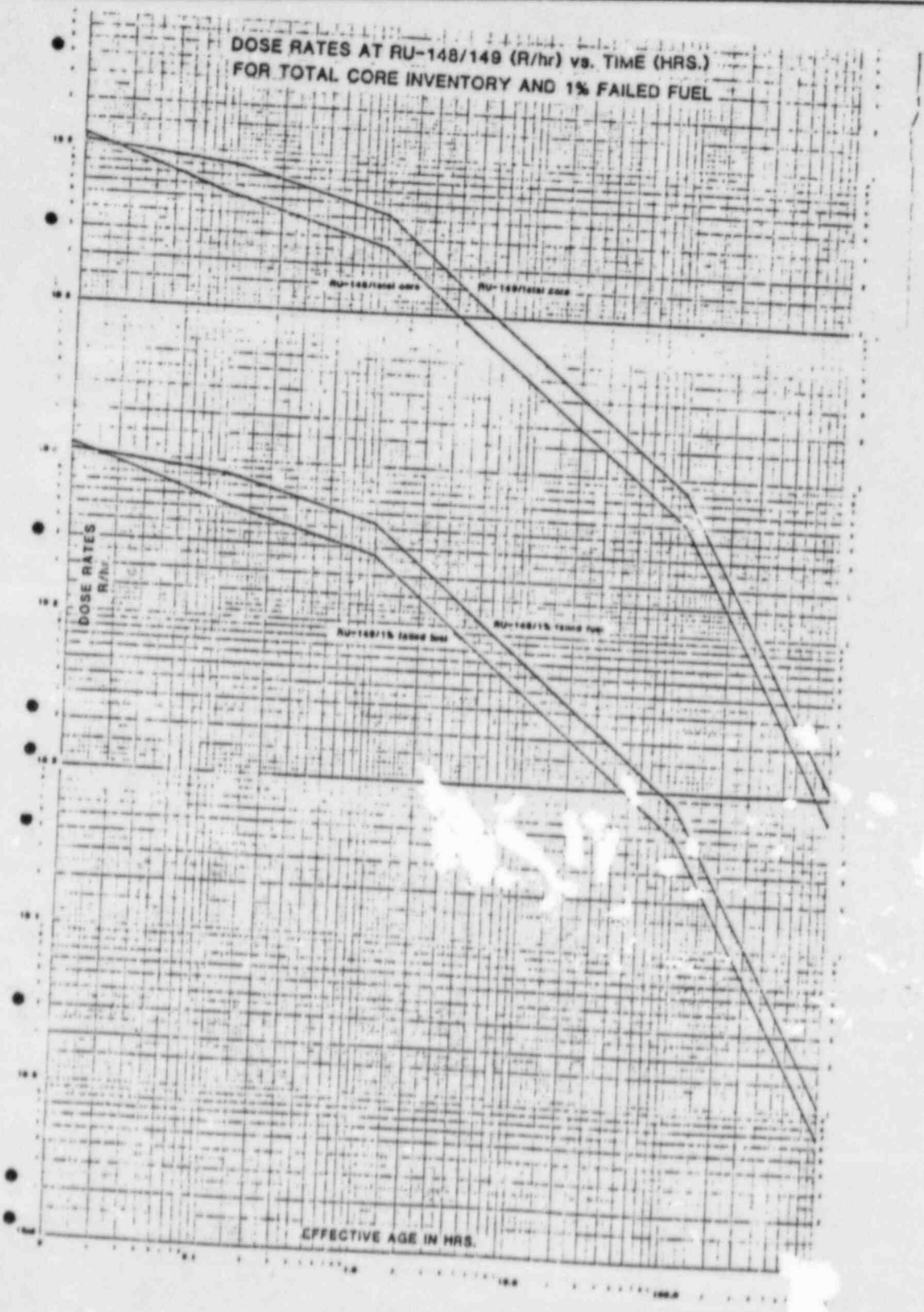
Projected Noble Gas Release Rate (Section B) (Ci/sec)		Total Iodine to Noble Gas Ratio (Appendix C)		I-131 to Total Iodine Ratio (Appendix C)		Projected I-131 Release Rate (Ci/sec)
_____	X	_____	X	_____	=	_____

Section D: Noble Gas Release Rate Projection based on RU-1

Noble Gas Concentration (RU-1, Ch 1) (uCi/cc)		Projected Leak Rate (Tech Specs) (cc/sec)		Conversion Constant (uCi to Ci)		Projected Noble Gas Release Rate (Ci/sec)
_____	X	8.52E+02	X	1E-06	=	_____

Section E: I-131 Release Rate Projection based on RU-1

Projected Noble Gas Release Rate (Section B) (Ci/sec)		Total Iodine to Noble Gas Ratio (Appendix C)		I-131 to Total Iodine Ratio (Appendix C)		Projected I-131 Release Rate (Ci/sec)
_____	X	_____	X	_____	=	_____



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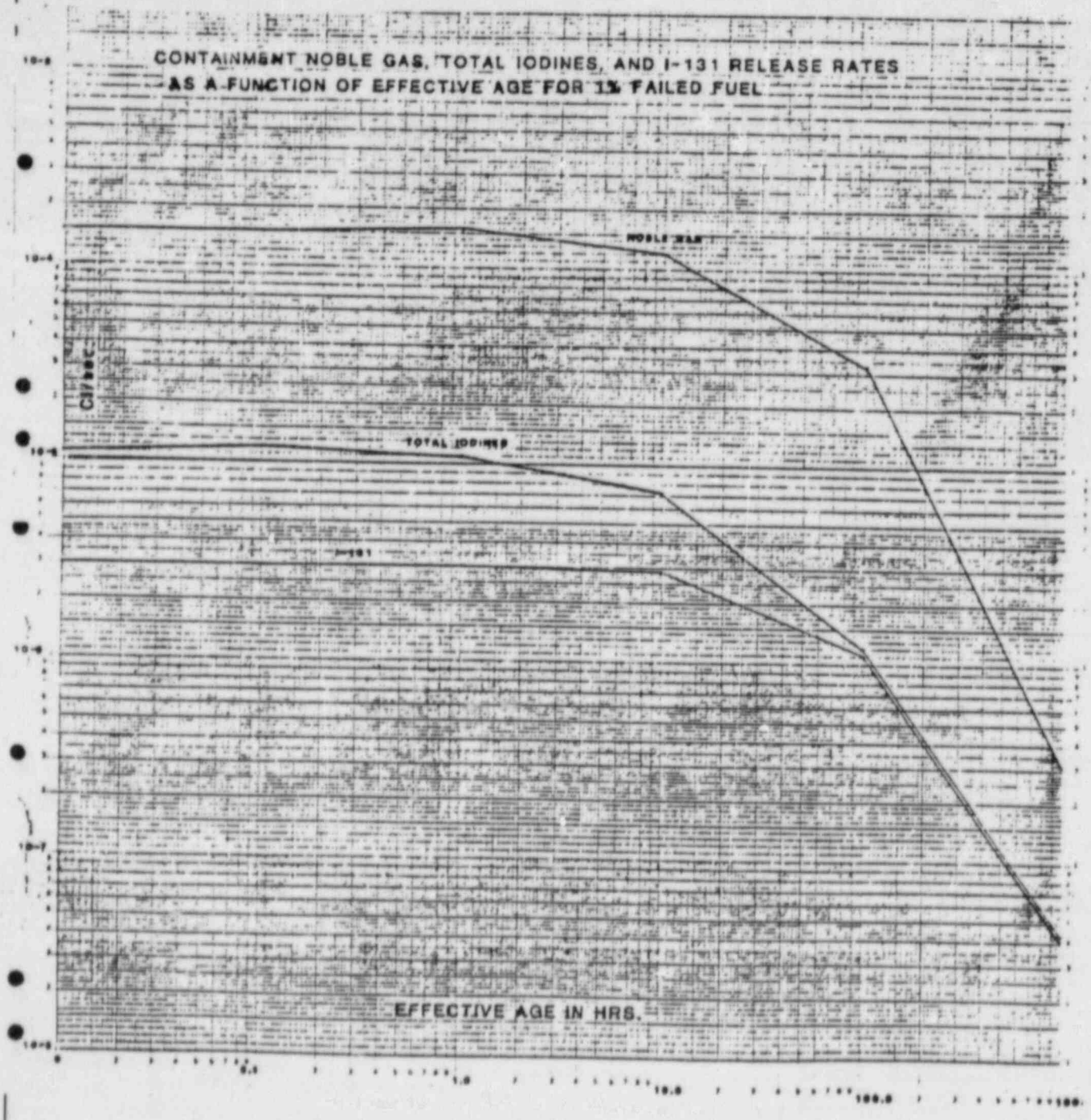
CONTAINMENT NOBLE GAS, TOTAL IODINES, AND I-131 RELEASE RATES
AS A FUNCTION OF EFFECTIVE AGE FOR 1% FAILED FUEL



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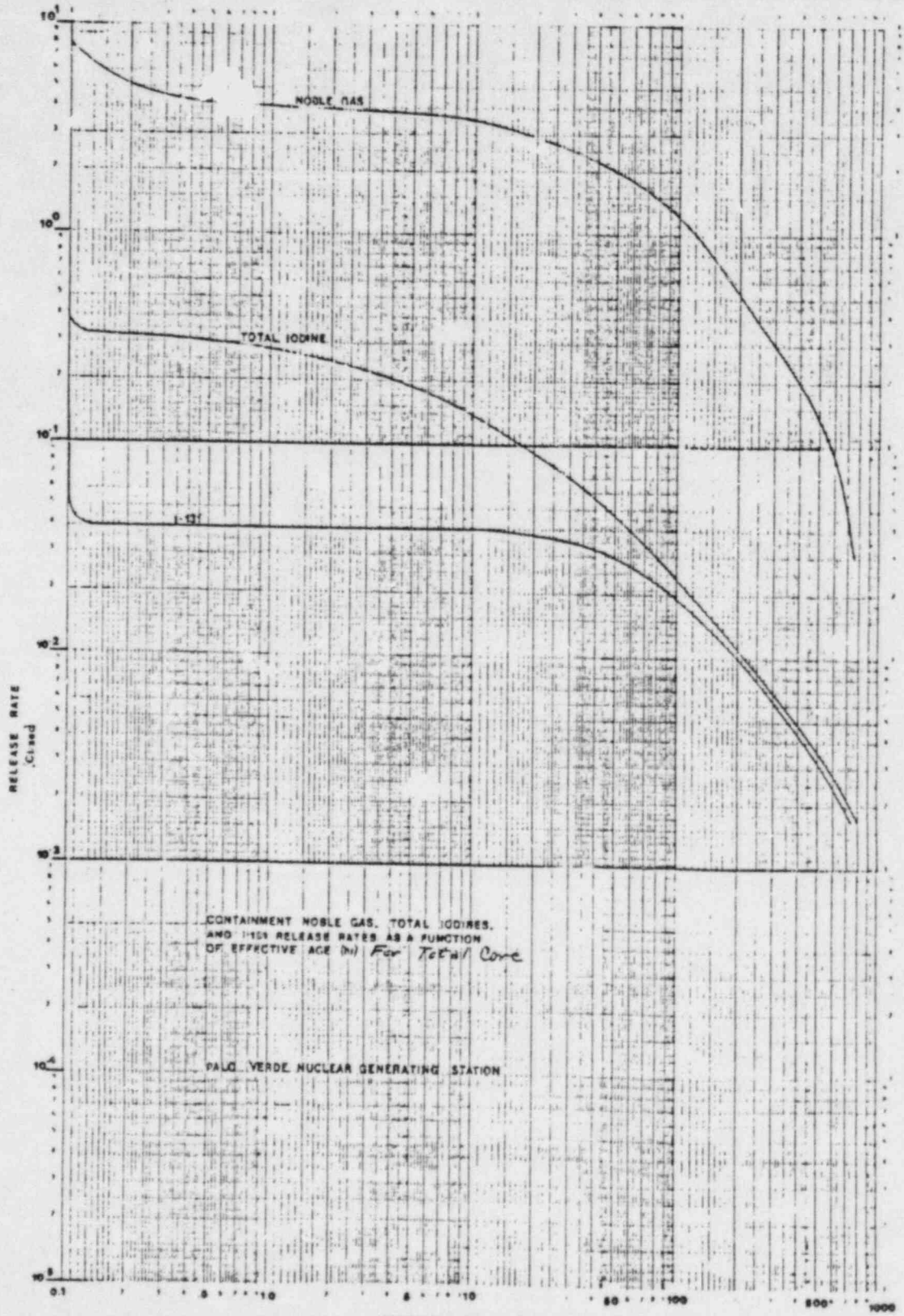

CONTAINMENT NOBLE GAS, TOTAL IODINES, AND I-131 RELEASE RATES AS A FUNCTION OF EFFECTIVE AGE (hr) For Total Core

PALO VERDE NUCLEAR GENERATING STATION

PV216-00DA (8/

CONTROLLED DOCUMENT

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-14B	
INITIAL DOSE ASSESSMENT	REVISION 2	Page 1 of 43

ASSIGNED COPY

PVNGS # 8-9B

DEPT. HEAD L.E. Brown for O.J. Zeringue DATE 8-16-84

PRB/PRG REVIEW O.J. Zeringue DATE 9/13/84

APPROVED BY O.J. Zeringue DATE 9/13/84

EFFECTIVE DATE 9/20/84

DN-1614A/0794A

PV216-00DA (8/82)

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CONTROLLED DOCUMENT

1.0 OBJECTIVE

This procedure provides instruction to assess projected offsite whole body and thyroid inhalation doses based upon meteorological data and noble gas/I-131 release rates. Dose calculations provide a basis for decision making concerning recommendation of appropriate protective action to state or county authorities.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-14A, "Release Rate Determination"

2.1.2 The CRAC System User's Manual, Rev. 2, April 1983

2.1.3 78A[illegible] 0ZZ06, "Document and Record Turnover Control"

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 NRC Reg Guide 1.145, August 1979; "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plant."

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

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", October 1977

2.2.7 EPA "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" Appendix D, Revised June 1980

2.2.8 Desert dispersion parameters as referenced in NUREG/CR-2858, "PAVAN: An Atmospheric Dispersion Program for Evaluating Design Basis Accidental Releases of Radioactive Materials from Nuclear Power Stations", November 1982

2.2.9 Meteorology and Atomic Energy, David A. Slade, Editor, 1968

2.2.10 Journal of Applied Meteorology, Volume 3, Pages 83-91, "A Diffusion Model for an Urban Area", D. B. Turner, 1964.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 None

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiation Protection Monitor shall be responsible for initial offsite dose projections.

4.1.2 The Radiological Protection Coordinator (at the TSC) shall be responsible for dose projections when available.

4.1.3 One Calculation of Projected Doses, Appendix A, shall be completed for each receptor site.

4.1.4 Upon event termination transmit Appendix A to DDC for retention in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

4.2 Prerequisites

4.2.1 A release of airborne radioactive material has occurred or is imminent and its rate of release has been determined in accordance with EPIP-14A, Release Rate Determination.

4.3 Instructions

NOTE

If both the CRAC system and the IBM are not available, carry out the manual procedure described in section 4.3.2 through 4.3.8. Upon completion of dose calculations (whether manual or computer-assisted), proceed with section 4.3.9.

4.3.1 Calculate doses and dose rates using the CRAC system, following instructions in the CRAC System User's Manual. If the emergency dose assessment capability of the CRAC system is unavailable, carry out the procedure for performing dose calculations using the IBM PC computer, as described in Appendix E.

4.3.2 Selection of Key Receptor Sites.

NOTE

As a minimum, the site boundary and points 2, 5 and 10 miles distant shall be key receptor sites.

4.3.2.1 Select the appropriate overlay that corresponds to the determined stability category and match the overlay with the release point on the map.

4.3.2.2 Rotate the overlay until the direct downwind plume centerline is oriented in the direction of the compass heading of the wind.

4.3.2.3 Select any points of radiological concern, such as schools or population centers, as a key receptor site.

4.3.3 Initiate Appendix A for each receptor site by recording location, date/time of reactor shutdown and date/time of release.

4.3.4 Complete Section A, Effective Age Determination, using the 35 ft. windspeed from the meteorological tower computer printout. If the printout is unavailable use the values listed in Appendix B, Default Meteorological Data. Plume arrival time is the time of release plus transit time.

4.3.5 Obtain the delta F degree (200ft-35ft) from the meteorological tower computer printout (ERFDADS). If the printout is unavailable use the default values in Appendix B.

Stability Category	Delta F Degree (200ft-35ft)
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

4.3.6 Complete Section B, X/Q Determination, using Appendix C, Plume Centerline Xu/Q Values.

4.3.7 Complete Section C, Whole Body Dose Projection, using X/Q from Section B, noble gas release rate and mean gamma decay energy in Appendix D, Radiological Data.

4.3.8 Complete Section D, Thyroid Inhalation Dose Projection, using X/Q from Section B, I-131 release rate, and iodine dose ratio from Appendix D.

4.3.9 Update and refine dose calculations every hour and upon significant changes (as indicated below):

1) Release Rate Change of 20 per cent;

2) Wind Direction Change of 25 degrees;

3) Wind Speed Change of 20 per cent;

4) Change of Stability Class.

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CALCULATION OF PROJECTED WHOLE BODY AND THYROID DOSES

Receptor Site Location: _____

Reactor Shutdown Date: ____ Time: ____ Radioactive Release Date: ____ Time: ____

Section A: "Effective Age" Determination

Downwind Distance (mi)	/	Windspeed @ 35 feet (mph)	=	Transit Time (hr)	+	Eff Age @ Release (hr)	=	Eff Age @ Receptor Site (hr)	Plume Arrival Time
_____	/	_____	=	_____	+	_____	=	_____	_____
_____	/	_____	=	_____	+	_____	=	_____	_____
_____	/	_____	=	_____	+	_____	=	_____	_____
_____	/	_____	=	_____	+	_____	=	_____	_____

Section B: X/Q Determination

Xu/Q (App C) ($sec\text{-}mi/m^3\text{-}hr$)	/	Windspeed @ 35 feet (mph)	=	X/Q (sec/m^3)
_____	/	_____	=	_____
_____	/	_____	=	_____
_____	/	_____	=	_____
_____	/	_____	=	_____

Section C: Whole Body Dose Projection

Noble Gas Release Rate (Ci/sec)	X	X/Q (sec/m^3)	X	Mean Gamma Decay Energy (App D) (Mev/dis)	X	Dose Factor ($Rem\text{-}dis\text{-}m^3$/hr-Mev-Ci)	=	Projected Whole body Dose Rate (Rem/hr)	X	Estimated Exposure Time (hr)	=	Projected Whole Body Dose (Rem)
_____	X	_____	X	_____	X	9.42E+02	=	_____	X	_____	=	_____
_____	X	_____	X	_____	X	9.42E+02	=	_____	X	_____	=	_____
_____	X	_____	X	_____	X	9.42E+02	=	_____	X	_____	=	_____
_____	X	_____	X	_____	X	9.42E+02	=	_____	X	_____	=	_____

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Section D: Thyroid Inhalation Dose Projection

I-131 Release Rate (Ci/sec)	X	X/Q (sec/m^3)	X	Dose Factor (Rem/m^3/hr-Ci)	=	I-131 Thyroid Dose Rate (Rem/hr)	X	Total Iodine Dose Ratio (App D)	X	Estimated Exposure Time (hr)	X	Projected Adult Thyroid Dose (Rem)	X 2 =	Projected Child Thyroid Dose (Rem)
_____	X	_____	X	1.86E+6	=	_____	X	_____	X	_____	X	_____	X 2 =	_____
_____	X	_____	X	1.86E+6	=	_____	X	_____	X	_____	X	_____	X 2 =	_____
_____	X	_____	X	1.86E+6	=	_____	X	_____	X	_____	X	_____	X 2 =	_____
_____	X	_____	X	1.86E+6	=	_____	X	_____	X	_____	X	_____	X 2 =	_____

DEFAULT METEOROLOGICAL DATA

HOUR	JAN Dir	JAN mph	JAN Class	FEB Dir	FEB mph	FEB Class	MAR Dir	MAR mph	MAR Class	APR Dir	APR mph	APR Class	MAY Dir	MAY mph	MAY Class	JUN Dir	JUN mph	JUN Class
1	N	4	G	N	5	G	NNE	6	G	NNE	6	G	SW	7	E	SW	6	G
2	NNE	4	G	NNE	5	G	NNE	5	G	NNE	5	G	SW	6	F	SW	5	G
3	NNE	4	G	N	4	G	NNE	5	G	NNE	5	G	SW	5	G	SW	5	G
4	N	4	G	NNE	4	G	NNE	5	G	NNE	5	G	SW	5	G	SW	5	G
5	NNE	4	G	NNE	4	G	NNE	5	G	NNE	5	G	NNE	4	G	NNE	5	G
6	NNE	4	G	NNE	4	G	NNE	5	G	NNE	5	G	NNE	4	G	NNE	4	G
7	NNE	4	G	NNE	4	G	N	4	G	N	4	G	NNE	4	G	NNE	4	F
8	NNE	4	G	N	4	G	NNE	4	E	NE	4	D	E	5	D	E	5	D
9	NNE	3	F	N	4	E	E	5	D	E	6	D	E	6	D	SE	6	D
10	E	4	D	E	5	D	E	6	D	ESE	7	C	SW	7	C	SW	6	D
11	E	5	D	E	6	D	E	7	D	SSW	7	B	S	8	A	SSW	7	A
12	E	6	D	E	7	D	E	8	D	SW	8	A	SW	8	A	SSW	8	A
13	E	6	D	E	7	D	SW	8	D	SW	9	A	SW	9	A	SW	9	A
14	E	6	D	E	7	D	SW	9	D	SW	9	A	SW	10	A	SW	10	A
15	E	7	D	E	7	D	SW	9	D	SW	10	A	SW	11	A	SW	10	A
16	E	6	D	SSW	7	D	SW	9	D	SW	11	A	SW	11	A	SW	11	A
17	E	6	D	SW	7	D	SW	9	D	SW	10	D	SW	11	C	SW	11	B
18	S	5	E	SE	6	D	SW	8	D	SW	10	D	SW	11	D	SW	12	D
19	SW	5	F	WSW	6	E	SW	8	E	WSW	9	E	SW	11	D	SW	11	D
20	NNW	5	F	NW	6	F	SW	7	F	SW	9	E	SW	10	E	SW	11	E
21	N	5	G	NNW	6	G	SW	7	F	SW	8	F	SW	10	E	WSW	10	F
22	NNE	5	G	N	6	G	N	7	G	SW	8	F	SW	9	E	WSW	9	F
23	N	5	G	NNE	6	G	NNE	7	G	SW	7	G	SW	9	E	SW	8	F
24	NNE	5	G	NNE	5	G	NNE	6	G	NE	7	G	SW	9	E	SW	8	F

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DEFAULT METEOROLOGICAL DATA (cont.)

HOUR	JUL Dir	JUL mph	JUL Class	AUG Dir	AUG mph	AUG Class	SEP Dir	SEP mph	SEP Class	OCT Dir	OCT mph	OCT Class	NOV Dir	NOV mph	NOV Class	DEC Dir	DEC mph	DEC Class
1	SW	7	E	SW	7	E	ENE	5	G	NNE	4	G	NNE	4	G	NNE	4	G
2	SW	7	E	SW	6	E	SW	5	G	NNE	4	G	NNE	4	G	NNE	4	G
3	SW	6	E	SW	6	E	N	5	G	NNE	4	G	NNE	4	G	NE	4	G
4	SW	6	E	SW	5	G	NNE	5	G	N	4	G	NNE	4	G	NNE	4	G
5	SW	5	E	NNE	5	G	N	4	G	NNE	4	G	NNE	4	G	NNE	4	G
6	SW	5	E	NNE	5	G	N	4	G	NNE	4	G	N	4	G	NNE	4	G
7	SW	5	E	NNE	5	E	N	4	G	NNE	4	G	N	4	G	E	4	G
8	SW	6	D	E	5	D	NE	3	G	NNE	4	F	NNE	3	E	NNE	4	G
9	SW	7	D	E	6	D	E	6	D	E	5	D	E	3	D	NNE	3	F
10	SW	7	D	ESE	7	D	E	7	D	E	6	D	E	5	D	ENE	4	D
11	SW	7	A	ESE	7	D	E	8	D	E	7	D	E	6	D	ENE	5	D
12	SW	8	A	ESE	7	A	E	8	D	E	7	D	E	6	D	E	6	D
13	SSW	8	A	SW	8	A	E	8	A	E	7	D	E	7	D	E	6	D
14	SW	9	A	SW	8	A	SW	8	A	E	7	D	E	7	D	E	6	D
15	SW	9	A	SW	9	A	SW	8	D	E	7	D	E	6	D	E	6	D
16	SW	10	A	SW	9	A	SW	8	D	SW	7	D	E	6	D	E	6	D
17	WSW	10	A	SW	9	D	SW	8	D	SW	7	D	E	6	D	ESE	5	D
18	WSW	11	D	SW	10	D	SW	8	D	SW	6	E	SSW	6	E	SSE	5	E
19	SW	11	D	SW	10	D	SW	7	E	SW	6	F	NW	5	F	NW	5	G
20	SW	11	E	SW	9	E	SW	7	F	SW	6	G	NNW	5	G	N	5	G
21	SW	10	E	SW	9	E	WSW	6	F	N	6	G	N	6	G	N	5	G
22	SW	10	E	SW	9	F	WSW	6	F	NNE	6	G	NNE	6	G	NNE	5	G
23	SW	9	E	SW	8	E	SW	6	G	NNE	5	G	N	5	G	NNE	5	G
24	SW	8	E	SW	7	E	SW	6	G	N	5	G	NNE	5	G	NNE	4	G

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PLUME CENTERLINE Xu/Q VALUES (sec-mi/m^3-hr)

Wind From:	Dist	A	B	C	D	E	F	G
S (169-191)	0.82	8.9E-06	2.2E-05	4.3E-05	1.5E-04	2.9E-04	4.5E-04	6.9E-04
SSW (191-214)	0.83	8.7E-06	2.2E-05	4.0E-05	1.5E-04	2.8E-04	4.5E-04	6.9E-04
SW (214-236)	1.58	1.8E-06	4.9E-06	1.0E-05	5.6E-05	1.1E-04	2.0E-04	3.4E-05
WSW (236-259)	1.37	2.7E-06	6.9E-06	1.4E-05	6.9E-05	1.4E-04	2.5E-04	4.0E-04
W (259-281)	1.34	2.7E-06	7.4E-06	1.5E-05	7.2E-05	1.4E-04	2.5E-04	4.0E-04
WNW (281-304)	1.28	3.1E-06	8.1E-06	1.6E-05	7.6E-05	1.5E-04	2.7E-04	4.3E-04
NW (304-326)	1.31	2.9E-06	7.6E-06	1.5E-05	7.4E-05	1.5E-04	2.5E-04	4.3E-04
NNW (326-349)	1.88	1.2E-06	3.4E-06	6.9E-06	4.3E-05	8.9E-05	1.6E-04	2.9E-04
N (349-011)	1.68	1.6E-06	4.3E-06	8.9E-06	4.9E-05	1.0E-04	1.9E-04	3.1E-04
NNE (011-034)	1.14	4.0E-06	1.1E-05	2.1E-05	9.2E-05	1.8E-04	2.9E-04	4.9E-04
NE (034-056)	0.75	1.1E-05	2.9E-05	4.5E-05	1.8E-04	3.1E-04	4.9E-04	7.8E-04
ENE (056-079)	0.63	1.7E-05	4.3E-05	7.4E-05	2.2E-04	4.0E-04	6.3E-04	9.4E-04
E (079-101)	0.62	1.7E-05	4.5E-05	7.6E-05	2.5E-04	4.0E-04	6.3E-04	9.4E-04
ESE (101-124)	0.63	1.7E-05	4.3E-05	7.4E-05	2.2E-04	4.0E-04	6.3E-04	9.4E-04
SE (124-146)	0.74	1.2E-05	2.9E-05	5.1E-05	1.8E-04	3.1E-04	5.1E-04	7.8E-04
SSE (146-169)	0.83	8.7E-06	2.2E-05	4.0E-05	1.5E-04	2.8E-04	4.5E-04	6.9E-04
	1.00	5.6E-06	1.5E-05	2.7E-05	1.1E-04	2.1E-04	3.6E-04	5.6E-04
	2.00	1.0E-06	2.9E-06	6.3E-06	3.8E-05	8.3E-05	1.5E-04	2.7E-04
	3.00	5.6E-07	1.1E-06	2.5E-06	2.0E-05	4.7E-05	9.2E-05	1.7E-04
	4.00	4.3E-07	7.6E-07	1.2E-06	1.3E-05	3.1E-05	6.5E-05	1.3E-04
	5.00	3.6E-07	6.3E-07	7.8E-07	9.2E-06	2.2E-05	4.9E-05	9.8E-05
	6.00	2.9E-07	5.4E-07	6.7E-07	6.9E-06	1.8E-05	3.8E-05	8.1E-05
	7.00	2.5E-07	4.7E-07	5.8E-07	5.4E-06	1.5E-05	3.1E-05	6.7E-05
	8.00	2.2E-07	4.0E-07	5.1E-07	4.5E-06	1.2E-05	2.7E-05	6.0E-05
	9.00	2.0E-07	3.6E-07	4.7E-07	3.6E-06	1.0E-05	2.5E-05	5.1E-05
	10.00	1.8E-07	3.4E-07	4.3E-07	3.1E-06	8.9E-06	2.1E-05	4.7E-05
	11.00	1.7E-07	3.1E-07	4.0E-07	2.7E-06	7.8E-06	1.9E-05	4.3E-05
	12.00	1.5E-07	2.9E-07	3.6E-07	2.5E-06	6.9E-06	1.7E-05	3.8E-05
	13.00	1.4E-07	2.7E-07	3.4E-07	2.1E-06	6.3E-06	1.5E-05	3.6E-05
	14.00	1.3E-07	2.5E-07	3.1E-07	1.8E-06	5.6E-06	1.4E-05	3.1E-05
	15.00	1.3E-07	2.2E-07	2.9E-07	1.7E-06	5.1E-06	1.3E-05	2.9E-05

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RADIOLOGICAL DATA

Effective Age (hours)	Mean Gamma Decay Energy 1/% Failed Fuel (RCS Activity)	Total Iodine Dose Ratio 1/% Failed Fuel (RCS Activity)
0.00	0.207	1.485
0.01	0.207	1.485
0.02	0.206	1.484
0.03	0.206	1.484
0.04	0.206	1.484
0.05	0.205	1.484
0.06	0.205	1.483
0.07	0.204	1.483
0.08	0.204	1.483
0.09	0.204	1.483
0.10	0.203	1.482
0.20	0.200	1.480
0.30	0.196	1.477
0.40	0.192	1.475
0.50	0.189	1.473
0.60	0.186	1.470
0.70	0.182	1.468
0.80	0.179	1.466
0.90	0.176	1.464
1.00	0.173	1.462
2.00	0.147	1.441
2.00	0.126	1.423
4.00	0.110	1.405
5.00	0.098	1.389
6.00	0.087	1.374
7.00	0.079	1.360
8.00	0.072	1.347
9.00	0.067	1.334
10.00	0.067	1.322
20.00	0.062	1.228
30.00	0.035	1.164
40.00	0.032	1.120
50.00	0.031	1.088
60.00	0.030	1.065
70.00	0.030	1.048
80.00	0.030	1.035
90.00	0.030	1.026
100.00	0.030	1.019
200.00	0.030	1.001
300.00	0.030	1.000

PALO VERDE NUCLEAR GENERATING STATION (PVNGS)

EMERGENCY OFFSITE DOSE CALCULATION COMPUTER PROGRAM

1.0 SOFTWARE DESCRIPTION

The PVNGS Emergency Dose Projection Computer Program has been designed for rapid assesment of emergency radioactive effluent releases based upon core inventory. The program is designed for use with the IBM personal computer (64K advanced basic) with one double sided/double density disk drive and an AST card, an Okidata 93 printer (preferably with a graphics chip to imitate an Epson printer), however the program can operate without a printer.

The computer program calculates both noble gas dose and iodine 50 year dose commitment and dose rates at site boundary, 2 miles, 5 miles, and 10 miles based on straight line Gaussian meterological model. Plume arrival and effective age at the above downwind distances are determined also. Based upon the site boundary dose rates, one of the four emergency classification (or none) will be selected. Dose calculations are based on EPIP-14B and 14C and release rate calculations are based on EPIP-14A.

To aid in the tracking of plumes, the program is capable of variable trajectory plume plotting. The plume generated has only one constant plume width (or dispersion). It should be noted that the plume plot is only an aid and actual plume configuration and dose rates will be different to some extent.

2.0 OPERATION

2.1 Computer and Optional Printer Preparation

> CAUTION
>
> DO NOT TOUCH THE INNER PORTION OF THE DISKETTE.

2.1.1 Insert the "Emergency Offsite Dose Projection" diskette into disk drive 'A' (left side) with the diskette label on the top. Close the disk drive 'A' door.

CAUTION

NEVER REMOVE THE DISKETTE OR REBOOT WHILE THE RED DISK DRIVE LIGHT IS ON.

2.1.2 Turn the computer on. The switch is located on the right side near the rear. If the power is already on, press 'Ctrl', 'Alt' and 'Del' all at the same time to reboot the disk. The program will automatically be loaded and run.

NOTE

Sections 2.1.4 through 2.1.6 are to set-up the Okidata printer.

2.1.3 Ensure the cable is connected between the printer and the computer.

2.1.4 Check the small dial on the front left side of the printer to make sure that it is set to '7'.

2.1.5 Ensure that the perforation line of the paper is above print head then turn on the power. The switch is located on the back right side of the printer.

2.2 Program Operation

2.2.1 The program starts by allowing the operator to update the current date and time and the date and time of the reactor shutdown (see fig. 1). The current time is displayed as a running clock. Press the number associated with the item to be updated. Remember to include the'-' or ':' where shown.

2.2.1.1 The program will not allow a reactor shutdown date and time to surpass the present date and time or an error beep will occur when continuing. If this error beep occurs and will not allow continuation, change the reactor shutdown date and/or time.

2.2.1.2 If the reactor is still operating under power, leave the shutdown date and time unchanged (00-00-00 and 00:00).

2.2.1.3 Press '5' to continue with the program.

2.2.2 The main menu will now be displayed on the screen (see fig. 2). This is the menu which will allow different calculations or operations to be performed.

2.2.3 Selection number 1, 'Current Release Dose Determination'. This selection should be chosen to reflect actual radioactive releases which are occuring and will perform the following:

a. Plot current plume position on the screen and will update each minute.

b. Calculate two hour dose (in rem) and dose rates (in rem/hr.) for both noble gasses and total iodines. The total iodine doses are 50 year dose commitments. The screen will display the child iodine dose rate which is twice that of the adult.

c. Determine emergency classification based on the site boundary noble gas and total iodine dose rates.

Emergency Classification based on noble gas dose rate (rem/hr).

< 5.0 E-5	NONE
5.0 E-5 thru 4.9 E-4	UNUSUAL EVENT
5.0 E-4 thru 4.9 E-2	ALERT
5.0 E-2 thru 9.9 E-1	SITE AREA EMERGENCY
> 1.0	GENERAL EMERGENCY

Emergency Classification based on total iodine dose rate (rem/hr) is five times the above noble gas dose rates.

2.2.3.1 After pressing '1', fig. 3 will display on the screen. The following is a description of those items displayed on the screen:

a. At the top right of the screen is the viewing screen which displays the plume. This screen is updated each minute.

b. At the top left of the screen is the current date and running clock which was entered in 2.2.1.

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c. Below this is the screen description. This screen is 'CURRENT RELEASE PROJECTIONS'.

d. Below this is the emergency classification.

e. Below this is the indicator for whether the plume data is ready to be updated. If the words 'PRESS SPACE BAR TO UPDATE' does not appear, then the plume is already being updated and the cursor is positioned at one of the seven input parameters.

f. Seven input parameters pertaining to each plume. These parameters will be discussed in more detail later.

g. Date and time of reactor trip which was entered in 2.2.1.

h. Plume number; two numbers are associated with this number. The number on the left indicates the number of plumes on the screen and the other indicates the total number of plumes generated and on file.

i. The bottom right of the screen displays dose rate information and operator messages.

NOTE

Obtain temperatures, wind speed and wind direction from meterological tower using ERFDADS.

NOTE

If the input parameter is to remain unchanged, just press 'Return'.

2.2.3.2 To create or update a plume, press the space bar. This will stop the clock and the space bar update prompt will erase. The cursor will move to input #1, 'stability classification'. Enter the proper classification of A-G and press 'return'. If the classification is unknown then enter a 'U'. The screen will prompt the operator for the meterological tower temperature difference of 200 feet - 35 feet. A stability classification will be determined.

2.2.3.3 Move the cursor to input #2, 'Wind Speed'. Enter the wind speed in mi/hr. Do not leave the speed at zero. Press 'Return' and the cursor will advance to input #3.

2.2.3.4 For input #3, 'Wind From', enter the degrees from which the wind is blowing. This is a value from 0 to 360. Press 'Return' and the degrees to which the wind is going will be displayed along with the effected downwind sector on the plume centerline. The cursor will advance to input #4.

2.2.3.5 For input #4, 'Rel. Date', enter the date (mm-dd-yy) on the plume release or its update. This date can not surpass today's date. If the date is surpassed, an error beep will sound when the plume attempts to update and the date will need to be changed. The cursor will advance to input #5.

2.2.3.6 For input #5, 'Rel. Time', enter the time (24 hour clock HH:MM) which the plume was released or the time which one of the input parameters changed. The release time can not surpass today's date and current time. If the time is surpassed, an error beep will sound when the plume attempts to update and the time will need to be changed. The cursor will advance to input #6.

2.2.3.7 For input #6, 'Noble Gas', enter the noble gas release rate in curies per second. The number may be entered as decimal or scientific notation. If the value is unknown, press 'U' and answer the questions relating to the release rate portion of the program. Release rate calculations are discussed in later sections and are performed using the method of EPIP-14A. The cursor will advance to input #7.

2.2.3.8 For input #7, 'I-131', enter the iodine-131 release rate in curies per second. The number may be entered as decimal or scientific notation. If the value is unknown, press 'U' and answer the questions relating to the release rate portion of the program. Release rate calculations are discussed in later sections and are performed using the method of EPIP-14A.

2.2.3.9 Upon answering #7 the prompt 'PRESS SPACE BAR TO UPDATE' will reappear and the 'CURRENT TIME' clock will restart.

2.2.3.10 At this point the operator has several options to choose from. The following are the choices:

> CAUTION
>
> IF THE LEADING EDGE OF A PLUME EXTENDS PAST THE TEN MILE RADIUS, THE PLUME WILL BE DELETED FROM THE SCREEN. THIS MUST BE TAKEN INTO CONSIDERATION IF THE PLUME OVERLAPS (REVERSE DIRECTION).

a. Wait until the clock reaches the minute mark and the current plume information will be used to construct a plume and perform dose calculations. Dose calculations will be performed only if a new plume is detected (change in parameter). The operator will be prompted to whether a printout is needed. Next the dose rates will be displayed, the plume will be drawn and the emergency classification will be updated along with the plume numbers. See fig. 4 for an example of a screen display of a plume and dose rate values. See fig. 5 for an example of a dose printout. Plume information and doses will be stored on disk for later retrieval.

b. Press the F1 key. This forces the plotting of the plume (and dose calculations if new plume). This performs the same items as 2.2.3.10.a. above. Function keys will be discussed in more detail later.

c. Press F3 to delete the latest plume. Function keys will be discussed in more detail later.

d. Press other function keys (discussed later) to manipulate the viewing screen.

e. Press the space bar to correct or update plume information/parameters per sections 2.2.3.2 through 2.2.3.9.

f. Press 'R' to return to the main menu in section 2.2.2.

2.2.4 Menu Selection number 2, 'Project Dose Determination'. This selection should be chosen to project doses of radioactive releases which might occur (a what if situation). This selection is essentially the same as menu selection '1' with the following exceptions:

a. Plume plotting is not capable with this selection.

b. All function keys except F1 (dose calculations) are inoperable.

c. This selection will allow the operator to input a release date and time that surpasses the current date and time.

NOTE

Prior to starting dose projections, past entries should be reviewed and deleted if not needed. To delete all past entries, enter the word 'KILL' for the plume number and press 'Return'.

2.2.5 Menu Selection number 3, 'Review Past Entries'. This selection is used to review plume and dose information stored on the diskette.

2.2.5.1 Plume data files are identified by two numbers (e.g. 1-1230). The first being the plume number, which is a consecutive numbering system. It is possible to have two of these numbers the same if a plume had been deleted and another plume with a different time was entered.

2.2.5.2 The second number is the release time of the plume. All files will have the trailing '.dat' which indicates a data file.

2.2.5.3 Fig. 6 is an example of the past entry review screen. All files will be listed (if any) and the operator will be prompted for the file to review. Files may be deleted at this time by entering the word 'KILL' for plume number.

2.2.5.4 Once the file numbers have been entered, the relevent information for the plume will be displayed on the screen (see fig. 7). A printout may be obtained by pressing both the 'shift' and 'PrtSc' keys. (Remember to form feed the paper and place back on-line.)

2

2.2.5.5 Pressing the space bar will put the operator back in fig. 6; the operator may review another file or return to the main menu by entering an 'R' for the plume number.

2.2.6 Menu Selection number 4, 'FIELD DATA'. This selection is used to calculate total iodine doses using iodine air samples taken by field monitoring teams.

2.2.6.1 The screen will list all the questions to be answered. See fig. 8 for an example of questions, answers and calculated doses.

2.2.6.2 The 'location' is any name which will identify where the sample was taken. An 'R' may be entered for location to return to the main menu.

2.2.6.3 Samples will be decay corrected from the time of reactor shutdown. If the reactor shutdown date shows that it is still operating, an effective age of zero (0) is used (plume travel is not considered).

2.2.7 Menu Selection number 5, 'CHANGE REACTOR SHUTDOWN/TIME'. This selection allows the operator to return and change or update the current date and time and also the reactor shutdown date and time in section 2.2.1.

2.3 Function Keys

2.3.1 There are then (10) function keys (F1-F10) located on the left side of the keyboard. Seven of these keys are used by the program. See fig. 9 for the template which is placed over the function keys to aid in screen manipulations.

CAUTION

WHEN PRESSING FUNCTION KEYS, ATTENTION SHOULD BE PAID TO THE RUNNING CLOCK. IF THE CLOCK HAS NOT APPEARED ON THE SCREEN OR THE CLOCK IS NOT RUNNING, THEN THE PROGRAM IS PERFORMING CALCULATIONS AND NO OTHER FUNCTION KEYS SHOULD BE PRESSED UNTIL IT STARTS TO RUN AGAIN.

2.3.1.1 Function key 'F1' is used in both 'Current Release Dose Determination' and 'Projected Dose Determination'. Pressing this key forces the program to draw and update the plume instead of waiting till the minute update. If the program detects a change in one or more of 5 input parameters, a dose projection will be calculated and the eemergency classification based on site boundary dose rates will be displayed. No plume will be drawn in the 'Projected Dose Determination' selection.

2.3.1.2 Function key 'F2' is used in 'Current Release Dose Determination' only. Pressing this key switches to a large screen for plotting of plumes. Pressing both the 'shift' and 'PrtSc' will print the plume. This will take approximately 2.5 minutes to complete. This screen will not update each minute. Press the space bar to return to the plume parameter screen.

2.3.1.3 Function key 'F3' is used in 'Current Release Dose Determination' only. Pressing this key will delete the last plume plotted and will return all seven input parameters including plume number and emergency classification back to their previous values. Prior to deleting the plume the operator will be questioned as to if the plume is to be deleted in case the key was pressed inadvertently.

2.3.1.4 Function key 'F7' is used in 'Current Release Dose Determination' only. Pressing this key will make the plume screen zoom in (or increase in size). If the screen is increased too much, an error will occur.

2.3.1.5 Function key 'F8' is used in 'Current Release Dose Determination' only. Pressing this key will make the plume screen zoom out (or decrease in size). If the screen is decreased too much, an error beep will occur.

2.3.1.6 Function key 'F9' is used in 'Current Release Dose Determination' only. Pressing this key will draw in 2, 5, and 10 mile radiuses including the 16 sector marks.

2.3.1.7 Function key 'F10' is used in 'Current Release Dose Determination' only. Pressing this key will draw in major roads and highways.

2.3.2 A region of interest may be focused in on by using the four arrow keys on the number pad on the right side of the keyboard. These keys are '8' for looking up (moves map down), '2' for looking down, '4' for looking left (moves map right) and '6' for looking right. Moving too far in one direction will cause an error beep.

2.3.2.1 Fig. 10 shows a plume on large screen (F2) with radiuses (F9) and roads (F10). Fig. 11 shows the same plume but in addition, the map is zoomed in (F7 twice), moved down (up arrow, '8'), and moved to the left (right arrow, '6').

2.4 Release Rate Calculations

2.4.1 When a 'U' is selected for either the noble gas or iodine release rate, release rate calculations will be performed and the screen will display five types of calculations that may be peformed. Press the number of the calculation to be performed.

2.4.1.1 Selecting Plant Vent, Fuel Building Vent or Condenser Air Removal will display, for the most part, the same type of screen. The only difference will be the 'fans running' if the total flow is unknown. The following questions will be prompted:

a. Total Flow, The previous flow will be displayed in CFM. If the flow is to remain the same then just press the return key. If the new flow is different then enter the new number. If the flow is unknown then enter a 'U'. The screen will prompt the operator for which fans/pumps are running and the flow from each will be summed.

NOTE

For plant vent, if a no is the answer to if an effluent monitor is in use then the program defaults to prompting for containment area monitor readings or hand held instrument readings.

b. Enter the gross beta channel reading from the effluent monitor in uCi/cc. If there is an iodine channel, the operator will be prompted to enter its value in uCi/cc also. Fig. 12 is an example display of Plant Vent prompts.

c. The program will then calculate the noble gas, I-131 and total iodine release rates and will display them on the screen. If a mistake was made when inputting data, then press the 'R' to redo calculations. Pressing the space bar will return to Plume plotting and dose projections. Fig. 13 is an example display of calculated release rate values.

2.4.1.2 Main Steam Line:

a. Enter the monitor reading or average reading on the effected steam line(s) in mR/hr.

b. Enter the number of steam line monitors that are releasing steam. Enter the steam flow in thousands of pounds per hour and the monitor correction factor for each steam line.

c. The program will then calculate the noble gas, I-131 and total iodine release rates and will display them on the screen. If a mistake was made when inputting data, then press the 'R' to redo calculations. Pressing the space bar will return to plume plotting and dose projections. Fig. 14 is an example display of Main Steam Line Release prompts.

2.4.1.3 Containment Curie Calculation

a. Enter the number of isotopes from the grab sample analysis.

b. Enter the isotope name, activity, (uCi/cc), and half-life (hrs.). Each of these will be entered prior to pressing the return key but are separated by a comma.

c. Enter the containment temperature (deg. F) and pressure (psig).

d. The program will then calculate the total curies in the containment. This value could be taken and used in containment leak rate dose projections. Answer the prompt for if another calculation is needed. Fig. 15 is an example display of Containment Atmosphere prompts.

FIGURE 1

SELECT OPTION NUMBER TO UPDATE

1) TODAY'S DATE = 01-01-1980

2) CURRENT TIME = 00:02:42

3) REACTOR SHUTDOWN DATE (MM/DD/YY) = 00-00-00

4) REACTOR SHUTDOWN TIME (HH:MM 24Hr. CLOCK)= 00:00

5) CONTINUE

FIGURE 2

SELECT OPTION BY PRESSING APPROPRIATE NUMBER

1) CURRENT RELEASE DOSE DETERMINATION

2) PROJECTED DOSE DETERMINATION

3) REVIEW PAST ENTRIES

4) FIELD DATA

5) CHANGE REACTOR SHUTDOWN / TIME

FIGURE 3

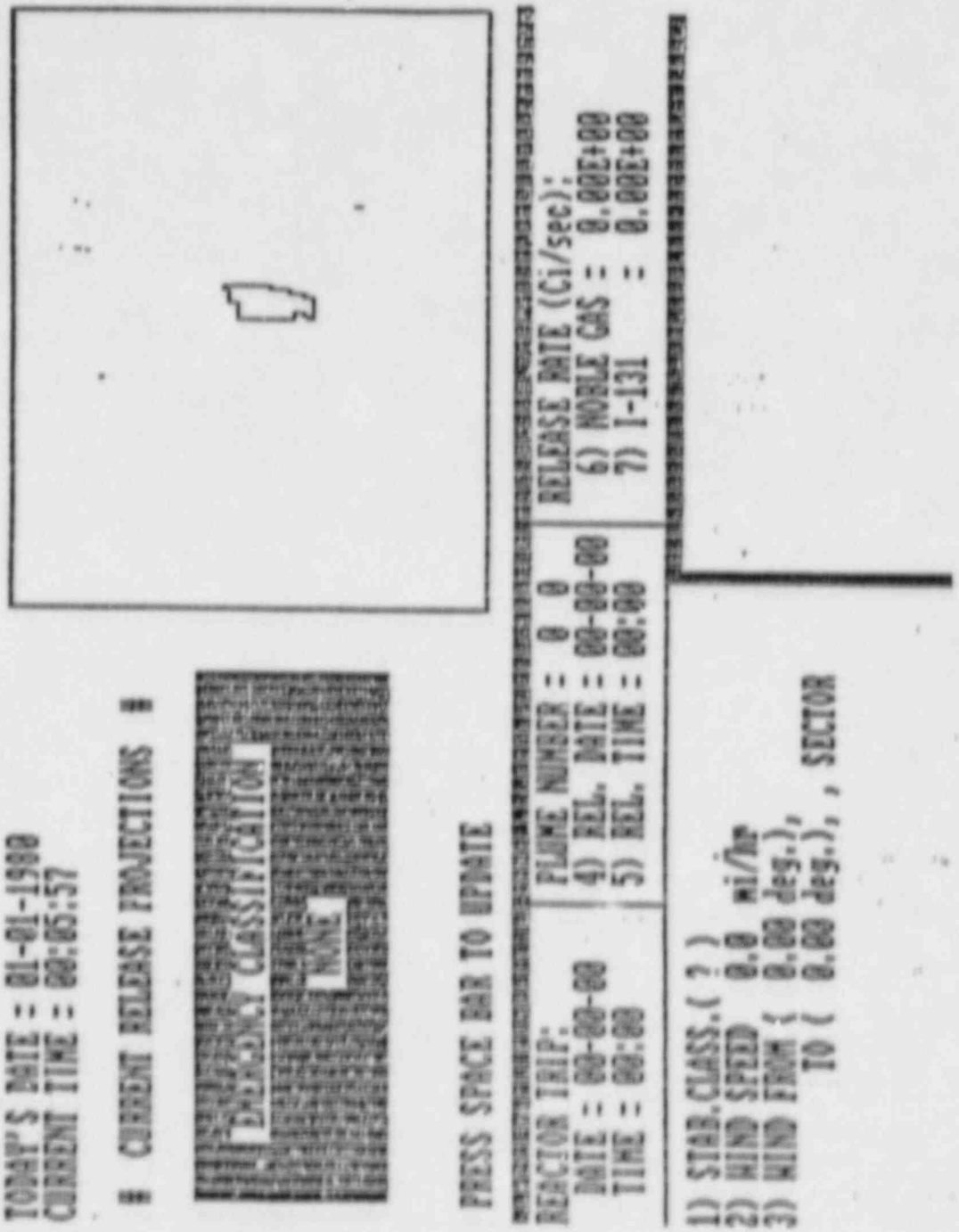

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FIGURE 4

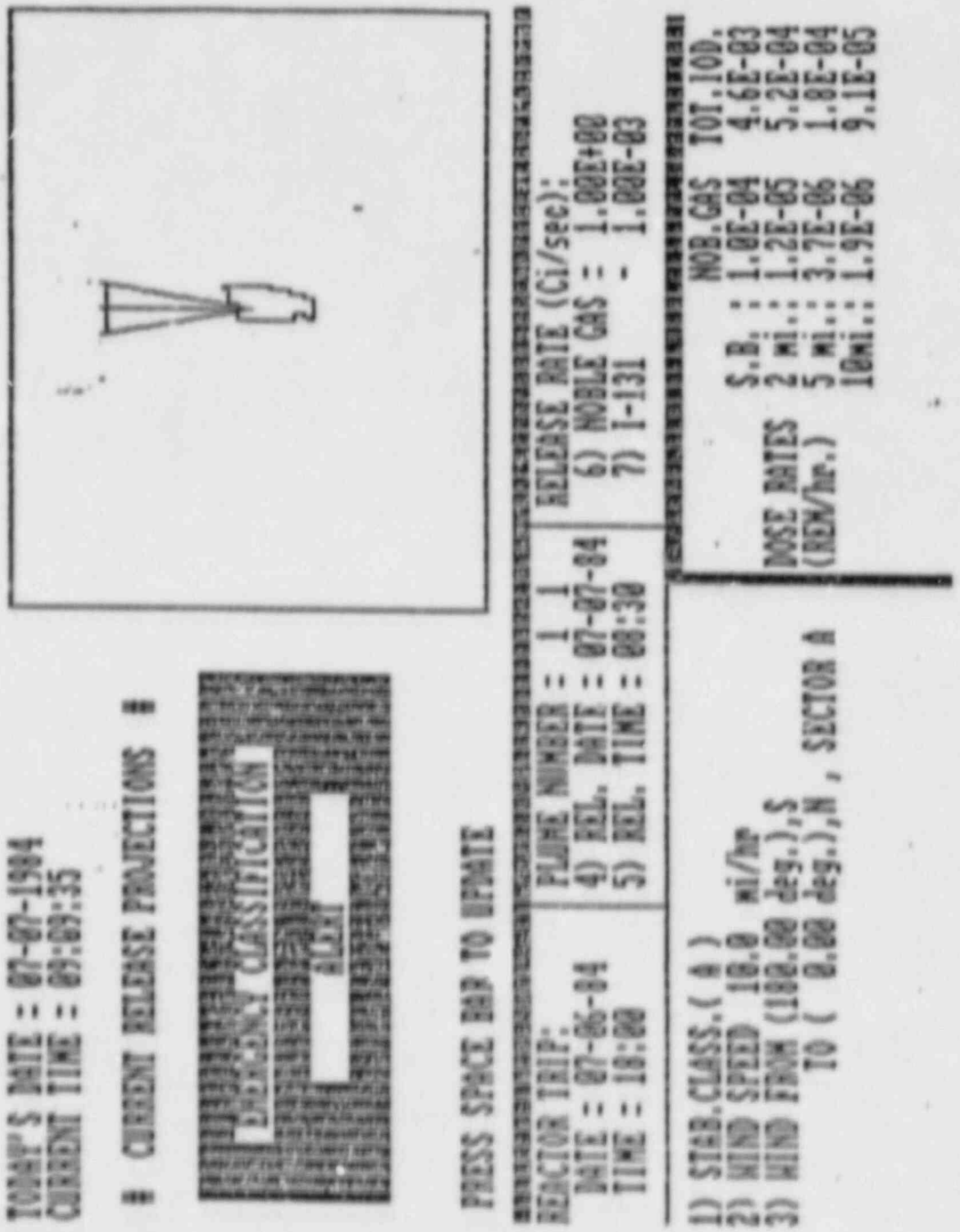

FIGURE 5

CURRENT RELEASE DATA

PLUME # 2

TODAY'S DATE = 07-19-1984 CURRENT TIME = 15:36:

- REACTOR SHUTDOWN DATE & TIME = 07-19-84 AT 12:00 (hrs.)
- RELEASE DATE & TIME = 07-19-84 AT 15:10 (hrs.)

** METEROLOGICAL INFORMATION **

- WIND SPEED (mi/hr) = 10
- STABILITY CLASSIFICATION = F
- WIND DIRECTION FROM (W) AT (270) degs. TO THE (E) AT (90) degs.

** RELEASE RATE INFORMATION **

- NOBLE GAS (Ci/sec) = .1
- I-131 (Ci/sec) = .001

	DOWNWIND DISTANCE			
	SB	2	5	10
X/Q	2.5E-05	1.5E-05	4.9E-06	2.1E-06
PLUME ARRIVAL (HRS.)	0.13	0.20	0.50	1.00
EFFECTIVE AGE (HRS.)	3.30	3.37	3.67	4.17
** DOSE RATES (rem/hr)**				
NOBLE GASES	3.0E-04	1.9E-04	6.1E-05	2.6E-05
ADULT I-131 INHALATION	4.6E-02	2.8E-02	9.2E-03	3.9E-03
ADULT TOT. IODINE INHALATION	7.4E-02	4.5E-02	1.5E-02	6.0E-03
** 2 hr. DOSE COMMITMENT (rem) **				
NOBLE GAS	6.1E-04	3.7E-04	1.2E-04	5.1E-05
ADULT THYROID INHALATION	1.5E-01	9.0E-02	2.9E-02	1.2E-02
CHILD THYROID INHALATION	2.9E-01	1.8E-01	7.3E-02	2.4E-02

EMERGENCY CLASSIFICATION
ALERT

FIGURE 6

```
:\
-1430  .DAT       2-1445  .DAT       3-1459  .DAT       4-1503  .DAT
-1507  .DAT       6-1510  .DAT       7-1512  .DAT
203776 Bytes free
```

```
NTER PLUME NUMBER ? 7

NTER HOUR OF FILE TO REVIEW (EX.0900) ? 1512
```

FIGURE 7

** PAST ENTRY REVIEW ** FILE # 7-1512

- DAY TRIPED = 00-00-00
- HOUR TRIPED = 00:00
- DATE RELEASED = 07-09-84
- HOUR RELEASED = 15:12
- N.G. RELEASE RATE = 2.00E+00
- I-131 RELEASE RATE = 5.00E-02
- WIND SPEED = 85 FROM 200
- STABILITY CLASS = A

)OWNWIND DISTANCE	SB	2	5	10
(/Q	3.9E-06	4.6E-07	1.6E-07	8.2E-08
>LUME ARRIVAL (HRS.)	0.01	0.02	0.06	0.12
:FFECTIVE AGE (HRS.)	0.01	0.02	0.06	0.12

** DOSE RATES (rem/hr)**

NOBLE GASES	1.3E-04	1.4E-05	4.3E-06	1.8E-06
ADULT I-131 INHAILATION	9.5E-03	1.1E-03	3.9E-04	2.0E-04
ADULT TOT. IODINE INHALATION	1.7E-02	2.0E-03	7.0E-04	3.6E-04

PRESS SPACE BAR TO CONTINUE

CONTROLLED DOCUMENT

FIGURE 8

** FIELD IODINE DATA **

LOCATION = 355 & BECKEYE/SOLOME HWY.
SAMPLE TIME (HHMM) = 1500
SAMPLE DATE (MM/DD/YY) = 05/25/83
NET COUNTS = 1225
TOTAL VOLUME (CU.FT.) = 10
DETECTOR EFF. = .01

uC/cc = 1.95E-07

2 hr. ADULT THYROID DOSE (REM) = 1.16
2 hr. CHILD THYROID DOSE (REM) = 2.33

FIGURE 9

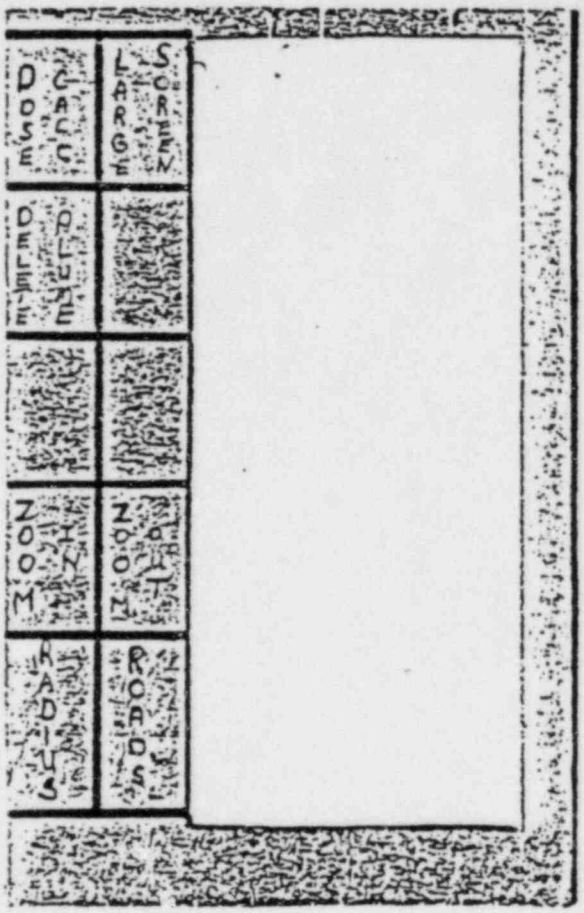
DOSE CALC
LARGE SCREEN
DELETE ALUE
ZOOM IN
ZOOM OUT
RADIUS
ROADS

FIGURE 10

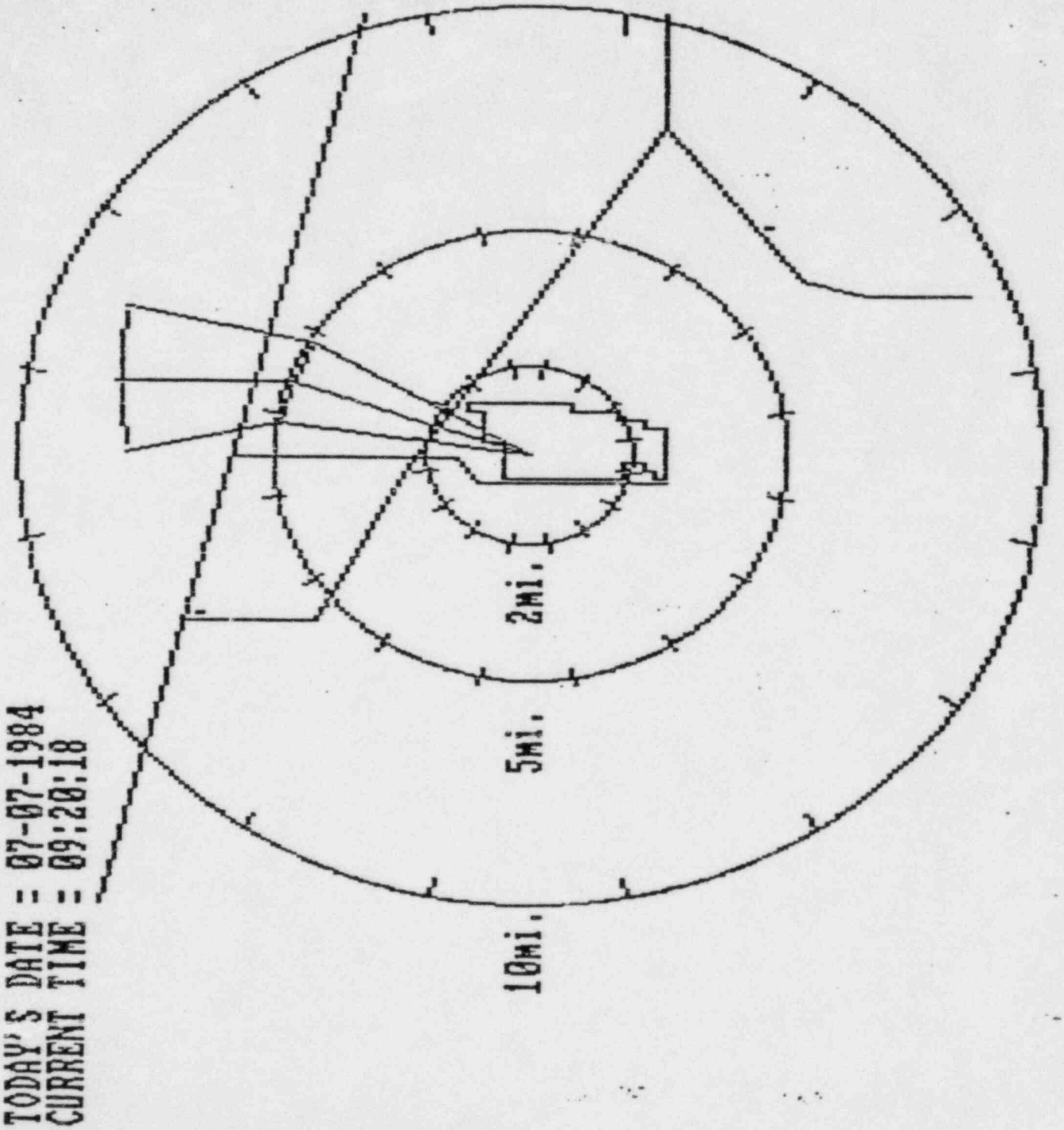

FIGURE 11

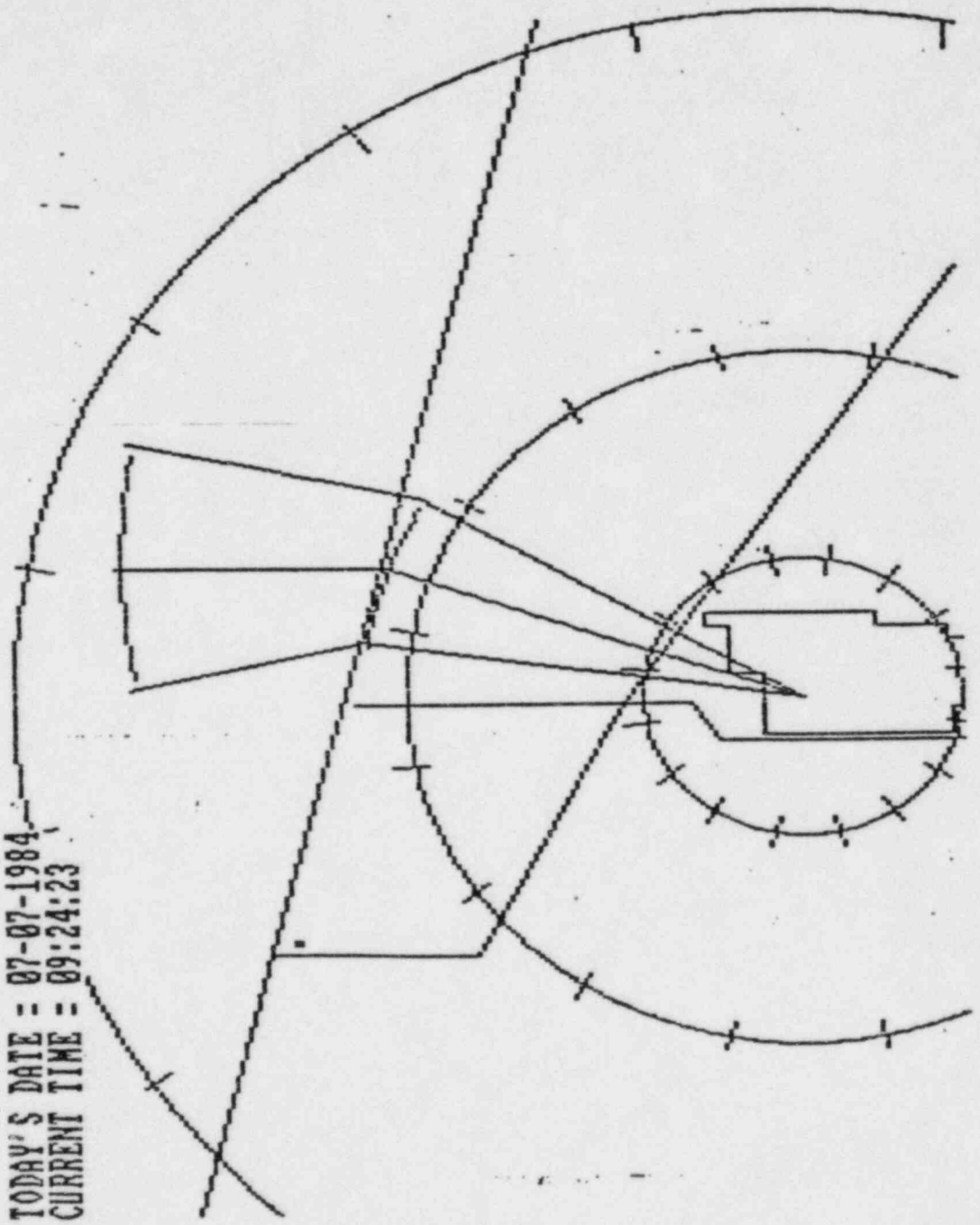

FIGURE 12

```
1.) PLANT VENT
2.) FUEL BUILDING VENT
3.) CONDENSER AIR REMOVAL SYSTEM
4.) MAIN STEAM LINE
5.) CONTAINMENT CURIE CALC.
```

'LANT VENT RELEASE CALCULATION :

'OTAL FLOW (CFM) = ? 2200 ('U 'IF UNKNOWN)

S THE EFFLUENT MONITER IN USE?Y

:NTER Ru-143 OR Ru-144 READING FROM GROSS BETA CHANNEL B IN uCi/cc:4E-3

:S THE I-131 CHANNEL OPERABLE ?Y

-131 READING FROM Ru-143 or Ru-144 (uC/cc) :4E-6

FIGURE 13

```
--------------------------------------------------
     PLANT VENT RELEASE CALCULATION :

NOBLE GAS RELEASE RATE=  4.15E-03 Ci/sec

I-131 RELEASE RATE =  4.15E-06 Ci/sec

TOTAL IODINE RELEASE RATE =  4.62E-06 Ci/sec
--------------------------------------------------
```

PRESS SPACE BAR TO CONTINUE
('R ' TO REDO)

FIGURE 14

:AIN STEAM LINE RELEASE CALCULATION :

:EADING FROM Ru-139A,B or Ru-140A,B (mr/hr):

:OW MANY STEAM FLOW MONITERS ARE YOU INPUTTING?

:LOW FROM MONITER # 1 (10^3 lbs/hr):?

:NTER CORRECTION FACTOR:

FIGURE 15

CONTAINMENT ATMOSPHERIC TOTAL CURIE CALCULATION

ENTER TOTAL NUMBER OF NUCLIDES TO BE CONSIDERED:?

ENTER ISOTOPE 1 (NAME,ACT(uCi/cc),T1/2(HRS):?

ENTER CONTAINMENT TEMPERATURE (deg.F) ?

ENTER CONTAINMENT PRESSURE (PSIG)?

ENTER TIME IN HRS SINCE SAMPLE WAS TAKEN (hrs.):

Exhibit 3

PROGRAM DESCRIPTION USED TO CALCULATE THE TOTAL ISOTOPIC CURIE CONTENT OF CONTAINMENT

The program "Containment Curie Content" is used to calculate the total isotopic curie content of containment for a given temperature and pressure. Utilizing manually inputted sample results, pressure, temperature and time since sampling, the program corrects the containment volume to STP and then calculates the total curie content per isotope and overall.

The program uses 7.4191 X 10^{10} cc as the standard containment volume.

EQUATIONS USED

1) Temperature Correction

$$°K = ((°F - 32) \times 5/9) + 273$$

Where:

°K = Temperature absolute

°F = Temperature °F

2) STP Correction

$$\text{Corrected Volume} = \frac{14.7\ (\text{psia}) \times 7.42\ E{+}10(\text{cc})}{273\ (°K)} \quad \frac{T\ °K}{P\ (\text{psia})}$$

3) Correction to Ci calculation

Corrected Act (Ci) = (Act (uCi) x corrected Volume)/1 X E + 6 uCi/Ci)

Exhibit 3 (Continued)

EQUATION DERIVATIONS

Pressure/Temperature from Boyles Law:

$$V_2 = \frac{P\ V}{T_1}\ \frac{(T_2)}{(P_2)}$$

At STP the total free volume of containment = 2.62 E + 6 Ft^3 which converts to:

$$\frac{2.62 \times 106\ Ft3}{3.5314 \times 10^{-5}\ \frac{Ft^3}{Cm^3}} = 7.42\ E+10cc$$

Therefore the volume at some other temperature and pressure is:

$$V = \frac{(14.7\ (psia) \times 7.42E+10(cc))}{273\ (^\circ K)}\ \frac{T\ (^\circ K)}{P\ (psia)}$$

CONTROLLED DOCUMENT

Exhibit 3 (Continued)

Manual Calculation:

Base Data

Date: 22 September 1983

Time: 0729

Sample Date: 22 September 1983

Sample Time: 0629

Containment Temperature: 110°F

Containment Pressure: 15.3 PSIA

Total free containment volume: 2.62×10^6 Ft^3

Isotopic Breakdown:

Isotope	Activity
1) I-131	3.5 E -6
2) I-132	4.7 E -7
3) I-133	6.2 E -5
4) I-134	8.7 E -6
5) I-135	1.3 E -6
6) Xe-135	2.4 E -4
7) Xe-133	8.7 E -4
8) Kr-87	6.3 E -5
9) Kr-85m	1.8 E -6
10) KR-88	2.5 E -3
11) Ar-41	1.7 E -3

Exhibit 3 (Continued)

TOTAL ACTIVITY CALCULATION

	Isotope	Activity uCi/cc	Total Activity uCi	Activity Ci
1)	I-131	3.5 E - 6	2.761 E + 5	2.761 E - 1
2)	I-132	4.7 E - 7	3.707 E + 4	3.707 E - 2
3)	I-133	6.2 E - 5	4.891 E + 6	4.891 E + 0
4)	I-134	8.7 E - 6	6.863 E + 5	6.863 E - 1
5)	I-135	1.3 E - 6	1.025 E + 5	1.025 E - 1
6)	Xe-135	2.4 E - 4	1.8932 E + 7	1.893 E - 1
7)	Xe-133	8.7 E - 4	6.863 E + 7	6.863 E - 1
8)	Kr-87	6.3 E - 5	4.9696 E + 6	4.9696 E - 0
9)	Kr-85m	1.8 E - 6	1.42 E + 5	1.42 E - 1
10)	Kr-88	2.5 E - 3	1.972 E + 8	1.97[illegible] E + 2
11)	Ar-41	1.7 E - 3	1.341 E + 8	1.341 E + 2
			TOTAL	4.30 E +2

Exhibit 3 (Continued)

CONTAINMENT TOTAL CURIE CONTENT

Date: 9/22/83 UNIT: 1
Time: 729
Containment Temp: 110 F
Containment Press: 15.3 PSIA

	ISOTOPE	TOTAL ACTIVITY (Ci)
1)	I-131	2.761 E-1 Ci
2)	I-132	3.707 E-2 Ci
3)	I-133	4.891 E+0 Ci
4)	I-134	6.863 E-1 Ci
5)	XE-135	1.893 E+1 Ci
6)	XE-133	6.863 E+1 Ci
7)	KR-87	4.970 E+0 Ci
8)	KR-85M	1.420 E-1 Ci
9)	KR-88	1.972 E+2 Ci
10)	AR-41	1.341 E+2 Ci
TOTAL CURIES:		4.30 E+2 Ci

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-15	
PROTECTIVE ACTION GUIDELINES	REVISION 2	Page 1 of 14

ASSIGNED COPY
PVNGS #8-9B

DEPT. HEAD O. J. Zeringue DATE 9/26/84

PRB/PRG REVIEW M. L. Clyde DATE 7-3-84

APPROVED BY O. J. Zeringue DATE 7/6/84

EFFECTIVE DATE 7-13-84

DN-1669A/0196A

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1.0 OBJECTIVE

1.1 To provide a basis for relating actual or projected plume exposure doses to the Environmental Protection Agency (EPA) Protective Action Guides (PAGs).

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-14A, "Release Rate Determination"

2.1.3 EPIP-14B, "Dose Assessment"

2.1.4 EPIP-17, "Onsite/Offsite Surveys and Sampling"

2.1.5 EPIP-03, "Notification of Unusual Event Implementing Actions"

2.1.6 EPIP-04, "Alert Implementing Actions"

2.1.7 EPIP-05, "Site Area Emergency Implementing Actions"

2.1.8 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 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents; as revised June, 1980; EPA-520/1-75-001.

2.2.3 PVNGS Emergency Plan, Rev. 3.

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 Protective action recommendations are based on plant and containment conditions and these recommendations are made even when no release is in progress. These recommendations are transmitted to government officials using EPIP-03, 04, 05 or 06, depending on level of emergency.

3.3 Protective action guides represent trigger levels and are not intended to represent acceptable dose levels.

3.4 PAGs for the general public are given in ranges. The lowest dose 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.

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

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

3.7 The protective action recommendation for potential and/or actual loss of physical control of the facility is a 360°, 2 mile evacuation.

3.8 When the wind is blowing into the Palo Verde Hills (sectors N, P or Q) and protective actions are being considered, the two sectors on either side of the affected sector shall be included in the recommendation (e.g., a plume in sector P shall require consideration of sectors M, N, Q and R in the recommendation.)

3.9 Protective actions recommended to State Authorities by APS SHALL NOT be transmitted to the JENC.

3.10 Government officials should inform EC/EOD prior to implementing protective actions.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 Dose estimates which population groups may potentially receive, are calculated in accordance with EPIP-14B, "Dose Assessment". 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.

4.1.2 The Protective Action Guide (PAG) is based on the projected dose to individuals in the population which warrant taking protective actions. It is used in an effort to minimize the risk from an event which is occurring or has already occurred.

4.1.3 The 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.

4.1.4 The Radiation Protection Technician, (Rad. Waste) of the affected unit shall be responsible for initial offsite dose calculations and/or projections.

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

4.1.6 The Radiological Protection Coordinator (Radiological Assessment Coordinator) shall be responsible for relaying dose assessment and protective action evaluations to the Emergency Coordinator (Emergency Operations Director).

4.2 Prerequisites

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

4.3 Instructions

4.3.1 Radiological Protection Coordinator/Radiation Protection Monitor/Radiological Assessment Coordinator shall:

4.3.1.1 Evaluate current plant status with respect to potential for releases or increased releases.

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

(1) Release rates.
(2) Duration of the releases.
(3) Isotopic mixture of the release (varies as a function of effective age).
(4) Meteorological conditions.

4.3.2 Should the plant status or projected doses indicate that sheltering or evacuation be considered per Appendix A, determine the effectiveness of these protective actions as described below. Time estimates should be obtained from the State Emergency Operations Center.

4.3.3 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 measured from the point of the protective action recommendation from the facility to government to evacuate to the actual decision by the competent authority to order the evacuation.

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.

4.3.3.1 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:

$T(PA) = T_B + T_{TR}$

Where:

T_B = Time projected before release begins.

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

4.3.3.2 Evaluate constraints against evacuation. Compare the estimated evacuation time T(EV) with the estimated plume arrival time, T(PA).

4.3.3.3 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.

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

4.3.4 Sheltering Effectiveness

4.3.4.1 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.

4.3.4.2 Control access to the affected area.

4.3.5 Evaluate the possibility of evacuation after the plume has passed.

4.3.5.1 After the plume has passed, evaluate the significance of ground deposition in accordance with EPIP-17, "Onsite/Offsite Surveys and Sampling".

4.3.5.2 Determine if dose rates are sufficient to warrant subsequent evacuation.

4.3.5.3 Multiply the projected dose by the external shielding factor (Appendix B).

4.3.5.4 Compare the projected dose to the PAG for whole body gamma dose (Appendix A).

4.3.6 Evaluate the significance of inhalation dose. (Shielding factors for inhalation doses are presented in Appendix C). Shielding factors are for a sealed, wood-frame house.

4.3.6.1 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 in Appendix A.

4.3.7 Determine the critical organ of concern, the whole body or the thyroid. Compare the projected dose for the critical organ to the PAG for that organ in Appendix A.

PV216-00DA (9/82)

GUIDELINES FOR RECOMMENDED PROTECTIVE ACTIONS FOR GASEOUS PLUME EXPOSURE*

CONDITION	RECOMMENDED ACTION
NON-ESSENTIAL GENERATING COMPLEX PERSONNEL AND GENERAL POPULATION	
1. Notification of Unusual Event declared indicating that events are in progress which indicate potential degradation of the level of safety of the plant; however no release of radioactive material requiring offsite response/monitoring is expected unless further degradation of safety systems occurs.	Inform State & County authorities of status/cause and based on situation recommend that no protective action is necessary or standby for update if situation worsens.
2. An alert has been declared; any releases are expected to be limited to small fractions of the EPA/PAG exposure levels at the site boundary unless further degradation of safety systems occur.	Inform State & County Authorities of Alert status/cause and recommend that the public be apprised of the situation and stay tuned to EBS/KTAR radio station.
3. A Site Area Emergency has been declared; any releases are not expected to exceed EPA/PAG exposure levels beyond the site boundary unless further degradation of safety systems occur.	Inform State & County authorities of Site Area Emergency Status/cause and recommend seeking shelter within a 2 mile radius of the plant and within 10 miles in affected sectors as warranted based on plant/containment conditions.

*NOTE: References for this table are a combination of Table 5.1, page 5.31, Rev. 6/79 - Manual of Protective Action for Nuclear Incidents and NUREG-0654, published 11/80.

** Affected sectors include, as a minimum, the downwind sector(s) and adjacent sectors. For plumes in sectors P, Q, or N, two sectors on either side of the affected sector shall be included in the recommendation (e.g., a plume in sector P shall require consideration of sectors M, N, Q and R.

GUIDELINES FOR RECOMMENDED PROTECTIVE ACTIONS FOR GASEOUS PLUME EXPOSURE*

CONDITION	RECOMMENDED ACTION
NON-ESSENTIAL GENERATING COMPLEX PERSONNEL AND GENERAL POPULATION	
4. A General Emergency has been declared. (e.g.: Actual/Imminent loss of Physical Facility Control)	Consider a two (2) mile precautionary evacuation.
5. A General Emergency has been declared and large amounts of fission products are in the containment atmosphere. The projected dose using containment area monitor results is calculated to be: a) whole body > 5 rem b) thyroid > 25 rem	In addition to considering a two (2) mile 360° precautionary evacuation, consider a 5 mile downwind evacuation of potentially affected sectors.**
6. A General Emergency has been declared and containment failure leading to a direct atmospheric release is likely in the sequence but <u>not</u> imminent and large amounts of fission products in addition to noble gases are in the containment atmosphere. The projected dose using containment area monitor results is calculated to be: a) whole body > 5 rem b) thyroid > 25 rem	In addition to considering a two (2) mile 360° precautionary evacuation, consider a precautionary 360° evacuation to 5 miles and a downwind evacuation to 10 miles of potentially affected sectors.**

*NOTE: References for this table are a combination of Table 5.1, page 5.31, Rev. 6/79 - <u>Manual of Protective Actions for Nuclear Incidents</u> and NUREG-0654, published 11/80.

** Affected sectors include, as a minimum, the downwind sector(s) and adjacent sectors. For plumes in sectors P, Q, or N, two sectors on either side of the affected sector shall be included in the recommendation (e.g., a plume in sector P shall require consideration of sectors M, N, Q and R.

PV716-00A (8/82)

GUIDELINES FOR RECOMMENDED PROTECTIVE ACTIONS FOR GASEOUS PLUME EXPOSURE* (CONT'D)

CONDITION	RECOMMENDED ACTION
NON-ESSENTIAL GENERATING COMPLEX PERSONNEL AND GENERAL POPULATION	
7. A General Emergency has been declared and large amounts of fission products other than noble gases in the containment atmosphere and containment failure is judged imminent. The projected dose using containment area monitor results is calculated to be: a) whole body > 5 rems b) thyroid > 25 rems	In addition to considering a two (2) mile 360° precautionary evacuation, consider a precautionary 360° evacuation to 5 miles and a downwind evacuation to 10 miles of potentially affected sectors,** and consider shelter for areas where evacuation cannot be completed before the transport of activity to those areas.
8. An actual release has occurred and the projected dose to individuals in the population is calculated to be: a) 0.5 ≤ whole body < 1 rem b) 1.0 ≤ thyroid < 5 rems	Recommend seeking shelter 360° for two (2) miles and in affected sectors out to 10 miles.
9. An actual release has occurred and the projected dose to individuals in the population is calculated to be: a) whole body > 1 rem to ≤ 5 rems b) thyroid > 5 rems to ≤ 25 rems	Recommend a 360° evacuation for two (2) miles and in affected sectors** out to 10 miles. Recommend seeking shelter 360° out to 10 miles.

*NOTE: References for this table are a combination of Table 5.1, page 5.31, Rev. 6/79 - Manual of Protective Actions for Nuclear Incidents and NUREG-0654, published 11/80.

** Affected sectors include, as a minimum, the downwind sector(s) and adjacent sectors. For plumes in sectors P, Q, or N, two sectors on either side of the affected sector shall be included in the recommendation (e.g., a plume in sector P shall require consideration of sectors M, N, Q and R.

PV216-000A (9/82)

GUIDELINES FOR RECOMMENDED PROTECTIVE ACTIONS FOR GASEOUS PLUME EXPOSURE* (CONT'D)

CONDITION	RECOMMENDED ACTION
EMERGENCY AND EMERGENCY TEAM PERSONNEL	
10. An actual release has occurred and the projected dose to individuals in the population is calculated to be: a) whole body >5 rems b) thyroid >25 rems	Recommend a 360° evacuation for five (5) miles and in affected sectors** out to 10 miles. Recommend seeking shelter 360° out to 10 miles.
11. An actual release has occurred and the projected dose to Emergency Team workers is calculated to be: a) whole body >25 rems b) thyroid >125 rems	Control exposure of Emergency Team members except lifesaving missions, to these level (appropriate controls for Emergency Team workers include time limitations and respirators).
12. An actual release has occurred and the projected dose to Emergency Team workers performing lifesaving missions is calculated to be: a) whole body >75 rems	Control exposure of Emergency Team members except lifesaving missions, to this level (control of time of exposure should be most effective). NOTE: Although respirators should be used where effective to control dose to Emergency Team workers, thyroid dose may not be a limiting factor for lifesaving missions.

*NOTE: References for this table are a combination of Table 5.1, page 5.31, Rev. 6/79 - Manual of Protective Actions for Nuclear Incidents and NUREG-0654, published 11/80.

** Affected sectors include, as a minimum, the downwind sector(s) and adjacent sectors. For plumes in sectors P, Q, or N, two sectors on either side of the affected sector shall be included in the recommendation (e.g., a plume in sector P shall require consideration of sectors M, N, Q and R.

REDUCTION IN EXTERNAL GAMMA DOSE FROM PASSING CLOUD

STRUCTURE OR LOCATION	SHIELDING FACTOR[a] AVERAGE	RANGE
(1) Outside	1.0	—
(2) Vehicles	1.0	—
(3) Wood frame house (no basement)[b]	0.9	—
(4) Basement of wood house	0.6	0.1 to 0.7[c]
(5) Masonry house (no basement)	0.6	0.4 to 0.7[c]
(6) Basement of masonry house	0.4	0.1 to 0.5[c]
(7) Large office or industrial building	0.2	0.1 to 0.3[c,d]

NOTES:

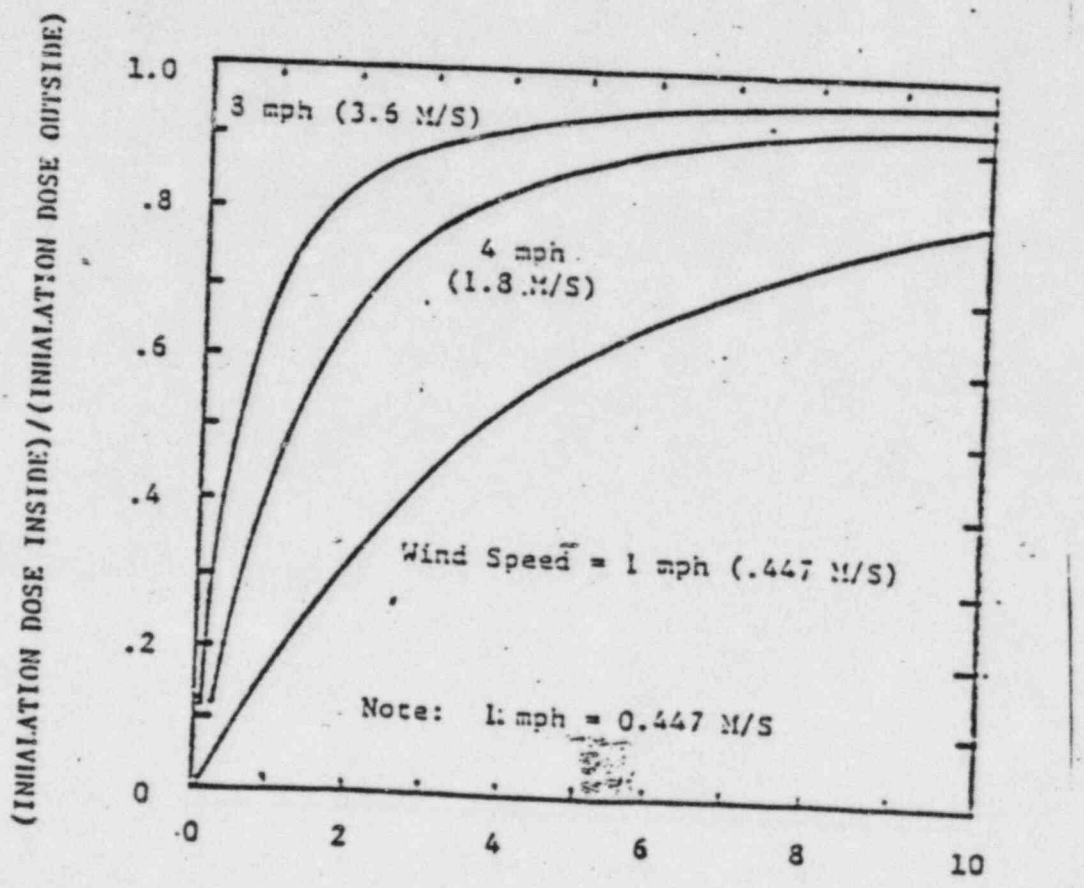
(a) The ratio of the interior dose to the exterior dose

(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).

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



PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-16	
INPLANT SURVEYS AND SAMPLING	REVISION 2	Page 1 of 16

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PVNGS # 8-98

DEPT. HEAD O.J. Zeringue DATE 7/19/84

PRB/PRG REVIEW O.J. Zeringue DATE 7/19/84

APPROVED BY O.J. Zeringue DATE 7/19/84

EFFECTIVE DATE 7/26/84

DN-1629A/0190A

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2

1.0 OBJECTIVE

1.1 To provide for emergency inplant radiological monitoring and surveys in the event of a release of radionuclides.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-17, "Onsite/Offsite Surveys and Sampling"

2.1.2 EPIP-18, "Emergency Exposure Guidelines"

2.1.3 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.4 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.5 ANSI N45.2.9, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants, 1974.

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-0737, "Clarification of TMI Action Plan Requirements", Oct. 1980

2.2.3 75RP-9ZZ46, "Radioactive Contamination Survey Procedure", Rev. 1.

2.2.4 75RP-9ZZ47, "Radiation Survey Procedure", Rev. 1.

2.2.5 75RP-9ZZ48, "Airborne Radioactivity Sampling and Measurement", Rev. 1.

2.2.6 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1.

2.2.7 F & J Specialty Products, Inc. "Radioiodine Absorption Cartridge Documentation and Technical Performance Specifications for NRC Audits of Radioiodine Sampling Procedures", 1984.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The Radiological Protection Coordinator may authorize exposures in excess of PVNGS Administrative Radiation Exposure Limits up to the limits of 10 CFR 20. Exposures in excess of 10 CFR 20 limits up to Emergency Exposure Limits of EPIP-18, "Emergency Exposure Guidelines," shall be authorized by the Emergency Coordinator. Exposures in excess of Emergency Exposure Limits shall not be authorized.

3.2 The Radiation Monitor or RPC should check RMS dose rates via ERFDADS monitor prior to RP access into an area.

3.3 Use appropriate protective clothing, equipment and respirators.

3.4 Ensure that proper dosimetry is worn.

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 turned on with the meter set to the high scale, switching down as necessary.

3.7 Under the following conditions inplant monitoring personnel should withdraw from the area immediately and relay this information to the Radiological Protection Coordinator.

3.7.1 If the unanticipated area gamma dose rate is equal to or greater than 10 R/hr.

NOTE

The following conditions may indicate airborne radioactivity: a continuous air monitor in a valid alarm condition or observation of steam.

3.7.2 If airborne activity is suspected at the survey location and the field monitoring team is not wearing respirators, control access and leave the area.

2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiation Protection Monitor, until relieved by the Radiological Protection Coordinator, is responsible for the implementation of this procedure.

4.1.2 Technicians involved in air and gross gamma and beta sampling should be familiar with operation of the air samplers, cartridges, filters, and survey instruments. Monitoring Team members should be familiar with 75RP-9ZZ48, "Airborne Radioactivity Sampling and Measurement", 75RP-9ZZ46, "Radioactive Contamination Survey Procedure", and 75RP-9ZZ47, "Radiation Survey Procedure".

4.1.3 Members of Monitoring Teams should proceed to the Operations Support Center for instructions.

4.1.4 The Operations Support Center Coordinator shall supervise the formation of Inplant Monitoring Teams.

4.1.5 The Radiological Protection Coordinator shall direct the briefing and dispatching of Inplant Monitoring Teams.

4.1.6 The Unit Supervising Radiation Physicist shall provide technical support for the inplant survey teams in coordination with the RPC.

4.1.7 the Inplant Monitoring Team Leader should communicate with the RPC at least every 30 minutes via phone and/or portable radio (channel #4).

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been classified per EPIP-02, "Emergency Classification".

4.2.2 Don protective clothing and respiratory apparatus if necessary.

4.2.3 Obtain OSC emergency RP kit per Appendix D.

4.2.4 Record serial numbers and calibration dates of survey instruments and air samplers in Appendices A and C.

4.2.5 Check batteries and perform source check tests on survey instruments. Allow warm up time (approximately 2 minutes) for high range survey equipment.

4.2.6 Check batteries in portable radio.

4.2.7 Complete heading for Appendices A, B and C.

4.3 Instructions

4.3.1 General Instructions

4.3.1.1 The inplant teams shall be briefed on area(s) to be monitored, specific surveys to be performed and any special instructions needed.

4.3.1.2 Air (radioiodine, particulates, and noble gases), beta/gamma, should be sampled as directed by the Radiation Protection Monitor or Radiological Protection Coordinator. The Inplant Monitoring Team Leader shall complete the check list in Appendix D.

4.3.1.3 Survey meters should be left on while in transit. All unposted or unexpected inplant readings above 1 R/hr shall be reported immediately to the Radiological Protection Coordinator.

4.3.1.4 Areas to be surveyed shall be determined by the Radiation Protection Monitor or the Radiological Protection Coordinator. Determination of areas to be surveyed should depend on the type of accident, area radiation monitor readings and previous survey data. The major accident categories are listed below with suggested survey areas.

Accident Type	Suggested Survey Area
LOCA	All areas around containment Areas around operating ESF equipment during recirculation phase
SGTR	Main Steam Lines, Turbine, and Condenser
WGDTR	Area around WGDT including entire radwaste building
FHA	Fuel handling area

4.3.2 Gross Radioactivity Measurement

4.3.2.1 Don protective clothing and respirators.

4.3.2.2 Assure that appropriate dosimetry is worn.

4.3.2.3 Use one of the following instrument types (as appropriate):

1. Extended probe
2. 0-5 R/hr survey meter
3. 0-50 R/hr survey meter

4.3.2.4 Access the controlled area using the emergency Radiation Exposure Permit Number 9999.

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

4.3.2.6 Upon arrival at the survey location evaluate radiological conditions. Record findings on Survey map and transpose to applicable Appendices. Report findings to the Radiological Protection Coordination.

4.3.2.7 Maintain communications with the RPC/Field team communicator and transmit radiation readings when they change significantly.

4.3.2.8 If the dose rate exceeds expected levels or if exposure of any member of the team exceeds their assigned limit, the entire team shall retreat to a low level radiation background area, notify the RPC and await further instructions.

4.3.2.9 Perform a general survey of problem area and record all readings on a survey map.

4.3.2.10 Perform survey of specific equipment, instruments, valves, etc and record all readings on survey map.

4.3.3 Contamination Surveys

4.3.3.1 Perform contamination surveys in assigned survey location.

4.3.3.2 Record smear location on the survey map.

4.3.3.3 Have smears counted in unit RP counting lab if available, or approximate activity by performing a direct frisk with a pancake probe assuming 10% efficiency.

4.3.3.4 Transmit results to the RPC using Appendix B or applicable survey maps.

4.3.4 Particulate and Radioiodine Air Samples (Appendix C)

NOTE

Silver zeolite (AgX) cartridges shall be used and counted in the unit chemistry lab or as directed by the RPC.

NOTE

Air sample volumes should be 10 ft^3 or as directed by the Radiation Protection Monitor Onshift, or Radiological Protection Coordinator (onsite).

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

4.3.4.2 If using a Variable Air Sampler, start the sampler in the variable position.

4.3.4.3 Adjust the flow rate. The maximum flow rate should be 4 CFM. It is suggested that the flow rate be 2 CFM. The nonvariable flow rate air samplers are fixed at 2 CFM.

4.3.4.4 Determine the sampling time necessary to collect a sample volume of 10 ft^3 and collect sample

4.3.4.5 In a low radiation background area, record the sampling time (in minutes) on Appendix C and 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.

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

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

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

4.3.4.8 Have samples counted in unit chemistry lab or as directed by RPC.

4.3.4.9 Save samples for recount or dispose of as radioactive material as directed by the RPC.

4.3.5 Exiting Controlled Area

4.3.5.1 Notify RPC/Field Team communicator that survey is complete and of your intention to return to OSC.

4.3.5.2 Gather all survey equipment and data, place in plastic bags and exit area observing step-off pads and RP procedures and practices as reasonably possible.

4.3.5.3 Perform thorough body frisk.

4.3.5.4 If contaminated, notify RPC and proceed with decontamination procedures under direction.

4.3.5.5 Ensure that all survey equipment is surveyed and released if possible.

4.3.5.6 Notify RPC of any survey equipment, etc. that is contaminated and/or damaged and needs to be replaced.

4.3.5.7 Deliver air samples to unit chemistry lab for analysis.

4.3.5.8 Deliver contamination smears and survey maps to unit RP counting lab for analysis.

4.3.5.9 RP shall transmit results to the RPC and records shall be retained per ANSI N45.2.9, 1974.

4.3.5.10 Report to the RPC for debriefing.

PV216-000A (8/92)

EMERGENCY INPLANT FIELD MONITORING DATA SHEET: BETA/GAMMA DOSE RATE MEASUREMENTS

Team# _____ Field Monitoring Team Leader _____ Field Monitoring Team Member _____

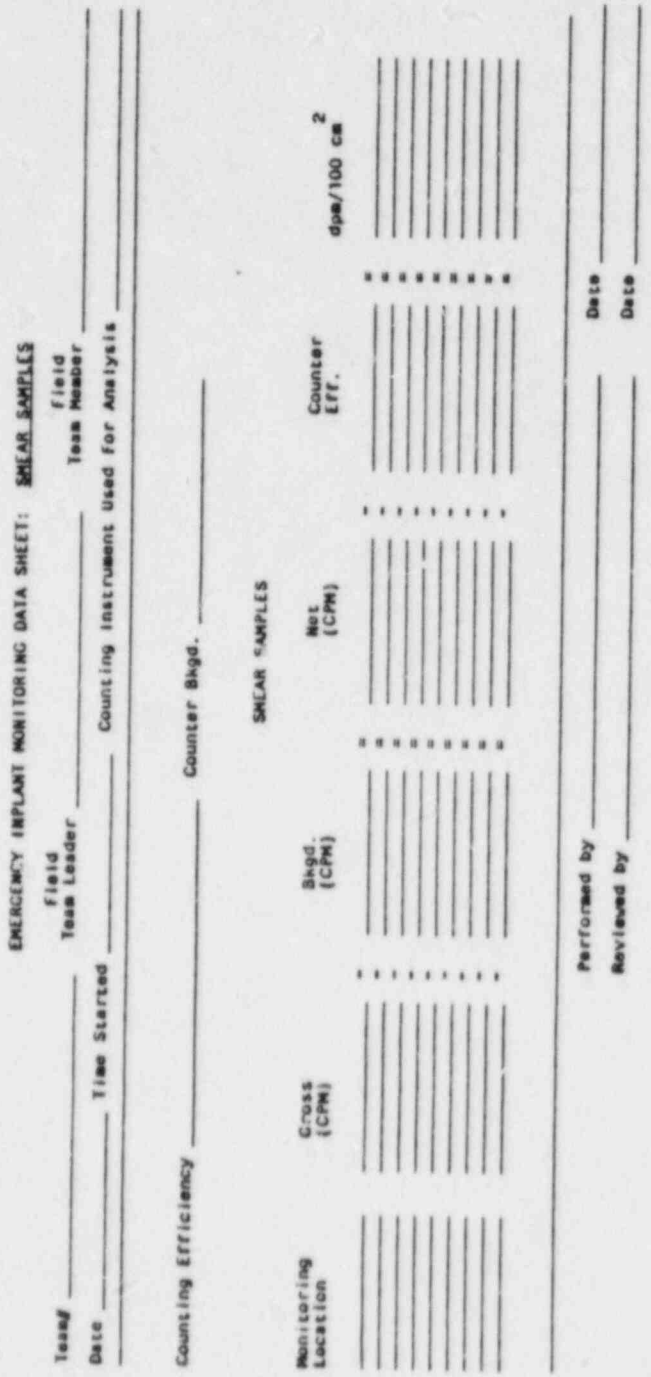
Date _____ Time Started _____ Instrument Type _____ Serial# _____

_____ Calibration Date _____

Monitoring Location	Time	Net Dose Rate mR/hr: Readings at 3' from equipment, potential hot spot, etc.	Beta/Gamma readings on contact	Beta/Gamma readings for the general area

Performed by _____ Date _____

Reviewed by _____ Date _____



EMERGENCY INPLANT MONITORING DATA SHEET: SMEAR SAMPLES

Team# _____ Field Team Leader _____ Field Team Member _____

Date _____ Time Started _____ Counting Instrument Used for Analysis _____

Counting Efficiency _____ Counter Bkgd. _____

SMEAR SAMPLES

Monitoring Location	Gross (CPM)	Bkgd. (CPM)	Net (CPM)	Counter Eff.	dpm/100 cm^2

Performed by _____ Date _____

Reviewed by _____ Date _____

PV216-000A (8/82)

EMERGENCY INPLANT MONITORING DATA SHEET: PARTICULATE/RADIOIODINE AIR SAMPLES

Date _____
Air Sampler No. _____
Start Time _____
Stop Time _____
Sample Duration _____ (min)
Volume _____ (cc)

Location _____
Calibration Date _____
Initial Flow _____
Final Flow _____
Average Flow _____ (cfm)

Volume = Sample duration (min) X avg flow (cfm) X 2.832 E4.

Net Activity (cpm)		Efficiency * Factor (dmp/cpm)		Sample Vol (m3)		Conversion Factor (uci - m3/dpm-cc)		Gross Conc. (uci/cc)
_____	x	_____	/	_____	x	_____	=	_____
_____	x	_____	/	_____	x	_____	=	_____
_____	x	_____	/	_____	x	_____	=	_____
_____	x	_____	/	_____	x	_____	=	_____
_____	x	_____	/	_____	x	_____	=	_____

Performed by _____ Date _____

Reviewed by _____ Date _____

* Efficiency factor equals 1/counting efficiency. Counting efficiency is posted on the daily performance check sheet.

2

INPLANT
MONITORING TEAM
CHECK LIST

POSITION FILLED BY: Radiation Protection Technician

RESPONSIBILITY: Perform inplant radiation monitoring.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Report to OSC upon notification. ____/____

2. Obtain briefing from supervisory individual: ____/____

   (a) Radiation Protection Monitor (Onshift) or
   (b) Radiological Protection Coordinator (Onsite).

3. Obtain the following equipment as required: ____/____

   (1) Legal TLD, job TLD (alarming dosimeter optional) _____
   (2) OSC Emergency RP Kit _____

INPLANT
MONITORING TEAM
CHECK LIST

4. Record serial numbers and calibration dates of survey instruments and air samplers in Appendix A and C, EPIP-16. ____/____

5. Check batteries and perform source check tests on survey instruments. ____/____

6. Check batteries in portable radio. ____/____

7. Allow warm-up time for high range survey equipment ____/____

INPLANT
MONITORING TEAM
CHECK LIST

8. Conduct surveys and sampling per EPIP-16, and as directed, for: ____/____

   a. Gross radioactivity measurement _____
   b. Particulate and radioiodine air samples _____
   c. Surface contamination samples _____

9. Dispose of sampling media as radioactive waste upon direction from the RPC. ____/____

SUBSEQUENT ACTIONS

Reporting

10. Communicate with the Radiation Protection Monitor (onshift) or the Radiological Protection Coordinator at least every one half hour via portable radio. ____/____

Documentation

11. Complete Appendices A, B, C, and D, EPIP-16. ____/____

Decontamination

12. Be checked for contamination. ____/____

13. Decontaminate equipment as required, per EPIP-29, "Area/Equipment Monitoring and Decontamination". ____/____

14. Decontaminate self as required, per EPIP-28, "Personnel Monitoring and Decontamination". ____/____

Signature _____

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-17	
ONSITE/OFFSITE SURVEYS AND SAMPLING	REVISION 2	Page 1 of 23

2

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PVNGS SM # 8-9B

DEPT. HEAD O.B. Zimmerman DATE 6/4/84

PRB/PRG REVIEW O.B. Zimmerman DATE 7/17/84

APPROVED BY O.B. Zimmerman DATE 7/17/84

EFFECTIVE DATE 8-1-84

DN-1631A/0190A

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1.0 OBJECTIVES

1.1 To provide for emergency onsite/offsite radiological monitoring and field surveys to be undertaker in the event of an airborne release of radioactive gases and particulates.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-14B, "Dose Assessment"

2.1.3 75RP-9ZZ50 "Operation Calibration and Performance Testing of Laboratory Scaler Counting Systems"

2.1.4 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.5 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.6 EPIP-38, "Emergency Equipment and Supplies Inventory"

2.1.7 ANSI N45.2.9, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants, 1974"

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 75 RP-9ZZ46, "Radioactive Contamination Survey Procedures", Rev. 1

2.2.3 75 RP-9ZZ48, "Airborne Radioactivity Sampling and Measurement", Rev. 1

2.2.4 Emergency Plan, Rev. 3.

2.2.5 F&J Specialty Products, Inc., "Radioiodine Absorption Cartridge Documentation and Technical Performance Specifications for NRC Audits of Radioiodine Sampling Procedure", 1984.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Use appropriate protective clothing, equipment and respirators.

3.2 Ensure that proper dosimetry is worn.

3.3 Control access and egress from contaminated areas.

3.4 Methods of communication between field monitoring teams and onsite facilities consists of hand-held radios, and/or radio equipped vehicles.

3.5 Obtain keys to the Radiological Emergency Response Vehicle and other RP Response Vehicles from the key cabinet in the RP Office or the Security Office. Check that there is an adequate fuel level in the vehicle.

3.6 If required, obtain keys to Meterological Tower and Gate from the key cabinet in the Security Office.

3.7 The RERV should be used as a mobile counting lab and the other RP vehicles should be used to track the plume.

3.8 Changes in radioactive release conditions may cause the radiation protection requirements to be changed.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiation Protection Monitor, until relieved by the Radiological Protection Coordinator, is responsible for implemention 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 and filters, noble gas chambers, and survey instruments. Field Monitoring team members should be familiar with 75RP-9ZZ48, "Airborne Radioactivity Sampling and Measurement" and 75RP-9ZZ46, "Radioactive Contamination Survey".

4.1.3 Members of field monitoring teams should proceed to the Operations Support Center for instructions.

4.1.4 The OSC Coordinator shall supervise the formation of Field Monitoring Teams.

4.1.5 The Radiological Protection Coordinator shall direct the briefing and dispatching of Field Monitoring Teams.

4.1.5.1 The Field Monitoring Team Leader should communicate with the Radiological Protection Coordinator at least every one half hour via portable radio using channel #4; for the RERV, use radio channel #1.

4.2 Prerequisites

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

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, "Emergency Equipment and Supplies Inventory."

4.2.3.2 The offsite monitoring teams should obtain snatch-and-go kits from the Service Building.

4.2.3.3 Onsite monitoring teams should obtain necessary equipment from the OSC Emergency RP Locker.

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

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

4.2.6 Check batteries in portable radio.

4.2.7 Complete Appendices A, B, C, and D headings as appropriate.

4.3 Instructions

4.3.1 General Information

4.3.1.1 The offsite sampling locations shall be determined by the Radiological Protection Coordinator based on wind direction and a plume width of 3 sigma Y. If TLD sampling locations are used, they are indicated on the Map of Offsite Sampling TLD Locations, (Appendix F). The Monitoring Team Leader shall complete the check list in Appendix G.

4.3.1.2 For plant perimeter surveys, the RPC shall determine which quadrant should be sampled. Labeled TLDs attached at various points along the protected area fence represent the center of each survey sector and may be used as location reference points (Appendix E.)

4.3.1.3 Don protective clothing and/or breathing apparatus when required for radiological conditions encountered.

4.3.1.4 Air (radioiodine, particulates, and noble gases), soil, vegetation and surface water (if available) should be sampled at each sampling location as determined by the RPC.

4.3.1.5 Survey meters should be left on while in transit. All offsite readings above 0.2 mR/hr should be relayed to the Radiological Protection Coordinator. These sites should be extensively surveyed.

4.3.1.6 All onsite samples should be counted in the unit chemistry lab, if available.

4.3.2 Gross Radioactivity Measurement (Appendix A) mR/hr at 3 feet above ground level:

4.3.2.1 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.

4.3.2.2 Determine the gross mR/hr at 3 feet with the beta shield open. Subtract the "background: window open" value (from Appendix A). Multiply difference by the Beta factor, which is recorded on the calibration stricker, and record the net mR/hr value in Appendix A.

4.3.2.3 Determine the gross mR/hr at 3 inches above ground level: (repeat steps 4.3.2.1 and 4.3.2.2 above with the meter at three inches).

4.3.3 Particulate and Radioiodine Air Samples (Appendix B)

NOTE

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

NOTE

Air sample volumes should be 10 $ft.^3$ or as directed by the Radiation Protection Monitor (onshift) or Radiological Protection Coordinator (onsite).

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

4.3.3.2 Connect 12V DC air sampler to car battery.

4.3.3.3 Start vehicle.

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 if a variable air sampler is available.

4.3.3.6 Adjust the flow rate. The maximum flow rate should be 4 CFM. It is suggested that the flow rate be 2 CFM. The nonvariable flow rate air samplers are fixed at 2 CFM.

4.3.3.7 Determine the sampling time necessary to collect a sample volume of $10ft^3$. 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 with a frisker (in a low background area) on collection side of the AgX cartridge immediately after sampling, to obtain a value of gross iodine CPM.

4.3.3.11 Calculate the sample volume as follows.

$V(ft^3)$ = CFM (Sample Collection) x 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 Place the AgX filter in a plastic bag. Label the bag with the date, time, location and sample volume.

4.3.3.14 Count the particulate filter with a frisker. Record the gross counts (cpm) on Appendix B and transmit information to the field team communicator.

4.3.3.15 Place particulate filter in a plastic bag. Label the bag with the date, time, location and gross counts.

4.3.3.16 Save samples for recount in the RERV as soon as possible.

4.3.3.17 At the direction of the RPC, samples may be recounted in the unit chemistry lab.

4.3.3.18 At the direction of the RPC, dispose of particulate/AgX samples as radioactive material.

4.3.4 Noble Gas Air Samples (Appendix C) Assemble the filter holder assembly as follows:

4.3.4.1 Insert AgX cartridge into AgX holder. AgX cartridges may be used repeatedly during a one day period.

4.3.4.2 Place filter paper upstream of the AgX cartridge in the holder.

4.3.4.3 Attach holder to one side of the gas collection chamber (marinelli beaker).

4.3.4.4 Attach tygon tubing to the other petcock of gas collection chamber and the adapter to the air sampler.

NOTE

It may be possible to collect the noble gas air sample at the same time as the particulate/iodine sample. If a variable flow rate air sample is used, adjust the flow rate to 2 CFM. If a non-variable flow rate air sampler is used, use information from the following table:

Flow Rate (CFM)	Sample Time (min)	Sample Vol (ft^3)
2.00	5.0	10
1.75	5.7	10
1.50	6.7	10
1.25	8.0	10
1.00	10.0	10

4.3.4.5 Collect noble gas air sample as follows:

4.3.4.6 With both petcocks open, draw a sample for 1 min. or if NG/P/I samples are collected at the same time use information in the previous chart.

4.3.4.7 Close both petcocks on the gas collection chamber.

4.3.4.8 Disconnect the gas collection chamber from the air sampler and AgX holder.

4.3.4.9 Place the gas collection chamber in a plastic bag. Label the bag with the sample location, date, and time for counting in the RERV.

4.3.4.10 Disassemble the AgX holder and treat contents as radioactive material.

4.3.5 Soil Samples (Appendix D)

4.3.5.1 Measure an area of 1 m^2 on the ground (if possible).

4.3.5.2 Collect a representative soil sample 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 for counting in RERV and/or unit chemistry lab.

4.3.5.4 Treat soil samples as radioactive material.

4.3.6 Vegetation Samples (Appendix D)

4.3.6.1 Measure an area of 1 m^2 (if possible).

4.3.6.2 Cut a representative vegetation sample 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 for counting in RERV and/or unit chemistry lab.

4.3.6.4 Treat vegetation samples as radioactive material.

4.3.7 Water Samples (Appendix D)

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

4.3.7.2 Seal bottle, and label with the location, date, and time of sample for counting in RERV and/or unit chemistry lab.

4.3.7.3 Treat water samples as radioactive material.

4.3.8 Milk Samples (Appendix D)

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 of sample for counting in RERV and/or unit chemistry lab.

4.3.8.3 Treat milk samples as radioactive material

4.3.9 Samples shall be transported from the RERV to the Chemistry Laboratory for counting/recounting.

4.3.10 Complete sampling logs as required. Records shall be retained per ANSI N45.2.9, 1974.

4.3.11 All sampling media (soil, water, vegetation, smears, filter papers, and cartridges) are to be disposed of as radioactive waste upon direction from the RPC.

4.3.12 Report to the RPC for debriefing upon completion of assigned surveys.

EMERGENCY FIELD MONITORING DATA SHEET: BETA/GAMMA DOSE RATE MEASUREMENTS

Team# ____________ Field Monitoring Team Leader ____________ Field Monitoring Team Member ____________

Date ____________ Time Started ____________ Instrument Type ____________ Serial # ____________

Instrument Calibration Date ____________

		Net Dose Rate mR/hr			
		______ AT 3'	______	______ AT 3"	______
Monitoring Location	Time	Beta Shield Closed (Gamma)	Beta Shield Open (Gamma/Beta)	Beta Shield Closed (Gamma)	Beta Shield Open (Gamma/Beta)

Performed By: ____________ Date ____________

Reviewed By: ____________ Date ____________

EMERGENCY FIELD MONITORING DATA SHEET:
Particulate/Radioiodine Samples

Radioiodine/Particulate Samples

Date _____ Location _____

Air Sampler # _____ Calibration Date _____

Start Time _____ Initial Flow _____

Stop Time _____ Final Flow _____

Sample Duration _____ (Min.) Average Flow _____ (cfm)

Volume _____ (cc)
Volume = Sample duration (min.) X avg flow (cfm) x 2.832 E4

Gross CPM (Iodine/Particulate)		Bkgd CPM		Net CPM (Iodine/Particulate)
_____	-	_____	=	_____
_____	-	_____	=	_____
_____	-	_____	=	_____
_____	-	_____	=	_____

RERV (SAM-2) Isotopic Analysis

Iodine/Particulate	uci/cc
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Counter eff x _____ cpm/dpm
AgX eff x _____ (fraction)*
Counter bkgd _____ CPM

* See page 2 of 2 Appendix B.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

CH_3I RETENTION EFFICIENCY VS. FLOW RATE

SHORT TERM SAMPLING
(Collection Periods Not Exceeding 4 Hours)

Flow Rate (CFM)	Flow Rate (LPM)	Silver Zeolite (% Retention)
0.5	14.2	99.99
1.0	28.3	
1.5	42.4	99.96
2.0	56.6	
2.5	70.8	91.54
3	84.9	
4	113.2	
6	169.8	
7.0	198.1	

CH_3I RETENTION EFFICIENCY VS. FLOW RATE

INTERMEDIATE TERM SAMPLING
($12 < x < 24$ hrs.)

Flow Rate (CFM)	Flow Rate (LPM)	Silver Zeolite (% retention)
1.0	28.3	99.06
1.1	30.0	97.83, 99.81
2.0	56.6	96.00
2.1	60.0	87.34, 99.37
3.2	90.0	83.67, 98.87
4.0	113.2	89.64
4.2	120.0	79.05
5.0	141.5	
5.5	155.6	
10.0	283.0	55.69

EMERGENCY FIELD MONITORING DATA SHEET:
NOBLE GAS SAMPLES

Date _____ Location _____

Air Sampler # _____ Calibration Date _____

Start Time _____ Initial Flow _____

Stop Time _____ Final Flow _____

Sample Duration _____(min) Average Flow _____(cfm)

Volume _____(cc)

Volume = sample duration (min) x avg flow (cfm) x 2.832 E4

Net Activity (CPM)		Efficiency* Factor (dpm/cpm)		Sample Vol (m3)		Conversion Factor (uci-m3/dpm-cc)		Gross Conc. (uci/cc)
_____	x	_____	/	_____	x	4.15 E-13	=	_____
_____	x	_____	/	_____	x	4.15 E-13	=	_____
_____	x	_____	/	_____	x	4.15 E-13	=	_____
_____	x	_____	/	_____	x	4.15 E-13	=	_____

*Efficiency factor equals 1/counting efficiency. Counting efficiency is posted on the daily performance check sheet.

Performed By: _____ Date _____

Reviewed By: _____ Date _____

2

EMERGENCY FIELD SAMPLING DATA SHEET: SOIL, WATER, MILK AND VEGETATION SAMPLES

Team# _____ Field Monitoring Team Leader _____

Date _____ Time Started _____

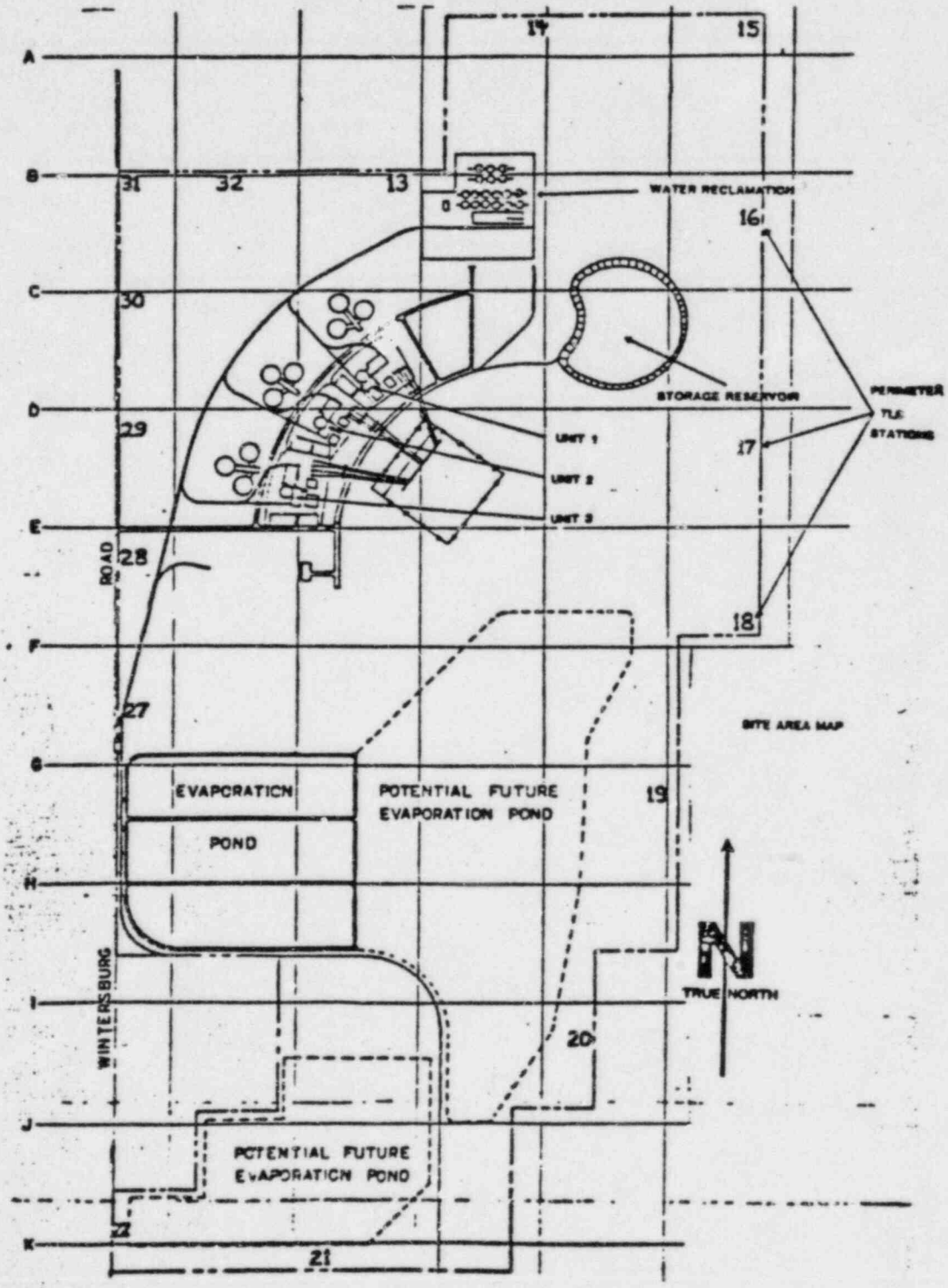
Sampling Location	Time	Type of Sample (Veg., Soil, Water, Milk)	Size of Sample

Performed By: _____ Date _____

Reviewed By: _____ Date _____

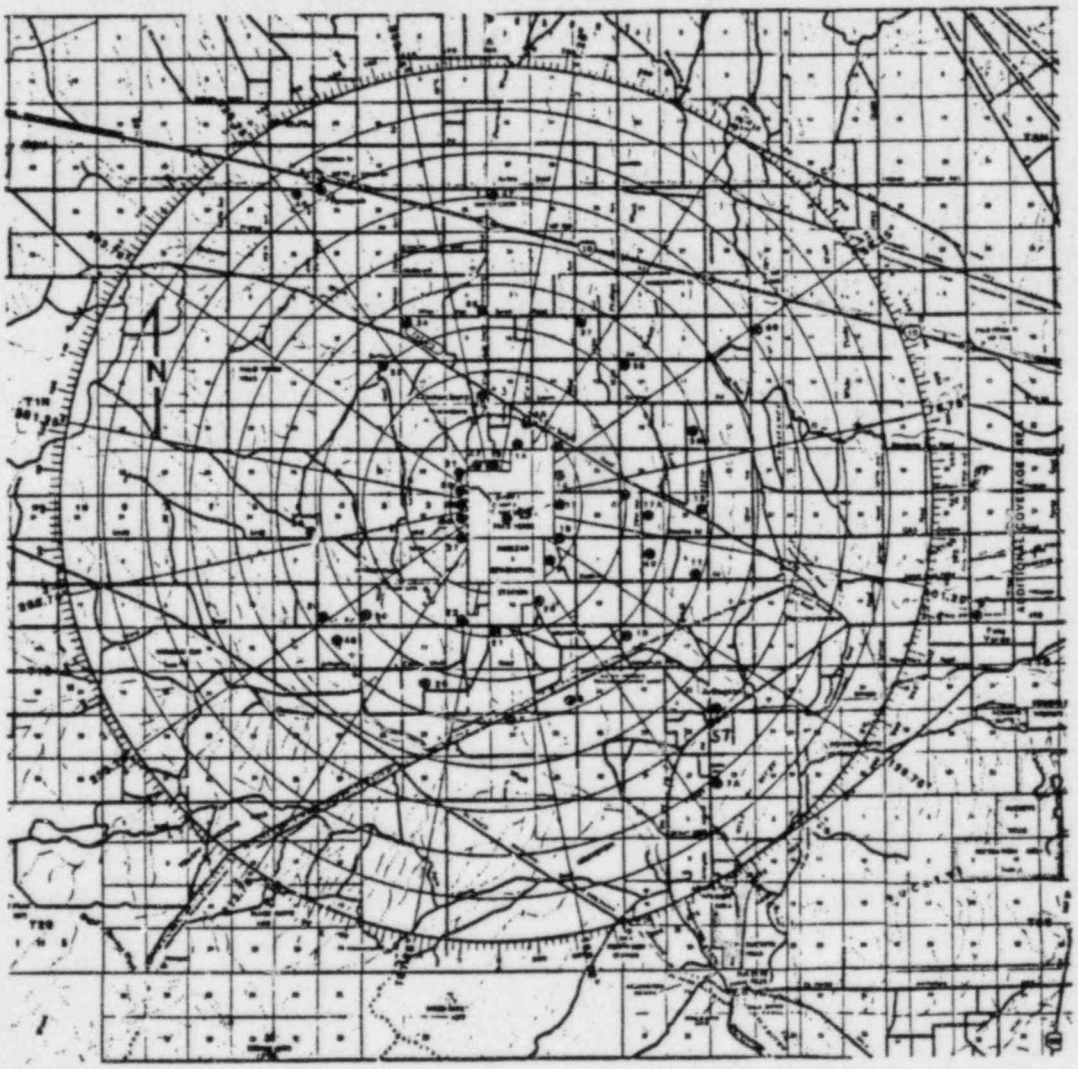
2

ONSITE SURVEY MAP



2

OFFSITE SAMPLING TLD LOCATIONS



PV216-000A (8/82)

OFFSITE TLD SAMPLE TYPES AND LOCATIONS

Sample Site #	Sample Type	Location Designation (s)	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
7A	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	N1	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.

PV216-000A (8/82)

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	NW5	Vulture Mine Rd. School, Wickenburg
44	TLD, Air	ENE5	APS El Mirage Office (Sun City)
45	TLD	ONSITE	Dosimetry Office
46	Water, Veg.	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	Baisley Dairy, 331st Ave. & Van Buren
51	Milk, Veg.	E15	Butler Dairy, Palo Verde Rd. & Southern
52	Vegetation	E 5	Cambron Farm, Miller Rd. & Broadway
53	Milk	E21	Kerr Dairy, Dean & Buckeye Rds.
54	Milk	E25	Hoffman Dairy, Airport & Dobbins
55	Milk	E25	Lueck Dairy, Jackrabbit & Hazen Rds.
56	Milk	E50	Mineso Dairy, Kyrene & Guadalupe Rds.
57	TLD	SE7	Corner OLD 85 and Arlington School Road

(a) Table J-1, NUREG-0654; distances (in miles) are from centerline of Unit 2 containment.

FIELD MONITORING TEAM
CHECK LIST

POSITION FILLED BY: Radiation Protection Technicians
Maintenance Technicians (as drivers)

RESPONSIBILITY: Perform onsite/offsite radiation monitoring.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to OSC upon notification.	____/____
2. Obtain briefing from Supervisory Individual:	____/____
(a) Radiation Protection Monitor (Onshift) or (b) Radiological Protection Coordinator (Onsite).	
3. Obtain the following equipment as required:	____/____
1) EPIP-17, Appendix E - map of onsite TLD locations 2) Enlayed map of offsite TLD locations 3) Legal TLD, job TLD (alarming dosimeters optimal) ____ 4) Onsite/Offsite RP Kit ____	
4. Record serial numbers and calibration dates of survey instruments and air samplers in Appendix A and B, EPIP-17.	____/____
5. Check batteries and perform source check tests on survey instruments.	____/____
6. Check batteries in portable radio.	____/____
7. Obtain keys for the Radiological Emergency Response Vehicle and other RP Response vehicles from the key cabinet in the RP office or the Security Office and check that the vehicle has an adequate fuel supply.	____/____
8. Obtain keys to Meterological Tower and Gate (as required) from the key cabinet in the Security Office.	____/____
9. Conduct surveys and sampling, as required, per EPIP-17 for:	____/____
1) Gross radioactivity measurements ____	

FIELD MONITORING TEAM
CHECK LIST

2) Particulate and radioiodine air samples _____

3) Noble gas air samples _____

4) Soil samples _____

5) Vegetation samples _____

6) Water samples _____

7) Milk samples _____

10. Dispose of sampling media as radioactive waste upon direction from the RPC. _____/_____

SUBSEQUENT ACTIONS

Reporting

11. Communicate with the Radiation Protection Monitor (onshift) or the Radiological Protection Coordinator (onsite) or at least every one half hour via portable radio. _____/_____

Documentation

12. Complete Appendices A, B, C, D and G EPIP-17. _____/_____

Decontamination

13. Be checked for decontamination. _____/_____

14. Decontaminate self as required, per EPIP-28, "Personnel Monitoring and Decontamination." _____/_____

OFFSITE SURVEYS AND SAMPLING
FIELD TEAM MONITORING TEAM
CHECK LIST (CONT'D)

15. Decontaminate Equipment as required, Per EPIP-29, "Area/Equipment Monitoring and Decontamination." ____/____

Performed By: _____
Signature

Date: _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-18	
EMERGENCY EXPOSURE GUIDELINES	REVISION 2	Page 1 of 10

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD C. K. Brinkley DATE 3/21/84

PRB/PRG REVIEW D. L. Clyde DATE 5-21-84

APPROVED BY C. K. Brinkley DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-1632A/0190A

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APPENDICES

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1.0 OBJECTIVE

1.1 This procedure addresses required authorization, guidance, and maximum exposure criteria in the event of a radiological emergency where it becomes necessary for emergency workers to exceed PVNGS Administrative Radiation Exposure Limits or 10CFR20 exposure limits.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-26, "Potassium Iodide (KI) Administration"

2.1.2 75RP-9ZZ44, "Radiation Exposure Permits"

2.1.3 75RP-9ZZ47, "Radiation Survey Procedure"

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, Revised June 1980

2.2.3 10CFR20, Standards for Protection Against Radiation, 1983

2.2.4 PVNGS Emergency Plan, Rev. 3

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

2.2.6 NUREG 0737, "Clarification of TMI Action Plan Requirements", October, 1980

2.2.7 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The Radiological Protection Coordinator may authorize exposures in excess of normal PVNGS Administrative Radiation Exposure Limits (Appendix A) up to the Limits of 10CFR20 (shown in Appendix B). Exposures in excess of 10CFR20 Limits up to Emergency Exposure Limits (Appendix C) shall be authorized by the Emergency Coordinator. Exposures in excess of those listed in Appendix C shall not be authorized. 2

3.2 Personnel authorized to receive exposures in excess of 10CFR20 limits should meet the following criteria:

3.2.1 Personnel shall be volunteers.

3.2.2 Women of child-bearing age and capability should not be permitted to receive emergency exposures (except for lifesaving actions).

3.2.3 Personnel shall be familiar with the hazards of exposure received under emergency conditions.

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 for life saving actions shall be limited to one occurrence. 2

3.3 Administrative methods to minimize personnel exposure 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 should 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 Alarming Dosimeters.

3.5 If necessary, potassium iodide (KI) tablets should be administered in accordance with EPIP-26, "Potassium Iodide (KI) Administration". 2

3.6 Protective clothing and/or respirators should be used as appropriate.

4.0 DETAILED PROCEDURE 2

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiological Protection Coordinator may authorize exposures in excess of PVNGS Administrative Radiation Exposure Limits (See Appendix A) up to the Limits of 10CFR20 (See Appendix B). Exposures in excess of 10CFR20 Limits up to Emergency Exposure Limits (See Appendix C) shall be authorized by the Emergency Coordinator. Exposures in excess of those listed in Appendix C shall not be authorized.

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.

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 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, corrective or protective actions and/or sampling activities which might result in doses exceeding PVNGS Administrative Radiation Exposure 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 verbally authorize the emergency exposure with documentation to be completed at a later time.

2

4.3.1.1 The Radiological Protection Coordinator shall provide the Emergency Coordinator with a radiological evaluation of the situations and conditions requiring emergency exposures.

4.3.1.2 During emergency conditions, personnel shall be instructed to use the standing Emergency Radiation Exposure Permit (REP 9999). Verbal instruction shall be provided on protective equipment, procedures and allowable emergency doses.

4.3.1.3 Documentation shall be completed when time allows in the form of a signed Radiation Exposure Permit (REP 9999) per 75RP-9ZZ44, "Radiation Exposure Permits".

4.3.2 Personnel Exposure Control

2

4.3.2.1 Individuals shall abide by all conditions specified in the REP.

2

4.3.2.2 Individuals shall not enter any area where dose rates are unmeasureable with instruments immediately available. Prior to entering any radiation area or suspected radiation area, radiation surveys should be performed in accordance with 75RP-9ZZ47, "Radiation Survey Procedure".

4.3.2.3 Personnel unable to complete the task within the allotted stay time or allotted dose shall exit the radiation area.

2

4.3.3 Subsequent Actions

4.3.3.1 The Radiological Protection Coordinator shall obtain initial estimates of the radiation dose of exposed personnel as quickly as possible, update and refine dose estimates at a later time and immediately report exposures in excess of 10CFR20 Limits to the Director of Nuclear Operations who shall then report to the NRC per 10CFR20.403 and 10CFR20.405. 2

PVNGS ADMINISTRATIVE RADIATION EXPOSURE LIMITS

	Weekly	Quarterly	Yearly
Whole Body	300 mrem	1.0 REM	4.0 REM
Skin	600 mrem	6.0 REM	N/A
Extremities	1.5 REM	15.0 REM	N/A

MAXIMUM PERMISSIBLE DOSE LIMITS
FOR OCCUPATIONAL WORKERS

Critical Organ	DOSE LIMITS mrem/quarter
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,250[1]
Hands, Forearms, Ankles, Feet	18,750[2]
Skin of Whole Body	7,500[2]
Other Organs (Thyroid), Tissues and Organ Systems	5,000[4]
Pregnant Women (With Respect to the Fetus)	500mrem[3] / 9 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 Form4 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 who enters a high radiation area or 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.

EMERGENCY EXPOSURE LIMITS

	Sampling Under Accident Conditions	Corrective or Protective Actions	Lifesaving Actions
Whole Body (rem)	5 *	25 ****	75 ****
Thyroid (rem)	25 ****	125 ****	NO LIMIT ***
Extremities (rem)	75 *	100**	200**

* NUREG 0737, Nov. 1980

** NCRP Report #39, 1971

*** No specific upper limit is given for thyroid exposure since in the extreme case complete thyroid loss might be an acceptable penalty for a life saved. However, this should not be necessary if respirators and/or thyroid protection for rescue personnel are available as a result of adequate planning.

**** Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised June 1980.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-19	
ONSITE EVACUATION	REVISION 2	Page 1 of 17

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PVNGS # 8-9B

DEPT. HEAD D. N. Zimmerman DATE 6/26/84

PRB/PRG REVIEW F. M. L. Clyde DATE 6-14-84

APPROVED BY D. N. Zimmerman DATE 6/29/84

EFFECTIVE DATE 6-29-84

DN-1586A/0188A

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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 FPIP-09, "Emergency Coordinator"

2.1.2 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.3 EPIP-20, "Personnel Assembly and Accountability"

2.1.4 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.5 78AC-0ZZ06, "Document and Record Turnover Control"

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. 3

2.2.3 ANSI N45.2.9 - 1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 This procedure should be conducted in an orderly fashion to avoid personnel injury.

3.2 The Bechtel Fire Team and Bechtel Medical staff members shall be considered essential personnel and shall not be evacuated.

3.3 Corporate Security shall be considered essential personnel and shall not be evacuated.

3.4 Appendices C and D shall be retained for the life of the plant.

3.5 Appendices C and D shall be submitted to the Radiological Protection Coordinator and the Security Director, respectively upon event termination so that they may be forwarded to DDC for retention in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 In the event of an emergency at PVNGS, it may be desirable to send persons home before there is an uncontrolled release of radioactive material. Such cases may be treated as early dismissal from work and subject only to Section 4.3.1 of this procedure. Notification of such dismissal shall come from the Emergency Coordinator and should be passed on down the supervisory chain to accomplish an orderly sequence of dismissal. Security shall provide traffic control.

4.1.2 The remainder of this procedure applies in the event of evacuations where persons may be contaminated. Assembly and accountability per EPIP-20, "Personnel Assembly and Accountability", shall be accomplished prior to any evacuation.

4.1.3 The Emergency Coordinator is responsible for determining the need for onsite evacuation, the offsite reassembly area evacuation routes, and the order of evacuation from various parking lots.

4.1.4 The Security Director is responsible for conducting the evacuation.

4.2 Prerequisites

4.2.1 A SITE AREA EMERGENCY or GENERAL EMERGENCY has been declared or the Emergency Coordinator has determined that the condition warrants evacuation of non-essential personnel.

4.2.2 Assembly and accountability have been completed per EPIP-20 and all groups of non-essential personnel are at their assembly areas awaiting evacuation instructions.

4.3 Instructions

NOTE

Accountability shall be completed per EPIP-20 prior to early dismissal.

4.3.1 Early Dismissal

4.3.1.1 The Emergency Coordinator may determine that it is desirable to send persons home before there is a danger of radiation exposure.

4.3.1.2 The Emergency Coordinator shall direct the Security Director to inform all Assembly Area Supervisors who shall in turn inform their groups.

4.3.1.3 The preferred order of notification and early dismissal shall be as follows:

(1) Visitor's Center
(2) Bechtel and subcontractor manuals
(3) Bechtel and subcontractor non-manuals
(4) APS/Bechtel Start-up
(5) APS Construction
(6) PVNGS Nuclear Operations

4.3.1.4 The Bechtel Fire Team and Bechtel Medical Staff shall not be dismissed early. The Fire Team shall report to its equipment building and await further instruction. The Medical Staff shall report to the First Aid Station and await further instruction.

4.3.1.5 Corporate Security shall not be dismissed early. They shall report to their duty stations and await instructions.

4.3.1.6 PVNGS Nuclear Operations technical and training personnel shall be directed to report to the offsite reassembly area rather than go home so that they may be recalled if their support is needed.

4.3.2 Emergency Coordinator shall:

NOTE

The instructions provided below have been incorporated into the Emergency Coordinator's checklist located in EPIP-09, "Emergency Coordinator".

4.3.2.1 Determine if an evacuation is required per the level of emergency classification or if onsite evacuation is otherwise desirable.

4.3.2.2 Consult with the Radiological Protection Coordinator (or Radiation Protection Monitor) and determine the appropriate offsite assembly area and evacuation route (See Section 4.3.9 of this procedure).

4.3.2.3 Determine the necessity to reassemble emergency personnel in the Operations Support Center and Service Building into one of the protected facilities, i.e., the Control Room, Technical Support Center or Emergency Operations Facility.

4.3.2.4 Consult with the Security Director to assure that traffic control and other activities are sufficiently advanced to allow proper evacuation.

4.3.2.5 Order the Shift Supervisor to sound the emergency siren to signal evacuation and make a PA announcement with specific instructions.

4.3.3 Security Director shall:

NOTE

The information provided below has been incorporated into the Security Director checklist located in EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.3.1 Contact the Maricopa County Sheriff's Office by dedicated telephone or radio to request assistance as required.

4.3.3.2 Inform the Sheriff's Office of the designated offsite reassembly area (Palo Verde Inn or Hassayampa Pump Station) once that is determined by the Emergency Coordinator.

4.3.3.3 Request Sheriff's Office assistance with traffic control at the offsite reassembly area.

4.3.3.4 Arrange for an orderly sequence of evacuation.

4.3.3.5 Direct the Security Force to routinely check APS trailers and buildings in the Administration area outside the protected area to ensure all non-essential personnel have left the premises.

4.3.3.6 Direct Corporate Site Security to check the Visitor's Center and associated areas.

4.3.3.7 Contact the Evacuation Team Leader at the offsite reassembly area to determine if any emergency supplies are needed. The Administrative and Logistics Coordinator shall arrange for any needed supplies.

4.3.3.8 Provide periodic reports on evacuation status to the Emergency Coordinator.

4.3.4 Radiological Protection Coordinator

NOTE

The instructions provided below have been incorporated into the Radiological Protection Coordinator checklist located in EPIP-11.

4.3.4.1 The Radiological Protection Coordinator shall assist the Emergency Coordinator in determining the appropriate offsite reassembly area and evacuation route.

4.3.4.2 Palo Verde Inn should be selected as the offsite reassembly area unless the conditions warrant use of the alternative. In that case, Hassayampa Pump Station should be used. Appendix B contains the evacuation routes to the two offsite reassembly areas.

4.3.4.3 Provide direction to the Radiation Monitoring team at the reassembly area.

4.3.5 Radiation Monitoring Team shall:

4.3.5.1 Use the checklist provided in Appendix C.

4.3.5.2 Take direction from the Radiological Protection Coordinator and proceed to the offsite reassembly area.

4.3.5.3 Establish a monitoring point and, if necessary, a decontamination area in accordance with EPIP-28, "Personnel Monitoring and Decontamination".

4.3.5.4 Monitor and clear all individuals before release. Names and addresses of evacuees suspected of having received a dose in excess of 250 mrem or those requiring any decontamination shall be obtained before the evacuees are allowed to leave the reassembly area.

4.3.5.5 Periodically inform the Radiological Protection Coordinator of the progress of monitoring and decontamination efforts.

4.3.6 Evacuation Team Leader shall:

4.3.6.1 Be a member of the Security Force appointed by the Security Director.

4.3.6.2 Report to the Bechtel Gate No. 1 and await the evacuation signal. When the signal is given, he shall lead the evacuating group to the offsite reassembly area.

4.3.6.3 Direct arriving groups to assembly areas at the offsite reassembly area, per Section 4.3.9. He should use arriving Assembly Area Supervisors for assistance.

4.3.6.4 Assist the Radiation Monitoring Team, as necessary, in the logistics of monitoring and decontamination. He shall assure that no one leaves the reassembly area until cleared by that team.

4.3.6.5 Provide periodic progress reports and direct requests for resources, if necessary, to the Security Director.

4.3.7 Assembly Area Supervisors shall:

4.3.7.1 Receive instructions on impending evacuation from the Security Director and pass along to the assembly area group.

4.3.7.2 Release his group to enter personal vehicles or buses once the evacuation signal is given.

4.3.7.3 Report to the Evacuation Team Leader at the offsite reassembly area and assist him as necessary.

4.3.8 Evacuating Personnel shall:

4.3.8.1 Wait at their assembly areas until the evacuation signal is given.

4.3.8.2 Take direction from Assembly Area Supervisors and Security Force members during evacuation.

4.3.8.3 Proceed as follows when the evacuation signal is given:

(1) Personnel using their personal vehicles shall proceed at an orderly pace to the site exit gates and follow the Evacuation Team Leader.

(2) Personnel using buses shall line up at the pick-up point and fill each bus as it pulls up to the pick-up point.

4.3.8.4 Proceed to the offsite reassembly area and take direction from the Evacuation Team Leader.

4.3.8.5 Remain at the offsite reassembly area until cleared to leave by the Radiation Monitoring Team.

4.3.9 Offsite Reassembly Areas and Evacuation Routes

NOTE

At no time shall buses or personal vehicles block the fire station next to the Palo Verde Inn. A clear path shall be kept open for the emergency vehicles located at the station.

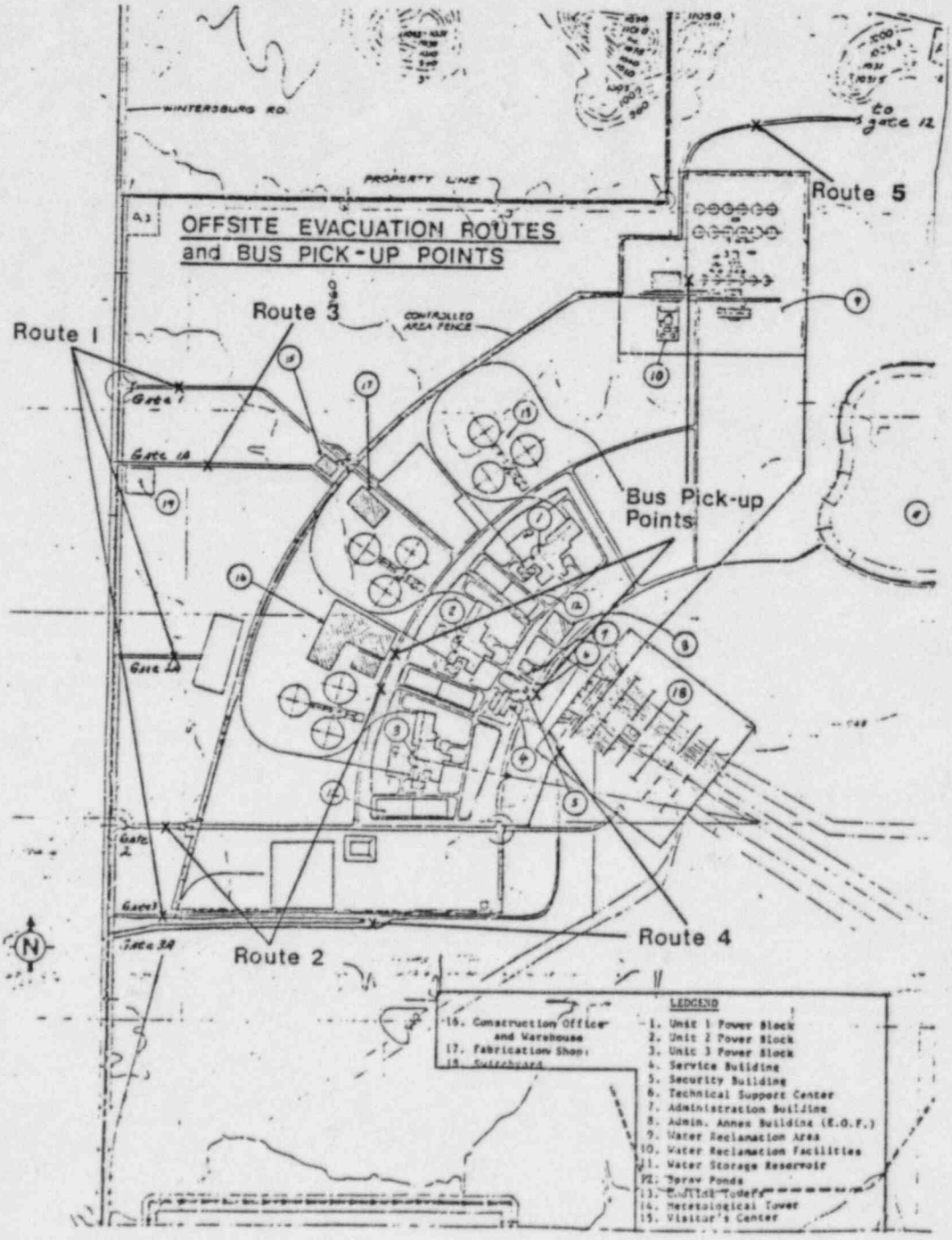
NOTE

No personnel may be allowed inside the Palo Verde Inn without approval of the Evacuation Team Leader.

4.3.9.1 The primary offsite reassembly area shall be Palo Verde Inn. Personal vehicles shall be directed into parking lots around the Palo Verde Inn. Buses shall be unloaded outside the parking lot. Personnel shall remain at their vehicles or where they are unloaded.

4.3.9.2 The alternate offsite assembly area shall be the Hassayampa Pump Station. This should be used only if meteorological conditions require an alternate to the Palo Verde Inn. The Evacuation Team Leader shall assign assembly locations upon arrival.

4.3.9.3 Appendix B contains the evacuation routes to the two areas.


OFFSITE EVACUATION ROUTES
and BUS PICK-UP POINTS
WINTERSBURG RD.
PROPERTY LINE
CONTROLLED AREA FENCE
to gate 12
Route 1
Route 2
Route 3
Route 4
Route 5
Bus Pick-up Points
Gate 1
Gate 1A
Gate 2
Gate 3
Gate 3A
N
LEGEND
1. Unit 1 Power Block
2. Unit 2 Power Block
3. Unit 3 Power Block
4. Service Building
5. Security Building
6. Technical Support Center
7. Administration Building
8. Admin. Annex Building (E.O.F.)
9. Water Reclamation Area
10. Water Reclamation Facilities
11. Water Storage Reservoir
12. Spray Ponds
13. Cooling Towers
14. Meteorological Tower
15. Visitor's Center
16. Construction Office and Warehouse
17. Fabrication Shop
18. Switchyard

OFFSITE REASSEMBLY AREAS AND EVACUATION ROUTES

Directions to Primary Offsite
Reassembly Area (Palo Verde Inn)

Primary Route

(1) Exit Plant Site and proceed North on Wintersburg Road to intersection of Wintersburg Road and Buckeye - Salome Highway.

(2) At the intersection turn left.

(3) Follow Buckeye - Salome Highway (West) to turn-off to Tonopah (411th Ave.).

(4) At turn-off, turn right (North) and proceed to the Palo Verde Inn.

Alternate Route

(1) Exit Plant Site and proceed north on Wintersburg Road to Interstate 10 (I-10).

(2) Turn left onto I-10 (West).

(3) Follow I-10 to the Tonopah Exit.

(4) Turn left off of I-10 onto 411th Ave.

(5) Follow 411th Ave to the Palo Verde Inn.

OFFSITE REASSEMBLY AREAS AND EVACUATION ROUTES

Direction to the Alternate Offsite Reassembly Area (Hassayampa Pump Station)

Primary Route

(1) Exit Plant Site and Proceed south on Wintersburg Road to the intersection of Wintersburg Road and Elliot Road.

(2) At the intersection turn left (East) onto Elliot Road and proceed to 355th Avenue.

(3) At 355th Avenue, turn left (North) onto 355th and proceed to Dobbins Road.

(4) At Dobbins Road turn right (East) onto Dobbins and proceed to 351st Avenue.

(5) At 351st Avenue turn left (North) and proceed to the Buckeye - Salome Highway.

(6) At the Buckeye - Salome Highway turn right (East) and proceed to the intersection or Buckeye - Salome Highway and Baseline Road.

(7) At Baseline Road, turn left (angle turn) and follow Baseline to Johnson Road.

(8) At Johnson Road turn right (South) onto Johnson and proceed to Lower River Road.

(9) At Lower River Road turn right (West) and proceed to the pump station.

Alternate Route

(1) Exit Plant Site and proceed South on Wintersburg Road to Elliot Road.

(2) At Elliot Road turn left (East) and proceed to 355th Avenue.

(3) At 355th Avenue turn left (North) and go to Dobbins Road.

(4) At Dobbins Road turn right (East) and proceed to the Buckeye Salome Highway.

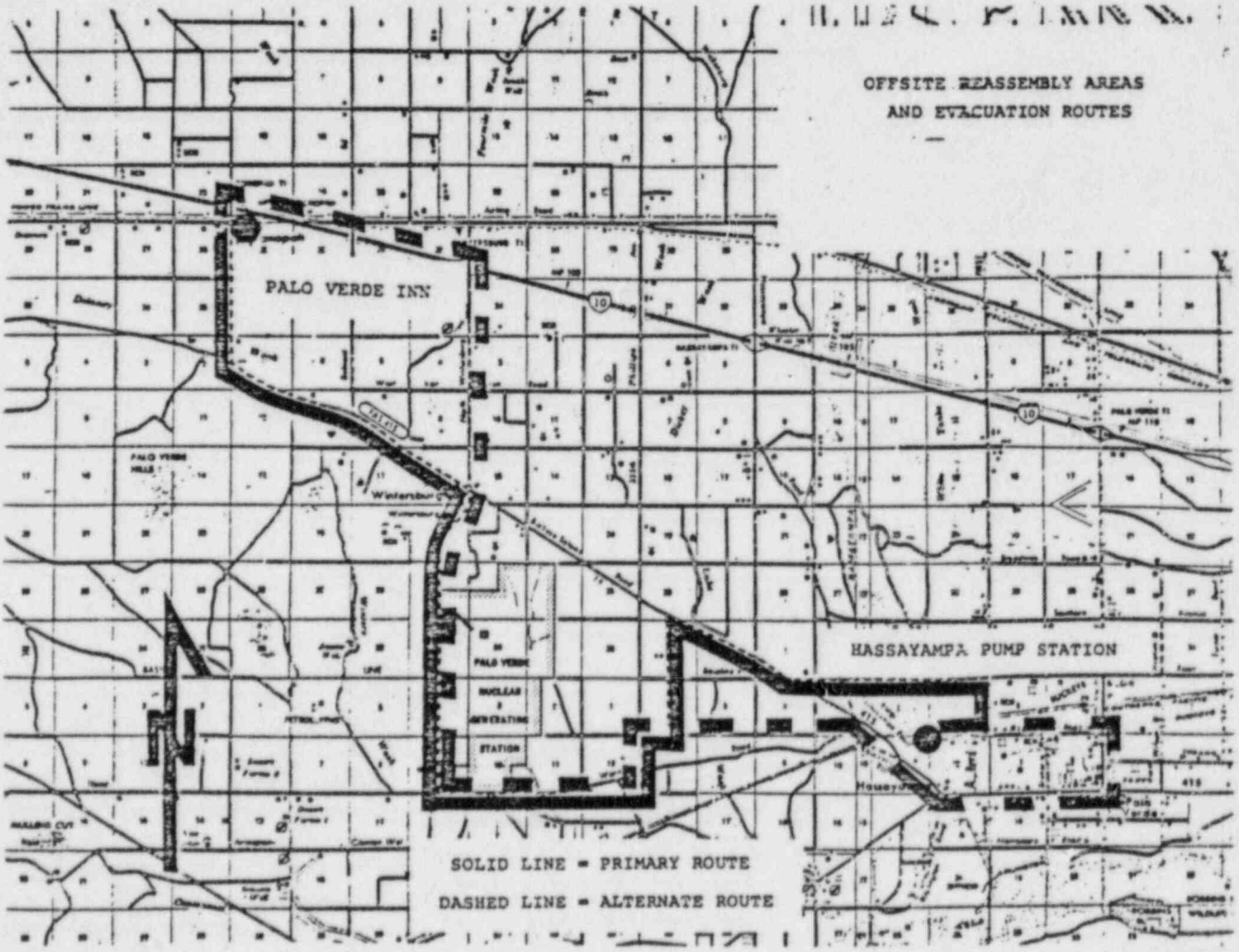
Alternate Route (continued)

(5) At the Buckeye - Salome Highway turn right and proceed to Old Highway 80.

(6) At Old Highway 80 Turn left (East) and proceed to Palo Verde Road.

(7) At the Palo Verde Road turn left (North) and go to Lower River Road.

(8) At the Lower River Road turn left (West) and proceed to the pump station.



OFFSITE REASSEMBLY AREA RADIATION MONITORING TEAM CHECKLIST

POSITION FILLED BY: Radiation Protection Technicians

RESPONSIBILITIES: Perform monitoring and decontamination of evacuated personnel as necessary at the offsite reassembly area.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Receive initial briefing from Radiological Protection Coordinator.	____/____
2. Obtain the "Emergency Evacuation Decontamination Kit" from the Security Desk of Annex Building, or obtain the necessary monitoring and decontamination supplies from the Radiation Protection Office per EPIP-28. (Use OSC, TSC, EOF Emergency Kits if Radiation Protection Office is not accessible.)	____/____
3. Arrange for a vehicle for transport to the offsite reassembly area.	____/____
4. Proceed directly to offsite reassembly area (see Appendix B) and establish a monitoring control point.	____/____
SUBSEQUENT ACTIONS	
5. Monitor and clear all evacuated personnel.	____/____
6. Establish decontamination area and decontaminate per EPIP-28, if necessary.	____/____
7. Obtain names and addresses of evacuees suspected of having received a dose in excess of 250 mrem or those requiring any decontamination before release.	____/____
8. Periodically inform by telephone (or Evacuation Team Leader radio) the Radiological Protection Coordinator of the progress of monitoring and decontamination.	____/____

Performed By: _____ Date _____
Signature

PERSONNEL MONITORING LIST

Person Monitored	Social Security Number	Monitor Reading	Disposition

EVACUATION TEAM LEADER
CHECK LIST

POSITION FILLED BY: Security Force Member

RESPONSIBILITIES: Lead the evacuating group to the offsite reassembly area, exercise control at the area, report status to Security Director.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Receive initial briefing from the Security Director.	____/____
2. Obtain Security vehicle and portable radio and transport Security Team to Bechtel Gate No. 1.	____/____
3. Upon sounding of the evacuation signal, lead the evacuating vehicles to the offsite reassembly area (see Appendix B).	____/____
SUBSEQUENT ACTIONS	
4. Direct arriving groups to appropriate assembly points at the offsite reassembly area.	____/____
5. Brief arriving Assembly Area Supervisors to provide you with assistance.	____/____
6. Assist the Radiation Monitoring Team with logistics, as appropriate.	____/____
7. Assure that no one leaves the reassembly area until cleared by the Radiation Monitoring Team.	____/____
8. Periodically inform the Security Director as to progress using telephone or portable radio.	____/____

Performed By: _____
Signature

_____
Date

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-20	
PERSONNEL ASSEMBLY AND ACCOUNTABILITY	REVISION 2	Page 1 of 26

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PVNGS # 8-9B

DEPT. HEAD O.R. Brunner DATE 7/6/84

PRB/PRG REVIEW M.L. Clyde DATE 7-11-84

APPROVED BY O.R. Brunner DATE 7/12/84

EFFECTIVE DATE 07-16-84

DN-1588A/0180A

PV218-00DA (8/82)

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1.0 OBJECTIVE

1.1 To assemble all personnel in the event of an emergency at PVNGS in order to facilitate notification, accountability and subsequent evacuation, if necessary.

1.2 To account for the whereabouts of all personnel within the protected area within 30 minutes from the time the accountability signal is activated.

1.3 To account for the whereabouts of all other personnel onsite as soon as practicable (generally within one hour) after the emergency siren is activated.

1.4 To maintain personnel accountability for the duration of the emergency condition.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification"

2.1.2 EPIP-04, "ALERT Implementing Actions"

2.1.3 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.4 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.5 EPIP-09, "Emergency Coordinator"

2.1.6 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.7 EPIP-19, "Onsite Evacuation"

2.1.8 EPIP-21, "Search and Rescue"

2.1.9 78AC-0ZZ06, "Document and Record Turnover Control"

2.2 Developmental References

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

CONTROLLED DOCUMENT

2.2.2 PVNGS Emergency Plan, Rev. 3

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants."

3.0 LIMITATIONS AND PRECAUTIONS

3.1 If a breach of security exists, security personnel shall also implement appropriate PVNGS Security Plan Implementing Procedures.

3.2 Personnel performing critical operations such as fire fighting, assisting injured personnel, performing work which if left unattended, could endanger the lives or safety of personnel, do not need to immediately report to their assembly area. However, they should do one of the following:

(1) Secure the operation to a safe condition as rapidily as possible and then proceed to their assembly area.

(2) If the operation will take more than five minutes to secure, notify the Security Shift Captain at [redacted]

3.3 All Public Address Announcements shall be made via the plant wide telephone page. This number [redacted] may be accessed only from the Shift Supervisor's office, the TSC or EOF.

3.4 The Security Shift Captain checklist and the Individual Accountability sheets shall be retained for the life of the plant.

3.5 Records generated from Appendix B and Appendix C of this procedure shall be retained for the life of the plant.

3.6 The Security Shift Captain shall collect Appendix C from Assembly Area Supervisor and submit these sheets, along with Appendix B, to the Security Director for forwarding to DDC in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

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4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 Assembly and accountability of personnel located in the protected area is mandatory for any emergency classified as an ALERT or higher. The Emergency Coordinator may order it at any time regardless of emergency classification.

4.1.2 Assembly and accountability of personnel located onsite but outside the protected area is mandatory for a SITE AREA or GENERAL EMERGENCY. The Emergency Coordinator may order it at any time regardless of emergency classification.

4.1.3 The purpose of assembly is to gather together all site personnel to notify them of the emergency situation and as the first step in the accountability and evacuation procedures. Accountability is required to identify any missing individuals for safety and security purposes. Evacuation is covered in EPIP-19, "Onsite Evacuation".

4.1.4 The primary method of accounting for personnel located in the protected area is by means of the Access Control System. This system requires use of a card-key to enter and exit the protected area and to move through various sections of the protected area. If this system is operable, accountability may be accomplished for the protected area by means of computer printouts. If inoperable, a backup system is provided in section 4.3.8 and 4.4.13.

4.1.5 The method of accountability for personnel onsite but outside the protected area is by a sweep search to ensure that all personnel have left their normal work areas and have reported to their assembly areas.

4.1.6 The Shift Supervisor (or Emergency Coordinator) is responsible for determining the need for assembly and accountability, for activating the appropriate signal and for providing immediate instructions for assembly.

4.1.7 Each person onsite is responsible for knowing his or her assembly area and for reporting to that area as quickly as possible. Appendix A presents a listing of the various groups at the site and their predetermined assembly areas. Appendix E presents a map of all assembly areas onsite.

4.1.8 The Security Director is responsible for activating the Security Force to assist in accountability, for assessing accountability data as it is received and for reporting status to the Emergency Coordinator.

4.1.9 The Security Shift Captain is responsible for receiving and logging accountability reports from Assembly Area Supervisors.

4.1.10 Assembly Area Supervisors are responsible for completing the accountability procedure at their assigned area and reporting results to the Security Shift Captain. Appendix A presents a list of the Assembly Area Supervisors.

4.1.11 For Purposes of Protected Area/Unit Assembly and Accountability, the Shift Supervisor (or Emergency Coordinator) activates the accountability signal of the affected unit. This is a preset signal system activated from the unit control room. The Shift Supervisor (or Emergency Coordinator) follows with a verbal announcement on the PA System with specific accountability instructions which is repeated once.

4.1.12 For purposes of site area assembly and accountability, the Shift Supervisor (or Emergency Coordinator) activates the area accountability signal. This is followed by a verbal announcement on the PA system with specific instructions which is repeated once.

4.1.13 Once assembly and accountability are completed, the Emergency Coordinator may proceed as follows, depending on the situation:

(1) Should it be determined after assembly and accountability that personnel may return to normal activities, the Emergency Coordinator shall sound the all-clear signal.

(2) If evacuation is necessary after site area assembly and accountability, the evacuation signal shall be activated.

4.2 Prerequisites

4.2.1 The Shift Supervisor has completed the emergency classification process per EPIP-02, "Emergency Classification" and has determined that assembly and accountability are mandatory because of the classification level or are otherwise desirable.

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4.3 Protected Area/Unit Assembly and Accountability Instructions

4.3.1 The Shift Supervisor shall:

4.3.1.1 Sound proper signal and provide the appropriate announcement over the plant wide telephone page per EPIP-04, "Alert Implementing Actions", EPIP-05, "Site Area Emergency Implementing Actions", or EPIP-06, "General Emergency Implementing Actions".

4.3.2 Emergency Coordinator shall:

NOTE

The instructions provided below have been incorporated into the Emergency Coordinator's Checklist located in EPIP-09.

4.3.2.1 Determine if the Shift Supervisor has initiated the accountability signal and P.A. announcement. If not, the Emergency Coordinator shall do so as described in section 4.3.1.1.

4.3.2.2 Receive a report from the Security Director within 30 minutes on Protected Area/Unit Accountability.

4.3.2.3 If necessary, announce names of missing personnel on the plant wide telephone page requesting a response.

4.3.2.4 Implement EPIP-21, "Search and Rescue" upon receipt of the accountability report for any missing personnel within the Protected Area.

4.3.3 Security Director shall:

NOTE

The instructions provided below have been incorporated into the Security Director's Checklist located in EPIP-11, "Technical Support Center/Satellite TSC Activation".

4.3.3.1 If necessary, instruct the Security Shift Sergeant to assume the duties of the Security Shift Captain at the Security Building.

4.3.3.2 Inform the Security Access Point [redacted] and Craft Access Point [redacted] that Protected Area/Unit Assembly and Accountability are in progress and to assist exiting personnel. Inform them to limit access to the protected area to only those people whose names appear on the Emergency Orgranization Access List and to require all personnel leaving the protected area to use the card reader properly to assure accountability.

4.3.3.3 Obtain a printout for the Protected Area from the Access Control System Computer approximately 20 minutes after the Protected Area/Unit Accountability Signal has sounded.

4.3.3.4 Cross check names with the Security Shift Captain who receives reports of Protected Area/Unit Accountability from:

(1) Unit Control Room/Satelite TSC

(2) Technical Support Center

(3) Unit Operations Support Center

(4) Service Building

(5) CAS/SAS Operators

4.3.3.5 Provide the names and badge numbers of missing individuals and their last known locations to the Emergency Coordinator.

4.3.3.6 Inform the Emergency Coordinator of accountability status for the protected area/unit within 30 minutes.

4.3.3.7 Arrange to receive Individual Accountability Sheets (Appendix C) for each protected area assembly point as soon as practicable.

4.3.4 Security Shift Captain shall:

NOTE

The instructions provided below have been incorporated into the Security Shift Captain's Checklist located in Appendix B of this procedure.

NOTE

The Security Shift Sergeant becomes the acting Security Shift Captain if the Security Shift Captain becomes the Security Director.

4.3.4.1 Be located at the Security Building with immediate access to telephone [redacted]

4.3.4.2 Compile accountability reports for the protected area within 20 minutes.

4.3.4.3 If protected area/unit accountability reports are not received within 20 minutes of the accountability signal, attempt to contact assembly areas that have not reported.

4.3.4.4 Use these reports and the computer printout from the Access Control System to account for each person in the protected area.

4.3.4.5 Report names and badge numbers of missing individuals in the protected area and their last known locations to the Security Director as soon as this information becomes available.

4.3.5 Security Force Personnel

4.3.5.1 Upon activation of the protected area/unit accountability signal, all security personnel shall be contacted by the Central Alarm Station or Secondary Alarm Station Operators for accountability and further instructions.

4.3.6 Protected Area Personnel

4.3.6.1 Upon activation of the protected area/unit accountability signal, personnel in the protected area shall await instruction via P.A. announcement from the Emergency Coordinator concerning routes to assembly areas or areas to avoid.

4.3.6.2 Personnel with primary or alternate responsibilities in the Emergency Organization shall report to their assigned emergency location as soon as possible. Personnel outside the protected area who must enter the protected area to assume their emergency position shall report to the Security Access Point and follow normal entry procedures, including use of the entry card-reader.

NOTE

If the Emergency Coordinator directs all personnel to leave by the Craft Access Point, this group shall do so and then shall assemble at the Visitor's Center.

4.3.6.3 APS Nuclear Operations personnel, their contractors and visitors with no responsibilities in the Emergency Organization shall leave the protected area via the Security Access Point and report to the appropriate assembly area in the Administration Annex Building Cafeteria (see Appendix D). The senior individual present or assigned Security Force member shall serve as Assembly Area Supervisor.

NOTE

If the Emergency Coordinator directs all personnel in Steps 4.3.6.4 and 4.3.6.5 to leave by the Security Access Point, they shall do so and then shall assemble at the APS Operations parking lot.

4.3.6.4 APS Nuclear Construction and Site Quality Assurance personnel, their contractors and visitors shall leave the protected area via the Craft Access Point and report to their automobile parking lot or bus pickup point.

4.3.6.5 Bechtel personnel, subcontractors and visitors shall leave the protected area via the Craft Access Point and report to their automobile parking lot or bus pickup point.

4.3.6.6 APS/Bechtel Startup personnel, subcontractors and visitors shall leave the protected area via the Security Access Point and report to their automobile parking lot or bus pickup point.

4.3.7 Assembly Area Supervisors

4.3.7.1 Assembly Area Supervisors within the Protected Area shall complete the Individual Accountability Sheet (Appendix C) for personnel who have arrived. The information on this sheet shall be called into the Security Shift Captain by plant telephone at [redacted] or sent to the Security Building by runner within 20 minutes.

4.3.8 Access Control System Inoperable

4.3.8.1 If the Access Control System computer or card-readers are inoperable, the protected area accountability shall be identical to instructions provided in Sections 4.3.3 through 4.3.7 except:

(1) At exit turnstiles, security guards shall collect security badges in containers to be transported to the Security Shift Captain for accountability.

(2) The Security Shift Captain shall use the badge racks and the Assembly Area Supervisor reports to the complete the protected area accountability in place of the computer printout.

4.4 Site Area Assembly and Accountability Instructions

4.4.1 The Shift Supervisor shall:

4.4.1.1 Sound the accountability signal and provide the appropriate announcement over the plantwide page per EPIP-04, 05, and 06.

4.4.2 Emergency Coordinator shall:

NOTE

The instructions provided below have been incorporated into the Emergency Coordinator's Checklist located in EPIP-09.

4.4.2.1 Determine if the Shift Supervisor has initiated the accountability signal and P.A. announcment. If not, the Emergency Coordinator shall do so as described in section 4.4.1.

4.4.2.2 Receive a report from the Security Director within 30 minutes on protected area/unit accountability and as soon as practicable after that for site accountability. (Generally within one hour).

4.4.2.3 If necessary, announce names of missing protected area personnel over the plant wide telephone page requesting a response.

NOTE

The Emergency Coordinator shall be immediately informed if an assembly area outside of the protected area appears likely to exceed 2mR/hr.

4.4.2.4 Be prepared to implement EPIP-19 and/or EPIP-21 as appropriate upon receipt of the accountability report.

4.4.3 Security Director shall:

NOTE

The instructions provided below have been incorporated into the Security Director's Checklist located in EPIP-11.

4.4.3.1 If necessary, instruct the Security Shift Sergeant to assume the duties of the Security Shift Captain at the Security Building.

4.4.3.2 Inform the Security Access Point [redacted] and Craft Access Point Guards [redacted] that assembly and accountability are in progress and to assist exiting personnel. Inform them to limit access to the protected area to only those people whose names appear on the Emergency Orgranization Access List and to require all personnel leaving the protected area to use the card reader properly to assure accountability.

4.4.3.3 If radiological conditions require APS Operations personnel to leave the protected area via the Craft Access Point during offshifts (nights and holidays), instruct the Security Shift Captain to request corporate security to unlock the Visitor's Center.

4.4.3.4 Direct the Security Shift Captain to contact the Maricopa County Sheriff's Office by dedicated telephone or radio to request assistance at the corner of Wintersburg Road and Buckeye/Salome Highway north of the plant and Wintersburg Road and Elliot (Ward) Road south of the plant in preparation for possible evacuation following accountability.

4.4.3.5 Obtain a printout for the Protected Area from the Access Control System Computer Approximately 20 minutes after the Protected Area/Unit Accountability Signal has sounded.

4.4.3.6 Cross check names with the Security Shift Captain who receives reports of Protected Area/Unit Accountability from:

(1) Affected Unit Control Room/Satellite TSC

(2) Technical Support Center

(3) Affected Unit Operations Support Center

(4) Service Building

(5) CAS/SAS Operators

4.4.3.7 Provide the names and badge numbers of missing individuals and their last known locations to the Emergency Coordinator.

4.4.3.8 Inform the Emergency Coordinator of protected area/unit accountability status within 30 minutes.

4.4.3.9 After protected area/unit accountability is completed, the Security Director shall work with the Security Shift Captain who receives telephone reports of site area accountability from the following:

(1) Visitor's Center

(2) Water Reclamation Facility

(3) Emergency Operations Facility

4.4.3.10 Instruct the Security Shift Captain to dispatch a Security Guard(s) with radio(s) to the various automobile parking lots and bus pickup points to obtain site area accountability reports from assembly area supervisors.

4.4.3.11 Instruct the Security Shift Captain to dispatch a security team to routinely check the Administration Building, the Annex Building (excluding the cafeteria and the EOF assembly areas) and the trailer areas to ensure that they are not occupied. If any area is occupied, the security team shall inform the personnel to report to the nearest assembly area.

4.4.3.12 Arrange to receive Individual Accountability Sheets (Appendix C) for each protected area assembly point as soon as practical.

4.4.4 Security Shift Captain shall:

NOTE

The instructions provided below have been incorporated into the Security Shift Captain's Checklist located in Appendix B.

4.4.4.1 Be located at the Security Building with immediate access to telephone [redacted]

4.4.4.2 Compile accountability reports for the protected area within 20 minutes.

4.4.4.3 If protected area/unit accountability reports are not received within 20 minutes of the accountability signal, attempt to contact assembly areas that have not reported.

4.4.4.4 Use these reports and the computer printout from the Access Control System to account for each person in the protected area.

4.4.4.5 Send a Security Force member with radio to the Firing Range to notify any personnel of the emergency and to obtain accountability data. The same Security Force member shall notify any personnel in the switchyard to report to the Administration Annex Building Cafeteria.

4.4.4.6 Report names and badge numbers of missing individuals in the protected area and their last known locations to the Security Director as soon as they become known.

4.4.4.7 Compile accountability reports for the assembly areas outside the protected area as soon as practical and report results to the Security Director.

4.4.5 Security Personnel

4.4.5.1 Upon activation of the accountability signal, all security personnel shall be contacted by the Central Alarm Station or Secondary Alarm Station Operators for accountability and further instructions.

4.4.6 Protected Area Personnel

4.4.6.1 Upon activation of the accountability signal, personnel in the protected area shall await instruction via P.A. announcement from the Shift Supervisor or the Emergency Coordinator concerning routes to assembly areas or areas to avoid.

4.4.6.2 Personnel assigned to the affected unit with primary or alternate responsibilities in the Emergency Organization shall report to their assigned emergency location as soon as possible. Personnel outside the protected area who must enter the protected area to assume their emergency position shall report to the Security Access Point and follow normal entry procedures.

CONTROLLED DOCUMENT

NOTE

If the Emergency Coordinator directs all personnel to leave by the Craft Access Point, this group shall do so and then shall assemble at the Visitor's Center.

4.4.6.3 APS Nuclear Operations personnel, their contractors and visitors with no responsibilities in the emergency organization shall leave the protected area via the Security Access Point and report to the appropriate assembly area in the Administration Annex Building Cafeteria (see Appendix D). The senior individual present or the assigned Security Guard shall serve as Assembly Area Supervisor.

NOTE

If the Emergency Coordinator directs all personnel in Steps 4.4.6.4 and 4.4.6.5 to leave by the Security Access Point, they shall do so and then shall assemble at the APS Operations parking lot.

4.4.6.4 APS Nuclear Construction and Site Quality Assurance personnel, their contractors and visitors shall leave the protected area via the Craft Access Point and report to their automobile parking lot or bus pickup point.

4.4.6.5 Bechtel personnel, subcontractors and visitors shall leave the protected area via the Craft Access Point and report to their automobile parking lot or bus pickup point.

4.4.6.6 APS/Bechtel Startup personnel, subcontractors and visitors shall leave the protected area via the Security Access Point and report to their automobile parking lot or bus pickup point.

4.4.7 Site Area Personnel

4.4.7.1 Upon activation of the accountability signal, personnel onsite but outside the protected area shall report to their assigned assembly areas.

4.4.7.2 APS Nuclear Operations personnel, subcontractors and visitors without responsibilities in the Emergency Organization shall report to their appropriate assembly area in the Administration Annex Building Cafeteria.

4.4.7.3 APS Nuclear Construction and Site Quality Assurance personnel, subcontractors and visitors shall report to their automobile parking lot or bus pickup point.

4.4.7.4 APS/Bechtel Start-Up personnel, Bechtel Construction Personnel, subcontractors and visitors shall report to their automobile parking lot or bus pick-up points.

4.4.7.5 Water Reclamation Personnel shall report to the WRF conference room.

4.4.7.6 Visitor's Center Staff and Visitors shall report to the vistor's center.

4.4.8 Assembly Area Supervisors

4.4.8.1 Assembly Area Supervisors within the Protected Area shall complete the Individual Accountability Sheet (Appendix C) for personnel who have arrived. The information on the sheet shall be called into the Security Shift Captain by plant telephone at [redacted] or sent to the Security Building by runner within 20 minutes.

4.4.9 Site Area Accountability

NOTE

If a release has occurred or imminent, the Emergency Coordinator shall implement EPIP-21 to perform these searches.

4.4.9.1 Accountability of personnel onsite but outside the protected area shall be accomplished by a physical search of areas outside the protected area.

4.4.9.2 APS Nuclear Construction Manager shall dispatch search teams to ensure that all APS Nuclear Construction personnel have left their work areas and reported to their automobile parking lot or bus pickup point.

4.4.9.3 Bechtel Field Construction Manager shall dispatch search teams to ensure that all Bechtel personnel have left their work stations and reported to their automobile parking lot or bus pickup point.

4.4.9.4 APS/Bechtel Startup Administrative/Technical Group Manager shall dispatch search teams to ensure all APS/Bechtel startup personnel have left their work stations and reported to their automobile parking lot or bus pickup point.

4.4.9.5 The search teams shall make a search of all areas outside the protected area. Any individual found shall be informed to report to their automobile parking lot or bus pickup point. If any person is found injured, the search team shall immediately notify the Emergency Coordinator at plant telephone [redacted] and administer first aid as appropriate. After completion of the search the teams shall report to their respective managers that all areas are clear.

4.4.10 Protected Area Missing Individual Accountability Search

4.4.10.1 The Emergency Coordinator shall implement EPIP-21 to locate missing individuals who may be in the protected areas.

4.4.11 Evacuation

4.4.11.1 The Emergency Coordinator shall implement EPIP-19 if evacuation is required.

4.4.12 Bomb Threat

NOTE

Distances noted below are minimum distances. To ensure the greatest margin of safety, go to the maximum distance attainable.

4.4.12.1 Alternate (outdoors) assembly areas to be used in the event of a bomb threat.

(1) Administration Annex Building - Open space 300 feet northeast of building.

(2) APS Construction Office - Adjacent to vans in van pool area.

(3) Water Reclamation Office - Open space 300 feet southwest of office.

(4) Visitor's Center - Open space 300 feet southwest of building.

4.4.13 Access Control System Inoperable

If the Access Control System computer or card-readers are inoperable, the accountability system shall be indentical to the instructions provided in sections 4.4.3 through 4.4.8 except:

(1) At exit turnstiles, security guards shall collect security badges in containers to be transported to the Security Shift Captain for accountability.

(2) The Security Shift Captain shall use the badge racks and the Assembly Area Supervisor reports to complete protected area accountability in place of the computer printout.

4.5 Emergency Situation Terminated

4.5.1 The Emergency Coordinator (or Shift Supervisor) shall carry out the appropriate termination actions as per EPIP-04, EPIP-05, or EPIP-06.

CONTROLLED DOCUMENT

Assembly Group	Assembly Area	ASSEMBLY AREA/GROUPS Assembly Area Supervisor	Accountability Method	Accountability Time Schedule	Assembly Area Telephone No.
1. Control Room/SISC Emergency Staff	Control Room/SISC	a. Assistant Shift Supervisor b. Nuclear Operator III	Supervisor knowledge	Within 20 min.	
2. Technical Support Center Emergency Staff	ISC	Onshift a. Tech. Engineering Coordinator (Shift Systems Engineer) Onsite a. Personnel Resources Coordinator b. Hazard Control Coordinator	Assembly Area Supervisor log incoming personnel and report to Security	Within 20 min.	
3. Operations Support Center Emergency Staff	OSC	a. OSC Coordinator b. Repairs Coordinator	Assembly Area Supervisor log incoming personnel and report to Security	Within 20 min.	
4. Service Building Emergency Staff	Service Building (Alt. OSC)	a. Mech. Coordinator b. I&C Coordinator	Assembly Area Supervisor log incoming personnel and report to Security	Within 20 min.	
5. Security Personnel	Not Applicable	Security Shift Captain	Report accountability to CAS/SAS via radio/telephone	Within 20 min.	
6. APS Nuclear OPS Assigned to Protected Area but not designated at Visitors to report to an emergency response location.	Admin. Annex Bldg. Cafeteria (or Visitor's Center	Assigned Security Guard or Senior Individual present (if so directed)	Access Control System Computer/ Card-Readers	Within 20 min.	

Center

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ASSEMBLY AREA/GROUPS

Assembly Group	Assembly Area	Assembly Area Supervisor	Accountability Method	Accountability Time Schedule	Assembly Area Telephone No.
7. All other personnel inside protected area: APS Construction, Bechtel, APS/ Bechtel Startup, Subcontractors, etc.	Automobile Parking Lot or Bus pickup point	Group Managers	Access Control System Computer/ Card-Readers	Within 20 min.	
8. All APS Nuclear Operations personnel outside protected area	Admin. Annex Bldg. Cafeteria (or Visitors Center if so instructed)	Assigned Security Guard or Senior Individual present	Accountability Sweep Search	As soon as practicable	
9. All other personnel outside protected area: APS Construction, Bechtel, APS/ Bechtel Startup, Subcontractors, etc.	Automobile Parking lot or bus pickup point	Group Manager	Accountability Sweep Search	As soon as practicable	
10. Visitor's Center Staff & Visitors	Visitor's Center	Visitor's Center Director	Director Knowledge	As soon as practicable	
11. APS Water Reclamation Personnel	WRF Conference Room Lunch Room	A. Administrative Specialist B. WRF Lead Chemist C. WRF Chemist	Accountability Sweep Search	As soon as practicable	
12. Emergency OPS Facility Staff	EOF (Annex Basement)	A. Security Coordinator B. Admin. & Logistics Coordinator	Assembly Area Supervisor Check against emergency roster	As soon as practicable	

APPENDIX B

SECURITY SHIFT CAPTAIN
CHECK LIST

POSITION FILLED BY

1. Security Shift Captain
2. Security Shift Sergeant (alternate)

RESPONSIBILITIES

1. Obtain accountability reports from Assembly Area Supervisors.
2. Assist Security Director with accountability tasks as appropriate.
3. Serve as Assembly Area Supervisor for Security Force.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to Security Building and man the accountability phone lines [redacted]	____/____
2. Account for Security Force members at fixed posts and on patrols from CAS and SAS accountability checks.	____/____
3. Send Security Force member to the Firing Range to notify and obtain accountability data. The same guard shall notify switchyard personnel to report to the Administration Annex Building Cafeteria.	____/____
4. Contact all protected area Assembly Area Supervisors who have not called in within 20 minutes and obtain Accountability Reports.	____/____
(1) Unit #1 Control Room/STSC	____/____
(2) Technical Support Center	____/____
(3) Unit #1 Operations Support Center	____/____
(4) Service Building	____/____

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PERSONNEL ASSEMBLY AND ACCOUNTABILITY	REVISION 2	Page 23 of 26

TIME/INITIALS

5. Use reports and computer printout to account for all protected area personnel within 30 minutes. ____/____

6. Report names of protected area missing individuals to Security Director [redacted] as they become known. ____/____

7. Contact all site Assembly Area Supervisors who have not reported in a timely manner and receive accountability status for each. ____/____

   (1) Water Reclamation Facility ____/____

   (2) Visitor's Center ____/____

   (3) Emergency Operations Facility ____/____

8. Dispatch a Security Force member(s) with radio(s) to the various automobile parking lots and bus pick up points to obtain site area accountability reports from assembly area supervisors.

9. Report site accountability to Security Director as soon as practicable. ____/____

Performed By _____ Date _____
Signature

INDIVIDUAL ACCOUNTABILITY SHEET

ASSEMBLY AREA _____

DATE/TIME _____

NO. OF PEOPLE ACCOUNTED FOR: _____

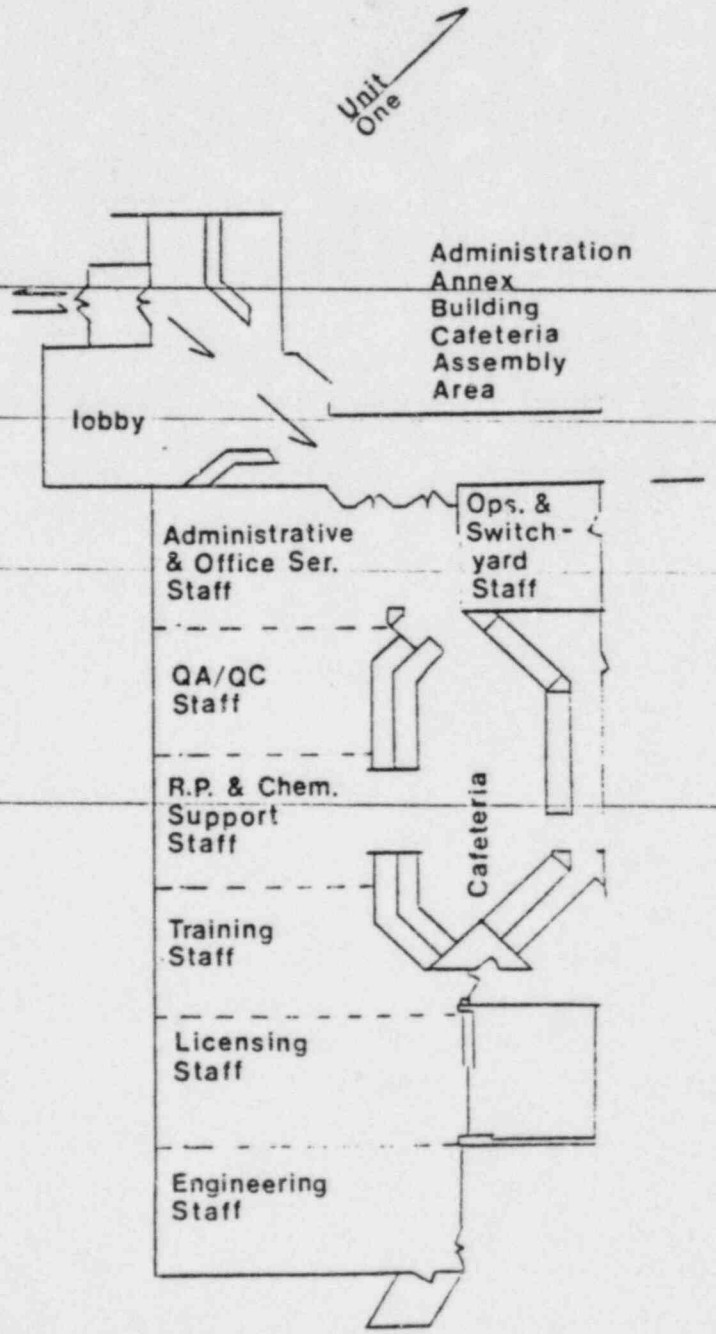
ASSEMBLY AREA SUPERVISOR _____

PERSONNEL LISTING
(Print Clearly)

NAME	TITLE	ACAD NO.

Note: Contact Security Shift Captain at [redacted] with accountability results for this assembly area.

Administration Annex Building Cafeteria
Assembly Area



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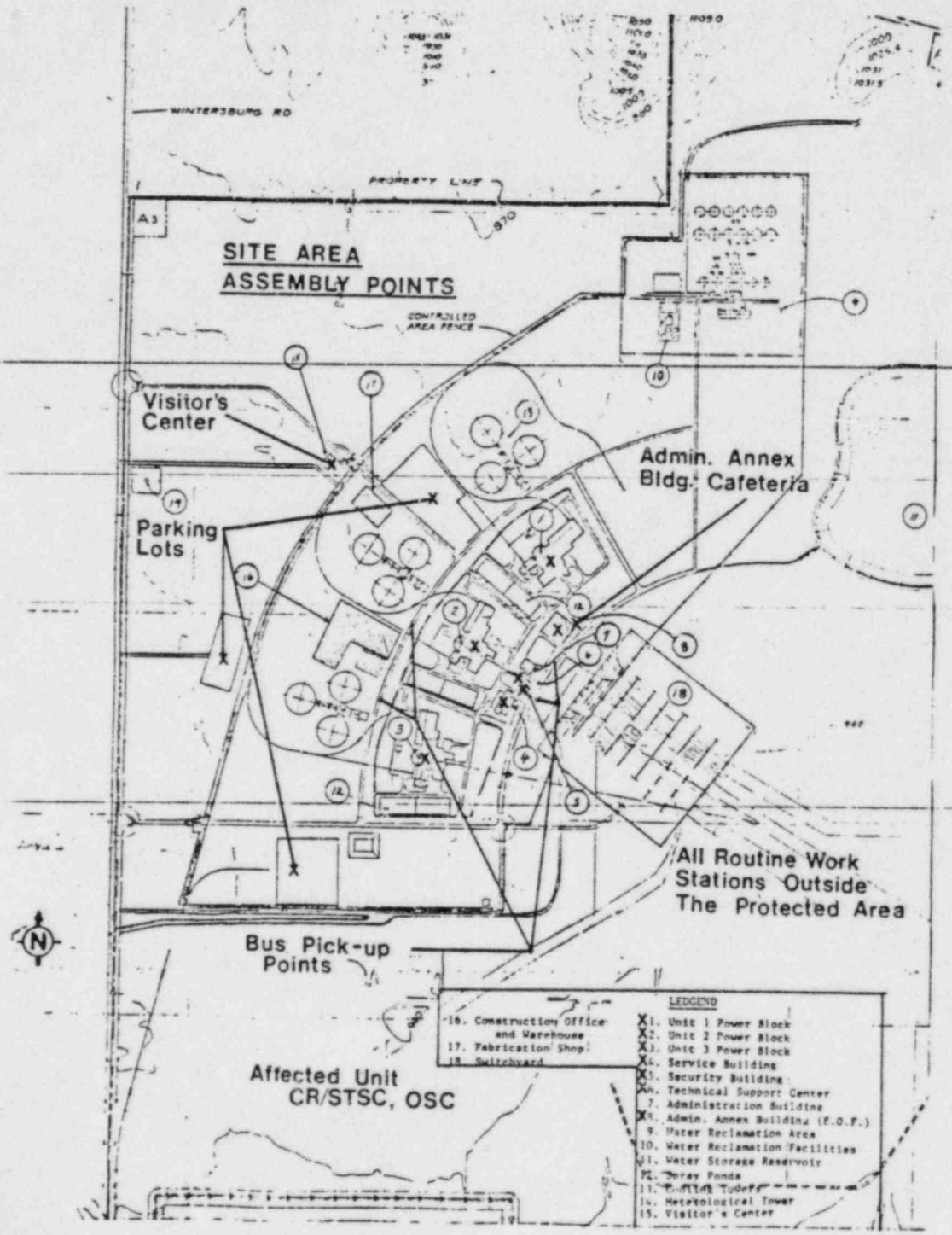

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PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-21	
SEARCH AND RESCUE	REVISION 2	Page 1 of 14

ASSIGNED COPY

8-93

DEPT. HEAD O.A. Zimmerman DATE 7/6/84

PRB/PRG REVIEW M.L. Clyde DATE 7-11-84

APPROVED BY O.A. Zimmerman DATE 7/12/84

EFFECTIVE DATE 07-16-84

DN-1602A/0180A

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1.0 OBJECTIVE

2

1.1 To provide instructions for the search and rescue of individuals who may be missing or disabled.

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-28, "Personnel Monitoring and Decontamination" 2

2.2 Developmental References 2

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 NCRP Report #39, 1971 Basic Radiation Protection Criteria.

2.2.3 EPA-520/1-75-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," revised June 1980.

2.2.4 NUREG 0737, "Clarification of TMI Action Plan Requirements," October 1980

2.2.5 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1

2.2.6 ANSI N45.2.9-1974 "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants."

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Proper radiological controls should be adhered to during search and rescue operations.

3.2 Emergency Exposures shall be authorized in accordance with EPIP-18, "Emergency Exposure Guidelines". 2

3.3 A portable radio should be provided to the Search and Rescue Team.

3.4 Search and Rescue Team members should keep within sight or voice range of each other.

3.5 The Search and Rescue Checklist and the Hazards Control Coordinator Search and Rescue Information Sheet shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 If personnel are known to be missing or disabled based on the results of EPIP-20, "Personnel Assembly and Accountability," the Security Director shall notify the Emergency Coordinator. 2

4.1.2 The Emergency Coordinator is responsible for implementing this procedure and shall direct the OSC Coordinator via the Hazards Control 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 Emergency Coordinator (or Hazards Control Coordinator) shall instruct the OSC Coordinator to deploy a Search and Rescue team. The instruction shall include the following (if known):

(1) Identification of missing individual(s).

(2) Last known location of each individual (as determined from Security Controlled Access System Computer Radiation Exposure Permit or Radiation Exposure and Maintenance Computer system or other source).

4.3.2 The OSC Coordinator shall:

4.3.2.1 Assemble a Search and Rescue Team(s), each team consisting of two members. Both members shall be familiar with the plant. 2

4.3.2.2 Appoint one team member as the Team Leader.

4.3.2.3 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):

(1) Identification of missing individual(s).

(2) Last known location of each individual (check Security and Radiation Exposure and Maintenance Computer Systems, and REP if one is issued).

(3) The job each individual was working.

(4) Any significant details of the plant status that may affect the search and any special instructions.

(5) Nature of injuries, if known. 1

(6) 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.

(7) Inform Search and Rescue Team members of radiation exposure limits if deemed necessary.

(8) 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.

4.3.2.4 Coordinate all Search and Rescue Teams so that duplication of effort and unnecessary radiation exposure does not occur.

4.3.2.5 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.

4.3.3 The Search and Rescue Team Leader shall:

4.3.3.1 Ensure that the team is equipped as necessary utilizing the check list of Appendix C, "Search and Rescue Checklist". 2

4.3.3.2 Go to the Control Room to obtain appropriate master key(s) for area(s) to be searched.

4.3.3.3 Keep the Hazards Control Coordinator informed of significant actions via appropriate communication equipment.

4.3.3.4 Inform the Hazards Control Coordinator immediately upon locating any missing and/or disabled personnel.

4.3.3.5 Ensure completion of check list, Appendix C.

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, if possible.

4.3.4.3 Employ the following guidelines during the rescue effort:

(1) If the area is known to be contaminated or if steam or an explosion is involved in an area where it can be contaminated, protective clothing and respiratory protection shall be worn.

(2) 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.

(3) If there is potential radiation in the area, radiation levels shall be monitored as the area is entered.

(4) 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 should return to a safe area and plan the method of rescue (see 4.3.6).

4.3.5 The Hazards Control Coordinator shall:

4.3.5.1 Keep the OSC Coordinator informed of all significant events.

4.3.5.2 Complete the Information Sheet, Appendix "D", as appropriate.

4.3.5.3 Notify the Emergency Coordinator of the results of the Search and Rescue efforts.

4.3.6 High Radiation -

NOTE

The Emergency Coordinator's permission is required prior to Search and Rescue Team members exceeding 10CFR20 limits except in immediate life or death situations. Such exposures are allowed provided the criteria of EPIP-18 are followed.

4.3.6.1 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.

4.3.7 Fire -

4.3.7.1 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.

4.3.7.2 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.

4.3.8 Steam or Hot Water -

4.3.8.1 Rescue of an individual shall take precedence over system isolation unless system isolation is required to perform the rescue; or failure to isolate the system will seriously affect reactor safety; or place the lives of other personnel in immediate danger.

4.3.8.2 Consider performing the actions of 4.3.8.2. to perform the rescue.

4.3.9 Wreckage -

4.3.9.1 Obtain the tools necessary to perform the rescue.

4.3.9.2 Enter the area and perform the rescue.

4.3.10 Action Following Rescue

4.3.10.1 Transport or escort the victim(s) to a safe location as soon as possible and perform any required first aid.

4.3.10.2 If the victim is injured, advise the Hazards Control Coordinator and perform EPIP-22, "Personnel Injury," as necessary.

4.3.10.3 The OSC Coordinator shall inform the Hazards Control Coordinator when the team has concluded its search and rescue activities and returned to the OSC.

MAXIMUM PERMISSIBLE DOSE LIMITS
FOR OCCUPATIONAL WORKERS

Critical Organ	DOSE LIMITS mrem/quarter
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,250[1]
Hands, Forearms, Ankles, Feet	18,750[2]
Skin of Whole Body	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]

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 shall 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 who enters a high radiation area or that receives or is likely to receive a dose in any calendar quarter in excess of 25% of the applicable 10CFR20 value.

3. NCRP, Guidance.

4. NUREG 0737.

2

EMERGENCY EXPOSURE LIMITS

	Sampling Under Accident Conditions	Corrective or Protective Actions	Lifesaving Actions
Whole Body (rem)	5 *	25 ****	75 ****
Thyroid (rem)	25 ****	125 ****	NO LIMIT ***
Extremities (rem)	75 *	100 **	200 **

* NUREG 0737, Nov. 1980

** NCRP Report #39, 1971

*** No specific upper limits is given for thyroid exposure since in the extreme case complete thyroid loss might be an acceptable penalty for a life saved. However, this should not be necessary if respirators and/or thyroid protection for rescue personnel are available as a result of adequate planning.

**** EPA-520/1-75-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised June 1980.

SEARCH AND RESCUE TEAM CHECK LIST

POSITION FILLED BY: At least two emergency personnel per team.
Personnel available for Search and Rescue Teams include:
Designated Shift Personnel
Radiation Protection Technician
Chemistry Technician
Mechanical Maintenance Technician
Electrical Maintenance Technician
I & C Maintenance Technician

RESPONSIBILITY: Conduct search and rescue activities during an emergency.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to OSC (upon notification) and report to: (1) OSC Coordinator (Onshift) or (2) Hazards Control Coordinator (Onsite).	____/____
2. Obtain search and rescue data from supervisory individual: (1) I.D. of missing person (2) Last known location (3) Job individual was working on (4) Pertinent details of plant status (5) Stay time(s) in area(s) (6) Radiation exposure limits (7) NATURE OF INJURIES, if known	____/____
3. Obtain the following equipment as required: (1) Portable radio (2) Radiation survey instruments (3) High range beta/gamma survey meter (4) Dosimetry (self-alarming) (5) Lifelines (6) Protective clothing (7) SCBA	____/____

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2

TIME/INITIALS

(8) First aid kit
(9) Flashlights
(10) Stretcher
(11) Other (specify) _____

_____

_____

4. Obtain Radiation Exposure Permit (REP) if required. ____/____

Performed by: _____
Signature

Date: _____

HAZARDS CONTROL COORDINATOR
SEARCH AND RESCUE INFORMATION SHEET

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
   b. High Radiation
   c. Fire
   d. Smoke Filled
   e. Steam Leak
   f. Steam Filled
   g. Wreckage
   h. Loss of Lights
   i. Other (Specify) _____

	INITIALS
6. If required, emergency exposure limits have been authorized	
7. Radiation levels and stay times determined, if necessary	

HAZARDS CONTROL COORDINATOR
SEARCH AND RESCUE INFORMATION SHEET (CONT'D

8. Missing individual(s) located - Time: _____

_____

9. Condition of missing individual(s) _____

_____

10. Rescue completed - Time: _____

11. Search and Rescue Team members returned to OSC:

	Time
_____	_____
_____	_____
_____	_____
_____	_____

Performed by _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-22	
PERSONNEL INJURY	REVISION 2	Page 1 of 15

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PVNGS SM # 8-9B

DEPT. HEAD [signature] DATE 3/21/84

PRB/PRG REVIEW [signature] DATE 5-21-84

APPROVED BY [signature] DATE [illegible]

EFFECTIVE DATE 5-30-84

DN-1634A/0190A

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2

2

1.0 OBJECTIVE

1.1 This procedure details actions necessary for the treatment of injured or contaminated injured personnel. 2

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-18, "Emergency Exposure Guidelines"

2.1.4 EPIP-21, "Search and Rescue"

2.1.5 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.6 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.7 EPIP-33, "Offsite Assistance"

2.1.8 75RP-9ZZ44, "Radiation Exposure Permits"

2.1.9 78AC-0ZZ06, "Document and Record Turnover Control"

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

2.2.3 PVNGS Emergency Plan, Rev. 3

2.2.4 Maryvale Samaritan Hospital, "Plan for Decontamination and Treatment of the Radioactively Contaminated Patient (Palo Verde Plan)", revised June, 1983.

2.2.5 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev.1 2

2.2.6 ANSI N45.2.9-1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants."

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Medical attention to serious injuries takes priority over the removal of contamination or radiation control.

3.2 The Radiological Protection Coordinator may authorize exposures in excess of PVNGS Administrative Radiation Exposure Limits up to the Limits of 10CFR20. Exposures in excess of 10CFR20 Limits up to Emergency Exposure Limits of EPIP-18, "Emergency Exposure Guidelines", shall be authorized by the Emergency Coordinator. Exposures in excess of Emergency Exposure Limits shall not be authorized.

3.3 The Team Leader of each Search and Rescue Team should carry a radiation survey instrument during rescue/first aid operations in radiation areas.

3.4 If possible, prevent the spread of contamination.

3.5 Appendices 'A', 'B', 'C', and 'D' shall be retained for the life of the plant in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Emergency Coordinator is responsible for the implementation of this procedure.

4.1.2 A Radiation Protection Staff member shall, with the advice of the plant nurse, coordinate the first-aid activities 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, "Emergency Classification".

4.2.2 A personnel injury has occurred.

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.

> CAUTION
>
> MEDICAL ATTENTION TO SERIOUS INJURIES SHALL TAKE PRIORITY OVER CONTAMINATION CONTROL OR PERSONNEL DECONTAMINATION.

4.3.1.2 Promptly assess and report the following information to the Control Room:

(1) Number of injured individuals.

(2) Location

(3) Injury description(s), type and severity.

(4) Radiological conditions.

(5) Other emergency conditions and hazards (fire, chemical, etc.).

(6) Estimate of time, skills, equipment and manpower necessary to treat and evacuate injured individual(s).

4.3.2 The Emergency Coodinator shall ensure the following are performed:

4.3.2.1 If necessary, implement EPIP-18.

4.3.2.2 Contact the First-Aid Station and inform on-duty personnel of situation.

2

4.3.3 First Aid Team Action - Treat injured personnel in accordance with appropriate section and Appendix D.

(1) Absence of radiological aspects - 4.4
(2) Possibility of radiological aspects - 4.5

4.4 Absence of radiological aspects - treatment of injured personnel:

4.4.1 First Aid Team - Implement normal first aid procedures.

4.4.2 First Aid Team - Upon approval from the Team Leader, move the injured party to the nearest first aid station.

4.4.3 Radiation Protection Staff member - If hospitalization is required, perform the actions of section 4.6.

4.5 Presence of Radiological Aspect:

CAUTION

IF THE INJURY IS SEVERE, IMMEDIATE MEDICAL TREATMENT IS OF THE HIGHEST PRIORITY AND RADIOLOGICAL CONTROLS ARE CONSIDERED SECONDARY.

4.5.1 Radiation Protection 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.

4.5.2 First Aid Team - If necessary, don protective clothing and equipment. If a REP was issued, perform actions in accordance with the permit.

4.5.3 Radiation Protection Technician, if assigned, or First Aid Team Leader - Survey the injured party using a beta/gamma survey instrument, and complete a body map per EPIP-28, "Personnel Monitoring and Decontamination".

4.5.4 If patient condition warrants, decontaminate the individual in accordance with EPIP-28.

4.5.5 If decontamination is not possible and hospitalization is required, the First Aid Team Leader shall direct the following activities:

> CAUTION
>
> DO NOT USE PLASTIC FOR WRAPPING.

4.5.5.1 If time allows, circle contaminated areas with a magic marker and cover with absorbent material.

4.5.5.2 If time allows, complete Appendices A and B. Circle areas on the Body Map to show contaminated areas and indicate the amount of contamination (CPM). The Body Map may also be used to show the location of known body wounds. These appendices should accompany the patient to the hospital.

4.5.5.3 If time allows, place "Caution, Radioactive Contamination" tags on the individual in the following manner; left wrist (yellow and magenta tag) containing the following information: patient's name, patient's external contamination levels and locations.

4.5.5.4 Remove contaminated clothing if the wound or injury will not be aggravated.

4.5.5.5 Notify the Radiation Protection Staff member that the individual is ready for transport to the hospital.

4.5.5.6 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".

4.6 Transportation of Contaminated/Injured Individual(s) to the Hospital

NOTE

The Emergency Coordinator shall direct the STSC Communicator (onshift) or Administrative and Logistics Coordinator to telephone the hospital (see EPIP-33, "Offsite Assistance", for the telephone number) and speak directly to the Emergency Room Supervisor or the Floor Supervisor.

4.6.1 Prior to calling the hospital complete Appendix C.

4.6.2 The STSC Communicator or Administrative and Logistics Coordinator shall provide hospital with Appendix 'C' information.

NOTE

If onsite emergency vehicle(s) are unavailable and offsite vehicles are to be used, notify Security to provide dosimetry to ambulance personnel.

4.6.3 A Radiation Protection Staff member (preferably the Radiological Protection Coordinator) shall:

4.6.3.1 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), if time permits.

4.6.3.2 Designate one person to meet and accompany the offsite ambulance to the patient's location.

4.6.3.3 Due to the nature or extent of injuries involved, it may be desirable to use an air ambulance. Helicopter to transport the injured party to the hospital vice using a ground amublance.

NOTE

Due to size and weight considerations, if air ambulance is used the RP Technician may be unable to accompany the patient to the hospital.

4.6.3.4 Designate one or more persons to accompany the patient to the hospital. If the R.P. Technician is unable to accompany the injured party in the air ambulance due to space limitations; he shall proceed to the hospital via ground transportation. These persons shall carry and be qualified in the use of G-M survey instruments and radiation control procedures.

4.6.4 Radiation Protection personnel shall escort the patient to the ambulance, if ambulatory, or supervise the casualty stretcher removal.

4.6.5 Transport the injured individual(s) to Maryvale Samaritan hospital by onsite ambulance, offsite ambulance or helicopter service.

4.7 Hospital Procedures - Radiological Protection Personnel

4.7.1 PVNGS personnel shall assist hospital personnel as necessary with surveys.

4.7.2 Decontamination procedures shall be carried out by PVNGS personnel as follows:

4.7.2.1 Survey ambulance attendants and decontaminate (if necessary) prior to leaving the hospital. Collect dosimeters if personnel are not returning to PVNGS.

4.7.2.2 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.

4.7.2.3 Survey the hospital entrance, emergency room and any areas, supplies and equipment used in the treatment of the contaminated patient. Decontaminate as necessary.

4.7.2.4 Supervise and assist in the decontamination of hospital personnel.

4.7.2.5 Collect hospital dosimeters and return to PVNGS.

4.7.2.6 Collect all radioactive waste in sealed containers and return to PVNGS.

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 mR/hr), contamination (type, amount), etc.

Prepared By: _____
Signature

Date: _____

BODY MAP

MARYVALE SAMARITAN HOSPITAL
HOSPITAL NOTIFICATION FORM

Date/Time of Call: _____

Person Calling: _____

Telephone Number: _____
(from which the call is being placed)

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: _____
(Hour and 15 minutes normal driving conditions)

REMARKS _____

_____

_____

Prepared By: _____
Signature

Date: _____

FIRST AID TEAM CHECK LIST

Position Filled By: At least two Emergency Personnel per team. Personnel available for First Aid Teams include:

Designated Shift Personnel
Radiation Protection Technician
Chemistry Technician
Mechanical Maintenance Technician
Electrical Maintenance Technician
I&C Maintenance Technician

Responsibility: Render First Aid to injured personnel.

Immediate Actions: Time/Initials

1. Absence of radiological aspects

   (1) Implement normal First Aid procedures ____/____

   (2) Notify Medical Personnel ____/____

   (3) Upon approval of First Aid Team Leader, move the injured party to the nearest available First Aid Station. ____/____

2. Possibility of high external radiation levels, surface contamination, or airborne contamination.

   (1) If necessary, don protective clothing and equipment. ____/____

   (2) Assess injuries and implement First Aid procedures. ____/____

   (3) Notify Medical Personnel of extent of injury. ____/____

   (4) Survey individual using Beta/Gamma Survey Instrument. Record results on Appendix C, "Body Map". ____/____

Immediate Actions:

Time/Initials

(3) If decontamination is not possible and hospitalization is required: ____/____

(1) Cover contaminated area with absorbent material. ____/____

(2) Complete Appendix B, "First Aid Information" and Appendix C, "Body Map". ____/____

(3) Remove contaminated clothing if wound or injury will not be aggravated. ____/____

(4) Notify the Radiation Protection Staff Member (preferably the Radiological Protection Coordinator) that the individual is ready for transport to the hospital. ____/____

Subsequent Actions:

None

Prepared By: _____
Signature

Date: _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-23	
FIRE FIGHTING	REVISION 2	Page 1 of 6

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DEPT. HEAD ____________ DATE 3/21/84

PRB/PRG REVIEW ____________ DATE 5-14-84

APPROVED BY ____________ DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-1671A/0196A

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2

1.0 OBJECTIVE

1.1 This procedure details actions necessary for the efficient, orderly, and expedient treatment of a fire at PVNGS that cannot be controlled by the PVNGS Fire Team.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification" 2

2.1.2 EPIP-09, "Emergency Coordinator"

2.1.3 EPIP-18, "Emergency Exposure Guidelines"

2.1.4 EPIP-24, "Security"

2.1.5 14AC-0ZZ02, "Fire Emergency Notification and Response"

2.1.6 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, "Functional Criteria for Emergency Response Facilities", February 1981

2.2.3 PVNGS Emergency Plan, Rev. 3 2

2.2.4 NFPA 1975 Code Pamphlet 27

2.2.5 83TR-0ZZ07, "Fire Team Training", Rev. 0 2

2.2.6 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1

2.2.7 10CFR20, "Standards for Protection Against Radiation", 1983.

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 may alter emergency and subsequent actions.

3.2 The Radiological Protection Coordinator may authorize exposures in excess of PVNGS Administrative Radiation Exposure Limits up to the Limits of 10CFR20. Exposures in excess of 10CFR20 Limits up to Emergency Exposure Limits of EPIP-18, "Emergency Exposure Guidelines" shall be authorized by the Emergency Coordinator. Exposures in excess of Emergency Exposure Limits shall not be authorized. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Resonsibilities

4.1.1 The Emergency Coordinator has overall responsibility for implementation of this procedure.

4.1.2 When the Bechtel Fire Department or alternate offsite Fire Department assistance has been summoned, the PVNGS Fire Team Leader shall retain his leadership role at the fire scene.

4.2 Prerequisites

4.2.1 A fire is in progress and is being fought per 14AC-0ZZ02, "Fire Emergency Notification and Response".

4.2.2 An incident has occurred which has been classified per the provisions of EPIP-02, "Emergency Classification". 2

4.3 Instructions

4.3.1 At the scene of the fire:

4.3.1.1 Upon determining that fire cannot be rapidly extinguished by the PVNGS Fire Team, the Fire Team Leader shall go to the nearest phone and notify the Control Room of the following:

(1) Nature and extent of fire,
(2) Location,
(3) Recommendation for outside assistance,
(4) Description of special requirements (i.e., precautions and equipment needs).

4.3.2 Control Room

4.3.2.1 Upon receipt of information of a significant fire onsite, the Shift Supervisor shall call the Security Shift Captain (Security Director), using normal phone Line [redacted] and notify him of the following:

(1) Nature and extent of fire,
(2) Location,
(3) Request for support from the Bechtel Fire Department, or other Offsite Department,
(4) Special Requirements (i.e., precautions and equipment needs).

2

4.3.2.2 The Shift Supervisor or Emergency Coordinator shall refer to EPIP-02 and classify/reclassify the emergency as indicated.

4.3.2.3 Subsequent emergency actions shall be taken per EPIP-09, "Emergency Coordinator".

4.3.2.4 The Emergency Coordinator shall ensure the Hazards Control Coordinator is kept informed of the situation.

4.3.3 Security Director

4.3.3.1 At the direction of the Emergency Coordinator, the Security Director shall contact the Bechtel Fire Department or alternate offsite Fire Department, and provide the following information:

(1) Nature and extent of fire,
(2) Location,
(3) Special precautions, if required.
(4) Special equipment required.

4.3.3.2 The Security Director shall inform the security force that offsite fire fighting assistance is expected and designate personnel to issue dosimetry and escort the offsite fire department personnel and equipment to the scene of the fire in accordance with EPIP-24, "Security".

2

PALO VERDE NUCLEAR GENERATING STATION MANUAL	PROCEDURE NO. EPIP-24	
SECURITY	REVISION 2	Page 1 of 11

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DEPT. HEAD O. K. Buzzard DATE 5/10/84

PRB/PRG REVIEW O. K. Buzzard DATE 7/6/84

APPROVED BY O. K. Buzzard DATE 7/10/84

EFFECTIVE DATE ~~07-20-84~~ JM 0216-84
07-16-84

DN-1590A/0180A

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2

1.0 OBJECTIVE

1.1 To provide methods for expediting access of offsite emergency response personnel (i.e., NRC representatives, vendors, Bechtel, etc.) and emergency vehicles to PVNGS.

1.2 To provide methods for controlling access to the Control Room, Satellite Technical Support Center (STSC), Technical Support Center (TSC), protected area, and Emergency Operations Facility (EOF) during an emergency.

1.3 To provide a means for identifying personnel assigned to the PVNGS Emergency Organization. 2

2.0 REFERENCES

2.1 Implementing References

2.1.1 PVNGS Security Plan

2.1.2 EPIP-13, "Emergency Operations Facility Activation"

2.1.3 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.4 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.5 EPIP-48, "Security Coordinator"

2.1.6 EPIP-55, "TSC/EOF Personnel Identification"

2.1.7 75RP-9ZZ01, "TLD Issue, Exchange, and Termination"

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3 2

3.0 LIMITATIONS AND PRECAUTIONS

3.1 In the event of an emergency at PVNGS, security measures may have to be altered to provide for immediate station access by offsite emergency personnel and vehicles. 2

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 if required to assist with radiological aspects of the emergency.

4.3.4.2 The monitoring team shall collect dosimetry issued to the Offiste Fire Department members prior to their release from the site. 2

4.3.4.3 The monitoring team shall survey all personnel and equipment prior to their release from the site following termination of the emergency.

4.3.4.4 The monitoring team shall supervise any decontamination evolutions 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 shall inform the Shift Supervisor and Emergency Coordinator. 2

4.3.5.2 The Shift Supervisor shall have an announcement made over the PA system regarding termination of the fire.

4.3.5.3 The Emergency Coordinator shall release members of the offsite fire department after completion of any required radiological monitoring and/or decontamination.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Security Director is responsible for implementing this procedure and for insuring that only those personnel properly authorized access are permitted within the protected area. 2

4.1.2 The cognizant Facility/Area supervisor is responsible for authorizing and controlling access to the emergency facility over which he has authority. 2

(1) Control Room/STSC - Shift Supervisor/Emergency Coordinator
(2) Technical Support Center - Emergency Coordinator
(3) PVNGS Protected Area - Security Director
(4) Emergency Operations Facility - Emergency Operations Director

4.1.3 The Supervisor Site Emergency Plan shall be responsible for reviewing, updating and providing to security the TSC and EOF Emergency Personnel Access Lists on a quarterly basis. 2

4.2 Prerequisites

4.2.1 The PVNGS Emergency Plan has been implemented, and emergency response facilities have been activated.

4.3 Instructions

4.3.1 Emergency Vehicle Access (Fire, Ambulance, Etc.)

4.3.1.1 The Emergency Coordinator shall notify the Security Director of the estimated time of arrival for offsite assistance vehicles. 2

4.3.1.2 Upon arrival, 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.

NOTE

Personal dosimetry shall be issued to individuals requiring access to radiologically controlled areas in accordance with 75RP-9ZZ01, "TLD Issue, Exchange, and Termination."

4.3.1.3 The vehicle(s) shall then be admitted to the protected area. If possible, 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, "Personnel Monitoring and Decontamination", and EPIP-29, "Area/Equipment Monitoring and Decontamination", 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 2

NOTE

The Emergency Coordinator may at any time direct the Security Director to limit access to the station.

4.3.2.1 At the declaration of an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY and/or the initiation of personnel assembly, the Security Director shall take immediate steps to limit access to the protected area.

4.3.2.2 Personnel access to the protected area shall be limited to only those personnel possessing a "PVNGS Emergency Response Official Badge" and normal protected area Key-card. 2

4.3.2.3 Personnel who are assigned to the PVNGS Emergency Organization and named on the TSC or EOF Emergency Personnel Access List shall be expeditiously admitted to the facility after undergoing routine screening. 2

4.3.2.4 APS personnel who are called to the station and who have not been previously assigned and identified in an Emergency Personnel Access List or do not possess a protected area key-card and/or a "PVNGS Emergency Response Official Badge" shall report to the Security Building. The Emergency Coordinator via the Security Director shall notify the Security Building of those personnel reporting to the station so that they may be admitted. 2 2

4.3.2.5 Vendor, contractor, NRC, Bechtel, and other personnel not specified in an Emergency Personnel Access List shall only be admitted following routine visitor badging procedures and shall be escorted, if possible, in accordance with established security procedures. 2

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 Upon activation of the TSC, the Security Director shall request that a member of the Security Force be stationed at the entrance to the TSC to limit access to only those personnel wearing a "PVNGS Emergency Response Official Badge" and whose name appears on the TSC Emergency Personnel Access List. 2

4.3.3.2 All other personnel requiring access to the TSC shall receive verbal authorization from the Emergency Coordinator or Personnel Resources Coordinator who shall in turn notify the Security Director to grant the access.

4.3.3.3 The TSC staff shall obtain their Emergency Personnel Identification Badge (Appendix A) from its storage location in the TSC and wear it in addition to their security badge, per EPIP-55, "TSC/EOF Personnel Identification". This badge shall 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 shall be in effect during emergency conditions with the following stipulations:

(1) The Shift Supervisor may at his discretion upon the declaration of a NOTIFICATION OF 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.

(2) During ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY condition, access shall 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 Security Force Member shall proceed to the EOF and lock the stairway door on the Plant northeast side to restrict entrance to the EOF (Stairs #2). 2

4.3.5.2 Upon activation of the EOF, the Security Force Member assigned to the Administration Annex shall request assignment of an additional Security Force member to restrict EOF access to those personnel wearing a "PVNGS Emergency Response Official Badge" and whose name appears on the EOF Emergency Personnel Access List.

4.3.5.3 Additional actions to be performed by the ECF Security Force are addressed in EPIP-13, "Emergency Operations Facility Activation".

4.3.5.4 The Security Coordinator, upon arrival at the EOF, shall assume responsibility for EOF access, per EPIP-48, "Security Coordinator".

4.3.5.5 All other personnel requesting access to the EOF shall receive verbal authorization from the Emergency Operations Director or Administrative and Logistics Coordinator who shall in turn notify the Security Coordinator to grant access.

4.3.5.6 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 so that access may be arranged.

4.3.5.7 The EOF staff shall obtain their Emergency Personnel Identification Badge (Appendix A) from its storage location in the EOF and wear it in addition to their security badge, per EPIP-55, "TSC/EOF Personnel Identification". This badge shall be transferred whenever functional responsibility is transferred from one individual to another.

4.3.6 Media Access Control

4.3.6.1 Security personnel shall refer all media representatives intercepted at access points or on the site to the Joint Emergency News Center for information concerning the emergency.

4.3.7 Emergency Personnel Identification

4.3.7.1 Each functional assignment in the PVNGS Emergency Response Organization should have a badge. 2

4.3.7.2 Emergency personnel identification shall be reviewed and updated concurrently with the annual PVNGS Emergency Plan review.

4.3.7.3 Emergency Personnel Identification Badges shall be worn in station emergency response facilities: TSC, STSC, EOF, OSC and Service Building (alternate OSC).

4.3.7.4 The Emergency Personnel Identification Badges are to be used to identify the functional responsibility of the individual and to transfer that responsibility when relieved. 2

4.3.7.5 The Security Coordinator shall periodically determine if badges are being properly displayed at the EOF.

4.3.7.6 The Security Director shall periodically determine if badges are being properly displayed at the TSC.

4.3.8 PVNGS Emergency Response Personnel Identification

4.3.8.1 Each APS employee with a functional assignment in the PVNGS Emergency Response Organization shall be issued a "PVNGS Emergency Response Official" badge.

4.3.8.2 This badge shall be issued contingent upon their name being listed in the Onsite Training Roster.

4.3.8.3 Any individual wanting access to Onsite Emergency Response Facilities or the Emergency Operations Facility, but does not have a PVNGS Emergency Response Official Badge, shall obtain a authorization from the Emergency Coordinator, Personnel Resources Coordinator or Security Director.

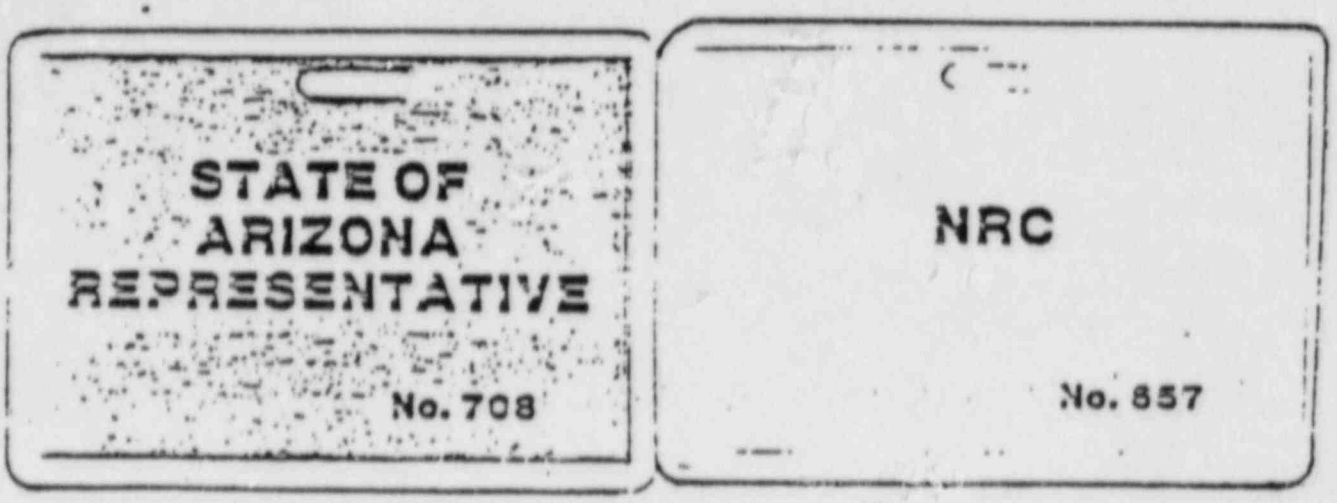
4.3.8.4 "PVNGS Emergency Response Official" Personnel Identification badges shall also be issued to Arizona Radiation Regulatory Agency (ARRA) State Liaison Officers.

4.3.8.5 Emergency Response Personnel Identification shall be reviewed and updated quarterly.

4.3.8.6 "PVNGS Emergency Response Official" Personnel Identification Badges shall be worn to permit personnel to enter the EOF or any Onsite Emergency Response Facility.

4.3.8.7 NRC Officials listed on the NRC Personnel Response List (held by Security) shall be granted access to the EOF or TSC IMMEDIATELY WITHOUT DELAY.

EMERGENCY PERSONNEL IDENTIFICATION BADGE



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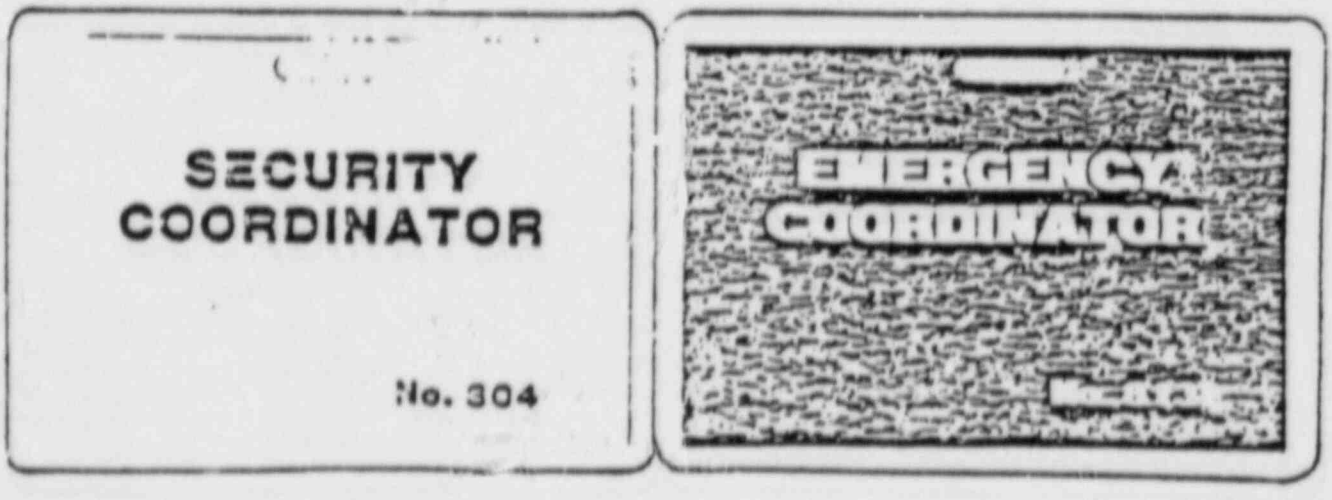

SAMPLE

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-25	
REENTRY FOR EMERGENCY OPERATIONS	REVISION 2	Page 1 of 11

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PVNGS #8-9B

DEPT. HEAD O.J. Zeringue DATE 7/6/84

PRB/PRG REVIEW F.G. Clyde DATE 7-11-84

APPROVED BY O.J. Zeringue DATE 7/12/84

EFFECTIVE DATE ~~07/25/84~~ JM 07-16-84
07-16-84

DN-1621A/0188A

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1.0 OBJECTIVE

1.1 To address 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-02, "Emergency Classification"

2.1.2 EPIP-18, "Emergency Exposure Guidelines"

2.1.3 EPIP-22, "Personnel Injury"

2.1.4 EPIP-26, "Potassium Iodide (KI) Administration"

2.1.5 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.6 EPIP-29, "Area/Equipment Monitoring and Decontamination"

2.1.7 75RP-9ZZ44, "Radiation Exposure Permits".

2.1.8 78AC-0ZZ06, "Document and Record Turnover Control".

2.2 Developmental References

2.2.1 NCRP Report #39, "Basic Radiation Protection Criteria", 1971.

2.2.2 EPA-520/1-75-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", Revised June, 1980

2.2.3 10CFR20, "Standards for Protection Against Radiation", 1983

2.2.4 75PR0ZZ01, "Radiation Protection Program", Rev. 2

2.2.5 NUREG-0737, "Clarification of TMI Action Plan Requirements", October, 1980

2.2.6 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control, Rev. 1

2.2.7 EPIP-16, "Inplant Surveys and Sampling" Rev. 2.

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Emergency Exposures shall be authorized per EPIP-18, "Emergency Exposure Guidelines".

3.2 Administrative methods to minimize personnel exposure 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 should 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 Alarming Dosimeters

3.4 Potassium Iodide (KI) tablets, if necessary, shall be administered in accordance with EPIP-26, "Potassium Iodide (KI) Administration".

3.5 Appendix C shall be retained in Accordance with 78AC-0ZZ06, "Document and Record Turnover Control.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiological Protection Coordinator and Emergency Coordinator shall authorize emergency exposures per EPIP-18.

4.1.1.1 Emergency exposure limits shown in Appendix A are defined for:

1) corrective and/or protective actions;

2) sampling under emergency conditions.

4.1.2 The Operations Support Center Coordinator shall deploy emergency repair teams, as directed from the Control Room/STSC in the onshift organization or the TSC in the onsite organization.

4.1.3 The Emergency Repair Team shall consist of at least two Maintenance Technicians. If radiological conditions necessitate, a Radiation Protection Technician shall also be assigned to the team.

4.1.3.1 The Emergency Repair Team Leader shall communicate with the OSC Coordinator (onshift) or Repairs Coordinator (onsite).

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, "Emergency Classification".

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. In the onshift/ organization, the Emergency Coordinator makes this determination.

4.3 Instructions

4.3.1 The onsite Emergency Coordinator/Emergency Maintenance Coordinator/Radiological Protection Coordinator shall provide the OSC Coordinator with a description of:

1) The work to be performed;

2) How many people the work requires;

3) What tools, spare parts, equipment, etc. are needed;

4) Radiological conditions, if known.

4.3.2 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) authorizing emergency exposure, shall be completed in accordance with 75RP-9ZZ46, "Radiation Exposure Permits".

1) The Emergency Team shall conduct repair activities in accordance with the REP and complete the check list of items 1-5 of Appendix C, prior to entry.

4.3.3 If emergency exposures are not required, the Radiological Protection Coordinator or his designee shall complete the REP detailing specific protective equipment, allowable doses and the following ALARA procedures:

1) Preplanning

2) Detailed work procedures

3) Special task training, if time allows

4) Dryrun, if time allows

5) Stay time

6) Route to take to the repair operation location

7) Adequate ventilation, lighting, water, etc.

4.3.4 Personnel Exposure Control

4.3.4.1 The Emergency Repair Team shall abide by all conditions specified in the REP.

CAUTION

THE EMERGENCY REPAIR TEAM SHALL NOT ENTER ANY AREA WHERE DOSE RATES ARE UNMEASUREABLE WITHOUT PROPER SURVEY INSTRUMENTS IMMEDIATELY AVAILABLE.

4.3.4.2 Enter suspected radiation areas with the meter set on the high scale switching to lower scales as necessary.

4.3.4.3 Upon entering the operation/repair location, the Radiation Protection Technician, if available or the Emergency Repair Team Leader shall reevaluate radiological conditions.

4.3.4.4 If radiological conditions permit, perform the required operations/maintenance.

4.3.4.5 Personnel unable to complete the task within the allotted dose shall exit the radiation area.

4.3.4.6 If radiological or other working conditions prevent the repair team from completing the task, the Emergency Repair Team Leader shall immediately report this information to the Emergency Coordinator (onshift) or the Repairs Coordinator (onsite).

4.3.5 Subsequent Actions

4.3.5.1 Emergency Repair Team Leader shall ensure personnel are checked for contamination. Decontaminate as necessary per EPIP-28, "Personnel Monitoring and Decontamination".

4.3.5.2 Emergency Repair Team Leader shall ensure equipment is checked for contamination. Decontaminate as necessary per EPIP-29.

4.3.5.3 The Radiological Protection Coordinator (RPC) shall promptly obtain initial estimates of the radiation dose of exposed personnel.

4.3.5.4 The RPC shall update and refine dose estimates at a later time.

4.3.5.5 The RPC shall immediately report exposures in excess of 10CFR20 to the Director of Nuclear Operations.

4.3.5.6 Complete checklist items 6-11 of Appendix C. The Emergency Repair Team Leader shall sign for completing Appendix C.

EMERGENCY EXPOSURE LIMITS

	Sampling Under Accident Conditions	Corrective or Protective Actions
Whole Body (rem)	5*	25***
Thyroid (rem)	25***	125***
Extremities (rem)	75*	100**

*NUREG 0737, November 1980

**NCRP Report #39, 1971

***Manual of Protective Action Guides and Protecting Actions for Nuclear Incidents, Revised June 1980

MAXIMUM PERMISSIBLE DOSE LIMITS
FOR OCCUPATIONAL WORKERS

Critical Organ	DOSE LIMITS mrem/quarter
Whole Body, Head and Trunk, Active Blood-Forming Organs, Lens of the Eye or Gonads	1,250[1]
Hands, Forearms, Ankles, Feet	18,750[2]
Skin of Whole Body	7,500[2]
Other Organs (Thyroid), Tissues and Organ Systems	5,000[4]
Pregnant Women (With Respect to the Fetus)	500mrem[3] / 9 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 Form4 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 who enters a high radiation area or 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.

EMERGENCY REPAIR TEAM
CHECK LIST

POSITION FILLED BY: At least two Technicians per team:
Radiation Protection Technician
Chemical Technician
Mechanical Maintenance Technician
Electrical Maintenance Technician
I & C Maintenance Technician

RESPONSIBILITY: Perform emergency repairs/operations.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to OSC (upon notification) and report to: (1) OSC Coordinator (Onshift) or (2) Repairs Coordinator (Onsite).	____/____
2. Obtain description of work to be performed from supervisory individual:	____/____
3. Obtain the following equipment as required: (1) Portable radio ____ (2) Radiation survey instruments ____ (3) High range beta/gamma survey meter ____ (4) Dosimetry (self-alarming) ____ (5) Protective clothing ____ (6) SCBA ____ (7) Tools as required ____ (8) Spare parts as required ____ (9) Other (specify) _____ _____ _____	____/____
4. Obtain Radiation Exposure Permit (REP) if required.	____/____
5. Take KI Tablet if authorized and desired.	____/____
6. Conduct repair(s), per EPIP-25.	____/____

EMERGENCY REPAIR TEAM
CHECK LIST (Continued)

SUBSEQUENT ACTIONS	TIME/INITIALS
High Radiation	
7. Obtain Emergency Coordinator's* authorization before exceeding 10CFR20 exposure limits.	____/____
Personnel Injury	
8. Conduct first aid, per EPIP-22, "Personnel Injury", if necessary.	____/____
Decontamination	
9. Be checked for contamination.	____/____
10. Decontaminate self as required, per EPIP-28.	____/____
11. Decontaminate equipment as required, per EPIP-29.	____/____

Performed By _____
Signature

Date _____

* The Radiological Protection Coordinator may authorize exposures in excess of PVNGS Administrative Radiation Exposure Limits up to the limits of 10CFR20.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-26	
POTASSIUM IODIDE (KI) ADMINISTRATION	REVISION 2	Page 1 of 10

ASSIGNED COPY

PVNGS # 8-9B

DEPT. HEAD O. F. Zaugg DATE 7/6/84

PRB/PRG REVIEW F. M. L. Clyde DATE 7-11-84

APPROVED BY O. F. Zaugg DATE 7/12/84

EFFECTIVE DATE 07-16-84

DN-1622A/0188A

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1.0 OBJECTIVE

2

1.1 This procedure outlines the authorization and use of Potassium Iodide (KI) during a Radiological Emergency Situation.

2.0 REFERENCES

2.1 Implementing References

2

2.1.1 EPIP-16, "Inplant Surveys and Sampling"

2.1.2 EPIP-17, "Onsite/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 Radioiodine", National Council on Radiation Protection and Measurements, 1977

2.2.3 "Final Recommendations, Potassium Iodide as a Thyroid-Blocking Agent in a Radiation Emergency", Food and Drug Administration, 1982

2

2.2.4 "Radioactive Iodine in the Problem of Radiation Safety" (USSR) (1972), USAEC Translation Series, AEC-tr-7536.

2.2.5 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The use of Potassium Iodide by emergency personnel is strictly voluntary.

3.3 The "shelf life" of KI is three years.

3.4 Emergency Workers may be APS employees or Non-APS Emergency Workers at the facility.

3.5 Side Effects of KI

3.5.1 Usually, side effects of KI (iodism) occur when doses are administered in greater amounts and for longer periods of time than recommended.

3.5.2 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).

3.5.3 Active reactions to low doses are usually limited to angioedema (swelling or hives).

3.6 If the side effects are severe, or if an allergic reaction is experienced, stop taking potassium iodide and contact a doctor for further instructions.

3.7 Appendix A is to be utilized exclusively for this procedure.

3.8 The record of distribution of potassium iodide shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities 2

4.1.1 Potassium iodide, a stable iodine, may be used in the event of a radiological emergency as a blocking agent to prevent the uptake of radioactive iodine by the thyroid gland. The thyroid gland depends upon iodine for the synthesis of the thyroid hormones and is normally supplied through one's diet. The thyroid is capable of absorbing and storing only a limited amount of iodine at any one time and excess amounts ingested are eliminated in the urine. Therefore, the use of stable iodine will limit thyroid exposure by blocking the thyroid, leading to elimination of radioactive iodine from the body.

4.1.2 The use of potassium iodide does present some risk to the user in the form of side effects or allergic reactions. Possible side effects are discussed in Section 3.5.2. Allergic reactions leading to severe illness may occur for persons with unusual sensitivity to iodine or those with pre-existing thyroid disease. Such reactions include enlargement of the thyroid (possibly leading to respiratory impairment), alterations in body metabolism due to increasing or decreasing thyroidal hormone output, and hypersensitivity reactions such as fever, pain in joints and alteration of blood cell counts. These effects are usually associated with iodine doses much higher and over a longer duration than those allowed by this procedure.

4.1.3 A controversy exists of whether risks from short-term use of low doses of potassium iodide (such as the KI dose in this procedure) for thyroid blocking in a radiation emergency outweigh the risks of radioiodine-induced thyroid nodules or cancer.

4.1.4 In light of this controversy, use of potassium iodide by emergency workers shall be on a voluntary basis. Potassium iodide may be authorized by the Emergency Coordinator for use by volunteers when the projected thyroid dose commitment is 25 rem or greater. The Food and Drug Administration has concluded in favor of the use of potassium iodide.

4.1.5 The Emergency Coordinator, on the advice of the Radiological Protection Coordinator is responsible for implementing this procedure.

4.2 Prerequisites

4.2.1 Calculated total iodine dose commitment of 25 REM or greater to the thyroid is likely to be received by an individual.

4.3 Instructions

NOTE

2

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 6-8 hours after exposure. (See Appendix 'C', "Percent of Thyroid Blocking Afforded by 100 mg of Stable Iodine As A Function of Time"). Individuals suspected of inhalation of airborne contaminants should receive thyroid counts on a regular basis to estimate dose commitment.

4.3.1 The Emergency Coordinator, acting on advice from the Radiological Protection Coordinator shall designate when and who can voluntarily use KI.

4.3.2 The Radiological Protection Coordinator or designee shall:

2

NOTE

KI has a 3 year shelf life.

4.3.2.1 Obtain bottle(s) of 130 mg KI tablets from the emergency kit(s).

4.3.2.2 Dispense one (1) tablet to each individual that has emergency team assignments and may enter a high-level airborne radioiodine environment and desires to use KI.

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 If I-131 isotopic analysis is not available, utilize gross Iodine Concentration and Appendix A, "Ratio of I-131 to Total Iodine Vs. Effective Age", to determine the [I-131].

4.3.4 Calculate Thyroid 50 year dose commitment per hour of inhalation as a function of I-131 concentration in Uci/cc as follows:

$$[\text{I-131}] \times 1.86E6 \frac{\text{REM-CC}}{\text{hr-Uci}} = \_\_\_\_\_$$

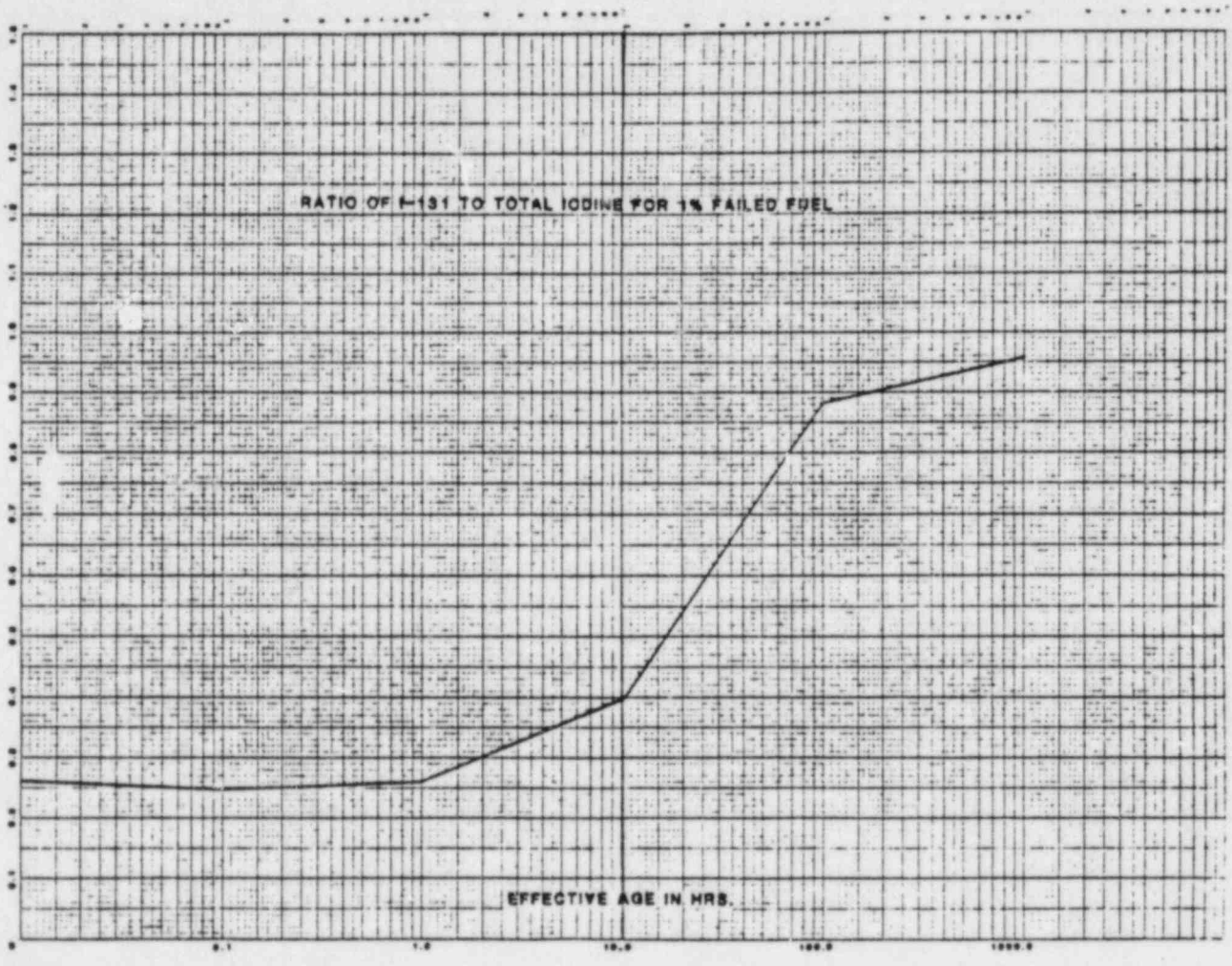
REM/hr thyroid dose commitment rate per hour of inhalation.

Where:

[I-131] = Concentration of I-131 in Uci/cc

$1.86E6 \frac{\text{REM-CC}}{\text{hr-Uci}}$ = Conversion factor

2


RATIO OF I-131 TO TOTAL IODINE FOR 1% FAILED FUEL
EFFECTIVE AGE IN HRS.
0.1
1.0
10.0
100.0
1000.0

RECORD OF DISTRIBUTION OF POTASSIUM IODIDE

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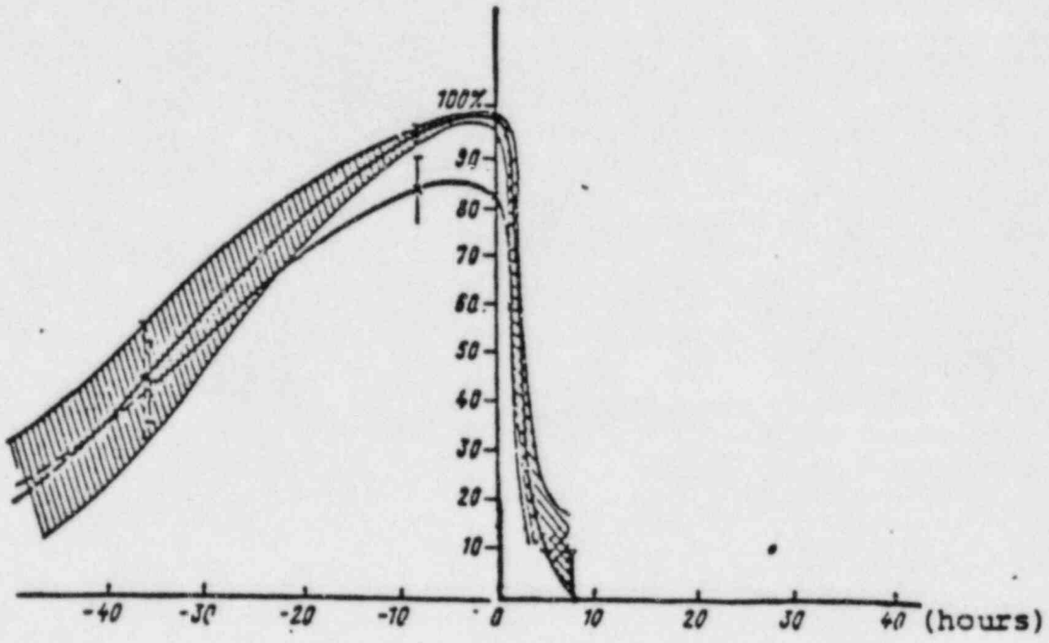

Percent of Thyroid Blocking Afforded by 100 mg of Stable Iodine as a Function of Time (in hours) of Administration Before or After a 1 µci Slug Intake of I-131.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-27	
POST ACCIDENT SAMPLING AND ANALYSIS	REVISION 2	Page 1 of 22

ASSIGNED COPY

PVNGS #8-9B

DEPT. HEAD [signature] DATE 9/13/84

PRB/PRG REVIEW [signature] DATE 9/13/84

APPROVED BY [signature] DATE 9/13/84

EFFECTIVE DATE 9-17-84

PV218-00DA (8/82)

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CONTROLLED DOCUMENT

1.0 OBJECTIVE

To provide instructions for evaluating and handling PASS grab samples. This procedure also provides for the analysis of PASS samples to meet NUREG-0737.

2.0 REFERENCES

2.1 Implementing References

2.1.1 74CH-9XC15, "Sampling Instructions"

2.1.2 74CH-9XC24, "Onsite and Offsite Analysis of Post Accident Samples"

2.1.3 74CH-9ZZ47, "Core Damage Assessment"

2.1.4 NUREG-0737, "Clarifications of TMI Action Plan Requirements", Oct. 1980

2.1.5 75RP-9ZZ64, "RMS Radioactive Sample Collection"

2.2 Developmental References

2.2.1 EPIP-02, "Emergency Classification", Rev. A

2.2.2 EPIP-16, "Inplant Surveys and Sampling", Rev. 2

2.2.3 EPIP-17, "Onsite/Offsite Surveys and Sampling", Rev. 2

2.2.4 EPIP-18, "Emergency Exposure Guidelines", Rev. 2

2.2.5 EPIP-29, "Area/Equipment Monitoring and Decontamination", Rev. 2

2.2.6 ANSI N45.2.9, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants, 1974"

2.2.7 NCP01, "PASS Training", Rev. 1

2.2.8 Operations and Maintenance Manual for Digital Radiation Monitoring System, 10407-13M-997, August 2, 1982

2.2.9 PVNGS Emergency Plan, Rev. 3

2.2.10 TMI Lessons Learned Implementation Report, Section II, F.1.1.A, May, 1982

2.2.11 10 CFR 20, "Standards for Protection Against Radiation", 1983

2.2.12 49 CFR 173, "Transportation", 1983

CONTROLLED DOCUMENT

2.2.13 74CH-9ZZ06, "Boron (Potentiometric)", Rev. 2

2.2.14 74CH-9ZZ10, "Chloride (Titrametric)", Rev. 3

2.2.15 74CH-9ZZ48, "Operation and Calibration of the Stand Alone MCA", Rev.1

2.2.16 74CH-9ZZ63, "Gamma Energy Analytical System Operation and Calibration", Rev. 0

2.2.17 74CH-9ZZ65, "Gas Chromatograph Operation and Calibration", Rev. 1

2.2.18 74CH-9ZZ66, "The Determination of Primary to Secondary Leak Rate", Rev. 0

2.2.19 74CH-9ZZ72, "Ion Chromatograph Operation and Calibration", Rev. 0

2.2.20 74CH-9ZZ84, "Boron (Manual Potentiometric)", Rev. 0

2.2.21 74CH-9ZZ90, "Operation and Calibration of the Post Accident Sampling System", Rev. 0

2.2.22 74OP-1SS01, "Nuclear Sampling Instructions", Rev. 0

2.2.23 75AC-9ZZ04, "Shipment, Receipt and Storage of Radioactive Materials", Rev. 0

2.2.24 75AC-9ZZ15, "Radiological Access Control", Rev. 0

2.2.25 75RP-9ZZ11, "Special Dosimetry", Rev. 0

2.2.26 75RP-9ZZ41, "Operation, Calibration and Performance Testing of Tennelec LB 5100", Rev. 0

2.2.27 75RP-9ZZ46, "Radioactive Contamination Survey Procedure", Rev. 2

2.2.28 75RP-9ZZ47, "Radiation Survey Procedure", Rev. 1

2.2.29 75RP-9ZZ48, "Airborne Radioactivity Sampling and Measurement", Rev. 2

2.2.30 75RP-9ZZ49, "Issue and Return of Respiratory Equipment", Rev. 1

2.2.31 75RP-9ZZ50, "Performance Testing of Laboratory Scaler Counting Systems", Rev. 1

2.2.32 75RP-9ZZ57, "Packaging and Labeling of Radioactive Materials", Rev. 0

2.2.33 75RP-9ZZ59, "Preparation of Shipping Documents", Rev. 0

2.2.34 75RP-9ZZ61, "Radioactive Material Storage and Control", Rev. 1

2.2.35 78AC-0ZZ06, "Document and Record Turnover Control", Rev. 1

3.0 LIMITATIONS AND PRECAUTIONS

NOTE

Plastic coveralls and rubber boots are recommended when handling liquid samples.

3.1 At a minimum, the following protective clothing shall be worn when obtaining, handling, or transporting post accident samples:

3.1.1 Cloth coveralls

3.1.2 Cloth glove liners

3.1.3 Rubber gloves

3.1.4 Shoe covers

3.1.5 Cloth hood

NOTE

Alarming dosimeters are optional.

3.2 At a minimum, the following dosimetry is required:

3.2.1 Whole body TLD

3.2.2 High range dosimeter

3.2.3 Extremity badges for personnel who handle the sample

3.3 The following guidelines shall be followed when handling PASS samples:

3.3.1 Use syringe shields, if available.

3.3.2 Minimize handling of the glass portion of the syringe.

3.3.3 Perform all operations in a fully operational fume hood.

3.3.4 Ensure that analytical instruments are shielded.

3.3.5 RP Technicians shall conduct surveys and time keeping to ensure exposures are kept below limits.

3.3.6 Use remote handling devices such as tongs where possible.

3.3.7 Samples shall be sealed and should be wrapped in plastic prior to removal from the fume hood. Samples should be placed in shields prior to removal from the hood if possible.

3.3.8 Rubber gloves shall be worn when handling samples.

3.4 All personnel taking, handling, or analyzing PASS samples shall check dosimeters frequently.

3.5 The RP Technician shall continuously monitor radiation levels during all activities.

3.6 Entry into areas with radiation levels in excess of those shown on the Radiation Monitoring System (RMS) or levels set by the Radiological Protection Coordinator (RPC) shall require verbal authorization from the Radiological Protection Coordinator and the Emergency Coordinator.

3.7 Do not enter areas of high airborne radioactivity without proper respiratory equipment and proper dosimetry. Respiratory requirements will be determined at the time of entry.

3.8 Highly contaminated smears should not be counted in an automated system.

3.9 Maintain personnel exposure ALARA by taking all practicable precautions based on existing conditions.

3.10 Radiation exposures exceeding PVNGS Administrative Radiation Exposure Limits or 10 CFR 20 occupational limits shall be authorized in accordance with EPIP-18, "Emergency Exposure Guidelines".

3.11 Only one post accident sample may be obtained in a three hour period. Additional samples should be obtained and analyzed sequentially, allowing three hours per sample.

3.12 Personnel involved in post accident sampling activities shall be escorted by a Radiation Protection Technician with an operable high range dose rate meter. These meters shall have a range of at least 1000 R/hr.

3.13 Transmit analysis results to the Radiological Protection/Chemistry Coordinator(s).

3.14 Upon event termination, the Chemistry Coordinator shall transmit data to DDC for storage.

3.15 To ensure chemical concentrations are not diluted below the minimum sensitivity of the specific analysis required, multiple samples may be required with varying dilutions.

3.16 Additional dilution may be required on the 0.1 to 4 ml diluted samples obtained from PASS to facilitate performance of the required analysis.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiological Protection Coordinator in conjunction with the Chemistry Coordinator shall:

4.1.1.1 Establish the counting priority.

4.1.1.2 Report results to the Emergency Coordinator as required.

4.1.1.3 Determine the analysis location of collected samples.

4.1.1.4 Brief technicians prior to their taking a sample.

4.1.2 Chemistry Technicians shall perform sample analysis and record results.

4.1.3 Sampling and analysis shall be conducted in accordance with station procedures as noted in this procedure.

4.1.4 The Unit Radiation Protection Supervisor shall provide technical support for the inplant survey teams in coordination with the RPC.

4.1.5 All Post Accident Sampling System (PASS) samples shall be collected and analyzed by the chemistry staff or by trained personnel at an authorized offsite facility.

4.1.6 One Radiation Protection Technician and one Chemistry Technician are required for PASS sampling: one to monitor and one to perform the sampling and analysis.

4.1.7 The following supplies are needed to perform the collection of plant effluent particulate and iodine filters:

4.1.7.1 Transfer shield

4.1.7.2 Four foot tongs

4.1.7.3 Four foot latch handle for operating lever on particulate/iodine sample assembly

4.1.7.4 Replacement Silver Zeolite cartridge and filter disc in a particulate/iodine (PI) filter assembly

4.1.7.5 Radioactive material tag

4.1.8 The following supplies are needed to perform the collection of a PASS grab sample:

4.1.8.1 Sample syringe

4.1.8.2 Syringe transfer shield

4.1.8.3 Evacuated 8 ml glass vial for gas samples

n.1.8.4 Radioactive material tag

4.1.9 Dispose of all post accident samples at the discretion of the RPC and in accordance with existing RP procedures.

4.2 Prerequisites

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

4.2.2 Radiation Protection Laboratory counting equipment shall be calibrated and operational per existing RP procedures.

4.2.3 Chemistry counting and analytical equipment shall be calibrated and operational per existing chemistry procedures, and with analytical sensitivities defined in Appendix C. Final dilutions of all samples shall also be recorded on Appendix C.

4.2.4 Smear samples and airborne particulate and iodine samples shall be obtained in accordance with EPIP-16, "Inplant Surveys and Sampling" and EPIP-17, "Onsite/Offsite Surveys and Sampling".

4.2.5 Access the controlled area by using the emergency access REP 9999 or as otherwise directed by the RP Coordinator.

4.2.6 The monitor and channel number of the filter(s) to be changed shall be determined by the Radiological Protection Coordinator by using the RMS.

4.2.7 Results of analyses shall be recorded on Appendix C.

NOTE

Radiation Monitor RU-26 (10R full scale) and RU-158D (10^4R full scale) are located in the sampling area. If RU-26 is deflected full scale, notify the Radiological Protection Coordinator (onsite) or Radiation Protection Monitor (onshift) for further instructions and evacuate personnel to an area with low radiation levels as determined by Radiation Protection personnel.

4.3 Chemistry Sampling and Analysis - Instructions for Handling Grab Samples

NOTE

Sampling room radiation levels shall be determined by Radiation Protection Technician prior to entry by Chemistry personnel.

4.3.1 After isolation of a sample in the PASS remote grab sample unit, verify the completion of the sampling system flush.

4.3.2 The Chemistry Technician obtaining the PASS remote grab sample shall be escorted by a Radiation Protection Technician with the appropriate dose rate instruments.

NOTE

Collection and analysis of PASS remote grab samples should be accomplished without exceeding an accumulated dose of 3 REM to the whole body and 18.75 REM to the extremities of any individual.

4.3.3 The Radiation Protection Technician shall closely monitor the radiation levels during access to the sample collection and sample handling.

4.3.4 A sample syringe contact dose rate of 50 mR/hr would indicate a sample activity of 30 uCi/cc. This is determined as follows:

$$n = \frac{DRs^2}{G}$$

where: n = number of mCi in 0.5 cc sample
DR = exposure rate at 1 cm from syringe center (mR/hr)
s = distance (meters)
G = mR/hr at 1 meter per mCi

For example:

$$n = \frac{(50 \text{mR/hr})(10^{-2}\text{m})^2}{.33 \text{ mR/hr-mCi-m}}$$

$$= .015 \text{ mCi/0.5cc}$$
$$= .03 \text{ mCi/cc}$$

.03 mCi/cc X 1000uCi/1mCi = 30uCi/cc

Assumptions: (1) no credit taken for attenuation through the syringe

(2) consider sample a point source

(3) consider average gamma energy emitted from the sample to be 0.7 Mev (Cs^{137}) giving a dose rate of .33 mR/hr per mCi at 1 meter

4.3.5 Contact dose rate readings from the sample collection syringe of less than 50 mR/hr should enable the sampling and analysis to be accomplished within the exposure guidelines stated in the note prior to step 4.3.3.

4.3.6 If radiation levels preclude the analysis of the PASS sample in the affected unit radiochemistry laboratory within the 3 REM whole body dose restriction, notify the Chemistry and Radiological Protection Coordinators and request further instructions.

4.3.7 After collecting a gaseous PASS grab sample, quickly transfer the syringe contents into an evacuated 8 ml gas sample vial. Place the syringe and the sample vial into the shielded carrying case.

NOTE

Processed samples and radioactive waste are to be stored in a shielded area within the radiochemistry laboratory or other designated area.

4.3.8 Move the shielded sample to a low dose rate area, resurvey the shielded container and decontaminate container to less than 1000dpm/100cm^2 removable contamination if necessary.

4.4 Primary Coolant and Containment Sump Sampling Instructions

4.4.1 PASS sampling of primary coolant and/or the containment sump shall be completed in accordance with procedure 74CH-9ZZ90, "Operation and Calibration of the Post Accident Sampling System".

4.5 Containment Air Sampling and Analysis Instructions

4.5.1 PASS sampling and analysis of containment air shall be completed in accordance with procedure.74CH-9ZZ90, "Operation and Calibration of the Post Accident Sampling System".

CAUTION

DOSE RATES IN THIS AREA MAY EXCEED 100 R/HR. IF RADIATION MONITOR RU-156-C INDICATES GREATER THAN 10 R/HR, NOTIFY THE RADIOLOGICAL PROTECTION COORDINATOR AND WAIT FOR FURTHER INSTRUCTIONS IN A LOW DOSE RATE AREA.

4.5.2 As an alternative, a containment air sample may be obtained from the Radiation Monitor (RU-1) located at the 100' level of the Auxiliary Building.

4.5.3 Access routes shall be determined by the Radiological Protection Coordinator at the time of the accident.

4.5.4 Continuously monitor dose rates during access, egress and performance of collection.

4.5.5 Grab sampling of containment air shall be in accordance with procedures in 75RP-9ZZ64.

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4.5.6 Grab sample analysis shall be in accordance with procedure 74CH-9ZZ63 "Gamma Energy Analytical System Operation and Calibration", and 74CH-9ZZ65 "Operation and Calibration of the Gas Chromatograph".

4.6 Core Damage Assessment Instructions

4.6.1 Evaluation of damage to the core through analysis of the samples shall be in accordance with procedures in 74CH-9ZZ47, "Core Damage Assessment".

4.7 Radiological Protection Sampling and Analysis - Stack Effluent Sampling Instructions

4.7.1 Access routes to Plant Vent (RU-144), Fuel Building Exhaust (RU-146) and Condenser Vacuum Exhaust (RU-142) Monitors shall be discussed by the Radiological Protection Coordinator and the technicians designated to pull the samples at the time of the accident.

NOTE

The following instructions apply to Radiation Monitors RU-142, RU-144 and RU-146 only.

4.7.2 Replacement of Particulate and Iodine Filters

NOTE

Continuously monitor dose rates during collection. Take dose rate readings on the filters and the transfer pig.

NOTE

Verify that the sample point(s) selected by the Radiological Protection Coordinator is/are logged out on the RMS terminal prior to leaving the office.

4.7.2.1 Close the inlet and outlet sample flow valves of the Particulate/Iodine channel(s) on the high range monitor selected by the RPC.

4.7.2.2 Remove lid from transfer shield.

4.7.2.3 Open the shielded door by lifting up latch.

4.7.2.4 Insert four foot latch handle over the sample assembly lever.

4.7.2.5 Turn lever counterclockwise to release spring tension.

4.7.2.6 Insert four foot tongs and remove the filter assembly.

4.7.2.7 Place filter assembly in the transfer shield.

4.7.2.8 Quickly place lid back on top of the transfer shield.

4.7.2.9 Place the new filter assembly in the sample assembly.

4.7.2.10 Turn lever on the sample assembly clockwise using the four foot latch handle to allow spring tension to seal the sample assembly.

4.7.2.11 Close the shielded door and latch. Insure the door is securely latched.

4.7.2.12 Open the inlet and outlet sample flow valves for the Particulate/ Iodine channel(s) where filters were changed.

4.7.2.13 Deliver the samples to the location determined by the Radiological Protection Coordinator.

4.7.2.14 Go to the appropriate microprocessor corresponding to the monitor for which the filters were changed and using either KLIC, KPIC, or SMIC acquire the PI channel total flow, start time, and stop time.

4.7.2.15 Using the RMS key, place the microprocessor in LOCAL or ENABLE mode.

4.7.2.16 After notifying the Shift Supervisor, step the filter for the channel filter(s) that were changed.

4.7.2.17 After the filter has been stepped, return the (Local Indication and Control Unit (KLIC), Portable Indication and Control Unit (KPIC) or Skid Mounted Indication and Control Unit (SMIC) to the REMOTE or DISABLE mode; press the TEST-LT CK button to verify the lights and LED display are functional and the system is in the REMOTE mode.

4.7.2.18 Notify the Data Acquisition and Control Unit (DCU) operator that the monitor is returned to REMOTE mode and is ready to be brought on line.

4.7.2.19 Inform the Radiation Protection Monitor of the filter change time and that he should update the RMS data base.

4.7.2.20 Tag the transfer shield with a Radioactive Material Tag stating the monitor or Particulate/Iodine channel number in the Item Description section. Include sampling information.

4.7.2.21 Prepare Appendix A, "RMS Filter Change/Grab Sample Data Sheet" for review by the Radiological Protection Coordinator or his designee.

4.7.3 Noble Gas Sampling Instructions

4.7.3.1 Sampling at the effluent points for noble gases shall be in accordance with procedures in 75RP-9ZZ64.

4.8 Onsite Transfer of Samples

NOTE

During any sample movement, the RP Technician shall ensure that exposure to personnel not involved in the transfer is minimized.

NOTE

Notify Security upon initiation of sample collection or as soon as it is determined that a sample must be transferred. Notification shall include preferred route, gate numbers, and expected time of transfer.

4.8.1 The Radiation Protection Technician will need ropes, signs, tape, and step off pads for establishing a radiological controlled area.

4.8.2 All transfers will use the most direct route accessible as shown on Appendix D. The Radiological Protection Coordinator should be consulted for current conditions.

4.8.3 Site vehicles may be used for transfers between units and to the offsite shipping point.

4.8.4 The minimum Radiological Controlled Area (RCA) which shall be established in a non-affected unit shall be at each end of the corridor leading to the hot lab.

4.8.5 The RCA may be reduced later after evaluation by the Radiation Protection Department.

4.9 Onsite Analysis of PASS and Effluent Samples

4.9.1 Analysis of PASS Liquid Grab Samples

4.9.1.1 Analyze the sample for gamma isotopic content in accordance with 74CH-9ZZ48, "Operation and Calibration of the Stand Alone Multi-Channel Analyzer".

4.9.1.2 Analyze the sample for boron concentration in accordance with 74CH-9ZZ06, "Boron (Potentiometric)".

NOTE

Chloride analysis is not required in accordance with NUREG-0737, II.B.3 until up to 4 days following the accident.

4.9.1.3 Analyze for chlorides in accordance with 74CH-9ZZ10, "Chloride (Titrametric)" or 74CH-9ZZ72, "Ion Chromatograph Operation and Calibration".

NOTE

If the total gas or gas stripping section of PASS is inoperable, analysis of total gas or gaseous gamma isotopic concentration is not possible.

4.9.2 Analysis of PASS Grab Samples

4.9.2.1 Analyze PASS gas and grab samples for gamma isotopic content in accordance with 74CH-9ZZ48, "Operation and Calibration of the Stand Alone Multi-Channel Analyzer".

NOTE

If additional analyses are desired a normal sample must be obtained. Permission to collect normal reactor coolant, containment recirc, containment sumps, auxiliary building sumps or containment atmosphere samples in a post accident environment must be obtained with the concurrence of the Chemistry Coordinator and the Radiological Protection Coordinator.

4.9.3 Liquid PASS grab samples shall be analyzed for the following:

4.9.3.1 Chloride in accordance with 74CH-9ZZ72, or 74CH-9ZZ10 if the ion chromatograph is unavailable.

4.9.3.2 Boron in accordance with 74CH-9ZZ06, or manually in accordance with 74CH-9ZZ84.

4.9.3.3 Gamma isotopic in accordance with 74CH-9ZZ48.

4.9.4 Gaseous PASS and effluent grab samples shall be analyzed for the following:

4.9.4.1 Hydrogen in accordance with 74CH-9ZZ65.

4.9.4.2 Gamma isotopic in accordance with 74CH-9ZZ48.

4.9.5 Analysis shall be performed per the instructions of the Chemistry Coordinator using the appropriate procedure.

4.10 Offsite Shipment of Post Accident Sample Instructions

4.10.1 Transfer post accident samples to the area designated by the Radiological Protection Coordinator.

4.10.2 Request a "sole use" closed transport vehicle through the Administrative and Logistics Coordinator.

NOTE

If background radiation levels preclude the performance of surveys, contain any potential contamination and perform surveys as soon as practicable in a low background radiation area.

NOTE

The lab at Arizona State University has a limit of 5 R/hr at 1 foot for the unshielded sample container. Ensure the sample is below this prior to shipping.

4.10.3 Survey the shielded syringe container and/or transport pig. Portable shielding may be used to reduce shield contact dose rates. If portable shielding is not consistent with exposure reduction benefits or would preclude safe sample movement, notify the Radiological Protection Coordinator for further instructions.

NOTE

The contamination limits stated below are less than 10 percent of the 49 CFR 173, "Transport Limits for Significant Contamination".

4.10.4 Decontaminate the shielded container to less than 1000 dpm/100 cm^2 beta-gamma and less than 20 dpm/100 cm^2 alpha if possible. If this is not possible, decontaminate to within 10% of the DOT limits (2200 dpm/100 cm^2 beta-gamma and 220 dpm/100 cm^2 alpha).

NOTE

Prior to transporting a PASS sample or other post accident grab samples to an offsite analytical facility, make the following notifications:

(1) Affected Unit Shift Supervisor
(2) Radiological Protection Coordinator
(3) Chemistry Coordinator
(4) Security Director (for onsite transport route control)
(5) Administrative and Logistics Coordinator (for notification of the offsite analytical facility)

4.10.5 Shielded syringe sample carrying cases and/or transport pig reading less than 200 mR/hr on contact may be transported without additional shielding.

4.10.6 If the contact dose rate on the shielded container is greater than 200 mR/hr, place the shielded container on a hand truck or cart and add additional shielding to attenuate the dose rate to less than 200 mR/hr on contact. The unattenuated dose rate shall be clearly indicated on the outside of the shielding.

4.10.7 Determine packaging and leveling requirements in accordance with procedure 75RP-9ZZ57, "Packaging and Labeling of Radioactive Materials".

4.10.8 Prepare all shipping documents in accordance with procedures 75RP-9ZZ59, "Preparation of Shipping Documents" and 75AC-9ZZ04, "Shipment, Receipt and Storage of Radioactive Materials".

4.10.9 Transport the sample to the "sole use" closed transport vehicle in accordance with Section 4.8. Load and secure the sample for shipment.

4.10.10 Ensure that the shipping documents contain a completed "Accident Sample Analysis (Offsite) Transmittal Form" (Appendix B). "N/A" all unnecessary data spaces.

4.10.11 Retain record and data forms in accordance with 78AC-0ZZ06, "Document and Record Turnover Control".

RMS FILTER CHANGE/GRAB SAMPLE DATA SHEET

Date _____

I. Particulate Filter

Monitor RU # _____ Channel # _____ Sample Flow Rate _____

Date/Time On _____ Off _____ Sample Volume _____

Monitor Reading _____ Filter Gross Activity _____

II. Iodine Cartridge

Monitor RU #_____ Channel # _____ Sample Flow Rate _____

Date/Time On _____ Off _____ Sample Volume _____

Monitor Reading _____ Gartridge Gross Activity _____

III. Noble Gas

Monitor RU # _____ Sample Time _____ Sample Volume _____

Monitor Reading _____ Sample Gross Activity _____

IV. Remarks:

Performed by:_____ Reviewed by: _____

Date: _____ Date: _____

ACCIDENT SAMPLE ANALYSIS (OFFSITE) TRANSMITTAL FORM

Sample No. _____ Description: _____

_____

Type: Filter Cartridge Liquid/Gas (vol. _____ cc)

Radiation levels @ 1 cm _____ mR/hr @1 ft. _____ mR/hr

Analysis Required: Isotopic (GeLi) Alpha Beta Transuranics

Strontium _____

Special Instructions: _____

_____

_____

_____

_____

Sent by: _____ Time/Date: _____

Analyzed by: _____ Time/Date: _____

Results transmitted by: _____ Time/Date: _____

Attach all output/results to this sheet and return to PVNGS with sample wastes.

Returned by: _____ Time/Date: _____

Verified by: _____ Time/Date: _____

Reviewed by: _____ Time/Date: _____

POST ACCIDENT SAMPLE ANALYSIS RESULTS

A. LIQUID

Analysis	Procedure	Dilution Ratio	Minimum Sensitivity	Observed Results
Gamma Isotopic	74CH-9ZZ48	_____	N/A	(Attach Printout)
Boron	74CH-9ZZ06 or 74CH-9ZZ04		10ppm w/ Autotitrator	_____
Chloride	74CH-9ZZ10	_____	0.05ppm	_____
	74CH-9ZZ72	_____	0.005ppm	_____

Corrected Results: (Observed Results X Dilution Ratio)

Gamma Isotopic (Attach Printout)

Boron _____

Chloride _____

B. GASEOUS

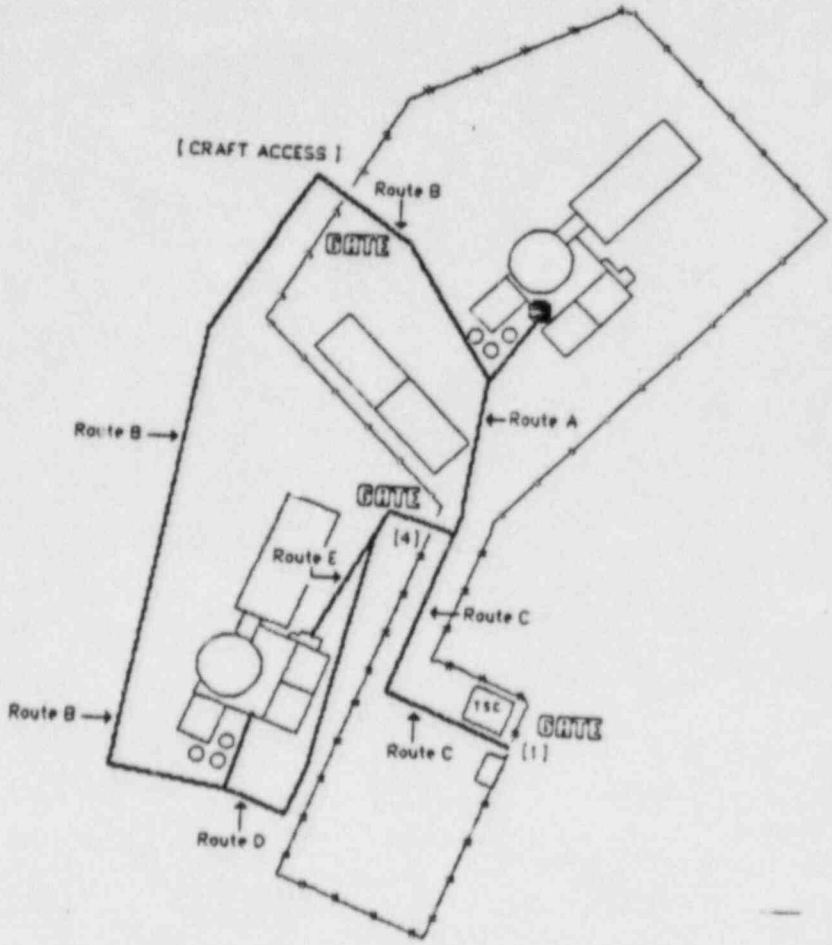
Analysis	Procedure	Dilution Ratio	Minimum Sensitivity	Observed Results
Gamma Isotopic	74CH-9ZZ48	_____	N/A	_____
Hydrogen	74CH-9ZZ65	_____		_____

C. RECORDS

Record all results in accordance with procedure 74CH-9ZZ99, "Records and Reports".

CONTROLLED DOCUMENT

Site Route Map



LEGEND

PROTECTED AREA

UNIT #1 AUX BLDG EXIT

[ ] GATES

NOTES:

1. Route A is preferred
   Use Route D, if driving
   Use Route E, if walking. .
2. Use Route B as alternate to Route A
3. Use Route C for offsite shipments

PV216-000A (8/82)

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-28	
PERSONNEL MONITORING AND DECONTAMINATION	REVISION 2	Page 1 of 17

ASSIGNED COPY

PVNGS # 8-93

DEPT. HEAD [signature] DATE 6/22/84

PRB/PRG REVIEW [signature] DATE 7/16/84

APPROVED BY [signature] DATE 7/16/84

EFFECTIVE DATE ~~6-22-84~~ JM 07-16-84
07-16-84

DN-1635A/0190A

PV216 60A (8/82)

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1.0 OBJECTIVE

1.1 To provide instructions for decontamination of station personnel during emergency conditions.

2.0 REFERENCES

2.1 Implementing References

2.1.1 75RP-9ZZ44, "Radiation Exposure Permits"

2.1.2 75AC-9ZZ03, "Radioactive Contamination Control"

2.1.3 75RP-9ZZ13, "Bioassay Analysis"

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 75PR-0ZZ01, "Radiation Protection Program", Rev. 2

2.2.3 75RP-9ZZ76, "Equipment and/or Materials Release from a Controlled Area", Rev. 0

2.2.4 75RP-9ZZ77, "Personal Item and Clothing Decontamination", Rev. 0

2.2.5 75RP-9ZZ78, "Decontamination", Rev. 0

2.2.6 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1

2.2.7 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

2.2.8 Radiological Health Handbook, January 1970

3.0 LIMITATIONS AND PRECAUTIONS

3.1 All reasonable efforts should be made to contain loose surface and/or airborne contamination during decontamination efforts.

3.2 All used decontamination solutions shall be treated as radioactive waste.

3.3 Decontamination solutions may require special handling due to toxic or volatile nature.

3.4 If skin areas come in contact with chemically hazardous decontamination solutions, flush area with water, survey for contamination and report to the Unit Supervisor Radiation Protection or the Radiological Protection Coordinator to arrange for medical treatment.

3.5 Periodically survey any receptacle used for decontamination material during decontamination evolutions to protect workers from changes in radiation levels.

3.6 Life saving measures and medical attention to serious injuries always take precedence over personnel decontamination procedures.

3.7 Do not shave skin during decontamination.

3.8 The Radiological Protection Coordinator may authorize exposures in excess of normal PVNGS Administrative Radiation Exposure Limits up to the limits of 10CFR20. Exposures in excess of 10CFR20 limits up to Emergency Exposure Limits shall be authorized by the Emergency Coordinator. Exposures in excess of Emergency Exposure Limits SHALL NOT be authorized.

3.9 Administrative methods to minimize personnel exposures should remain in force to the extent consistent with timely procedures for rescue, corrective and protective actions.

3.10 Observe radiological precautions and wear appropriate protective clothing as specified in the REP.

3.11 Personnel monitoring areas should have a background level less than or equal to 300 CPM.

3.12 Personnel contamination should be evaluated whenever it is found in amounts equal to or greater than 1000 dpm beta-gamma or 20 dpm alpha above background.

3.13 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.

3.14 The Personnel, Item, and Clothing Contamination Report (Appendix A) shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE - GUIDELINES FOR RADIATION PROTECTION TECHNICIANS

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiological Protection Coordinator shall be responsible for implementing this procedure.

4.1.2 Radiation Protection Technicians shall perform routine personnel monitoring and decontamination activities.

4.2 Prerequisites

4.2.1 Personnel are suspected or known to be contaminated.

4.2.2 If time permits, the Unit Supervisor Radiation Protection or the Radiological Protection Coordinator shall complete, date, and sign a Radiation Exposure Permit (REP), per 75RP-9ZZ44, "Radiation Exposure Permits". Otherwise, the standing REP for emergencies shall be used.

4.2.3 Personnel involved in Decontamination Procedures shall review, date and sign the Radiation Exposure Permit.

4.3 Instructions

4.3.1 In the event of a serious injury involving contamination, immediate medical treatment takes priority.

4.3.2 Radiation Protection Technicians shall perform surveys as required, prior to, during, and after decontamination and record results in Appendix A, "Personnel, Item, and Clothing Contamination Report".

4.3.3 Radiation Protection Technicians shall prepare decontamination area(s) as necessary.

4.3.3.1 Utilize normal decontamination facilities if available.

4.3.4 If plant conditions do not require site evacuation and normal decontamination facilities are not available:

4.3.4.1 Obtain an emergency kit from one of the locations in Appendix C.

4.3.4.2 Select a suitable location where drains will be routed to a radwaste drainage system.

4.3.4.3 Personnel monitoring areas should have a background level less than or equal to 300 cpm.

4.3.4.4 Provide water supply to area with hoses if necessary.

4.3.4.5 Barricade area with yellow and magenta rope and establish an access control area.

4.3.4.6 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.

4.3.5 If necessary, establish decontamination facilities outside the plant boundary:

4.3.5.1 Obtain an emergency kit from one of the locations in Appendix C.

4.3.5.2 Establish a control access point at the designated evacuation reassembly point.

4.3.5.3 Include a barricaded area large enough to accommodate personnel to be decontaminated and take measures to avoid the further spread of contamination.

4.3.5.4 Provide a separate control exit point for personnel as they leave the decontamination area.

4.3.5.5 Provide for the collection of contaminated fluids and disposable supplies.

4.3.6 If no structures are available, improvise temporary decontamination facilities.

4.3.6.1 Select an area where contaminated drains can be collected (i.e., low point in paved parking lot or a hole covered with plastic).

4.3.6.2 Barricade area with yellow and magenta rope.

4.3.6.3 If local water supply is not available, arrange for a water truck, via the Administrative and Logistics Coordinator.

4.3.6.4 Provide a control entry and exit point arranged to minimize the spread of contamination.

4.3.7 Radiation Protection Technicians shall escort personnel known or suspected to be contaminated to the appropriate decontamination area.

4.3.7.1 Care should be taken to prevent or minimize the spread of contamination by either laying plastic down or providing temporary shoe covers.

4.3.8 Radiation Protection Technicians perform personnel contamination surveys, maintain control points, and issue and test respiratory protection equipment.

NOTE

Do not contaminate the probe by allowing it to come into contact with the person.

4.3.8.1 Monitoring for skin contamination should normally be performed using a low range Beta-Gamma count rate instrument with a pancake probe. Unusual circumstances may require a portable alpha survey meter.

4.3.8.2 The methods and instruments used for personnel contamination surveys do not significantly differ from those used for other contamination surveys.

4.3.8.3 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).

4.3.8.4 Record monitoring results in Appendix A.

4.4 Personnel Decontamination

NOTE

Personnel external decontamination is normally complete when contamination is less than 1000 dpm beta-gamma. The Supervising Radiation Physicist and/or the Radiological Protection Coordinator shall specify release limits in unusual cases.

CAUTION

CARE SHALL BE TAKEN TO PREVENT CONTAMINATION FROM ENTERING ANY BODY OPENING OR SKIN BREAKS.

4.4.1 Personnel contaminated to or above the limits of 1000 dpm beta/gamma or 20 dpm alpha (above background) shall be decontaminated using Appendix B, "Personnel Decontamination", as a guideline.

4.4.2 Personnel with positive contamination results around the nose or mouth shall be further evaluated by throat and/or nasal swabs, a whole body count, or indirect (excreta) bioassay. See 75RP-9ZZ13, "Bioassay Analysis", for guidelines.

4.4.3 Report all facial contamination survey results and corrective actions taken to the Radiological Protection Coordinator.

4.4.4 For Personnel skin or clothing contamination, fill out Appendix A, "Personnel, Item and Clothing Contamination Report". This report shall be completed and forwarded in accordance with 75AC-9ZZ03, "Radioactive Contamination Control".

4.4.5 Personnel unable to be decontaminated below the limits of 4.4.1 above, shall be evaulated by the Radiological Protection Coordinator or designated Alternate for further action.

4.5 Waste Disposal

CAUTION
COLLECT CONTAMINATED FLUIDS IN APPROPRIATE RECEPTACLES AND LABEL AS RADIOACTIVE MATERIAL.

4.5.1 Contaminated material shall be processed as radioactive waste.

SAMPLE

Radioactive Contamination Control

Personal Clothing And Skin Contamination Report

Name_____ Date_____ SSN_____

Supervisor's Name_____ Contamination-Clothes_____ Skin_____

Protective Clothing Worn_____NO_____YES Describe_____

Working on REP_____NO_____YES REP No._____

Job Description_____

Cause of Contamination_____

Initial Survey

Time_____am pm Inst. Type_____ Inst. No._____

Contamination Level_____ Location_____

Radiation Protection Comments:_____

Disposition:

[x] Individual's Supervisor

[x] Unit R.P. Supervisor

[ ] Individual

[ ] Administrative Services Manager

Signature_____ R.P. Technician date

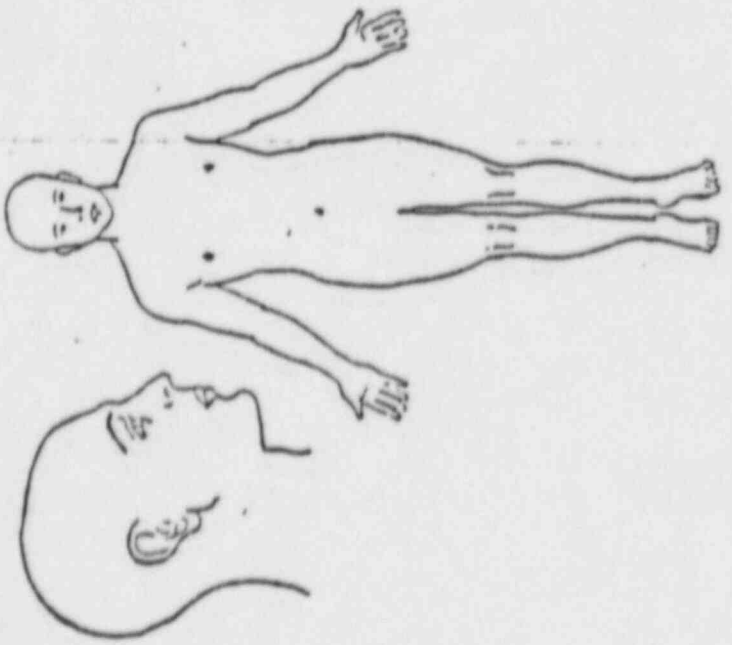
Signature_____ Individual date

Signature_____ Unit R.P. Supervisor date

PV216-00DA (8/82)

METHOD OF DECONTAMINATION

2.



METHOD OF DECONTAMINATION

3.

PERSONNEL DECONTAMINATION

Method*	Surface	Action	Technique	Advantages	Disadvantages
Soap and water	Skin and hands	Emulsifies and dissolves contaminate.	Wash 2-3 minutes and monitor. Do not wash more than 3-4 times.	Readily available and effective for most radioactive contamination.	Continued washing will defat the skin. Indiscriminate washing of other than affected parts may spread contamination.
Soap and water	Hair	Same as above.	Wash several times. If contamination is not lowered to acceptable levels, shave the head and apply skin decontamination methods.		
Lava soap, soft brush, and water	Skin and hands	Emulsifies, dissolves, and erodes.	Use light pressure with heavy lather. Wash for 2 minutes, 3 times. Rinse and monitor. Use care not to scratch or erode the skin. Apply lanolin or hand cream to prevent chapping.	Same as above.	Continued washing will abrade the skin.
Tide or other detergent (plain)	Same as above.	Same as above.	Make into a paste. Use with additional water with a mild scrubbing action. Use care not to erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade skin and must be used with care.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Mixture of 50% Tide and 50% corn-meal	Skin and hands	Emulsifies, dissolves, and erodes.	Make into a paste. Use with additional water with a mild scrubbing action. Use care not to erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade skin and must be used with care.
5% water solution of a mixture of 30% Tide, 65% Calgon, 5% Carbose (carboxymethyl cellulose)	Same as above.	Same as above.	Use with water. Rub for a minute and rinse.	Same as above.	Same as above.
A preparation of 8% Carbose, 3% Tide, 1% Versene, and 88% water homogenized into a cream.	Same as above.	Same as above.	Use with additional water. Rub for 1 minute and wipe off. Follow with lanolin or hand cream.	Same as above.	Same as above.
Titanium dioxide paste. Prepare paste by mixing precipitated titanium dioxide (a very thick slurry, never permitted to dry) with a small amount of lanolin. If not successful, go on to next step.	Skin, hands, and extremities. Do not use near face or other body openings.	Same as above.	Work the paste into the affected area for 2 minutes. Rinse and wash with soap and warm water. Monitor.	Removes contamination lodged under scaly surface of skin. Good for heavy surface contamination of skin.	If left on too long will remove skin.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

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PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Mix equal volumes of a saturated solution of potassium permanganate and 0.2 N sulfuric acid. (Saturated solution of $KMnO_4$ is 6.4 grams per 100 ml of H_2O.) Continue with next step.	Skin, hands, and extremities. Do not use near face or other body openings.	Dissolves contaminant absorbed in the epidermis.	Pour over wet hands, rubbing the surface and using hand brush for not more than 2 minutes. Rinse with water.	Superior for skin contamination. May be used in conjunction with titanium oxfde.	Will remove a layer of skin if in contact with the skin for more than 2 minutes.
Apply a freshly prepared 5% solution of sodium acid sulfite. (Solution made by dissolving 5 gm of $NaHSO_3$ crystals in 100 ml distilled water.)	Same as above.	Removes the permanganate stain.	Apply in same manner as above. Apply for not more than 2 minutes. The above procedure may be repeated. Apply lanolin or hand cream when completed.		Same as above.
Flushing	Eyes, ears, nose, and mouth	Physical removal by flushing.	Roll back the eyelid as far as possible, flush with large amounts of water. If isotonic irrigants are available, obtain them without delay. Apply to eye continually and then flush with large amounts of water.	If used immediately will remove contamination. May also be used for ears, nose, and throat.	When using for nose and mouth, contaminated individual should be warned not to swallow the rinses.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Flushing (Cont'd)			(Isotonic irrigant [0.9% NaCl solution]: 9 grams NaCl in beaker, fill to 1000 cc with water.) Can be purchased from drug suppliers, etc. Further decontamination should be done under medical supervision.		
Flushing	Wounds	Physical removal by flushing.	Wash wound with large amounts of water and spread edges to stimulate bleeding, if not profuse. If profuse, stop bleeding first, clean edges of wound, bandage, and if any contamination remains, it may be removed by normal cleaning methods, as above.	Quick and efficient if wound not severe.	May spread contamination to other areas of body if not done carefully.
Sweating	Skin of hands and feet	Physical removal by sweating.	Place hand or foot in plastic glove or booty. Tape shut. Place near source of heat for 10-15 minutes or	Cleansing action is from inside out. Hand does not dry out.	If glove or booty is not removed shortly after profuse sweating starts and part washed with soap

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Sweating (Cont'd)			until hand or foot is sweating profusely. Remove glove and then wash using standard techniques. Or gloves can be worn for several hours using only body heat.		and water immediately, contamination may seep into the pores.

LOCATION OF EMERGENCY KITS CONTAINING DECONTAMINATION SUPPLIES

Primary Location for Decontamination Supplies:	Radiation Protection Office Personnel Decontamination Area (Near Access Control Point and OSC)
Alternate Location:	Offsite Decontamination Kit

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-29	
AREA/EQUIPMENT MONITORING AND DECONTAMINATION	REVISION 2	Page 1 of 14

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DEPT. HEAD _____ DATE 5/17/84

PRB/PRG REVIEW _____ DATE 7/16/84

APPROVED BY _____ DATE 7/16/84

EFFECTIVE DATE ~~07-20-84~~ TM 07-16-84
07-16-84

DN/1636A/0190A

PV216-000A (8/82)

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1.0 OBJECTIVE

1.1 To provide instructions for the monitoring and decontamination of crucial areas and/or equipment during an emergency.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-18, "Emergency Exposure Guidelines"

2.1.2 EPIP-26, "Potassium Iodide (KI) Administration"

2.1.3 EPIP-28, "Personnel Monitoring and Decontamination"

2.1.4 75RP-9ZZ44, "Radiation Exposure Permits"

2.1.5 75RP-9ZZ46, "Radioactive Contamination Survey Procedure"

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 75PR-0ZZ01, "Radiation Protection Program" Rev. 2

2.2.3 10CFR20, "Standards for Protection Against Radiation", 1983

2.2.4 WASH 1400, Appendix XI, October 1979, "Nuclear Safety Study".

2.2.5 75AC-9ZZ01, "Radiation Exposure Authorization, Permits and Control", Rev. 1

2.2.6 ANSI N45.2.9-1974, "Requirements for Collection Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

2.2.7 Radiological Health Handbook, January 1970.

2.2.8 78AC-0ZZ06, "Document And Record Turnover Control", REV. 0.

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 Exposures shall be authorized 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, shall be administered in accordance with EPIP-26, "Potassium Iodide (KI) Administration".

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, "Personnel Monitoring and Decontamination".

3.9 Results of Area/Equipment Contamination Surveys (Appendix B) shall be retained for the life of the plant in accordance with 78AC-0ZZ06, "Document And Record Turnover Control".

3.10 Bristle brooms should not be used in contaminated areas due to the likelihood of generating airborne radioactivity.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Radiological Protection Coordinator may authorize exposures in excess of normal PVNGS Admininstrative Radiation Exposure Limits up to the limits of 10CFR20. Exposures in excess of 10CFR20 limits up to Emergency Exposure Limits shall be authorized by the Emergency Coordinator. Exposures in excess of Emergency Exposure limits SHALL NOT be authorized, Per EPIP-18, "Emergency Exposure Guidelines".

4.1.2 The Operations Support Center Coordinator shall deploy Decontamination Teams upon guidance from the Control Room/STSC in the onshift organization or the TSC in the onsite organization.

4.1.3 Decontamination Teams shall consist of at least one Radiation Protection Technician and necessary chemistry, mechanical, electrical or maintenance technicians.

4.2 Prerequisites

4.2.1 The affected area 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.

4.2.1.1 Levels of contamination are known to exceed or thought to exceed contamination limits in Appendix A.

4.2.1.2 The Unit Supervisor Radiation Protection (Affected Unit) or designee shall complete, date, and sign the Radiation Exposure Permit, per 75RP-9ZZ44, "Radiation Exposure Permits".

4.2.1.3 Personnel involved in decontamination procedures shall review, date and sign 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 75RP-9ZZ46, "Radioactive Contamination Survey Procedure".

4.3.2 The Decontamination Team shall provide for the collection of used decontamination supplies.

4.3.3 Area/Equipment Decontamination

NOTE

Tool and equipment with fixed contamination of greater than 50mr/hr should be disposed of as directed by the Supervising Radiation Physicist or Radiological Protection Coordinator.

4.3.3.1 Decontamination of areas/equipment or materials shall be performed using Appendix B, "Area and Material Decontamination", as a guideline.

4.3.3.2 Items to be released from the Radiological Controlled Area for unrestricted use shall be decontaminated to below the limits of Appendix A, "Area and Equipment Contamination Limits".

4.3.3.3 Areas to be released as "Clean Areas" shall be decontaminated to below the limits of Appendix A.

4.3.4 Waste Disposal

4.3.4.1 Contaminated fluids shall be collected in appropriate receptacles.

4.3.4.2 Contaminated disposable supplies should be placed in plastic bags.

4.3.4.3 Contaminated equipment and/or supplies should remain or be placed in an appropriate controlled area until decontaminated or processed as radioactive waste.

TOOL AND EQUIPMENT CONTAMINATION LIMITS

LOOSE SURFACE: CONTAMINATION	BETA/GAMMA	1000 dpm/100cm^2
	ALPHA	20 dpm/100 cm^2
FIXED SURFACE: CONTAMINATION		0.1 mr/hr

AREA CONTAMINATION LIMITS

Posting Designation	LOOSE SURFACE BETA/GAMMA	LOOSE SURFACE ALPHA
Clean Area	Less than 1000 dpm/ 100cm^2	Less than 20 dpm/ 100cm^2
Contaminated Area	Greater than 1000 dpm/ 100cm^2	Greater than 20 dpm/ 100cm^2
High Contamination Area	Greater than 50,000 dpm/ 100cm^2	Greater than 1000 dpm/ 100cm^2

AREA AND MATERIAL DECONTAMINATION

Method*	Surface	Action	Technique	Advantages	Disadvantages
Vacuum cleaning	Dry surfaces	Removes contaminated dust by suction.	Use conventional vacuum technique with efficient filter.	Good on dry, porous surfaces. Avoids water reactions.	All dust must be filtered out of exhaust. Machine is contaminated.
Water	All nonporous surfaces (metal, painted, plastic, etc.).	Dissolves and erodes.	For large surfaces Hose with high-pressure water at an optimum distance of 15 to 20 feet. Spray vertical surfaces at an angle of incidence of 30° to 40°; work from top to bottom to avoid recontamination. Work upwind to avoid spray.	All water equipment may be utilized. Allows operation to be carried out from a distance. Contamination may be reduced by 50%. Water equipment may be used for solutions of other decontaminating agents.	Drainage must be controlled. Not suitable for porous materials. Oiled surfaces cannot be decontaminated. Not applicable on dry contaminated surfaces (use vacuum); not applicable on porour surfaces such as wood, concrete,

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Water (Cont'd)			Determine cleaning rate experimentally, if possible; otherwise, use a rate of 4 square feet per minute.		canvas, etc. Spray will be contaminated.
	All surfaces	Dissolves and erodes.	For small surfaces Blot up liquid and handwipe with water and appropriate commercial detergent.	Extremely effective if done immediately after spill and on nonporous surfaces.	Of little value in the decontamination of large areas, longstanding contaminants and porous surfaces.
Steam	Nonporous surfaces (especially painted or oiled surfaces).	Dissolves and erodes.	Work from top to bottom and from upwind. Clean surface at a rate of 4 square feet per minute. The cleaning efficiency of steam will be greatly increased by using detergents.	Contamination may be reduced approximately 90% on painted surfaces.	Steam subject to same limitations as water. Spray hazard makes the wearing of waterproof outfits necessary.
Detergents	Nonporous surfaces (metal, painted, glass, plastic, etc.).	Emulsifies contaminant and increases wetting power of water and cleaning efficiency of steam.	Rub surface 1 minute with a rag moistened with detergent solution then wipe with dry rag; use clean surface of the rag for each application. Use a power rotary brush with	Dissolves industrial film and other materials which hold contamination. Contamination may be reduced by 90%.	May require personal contact with surface. May not be efficient on longstanding contamination.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

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AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Detergents (Cont'd)			pressure feed for more efficient cleaning. Apply solution from a distance with a pressure proportioner. Do not allow solution to drip onto other surfaces. Mist application is all that is necessary.		
Complexing agents	Nonporous surfaces (especially unweathered surfaces; i.e., no rust or calcareous growth).	Forms soluble complexes with contaminated material.	Complexing agent solution should contain 3% (by weight) of agent. Spray surface with solution. Keep surface moist 30 minutes by spraying with solution periodically. After 30 minutes, flush material off with water. Complexing agents may be used on vertical and overhead surfaces by adding chemical foam (sodium carbonate or aluminum sulfate).	Holds contamination in solution. Contamination may be reduced by 75% in 4 minutes on unweathered surfaces. Easily stored; carbonates and citrates are nontoxic, noncorrosive.	Requires application for 5 to 30 minutes. Little penetrating power; of small value on weathered surfaces.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

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AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Organic solvents	Nonporous surfaces (greasy or waxed surfaces, paint or plastic finishes, etc.).	Dissolves organic materials (oil, paint, etc.).	Immerse entire unit in solvent or apply by wiping procedure (see Detergents).	Quick dissolving action. Recovery of solvent possible by distillation.	Requires good ventilation and fire precautions. Toxic to personnel. Material bulky.
Inorganic acids	Metal surfaces (especially with porous deposits; i.e., rust or calcareous growth); circulatory pipe systems.	Dissolves porous deposits.	Use dip-bath procedure for movable items. Acid should be kept at a concentration of 1 to 2 normal (9 to 18% hydrochloric, 3 to 6% sulfuric acid). Leave on weathered surfaces for 1 hour. Flush surface with water, scrub with a water-detergent solution, and rinse. Leave in pipe circulatory system 2 to 4 hours; flush with plain water, a water-detergent solution, then again with plain water.	Corrosive action on metal and porous deposits. Corrosive action may be moderated by addition of corrosion inhibitors to solution.	Personal hazard. Wear goggles, rubber boots, gloves, and aprons. Good ventilation required because of toxicity and explosive gases. Acid mixtures should not be heated. Possibility of excessive corrosion if used without inhibitors. Sulfuric acid not effective on calcareous deposits.
Acid mixtures: hydrochloric, sulfuric, acetic, citric acids, acetates, citrates	Nonporous surfaces (especially with porous deposits); circulatory pipe systems.	Dissolves porous deposits.	Same as for inorganic acids. A typical mixture consist of 0.1 gal. hydrochloric acid, 0.2 lb sodium acetate and 1	Contamination may reduced by 90% in 1 hour (unweathered surfaces). More easily handled than inorganic acid solution.	Weathered surfaces may require prolonged treatment. Same safety precautions as required for inorganic acids.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Acid mixtures (Cont'd)			gal. water		
Caustics: lye (sodium hydroxide) calcium hydroxide potassium hydroxide	Painted surfaces (horizontal).	Softens paint (harsh method).	Allow paint-remover solution to remain on surface until paint is softened to the point where it may be washed off with water. Remove remaining paint with long-handled scrapers. Typical paint remover solution: 10 gal. water, 4 lb lye, 6 lb boiler compound 0.75 lb cornstarch.	Minimum contact with contaminated surfaces. Easily stored.	Personal hazard (will cause burns). Reaction slow; thus, it is not efficient on vertical or overhead surfaces. Should not be used on aluminum or magnesium.
Trisodium phosphate	Painted surfaces (vertical, overhead).	Softens paint (mild method).	Apply hot 10% solution by rubbing and wiping procedure (see Detergent).	Contamination may be reduced to tolerance in one or two applications.	Destructive effect on paint. Should not be used on aluminum or magnesium.
Abrasion	Nonporous surfaces.	Removes surface.	Use conventional procedures, such as sanding, filing and chipping; keep surface damp to avoid dust hazard.	Contamination may be reduced to as low a level as desired.	Impracticable for porous surfaces because of penetration by moisture.
Sandblasting	Nonporous surfaces.	Removes surfaces.	Keep sand wet to lessen spread of contamination.	Practical for large surface areas.	Contamination spread over area must be removed.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Sandblasting (Cont'd)			Collect used abrasive or flush away with water.		Contaminated dust is personnel hazard.
Vacuum blasting	Porous and non-porous surfaces.	Removes surface; traps and controls contaminated waste.	Hold tool flush to surface to prevent escape of contamination.	Contaminated waste ready for disposal. Safest abrasion method.	Contamination of equipment.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

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TABLE 1

HARD SURFACE DECONTAMINATION EFFICIENCIES IN PERCENT[a]

Material	Vacuum (D+2)	Hi-Pressure Water (D+3)	Hi-Pressure Wtr.w/Scrub (D+12)	Hi-Pressure Wtr. and Detergent (D+4)	Hi-Press. Wtr. and Detergent (D+5)	Sand-Blasting (D+9)	Steam Cleaning (D+14)
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	95.04	95.32	95.83	99.51	52.00
Galvanized Roofing	89.00	99.36	97.19	99.73	99.86	100.00	85.00
Highway Asphalt	32.00	99.90	96.25	90.82	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 (%)]

WASH 1400, Appendix XI, October, 1979, "Nuclear Safety Study"

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-30	
RADIOLOGICAL EMERGENCY RESPONSE VEHICLE OPERATIONS	REVISION 0	Page 1 of 7

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DEPT. HEAD _____ DATE 6-21-84

PRB/PRG REVIEW _____ DATE 7-6-84

APPROVED BY _____ DATE 7-6-84

EFFECTIVE DATE: 07-16-84

DN-8211A/0580A

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1.0 OBJECTIVE

1.1 To provide instructions for operation of the Radiological Emergency Response Vehicle and associated equipment.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-02, "Emergency Classification".

2.2 Developmental References

2.2.1 Instruction Manual, Auto Throttle, 1980

2.2.2 Voltmeter/Ammeter Instructions, Dec. 1976

2.2.3 Kohler 7kW Generator, 1982

2.2.4 Coleman Mach 3 A/C Manual, Oct. 1981

2.2.5 Dynamic Inverter Operation/Service Manual Nov. 1982

2.2.6 GE Mobile Radio Operations Manual, 1975

2.2.7 GMC '82 Owner/Driver Manual, 1982

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The Dynamic Inverter will not supply adequate power to operate the van body air conditioner.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities.

4.1.1 The vehicle is a one-ton GMC 3500 Sierra 4x4 powered by a 454 cubic inch V8 with a four speed transmission. The attached van is a *10 ft. long, 6.5 ft. high, 7.5 ft. wide* aluminum dry freight van body. (*Outside dimension)

4.1.2 Power Supply

4.1.2.1 AC Primary Power
A gasoline generator (Kohler Model 7CM21-KV) with remote start is the primary power supply. It is mounted inside the van at the right rear corner. The generator is serviced from the right rear side through a side access door. Fuel supply is from the right side truck tank. The generator will run approximately 48 hrs with no load on 20 gal. fuel.

4.1.2.2 Alternate AC Power
The secondary power supply is a dynamic power invertor, supplied by a 130 amp alternator on the engine. The alternator requires the use of an automatic throttle to maintain engine rpm at an optimum level. The invertor will supply enough power for all outlets except the van air conditioner.

4.1.3 Safety Equipment
There are several different pieces of safety equipment throughout the emergency vehicle.

4.1.3.1 Truck Cab
1. First Aid Kit - Kick panel on passenger side.
2. Fire Extinguisher - On floor under drivers seat.
3. Safety Flares - Three, behind driver's seat.
4. High-Lift Safety Jack - Behind driver's seat.
5. Spinner-Type Lug Wrench - Behind driver's seat.
6. Battery Jumper Cables - Behind driver's seat.
7. Tow strap - 10 ft. long, behind driver's seat.
8. Spare Engine Belts - Behind driver's seat.

4.1.3.2 Van Body
1. First Aid Kit - By rear door.
2. Fire Extinguisher - Under counter.
3. Assorted Tools - In marked cabinet.
4. Air Pump - In marked cabinet.
5. Water - 15 gal., in marked cabinet.

4.1.4 Responsibility

4.1.4.1 It is the responsibility of the technicians assigned (radiation protection) to this vehicle to ensure that this procedure is adhered to during drills or emergencies.

4.2 Prerequisites

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

4.3 Instructions for Operating The Two-Way Mobile Radio

4.3.1 Receiving a Message

4.3.1.1 Turn the radio on by turning the off-volume control halfway to the right.

4.3.1.2 Slide the squelch switch on the control panel to the monitor position and adjust the volume control for a comfortable listening level.

4.3.1.3 Select the proper radio channel as listed on equipment.

4.3.2 Sending a Message

4.3.2.1 Turn the radio on, if not already on.

4.3.2.2 Select the proper radio channel as listed on equipment.

4.3.2.3 Ensure that the channel is clear of voice traffic.

NOTE

The red transmit light on the radio control panel will glow each time the microphone button is pressed.

4.3.2.4 Press the microphone button and identify the unit you are calling, then identify yourself.

4.3.2.5 Release the microphone button and wait for any answer to your call.

4.3.2.6 Complete your message.

4.4 Instructions for operating the Internal/External Radio Speaker

4.4.1 To switch from the internal speaker to the external speaker on the radio, push the switch away from yourself.

4.5 Instructions for Operating the Roof Mounted Spotlight.

4.5.1 The power switch is located on the handle.

4.5.2 Twist the grip to aim the light up or down. Rotate the handle to aim left or right.

4.5.3 Ensure that the light is off when not in use to prevent battery drain.

4.6 Instructions for Operating the Fuel Tank Selector Switch

4.6.1 The selector switch is dash mounted and clearly marked.

4.6.2 Always operate off the left-hand tank first.

4.7 Instructions for Operating the Kohler 7kW Generator

4.7.1 The generator may be operated from two locations, either on the generator itself, through the side access door or from the truck cab.

4.7.2 This switch is a rocker-type switch with a built-in indicator on-light and an engine hour meter.

4.7.3 To ensure that power is going to the various pieces of equipment, check that the power supply breaker is correctly positioned.

4.3.7.1 This breaker is located behind the seat on the passenger side in the truck cab. It has a lever which must be in the "up" position for the generator to supply power to the circuits.

4.8 Instructions for Operating the Dynamic Power Inverter

4.8.1 The truck should be in neutral with the parking brake set.

4.8.2 The lever on the power junction box behind the truck seat should be in the "down" position.

4.8.3 The remote throttle should be turned on.

4.8.4 Turn the inverter on using the switch in the cab. The voltage meter should register power output.

4.9 Instructions for Operating the Van Air Conditioner

> CAUTION
>
> THE AIR CONDITIONER SHALL NOT BE OPERATED WHEN THE POWER SOURCE IS THE DYNAMIC INVERTER. IT DOES NOT HAVE THE CAPABILITY TO SUPPLY THE NECESSARY POWER TO OPERATE THE AIR CONDITIONER.

4.9.1 Ensure that the generator is operating and the power supply breaker is correctly positioned.

4.9.2 Select proper function, ie., low cool, high cool, fan, etc., by turning left-hand rotary switch.

4.9.3 Select appropriate temperature by rotating the right-hand switch.

4.9.4 When not needed or not in use, ensure air conditioner is turned off.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-31	
RECOVERY	REVISION 2	Page 1 of 8

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PVNGS SM # 8-9B

DEPT. HEAD O. L. Zimmer DATE 3/21/84

PRB/PRG REVIEW E. L. Clyde DATE 5-14-84

APPROVED BY C. L. Terry III DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-1667A/0196A

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APPENDIX

Appendix A - Post-Emergency Recovery Organization Palo Verde Nuclear Generating Station (PVNGS) 8

1.0 OBJECTIVE

1.1 This procedure prescribes those recovery operations necessary to identify the extent of station damage and radiological contamination (if any) and return the station to an operating status which is in compliance with the unit(s) technical specifications.

2.0 REFERENCES

2.1 Implementing References

None

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. 3

3.0 LIMITATIONS AND PRECAUTIONS

3.1 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 and stable condition. No action shall be taken which might disturb this situation without the express approval of the Recovery Manager.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

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 and may be augmented by corporate and short-term contract support. Phase II recovery operations include the longer term postemergency 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 or other 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 4.2) have been established the Emergency Operations Director shall establish the Recovery Organization as depicted in Appendix A.

4.3.2 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.

4.3.3 For known or suspected significant unit damage, and at the discretion of the Recovery Manager, survey teams shall be formed consisting of Operations, Engineering, Maintenance, and Radiation Protection personnel. 2

4.3.4 These teams shall perform an organized search of the unit to ascertain the extent of physical damage and areas of contamination/high radiation. 2

4.3.5 The results of these surveys should be used by the Recovery Manager, the Station Operations Manager (Director 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. 2

4.4 Planning

4.4.1 Under the direction of the Recovery Manager, pertinent recovery organization members, as well as selected offsite personnel, shall address the planning and coordination of the recovery effort.

4.4.2 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, shall be discussed, prioritized, and planned.

4.4.3 The Planning/Scheduling Manager (Planning/Scheduling Supervisor or designated alternate) shall develop an overall schedule to guide the recovery effort. 2

4.5 Recovery Implementation

4.5.1 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 shall begin.

4.5.2 In lieu of any special requirements in place at the time, normal unit practices shall be followed concerning maintenance, repair, modification, decontamination, and personnel exposure control. 2

4.5.3 The Recovery Manager (Assistant Vice-President, Nuclear or designated alternate) shall have overall corporate responsibility for restoring the station to normal operating configuration. 2

4.5.4 The Radcon/Radwaste Manager (Radiation Protection Supervisor or designated alternate) shall, 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. He shall also coordinate activities of staff Radiological Engineers and Radiation Protection personnel involved in waste treatment operations.

4.5.5 The Station Operations Manager (Director of Nuclear Operations or designated alternate) manages day-to-day inplant operations and during recovery is responsible for ensuring that repairs and modifications shall optimize postrecovery plant operational effectiveness and safety. 2

4.5.6 The Design and Construction Support Manager (Vice President, Nuclear 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.

4.5.7 The Technical Support Manager (Technical Support Manager or designated alternate) shall provide analysis, plans, schedules, and procedures in direct support of plant operations.

4.5.8 The Quality Assurance Manager (Corporate Quality Assurance Manager or designated alternate) shall insure 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. 2

4.5.9 The Administrative/Logistics Manager (Administrative Support Managers or designated alternate) shall supply administrative, logistic, communications, and personnel support for the recovery operation.

4.5.10 The CHIC Director (Director of Communications and Energy Management or designated alternate) shall coordinate the flow of media information concerning recovery operations. 2

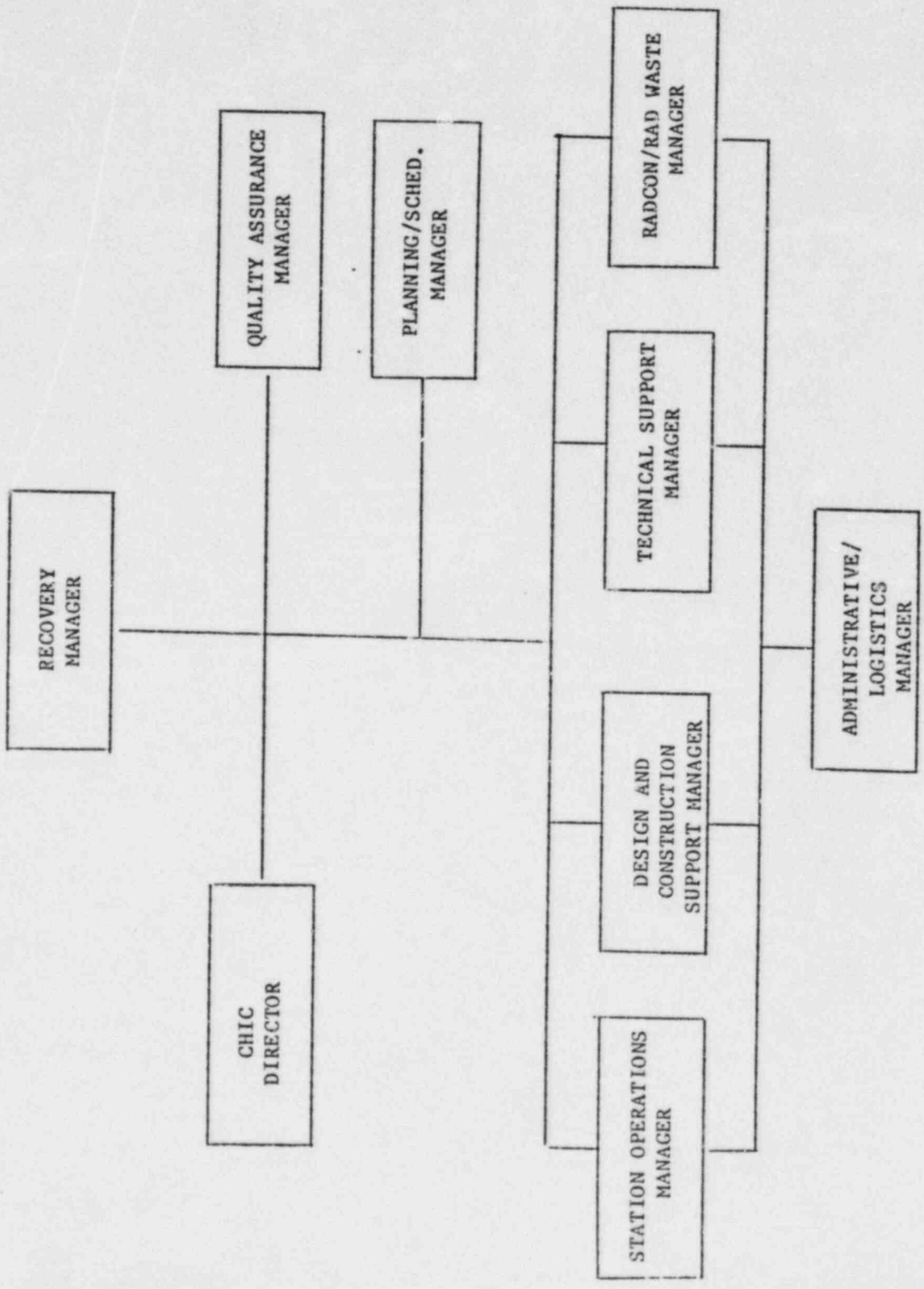
4.5.11 As the recovery operation proceeds, any unforeseen problems which are encountered shall be evaluated and factored into the overall recovery plan. The schedule should be adjusted accordingly.

4.5.12 Upon completion of the recovery effort, technical specifications compliance shall be verified prior to beginning normal unit operations.

4.6 Training

4.6.1 In consideration of the situation to be handled, special training material should be developed and training conducted for special work tasks to the maximum extent possible.

POST-EMERGENCY RECOVERY ORGANIZATION
PALO VERDE NUCLEAR GENERATING STATION (PVNGS)



PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-33	
OFFSITE ASSISTANCE	REVISION 2	Page 1 of 8

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PVNGS # 8-9B

DEPT. HEAD O. K. Buzzard DATE 3/25/84

PRB/PRG REVIEW Ellen Clyde DATE 7-6-84

APPROVED BY O. K. Buzzard DATE 7/6/84

EFFECTIVE DATE 07-16-84

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.

2.0 REFERENCES

2.1 Implementing References

None

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

2.2.2 ANSI N45.2.9-1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 The telephone communication log sheet (Appendix B) shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 In the event of an emergency at PVNGS, various offsite agency support may be required. Local agency and contract support services are identified in Appendix A. Additionally, the Institute for Nuclear Power Operations (INPO) should aid in obtaining equipment and personnel upon request.

4.1.2 The Emergency Coordinator shall be responsible for determining the need for and requesting of 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 Determine the scope of offsite assistance which should be provided and the estimated time of arrival of support responding to the station.

4.3.2 The Emergency Coordinator shall direct the STSC Communicator (onshift only) or Administrative and Logistics Coordinator 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.

4.3.2.1 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.

4.3.2.2 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.

4.3.2.3 Inform the Emergency Coordinator of the contact or lack of contact.

4.3.3 The STSC Communicator (onshift) or Administrative and Logistics Coordinator shall inform the Security Director to ensure that incoming personnel are given clearances (if necessary) and required dosimetry.

4.3.4 If required, contact the Corporate Technical Coordinator at the CEC to aid in contacting offsite support and handling the logistics of transporting personnel to the site.

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.

ASSISTANCE	TELEPHONE NUMBER
1. Hospitals	
Maryvale Samaritan Hospital - Emergency Dept. Nurse Samaritan Health Service	848-5203, 5204
2. Law Enforcement	
Maricopa County Sheriff's Office	256-1011
3. Fire Support/Back-up Ambulance	
Bechtel Power Corporation	[redacted]
4. Meteorological Information	
National Weather Service	261-4000
5. Radiological Assistance	
a. Laboratory	
ASU, Security (Primary No.) Radiation Lab (Secondary No.)	[redacted]
b. Environmental Monitoring	
ASU, Security (Primary No.) Radiation Lab (Secondary No.)	
c. Radiation Health Physics	
ASU, Security (Primary No.) Radiation Lab (Secondary No.)	
d. Chemistry Support	
ASU, Security (Primary No.) Radiation Lab (Secondary No.)	

OFFSITE ASSISTANCE TELEPHONE NUMBERS

e. TLD Processing

ASU, Security (Primary No.)
Radiation Lab (Secondary No.)

f. Whole Body Counting

Helgeson Nuclear Services

g. Department of Energy
Joint Nuclear Accident Coordinating Center (JNACC)

ASSISTANCE	TELEPHONE NUMBER
6. Industry Assistance	
a. Combustion Engineering	
b. Bechtel Power Corporation Bechtel Security (Daytime Security)	
c. INPO	
d. Southern California Edison	
(1) VP, Nuclear Eng. and Operations	
e. Pacific Gas and Electric	
(1) VP, Nuclear Generation	
(2) Manager, Nuclear Plant Operations	
f. Sacramento Municipal Utilities District	
(1) Shift Technical Advisor/Shift Supervisor	
g. Portland General Electric	
(1) VP, Nuclear	
(2) Assistant VP	
h. Washington Public Power System	
(1) Supply System Assistance	Primary Secondary

OFFSITE ASSISTANCE TELEPHONE NUMBERS

7. Well Drilling Assistance

* a. Layne - Western Co

[(1) Dave Bowen]

b. BC and M Drilling Inc.

[(1) Anthony Ebouchard]

c. Marrow Drilling Co.

[(1) Bill Kingsbury]

d. Bert Perry Drilling

[(1) Bert Perry]

e. Campbell's Drilling, Inc.

[(1) Dean Campbell]

f. Ertec Western Inc.

[redacted]

* Contract has been signed for well drilling services.

PV216-00CA (8/82)

TELEPHONE COMMUNICATION LOG SHEET

	AGENCY OR INDIVIDUAL	PERSON CONTACTED	DATE/TIME	CALLER	REMARKS
1.			/		
2.			/		
3.			/		
4.			/		
5.			/		
6.			/		
7.			/		
8.			/		
9.			/		
10.			/		

Performed By: _____

Date: _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-38	
EMERGENCY EQUIPMENT AND SUPPLIES INVENTORY	REVISION 3	Page 1 of 41

ASSIGNED COPY

PVNGS #8-9 B

DEPT. HEAD O. J. Zeringue DATE 4/26/84

PRB/PRG REVIEW M. L. Clyde DATE 5-14-84

APPROVED BY O. J. Zeringue DATE 6/20/84

EFFECTIVE DATE 6-29-84

DN-1670A/0196A

PV216-00DA (8/82)

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3

1.0 OBJECTIVE

1.1 To provide a means of assuring the operational readiness and availability of equipment required for implementation of the PVNGS Emergency Plan.

2.0 REFERENCES

2.1 Implementing References

2.1.1 78AC-0ZZ06, "Document and Record Turnover Control"

2.1.2 75PR-0ZZ01, "Radiation Protection Program"

2.1.3 75PR-0ZZ02, "Respiratory Protection Program"

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. 3.

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/Responsibilities

4.1.1 In order to insure the availability of equipment which may be required during the course of an emergency at PVNGS, the Supervisor, Site Emergency Planning or his designee shall be responsible for conducting a quarterly inventory of emergency equipment and supplies. In addition, an inventory shall be conducted within five (5) working days after any drill using emergency equipment and/or supplies.

4.2 Prerequisites

NONE

4.3 Instructions

4.3.1 Dedicated emergency equipment and supplies located in the emergency lockers shall be inventoried quarterly and after each drill. Emergency lockers/kits are maintained at the following locations:

(1) Control Room/STSC of each unit
(2) Operations Support Center (OSC) of each unit
(3) Service Building (alternate OSC)
(4) TSC
(5) EOF (Command Center)
(6) Emergency Vehicle
(7) Maryvale Samaritan Hospital
(8) Security Building
(9) Annex Building, Security Desk
(10) PVNGS Ambulance

4.3.2 Additional equipment and supplies are also maintained near the Access Control Point and OSC. A first aid treatment center equipped with necessary supplies is maintained onsite. In addition, a first aid room is located in each unit.

4.3.3 Inventory is accomplished by the Onsite Emergency Planning Group utilizing Appendices A through Q. Each appendix contains the designated equipment for a specified emergency storage location.

4.3.3.1 All blanks shall be filled on each appendix when inventoried.

4.3.3.2 If the shelf life of the battery as indicated by the manufacturer has expired, replace the battery.

4.3.3.3 If no shelf life is indicated, obtain a battery tester from the Radiation Protection Instrument Calibration Group and test the battery. If the battery output falls in the red band of the tester, discard it and replace with a new battery.

4.3.3.4 Inventory of Appendix R will be conducted by or in conjunction with a member of the PVNGS Safety Department.

4.3.3.5 Upon completion of the inventory a photostat ("Xerox") copy of the inventory shall be affixed to the applicable kit, (i.e., Appendix A attached to the CR/STSC kit).

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 by the Radiation Protection Section and at intervals established by the Radiation Protection Section.

4.3.5 Respirators and respiratory protection equipment shall be maintained by the Radiation Protection Support Group. Repair, replacement, change-out shall be performed at intervals established by the Radiation Protection Program, 75PR-0ZZ01 and/or Respiratory Protection Program, 75PR-0ZZ02.

4.3.6 Onsite Emergency Planning Group shall coordinate with Radiation Protection to ensure that in each emergency kit each type of personal dosimetry (i.e., 0-200 mR pocket dosimeters, 0-1R pocket dosimeters, Alarming dosimeters) should have the same calibration due date.

4.3.7 Equipment or supplies found to be deficient or inoperable shall be promptly repaired or replaced.

4.3.8 Records of the inventory and checks of emergency equipment shall be transmitted to DDC by the Supervisor, Site Emergency Planning as per 78AC-0ZZ06, "Document and Record Turnover Control", with a copy forwarded to the Manager, Emergency Planning and Preparedness.

4.3.9 Calibration records of radiation survey instruments shall be maintained by the Radiation Protection Section.

EMERGENCY STORAGE AT UNIT ONE CR/STSC

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air samplers		/		
			/		
1	100' extension cord		/		
4	A/S Heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
10	Respirators		/		
10	Respirator filters		/		
12	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
5	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.'s		/		
1	Smears (box with folders)		/		
10	Signs with inserts		/		
300'	Barrier rope		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		
1	First aid kit		/		
1	Set controlled copy of EPIP's		/		
3	One liter bottles		/		

EMERGENCY STORAGE AT UNIT ONE CR/STSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
25	Individual accountability report forms		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
2	Soil/vegetation sample containers		/		
50	Dosimetry issue forms		/		
2	Flashlights		/		
10	'D' cell batteries		/		
1	Knife w/spare blades		/		
5	50cc syringes		/		
1	Box, colored pencils		/		
1	Noble gas pre-filter holder		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
1	Full set, site maps		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

_____

_____

_____

Performed by: _____

Signature Date

EMERGENCY STORAGE AT UNIT TWO CR/STSC

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air samplers		/		
			/		
1	100' extension cord		/		
4	A/S Heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
10	Respirators		/		
10	Respirator filters		/		
12	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
5	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.'s		/		
1	Smears (box with folders)		/		
10	Signs with inserts		/		
300'	Barrier rope		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		
1	First aid kit		/		
1	Set controlled copy of EPIP's		/		
3	One liter bottles		/		

EMERGENCY STORAGE UNIT TWO AT CR/STSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
25	Individual accountability report forms		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
2	Soil/vegetation sample containers		/		
50	Dosimetry issue forms		/		
2	Flashlights		/		
10	'D' cell batteries		/		
1	Knife w/spare blades		/		
5	50cc syringes		/		
1	Box, colored pencils		/		
1	Noble gas pre-filter holder		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
1	Full set, site maps		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

_____

_____

_____

Performed by: _____

Signature Date

EMERGENCY STORAGE AT UNIT ONE OSC

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
6	Hand-held portable radios				
1	6-Pak radio charger				
6	Radio holsters				
6	Spare batteries				
1	Portable G.M. Survey Meter				
1	Portable Ion Chamber Survey Meter				
1	Frisker with probe				
2	Portable air samplers				
1	100' extension cord				
4	A/S heads				
1	Particulate A/S filters (box)				
10	AgX cartridges				
50	Charcoal A/S cartridges				
5	Respirators				
5	Respirator filters				
10	SCBAs				
1	Aspirator bulbs				
2	Alarming dosimeters				
15	Noble gas collection chamber (Marinelli beakers)				
1	Check source				
5	Flashlights				
10	'D' size batteries				
1	First aid kit				
1	Smears (box with folders)				
10	Signs with inserts				
300'	Barrier rope				
2	Clipboards				
1	Paper, yellow, lined (pkg)				
10	Pens/pencils				

EMERGENCY STORAGE AT UNIT ONE OSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		
2	Shampoo		/		
5	Soap		/		
1	Hair clippers		/		
2	Shaving cream		/		
1	Disposable razors (pkg)		/		
10	Full sets of P.C.'s		/		
25	Individual accountability report forms		/		
4	Washcloths		/		
4	Towels		/		
1	Q-Tips (pkg)		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
50	Dosimetry issue forms		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
1	Noble gas pre-filter holder		/		
1	Set controlled copy of EPIP's		/		
5	50cc syringes		/		
3	One liter bottles		/		
1	Pair bolt cutters		/		
1	Regular pliers		/		
1	Diagonal pliers		/		
1	Hammer, 16 oz. ball peen		/		
1	Long nose pliers		/		
1	Common head screwdriver		/		
1	Phillips head screwdriver		/		
1	Knife w/ spare blades		/		
2	Soil/vegetation sample containers		/		
2	Set Site Maps		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		

EMERGENCY STORAGE AT UNIT ONE OSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
10	Set, Body Maps		/		
1	Tweezers, pair		/		
1	Surgeon's gloves, box		/		
1	Folding shovel		/		
20	Extremity TLD rings		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY STORAGE AT UNIT TWO OSC

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
6	Hand-held portable radios		/		
			/		
			/		
			/		
			/		
			/		
			/		
1	6-Pak radio charger		/		
6	Radio holsters		/		
6	Spare batteries		/		
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air samplers		/		
			/		
1	100' extension cord		/		
4	A/S heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
5	Respirators		/		
5	Respirator filters		/		
10	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
15	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
5	Flashlights		/		
10	'D' size batteries		/		
1	First aid kit		/		
	Smears (box with folders)		/		
	Signs with inserts		/		
	Barrier rope		/		
	Clipboards		/		
	Paper, yellow, lined (pkg)		/		
	Pens/pencils		/		

EMERGENCY STORAGE AT UNIT TWO OSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		
2	Shampoo		/		
5	Soap		/		
1	Hair clippers		/		
2	Shaving cream		/		
1	Disposable razors (pkg)		/		
10	Full sets of P.C.'s		/		
25	Individual accountability report forms		/		
4	Washcloths		/		
4	Towels		/		
1	Q-Tips (pkg)		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
50	Dosimetry issue forms		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
1	Noble gas pre-filter holder		/		
1	Set controlled copy of EPIP's		/		
5	50cc syringes		/		
3	One liter bottles		/		
1	Pair bolt cutters		/		
1	Regular pliers		/		
1	Diagonal pliers		/		
1	Hammer, 16 oz. ball peen		/		
1	Long nose pliers		/		
1	Common head screwdriver		/		
1	Phillips head screwdriver		/		
1	Knife w/ spare blades		/		
2	Soil/vegetation sample containers		/		
2	Set Site Maps		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		

EMERGENCY STORAGE AT UNIT TWO OSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
10	Set, Body Maps		/		
1	Tweezers, pair		/		
1	Surgeon's gloves, box		/		
1	Folding shovel		/		
20	Extremity TLD rings		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY STORAGE AT SERVICE BUILDING

		INST. NO.	DATE/INITIALS	DUE DATE	BATTERY RECHARGE/ REPLACEMENT
2	Portable G.M. Survey Meter		/		
			/		
2	Portable Ion Chamber Survey Meter		/		
			/		
2	Frisker with probe		/		
			/		
4	Portable air samplers		/		
			/		
			/		
			/		
			/		
1	100' extension cord		/		
6	A/S heads		/		
1	Particulate A/S filters (box)		/		
20	AgX cartridges		/		
75	Charcoal A/S cartridges		/		
5	Respirators		/		
5	Respirator filters		/		
5	SCBAs		/		
2	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
15	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.s		/		
300'	Barrier Rope		/		
10	Signs with inserts		/		
2	Shampoo		/		
5	Soap		/		
1	Hair clippers		/		
2	Shaving cream		/		
1	Disposable razors (pkg)		/		
4	Washcloths		/		
4	Towels		/		
1	Q-Tips (pkg)		/		
1	Smears (box with folders)		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Surgeon's gloves, box		/		

EMERGENCY STORAGE AT SERVICE BUILDING (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Knife w/spare blades		/		
25	Individual accountability report forms		/		
1	Scissors		/		
5	SCBA spare bottles		/		
2	9V transistor batteries		/		
1	Calculator		/		
1	Box, colored pencils		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
1	Set controlled copy of EPIP's		/		
1	Noble gas pre-filter holder		/		
3	One liter bottles		/		
50	Dosimetry issue forms		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
2	Soil/vegetation sample containers		/		
5	50cc syringes		/		
1	Set Site Maps		/		
2	Flashlights		/		
10	'D' cell batteries		/		
1	First aid kit		/		
1	Phillips head screwdriver		/		
1	Common head screwdriver		/		
1	Pair bolt cutters		/		
1	Regular pliers		/		
1	Long nose pliers		/		
1	Diagonal pliers		/		
1	Hammer, 16 oz. ball peen		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
10	Set, Body Maps		/		
1	Folding shovel		/		

EMERGENCY STORAGE AT SERVICE BUILDING (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
20	Extremity TLD rings		/		
1	Tweezers, pair		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY STORAGE AT SECURITY BUILDING

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air samplers		/		
			/		
1	100' extension cord		/		
4	A/S heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
6	Respirators		/		
6	Respirator filters		/		
6	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
5	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.s		/		
6	Portable 2-way radios		/		
1	Radio charger/6 pk		/		
300'	Barrier Rope		/		
10	Signs with inserts		/		
2	Shampoo		/		
5	Soap		/		
1	Hair clippers		/		
2	Shaving cream		/		
1	Disposable razors (pkg)		/		
4	Washcloths		/		
4	Towels		/		
1	Q-Tips (pkg)		/		
1	Smears (box with folders)		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		

EMERGENCY STORAGE AT SECURITY BUILDING (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
50	Plastic bags (various sizes)		/		
1	Knife, w/spare blades		/		
1	Scissors		/		
2	9V transistor batteries		/		
1	Set controlled copy of EPIP's		/		
6	Spare radio batteries		/		
6	Radio Holsters		/		
2	Flashlights		/		
10	'D' cell batteries		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
50	Dosimetry issue forms		/		
1	Noble gas pre-filter holder		/		
5	50cc syringes		/		
3	One liter bottles		/		
2	Soil/vegetation sample containers		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
1	Full Set, Site Maps		/		
10	Set, Body Maps		/		
1	Tweezers, pair		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY STORAGE AT TSC

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air sampler		/		
			/		
1	100' extension cord		/		
4	A/S Heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
5	Respirators		/		
5	Respirator filters		/		
5	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
5	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.s		/		
2	Flashlights		/		
10	'D' size batteries		/		
1	First aid kit		/		
1	Smears (box with folders)		/		
10	Signs with inserts		/		
300'	Barrier rope		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		
1	Set controlled copy of EPIP's		/		

EMERGENCY STORAGE AT TSC (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
25	Individual accountability report forms		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
50	Dosimetry issue forms		/		
1	Knife, w/spare blades		/		
3	One liter bottles		/		
2	Soil/vegetation sample containers		/		
5	50cc syringes		/		
1	Noble gas pre-filter holder		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
1	Full Set, Site Maps		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY STORAGE AT EOF

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air sampler		/		
			/		
1	100' extension cord		/		
4	A/S Heads		/		
1	Particulate A/S filters (box)		/		
10	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
5	Respirators		/		
5	Respirator filters		/		
5	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
5	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.s		/		
2	Flashlights		/		
10	'D' size batteries		/		
1	Camera		/		
5	Film (rolls)		/		
1	First aid kit (basic)		/		
1	Smears (box with folders)		/		
10	Signs with inserts		/		
300'	Barrier rope		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
10	RAM labels		/		
2	Tape, Duct		/		
50	Plastic bags (various sizes)		/		
1	Scissors		/		
2	9V transistor batteries		/		

EMERGENCY STORAGE AT EOF (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Set controlled copy of EPIP's		/		
2	Soil/vegetation sample containers		/		
3	One liter bottles		/		
5	50cc syringes		/		
1	Noble gas pre-filter holder		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
1	Dosimeter charger		/		
2	'AA' batteries		/		
50	Dosimetry issue forms		/		
1	Knife, w/spare blades		/		
10	Potassium Iodide, KI, BTL ,14 Tabs/BTL		/		
1	Full Set, Site Maps		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

EMERGENCY VEHICLE SUPPLY INVENTORY

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable G.M. Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	Frisker with probe		/		
2	Portable air samplers		/		
			/		
			/		
1	100' extension cord		/		
4	A/S Heads		/		
5	Particulate A/S filters (box)		/		
50	AgX cartridges		/		
100	Charcoal A/S cartridges		/		
3	Respirators		/		
3	Respirator filters		/		
3	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
			/		
			/		
30	Noble gas collection chamber (Marinelli beakers)		/		
1	Check source		/		
10	Full sets of P.C.s		/		
1	Roll of Quarters		/		
10	Signs with inserts		/		
2	Shampoo		/		
5	Soap		/		
1	Hair clippers		/		
2	Shaving cream		/		
1	Disposable razors (pkg)		/		
4	Wash cloths		/		
4	Towels		/		
1	Q-Tips (pkg)		/		
1	Smears (box with folders)		/		
300'	Barrier rope		/		
2	Clipboards		/		
1	Paper, yellow, lined (pkg)		/		
5	Pens/pencils		/		
1	Log book		/		
20	RAM labels		/		
2	Tape, Duct		/		

EMERGENCY VEHICLE SUPPLY INVENTORY (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
50	Plastic bags (various sizes)		/		
1	Knife, w/spare blades		/		
1	Scissors		/		
3	SCBA bottles (spare)		/		
1	Shovel		/		
2	Flashlights		/		
10	'D' size batteries		/		
1	Portable air pump		/		
2	First aid kit		/		
1	Bolt cutters		/		
1	Common head screwdriver		/		
1	Phillips head screwdriver		/		
1	Diagonal pliers		/		
1	Regular pliers		/		
1	Long nose pliers		/		
1	Hammer		/		
8	Stanchions		/		
2	9V transistor batteries		/		
1	Calculator		/		
1	Box, colored pencils		/		
1	Set controlled copy of EPIP's		/		
3	Five gallon bottle water		/		
10	0-200 mR dosimeters		/		
10	0-1 R dosimeters		/		
10	0-100 R dosimeters		/		
1	Dosimetry Charger		/		
2	'AA' batteries		/		
50	Dosimetry issue forms		/		
5	One liter bottles		/		
5	50cc syringes		/		
5	Soil/vegetation sample containers		/		
1	Noble gas pre-filter holder		/		
1	Hi Lift Jack		/		
1	Spinner Lug Wrench		/		
1	Jumper cables, set		/		
1	Tow strap, 10 ft.		/		

EMERGENCY VEHICLE SUPPLY INVENTORY (CONT'D)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
3	Flares		/		
1	Spare fan belts, set		/		
2	Fire Extinguishers		/		
1	Tape measure, 6 ft.		/		
10	Potassium Iodide, KI, BTL, 14 Tabs/BTL		/		
1	Full set site maps		/		
10	Set, body maps		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
4	Grease pencils		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

MARYVALE SAMARITAN HOSPITAL EMERGENCY LOCKER INVENTORY

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
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	Portable Ion Chamber Survey Meter		/		
1	Frisker w/Probe		/		
10	0 - 1R Dosimeters		/		
10	0 - 200 mR Dosimeters		/		
10	0- 100R Dosimeters		/		
1	Dosimeter Charger		/		
10	TLD Badges		/		
10	TLD Rings		/		
1	Lead Pig		/		
1	Decon Table Top		/		
24	Rolls of Yellow Tape, Pressure Sensitive w/Radiation Symbols		/		
150'	Yellow and Magenta Barrier Rope		/		
12	Rope Stanchions		/		
1	Dosimetry Distribution and Exposure Forms		/		
12	Barrier Signs w/Inserts		/		
1	Low pressure shower head		/		
6	5 gal. poly bottles		/		
50	Step-off pads		/		
1	Disposable Booties, Case		/		
1	Sample Holder For Pancake Probe		/		

Kit Seal No. _____

Comments:

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PV216 REV 10/87

Performed by: _____

Signature Date

PVNGS AMBULANCE EMERGENCY KIT

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Nylon tote bag		/		
4	0-200 mR dosimeters		/		
20	Pr, disposable booties		/		
4	Pr, disposable coveralls		/		
20	Pr, disposable surgeons gloves		/		
2	5' x 8' Herculite fabric		/		
1	Set Body maps		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

OFFSITE AMBULANCE EMERGENCY KIT
(Security Bldg.)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Nylon tote bag		/		
20	Pr., disposable booties		/		
4	Pr., disposable coveralls		/		
20	Pr., disposable gloves		/		
2	5' x 8' Herculite fabric		/		
1	Set, body maps		/		

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

OFFSITE SURVEY TEAM EMERGENCY KIT A (SERVICE BUILDING)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable GM Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	DC powered air sampler		/		
2	A/S Heads		/		
1	Particulate A/S filters (box)		/		
50	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
2	Respirators		/		
2	Respirator filters		/		
2	SCBAs		/		
1	Aspirator bulb		/		
2	Alarming dosimeters		/		
			/		
2	Noble gas collection chamber (Marinelli beakers)		/		
1	NG pre-filter holder		/		
2	Full sets of disposable P.C.s		/		
1	Smears (box with folders)		/		
1	Clipboards		/		
2	Pads paper, yellow, lined		/		
4	Pens/pencils		/		
50	Plastic bags, various sizes		/		
1	First aid kit		/		
2	Liter plastic bottles		/		
1	Tape, Duct		/		
1	Knife, w/spare blades		/		
1	Tape measure, 6 ft.		/		
1	50cc syringe		/		
1	Potassium Iodide, KI, BTL 14 tabs/BTL		/		
1	Full set, maps		/		
1	Roll of quarters		/		
4	Extremity TLD rings		/		
2	0-200 mR dosimeters		/		
2	0-1R dosimeters		/		
1	Handheld trowel		/		
1	Tweezers, pr.		/		
1	Surgeon's gloves, box		/		
2	Grease pencils		/		

OFFSITE SURVEY TEAM EMERGENCY KIT A (CON'T)
(SERVICE BUILDING)

Kit Seal No. _____

Comments:

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Performed by: _____

Signature Date

OFFSITE SURVEY TEAM EMERGENCY KIT B (SERVICE BUILDING)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable GM Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	DC powered air sampler		/		
2	A/S Heads		/		
1	Particulate A/S filters (box)		/		
50	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
2	Respirators		/		
2	Respirator filters		/		
2	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
2	Noble gas collection chamber (Marinelli beakers)		/		
1	NG pre-filter holder		/		
2	Full sets of disposable P.C.s		/		
1	Smears (box with folders)		/		
1	Clipboards		/		
2	Pads paper, yellow, lined		/		
4	Pens/pencils		/		
50	Plastic bags, various sizes		/		
1	First aid kit		/		
2	Liter plastic bottles		/		
1	Tape, Duct		/		
1	Knife, w/spare blades		/		
1	Tape measure, 6 ft.		/		
1	50cc syringe		/		
1	Potassium Iodide, KI, BTL 14 tabs/BTL		/		
1	Full set, maps		/		
1	Roll of quarters		/		
4	Extremity TLD rings		/		
2	0-200 mR dosimeters		/		
2	0-1R dosimeters		/		
1	Hand-held trowel		/		
1	Tweezer, pr.		/		
1	Surgeon's gloves, box		/		
2	Grease pencils		/		

OFFSITE SURVEY TEAM EMERGENCY KIT B (CON'T)
(SERVICE BUILDING)

Kit Seal No. _____

Comments:

_____

_____

_____

Performed by: _____

Signature Date

OFFSITE SURVEY TEAM EMERGENCY KIT C
(SERVICE BUILDING)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable GM Survey Meter		/		
1	Portable Ion Chamber Survey Meter		/		
1	DC powered air sampler		/		
2	A/S Heads		/		
1	Particulate A/S filters (box)		/		
50	AgX cartridges		/		
50	Charcoal A/S cartridges		/		
2	Respirators		/		
2	Respirator filters		/		
2	SCBAs		/		
1	Aspirator bulbs		/		
2	Alarming dosimeters		/		
2	Noble gas collection chamber (Marinelli beakers)		/		
1	NG pre-filter holder		/		
2	Full sets of disposable P.C.s		/		
1	Smears (box with folders)		/		
1	Clipboards		/		
2	Pads paper, yellow, lined		/		
4	Pens/pencils		/		
50	Plastic bags, various sizes		/		
1	First aid kit		/		
2	Liter plastic bottles		/		
1	Tape, Duct		/		
1	Knife, w/spare blades		/		
1	Tape measure, 6 ft.		/		
1	50cc syringe		/		
1	Potassium Iodide, KI, BTL 14 tabs/BTL		/		
1	Full set, maps		/		
1	Roll of quarters		/		
4	Extremity TLD rings		/		
2	0-200 mR dosimeters		/		
2	0-1R dosimeters		/		
1	Hand-held trowel		/		
1	Tweezer, pr.		/		
1	Surgeon's gloves, box		/		
2	Grease pencils		/		

OFFSITE SURVEY TEAM EMERGENCY KIT C (CON'T)
(SERVICE BUILDING)

Kit Seal No. _____

Comments:

_____

_____

_____

Performed by: _____

Signature Date

EMERGENCY EVACUATION DECONTAMINATION KIT (ANNEX BLDG SECURITY DESK)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Portable Ion Chamber Survey Meter		/		
1	Frisker w/probe (battery operated)		/		
2	5' x 10' Herculite fabric		/		
100	Rad-barrier rope, ft		/		
1	Disposable gloves, box		/		
3	Full set P.C.'s		/		
20	Pr, disposable booties		/		
10	Pr, disposable coveralls		/		
10	Disposable caps		/		
5	Cotton towels		/		
10	Soap, bar		/		
1	Tape, Duct		/		
1	Box, moist towelettes		/		
10	Bags, large		/		
4	Signs w/inserts		/		
1	Shampoo		/		
1	Razor, pk		/		
1	Shave cream		/		
1	Q-tips, pack		/		
1	Hand brush		/		
10	Potassium Iodide, KI, BTL 14 tabs/BTL		/		
1	Roll of quarters		/		
1	Set, body maps		/		
1	50cc syringe		/		

Kit Seal No. _____

Comments:

_____

_____

_____

PV216-000A (8/82)

Performed by: _____

OFFSITE DECONTAMINATION KIT (SERVICE BLDG.)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Herculite, roll		/		
2	5 gal bottles, water		/		
1	Rad rope, roll		/		
4	Rope stanchions		/		
2	Absorbent toweling, rolls		/		
6	Surgeons gloves, box		/		
10	Full sets P.C.'s		/		
5	Sets plastic coveralls		/		
50	Plastic disposable booties, pair		/		
20	Disposable coveralls, pair		/		
20	Disposable caps		/		
12	Cotton towels		/		
2	Cotton glove liners, dozen		/		
2	Soap, package		/		
1	Btl, potassium permanganate		/		
2	Tape, rolls		/		
2	Moist towelettes, box		/		
4	Signs w/inserts		/		
10	Tags, plastic, large		/		
2	Shampoo, btl		/		
12	Razors, disposable		/		
2	Q-tips, pk		/		
1	Hair clippers		/		
4	Shaving cream		/		
4	Buckets/basins		/		
2	4" x 4" gauze, box		/		
4	Brushes, hand		/		
2	Corn meal/Tide, box		/		
3	Rad tape, roll		/		
4	Normal saline, liter btl		/		
1	First aid kit		/		
2	Friskers w/probe (battery operated)		/		
1	Box smears w/folders		/		
10	Potassium Iodide, KI, BTL 14 tabs/BTL		/		
1	Roll of quarters		/		
1	Set, body maps		/		

OFFSITE DECONTAMINATION KIT (SERVICE BLDG.)

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
2	50cc syringe		/		
1	Titanium oxide powder, btl		/		
1	ETDA, btl		/		
1	Citric acid powder, btl		/		
1	Sodium bisulfate, btl		/		
1	Carboxymethyl cellulose ether, btl		/		
2	Vaseline hand lotion, btl		/		
2	Clorox bleach, qt.		/		
1	Waterless hand cleaner, can		/		

Kit Seal No. _____

Comments:

/

_____

_____

_____

Performed by: _____

Signature Date

UNIT FIRST AID SUPPLY INVENTORY

		INST. NO.	DATE/INITIALS	CALIBRATION DUE DATE	BATTERY RECHARGE/ REPLACEMENT
1	Stretcher (Orthopedic)		/		
1	Stethoscope		/		
1	Sphygmomanometer		/		
1	Kit Oxygen Emergency		/		
1	Resuscitator Bag		/		
1	Large Airway		/		
1	Medium Airway		/		
1	Set Inflatable Splints		/		
2	Disposable Blankets		/		
1	Pillow		/		
5	Surgical Gloves		/		
1	Scissors		/		
3	Ace Bandages		/		
2	Combine Dressing		/		
1	Cotton balls, bag		/		
1	Cotton tipped applicators bag		/		
2	Eye pads		/		
2	Triangular Bandages		/		
1	3"x3" Gauze pads, pk		/		
2	Adhesive tape		/		
1	Alcohol wipes, bag		/		
1	Phisoderm btl		/		
1	Rubbing Alcohol, btl		/		
1	3M Disposable Hand Brush		/		
10	Merthiolate Swabs		/		

Kit Seal No. _____

Comments:

_____

_____

_____

Performed by: _____

Signature Date

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-39	
EMERGENCY OPERATIONS DIRECTOR (EOD)	REVISION 2	Page 1 of 10

ASSIGNED COPY

PVNGS # 8-913

DEPT. HEAD _____ DATE 6/15/84

PRB/PRG REVIEW _____ DATE 7-6-84

APPROVED BY _____ DATE 7-6-84

EFFECTIVE DATE 07-16-84

DN-7712A/0295A

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APPENDIX

Appendix A - Emergency Operations Director Check List 7

1.0 OBJECTIVE

1.1 To provide instructions for the Emergency Operations Director (EOD) to complete his responsibility for overall command and coordination of the APS onsite and offsite emergency functions.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.1.5 EPIP-15, "Protective Action Guidelines"

2.1.6 EPIP-31, "Recovery"

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. 3

2.2.3 ANSI N45.2.9 - 1974 "Requirements For Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 The Emergency Operations Director shall receive a full briefing from the Emergency Coordinator before declaring the EOF operational. He shall notify the Emergency Coordinator as soon as he assumes overall command and coordination.

3.3 The EOD Log and Checklist shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Emergency Operations Director exercises overall command and coordination of APS emergency operations during an ALERT, or more severe accident once the EOF is operational.

4.1.2 The Assistant Vice President, Nuclear (or his alternate, Manager, Operations) 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 organizations; 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 EOD has the authority to make appropriate exceptions to QA/QC and plant administrative procedures during an ALERT or higher level emergency.

4.1.5 The EOD communicates with the Corporate Emergency Center Director at corporate headquarters and keeps him informed.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation", are being implemented.

4.3 Instructions

4.3.1 After notification, the Assistant Vice President, Nuclear (or his alternate) shall report to the EOF and assume the position of Emergency Operations Director (EOD).

4.3.2 The EOD shall use and periodically review his checklist to assure completion of required tasks and updates. All actions taken by the EOD and information reported to him shall be entered into the EOD Log by the EOD or EOD Stenographer. After event termination, the EOD checklist shall be attached to the EOD Log and retained for the life of the plant.

NOTE

The EOD shall not inform the JENC of downgrading of the emergency classification. The EOD shall coordinate release of this information through the State FOC/TOC so that Protective Action Recommendations may be considered in any release of information to the public.

4.3.3 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-04, 05, or 06.

4.3.4 On a periodic basis and when the emergency class changes, the EOD shall recommend protective actions to state and county agencies in accordance with EPIPs-04, 05, or 06, and EPIP-15, "Protective Action Guidelines".

4.3.5 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.

4.3.6 The EOD shall expeditiously review draft press releases presented to him by the EOF Contact. He shall determine if the release should also be reviewed by the Technical Analysis Coordinator.

4.3.7 The EOD shall direct the Press Release be expeditiously forwarded to the JENC (or CHIC if JENC is not operational) with his approval or comments.

4.3.8 As appropriate, the EOD shall order exceptions to QA/QC and plant adminstrative procedures during an ALERT or higher level emergency. The EOD shall direct the Licensing Coordinator to take note of all exceptions so that they may be properly cleared at a later date.

4.3.9 Within 8 hours following a closeout or reduction in emergency classification (ALERT or more severe classification of emergency) provide written summary to offsite authorities.

4.3.10 Establish recovery organization and assume duties and responsibilities of the Recovery Manager in accordance with EPIP-31, "Recovery".

EMERGENCY OPERATIONS DIRECTOR (OFFSITE) CHECK LIST

POSITION FILLED BY: (1) Assistant Vice-President, Nuclear
(2) Manager, Operations

RESPONSIBILITY: Command and coordinate APS emergency operations. Maintain overall responsibility for APS onsite and offsite emergency functions. Interface between APS and federal/state/ county emergency response agencies. Oversee the communication of plant status updates and radiological release data and the notification of state and local agencies concerning recommended protective actions. Provide administrative, technical, and logistical support to station emergency operations and ensure the continuity of emergency organization resources. Make appropriate exceptions to QA/QC and plant administrative procedures.

IMMEDIATE ACTIONS — TIME/INITIALS

NOTE

All actions listed in the EOD Checklist shall be noted in the EOD Log by the EOD or EOD Stenographer.

1. Report to the EOF upon notification. Upon arrival, sign in on the EOF Staffing Board. ____/____

2. Contact Emergency Coordinator at TSC using Emergency Coordinator/Emergency Operations Director (EC/EOD) line and review:

   (1) Basis for classification of event. ____/____
   (2) Status of plant conditions. ____/____
   (3) Corrective actions being implemented. ____/____
   (4) Status of notifications to other APS offsite staff and offsite emergency management agencies. ____/____

3. Ensure that all the following positions are staffed. As necessary, assign temporary personnel to fill staff positions until primary personnel arrive. ____/____

TIME/INITIALS

(1) Radiological Assessment Coordinator ____/____
(2) Technical Analysis Coordinator ____/____
(3) EOF Contact ____/____
(4) Administrative and Logistics Coordinator ____/____
(5) Logistics Communicator ____/____
(6) Government Liason Engineer ____/____
(7) Security Coordinator ____/____
(8) Status Board Keeper ____/____
(9) TSC Liason Engineer ____/____
(10) Radiological Assessment Communicator ____/____
(11) Dosimetry Clerk ____/____
(12) Licensing Coordinator ____/____
(13) Alternate EOD (to serve as an assistant if needed) ____/____

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

   (1) Adequacy of activation. ____/____
   (2) Ability of assigned personnel to assume their emergency duty roles. ____/____
   (3) Operability of equipment. ____/____

5. Notify the Emergency Coordinator at the TSC using EC/EOD line, the Corporate Emergency Center Director at the CEC using the Executive Private Ringdown circuit and ADES (TOC) using OPS voice circuit Number 1 that:

   (1) EOF is operational ____/____

   (2) Current Plant Status ____/____

   (3) Recommended Protective Actions ____/____

6. Ensure EOF contact notifies the Joint Emergency News Center (JENC) that:

   (1) The EOF is operational. ____/____

   (2) The EOD has assumed control and responsibility for offsite communications. ____/____

*7. As appropriate, make exceptions to QA/QC and plant administrative procedures. ____/____ 2

8. Ensure the following offsite agencies are contacted and notified by the GLE that the EOF is operational and the Emergency Operations Director is in command and has offsite communications responsibilities.

TIME/INITIALS

(1) Arizona Division of Emergency Services (using dedicated voice circuit). ____/____

(2) Arizona Radiation Regulatory Agency (using dedicated voice circuit). ____/____

(3) Maricopa County Dept. of Civil Defense and Emergency Services (using dedicated voice circuit). ____/____

(4) NRC Headquarters (using ENS or alternate, FTS). ____/____

9. Ensure the Followup Emergency Message Form is completed by the GLE in anticipation of next offsite update and recommendation of protective actions. ____/____

10. Provide initial briefing to federal and state staff at EOF.

*11. Brief EOF staff periodically using the EOF Public Address System. _____

12. As necessary, place EOF on recirculation. ____/____

13. If evacuation is ordered, receive from Emergency Coordinator total number of evacuees. _____ Total ____/____

SUBSEQUENT ACTIONS

Notification

*14. Review onsite actions and requirements periodically with the Emergency Coordinator. _____

*15. Communicate with Corporate Emergency Center Director as necessary. _____

*16. Consult with EOF Staff as necessary. _____

17. Repeat steps 8 and 9 periodically as necessary and whenever the emergency class changes. ____/____

(Update No. 2) ____/____
(Update No. 3) ____/____
(Update No. 4) ____/____

TIME/INITIALS

18. Within 8 hours following a closeout or reduction in Emergency Classification provide a written summary to offsite authorities. ____/____

Recovery

19. Do not inform JENC of downgrading, coordinate release of this information through the State EOC/TOC so that protective action recommendations may be considered. 2

20. Consult with Emergency Coordinator, NRC (in EOF), ADES and ARRA (in EOF) 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. ____/____

21. Collect all EOF personnel check lists and logs. ____/____ 2
    (1) Technical Analysis Coordinator
    (2) EOF Contact
    (3) Radiological Assessment Coordinator
    (4) Administrative and Logistics Coordinator

22. Establish Recovery Organization and assume duties and responsibilities of Recovery Manager in accordance with EPIP-31, "Recovery". ____/____

23. Notify affected offsite Emergency Management Organizations using dedicated voice circuit systems that recovery operations are in progress. ____/____

Performed By: _____ Date _____
Signature

---

* Continuing activity.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-40	
ADMINISTRATIVE AND LOGISTICS COORDINATOR (ALC)	REVISION month 5/20/84 r 2	Page 1 of 8

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD O. J. Zeringue DATE 3/22/84

PRB/PRG REVIEW W. E. Clyde DATE 5-14-84

APPROVED BY O. J. Zeringue DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7714A/0295A

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APPENDIX

Appendix A - Administrative and Logistics Coordinator Check List 6

1.0 OBJECTIVE

1.1 To provide instructions to the Administrative and Logistics Coordinator (ALC) for the planning and provision of logistical support to the APS emergency organization. 2

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.1.5 EPIP-33, "Offsite Assistance" 2

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. 3 2

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan. 2

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.

3.3 The ALC Checklist and Logs shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The ALC is located at the EOF and shall 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 shall work with the Emergency Coordinator in implementing EPIP-33, "Offsite Assistance".

4.1.2 The ALC shall provide, at a minimum, the following logistical support:

(1) Provision of needed technical documents.

(2) Provision of any additional communications and analytical equipment.

(3) Provision of additional security support.

(4) Provision of manpower support.

(5) Provision of transportation.

(6) Provision of housing and food needs.

(7) Act as liaison to any reporting support personnel.

(8) Act as liaison with American Nuclear Insurers (until CEC is staffed then this responsibility is transferred to the Corporate Financial Coordinator).

4.1.3 The ALC reports to the EOD.

4.1.4 The ALC directs the activites of the Logistics Communicator, Security Coordinator, and clerical personnel assigned to the EOF.

.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation", are being implemented. 2

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.

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.

4.3.5 Maintain a Log of Actions as necessary. 2

2

ADMINISTRATIVE AND LOGISTICS COORDINATOR CHECK LIST

POSITION FILLED BY: (1) Nuclear Operations Support Supervisor with appropriate training

(2) Other Designated Personnel

RESPONSIBILITY: Calls in offsite resources and plans and provides logistical support for the onsite emergency organization. Logistical support includes provision of needed technical documents, additional communications and analytical equipment, additional security support, manpower support, transportation, housing and food needs. Acts as liaison to reporting support personnel and American Nuclear Insurers.

IMMEDIATE ACTIONS

	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	____/____
2. Receive initial briefing from Emergency Operations Director and establish responsible area.	____/____
3. Ensure that the following equipment is operational:	
(1) SPDS	____/____
(2) CRACS	____/____
(3) EOF RE&M Terminals:	____/____
(4) EOF SIMS Terminal	____/____
4. Ensure that the following positions are staffed and fully briefed:	
(1) Logistics Communicator.	____/____
(2) Security Coordinator.	____/____
5. Check that facilities available to Emergency Response Personnel are adequate.	____/____

ADMINISTRATIVE AND LOGISTICS COORDINATOR
CHECK LIST (Cont.)

Time/Initials

6. Provide readiness briefing to Emergency Operations Director. ____/____

SUBSEQUENT ACTIONS

Offsite Assistance

*7. Contact support organizations (listed in EPIP-33) to obtain necessary technical and/or additional manpower support (assume this function from Emergency Coordinator) using the commercial telephone line (see EPIP-33 for phone numbers). _____

*8. Contact American Nuclear Insurers, using the commercial telephone line and keep ANI informed of situation as necessary (until relieved of this responsibility by the Corporate Financial Coordinator). _____

Logistical Support

*9. Obtain, as necessary, required:

a. Technical documents _____
b. Communication equipment _____
c. Analytical equipment _____
d. Manpower support _____
e. Transportation support _____
f. Housing and food for Emergency Response Personnel _____

*10. Assist Government staff with logistics as necessary. _____

ADMINISTRATIVE AND LOGISTICS COORDINATOR
CHECK LIST (Cont.)

Time/Initials

Recovery

11. Receive check list and associated logs from the Logistics Communicator after emergency is terminated. ____/____

12. Receive check list and associated logs from the Security Director after emergency is terminated. ____/____

13. Submit check list, logs, and other data to Emergency Operations Director when emergency is cancelled. ____/____

Performed by: _____
Signature

Date _____

---

* Continuing Activity

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-41	
RADIOLOGICAL ASSESSMENT COORDINATOR (RAC)	REVISION 2	Page 1 of 8

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD [signature] DATE 3/22/84

PRB/PRG REVIEW [signature: M. L. Clyde] DATE 5-14-84

APPROVED BY [signature] DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7715A/0295A

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APPENDIX

Appendix A - Radiological Assessment Coordinator Check List 6

1.0 OBJECTIVE

2

1.1 This procedure provides instruction for the Radiological Assessment Coordinator (RAC) for monitoring and assessing radiological releases.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.1.5 EPIP-14A, "Release Rate Determination"

2.1.6 EPIP-14B, "Dose Assessment"

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. 3

2.2.3 ANSI N45.2.9 - 1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

2.2.4 EPIP-15, "Protective Action Guidelines"

2

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 within the augmentation time goals set in the PVNGS Emergency Plan.

2

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 Radiological Protection Coordinator (RPC) at the Technical Support Center (TSC) and others] before assuming his responsibilities.

3.3 The RAC checklist and logs shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The RAC is the principal liaison of the PVNGS emergency response organization with the Technical Operations Center at the State EOC.

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 shall provide the State of Arizona Representative in the EOF with local meteorological data, APS field monitoring team data and dose rate projections and other data as required.

4.1.4 Provide direction to the Radiological Assessment Communicator.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP 06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation" are being implemented.

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.

4.3.2 The RAC shall contact the EOD and receive an initial briefing.

4.3.3 The RAC shall complete the designated check list (Appendix A) and report readiness status to the EOD.

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 provide the State of Arizona Representative in the EOF with Local Meteorological Data, Field Monitoring Team data, dose rate projections and other data as required.

4.3.8 Maintain a Log of Actions as necessary. 2

RADIOLOGICAL ASSESSMENT COORDINATOR CHECK LIST

POSITION FILLED BY: (1) PVNGS Radiation Protection & Chemistry Manager
(2) OTHER DESIGNATED PERSONNEL

RESPONSIBILITY: Principal liaison of the PVNGS emergency response organization with the Radiological Technical Directorate. Receive and evaluate dose rate projection information from the Radiological Protection Coordinator. Advise the Emergency Operations Director of protective action recommendations to be provided to offsite authorities. Coordinate offsite monitoring efforts. Direct the Radiological Assessment Communicator.

IMMEDIATE ACTIONS		TIME/INITIALS
1.	Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	/
2.	Receive initial briefing from Emergency Operations Director and establish responsible area.	/
3.	Ensure that the Radiological Assessment Communicator's position is staffed and fully briefed and that communication systems are operational.	/
*4.	Access CRACS to receive current dose projection data. (If CRACS is available)	
5.	Ensure Operational Status of Dose Calculation Computer	/
6.	Ensure that the following materials needed to perform manual dose assessments are available:	
	(1) EPIP-14A and 14B	/
	(2) Isopleths	/
	(3) Base Map	/

* Continuing Activity

RADIOLOGICAL ASSESSMENT COORDINATOR
CHECK LIST

TIME/ INITIALS

7. Contact the Radiological Protection Coordinator at TSC using the Environmental assessment line at [redacted] and determine:

*(1) Extent and consequence of radiological releases and plant conditions. ____/____
(2) Protective action recommendations made to date. ____/____
(3) Potential for future radiological releases. ____/____
*(4) Location of onsite and offsite field monitoring teams, when dispatched. ____

SUBSEQUENT ACTIONS

Dose Rate Projections

8. Analyze source term, meteorological and field monitoring data to determine reasonableness and consistency of data with dose projections used as basis for protective actions. ____/____

*9. Evaluate plant conditions to determine probability and magnitude of possible emission increases. ____

*10. Ensure Radiological Status Boards are updated as information becomes available. ____

Protective Actions

*11. Advise the Emergency Operations Director as to the need for protective actions. ____

*12. Provide updates to State of Arizona Representative concerning Protective Actions. ____

Field Monitoring

*13. Provide updates to the ARRA State Representative as necessary. ____/____

RADIOLOGICAL ASSESSMENT COORDINATOR
CHECK LIST

TIME/INITIALS

Recovery

14. Receive checklist and associated logs from the Radiological Assessment Communicator after emergency is terminated. ____/____

15. Receive checklist and associated logs from the dosimetry clerk after Emergency is teminated. ____/____

16. Submit check list, logs and other data to Emergency Operations Director when emergency is cancelled. ____/____

Performed By: _____
Signature

Date _____

* Continuing Activity

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE -	PROCEDURE NO. EPIP-42	
TECHNICAL ANALYSIS COORDINATOR (TAC)	REVISION 2	Page 1 of 7

ASSIGNED COPY

PVNGS SM # 8-98

DEPT. HEAD [signature] DATE 5/22/89

PRB/PRG REVIEW [signature] DATE 5-14-84

APPROVED BY [signature] DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7733A/0295A

PV216-000A (8/82)

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APPENDIX

Appendix A - Technical Analysis Coordinator Check List 6

1.0 OBJECTIVE

2

1.1 This procedure provides instructions for the guidance to be given on the impact of plant status to offsite emergency response actions.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation" 2

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

2.2.2 PVNGS Emergency Plan, Rev. 3

2.2.3 ANSI N45.2.9 - 1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

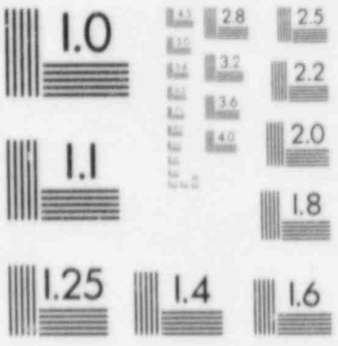
3.0 LIMITATIONS AND PRECAUTIONS

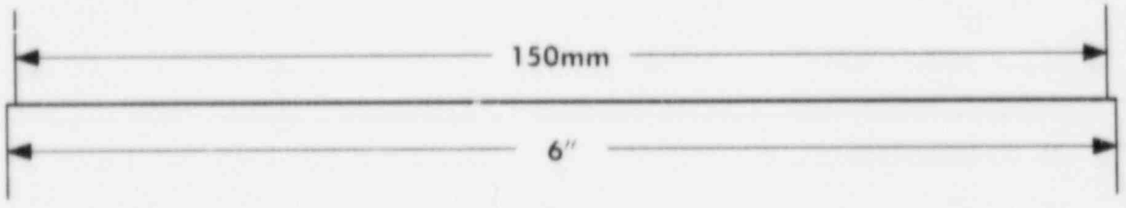
3.1 Upon notification, the designated TAC shall report to the Emergency Operations Facility (EOF) and achieve full functional operation within the augmentation time goals set forth in the PVNGS Emergency Plan. 2

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.

3.3 The TAC checklist and logs shall be retained for the life of the plant. 2

IMAGE EVALUATION
TEST TARGET (MT-3)





4.0 DETAILED PROCEDURE

2

4.1 Personal Indoctrination/Responsibilities

4.1.1 The TAC is the primary interface with NRC and state/county personel stationed in the EOF and provides updates on the status of the reactor and unit.

4.1.2 The TAC reports to the Emergency Operations Director (EOD).

4.1.3 The Government Liaison Engineer (GLE) and the TSC Liaison Engineer (TLE) report directly to the TAC. The Technical Advisor (at the Joint Emergency News Center) 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, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation", are being implemented. 2

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.

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 check list in Appendix A.

4.3.4 The TAC shall supervise the TSC Liaison Engineer in maintaining contact with the TSC and Architect-Engineer.

4.3.5 The TAC shall supervise the JENC 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.

4.3.7 The TAC shall inform the Offsite Technical Representative of plant status and supervise the OTR's activities as necessary.

4.3.8 Maintain a Log of Actions as required.

TECHNICAL ANALYSIS COORDINATOR (OFFSITE)
CHECK LIST

POSITION FILLED BY: (1) Designated person from Independent Safety Engineering Group (ISEG)

(2) Other Designated Personnel

RESPONSIBILITY: Function as the primary interface with NRC/state/county personnel stationed in the EOF. Provide updates on the status of the reactor and unit. Supervise the JENC Technical Advisor GLE, TLE, and OTR.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	/
2. Receive initial briefing from Emergency Operations Director and establish responsible area.	/
3. Ensure that the following positions are staffed and fully briefed:	
(1) Government Liaison Engineer.	/
(2) TSC Liaison Engineer.	/
(3) Offsite Technical Representative.	/
(4) JENC Technical Advisor	/
*4. Obtain information on plant status from TSC using the TSC line or normal phone line [redacted]	
*5. Brief Emergency Operations Director on operational status.	

* Continuing Activity

TECHNICAL ANALYSIS COORDINATOR (OFFSITE)
CHECK LIST (Cont.)

SUBSEQUENT ACTIONS	TIME/INITIALS
Technical Guidance	
*6. Provide Emergency Operations Director with technical guidance on how plant status may impact offsite emergency response actions.	_____
*7. Supervise TSC Liaison Engineer in maintaining contact with TSC and Architect Engineer.	_____
8. Receive reports on technical changes and recommendations from TSC Liaison Engineer.	____/____
Government Staffing at EOF	
*9. Provide updates to NRC, state, and county personnel as necessary on the status of the reactor and unit; assisted by Government Liaison Engineer.	_____
Public Information	
*10. Verify the technical accuracy and adequacy of all public information releases prior to dissemination to the news media.	_____
*11. Supervise JENC Technical Advisor informing the JENC Co-Director: APS of plant status.	_____

TECHNICAL ANALYSIS COORDINATOR (OFFSITE)
CHECK LIST (Cont.)

SUBSEQUENT ACTIONS — TIME/INITIALS

Recovery

12. Receive check list and associated logs after emergency is terminated from
    a) Government Liaison Engineer
    b) Offsite Technical Representative
    c) JENC Technical Advisor
    d) TSC Liaison Engineer ____/____

13. Submit check list, logs and other data to Emergency Operations Director when emergency is cancelled. ____/____

Performed By _____
Signature

Date _____

* Continuing Activity

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-43	
RADIOLOGICAL ASSESSMENT COMMUNICATOR (RACom)	REVISION 2	Page 1 of 7

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PVNGS SM # 8-98

DEPT. HEAD O R Zimmerman DATE 3/29/84

PRB/PRG REVIEW M L Clyde DATE 5-14-84

APPROVED BY O R Zimmerman DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7734A/0295A

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	4.3	Instructions	5

APPENDIX

Appendix A - Radiological Assessment Communicator Check List 6

1.0 OBJECTIVE

1.1 This procedure provides instructions to the Radiological Assessment Communicator (RACom) for maintaining communications regarding radiological assessment.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility 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. 3.

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 The RACom shall contact the Radiological Assessment Coordinator and receive an initial briefing.

3.3 The RACom check list and records shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The RACom maintains a record 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 the Radiological Assessment Coordinator (RAC).

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04 "ALERT Implementing Actions", EPIP-05 "SITE AREA EMERGENCY Implementing Actions", or EPIP-06 "GENERAL EMERGENCY Implementing Actions" and EPIP-13 "Emergency Operations Facility Activation", are being implemented. 2

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.

4.3.2 Upon arrival at the EOF the RACom shall report to the RAC and receive initial briefing.

4.3.3 The RACom shall determine operability of communications circuits (normal phone, dedicated voice circuits, Environmental Assessment 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 monitor the Radiological Field Team communications and plot reported dose rates and various team locations as an aid in plume tracking for the Radiological Assessment Coordinator. 1

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.

4.3.6 The RACom shall complete the check list in Appendix A.

4.3.7 Maintain an Action Log as required.

4.3.8 Perform Dose Assessmert Calculations as directed by the Radiological Assessment Coordinator.

4.3.9 Brief State Representative as directed by Radiological Assessment Coordinator.

RADIOLOGICAL ASSESSMENT COMMUNICATOR CHECK LIST

POSITION FILLED BY: (1) Designated person from Radiation Protection Section with appropriate training.

(2) Other Designated Personnel

RESPONSIBILITY: Maintain a record of matters pertaining to radiological assessment. Maintain communications with radiological assessment personnel at the TSC and STSC.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	____/____
2. Obtain initial briefing from Radiological Assessment Coordinator and establish responsible area.	____/____
3. Determine operability of following communications circuits:	
(1) Normal phone	____/____
(2) Dedicated voice circuits	____/____
(3) Environmental assessment line	____/____
(4) Base station radio	____/____
4. Report inoperable circuits to Radiological Assessment Coordinator and Administrative and Logistics Coordinator.	____/____
*5. Establish and maintain communications with TSC and STSC Radiological Assessment personnel using the normal PBX phone line.	_____

* Continuing Activity

RADIOLOGICAL ASSESSMENT COMMUNICATOR
CHECK LIST (Continued)

SUBSEQUENT ACTIONS — Time/Initials

Radiological Assessment

*6 Plot reported dose rates and various team locations as an aid in plume tracking. ____/____

*7. Inform the Radiological Assessment Coordinator of changes in radiological status. ____/____

*8. Maintain records of communications concerning radiological assessment. ____/____

Recovery

9. Submit check list and logs to Radiological Assessment Coordinator when emergency is cancelled. ____/____

Performed By _____
Signature

Date _____

* Continuing Activity

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-44	
TSC LIAISON ENGINEER (TLE)	REVISION 2	Page 1 of 6

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PVNGS SM # 8-9B

DEPT. HEAD O.J. Zeringue DATE 7/23/84

PRB/PRG REVIEW O.J. Zeringue DATE 7/24/84

APPROVED BY O.J. Zeringue DATE 7/24/84

EFFECTIVE DATE 7.31.84

DN-7746A/0295A

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APPENDIX

Appendix A - TSC Liaison Engineer Check List	5

1.0 OBJECTIVE

2

1.1 To provide instuctions for monitoring plant system data and coordinating the activities of other emergency organization members by the TSC Liaison Engineer (TLE).

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implemerting Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-11, Technical Support Center/Satellite TSC Activation"

2.1.5 EPIP-13, "Emergency Operations Facility Activation" 2

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. 3. 2

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 The TLE shall contact the Technical Analysis Coordinator and receive an initial briefing.

3.3 The TLE check list and logs shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

2

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The TLE monitors plant system data via SPDS and CRACS and maintains voice communication with the Technical Analysis Coordinator in the TSC.

4.1.2 The TLE maintains communication with the Architect-Engineer concerning technical status and recommendations as required.

4.1.3 The TLE reports to the Technical Analysis Coordinator (TAC).

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04 "ALERT Implementing Actions", EPIP-05 "SITE AREA EMERGENCY Implementing Actions", or EPIP-06 "GENERAL EMERGENCY Implementing Actions" and EPIP-13 "Emergency Operations Facility Activation", are being implemented. 2

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 to the EOF.

4.3.2 The TLE shall contact the TAC and receive an initial briefing.

4.3.3 The TLE shall ensure the Status Board Keeper position is staffed and provide updates as necessary. 2

4.3.4 The TLE shall keep the TAC informed of proposed recommendations and significant changes in plant status.

4.3.5 The TLE shall complete the check list in Appendix A.

TSC LIAISON ENGINEER
CHECK LIST

POSITION FILLED BY: (1) Designated person from Technical Support Department with appropriate training

(2) Other Designated Personnel

RESPONSIBILITY: Monitor plant system data via SPDS, CRACS, and voice communication with the Technical Analysis Cooridinator in the TSC. Maintain liaision with Architect-Engineer concerning technical status and recommendations for corrective action.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board. ___/___

2. Receive initial briefing from Technical Analysis Coordinator and establish responsible area. ___/___

*3. Ensure that the Status Board Keeper position is staffed and provide status board updates as necessary. _____

*4. Contact the TSC using the dedicated phone line at [redacted] and obtain operational status of unit. _____

*5. Monitor plant systems data via SPDS and CRACS. _____

SUBSEQUENT ACTIONS

Corrective Actions

*6. Maintain communication with Architect-Engineer, NSSS Supplier and required vendor personnel concerning plant status and recommendations for corrective action. _____

*7. Inform Technical Analysis Coordinator of proposed recommendations and of significant changes in plant status. _____

* Continuing Activity.

TSC LIAISON ENGINEER
CHECK LIST (Continued)

Recovery

		TIME/INITIALS
8.	Submit check list, logs and status board update sheets to Technical Analysis Coordinator when emergency is cancelled.	/

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-45	
GOVERNMENT LIASION ENGINEER (GLE)	REVISION 2	Page 1 of 7

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD O. K Zeringue DATE 3/22/84

PRB/PRG REVIEW M L Clyde DATE 5-11-84

APPROVEL BY O K Zeringue DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7753A/0295A

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4.3	Instructions	4

APPENDIX

Appendix A - Government Liaison Engineer Check List 6

1.0 OBJECTIVE

1.1 To provide instructions for the notification and communication process to off-site emergency management agencies by the Government Liaison Engineer (GLE). 2

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation" 2

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, Rev. 3. 2

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan. 2

3.2 The GLE shall contact the Technical Analysis Coordinator and receive an initial briefing.

3.3 The GLE check list and logs shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The GLE is the primary communication interface with NRC, state and county governmental agencies.

4.1.2 Until an NRC representative relieves the GLE, the GLE maintains communications with the NRC (Region V and Bethesda, Maryland).

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).

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and EPIP-04 "ALERT Implementing Actions", EPIP-05 "SITE AREA EMERGENCY Implementing Actions", or EPIP-06 "GENERAL EMERGENCY Implementing Actions" and EPIP-13, "Emergency Operations Facility Activation", are being implemented.

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.

4.3.2 Upon arriving at the EOF, the GLE shall establish his responsible area.

4.3.3 The GLE shall obtain a briefing on the current status of the plant and emergency from the TAC.

4.3.4 The GLE shall complete the check list in Appendix A.

4.3.5 The GLE shall maintain contact with the NRC until an NRC representative arrives.

4.3.6 The GLE shall make notifications to NRC, state and local agencies whenever a change in emergency classification is made per EPIP-04, EPIP-05 or EPIP-06. 2

4.3.7 The GLE shall assist the TAC with briefings of Federal and State staff located at the EOF.

4.3.8 Maintain a Log of Actions as required. 2

GOVERNMENT LIAISON ENGINEER
CHECK LIST

2

POSITION FILLED BY: (1) Designated person from Nuclear Engineering or Licensing Department with appropriate training.

(2) Other Designated Personnel

RESPONSIBILITY: Relieve STSC Communicator of responsibility of making initial and subsequent notifications of changes in emergency classification to Federal, State and County Agencies. Maintain communications with Nuclear Regulatory Commission (NRC) until relieved by NRC Representative. Assist Technical Analysis Coordinator with briefings of Government staff at EOF.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival sign in on the EOF Staffing Board.	____/____
2. Establish responsible area.	____/____
3. Receive initial briefing from Technical Analysis Coordinator.	____/____
4. Inform the STSC Communicator, using the normal phone line [redacted] - ext. [redacted] III - [redacted] that you are on station and assume the responsibility for offsite notifications of changes in emergency classification.	____/____
*5. Establish and maintain communications with offsite agencies, per EPIP-04, EPIP-05, or EPIP-06 and using Voice Circuit #4.	_____ 2
*6. Establish and maintain communications with the NRC (Region V and Bethesda, Maryland) using ENS Line until relieved by a designated NRC representative.	_____
*7. Maintain log of communications per EPIP-04, EPIP-05, or EPIP-06.	_____ 2

IMMEDIATE ACTIONS (Cont'd)

TIME/INITIALS

8. Notify the FAA using commercial phone lines as necessary ____/____

9. Notify the National Transportation Board using commercial phone lines as necessary. ____/____

SUBSEQUENT ACTIONS

Government Staffing at EOF

*10. Assist Technical Analysis Coordinator with briefings of Government staff at EOF, as necessary. _____

Recovery

11. Submit check list, logs, and other data to Technical Analysis Coordinator when emergency is cancelled. ____/____

Performed By: _____
Signature

Date _____

* Continuing Activity.

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-46	
EOF CONTACT	REVISION 2	Page 1 of 6

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PVNGS SM # 8-9B

DEPT. HEAD ____________ DATE 3/22/84

PRB/PRG REVIEW ____________ DATE 5-14-84

APPROVED BY ____________ DATE 5/11/84

EFFECTIVE DATE 5-30-84

DN-7734A/0295A

PV216-00DA (8/82)

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APPENDIX

Appendix A - EOF Contact Check List	5

1.0 OBJECTIVE

1.1 To provide instructions to the EOF Contact for gathering necessary information for subsequent release to the media. 2

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation" 2

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. 3. 2

2.2.3 Joint Public Information Procedures, Rev. 0.

2.2.4 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants. 2

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Upon notification, the designated EOF Contact shall report to the Emergency Operations Facility and achieve full functional operation within the augmentation time goals set forth in The PVNGS Emergency Plan.

3.2 The EOF Contact shall contact the Emergency Operations Director (EOD) and receive a briefing on the emergency status.

3.3 THE EOF Contact checklist and logs shall be retained for the life of the plant. 3

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The EOF Contact is assigned to the EOF and gathers necessary information to relay to the JENC Co-Director:APS for subsequent release to the media. 2

4.1.2 The JENC Co-Director: APS prepares news releases on the basis of information provided by the EOF Contact. 2

4.1.3 The EOF contact reports to the Emergency Operations Director and interfaces with the JENC Co-Director: APS. 2

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation", are being implemented. 2

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.

4.3.2 The EOF Contact shall contact the Emergency Operations Director and receive an initial briefing.

4.3.3 The EOF Contact shall establish and maintain contact with the CHIC Director until the Joint ENC is activated. 2

4.3.4 The EOF Contact shall complete the check list in Appendix A and provide continuing support to the Emergency Operations Director and the JENC Co-Director: APS. 2

4.3.5 The EOF Contact shall assure that press releases are reviewed expeditiously at the EOF by the Emergency Operations Director and the Technical Analysis Coordinator, if the Emergency Operations Director so desires it.

4.3.6 Maintain an action log as required. 2

EOF CONTACT CHECK LIST

POSITION FILLED BY: (1) PVNGS Training Department Individual with Appropriate EOF Contact Training

(2) Other Designated Personnel

RESPONSIBILITY: Report significant changes in plant status to JENC Co-Director: APS for subsequent release to media. Maintain close contact with JENC Co-Director: APS.

IMMEDIATE ACTIONS

	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	____/____
2. Receive initial briefing from Emergency Operations Director.	____/____
*3. Establish and maintain communications with the CHIC Director until the Joint ENC is activated.	_____
*4. Establish and maintain communications with the JENC Co-Director: APS at the Joint Emergency News Center using the Public Information Ringdown Phone Circuit #1.	_____
5. Report readiness to Emergency Operations Director.	____/____

SUBSEQUENT ACTIONS

Public Information

*6. Maintain continuous contact with JENC Co-Director: APS using the Public Information Ringdown Phone Circuit #1.	_____

* Continuing Activity

EOF CONTACT CHECK LIST	TIME/INITIALS
*7. Assure that press releases are reviewed expeditiously at the EOF by the Emergency Operations Director (EOD).	_____
8. Submit check list, logs and other data to EOD when emergency is cancelled.	____/____

* Continuing Activity

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-47	
LOGISTICS COMMUNICATOR	REVISION 2	Page 1 of 5

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PVNGS SM # 8-9B

DEPT. HEAD O-M Brueggen DATE 3/22/84

PRB/PRG REVIEW W. F. Clyde DATE 5-1A-84

APPROVED BY C. Brueggen DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7755A/0295A

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APPENDIX

Appendix A - Logistics Communicator Check List 5

1.0 OBJECTIVE

1.1 This procedure provides instructions to the Logistics Communicator for providing assistance to the Administrative and Logistics Coordinator. 2

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.1.5 EPIP-33, "Offsite Assistance" 2

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. 3 2

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants."

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 within the augmentation time goals set forth in The PVNGS Emergency Plan. 2

3.2 The Logistics Communicator shall contact the Administrative and Logistics Coordinator and receive an initial briefing.

3.3 The Logistics Communicator checklist and logs shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

2

4.1.1 The Logistics Communicator is assigned to the EOF and assists the Administrative and Logistics Coordinator as necessary.

4.1.2 The Logistics Coordinator maintains a record of logistic support that is required and that has been obtained.

4.1.3 The Logistics Communicator reports to the Administrative and Logistics Coordinator.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions" or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation" are being implemented. 2

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.

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 check list in Appendix A and provide continuing support to the Administrative and Logistics Coordinator.

4.3.4 Maintain an Action Log as required. 2

LOGISTICS COMMUNICATOR CHECK LIST

POSITION FILLED BY: (1) Designated person from Materials Control Section with appropriate training

(2) Other Designated Personnel

RESPONSIBILITY: Maintain record of logistics support needed and obtained. Contact offsite support organizations to obtain needed support at direction of Administrative and Logistics Coordinator.

IMMEDIATE ACTIONS	TIME/INITIALS
1. Report to the EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	/
2. Receive initial briefing from the Administrative and Logistics Coordinator. Establish responsible area.	/
3. Ensure all EOF communications equipment is operational with assistance of Radiological Assessment Communicator.	/
4. Synchronize EOF clocks with affected unit control room clock.	/
5. Establish and maintain a record of logistic support obtained and required.	/
6. Report readiness to Administrative and Logistics Coordinator.	/

SUBSEQUENT ACTIONS

Offsite Assistance

7. Contact offsite support organizations per EPIP-33, "Offsite Assistance", at direction of Administrative and Logistics Coordinator.	/

Recovery

8. Submit check list and records to Administrative and Logistics Coordinator upon cancellation of emergency.	/

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-48	
SECURITY COORDINATOR	REVISION 2	Page 1 of 5

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PVNGS SM # 8-9B

DEPT. HEAD [signature] DATE 3/22/84

PRB/PRG REVIEW [signature] DATE 5-14-84

APPROVED BY [signature] DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7756A/0295A

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APPENDIX

Appendix A - Security Coordinator Check List 5

1.0 OBJECTIVE

1.1 To provide instructions to the Security Coordinator for processing personnel necessary for site support prior to site entry.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility Activation"

2.1.5 EPIP-24, "Security"

2.1.6 Security Plan Implementing Procedures 2

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. 3 2

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants."

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 within the augmentation time goals set forth in The PVNGS Emergency Plan. 2

3.2 The Security Coordinator shall contact the Administrative and Logistics Coordinator and receive an initial briefing.

3.3 The Security Coordinator checklist and logs shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

2

4.1 Personnel Indoctrination/Responsibilities

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.

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Activation", are being implemented. 2

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.

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 check list in Appendix A and provide continuing support to the Administrative and Logistics Coordinator.

4.3.4 Maintain an Action Log as required. 2

SECURITY COORDINATOR CHECK LIST

POSITION FILLED BY: (1) Designated person from Security Department with appropriate training. 2

(2) Other Designated Personnel

RESPONSIBILITY: Maintain communications with Security Director regarding offsite personnel required onsite. Process personnel necessary for site support prior to site entry.

IMMEDIATE ACTIONS:

	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	___/___
2. Receive initial briefing from Administrative and Logistics Coordinator and establish responsible area.	___/___
3. Contact Security Director at TSC using the normal phone at [redacted] or alternate (the security radio frequency) to determine present site access conditions.	___/___
4. Inform the Administrative and Logistics Coordinator of site security conditions and report readiness.	___/___

SUBSEQUENT ACTIONS:

Security/Site Access

5. Inform the Security Director at TSC using the normal phone or alternate (the security radio frequency), of offsite personnel required onsite to expedite badging process.	___/___
*6. Maintain communications with the Security Director at TSC using the normal phone line regarding personnel granted access to site.	_____
*7. Process personnel necessary for site support prior to site entry per appropriate security procedures. 2	_____

Recovery

8. Submit check list and logs to the Administrative and Logistics Coordinator upon cancellation of emergency.	___/___

Performed By _____ Date _____

* Continuing Activity

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE -	PROCEDURE NO. EPIP-49	
DOSIMETRY CLERK	REVISION 2	Page 1 of 6

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PVNGS SM # 8-9B

DEPT. HEAD O. K. Bumgarner DATE 3/29/84

PRB/PRG REVIEW R. L. Clyde DATE 5-12-84

APPROVED BY O. K. Bumgarner DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-7759A/0295A

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APPENDIX

Appendix A -	Dosimetry Clerk Check List	5

1.0 OBJECTIVE

1.1 To provide instructions to the Dosimetry Clerk for conducting habitablity surveys, 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-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility 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. 3

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants".

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 within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 The Dosimetry Clerk shall contact the Radiological Assessment Coordinator to receive an initial briefing on the emergency status.

3.3 The Dosimetry Clerk Checklist and Logs shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Dosimetry Clerk is assigned to the EOF and provides, as necessary, proper dosimetry and TLDs to EOF personnel, support personnel reporting for site assignment, and site personnel. He shall also perform habitability surveys of the EOF as required. 2

4.1.2 The Dosimetry Clerk reports to the Radiological Assessment Coordinator. 2

4.2 Prerequisites

4.2.1 An ALERT or more severe level emergency has been declared and procedures EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions" or EPIP-06, "GENERAL EMERGENCY Implementing Actions" and EPIP-13, "Emergency Operations Facility Activation" are being implemented. 2

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.

4.3.2 The Dosimetry Clerk shall contact the Radiological Assessment Coordinator and receive an initial briefing.

4.3.3 As required, the Dosimetry Clerk shall perform habitability surveys of the EOF. Habitability surveys include Beta/Gamma dose rate measurements and samples for airborne activity. 2

4.3.4 The Dosimetry Clerk shall complete the designated check list in Appendix A and provide continuing support to the Radiological Assessment Coordinator.

4.3.5 Maintain an action log as required.

DOSIMETRY CLERK
CHECK LIST

POSITION FILLED BY: (1) Designated person from Radiation Protection Section with appropriate training

(2) Other Designated Personnel

REPONSIBILITY: Provide proper dosimetry and TLDs, as necessary, to EOF personnel, support personnel reporting to site assignment, and site personnel. Maintain dosimetry issuance records. Perform habitability surveys of the EOF.

IMMEDIATE ACTIONS:

		TIME/INITIALS
1.	Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	/
2.	Receive initial briefing from the Radiological Assessment Coordinator and establish responsible area.	/
3.	Obtain emergency dosimetry from EOF emergency locker in preparation for distribution.	/
4.	Report readiness to the Radiological Assessment Coordinator.	/

SUBSEQUENT ACTIONS:

5.	Provide dosimetry and TLDs, as necessary, to the following:	
	(1) EOF personnel.	/
	(2) Support personnel reporting for site assignment.	/
	(3) Site personnel.	/
*6.	Maintain dosimetry issuance records.	
*7.	Report need for additional dosimetry to the Radiological Assessment Coordinator.	
*8.	As required perform habitability surveys of the EOF.	

* Continuing Activities

DOSIMETRY CLERK
CHECK LIST (Cont'd)

SUBSEQUENT ACTIONS:	TIME/INITIALS
9. Submit check list and dosimetry issuance records to the Radiological Assessment Coordinator upon cancellation of emergency.	____/____

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-50	
STATUS BOARD KEEPER (SBK)	REVISION 2	Page 1 of 12

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PVNGS SM # 8-9B

DEPT. HEAD D. P. Bourque DATE 3/22/84

PRB/PRG REVIEW F M L Clyde DATE 5-14-84

APPROVED BY D. P. Bourque DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3847A/0295A

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1.0 OBJECTIVE

1.1 Provides instructions to the Status Board Keeper (SBK) for the maintenance of status boards in the EOF.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility 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. 3

2.2.3 ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants."

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 within the augmentation time goals set forth in The PVNGS Emergency Plan.

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.

3.3 The Status Board Keeper Checklist shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Status Board Keeper maintains a record on the EOF status boards of emergency actions taken by the APS emergency organization and records the status of the emergency on a continual basis.

4.1.2 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, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions" or EPIP-06, "GENERAL EMERGENCY Implementing Actions" and EPIP-13, "Emergency Operations Facility Activation" are being implemented.

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.

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 checklist (Appendix A) as soon as possible.

4.3.4 The Status Board Keeper shall maintain and update as required the Status Boards shown in Appendices B-H.

4.3.4.1 All information shall be approved by the TSC Liaison Engineer or the Radiological Assessment Coordinator as appropriate, prior to being posted.

4.3.4.2 Since verbal updates cannot be verified later as to their source nor accuracy, they shall not be used to update Status Boards.

STATUS BOARD KEEPER
CHECK LIST

POSITION FILLED BY: (1) Designated person with appropriate training.

RESPONSIBILITY: Maintain record of emergency actions taken by APS Emergency Organization on Status Board. Record status of emergency.

IMMEDIATE ACTIONS:

	TIME/INITIALS
1. Report to EOF upon notification. Upon arrival, sign in on the EOF Staffing Board.	____/____
2. Receive briefing from TSC Liaison Engineer and establish responsible area.	____/____
3. Report readiness to TSC Liaison Engineer.	____/____

SUBSEQUENT ACTIONS:

Status Board

*5. Record status of emergency as expressed by TSC Liaison Engineer or Radiological Assessment Coordinator.	____/____

Recovery

6. Submit check list to TSC Liaison Engineer upon cancellation of emergency.	____/____

Performed By _____
Signature

Date _____

* Continuing activity

STATUS BOARD KEEPER (SBK)

EVENT STATUS

UNIT: _____ **EMERGENCY CLASS:** _____ **TIME:** _____

Time: _____ **Date:** _____

R_X Coolant System

- Avg. Temp. T_H _____ °F T_C _____ °F
- Pzr. Pressure _____ PSIG
- Pzr. Level _____ %
- R_X Vessel Level _____ %
- Subcool Margin _____ °F
- Boron _____ PPM

Time: _____ **Date:** _____

Containment

- Pressure _____ PSIG
- Temperature _____ °F
- Humidity _____ %
- Radiation Level _____ R/hr.
- Where _____
- Activity _____ µCi/cc
- Recirc. Sump Level _____ ft.
- Isolation Status _____
- Cont. Spray A B

Time: _____ **Date:** _____

Met. Data

- Wind Speed _____ mph
- Wind Direction (from) _____ °true
- Stability Class. _____
- Precipitation _____ in./24 hrs.
- Forecast _____

Inoperable Equipment

	Time	Date

Time: _____ **Date:** _____

Make-Up

- Total SI Flow _____ GPM
- RWT Level _____ ft.

Pumps Available:

- LPSI A B
- HPSI A B
- Charging 1 2 3

Time: _____ **Date:** _____

Heat Removal

- Reactor Coolant Pumps 1A 1B 2A 2B
- S/D Cooling Train A B
- Steam Generator Level, %WR 1 2
- Aux. Feed Water to SG, GPM 1 2
- Aux. Feed Water Pumps Running A B N
- Condensate Storage Tank Level _____

STATUS BOARD KEEPER (SBK)

PLANT STATUS

DATE: _____ **TIME:** _____ **UNIT:** _____

R_X Power _____ CPM Trend _____ Boron Conc. _____ PPM
CEA Status _____
RCS Press. _____ PSIA Trend _____ Subcooled Margin _____ Trend _____ °F

RCS Temps.: Loop 1 T_H _____ °F T_{CA} _____ °F T_{CB} _____ °F
Loop 2 T_H _____ °F T_{CA} _____ °F T_{CB} _____ °F

PZR Level _____ % R_XVL _____ Core Exit TC: Highest _____ °F AVG _____ °F
CHRG Pumps Operating _____ RCP's Operating _____
RCS Activity Sample _____ µCi/gm RCS Rad. Mon. _____ µCi/gm

SG1 Level _____ %WR Press. _____ PSIG ISOL/SBCS ATMOS Dump
Activity _____ µCi/gm AFW Flow _____ GPM
SG2 Level _____ %WR Press. _____ PSIG ISOL/SBCS ATMOS Dump
Activity _____ µCi/gm AFW Flow _____ GPM

SI: SDC _____ Cold Leg Inj. _____ RAS _____ Hot/Cold Inj. _____
HPSI Cold Leg Flow GPM 1A _____ 1B _____ 2A _____ 2B _____
HPSI Hot Leg Flow GPM 1 _____ 2 _____
LPSI Cold Leg Flow GPM 1 _____ 2 _____

SITS(Level/Outlet Valve) 1A ___/___ 1B ___/___ 2A ___/___ 2B ___/___

CTMT: Press. _____ PSIG Temp. _____ °F Temp. Trend _____ °F/HR
CIAS _____ Yes/No CSAS _____ Yes/No Total CS Flow _____ GPM
Radwaste Sump Level A _____ FT B _____ FT
Recirc. Sump Levels A _____ FT B _____ FT
H_2 Conc. _____ % Humidity _____
H_2 Recombiners _____
H_2 Purge Unit _____ CTMT Rad. Mon. _____

AFW Pumps On _____ CST Level _____
PBA SO3 On _____ PBB SO4 On _____
DG's Operating _____ Offsite Power Avail. _____
Estimated Prim/Sec Leakrate _____ GPM

STATUS BOARD KEEPER (SBK)

PRIMARY COOLANT

TIME	GROSS ACTIVITY μCi/gm	131 I μCi/gm DOSE EQUIVALENT

STATUS BOARD KEEPER (SBK)

RADIOLOGICAL STATUS

Date: ______________ Time: ______________

Release: Occuring ______________ Controlled ____Yes/No____

Anticipated ______________ When ______________

Location of Release: Plant vent ______________ Steam ______________

Containment ______________ Condenser ______________

Fuel Building Aux Feed Pump

Release Monitored: Yes ________ No ________

Form: Gas ________ Particulate ________ Liquid ________

Iodine — 131 Equiv.: Release rate: ______ μCi/cc x ______ CC/sec. = ______ μCi/sec.

Particulate Release rate: ______ μCi/cc x ______ CC/sec. = ______ μCi/sec.

Noble gas: Release rate: ______ μCi/cc x ______ CC/sec. = ______ μCi/sec.

Est. of Surface Contamination: ______________ dpm/100 cm^2

Where ______________

Unusual Radiation Level in Plant: ______________ mR/hr.

Where ______________

Wind Velocity: ______ mph Direction (from) ______ °true

Sigma ______________

Stability: Class ______ ΔT ______ °F Precipitation ______ in./24 hrs

Recommended Protective Measures/Emergency Actions: ______________

____

CENTERLINE DOSE PROJECTIONS

	2 hr. Proj. Dose		Proj. Int. Dose		Sector
	W.B.	Thy.	W.B.	Thy.	
Site Bound.					
2 mi.					
5 mi.					
10 mi.					

PLANT MONITORING DATA

Location	Time	Dose Rate	Count Rate	Iodine Conc.	Particulate Conc.
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc
		mR/hr.	cpm	μCi/cc	μCi/cc

STATUS BOARD KEEPER (SBK)

SITE STATUS

Event Status/Condition		
Unit 1:	Time:	Date:
STSC (1) Activated:	Time:	Date:
Unit 2:	Time:	Date:
STSC (2) Activated:	Time:	Date:
Unit 3:	Time:	Date:
STSC (3) Activated:	Time:	Date:
TSC Activated:	Time:	Date:
OSC Activated:	Time:	Date:
~~EOF Activated:~~	~~Time:~~	Date:
JENC Activated:	Time:	Date:
CEC Activated:	Time:	Date:
Other Information:		

STATUS BOARD KEEPER (SBK)

SOURCE-TERM STATUS AND TRENDS

Monitor	Channel	Reading / Time	Reading / Time	Reading / Time	Reading / Time	Reading / Time	Reading / Time	Reading / Time
Containment Atmosphere	Part. µCi/cc							
	Iodine µCi/cc							
	Gas µCi/cc							
Plant Vent	Part. µCi/cc							
	Iodine µCi/cc							
	Gas µCi/cc							
Fuel Bldg. Exhaust	Part. µCi/cc							
	Iodine µCi/cc							
	Gas µCi/cc							
Condenser Off Gas	Part. µCi/cc							
	Iodine µCi/cc							
Steamline Monitor	R/hr							
Containment Area Monitor	mR/hr							

STATUS BOARD KEEPER (SBK)

UNIT # _____ TRENDS

DATE: _____ TIME:								
RCS Temperature T_H/T_C	°F	/	/	/	/	/	/	/
RCS Pressure	PSIG							
Pressurizer Level	%							
Sec. Pressure SG1/SG2	PSIG	/	/	/	/	/	/	/
Containment Rad. Level	R/HR							
Containment Pressure	PSIG							
Subcooling	°F							
Boron Conc. RCS	PPM							
Refueling Water Tank Level	%							
~~Cond. Storage Tank Level~~	ft							

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-51	
OFFSITE TECHNICAL REPRESENTATIVE (OTR)	REVISION 2	Page 1 of 8

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PVNGS SM # 8-9B

DEPT. HEAD [signature] DATE 3/22/84

PRB/PRG REVIEW M L Clyde DATE 5-14-84

APPROVED BY [signature] DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3848A/0295A

PV216-00DA (8/82)

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Appendix B - Offsite Technical Representative Log	8

1.0 OBJECTIVE

1.1 To provide instructions to the Offsite Technical Representative (OTR) for coordination of APS emergency response activities with federal/state/county agencies at the State EOC/TOC.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 EPIP-13, "Emergency Operations Facility 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. 3

2.2.3 ANSI N45.2.9 - 1974, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

2.2.4 EPIP-42, "Technical Analysis Coordinator"

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 within the augmentation time goals set forth in The PVNGS Emergency Plan.

3.2 The Offsite Technical Representative shall contact the Technical Analysis Coordinator and receive a briefing before becoming operational. 2

3.3 The Offsite Technical Representative checklist and log shall be retained for the life of the plant. 2

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

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 coordinates APS emergency response activities with federal/state/county agencies at the State EOC/TOC. He shall 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 Offsite Technical Representative reports to the Technical Analysis Coordinator.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, "GENERAL EMERGENCY Implementing Actions", and EPIP-13, "Emergency Operations Facility Operation" are being implemented. 2

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.

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 Radiation Regulatory Agency).

4.3.3 The Offsite Technical Representative shall 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 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.

OFFSITE TECHNICAL REPRESENTATIVE
CHECK LIST

POSITION FILLED BY: (1) Designated person from Nuclear Operations Licensing with appropriate training.

(2) Other Designated Personnel

RESPONSIBILITY: Coordinate APS emergency response activities with federal/state/county agencies at the State EOC/TOC. Provide up-to-date site information. Interpret substantiated data regarding PVNGS emergency status and conditions for emergency response agencies assigned to the State EOC/TOC.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Report to Technical Operations Center (TOC) at State Emergency Operations Center (EOC), ADES Headquarters, 5636 East McDowell Road in Phoenix, upon notification. ____/____

2. Report presence to ARRA Director of Radiological Technical Operations. ____/____

3. Contact Technical Analysis Coordinator at EOF using dedicated voice circuit and receive initial briefing. ____/____

SUBSEQUENT ACTIONS

APS and State EOC/TOC Coordination

*4. Maintain communications and coordinate actions between ARRA Director of Radiological Technical Operations and APS Technical Analysis Coordinator at EOF using dedicated voice circuit. _____

*5. Provide site information and interpret data at State TOC. _____

* Continuing Activities

OFFSITE TECHNICAL REPRESENTATIVE
CHECK LIST (Cont.)

TIME/INITIALS

*6. Maintain log (Appendix B), as necessary. _____

Recovery

7. Submit check list and log to Technical Analysis Coordinator at EOF upon cancellation of emergency. _____/_____

Performed By _____
Signature

Date _____

*Continuing Activity

OFFSITE TECHNICAL REPRESENTATIVE LOG

	Time	Person Contacted	Information Related
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-52	
JENC TECHNICAL ADVISOR	REVISION 2	Page 1 of 6

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DEPT. HEAD [signature] DATE 3/21/84

PRB/PRG REVIEW [signature] DATE 5-14-84

APPROVED BY [signature] DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3857A/0295A

PV216-00DA (8/82)

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1.0 OBJECTIVE

1.1 Provides instructions to the Status Board Keeper (SBK) for the maintenance of status boards in the EOF.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-04, "ALERT Implementing Actions"

2.1.2 EPIP-05, "SITE AREA EMERGENCY Implementing Actions"

2.1.3 EPIP-06, "GENERAL EMERGENCY Implementing Actions"

2.1.4 "Joint 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, Rev. 3.

2.2.3 ANSI N45.2.9-1975 "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants".

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Upon notification, the designated JENC Technical Advisor shall report to the Joint Emergency News Center and achieve full functional operation within the augmentation time goals set forth in the PVNGS Emergency Plan.

3.2 The JENC Technical Advisor shall contact the JENC Co-Director: APS when he arrives at the JENC.

3.3 The JENC Technical Advisor shall contact the Technical Analysis Coordinator and receive a briefing before becoming operational.

3.4 The JENC Technical Advisor check list shall be retained for the life of the plant.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The JENC Technical Advisor reports to the Joint Emergency News Center at 5636 E. McDowell Rd., Phoenix. He provides necessary technical explanations to the JENC Co-Director: APS (and to the media, if requested by JENC Co-Director: APS.) He also provides background information and reviews the technical content of all media releases.

4.1.2 The JENC Technical Advisor reports to the Technical Analysis Coordinator and interfaces with the JENC Co-Director: APS.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and EPIP-04, "ALERT Implementing Actions", EPIP-05, "SITE AREA EMERGENCY Implementing Actions", or EPIP-06, GENERAL EMERGENCY Implementing Actions", and Joint Public Information Procedures are being implemented.

4.3 Instructions

4.3.1 Upon notification of an ALERT or more severe emergency, the JENC Technical Advisor shall report to the Joint Emergency News Center (JENC) at 5636 E. McDowell Rd., Phoenix.

4.3.2 Upon arrival, he shall report to the JENC Co-Director: APS and then contact the Technical Analysis Coordinator at the EOF by dedicated voice circuit (or alternate) to receive a briefing.

4.3.3 Maintain frequent communications with EOF contact and receive plant status updates.

4.3.4 In the conduct of his activities, the JENC Technical Advisor shall maintain a check list (Appendix A).

JENC TECHNICAL ADVISOR CHECK LIST

POSITION FILLED BY: (1) Designated person from Nuclear Engineering Department with appropriate training.

(2) Other Designated Personnel

RESPONSIBILITY: Provide any necessary technical explanations and background to JENC Co-Director: APS. Review technical content of all media releases.

IMMEDIATE ACTIONS — TIME/INITIALS

1. Upon notification report to Joint Emergency News Center (JENC) at 5636 E. McDowell Rd., Phoenix. ____/____

2. Report presence to JENC Co-Director: APS. ____/____

3. Contact Technical Analysis Coordinator at EOF using dedicated voice circuit (or alternate) and receive initial briefing. ____/____

SUBSEQUENT ACTIONS

Public Information

*4. Maintain frequent communication with EOF contact and receive plant status updates.

*5. Provide technical explanations and background information to JENC Co-Director: APS, as necessary (and to media if required). _____

*6. Review technical content of all media releases. _____

Recovery

7. Submit check list to Technical Analysis Coordinator at EOF upon cancellation of emergency. _____/_____

---

* Continuing Activity

Performed By _____
Signature

Date _____

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-53	
GOVERNMENT STAFFING AT TSC	REVISION 2	Page 1 of 9

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PVNGS SM # 8-9B

DEPT. HEAD O. J. Zeringue DATE 3/21/84

PRB/PRG REVIEW M. L. Clyde DATE 5-14-84

APPROVED BY O. J. Zeringue DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3858A/0295A

PV216-00DA (6/82)

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1.0 OBJECTIVE

1.1 To provide travel guidance to representatives of the NRC who report to the PVNGS Technical Support Center (TSC) and instructions to the APS emergency personnel who are responsible for assisting government staff. This guidance is provided as an aid, not as a requirement to be enforced by TSC personnel.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-11, "Technical Support Center/Satellite TSC Activation"

2.1.2 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, Rev. 3

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Provision shall be made for a limited number of NRC employees in the TSC. All other government staff shall report to the EOF.

3.2 NRC officials listed on the NRC Personnel Response List (held by Security) shall be granted access to the TSC Immediately Without Delay and shall not be required to comply with Step 4.3.8.3 of EPIP-24, "Security".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The NRC plans to place an Emergency Response Team in the TSC. Provisions have been made to locate a limited number of NRC staff in the TSC.

4.1.2 The Emergency Coordinator is responsible for interfacing with the NRC Team Leader at the TSC. He may delegate this responsibility to another member of the TSC staff.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedure EPIP-11, "Technical Support Center/Satellite TSC Activation", is being implemented.

4.3 Instructions

4.3.1 The NRC Response Team should travel to PVNGS from Phoenix Sky Harbor International Airport, by automobile, using the route shown on the map in Appendix A.

4.3.2 NRC representatives shall report to the PVNGS Security Building as shown on the map in Appendix B upon arrival at the site.

NOTE

NRC officials listed on the NRC Personnel Response List (held by Security) shall be granted access to the TSC Immediately Without Delay and shall not be required to comply with Section 4.3.8.3 of EPIP-24, "Security".

4.3.3 Security Building staff shall register the NRC representatives and issue Visitor Passes in accordance with standard security procedures.

4.3.4 Security Building Staff shall issue Dosimetry to the Government Representatives.

4.3.5 Security Building staff shall notify the Security Director at the TSC and arrange to escort the government representatives to the TSC.

4.3.6 At the TSC, the Security Director shall issue an Emergency Personnel Identification Badge labeled with the appropriate agency name.

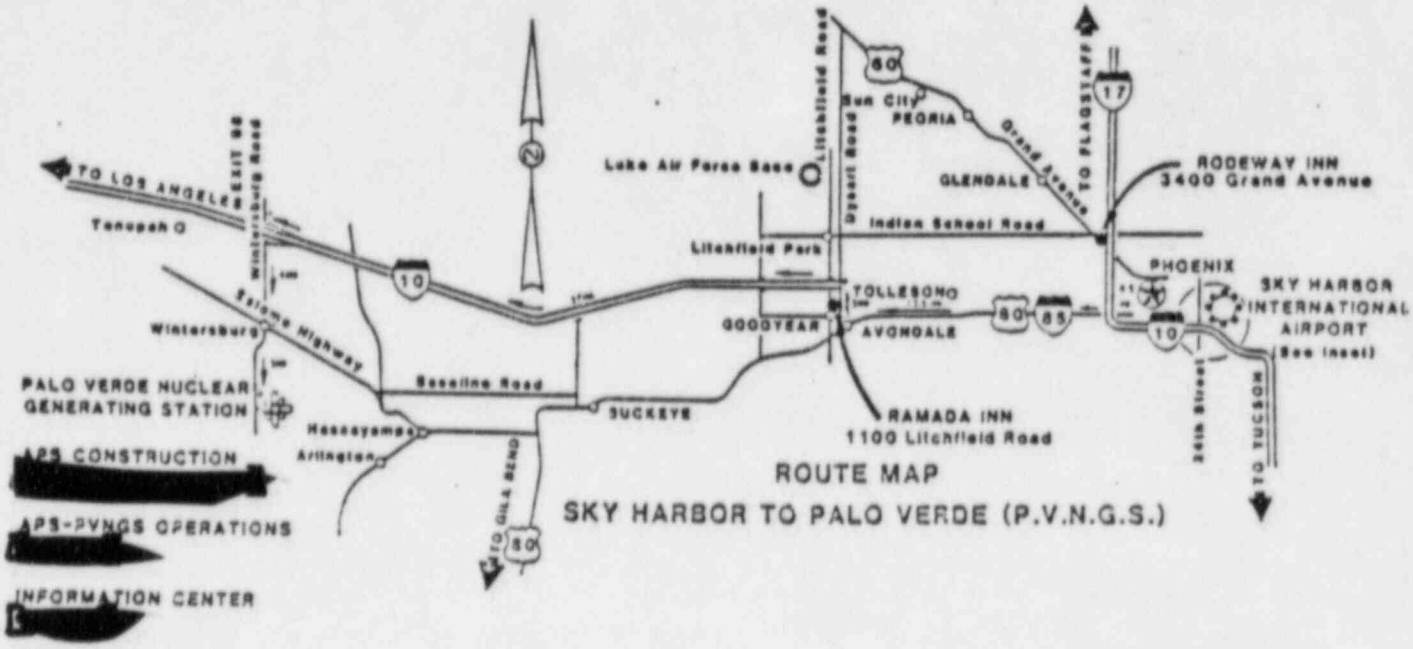
4.3.7 The Emergency Coordinator shall arrange for a briefing for NRC representatives upon their arrival. The Emergency Coordinator or designee shall direct the NRC staff to the appropriate location (see Appendix C) and identify the ENS telephone for use by NRC staff.

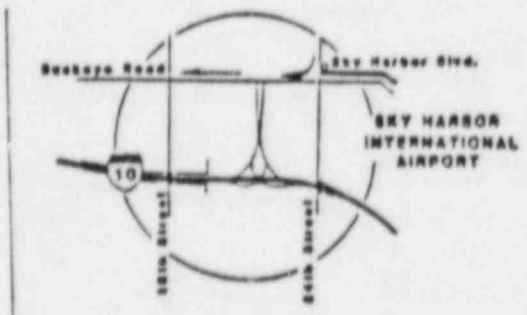
4.3.8 The Technical Engineering Coordinator shall provide periodic briefings on plant status and corrective actions.

4.3.9 The Radiological Protection Coordinator shall provide periodic briefings on radiological assessment and protective actions.

PRIMARY ROUTE FROM PHOENIX

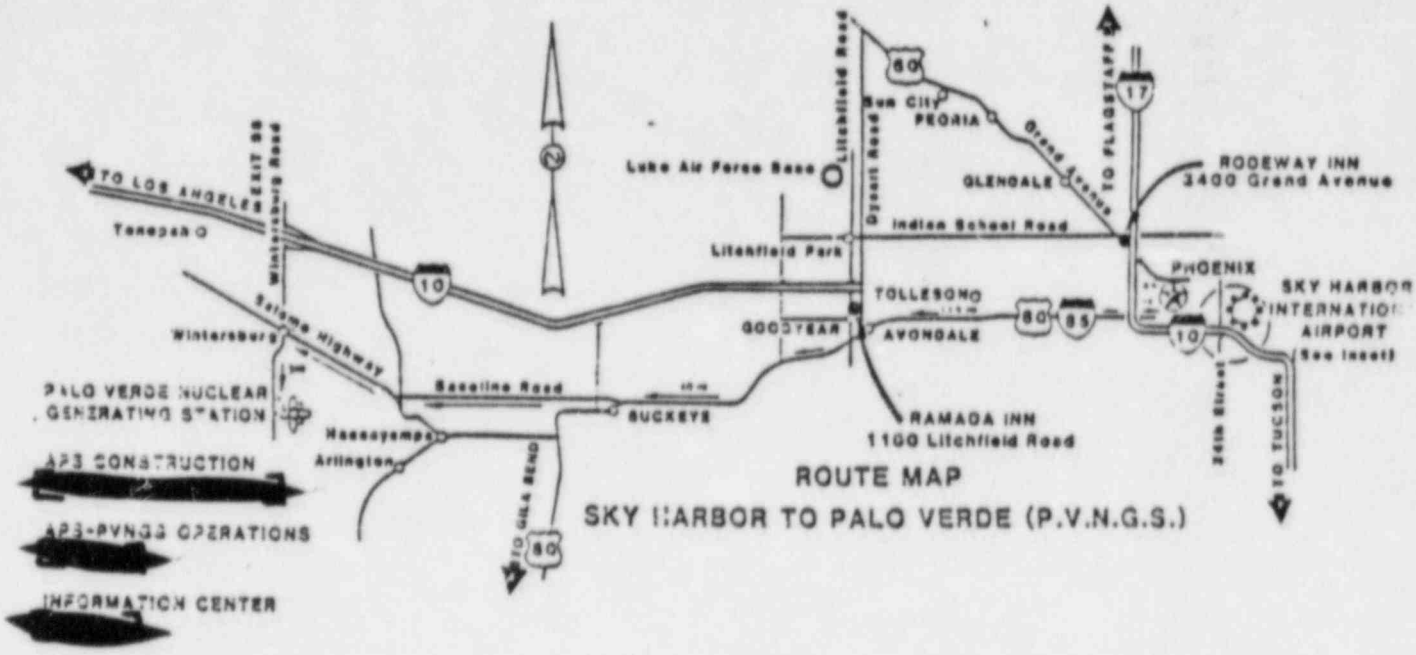
TO PVNGS





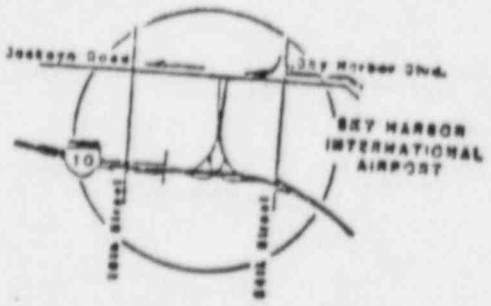
ALTERNATE ROUTE FROM PHOENIX

TO PVNGS



ROUTE MAP

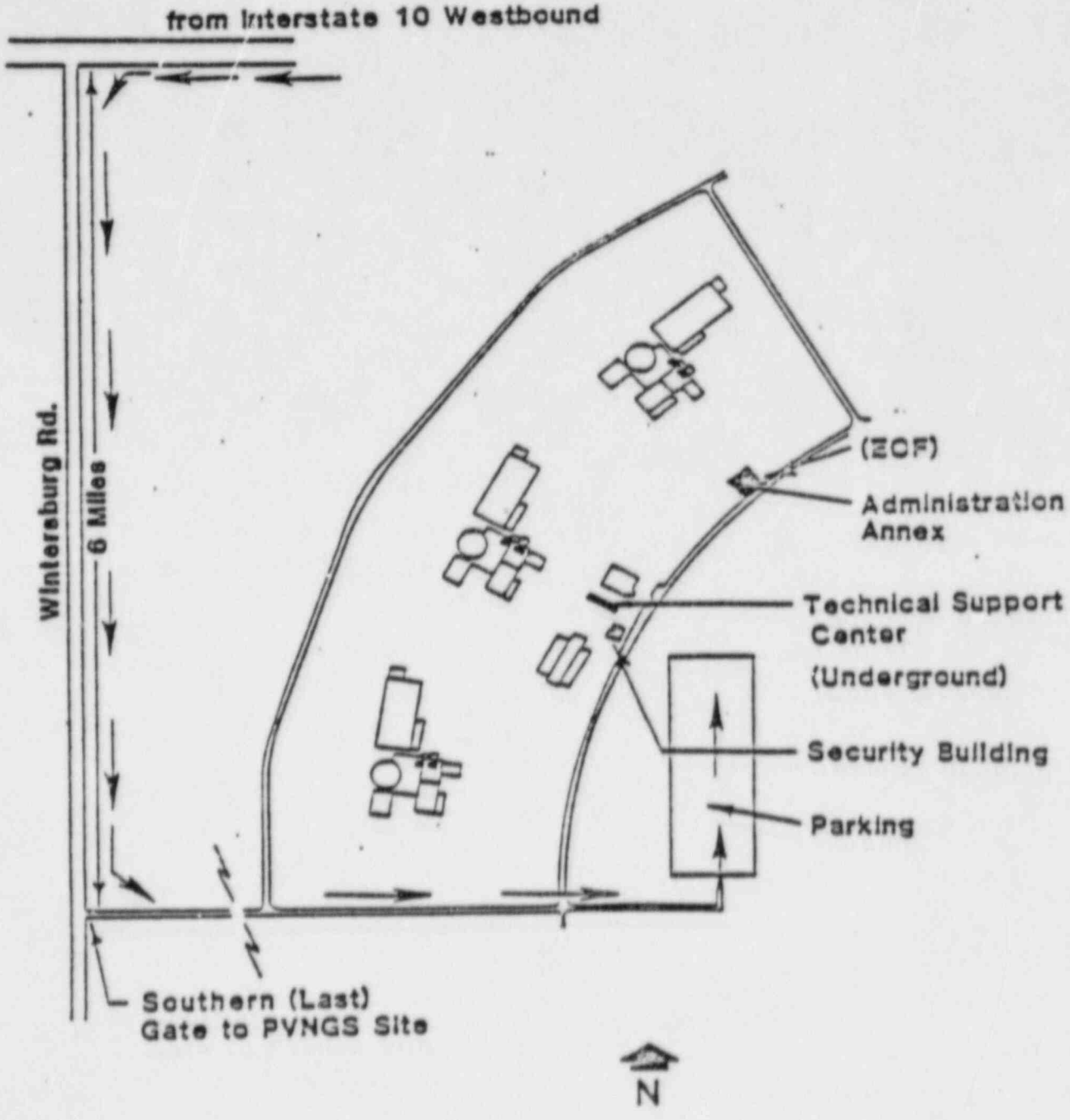
SKY HARBOR TO PALO VERDE (P.V.N.G.S.)



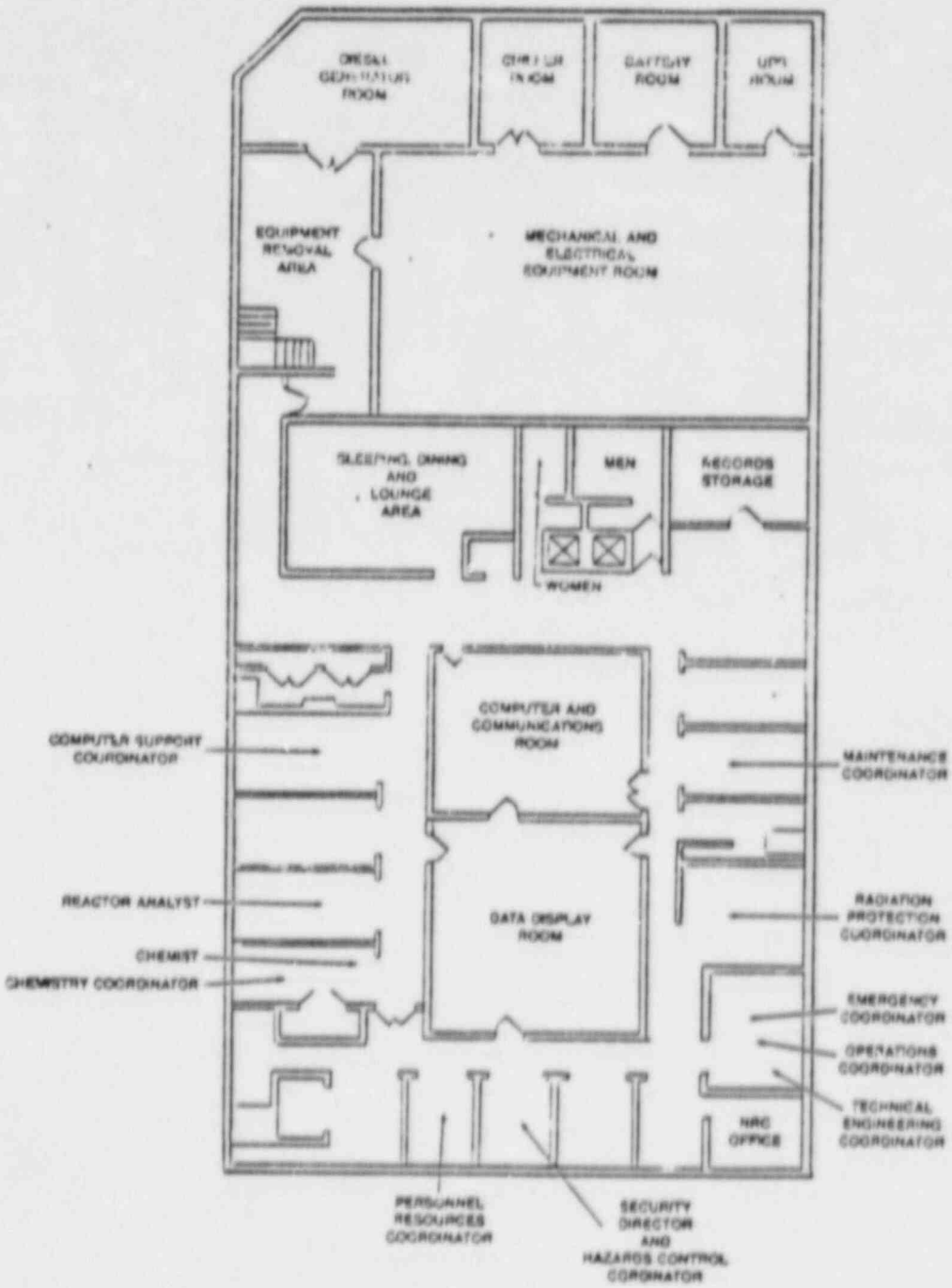
INSET MAP

SKY HARBOR TO I-10

SITE ACCESS ROUTE



TSC FLOOR PLAN



TECHNICAL SUPPORT CENTER (TSC)

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-54	
GOVERNMENT STAFFING AT EOF	REVISION 2	Page 1 of 11

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PVNGS SM #8-9B

DEPT. HEAD O. J. Zeringue DATE 3/21/84

PRB/PRG REVIEW R. M. Clyde DATE 5-14-84

APPROVED BY O. J. Zeringue DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3859A/0295A

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1.0 OBJECTIVE

1.1 To provide travel guidance to representatives of government agencies who report to the PVNGS Emergency Operations Facility and instructions to the APS emergency personnel who are responsible for assisting government staff. This guidance is provided as an aid, not as a requirement to be enforced by EOF personnel.

2.0 REFERENCES

2.1 Implementing References

2.1.1 EPIP-13, "Emergency Operations Facility Activation"

2.1.2 EPIP-24, "Security"

2.2 Levelopmental 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. 3

3.0 LIMITATIONS AND PRECAUTIONS

3.1 Provision shall be made for a limited number of government employees in the EOF. This shall include representatives from the Nuclear Regulatory Commission (NRC), Federal Emergency Management Agency (FEMA) and State of Arizona.

3.2 Government employees entering the EOF shall be properly badged by Security prior to entry.

3.3 NRC officials listed on the NRC Personnel Response List (held by Security) shall be granted access to the EOF Immediately Without Delay or having to comply with Step 4.3.8.3 of EPIP-24, "Security".

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 NRC, FEMA and State of Arizona emergency response plans include provisions for sending representatives to the Emergency Operations Facility.

4.1.2 APS is responsible for allowing access, providing physical facilities for use by government staff, and for ongoing coordination and briefing of government staff.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedure EPIP-13, "Emergency Operations Facility Activation", is being implemented.

4.3 Instructions

4.3.1 State of Arizona representatives should travel to PVNGS by the route shown on the map in Appendix A and should report immediately to the EOF.

4.3.2 NRC and FEMA representatives should travel to PVNGS by the route shown on the map in Appendix A.

4.3.2.1 NRC Officials listed on the NRC Personnel Response List (held by Security) shall be granted access to the EOF IMMEDIATELY WITHOUT DELAY and shall not be required to comply with Step 4.3.8.3 of EPIP-24, "Security".

4.3.2.2 FEMA representatives shall report to the PVNGS Security Building as shown on the map in Appendix B upon arrival at the site. NRC officials should proceed directly to the EOF.

4.3.3 Security Building staff shall register the government representatives and issue Visitor Passes in accordance with standard security procedures.

4.3.4 Security Building staff shall notify the Security Coordinator at the EOF and arrange to escort the FEMA representatives to the EOF (Administration Annex Building basement).

4.3.5 The Dosimetry Clerk shall issue radiation dosimetry to the NRC and FEMA staffs.

4.3.6 The Security Coordinator shall issue an Emergency Personnel Identification Badge labeled with the appropriate agency name.

4.3.7 The Emergency Operations Director shall arrange for a briefing for government staff upon their arrival.

4.3.8 The Administrative and Logistics Coordinator shall direct the government staff to appropriate working locations in accordance with Appendix C and Appendix D. The Administrative and Logistics Coordinator shall also identify communications equipment and other resources available to the government staff.

4.3.8.1 State of Arizona -

Access shall be provided to the following as necessary:

(1) Dedicated voice circuit to ARRA

(2) Dedicated voice circuit to ADES

(3) State REAT radio system

(4) Facsimile transmission to ARRA and ADES

(5) Commercial telephone

4.3.8.2 Nuclear Regulatory Commission

Access shall be provided to the following as necessary:

(1) ENS line to NRC headquarters

(2) FTS line to NRC regional office and headquarters

(3) Facsimile transmission system

(4) Commercial telephone

4.3.8.3 Federal Emergency Management Agency -

Access shall be provided to the following as necessary:

(1) Dedicated voice line to ADES

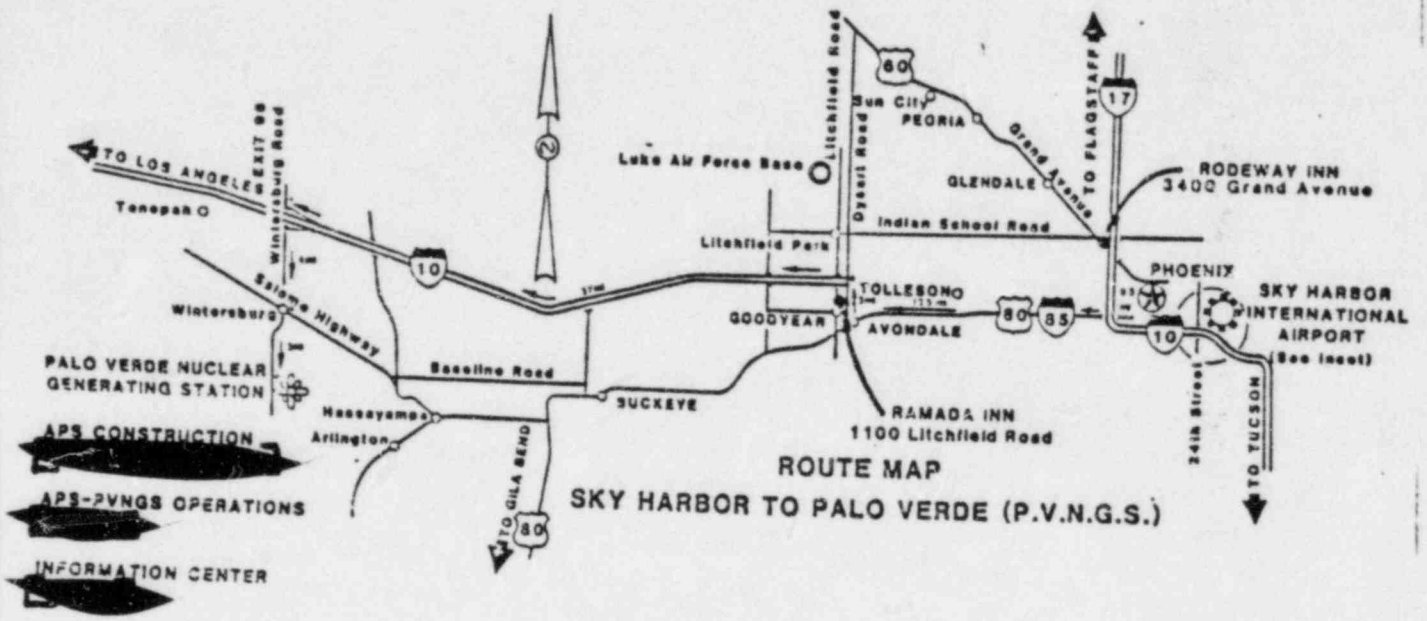
(2) Commercial telephone

4.3.9 The Technical Analysis Coordinator shall coordinate with government staff and provide periodic briefings on the condition of plant systems and the status of corrective actions.

4.3.10 The Radiological Assessment Coordinator shall provide periodic briefings concerning radiological assessment and protective actions and coordinate with State of Arizona representatives for radiological assessments.

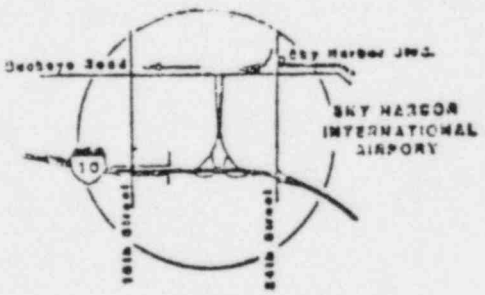
PRIMARY ROUTE FROM PHOENIX

TO PVNGS



ROUTE MAP

SKY HARBOR TO PALO VERDE (P.V.N.G.S.)

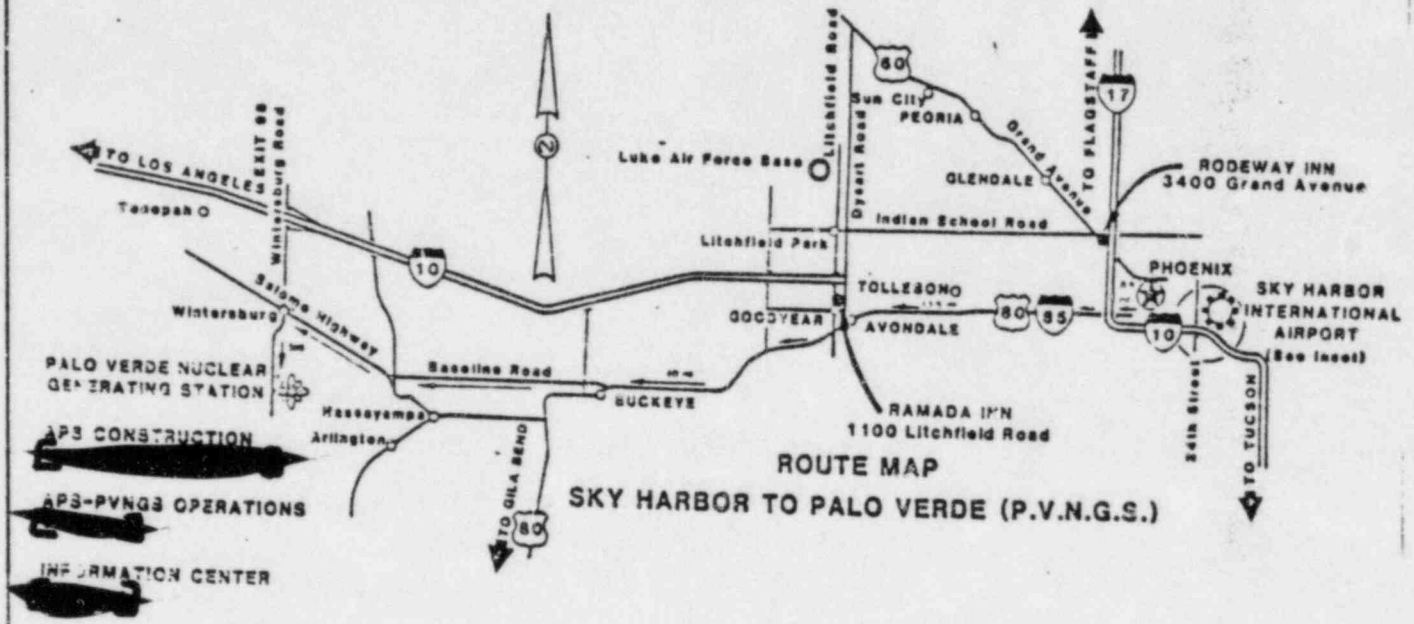


INSET MAP

SKY HARBOR TO I-10

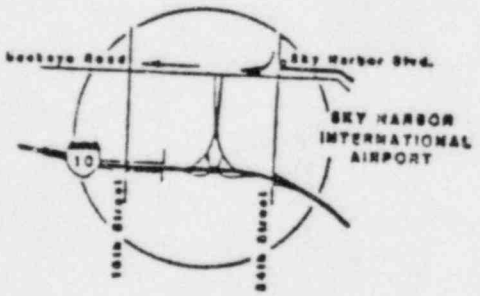
ALTERNATE ROUTE FROM PHOENIX

TO PVNGS



ROUTE MAP

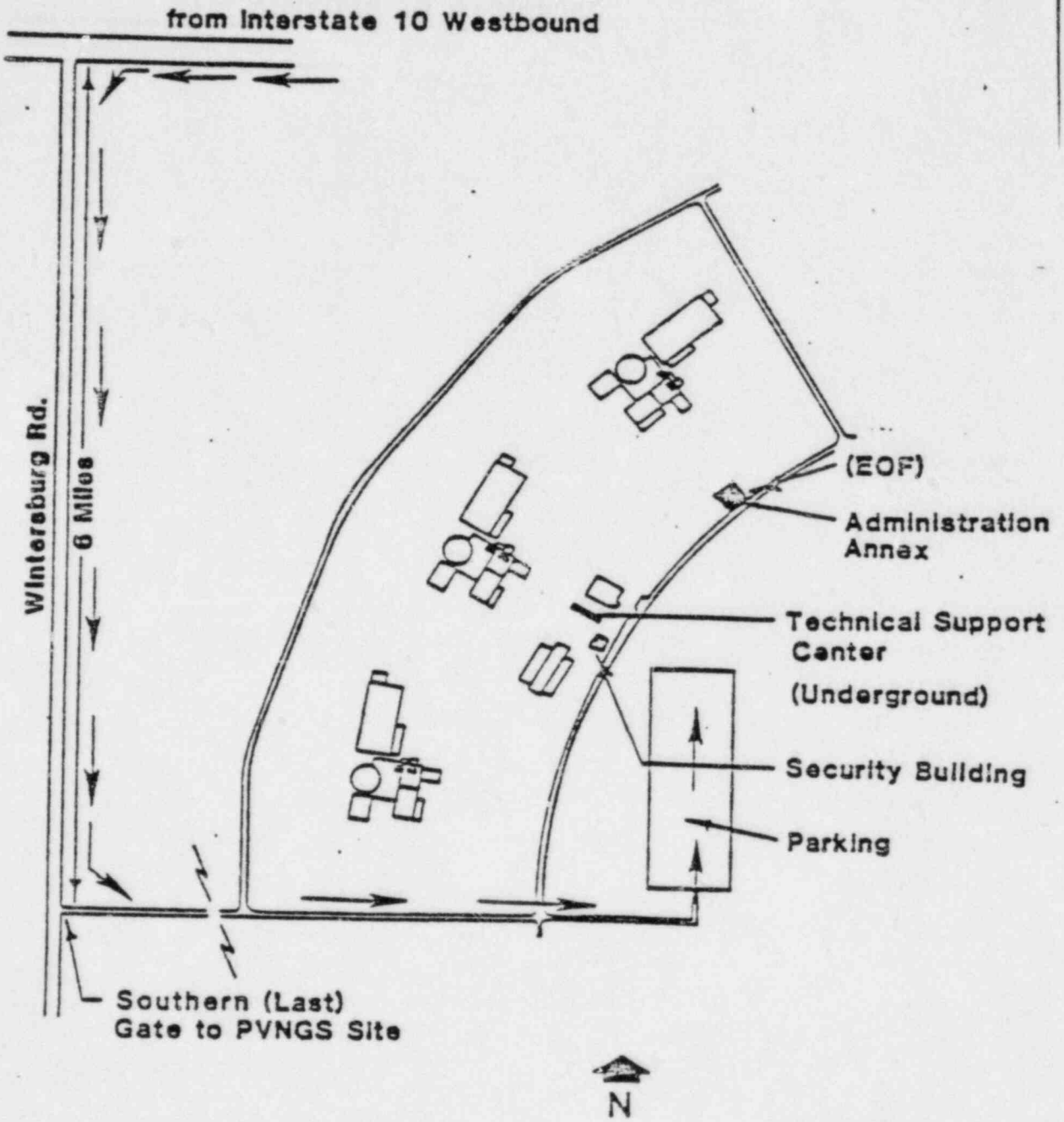
SKY HARBOR TO PALO VERDE (P.V.N.G.S.)



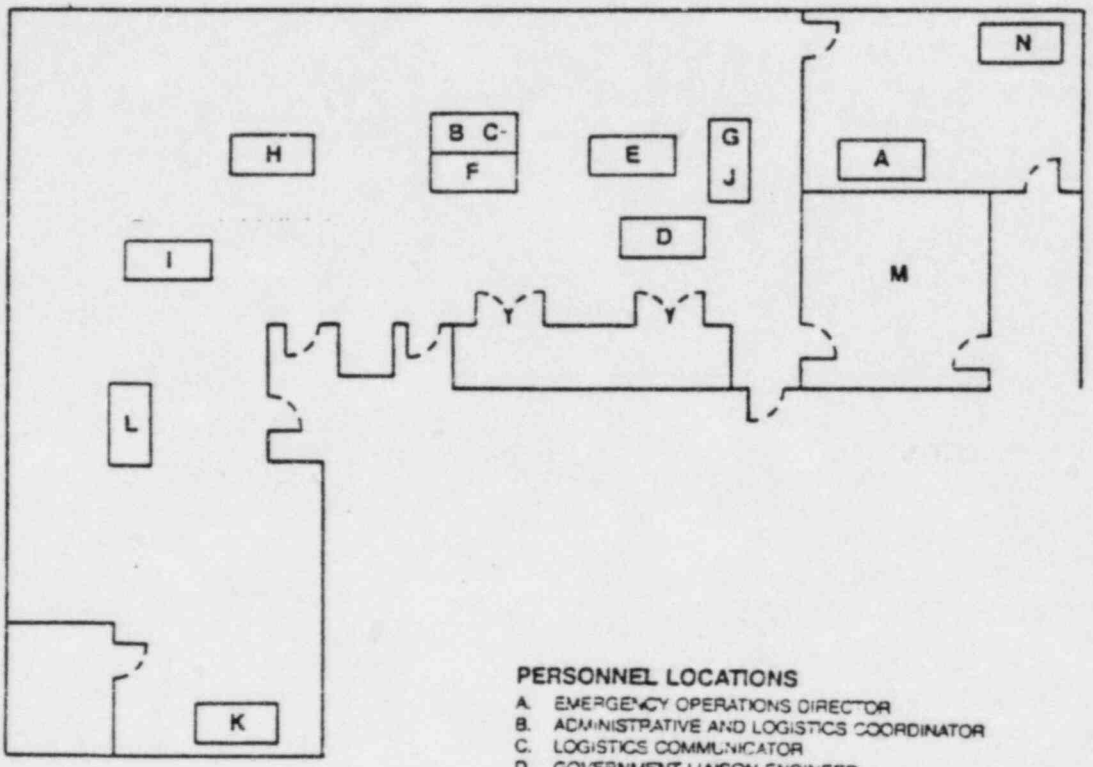
INSET MAP

SKY HARBOR TO I-10

SITE ACCESS ROUTE



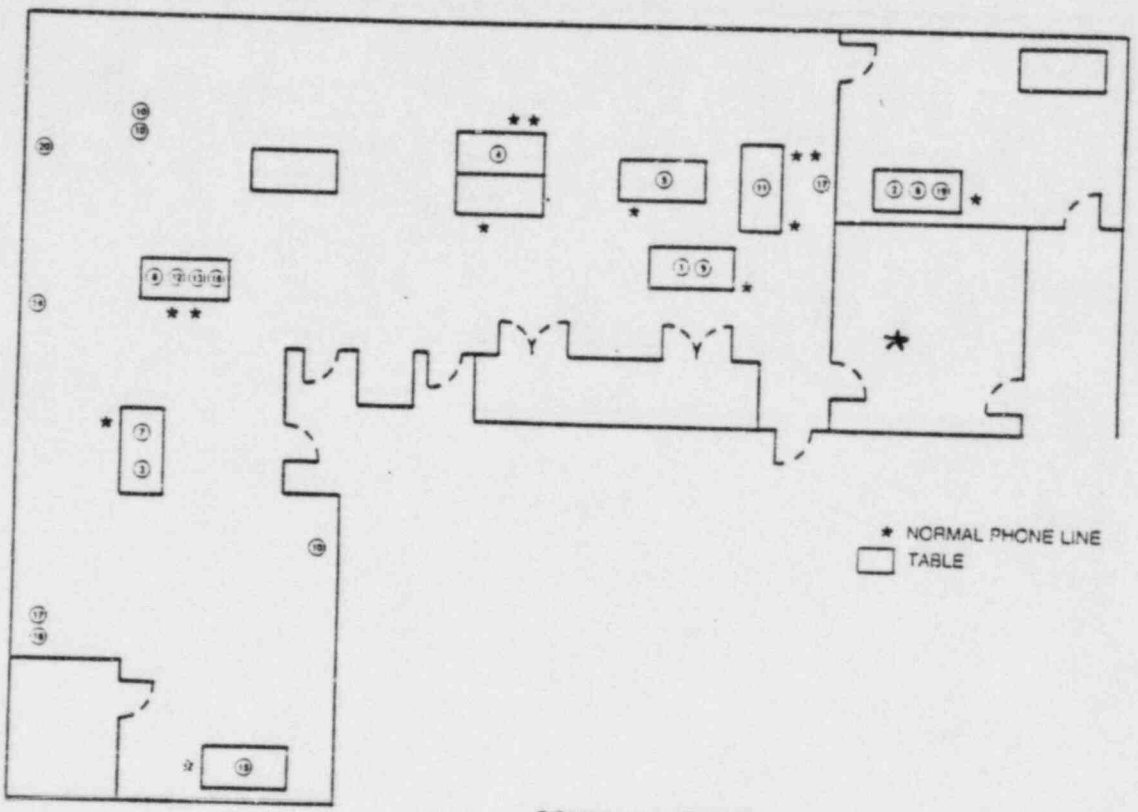
EOF FLOOR PLAN



PERSONNEL LOCATIONS

A. EMERGENCY OPERATIONS DIRECTOR
B. ADMINISTRATIVE AND LOGISTICS COORDINATOR
C. LOGISTICS COMMUNICATOR
D. GOVERNMENT LIAISON ENGINEER
E. EOF CONTACT
F. SECURITY COORDINATOR
G. TECHNICAL ANALYSIS COORDINATOR
H. STATUS BOARD KEEPER
I. RADIOLOGICAL ASSESSMENT COORDINATOR
J. TSC LIAISON ENGINEER
K. RADIOLOGICAL ASSESSMENT COMMUNICATOR
L. STATE OF ARIZONA / FEMA
M. NRC OFFICE
N. LICENSING COORDINATOR

EOF EMERGENCY CONTROL CENTER EQUIPMENT LAYOUT



COMMUNICATIONS

1. NAN
2. EC EOD LINE
3. STATE RADIO
4. OSC LINE
5. PUBLIC INFORMATION #1
6. VOICE CIRCUIT #1
7. VOICE CIRCUIT #2
8. VOICE CIRCUIT #3
9. VOICE CIRCUIT #4
10. FACSIMILE
11. TECHNICAL LINE
12. TSC LINE
13. ENVIRONMENTAL ASSESSMENT LINE
14. CRACS TERMINAL
15. BASE STATION RADIO
16. CR LINE
17. SPDS TERMINAL
18. STSC LINE
19. EXECUTIVE PRIVATE LINE
20. SIMS TERMINAL

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP 55	
TSC/EOF PERSONNEL IDENTIFICATION	REVISION 2	Page 1 of 8

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD O.R. Zimmerman DATE 3/21/84

PRB/PRG REVIEW M.K. Clyde DATE 5-21-84

APPROVED BY O.R. Zimmerman DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-3860A/0295A

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1.0 OBJECTIVE

1.1 To provide a method to identify 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-11, "Technical Support Center/Satellite TSC Activation"

2.1.2 EPIP-13, "Emergency Operations Facility Activation"

2.1.3 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, Rev. 3.

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 should not be confused with the PVNGS Security badge or APS Security badge.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 There are a large number of emergency functions to be carried out at the TSC and EOF. Emergency Personnel Identification Badges shall 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 Coordinator (in the EOF) and the Security Director (in the TSC) are responsible for ensuring that Emergency Personnel identification badges are being properly displayed in their respective facility.

4.1.3 The Security Coordinator and the Security Director are responsible for collecting Emergency Personnel identification badges in the EOF and TSC respectively when the emergency is cancelled.

4.2 Prerequisites

4.2.1 An ALERT or more severe emergency has been declared and procedures EPIP-11 "Technical Support Center/Satellite TSC Activation", and EPIP-13 "Emergency Operations Facility Activation", are being implemented.

4.3 Instructions

4.3.1 Individuals with functional responsibilities and emergency organization position titles shall obtain the appropriate Emergency Personnel Identification badge upon reporting to the TSC or EOF.

4.3.2 The Security Coordinator shall periodically determine if badges are being properly displayed at the EOF. (See Appendix B and Appendix C).

4.3.3 The Security Director shall periodically determine if badges are being properly displayed at the TSC. (See Appendices A and C).

4.3.4 Individuals shall transfer the Emergency Personnel Identification badges to their relief at the time the functional responsibility is transferred.

2

4.3.5 The Security Coordinator shall collect the Emergency Personnel Identification badges in the EOF when the emergency is cancelled.

4.3.6 The Security Director shall collect the Emergency Personnel Identification Badges in the TSC when the emergency is cancelled.

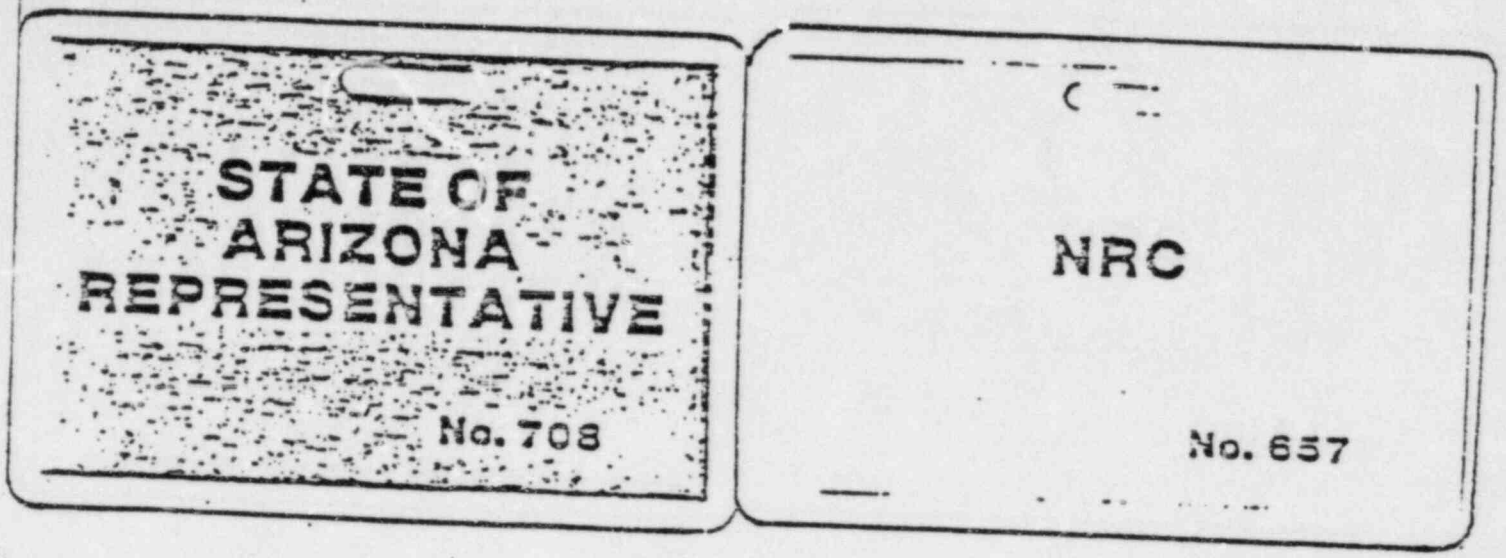
TSC PERSONNEL IDENTIFICATION LIST

1. Emergency Coordinator
2. Technical Engineering Coordinator
3. Reactor Analyst
4. Computer Support Coordinator
5. Chemistry Coordinator
6. Hazards Control Coordinator
7. Radiological Protection Coordinator
8. Field Team Communicator
9. Personnel Resources Coordinator
10. Emergency Maintenance Coordinator
11. Systems Engineer
12. Security Director
13. Operations Advisor
14. Satellite TSC Communicator
15. NRC (5)
16. Operations Coordinator

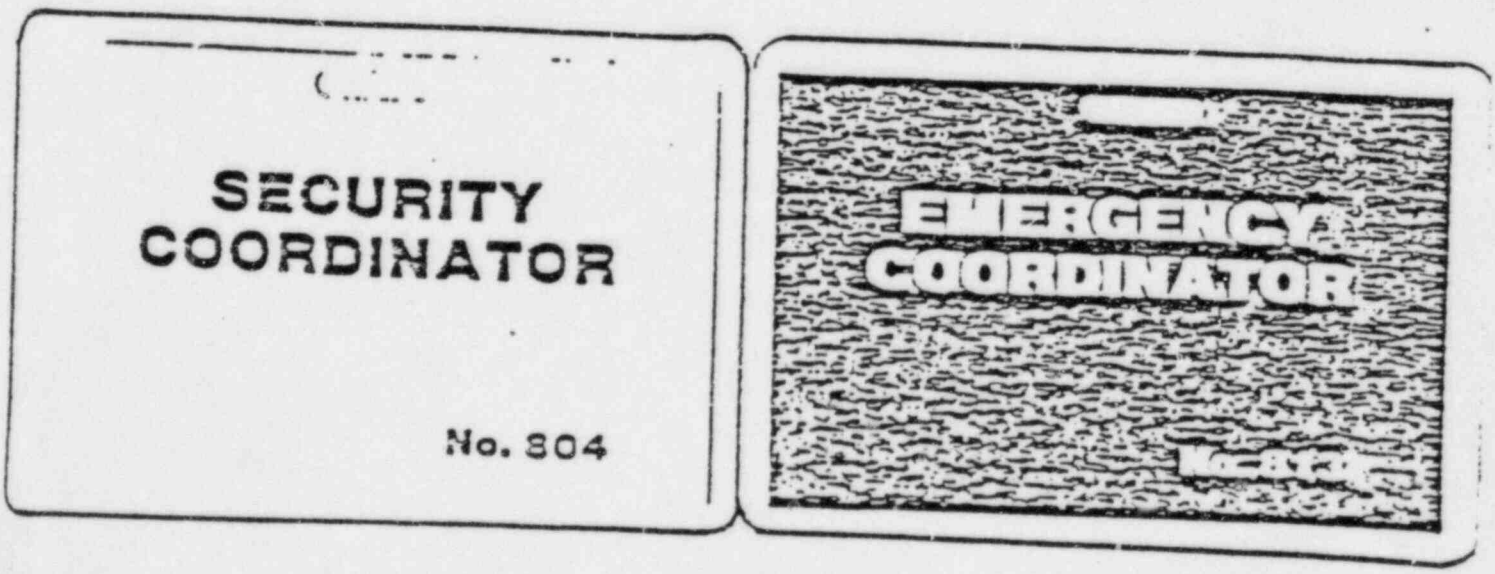
EOF PERSONNEL IDENTIFICATION LIST

1. Emergency Operations Director
2. Radiological Assessment Coordinator
3. Radiological Assessment Communicator
4. Technical Analysis Coordinator
5. Government Liaison Engineer
6. TSC Liaison Engineer
7. Status Board Keeper
8. EOF Contact
9. Administrative and Logistics Coordinator
10. Logistics Communicator
11. Dosimetry Clerk
12. Security Coordinator
13. Arizona Radiation Regulatory Agency (2)
14. FEMA (1)
15. NRC (3)
16. Licensing Coordinator

EMERGENCY PERSONNEL IDENTIFICATION BADGE



SAMPLE



SAMPLE

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-56	
ULTIMATE HEAT SINK EMERGENCY WATER SUPPLY	REVISION 0	Page 1 of 9

ASSIGNED COPY

PVNGS SM # 8-9B

DEPT. HEAD _____ DATE 3/21/84

PRB/PRG REVIEW _____ DATE 5-21-84

APPROVED BY _____ DATE 5/21/84

EFFECTIVE DATE 5-30-84

DN-2050V/0470V

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1.0 OBJECTIVE

1.1 To provide guidance on the establishment of an Emergency alternate water supply to maintain sufficient water inventory in the unit spray ponds.

2.0 REFERENCES

2.1 Implementing References

2.1.1 Arizona Revised Statute 45-517

2.1.2 PVNGS Technical Specifications

2.2 Developmental References

2.2.1 Reg Guide 1.27, Rev. 2

2.2.2 PVNGS Emergency Plan Rev. 3

2.2.3 FSAR Sect. 9.2, Amm. 12

3.0 LIMITATIONS AND PRECAUTIONS

3.1 A reliable water supply capable of 225 gpm to each unit shall be operating within 27 days of a Safe Shutdown Earthquake.

3.2 The spray pond water level shall be maintained within operable levels per Technical Specifications to provide adequate heat removal capability and avoid reactor core damage.

3.3 If construction delays, redundant equipment failures or other unforeseen events threaten the availability and/or reliability of heat removal systems and/or water supply systems or water inventory the Emergency Coordinator, with the concurrence of Emergency Operation Director, shall take whatever action required to restore heat removal capability, including but not limited to;

3.3.1 Utilization of any available water supply and any resources available for delivery to the unit spray ponds.

3.3.2 Any resources available through APS Emergency Organization onsite or offsite.

3.4 Under Arizona Revised Statute 45-517, 1980, State Groundwater Code, evidence shall be submitted to the Director of Water Resources that an emergency exists as soon as reasonably practical after withdrawals of groundwater commence.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 Personnel within the Emergency Organization should be aware of the ramifications of a loss of water inventory and/or supply systems.

4.1.2 The Emergency Coordinator has overall responsibility for maintaining sufficient water inventory and deciding that an emergency well and piping system should be constructed. This decision should be made within 6 days of the emergency declaration.

4.1.3 The Emergency Maintenance Coordinator and the Technical Engineering Coordinator are responsible for providing the Emergency Coordinator with an accurate assessment of current water inventory, the status of normal water supply systems, time estimates for restoration of normal systems, alternate supplies and technically sound solutions to any outstanding water supply problems.

4.1.4 The Security Director is responsible for the movement, clearance and badging of personnel entering the station to provide support; i.e.; well drilling crews.

4.1.5 The Administrative and Logistics Coordinator is responsible for initiating actions and calling offsite resources required to support the effort to restore sufficient water supplies.

4.2 Prerequisites

4.2.1 A Safe Shutdown Earthquake (SSE), other seismic disturbance or redundant equipment failures has occurred to eliminate or restrict water supply to the unit spray ponds.

4.3 Instructions

NOTE

This procedure shall be implemented to secure a dependable water supply, capable of delivering 225 gpm to each unit within 27 days of a Safe Shutdown Earthquake or other accident which eliminates or restricts normal water supply to an unsafe level.

NOTE

This procedure shall be initiated within 6 days of a seismic event or SSE which results in irrepairable damage to the three onsite wells which supply makeup water to the Spray Ponds.

4.3.1 The Emergency Maintenance Coordinator shall initiate the action to determine the extent of damage to normal water supply systems, estimated time and resources required to make required repairs and restore normal systems.

4.3.2 The Technical Engineering Coordinator shall initiate actions to determine the amount and availability of any alternate water reserves, i.e.: cooling tower basins, water reservoir and methods for delivery to spray ponds.

4.3.4 The Administrative and Logistics Coordinator shall take action to mobilize the following:

4.3.4.1 A well drilling company capable of sinking the required well within 15 days (27 days from time 0). See Appendix A for local companies.

4.3.4.2 An irrigation or other piping supply company capable of delivering temporary piping.

4.3.4.3 Ertec Western Inc. may provide engineering support as needed, (Another suitable engineering firm may be used if Ertec is unavailable).

4.3.4.4 Bechtel Power Corporation shall provide engineering and/or field assistance as needed.

4.4 Routes to Palo Verde

4.4.1 Normal route to PVNGS for equipment from Phoenix would be Interstate 10 to Wintersburg Road and south to the site. (See Appendix C).

4.4.2 Alternate routes of travel should be established by the Administrative and Logistics Coordinator depending on resource availability, location and extent of any damage to offsite resources. (A suggested alternate route of travel is shown in Appendix C).

OFFSITE CONTACTS

WELL DRILLING COMPANIES

*1. Layne-Western Co., 9002 South Hardy Drive, Tempe, AZ 85284
[redacted]

2. B C & M Drilling Inc., 1128 South Lewis Mesa, AZ 85202
Anthony Ebouchard [redacted]

3. Morrow Drilling Co., 4302 East Superior, Phoenix, AZ 85040
Bill Kingsbury [redacted]

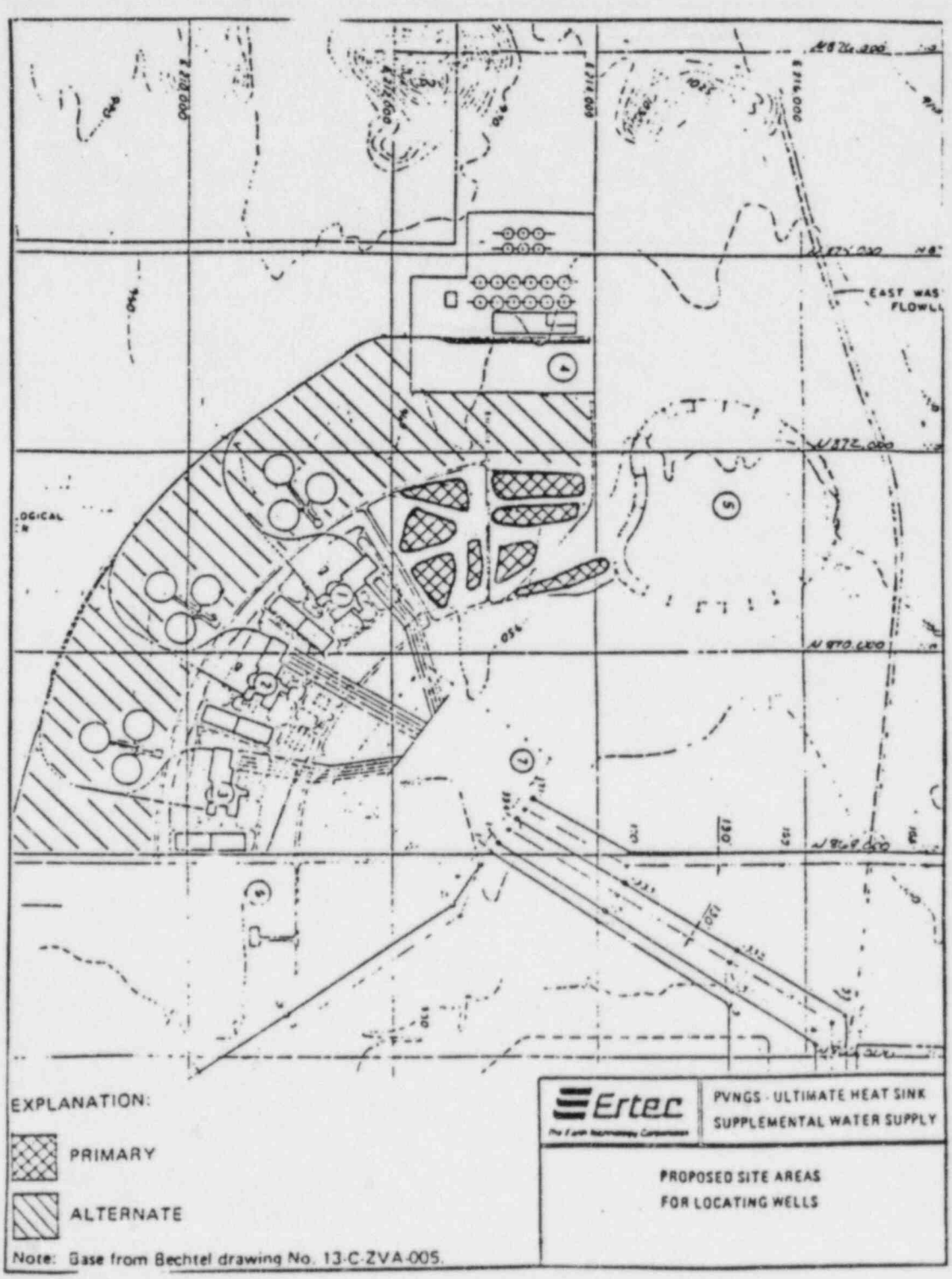
4. Bert Perry Drilling, 5338 East Apache Trail, Mesa, AZ 85205
Bert Perry [redacted]

5. Campbell's Drilling, Inc., P.O. Box 833, Wickenburg, AZ 85358
Dean Campbell [redacted]

6. ERTEC WESTERN INC.
3116 West Thomas Road, Suite 601, P.O. Box 14570, Phoenix, AZ 85063
[redacted]

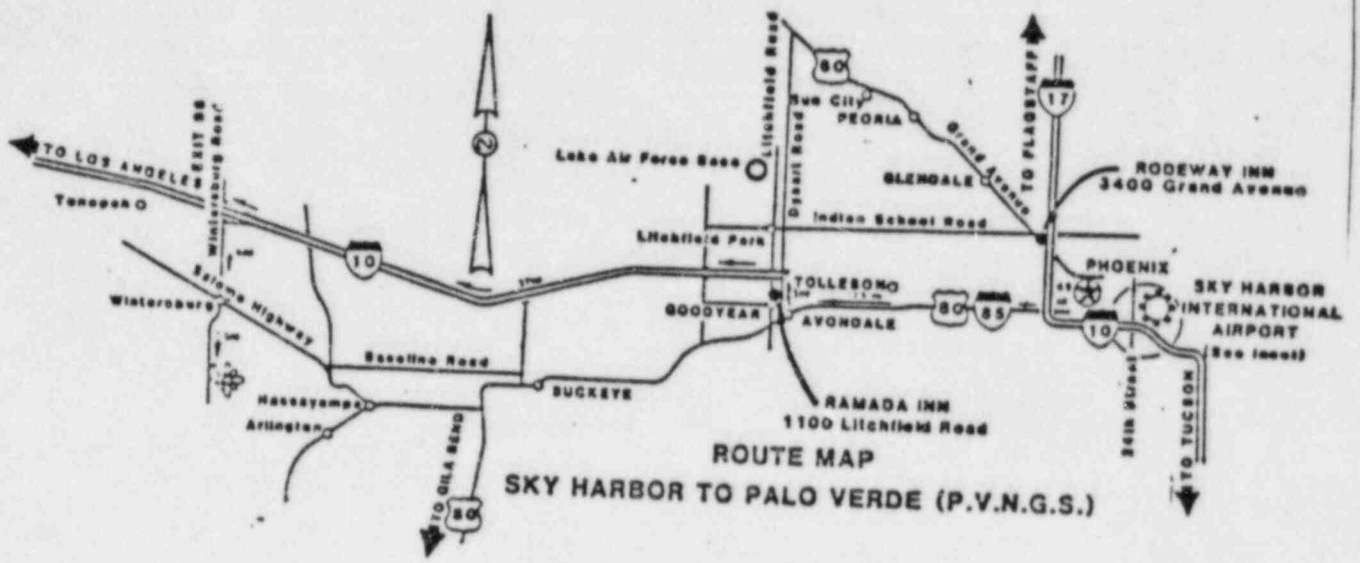
* Existing Contract

WELL SITE SELECTION



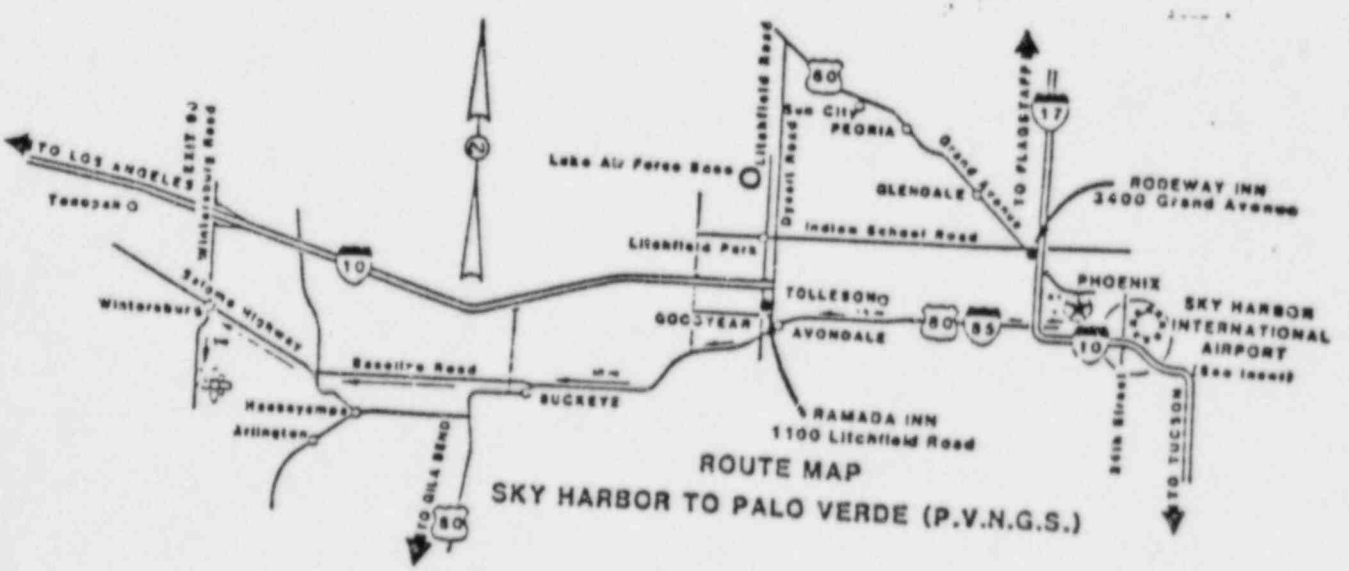
PRIMARY ROUTE FROM PHOENIX

TO PVNGS



ROUTE MAP

SKY HARBOR TO PALO VERDE (P.V.N.G.S.)



ROUTE MAP

SKY HARBOR TO PALO VERDE (P.V.N.G.S.)

ALTERNATE ROUTE FROM PHOENIX

TO PVNGS

PVNGS EMERGENCY PLAN IMPLEMENTING PROCEDURE	PROCEDURE NO. EPIP-57	
CORPORATE EMERGENCY RESPONSE	REVISION 0	Page 1 of 7

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PVNGS # 8-9B

DEPT. HEAD O.F. Zimmerman DATE 7/6/84

PRB/PRG REVIEW O.F. Zimmerman DATE 7/16/84

APPROVED BY O.F. Zimmerman DATE 7/16/84

EFFECTIVE DATE 07-20-84

DN-2205V/0520V

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APPENDICES

Appendix A - CEC Staffing Chart 7

1.0 OBJECTIVES

1.1 This procedure supplements Appendix H of the PVNGS Emergency Plan to describe activities of the Corporate Emergency Center (CEC).

2.0 REFERENCES

2.1 Implementing References

2.1.1 Corporate Emergency Procedures (CEP)

2.2 Developmental References

2.2.1 PVNGS Emergency Plan, Rev. 3

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 The CEC is activated at an ALERT or higher classification emergency at PVNGS.

4.0 DETAILED PROCEDURE

4.1 Personnel Indoctrination/Responsibilities

4.1.1 The Corporate Emergency Director (CED) has responsibility for overall direction and control of corporate level responses to support an emergency at PVNGS.

4.1.2 The Corporate Technical Coordinator has responsibility for providing technical advice to the CED; for acquisition of offsite assistance needed to mitigate an emergency; and keeping the CEC staff appraised of the emergency status of conditions at PVNGS.

4.1.3 The Corporate Financial Coordinator has responsibility for planning and coordination of all financial actions required to respond to an emergency at PVNGS.

4.1.4 The Corporate Communications Coordinator has responsibility for coordination of all media, public and governmental information dispersal.

4.1.5 The Corporate Legal Coordinator has responsibility for all legal support activities.

4.1.6 The Corporate Engineering Support Coordinator has responsibility for providing engineering and technical support to aid the EOD in mitigating the emergency; and for assisting in acquisition and coordination of offsite assistance.

4.1.7 The CEC has lead responsibility in the following areas:

4.1.7.1 Command, Control and coordination of corporate emergency efforts

4.1.7.2 Contracting and coordinating engineering support

4.1.7.3 Appraising public officials and agencies

4.1.7.4 Transportation support

4.1.7.5 Communications

4.1.7.6 Offsite security

4.1.7.7 Legal counsel

4.1.7.8 Administering nuclear property insurance

4.1.7.9 Quality Assurance

4.1.7.10 Reactor transient and accident analysis

4.1.7.11 Area logistical support

4.1.7.12 Materials procurement

4.2 Prerequisites

4.2.1 An ALERT or higher level classification has been declared at PVNGS and the CEC has been ordered activated by the CED.

4.3 Instructions

4.3.1 The CEC shall achieve operational status as soon as possible after notification of the declaration of an ALERT or higher classification at PVNGS.

4.3.2 Upon notification from the CED or his designee, to activate the CEC, the APS Security Coordinator at 411 North Central Avenue shall immediately assign a Security staff member to the CEC conference room to prepare for CEC activation.

4.3.3 The CED, or his designee, shall initiate notification of the CEC staff (See Appendix A) by attempting to first contact each primary and then their alternates as required until personnel for each CEC staff position have been notified. The 411 Building Security Captain shall provide for back-up notification to the CEC staff at the request of the CEC Director.

4.3.4 Upon notification from the CED or his designee to activate the CEC, assigned personnel shall report to the 9th floor conference room at 411 North Central Avenue for a situation briefing; excluding the Corporate Engineer Support Coordinator (CESC) who shall report to the Nuclear Administration Building and receive briefing via administratively dedicated commercial telephone system.

4.3.5 When the following criteria have been met, the CED shall declare the CEC operational to all present, and shall inform the EOF, CHIC, and JENC via dedicated ring-down circuits that the CEC is operational.

4.3.5.1 Sufficient CEC position personnel or alternates are present and accounted for,

4.3.5.2 CEC equipment is operational,

4.3.5.3 Respective CEC support staffs are in the process of activation, and

4.3.5.4 Key CEC position staff have completed their respective activation tasks to respond to PVNGS emergency needs.

NOTE

The CEC may remain active at the discretion of the CED to utilize the emergency organization structure to facilitate adequate recovery operations.

4.3.6 CEC Deactivation

4.3.6.1 The CEC shall be deactivated, by decision of the CED, when the PVNGS emergency has been reclassified to an UNUSUAL EVENT, and/or the Recovery Organization has been activated.

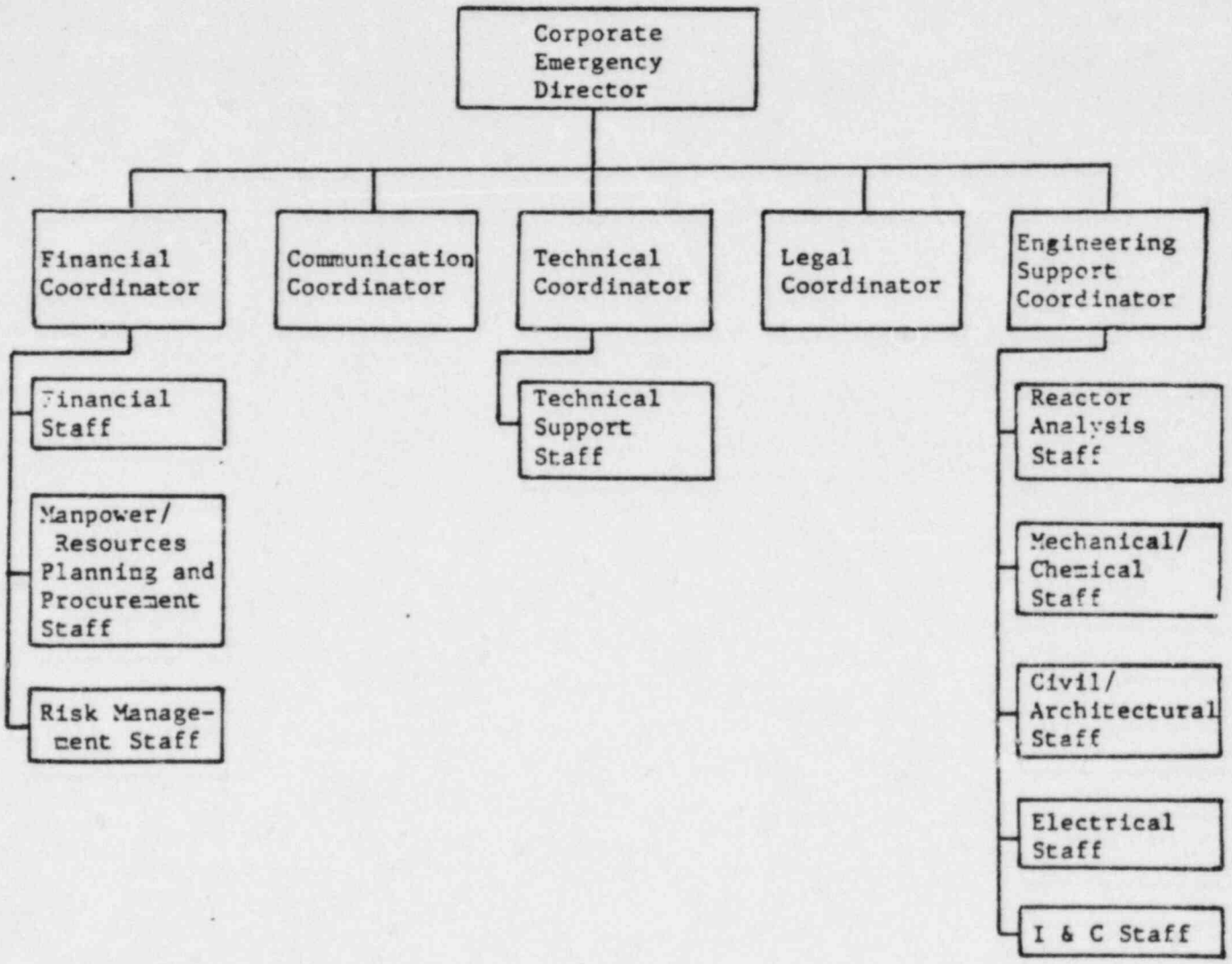
4.3.6.2 The CED shall request that the Corporate Financial Coordinator, Corporate Technical Coordinator, Corporate Communications Coordinator, Corporate Legal Coordinator, and Corporate Engineering Support Coordinator primaries assemble in the 9th floor conference room for debriefing.

4.3.6.3 The Corporate Technical Coordinator shall present a final briefing covering relevant technical aspects of the event, current status, and known recovery requirements. If requested by the CED, the Corporate Financial Coordinator, the Corporate Communications Coordinator and/or the Corporate Legal Coordinator shall also provide final briefings covering the current status and recovery requirements of the areas under their purview.

4.3.6.4 Each CEC official shall notify their alternates, staff, and appropriate external contacts that the PVNGS emergency has been mitigated, that the CEC has been deactivated, and that the emergency organization has reverted to a recovery mode.

4.3.6.5 The Corporate Technical Coordinator is responsible for restoring the CEC to pre-emergency condition as directed by the CED. The Corporate Technical Coordinator, or his designee, shall notify the building Security Coordinator to return CEC equipment to storage.

CEC STAFFING CHART



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 26, 1984

50-528/529/530 Palo Verde

MEMORANDUM FOR: Chief, Document Management Branch, TIDC

FROM: Director, Division of Rules and Records, ADM

SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The Division of Rules and Records has reviewed the attached document and has determined that it may now be made publicly available.

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Attachment: As stated