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Nuclear Regulatory Commission
Headquarters Operations Center
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11555 Rockville Pike, One White Flint North, MS 3H3
Rockville MD 20852-2738

Re: License R-66, Docket No. 50-62
License R-123, Docket No. 50-396

Dear Sir:

Enclosed please find the revised University of Virginia Reactor Facility Emergency Plan (EP), dated April 2004, and Revision #25 to the University of Virginia Reactor Facility Emergency Plan Implementing Procedures (EPIP). Also, included is an analysis of the changes made to the EP as required by 10CFR50.54(q) and 10CFR50.4, for changes that have been deemed to not have reduced the effectiveness of the plan.

Please substitute these two new documents in their entirety for the old documents that have been assigned to your agency. Your agency has previously been assigned copy #14 of these documents. If you do not have the original documents please retain these new documents as a controlled copy. Appropriately dispose of any previous documents. Return the attached sheet with your signature to me in order to verify that the changes have been made.

I have also been informed that copies #15 and #23 of these documents may be in your possession. These were originally assigned to Region 2 in Atlanta and accordingly were forwarded to Headquarters when responsibility for research reactors was transferred from the regions. If this is the case, please either destroy these copies, or update them with the new materials if you require the additional controlled copies in your offices. Please let me know if you have, or don't have, these copies and if you have them, whether you have destroyed them or updated them.

Thank you.

*I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 19, 2004.*

Sincerely,

A handwritten signature in black ink that reads "Paul E. Benneche". The signature is written in a cursive, flowing style.

Paul E. Benneche
Reactor Supervisor

cc: Daniel Hughes

A045
A020

10CFR50.54(q) Safety Analysis of Changes to University of Virginia Reactor Facility Emergency Plan
April 2004

The University of Virginia Reactor Facility is in the process of being decommissioned. For all practical purposes, the physical work necessary to decommission the reactor has been completed. The reactor fuel and other radioactive materials have been shipped off-site, all major components of the reactor have been removed and any remaining structural components (e.g., the reactor pool) have been decontaminated as required. The only significant radioactive material remaining on-site is the source material from the former Co-60 in-pool irradiator. This material is secured in a heavy storage/shipping cask locked in a shielded room where it will remain until it can be disposed of, or another suitably secure storage location can be found. Remaining decommissioning activities include: (1) the submittal of the final decommissioning report, with the results of the final status survey, to the NRC; (2) review of this document by the NRC; (3) confirmatory surveys, if required, by a NRC contractor; (4) approval of the final report by the NRC, along with termination of the reactor license.

Because both the magnitude and probability of a serious emergency at the reactor facility involving radioactive materials has been very greatly reduced it was thought to be prudent to rewrite the emergency plan to more accurately reflect the current conditions at the facility.

The following changes have been made:

(1) The wording in all sections has been changed to reflect the fact that the reactor is no longer operational, and is in fact no longer in existence except the shell of the building. For example: the definition of "reactor rooms" was changed from "the rooms containing the 2 MW UVAR (Room 131) and the 100 watt CAVALIER (Room G-007)" to "the room which contained the 2MW UVAR was room 131 and the 100 watt CAVALIER was in room G-007".

(2) In section 3.2, currently non-existing personnel (reactor operators and senior reactor operators) have been removed from having any emergency related responsibilities. These responsibilities are now assigned to "other knowledgeable and qualified individuals", such as staff members of the Office of Environmental Health and Safety.

(3) In section 5.1., the concentration of effluents and the limits on radiation dose rates and absorbed dose at the site boundary have been changed as follows:

	<u>Unusual Event</u>		<u>Alert</u>		<u>Site Area</u>		<u>General</u>	
	<u>Old</u>	<u>New</u>	<u>Old</u>	<u>New</u>	<u>Old</u>	<u>New</u>	<u>Old</u>	<u>New</u>
Effluent Limit	10EC	1EC	50EC	50EC	250EC	250EC	---	---
WB Dose (mrem)	15	10	75	75	375	100	1000	500
Dose Rate (mrem/h)	---	2	20	20	100	100	500	500

where EC equals the effluent concentration limit from 10CFR20, Table 2, Column 2, for unrestricted areas when averaged over 24 hours.

(4) In section 5.2, how radiation levels and effluent concentrations will be measured has been modified to take into account currently existing equipment and systems. As part of the decommissioning effort all previously existing fixed radiation monitoring systems within the building have been removed. The gamma spectroscopy system has also been retired. Any future measurements that need to be made will be made with either portable radiation measurement devices for exposure rates or the appropriate liquid scintillation or gas flow proportional counter for effluent concentrations.

(5) In the emergency response section (7.2), the use of any fixed radiation measuring systems at the reactor has been deleted. As stated previously, these systems have been removed as part of decommissioning. Portable instruments at the reactor and equipment at the Office of Environmental Health and Safety are now described.

(6) In the corrective actions section (7.4), previously described situations which describe conditions that no longer exist, such as an operating reactor, have been deleted.

(7) In the protective actions section (7.5), the methods for performing personnel accountability checks in the event that the building needs to be evacuated have been modified to take into consideration the small number of people that are currently using the facility and the security methods currently being employed.

(8) In the accident assessment, monitoring and sampling section (8.2), the use of any fixed radiation measuring systems at the reactor has been deleted. The uncalibrated nature of the meteorological instruments in the building is stated in the updated document. The current condition of the fire monitoring system (the current locations of the monitors and to which department this system is connected) is listed.

(9) The communications systems section (8.4), has been updated to reflect the current condition of the systems available. No described systems have been eliminated. Testing of these systems will continue to assure operability.

Conclusions:

There have been a large number of changes to the reactor building and its contents as part of the decommissioning process. The amount of radioactive material in the building has been reduced by many orders of magnitude from when the reactor was operational to the point where the probability and possible consequences of a radiologically related emergency at the facility has been reduced to a very low level. For practical purposes, there is not any reasonably anticipated situation that could produce any significant release of radioactive material off the reactor site. With this being the case, the changes to the Emergency Plan which have been made will not reduce the ability of individuals to respond to an emergency or the ability to protect the University staff and the public from the consequences of any emergency which might arise at the reactor.

This analysis was reviewed by the Reactor Decommissioning Committee on April 13, 2004.

UNIVERSITY OF VIRGINIA

RECEIPT FOR REVISION #25 TO THE UNIV. OF VIRGINIA REACTOR FACILITY
EMERGENCY PLAN IMPLEMENTING PROCEDURES

AND

REVISED EMERGENCY PLAN

DATED: April 19, 2004

DATE RECEIVED: _____

DATE FILED: _____

SIGNATURE: _____

NAME PRINTED: _____

TITLE OR POSITION: _____

AFFILIATION: _____

COPY NUMBER: _____

PLEASE COMPLETE AND RETURN TO:

Paul E. Benneche, Reactor Supervisor
Univ. of Va. Nuclear Reactor Facility
c/o Environmental Health & Safety
PO Box 400322
Charlottesville, Virginia 22904-4322

UNIVERSITY OF VIRGINIA REACTOR FACILITY

EMERGENCY PLAN IMPLEMENTING PROCEDURES

APRIL 2004

**UNIVERSITY OF VIRGINIA REACTOR FACILITY
EMERGENCY PLAN IMPLEMENTING PROCEDURES**

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EPIP-1 Emergency Director Controlling Procedure

Purpose: This is the Controlling Procedure that initiates the Emergency Plan's implementation. Initial assessment of a potential emergency condition is facilitated and the initiation of corrective and protective actions through implementation of subordinate EPIP's is begun.

User: Reactor Facility Director, Emergency Coordinator or most senior Emergency Organization member present at the Reactor Facility who is to assume the role of ~~Emergency Director. See Emergency Organization List, Attachment 2 to EPIP-1.~~

Entry Conditions to this EPIP:

1. A potential emergency condition is reported to the Reactor Director, or
2. Another procedure directs continuation of this procedure.

Instructions: Continue through each EPIP-1 step even after other EPIP's are initiated. Go from step to step until otherwise instructed.

1. Initiation of Procedure:
 - a. By: _____
 - b. Date: _____
 - c. Time: _____
2. Identification of Most Probable "Unusual Events" which require immediate action:
 - a. If the event is contaminated injured personnel:
 - (1) Initiate EPIP-12, "Personnel Monitoring and Decontamination".
 - (2) Initiate EPIP-13, "First Aid and Medical Care".
 - b. If the event is the following:
 - (1) Release of radioactive material
 - (a) Initiate EPIP-9, "Radiological Surveys"
 - (b) Consider need for sounding building evacuation alarm; refer to and initiate, if appropriate, EPIP-14, "Evacuation of On-site Areas" and EPIP-11 "Personnel Accountability".
 - c. If the event involves a fire at the Facility:
 - (1) Initiate EPIP-16, "Firefighting"
3. Event Assessment and Classification:
 - a. Refer to Attachment 1 to EPIP-1, Emergency Action Levels
 - (1) Using Attachment 1, evaluate the event and determine but do not yet declare the emergency classification.

Note 1: Declaration of the highest emergency class for which an emergency action level is exceeded shall be made.

- Note 2: Return to this Step 3 as necessary during the course of the emergency for possible reclassification.
4. Notification of Event to Facility Staff:
 - a. Notify RSO, Emergency Coordinator, Reactor Health Physicist and other knowledgeable individuals, in accordance with "Emergency Actions" Roster List in EPIP-6, "Notification of Emergency Response Personnel and Support Organizations".
 5. Verification of Event:
 - a. Verify EAL's exceeded using this EPIP (Step 3) and Emergency Plan (pages 16 through 22).
If EAL's are not exceeded, do not declare an emergency classification and go to Step 7 of this procedure.
 - b. If EAL's have been exceeded:
 - (1) Declare the appropriate emergency class:
Unusual Event, Alert, Site Area, or General and,
 - (2) Verify that Health Physics personnel have initiated EPIP-9, "Radiological Surveys".
 6. Initiation of other applicable major Emergency Plan Implementation Procedures (EPIP's 2, or 3, or 4, or 5):
 - a. Determine EPIP's to be entered based on event classification:
 - (1) If Unusual Event Emergency go to EPIP-2, "Response to Unusual Event Emergency".
 - (2) If Alert Emergency go to EPIP-3, "Response to Alert Emergency".
 - (3) If Site Area Emergency go to EPIP-4, "Response to Site Area Emergency".
 - (4) If General Emergency go to EPIP-5, "Response to General Emergency".
 - b. Return to Step 6 of this EPIP-1 when so directed by the above procedures. Until then do not proceed with EPIP-1.
 7. Securing from Event and Terminating Emergency Classification:
 - a. Notify On-Site and Off-Site emergency personnel involved that the emergency condition did not or no longer exists, in accordance with (IAW) EPIP-6, "Notification of Emergency Response Personnel and Support Organizations".
 - b. Initiate EPIP-19, "reentry" and/or EPIP-20, "Recovery", if applicable.
 - c. De-activate the On-Site emergency organization.
 8. Emergency Termination Notifications:
 - a. Initiate termination notifications IAW EPIP-7, "Notification of State and Local Governments".

b. Initiate termination notifications to NRC IAW EPIP-8, "Notification of NRC".

9. Reporting Requirements Verification:

a. Verify that required reports and notifications are made IAW EPIP 23, "Documentation and Records", 10 CFR, and UVAR and CAVALIER reactor Technical Specifications.

10. Administrative Actions:

a. Initiate replacement of any used procedures and forms.

b. Forward completed EPIP's, forms and other applicable records to the Reactor Facility Director for review.

11. Termination of EPIP-1, "Emergency Director Controlling Procedure":

a. Collect all EPIP's that have been initiated and terminated, for review and record keeping.

b. Prepare a written summary of emergency and submit to regulatory agencies as necessary, within 24 hours after the end of the emergency.

c. Close-out:

(1) Completed by: _____

Date: _____

Time: _____

ATTACHMENT 1 to EPIP-1
EMERGENCY ACTION LEVELS

1. Unusual Events Emergency

- a. Actual or projected radiological effluents at the site boundary, exceeding EC for unrestricted areas when averaged over 24 hours.

For air: $EC = 2 \times 10^{-14} \mu\text{Ci/ml}$ (based on most restrictive Pu-239)

For water: $EC = 2 \times 10^{-8} \mu\text{Ci/ml}$;

* If isotopic analysis is performed, then the applicable limit or sum of ratios of limit as specified in 10CFR20 Appendix B will apply.

- b. Projected dose of 10 mrem whole body to individual at the site boundary.
c. Radiation level at site boundary ≥ 2 mRem/hr.
d. Report or observation of a severe natural phenomenon that is imminent or existing.
e. Threats or breaches of security.
f. Fire within the Reactor facility lasting more than 10 minutes.
g. Personal injuries that are complicated by radio-contamination problems or radiation exposure.

2. Alert Emergency

- a. Actual or projected radiological effluents at the site boundary, exceeding 50 EC for unrestricted area when averaged over 24 hours.

For air: $50 EC = 1 \times 10^{-12} \mu\text{Ci/cc}$;

For water: $50 EC = 1.0 \times 10^{-6} \mu\text{Ci/ml}$;

* If isotopic analysis is performed, then the applicable limit or sum of ratios of limit as specified in 10CFR20 Appendix B will apply.

- b. Projected dose of 75 mrem whole body to individual at the site boundary.
c. Radiation levels at the site boundary of ≥ 20 mrem/hr.
d. Radiation levels at the site boundary of 20 mRem/hr for one hour whole body.
e. Loss of radioactive material control, that causes radiation dose rates to increase to 2 mRem/hr throughout the Reactor Facility (background levels for occupied areas are ~ 0.03 mRem/hr). These sustained dose rates require the evacuation of personnel from the Facility.
f. Fire that may affect on-site radioactive material.
g. Explosion that affects on-site radioactive material.
h. Any other situation or condition determined to fall in this class by the Facility Director.

3. Site Area Emergency

- a. Actual or projected radiological effluents at the site boundary, exceeding 250 EC for unrestricted areas when averaged over 24 hours

For air: 250 MPC = 5×10^{-12} μ Ci/cc;

For water: 250 MPC = 5×10^{-6} μ Ci/ml.

* If isotopic analysis is performed, then the applicable limit or sum of ratios of limit as specified in 10CFR20 Appendix B will apply.

- b. Actual or projected dose of 100 mrem whole body to individual at site boundary.
- c. Actual or projected radiation levels at the site boundary of 100 mrem/hr.
- d. Occurrence of severe natural events being experienced that might affect the safe storage of radioactive material on-site.
- e. Any other situation or condition determined to fall in this class by the Facility Director.

4. General Emergency

- a. Sustained actual or projected radiation levels at the site boundary of 500 mrem/hr.
- b. Actual or projected radiation dose levels at the site boundary in the plume exposure pathway of 500 mrem whole body.
- c. Loss of physical control of the Reactor Facility.
- d. Any other situation or condition determined to fall in this class by the Facility Director or Reactor Supervisor.

EPIP-2 Response of Unusual Event Emergency

Purpose: To provide guidance to the Emergency Director during the progress of an Unusual Event classified emergency.

User: Reactor Facility Director or designee.

Entry Conditions to this EPIP:

a) Entry from EPIP-1, "Emergency Director Controlling Procedure".

1. Initiation of Procedure:

a. By the Emergency Director: _____

b. Date: _____

c. Time: _____

2. Notification of appropriate Emergency Personnel:

a. Initiate EPIP-6, "Notification of Emergency Response Personnel and Support Organizations".

Note: The need for rescue squad and fire personnel notification is also addressed by EPIP-6.

3. Reporting of Unusual Event Emergency to the NRC:

a. Initiate EPIP-8, "Notification of NRC", and with Attachment 1 make an "Initial Report of Emergency to the NRC".

4. Evaluation of On-site Protective and Corrective Measures:

a. If the event involves the release of radioactive effluents and/or radio-contamination problems, initiate EPIP-9, "Radiological Surveys".

b. If the event is an actual or projected release of radiological effluents to the site boundary with resulting radionuclide concentrations in air $> 2 \times 10^{-14}$ $\mu\text{Ci/ml}$ air, and/or radionuclide concentrations in water $> 2 \times 10^{-8}$ $\mu\text{Ci/ml}$ water, and/or resulting in a projected whole-body dose > 10 mrem

(1) Continue EPIP-9, "Radiological Surveys".

(2) Initiate EPIP-10, "Assessment Actions".

c. If there is a report or observation of an imminent or existing severe natural phenomenon:

(1) Take any and/or all reasonable protective actions to assure the safety of personnel and sensitive materials.

d. If there are threats or breaches of security:

(1) Call the University Police at 9-911 (or 924-7166).

(2) Advise all personnel at Facility of the nature of the threats.

(3) Reinforce unauthorized entry prevention measures.

(4) Lock all sensitive keys in the Facility safe.

- (5) Contain, delay or apprehend intruders, if possible.
- (6) Initiate EPIP-18, "Facility Security".
- e. If fire exists within the Reactor Facility:
 - (1) Call the Fire Department at 9-911 (or 295-1125) and U.Va. Fire Emergency at 924-2012.
 - (2) Initiate EPIP-16, "Firefighting".
 - (3) Consider limited on-site Evacuation IAW EPIP-14, "Evacuation of On-site Areas".
- f. If personnel become injured with radio-contamination and radiation exposure complications:
 - (1) Call Charlottesville-Albemarle Rescue Squad at 9-911 (or 295-1191) and give summary of problems.
 - (2) Call the U.Va. Hospital at 924-2231/2232 and advise them of the situation.
 - (3) Initiate EPIP-9, "Radiological Surveys".
 - (4) Initiate EPIP-12, "Personnel Monitoring and Decontamination".
 - (5) Initiate EPIP-13, "First Aid and Medical Care".
- g. Other situations or conditions not covered by the Emergency Plan will be resolved by the Emergency Director as found reasonable under the circumstances.
- 6. Reporting to Off-Site Agencies:
 - a. Evaluate reporting criteria IAW EPIP-7, "Notification of State and Local Governments".
 - b. If required, initiate EPIP-7.
- 7. Follow-up NRC Notification:
 - a. Verify follow-up NRC notification IAW EPIP-8, "Notification of NRC" (see Attachment 2, Supplemental Report of Emergency to the NRC).
- 8. Check of Reactor Facility Conditions:
 - a. Check the condition of the Reactor building.
- 9. Check of Radiological Conditions at the Facility and On-site:
 - a. If radiological protective measures are not required, disregard this step and continue with the next step.
 - b. If radiological conditions are stable or improving (check results from EPIP-9, "Radiological Surveys"), continue course of action as outlined by Health Physics personnel, or IAW EPIP-10, "Assessment Actions".
 - c. If radiological conditions are deteriorating (i.e., are getting worse):
 - (1) consult with Health Physics personnel
 - (2) initiate further mitigating actions
 - (3) consider notification requirements addressed in Steps 6 and 7 of this procedure.

10. Verification and Control of Damage:
 - a. Verify and evaluate damage, if any, to Reactor Facility equipment (possibly as a result of fire, natural phenomena or breach of security).
 - b. Evaluate the following assistance requirements:
 - (1) off-site technical assistance.
 - (2) additional personnel.
 - (3) material and equipment.
 - c. Initiate any emergency repairs with Emergency Director approval.

11. Verification of the Unusual Event Emergency Classification:
 - a. Review EPIP-1, Attachment 1, "Emergency Action Levels".
 - b. Verify that no additional events have occurred and emergency has not escalated; if no new event is identified, proceed to Step 12.
 - c. If the emergency has escalated, and/or a new event is identified:
 - (1) notify Health Physics personnel.
 - (2) consider notification requirements addressed by Steps 6 and 7 of this procedure (EPIP-2).
 - (3) go to EPIP-1, "Emergency Director Controlling Procedure", Step 6, after closeout in Step 14 of this EPIP-2.

12. Check for Termination of Unusual Event Emergency:
 - a. Verify EAL's, EPIP-1, Attachment 1, "Emergency Action Levels":
 - (1) if not exceeded, go to Step 12.b in this EPIP-2.
 - (2) if EAL's are still exceeded, return to Step 4 of this EPIP-2.
 - b. Verify On-site and Off-site emergency personnel reports:
 - (1) if favorable, go to 13, in this EPIP-2.
 - (2) if not favorable, continue monitoring and return in Step 5 of this EPIP-2.

13. Termination of EPIP-2, "Response to Unusual Event Emergency":
 - a. Close out:
 - (1) submit a written summary to off-site regulatory and other authorities within 24 hrs. (Check requirements given in 10 CFR, Tech. Specs. and Emergency Plan).
 - (2) return to EPIP-1, "Emergency Director Controlling Procedure" Step 6 after signing out below, for upgrading of emergency classification or eventual termination of emergency conditions.
 - (3) Completed by: _____
 Date: _____
 Time: _____

EPIP- 3 Response to Alert Emergency

Purpose: To provide guidance to the Emergency Director during the progress of an Alert Emergency.

User: Reactor Facility Director or designee.

Entry Conditions to this EPIP:

- a) Entry from EPIP-1, "Emergency Director Controlling Procedure", either directly or after termination of EPIP-2, "Unusual Event Emergency".
 1. Initiation of Procedure:
 - a. By the Emergency Director: _____
 - b. Date: _____
 - c. Time: _____
 2. Notification of appropriate Emergency Personnel:
 - a. Initiate EPIP-6, "Notification of Emergency Response Personnel and Support Organizations":
 - (1) bring on-site emergency team to a state of readiness.
 3. Reporting of Alert Emergency to the NRC:
 - a. Initiate EPIP-8, "Notification of NRC" and with Attachment 1, make an "Initial Report of Emergency to the NRC".
 4. Reporting to Off-Site Agencies:
 - a. Initiate EPIP-7, "Notification of State and Local Governments". Use Attachment 1 for a "Report of Emergency to State and Local Governments".
 5. Evaluation of Reactor Facility Conditions:
 - a. If possible, verify radiation dose rates within the Facility.
 - b. If possible and applicable, verify extent of fire and explosion damage or potential for such.
 6. Evaluation of On-Site Protective and Corrective Measure:
 - a. Initiate EPIP-14, "Evacuation of On-site Areas" and EPIP-9, "Radiological Surveys".
 - b. Verify that the On-site Emergency Team has been activated (and is at a state of readiness) IAW EPIP-6, "Notification of Emergency Response Personnel and Support Organizations".
 - c. Initiate EPIP-10, "Assessment Actions".
 - d. Initiate EPIP-11, "Personnel Accountability".
 - e. Restrict access to Facility and initiate EPIP-18, "Facility Security".
 - f. If the event is an actual or projected release of radiological effluent to site boundary with resulting radionuclide concentrations in air $> 1 \times 10^{-12}$ $\mu\text{Ci/ml}$, and/or

concentrations in water $> 1.0 \times 10^{-6}$ $\mu\text{Ci/ml}$, and/or resulting in a projected whole-body dose > 75 mrem at the site boundary

- (1) Continue EPIP-9, "Radiological Surveys".
 - (2) Continue EPIP-14, "Evacuation of On-site Areas".
 - (3) Initiate EPIP-12, "Personnel Monitoring and Decontamination".
- g. In the event that radiation levels at site boundary are ≥ 20 mRem/hr:
- (1) Continue EPIP-14, "Evacuation of On-site Areas".
 - (2) Continue EPIP-12, "Personnel Monitoring and Decontamination".
- i. In the event of an increase in ambient exposure levels to > 2 mrem/hr throughout the Reactor Facility:
- (1) Sound the evacuation alarm and initiate or continue EPIP-14, "Evacuation of On-site Areas".
 - (2) Initiate or continue EPIP-9, "Radiological Surveys".
 - (3) Initiate or continue EPIP-10, "Assessment Actions".
 - (4) Initiate or continue EPIP-11, "Personnel Accountability".
 - (4) Restrict access to the Reactor Facility IAW EPIP-18, "Facility Security".
- j. In the event of a fire affecting on-site radioactive material
- (1) Call Fire Department at 9-911 (or 295-1125) and U.Va. Fire Emergency at 924-2012.
 - (2) Initiate EPIP-16 "Firefighting".
- k. In the event of an explosion that affects Facility operation:
- (1) Check for fire breakout. If found, return to sub-step f.
 - (2) Check for injured personnel. If found, initiate or continue as needed:
 - i. EPIP-11, "Personnel Accountability".
 - ii. EPIP-13, "First Aid and Medical Care."
 - iii. EPIP-9, "Radiological Surveys".
 - iv. EPIP-10, "Assessment Actions".
 - (3) Evaluate consequences of explosion and return to EPIP-1, "Emergency Director Controlling Procedure", Step 2, for possible emergency classification re-evaluation.
7. Check of Radiological Conditions at the Facility and On-Site:
- a. If the event results in the release of radioactive materials or other radiological problems, check progress with EPIP-9, "Radiological Survey" and update EPIP-10, "Assessment Actions".
 - b. If radiological conditions are not stable:
 - (1) Sound evacuation alarm and initiate EPIP-14, "Evacuation of On-site Areas

- (2) consider additional notification requirements addressed in Steps 10 and 11, of this EPIP-3.
8. Verification and Control of Damage:
- a. Verify and evaluate damage, if any, to Reactor Facility (possibly as a result of loss of material control, fire, explosion or other causes).
 - b. Evaluate the following assistance requirements:
 - (1) off-site technical assistance.
 - (2) additional personnel.
 - (3) material and equipment.
 - c. Initiate any emergency repairs with Emergency Director approval.
9. Follow-up NRC Notification:
- a. Verify follow-up NRC notification IAW EPIP-8, "Notification of NRC" (See Attachment 2, Supplemental Report of Emergency to the NRC).
10. Additional Reporting to Off-Site Agencies:
- a. Follow reporting criteria IAW EPIP-7, "Notification of State and Local Governments", and make "Report of Radiological Conditions to the State" using Attachment 2 to EPIP-7.
11. Verification of the Alert Emergency Classification:
- a. Review EPIP-1, Attachment 1, "Emergency Action Levels" and if a new event has been identified:
 - (1) notify Health Physics personnel and update EPIP-10, "Assessment Actions".
 - (2) ensure continuation of EPIP-8, "Notification of NRC".
 - (3) return to Step 6 of EPIP-1, "Emergency Director Controlling Procedure" for possible emergency reclassification. If event is reclassified, go to Step 14 of this EPIP-3 for closeout.
12. Checking for Termination of Alert Emergency:
- a. Verify EAL's given in EPIP-1, "Emergency Director Controlling Procedure", Attachment 1:
 - (1) if EAL's are not exceeded, go to Step 13.b of this EPIP-3.
 - (2) if EAL's are still exceeded, go to Step 6 of this EPIP-3.
 - b. Verify conditions within the Reactor Facility:
 - (1) if conditions are safe and stable, go to Step 13.c of this EPIP-3.
 - (2) if conditions are unstable, evaluate and return to Step 8.a of this EPIP-3.
 - c. Verify On-site and Off-site Emergency Personnel reports:
 - (1) if reports are favorable, and indicate emergency classification downgrading go to

Step 14 for termination of this EPIP-3.

(2) if reports are not favorable, return to Step 5 of this EPIP-3.

13. Termination of EPIP-3, "Response to Alert Emergency":

a. Close out:

(1) Submit a written summary to off-site regulatory and other authorities within 24 hours after termination of emergency conditions.

(2) Return to EPIP-1, "Emergency Coordinator Controlling Procedure" Step 6, for upgrading or downgrading of emergency classification and/or eventual termination of emergency conditions, after signing out below.

(3) Completed by: _____

Date: _____

Time: _____

EPIP-4 Response to Site Area Emergency

Purpose: To provide guidance to the Emergency Director during the progress of a Site Area Emergency.

User: Reactor Facility Director or designee.

Entry Conditions to this EPIP:

Entry from EPIP-1, "Emergency Director Controlling Procedure", either directly or after termination of EPIP-3, "Alert Emergency".

1. Initiation of Procedure:

- a. By the Emergency Director: _____
- b. Date: _____
- c. Time: _____

2. Notification of appropriate Emergency Personnel:

- a. Initiate EPIP-6 "Notification of Emergency Response Personnel and Support Organizations":
 - (1) bring on-site emergency team to a state of readiness.
 - (2) evaluate the immediate need for selective notification of off-site support organizations and personnel:
 - (a) notify UVa Office of Environmental Health and Safety and Radiation Safety Officer at 982-4911.
 - (b) notify local government authorities, through the Emergency Services Coordinator at 9-911.
 - (c) notify UVa Police Department at 9-911 (or 924-7166) and Albemarle County Police at 9-911 (or 296-5807).
 - (d) notify UVa Director of Information Services at 924-7116.

3. Reporting of Site Area Emergency to the NRC:

- a. Initiate EPIP-8, "Notification of NRC", and with Attachment 1 make an "Initial Report of Emergency to the NRC".

4. Reporting to Off-site Agencies:

- a. Initiate EPIP-7, "Notification of State and Local Governments". Use Attachment 1 for a "Report of Emergency to State and Local Governments".

5. Evaluation of Reactor Facility Conditions:

- a. Determine what effluents, if any, were released.
- b. Obtain actual or projected radiation levels at site boundary.
- c. Check for damage to equipment or Facility structure from fire or explosion.

6. Evaluation of On-Site Protective and Corrective Measures:
- a. Verify that the On-site Emergency Team has been activated (and continues to stand-by) IAW EPIP-6, "Notification of Emergency Response Personnel and Support Organizations".
 - b. If the event is an actual or projected release of radiological effluents to the site boundary with resulting radionuclide concentrations in air $> 5 \times 10^{-12}$ $\mu\text{Ci/ml}$ air and/or concentration in water $> 5 \times 10^{-6}$ $\mu\text{Ci/ml}$ water, and/or resulting in a projected whole body dose ≥ 100 mrem.
 - (1) Initiate or continue EPIP-2, "Radiological Surveys".
 - (2) Initiate or continue EPIP-14, "Evacuation of On-site Areas".
 - (3) Activate Off-site Emergency Center.
 - (4) Update radiological reports to NRC and Off-site Agencies IAW EPIP-8, Attachment 2, "Supplemental Report of Emergency to the NRC" and IAW EPIP-7, Attachment 2, "Report of Radiological Conditions to the State".
 - c. In the event that radiation levels at the site boundary are > 100 mRem/hr:
 - (1) Initiate or continue EPIP-9, "Radiological Surveys", with attention given to populated off-site areas.
 - (2) Initiate or continue EPIP-14, "Evacuation of On-site Areas".
 - (3) Activate Off-site Emergency Center.
 - (4) Update radiological reports to the NRC and Off-site Agencies IAW EPIP-8, Attachment 2, "Supplemental Report of Emergency to the NRC" and IAW EPIP-7, Attachment 2, "Report of Radiological Conditions to the State".
 - (5) Initiate or continue EPIP-11, "Personnel Accountability" and EPIP-12 "Personnel Monitoring and Decontamination".
 - d. In the event that a severe natural phenomenon has damaged the Reactor Facility structure:
 - (1) Consider possible emergency repairs.
 - (2) Evacuate non-essential personnel in an orderly manner IAW EPIP-14, "Evacuation of On-site Areas".
 - (3) Initiate or continue EPIP-11, "Personnel Accountability".
 - e. Evaluate conditions that authorize emergency radiation exposure limits to be incurred. Refer to EPIP-10, "Assessment Actions".
 - f. Direct University and/or local police to initiate access control to the Reactor Facility IAW EPIP-18, "Facility Security".

7. Check of Radiological Conditions at Facility and On-Site:
 - a. If the event results in the release of radioactive materials or other radiological problems check progress with EPIP-9, "Radiological Surveys" and update EPIP-10, "Assessment Actions".
 - b. If radiological conditions are deteriorating:
 - (1) confer with Health Physics personnel.
 - (2) initiate appropriate mitigating actions.
 - (3) consider notification requirements addressed in Steps 10 and 11, of this EPIP-4.
8. Verification and Control of Damage:
 - a. Verify and evaluate damage, if any, to Reactor Facility equipment (possibly as a result of fire, severe natural phenomena, breach of security of other cause).
 - b. Evaluate the following assistance requirements:
 - (1) off-site technical assistance.
 - (2) additional personnel.
 - (3) material and equipment.
 - c. Initiate emergency repairs with Emergency Director approval.
9. Follow-up NRC Notification:
 - a. Verify follow-up NRC notification IAW EPIP-8, "Notification of NRC" (See Attachment 2 of EPIP-8 Supplemental Report of Emergency to the NRC).

Note: Updates to off-site authorities should be provided at approximately 30 minute intervals.
10. Additional Reporting to Off-Site Agencies:
 - a. Follow reporting criteria IAW EPIP-7, "Notification of State and Local Governments" and send "Report of Radiological Conditions to the State", using Attachment 2 to EPIP-7.
11. Verification of Personnel Accountability:
 - a. Verify that all personnel are accounted for IAW EPIP-11, "Personnel Accountability".
 - b. If some personnel are not accounted for, initiate a search under the direction of the Emergency Director, if conditions permit.
12. Verification of the Site Area Emergency Classification:
 - a. Review EPIP-1, Attachment 1, "Emergency Action Levels" If no new event is identified, proceed with the next step (Step 14).

If a new event is identified which requires upgrading of classification to General Emergency:

 - (1) notify Health Physics personnel and update EPIP-10, "Assessment Actions".

- (2) insure continuation of EPIP-8, "Notification of NRC".
- (3) initiate EPIP-5 "Response to General Emergency", IAW EPIP-1, "Emergency Director Controlling Procedure," after completing (4) below.
- (4) close out EPIP-4 by going to Step 16 of this EPIP-4.

13. Checking for Termination of Site area Emergency:

- a. Verify EAL's given in Attachment 1, to EPIP-1, "Emergency Action Level":
 - (1) if EAL's are not exceeded, then go to Step 14.b. of this EPIP-4.
 - (2) if EAL's are still exceeded, go to Step 15 of this EPIP-4.
- b. Verify Reactor Facility conditions:
 - (1) if safe and stable, go on to Step 14.c of this EPIP-4.
 - (2) if unstable, evaluate and return to Step 6 of this EPIP-4.
- c. Verify On-site and Off-site Emergency Personnel reports:
 - (1) if reports are favorable, go to Step 15 of this EPIP-4 for emergency classification.
 - (2) if reports are not favorable, return to Step 6 of this instruction of this EPIP-4.

14. Checking for Site Area Emergency Downgrading

- a. Review EPIP-1, Attachment 1, "Emergency Action Levels":
 - (1) if event severity remains the same, return to Step 6 of this EPIP-4.
 - (2) if event severity is reduced, go to Step 16 for termination of this EPIP-4.

15. Termination of EPIP-4, "Response to Site Area Emergency":

- a. Close out:
 - (1) Submit a written summary of off-site regulatory and other authorities within 24 hours after termination of emergency conditions.
 - (2) Return to Step 6 of EPIP-1, "Emergency Director Controlling Procedure" after completing (3) below, for upgrading or downgrading of emergency classification and/or eventual termination of emergency conditions.

(3) Completed by: _____

Date: _____

Time: _____

EPIP-5 Response to General Emergency

Purpose: To provide guidance to the Emergency Director during the progress of a General Emergency.

User: Reactor Facility Director or designee.

Entry Conditions to this EPIP:

Entry from EPIP-1, "Emergency Director Controlling Procedure", either directly or after termination of one or more of the EPIP's 2, 3 and 4 for Unusual Event, Alert or Site Area Emergencies.

1. Initiation of Procedure:

- a. By the Emergency Director: _____
- b. Date: _____
- c. Time: _____

2. Notification of appropriate Emergency Personnel:

- a. Initiate EPIP-6, "Notification of Emergency Response Personnel and Support Organization":
 - (1) bring on-site emergency team to a state of readiness.
 - (2) notify all off-site support organizations giving priority to those whose services may be required immediately.
 - (a) notify immediately OEHS and the Radiation Safety Officer at 982-4911.
 - (b) notify the local government authorities, through the Emergency Services Coordinator at 9-911.
 - (c) notify UVA Police Department at 9-911 (or 4-7166) and Albemarle County Police at 9-911 (or 296-5807).
 - (d) notify UVA Director of Information Services at 4-7116.

Note: The initial notification of an emergency must be made to state and local governments within 15 minutes of its declaration. Updates to off-site authorities should be provided at approximately 30 minute intervals and after significant changes to reactor status, radiological data, or meteorological data.

3. Reporting of General Emergency to the NRC and State and Local Governments:

- a. Initiate EPIP-8, "Notification of NRC".
- b. Initiate EPIP-7, "Notification of State and Local Governments".

4. Evaluation of Reactor Facility Conditions:

- a. Ask for the actual or projected radiation levels at site boundary, and its intersection with radioactive effluent plume.

- b. Verify that Reactor Facility building is under the control of authorized individuals.
5. On-Site Personnel Accountability:
- a. Verify that On-Site Emergency Team has been activated and is at a state of readiness.
 - b. Initiate EPIP-11, "Personnel Accountability".
 - c. Direct University Police or local law enforcement agencies to initiate access controls to the Reactor Facility IAW EPIP-18, "Facility Security", which should be initiated or continued. Call UVa Police Department at 9-911 (or 4-7166) and Albemarle County Police at 9-911 (or 296-5807).
6. Activation of an Off-Site Emergency Support Center:
- a. Designate an Off-Site Emergency Support Center (OESC) to be used as a backup to the On-Site Emergency Center should radiological conditions warrant complete on-site evacuation. The offices of Environmental Health and Safety at the base of Observatory Hill are suggested for this. (Special Materials Handling Facility).
7. Evaluation of On-Site Protective Measures:
- a. Certify that EPIP-9, "Radiological Surveys" and EPIP-10, "Assessment Actions" are or have been activated.

Note: This class of emergency may involve an uncontrolled release of radioactive materials into the air, water, or ground to an extent that off-site monitoring and protective actions should be considered (whenever radiation levels at site boundary exceed 500 mrem/hr).

- b. Evaluate the requirement for limited or total on-site evacuation. If results from radiological survey and assessment indicate the need for facility evacuation (EPIP-9 and 10):
 - (1) direct all personnel to evacuate the on-site area and initiate EPIP-14, "Evacuation of On-Site Areas":
 - (a) sound the evacuation alarm.
 - (b) initiate or continue EPIP-11, "Personnel Accountability".
 - (c) perform radiological surveys of the Primary Assembly Area with Health Physics personnel giving considerations to the following:
 - (i) dose measurements of the area.
 - (ii) characteristics and direction of radioactive plume.
 - (iii) contamination vs. personnel safety and exposure.
 - (d) designate an Alternate Assembly Area if radiological surveys performed by health physics personnel indicate that the Primary Assembly Area is not satisfactory to assure personnel safety (by the Emergency Director).

- (e) survey people for possible radioactive contamination as they reach the designated assembly area. Separate potentially contaminated individuals from the group for further processing (by HP personnel).
- c. Evaluate the requirement for radiological protection:
 - (1) consult the Health Physics personnel and if indicated initiate EPIP-12, "Personnel Monitoring and Decontamination".
 - (2) initiate protective measures as required.
 - (3) assess the on-site radiological doses that emergency personnel could receive during the response to the emergency by checking results from EPIP-9, "Radiological Surveys" and EPIP-10, "Assessment Actions".
- d. Evaluate whether conditions require the authorization of emergency radiation exposure limits to be incurred by vital Emergency Personnel. Refer to the latest radiological survey reports.
- e. Evaluate the need for activating the Emergency Support Center (ESC) or Off-site Emergency Support Center (OESC).
- f. In the event that radiation levels at the site boundary are projected to or actually exceed a sustained reading of 5 mrem/hr:
 - (1) Make Off-Site Emergency Support Center operational.
 - (2) Check personnel accountability report (EPIP-11).
 - (3) Make certain no one remains on-site without an express duty or mission.
 - (4) Check status of EPIP-14, "Evacuation of On-Site Areas".
 - (5) Analyze probable reasons for high radiation levels. Take actions as necessary or possible to mitigate these.
 - (6) Continue EPIP-9, "Radiological Surveys", with some emphasis given to nearby populated off-site areas.
 - (7) Update radiological reports to the NRC and Off-Site Agencies IAW EPIP-8, Attachment 2, "Supplemental Report of Emergency to the NRC" and IAW EPIP-7, Attachment 2, "Report of Radiological Conditions to the State".
 - (8) Verify that self-reading pocket dosimeters have been issued to key personnel remaining closest to site. Determine accumulated readings and investigate over-exposures.
- g. In the event that the actual or projected radiation dose at the site boundary in the plume exposure pathway approaches 500 mrem whole body:
 - (1) Evacuate personnel and people from the plume pathway sector if time allows, otherwise shelter and instruct to turn off ventilation systems.

- (2) Obtain updated meteorological information from Facility weather instrumentation and update radiological reports to the NRC and Off-Site Agencies IAW EPIP-8 and EPIP-7, Attachments 2.
8. Check of Radiological Conditions at the Facility and On-site:
 - a. If radiological conditions are stable or improving then go to Step 9.
 - b. If radiological conditions are deteriorating:
 - (1) confer with Health Physics personnel
 - (2) initiate appropriate mitigating actions.
 - (3) consider notification requirements addressed in Steps 11 and 12 of this EPIP-5.
9. Verification and Control of Damage:
 - a. Verify and evaluate any damage to Reactor Facility equipment.
 - b. Evaluate the following assistance requirements:
 - (1) off-site technical assistance.
 - (2) additional personnel.
 - (3) material and equipment.
 - c. Initiate emergency repairs with Emergency Director approval.
10. Follow-up NRC Notification:
 - a. Verify the follow-up NRC notification IAW EPIP-8, "Notification of NRC" (See Attachment 2, Supplemental Report of Emergency to NRC).

Note: Updates to off-site authorities should be provided at approximately 15 minute intervals.
11. Additional Reporting to Off-Site Agencies:
 - a. Verify that updated Health Physics dose assessments are completed IAW EPIP-9, "Radiological Surveys".
 - b. Verify the timely follow-up of State/Local notification IAW EPIP-7, "Notification of State and Local Governments".
12. Verification of Personnel Accountability:
 - a. Verify that all personnel are accounted for IAW EPIP-11, "Personnel Accountability".
 - c. If any personnel are not accounted for, give consideration to initiating a search under the direction of the Emergency Director.
13. Recommendations for Off-Site Areas:
 - a. Recommendations shall be made by the Emergency Director after initial radiological surveys and assessments (EPIP-9 and 10) have been made by Health Physics personnel, with emphasis on:
 - (1) measured or projected off-site doses.

- (2) characteristics and direction of plume.
 - (3) probable duration of accident in which off-site personnel will be exposed to radiation.
 - (4) mitigating steps that can be taken to reduce off-site doses.
 - (5) near-site sheltering or partial evacuation.
 - b. If the Emergency Director recommends near-site sheltering or partial evacuation:
 - (1) notify affected areas IAW EPIP-7, "Notification of State and Local Governments".
 - (2) notify NRC IAW EPIP-8, "Notification of NRC".
14. Verification of General Emergency Classification:
 - a. Review EPIP-1, Attachment 1, "Emergency Action Levels" and if new event is identified:
 - (1) notify Health Physics personnel and update EPIP-10, "Assessment Actions".
 - (2) insure continuation of EPIP-7, "Notification of State and Local Governments" and EPIP-8, "Notification of NRC"
 - (3) initiate EPIP's to address new event, if necessary or applicable.
15. Check for Termination of General Emergency:
 - a. Verify Reactor Facility condition
 - (1) if safe and stable, go to Step 17 of this EPIP-5.
 - (2) if unstable, evaluate and return to Step 5 of this EPIP-5.
 - b. Verify EAL's given in Attachment 1 of EPIP-1, "Emergency Action Levels":
 - (1) if not exceeded, go to Step 17 of this EPIP-5.
 - (2) if EAL's are still exceeded, return to Step 5 of this EPIP-5.
16. Check for General Emergency Downgrading:
 - a. Review EPIP-1, Attachment 1, "Emergency Action Levels"
 - (1) if event severity is not reduced, go to Step 5 of this instruction.
 - (2) if event severity is reduced, reclassify the emergency and go to Step 18 of this instruction for termination of this EPIP-5 and return to EPIP-1.
17. Termination of EPIP-5, "Response to General Emergency"
 - a. Close Out:
 - (1) submit a written summary to off-site regulatory and other authorities within 24 hours after end of emergency conditions.
 - (2) return to Step 6 of EPIP-1, "Emergency Director Controlling Procedure" after completing (3) below, for downgrading of emergency classification and/or eventual termination of emergency conditions.

(3) Completed by: _____

Date: _____

Time: _____

EPIP-6 Notification of Emergency Response Personnel and Support

Organizations

Purpose:

1. To notify on-site and off-site emergency response personnel of an emergency situation.
2. To notify off-site emergency support organizations that may be asked to provide assistance during the course of the emergency.

User: On-site emergency team member designated by Emergency Director to be Emergency Communicator.

Entry Conditions: Initiation directed by the Emergency Director and by any of the EPIP's 1, 2, 3, 4 and 5.

1. Initiation of Procedure:

- a. Initiated by: _____
Time: _____
Date: _____

2. Notification of Emergency Response Personnel:

- a. Use all available telephones (or back up radios and walkie talkies) and personnel to make notifications as rapidly (and regularly) as possible:
 - (1) call, in order, the individuals not present at the Facility who are listed in the Emergency Actions list and which are also named in the following list:

<u>Emergency Response Personnel</u>	<u>Home Telephone</u>	<u>Time Notified</u>
Paul Benneche, Reactor Supervisor	979-3286	_____
Debby Steva, Reactor HP, Assistant RSO	296-2035	_____
Ralph Allen, Radiation Safety Officer	979-2902	_____
Mike Cohen, Radiation Safety Specialist	296-3021	_____

- (2) record above the time notification has been completed.
- (3) inform Emergency Director that notification of on-site emergency response personnel has been completed.

3. Notification of Off-Site Emergency Support Organizations:

- a. Emergency messages will be transmitted with text to be approved by the Emergency Director. Emergency Communications equipment is described in EPIP-17, "Emergency Communications".
- b. Notify off-site support organizations as directed by the Emergency Director giving priority to those whose services may be required immediately. Use the following list.

<u>ORGANIZATION</u>	<u>CONTACT PERSON</u>	<u>TELEPHONE</u>	<u>TIME NOTIFIED</u>
UVA OFFICE	Deborah Steva	982-4911 / 4917 (W)	_____
OF ENVIRONMENTAL		296-2035 (H)	_____
HEALTH AND SAFETY	Michael Cohen	982-4911 / 4918 (W)	_____
		296-3021 (H)	_____
	Ralph Allen	982-4911 (W)	_____
		979-2902 (H)	_____
UVA POLICE		9-911	_____
		or..... 924-7166	_____
		or..... 924-7167	_____
CHARLOTTESVILLE-ALBEMARLE		9-911	_____
RESCUE SQUAD		or..... 295-1191	_____
CHARLOTTESVILLE		9-911	_____
FIRE DEPT		or..... 295-1125	_____
UVA MEDICAL CENTER		924-2231	_____
ALBEMARLE COUNTY		9-911	_____
POLICE DEPARTMENT		or..... 296-5807	_____
VA. OFFICE OF EMERGENCY SERVICES, LOCAL		9-911	_____
VA. OFFICE OF EMERGENCY SERVICES,		804-674-2400	_____
STATE OFFICE, RICHMOND			
VIRGINIA STATE POLICE		804-352-7128	_____
		or..... 1-800-552-0962	_____
OAK RIDGE REGION COORDINATING OFF.		⁴⁶⁵ 615-576-1005	_____
OF RADIOLOGICAL EMERGENCY ASSIST.		⁴⁶⁵ or..... 615-525-7885	_____

(off duty hours)

4. Terminate EPIP-6, "Notification of Emergency Response Personnel and Support Organizations":

a. Inform Emergency Coordinator and Director that notification of off-site support organizations has been completed.

b. Close-out:

(1) Completed by: _____

Time: _____

Date: _____

EPIP-7 Notification of State and Local Governments

Attachments:

1. Report of Emergency to State and Local Governments
2. Report of Radiological Condition to the State

Purpose:

1. To initially notify state and local governments of the declaration of an emergency.
2. To provide periodic status updates to state and local governments during an emergency.
3. To notify state and local governments of any change in emergency status.

User: On-Site emergency team member designated by Emergency Director to be Emergency Communicator.

Entry Conditions:

Any one of the following:

- (a) Emergency is declared, or
- (b) Approximately 30 minutes have passed since last notification, or
- (c) The status of any notification item has changed, or
- (d) Entry to EPIP-7 is directed by the Emergency Director,

Note: The initial notification of an emergency to state and local governments must be made within 15 minutes following the declaration of the emergency. Follow-up reports of emergency conditions should be sent approximately every 30 minutes or when there are changes in emergency conditions.

1. Initiate Procedure:
 - a. Initiated by: _____
Time: _____
Date: _____
2. Obtain Emergency Report Form to be Completed Prior to Notification:
 - a. Use Attachment 1, "Report of Emergency to State and Local Governments", which is located at the end of this procedure. Have several copies of this form on hand for subsequent updates.
3. Obtain Emergency Status Information:
 - a. Obtain information from Emergency Director.
 - b. Record in Items 1 thru 5 of first copy of Attachment 1 to EPIP-7.
4. Check Off-Site Radioactive Release Status:
 - a. Release - has occurred, or
 - b. Is occurring, or
 - c. Is projected

- (1) if no release has occurred, is occurring, or is projected, record "None" in Item 6 of Attachment 1 to EPIP-7 and go on to Step 5 of this EPIP-7.
 - (2) if release has occurred, record data available in Item 6 of Attachment 1 to EPIP-7 and continue.
5. Determine Wind Conditions:
 - a. Obtain data from local meteorological equipment, or call the airport at 973-4458 for regional conditions.
Note: Give wind direction as compass point and not in degrees, i.e. "the wind sock indicates a wind velocity of ____ mph from the ____ (direction)"
 - b. Record meteorological data in Item 7 of Attachment 1 to EPIP-7.
6. Determine Affected Areas:
 - a. Use wind direction which you have entered in Item 7 of Attachment 1 to EPIP-7.
 - b. Obtain results from Health Physics personnel concerning off-site radiological surveys and assessments.
 - c. Record affected areas in Item 8 of Attachment 1 to EPIP-7.
Note: During the initial stages of the emergency, off-site radiological surveys and assessments may still be in progress and results not available. If not available, enter N Av. and continue.
7. Inform Emergency Coordinator and Emergency Director of currently available meteorological data.
8. Update meteorological data approximately every 15 minutes.
9. Record Remarks:
 - a. Obtain remarks from the Emergency Director or Emergency Coordinator regarding the emergency and record them in Item 9 of Attachment 1 to EPIP-7.
10. Record Your Name and Title:
 - a. Place this information in Item 10 of Attachment 1 to EPIP-7.
11. Obtain Approval to Transmit Message to State and Local Governments:
 - a. Show completed Attachment 1 to EPIP-7 to Emergency Director.
 - b. Receive Emergency Director's approval to transmit message.
12. Transmit Message to State and Local Governments:
 - a. Use telephone system (or back-up radio if telephone system is not operating).
If necessary, refer to EPIP-17 "Emergency Communications".
 - b. Call the following local governments in the order listed below:
 - (1) Charlottesville-Albemarle Emergency Services 9-911
 - (2) Virginia Office of Emergency Services 1-800-468-8892

- c. If time permits, call UVA Director of Information 4-7116 to transmit updated messages.
13. Record Time Message Sent:
 - a. Record time at the bottom of Attachment 1 to EPIP-7.
14. Retain completed copies of Attachment 1 to EPIP-7 for future reference.
15. Inform Emergency Director that emergency report was sent to the state and local governments.
16. Evaluate Need to Send Radiological Conditions Report to the State:
 - a. Report must be prepared and sent if a General Emergency has been declared, or an off-site release of radioactive material is presently occurring or is projected to occur.
(If none of these have occurred, do not prepare or send report and go to Step 18)
17. Inform the State that a "Report of Radiological Conditions" (Attachment 2 to EPIP-7) Will Be Sent:
 - a. Use the telephone system to reach the duty officer at the Office of Emergency Services of the State of Virginia at 1-800-468-8892 or 804-674-2400.
 - b. The following type of message is recommended.

"This is the University of Virginia Reactor Facility, Charlottesville, Va. As a result of a declared state of (Emergency Classification) emergency at our Facility we will transmit a report of radiological conditions to you shortly. Please refer to the Emergency Plan Implementation Procedure No. 7 of the University of Virginia Reactor Facility Plan and be ready to transcribe data onto your copy of Attachment 2 to EPIP-7."
 - c. Go to Step 19.
18. Inform the State that a "Report of Radiological Conditions (Attachment 2 to EPIP-7) Will Not Be Sent:
 - a. Use the telephone system to reach the duty officer at the Office of Emergency Services of the State of Virginia at 1-800-468-8892 or 804-674-2400.
 - b. The following type of message is recommended:

"This is the University of Virginia Reactor Facility, Charlottesville, Va. Despite the declaration of an (Emergency Classification) emergency at our Facility, we will not transmit a report of radiological conditions to you at this time since a release of radioactive material has not occurred and is not projected to occur. Please refer to your copy of the University of Virginia Reactor Facility Emergency Plan and associated EPIP-7."
 - d. Go to Step 32

19. Obtain Radiological Report Form:
 - a. Find and obtain copy of Attachment 2, "Report of Radiological Conditions to the State", Located at the end of this procedure.

Note: The initial report of radiological conditions must be transmitted to the state as soon as possible following the declaration of an emergency involving an off-site release of radioactive material and/or the declaration of a General Emergency.

Follow-up reports should be sent to the state approximately every 30 minutes or whenever there are changes in radiological conditions.
20. Determine Release Data:
 - a. Obtain information from the Emergency Coordinator or Emergency Director.
 - b. Record release data in Items 1 thru 4 of Attachment 2 to EPIP-7.
21. Obtain wind direction and speed from most recent Attachment 1 to EPIP-7 completed:
 - a. Record this data in Item 5 of Attachment 2 to EPIP-7.
22. Determine Ambient Temperature:
 - a. Call weather information at 295-2111.
 - b. If not known, make an estimate of temperature.
 - c. Record ambient temperature in Item 6 of Attachment 2 to EPIP-7.
23. Determine Local Precipitation:
 - a. Determine and record type of precipitation in Item 6 of Attachment 2 to EPIP-7.
24. Record Radiological Data:
 - a. Obtain data from health physics personnel and if not known, record as unknown.
 - b. Record this data in Items 7 thru 10 of Attachment 2 to EPIP-7.
25. Record Recommended Off-Site Protective Actions:
 - a. Obtain recommended protective actions from the Emergency Director.
 - b. Record information in Item 11 of Attachment 2 to EPIP-7.
26. Record Reactor Facility Conditions:
 - a. Obtain Reactor Facility Conditions from Emergency Coordinator or Emergency Director.
 - b. Include a brief description of the cause of the emergency.
 - c. Record conditions in Item 12 of Attachment 2 to EPIP-7.
 - d. Record next scheduled report up-date in Item 13 to Attachment 2 to EPIP-7.
27. Record Your Name and Title:
 - a. Record these in Item 14 of Attachment 2, to EPIP-7.

28. Obtain Approval to Transmit Radiological Conditions Message to the State:
 - a. Show the completed copy of Attachment 2 to EPIP-7 to the Emergency Director.
 - b. Receive the Emergency Director's approval to transmit report to the State.
29. Transmit Radiological Conditions Report message to the State:
 - a. Use the telephone system to reach the duty officer at the Office of Emergency Services of the State of Virginia at 1-800-468-8892 or 804-674-2400
 - b. Transmit the data from Attachment 2 to EPIP-7 beginning with the following message:

"This is the University of Virginia Reactor Facility, Charlottesville, Va. We will not transmit to you a "Report of Radiological Conditions" as previously announced. Be prepared to record data on your copy of EPIP-7's Attachment 2. Are you ready to receive the report?"
30. Record Time Message Sent:
 - a. Record time in Item 14 of Attachment 2 to EPIP-7
31. Retain Attachment 2 to EPIP-7:
 - a. Retain completed copy of Attachment 2 for later review and records.
32. Inform the Emergency Director that Radiological Conditions Report was (was not) sent to the State.
33. Relief of Duty:
 - a. If you will not be relieved, go to Step 34 (next step).
 - b. If you will be relieved perform the following:
 - (1) brief your relief on current status of emergency.
 - (2) review the last copies of Attachments 1 and 2 to EPIP-7 that have been completed.
 - (3) transfer this procedure and all completed attachments to your relief.
 - (4) advise the Emergency Director and Coordinator that you have been relieved.
 - c. Record relief:
 - (1) Relieved by: _____
 Time: _____
 Date: _____
34. Determine Need for Follow-up Notification:
 - a. If status of any information on Attachment 1 or Attachment 2 to EPIP-7 has changed go to Step 2 of this EPIP-7.
 - b. If status has not changed, wait approximately 30 minutes from the time the last notification form was initiated, then return to Step 2 of this EPIP-7.
 - c. If emergency status has ended, send notification of termination of emergency as per

Attachment 1, EPIP-7, Item 1, to State and Local Governments. Use telephone number 1-800-468-8892 (Va. Office of Emergency Services) specified in Item 12 of EPIP-7 and continue.

3.5 Terminate EPIP-7, "Notification of State and Local Governments":

- a. Verify Emergency Status and proceed if emergency has ended. Otherwise return to Step 2 of this EPIP-7.
- b. Forward all completed EPIP's and attachments to the Reactor Facility Director for review after completing c. below

c. Completed by: _____

Time: _____

Date: _____

REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS

Message: "This is the University of Virginia Reactor Facility, Charlottesville, Va. Standby for an emergency report. Please refer to the University of Virginia Reactor Facility Plan, Attachment 1 to EPIP-7, for a copy of the appropriate form on which to record the data that will now be reported. Are you ready to receive this report?"

Item 1. Declared Emergency class:

Unusual Event

Alert

Site Area Emergency

General Emergency

Emergency terminated (if checked, go to Item 9)

Declared at _____ on _____ / _____ / _____

(Time)

(Date)

Item 2: Assistance requested:

None

Fire Units from _____

Police Units from _____

Rescue Units from _____

Other _____

Item 3: Emergency response actions underway:

None

On-Site Emergency Team Activated

Off-Site Emergency Support Organizations called in

On-Site Radiological Survey Underway

Other _____

Item 4: Evacuation of on-site personnel:

Not necessary at this time

Yes, Evacuated to _____

Item 5: Prognosis of situation:

Improving

Worsening

Stable

Other Occurrences _____

Item 6: Release of radioactive material:

Has not occurred and is not projected to occur

Has occurred at _____ and terminated at _____

Is presently occurring at _____, began at _____

Is projected to occur at about _____

Item 7: Wind direction is from the _____; Wind speed is _____ MPH

Item 8: Area affected by radioactive material release:

None

Location _____

Item 9: Remarks: _____

Item 10: This is _____ / _____

(Name)

(Position)

Emergency status report transmitted at 1) _____

2) _____

3) _____

(Times)

Transmitted to: _____ / _____

(Name)

(Position)

: _____ / _____

(Name)

(Position)

: _____ / _____

(Name)

(Position)

REPORT OF RADIOLOGICAL CONDITIONS TO THE STATE

Message: "This is the University of Virginia Reactor Facility, Charlottesville, Va. Standby for report of radiological conditions. Refer to the University of Virginia Emergency Plan, Attachment 2 to EPIP-7 for the appropriate form on which to record the data that will now be reported. Are you ready to receive this report?"

Item 1. Type of release is:

- airborne
- waterborne
- surface spill

Item 2: Release of _____ began at _____
(Material) (Time)

or

Release of _____ is estimated to begin at _____.

Item 3: Release duration of _____ to _____ was _____ hrs.
(Material) (to Medium) (Time)

Release duration of _____ to _____ is estimated to
(Material) (to Medium)

(be, have been) _____ hrs.
(Time)

Item 4: Wind direction currently is from the _____.

Wind speed is _____ MPH.

Item 5: Ambient temperature is _____ °F, at _____
(Location)

Current Precipitation at the Facility:

- None
- Rain
- Sleet
- Snow
- Other _____

Item 6. Actual dose rate at the site boundary is

mR/hr.

Actual dose rate at the site boundary is unknown at present.

Item 7. Estimated dose rates are:
mR/hr at the site boundary.
mR/hr at 2 miles.
unknown at present.

Item 9. Projected total integrated whole body dose is:
mR at the site boundary
mR at 2 miles
unknown at present

Item 10. Actual surface radioactive contamination is:
DPM/100 cm² at _____
(Location)
unknown at present

Item 11. Recommended off-site protective actions:
None _____
Sheltering in locations _____
Evacuation of _____ to _____
Other _____

Item 12. Reactor Facility conditions are as follows (Give brief description of cause of emergency):

Item 13. Next up-date report on radiological conditions is scheduled to be sent out in:
30 minutes or less (approximately).
not scheduled, as this is the final report.

Item 14. This is _____ / _____
(Name) (Position)
Report sent out at _____ on _____ / _____ / _____
(Time) (Date)
Report sent to 1) _____ / _____
(Name) (Title)
(Phone No.) _____
2) _____ / _____
(Name) (Title)
(Phone No.) _____

EPIP- 8 Notification of NRC

Attachments:

1. Initial Report of Emergency to the NRC.
2. Supplemental Report of Emergency to the NRC.

Purpose:

1. To initially notify the NRC of a declaration of classified emergency
AND
2. To provide supplemental emergency status reports to the NRC.

User: On-Site emergency team member designated by Emergency Director to be Emergency Communicator.

Entry Conditions:

Any one of the following:

- a) Entry from any of the EPIP's 1, 2, 3, 4 or 5 upon declaration of an emergency,
OR
- b) Entry to EPIP-8 is directed by the Emergency Director or Designee.

Note: The initial notification of an emergency at the Facility to the NRC must be made as soon as possible and in all cases within 1 hour. For this purpose, Attachment 1, to EPIP-8 should be filled out.

1. Initial Procedure:

- a. Initiated by: _____
Time: _____
Date: _____

2. Obtain Initial Report Form

- a. Get a copy of Attachment 1 to EPIP-8 "Initial Report of Emergency to the "NRC", which is located at the end of this procedure.

3. Complete Form:

- a. Obtain information from Emergency Director or health physics personnel, as appropriate, in order to complete Item 1 thru 12 in Attachment 1 to EPIP-8.

4. Obtain Approval to Transmit Initial Emergency Report to the NRC:

- a. Show completed copy of Attachment 1 to EPIP-8 to the Emergency Director.
- b. Receive Emergency Director's approval to transmit initial report to the NRC.

5. Transmit Initial Notification Message to NRC:

- a. Use the telephone system to call NRC Operations Center, Bethesda, Maryland at (301)-951-0550 and read message section of Attachment 1.
- b. Also call NRC Region II Office in Atlanta, GA at (404)331-4503 and repeat the same

message.

6. Record Time Message Sent:
 - a. Record the time that the message was sent to NRC offices in Maryland and Georgia in Item 13 of Attachment 1 to EPIP-8.
7. Retain completed copy of Attachment 1 to EPIP-8 for later review and records.
8. Inform Emergency Director that initial emergency notification to the NRC in Maryland and Atlanta was completed.
9. Obtain Supplemental Emergency Report Form:
 - a. Find copy of Attachment 2 to EPIP-8 "Supplemental Report of Emergency to NRC", located at the end of this procedure.
10. Record Emergency Status Information:
 - a. Complete Section A, Items 1 and 2, of Attachment 2 to EPIP-8.
11. Record Action Taken or Planned:
 - a. Complete Section B, Items 1 and 2, of Attachment 2 to EPIP-8.
12. Check Radioactive Release Status:
 - a. Verify whether a radioactive release has (has not) occurred, or
 - b. that a release is (is not) occurring or projected then complete Section C, Items 1 thru 14, of Attachment 2 to EPIP-8 and continue.
13. Check Fire Status:
 - a. If no fire is involved, go to Step 15 of this EPIP-8.
 - b. If the event involves fire:
 - (1) complete Section E, Items 1 thru 3, of Attachment 2 to EPIP-8.
14. Check Contaminated Injured Personnel Status:
 - a. If no personnel have been injured go to Step 16 of this EPIP-8.
 - b. If the event involves the transport of contaminated, injured personnel to an off-site hospital:
 - (1) complete Section E, Item 1 of Attachment 2 to EPIP-8.
15. Check Security Status:
 - a. if the event involves a bomb threat:
 - (1) complete Section G, Items 1, 2.a and 2.5, of Attachment 2 to EPIP-8.
 - b. If the event involves an act of sabotage:
 - (1) complete Section G, Items 1, and 3.a thru 3.d, of Attachment 2 to EPIP-8.
 - c. If event involves actual or attempted intrusion:
 - (1) complete Section G, Items 1, and 4.0 thru 4.h, of Attachment 2 to EPIP-8.

16. Check Natural Event Status:
 - a. If the event involves a natural event complete Section H, Items 1 thru 3, of Attachment 2 to EPIP-8.
17. Identify yourself:
 - a. Complete Section I, of Attachment 2 to EPIP-8.
18. Obtain Approval to Transmit Supplemental Emergency Report to the NRC in Maryland and Atlanta:
 - a. Show completed copy of Attachment 2 to EPIP-8 to Emergency Director.
 - b. Receive Emergency Director's approval to transmit this message.
19. Transmit Supplemental Emergency Report to NRC:
 - a. Use the telephone system to reach the NRC Operations Center in Bethesda, Maryland at (301)-951-0550:
 - (1) Read Attachment 2 to EPIP-8.
 - b. Also call the NRC Region II Office in Atlanta, GA at (404)331-4503 and repeat the same message given in sub-step a.
20. Record Time Message Sent:
 - a. Record the time messages that were sent to NRC offices in Maryland and Georgia in Section K of Attachment 2 to EPIP-8.
21. Retain completed copy of Attachment 2 to EPIP-8 for later review and records.
22. Inform Emergency Director that the Supplemental Emergency Report to the NRC in both Maryland and Atlanta was transmitted.
23. Verify Emergency Status:
 - a. If notification of termination of emergency has not been sent then go to Step 25 of this instruction.
 - b. If emergency termination notice is to be sent, then go to Step 26 of this instruction.
24. Maintain Communications with the NRC:
 - a. Keep the NRC informed of significant changes in emergency status until the NRC directs otherwise.
 - b. Update status report at least every 30 minutes by returning to Step 9 and working through the steps in sequence.
25. Close Down Communications With NRC:
 - a. Request permission from the NRC to close down communications with them, following the filing of this final Supplemental Emergency Report.
 - b. When permission is granted, secure telephone communications after filing final Supplemental Emergency Report.

26. Terminate EPIP-8, "Notification of NRC":

- a. Inform the Emergency Director that communications with the NRC have been closed down.
- b. Forward all completed EPIP's and attachments to the Reactor Facility Director for review and record keeping.
- c. Completed by: _____

Time: _____

Date: _____

INITIAL REPORT OF EMERGENCY TO THE NRC

Message: "This is the University of Virginia Reactor Facility, Charlottesville, Va. Standby for an initial emergency report. Please refer to the University of Virginia Reactor Facility Emergency Plan, Attachment 1 to EPIP-8, for a copy of the appropriate form on which to record the data that will now be reported. Are you ready to receive this report?"

Item 1: Emergency Class:
Unusual Event
Alert
Site Area Emergency
General Emergency

Classified at _____ on _____ / _____ / _____
(Time) (Date)

Item 2: Event description (check all applicable):

fire
contaminated, injured personnel
security incident
natural event
other _____

Item 3: Cause of the event was (brief description):

Item 4: We _____ do, _____ do not have contamination as a result of the event.

Item 5: We _____ do, _____ do not have a release of radioactive material as a result of the event.

Item 6: Other problems are (brief description):

Item 7: Unusual or not understood conditions are (brief description):

Item 8: We have taken the following actions (check all applicable):

activated on-site Emergency team
performed on-site radiological survey
performed off-site radiological survey
evacuated the Reactor Facility
evacuated nonessential personnel to off-site areas
requested Fire Dept. assistance
requested Rescue Squad assistance
requested law enforcement assistance

none

other _____

Item 9: We plan to take the following actions (check all applicable):

activate On-Site Emergency Team

perform on-site radiological survey

perform off-site radiological survey

evacuate the Reactor Facility

evacuate nonessential personnel to off-site areas

request Fire Dept. assistance

request Rescue Squad assistance

request law enforcement assistance

none

other _____

Item 10. We _____ have, _____ have not notified the State of Virginia and local governments.

We _____ will, _____ will not be notifying the local and state governments.

Item 11. This is _____ / _____
(Name) (Position)

Item 12: Message transmitted at:

on _____ / _____ / _____

(Time) (Date)

to NRC Operations Center, Bethesda, MD., (301)951-0550

to: (NRC contact)

on _____ / _____ / _____

(Time) (Date)

to NRC Region II Office, Atlanta, GA., (404)331-4503

to: (NRC contact)

NRC Operations Center Backup Tel. No's for Event & Emergency Notification, to be used when other #'s are inoperable: 301-427-4056 or 301-427-4259 or 301-492-8893

SUPPLEMENTAL REPORT OF EMERGENCY TO NRC

Message: "This is the University of Virginia Reactor Facility, Charlottesville, Va. Standby for supplemental emergency report. Please refer now to Attachment 2 to EPIP-8 of the U.Va. Reactor Facility Emergency Plan for a copy of the appropriate form on which to record the data that will now be reported. Are you ready to receive this report?"

A. Emergency Status:

Item 1: Emergency Class

- Unusual Event
- Alert
- Site Area Emergency
- General Emergency

Classified at: _____ on ____/____/____
(Time) (Date)

Item 2: Event description (check all applicable):

- radiological release event (if checked, complete below B,C,I,J, below)
- fire (if checked, complete B,E,I,J below)
- contaminated, injured personnel (if checked, complete B,F,I,J below)
- security incident (if checked, complete B,G,I,J below)
- natural event (if checked, complete B,H,I,J below)
- other (if checked, briefly describe here and complete B,I,J below)

B. Actions Taken or Planned:

Item 1: We have taken the following actions (check all applicable):

- activated on-site Emergency team
- performed on-site radiological survey
- performed off-site radiological survey
- evacuated the Reactor Facility
- evacuated nonessential personnel
- requested Fire Dept. assistance
- requested Rescue Squad assistance
- requested law enforcement assistance
- notified state and local governments
- activated the Off-Site Emergency Center
- none

other _____

Item 2.

We plan to take the following actions (check all applicable):

- activate on-site Emergency team
- perform on-site radiological survey
- perform off-site radiological survey
- evacuate the Reactor Facility
- evacuate nonessential personnel
- request Fire Dept. assistance
- request Rescue Squad assistance
- request law enforcement assistance
- notify state and local governments
- activate the Off-Site Emergency Center
- none
- other _____

C. Radiological Release Status (complete if applicable):

1. Release of radioactive materials

- had (has not) occurred
- is (is not) presently occurring
- is (is not) projected to occur

2. The release is

- liquid
- gaseous

3. The release source is: _____

(Describe)

4. The release duration

- was ____ hrs.
- is estimated to be ____ hrs.

5. The release rate is:

- microcuries/sec
- unknown

6. The release amount is:

- Curies
- unknown

7. Elevated radiation levels are
 not present at the Reactor Facility
 present in the Reactor Facility, with _____ mr/hr
 in the _____
 (Location)
8. We have
 not evacuated any area
 evacuated from the _____
 (Location)
 to the _____
 (Location)
9. The meteorological conditions are as follows:
- Wind direction is from the _____
 - Wind speed is _____ MPH.
 - Temperature is _____ °F.
 - Local Precipitation conditions
 none
 rain
 sleet
 snow
 other _____
10. Estimated present off-site dose rates are
 mR/hr at exclusion fence
 mR/hr at 2 miles
 unknown
11. Projected integrated Whole Body doses are
 mR at exclusion fence over ____ hrs.
 mR at 2 miles over _ hrs.
 unknown
12. Reactor Facility surface contamination is
 DPM/100 cm² at _____
 unknown (Location)
13. On-Site (outside Reactor Facility) surface contamination is
 DPM/100 cm² at _____
 unknown (Location)

14. Off-Site surface contamination is
DPM/100 cm² at _____
(Location)

D. Fire Status (complete if applicable):

1. The fire is located at _____
2. The fire is
out
contained
worsening

and began at approximately _____ AM / PM

E. Contaminated, Injured Personnel Status (complete if applicable):

1. We have transported _____ contaminated, injured individuals to an off-site hospital.
(No.)

F. Security Incident Status (complete if applicable):

1. The security incident involves
a bomb threat (if checked, complete G.2 below)
sabotage (if checked, complete G.3 below)
an intrusion attempt (if checked, complete G.4 below)
2. (Complete for a bomb threat incident)
 - a. A search for the bomb was _____
conducted. Results of the search were _____
not conducted
 - b. The Reactor Facility was _____
not evacuated
evacuated
3. (Complete for a sabotage incident)
 - a. Sabotage is suspected for the following reasons:
 - b. The following equipment/items have been affected:
 - c. The affected equipment/items involve
personnel safety
other _____
 - d. A search for further sabotage was _____
conducted. Results of the search were _____
not conducted

4. (Complete for an intrusion incident)
 - a. An intrusion was
 - made
 - attempted
 - b. The intrusion involved _____ people.
(No.)
 - c. The intruders were
 - armed
 - unarmed
 - d. The reason for the intrusion was _____
unknown
 - e. The intruders
 - have been apprehended
 - are still at large
 - f. Is there evidence that another intrusion may be attempted?
 - yes
 - no
 - g. injuries to personnel
 - has occurred (briefly describe) _____
 - h. Facility/equipment damage
 - has occurred (briefly describe) _____
 - has not occurred

G. Natural Event Status (complete if applicable):

1. The natural event was
 - high winds
 - flooding
 - severe storms
 - earthquake
 - other _____
2. The natural event is
 - over
 - still in progress
3. Facility/equipment damage
 - has occurred (briefly describe) _____
 - has not occurred

H. This is (is not) the Final Supplemental Report.

I. This is _____ / _____
(Name) (Title)

J. Message transmitted at _____ / _____
(Time) (Date)

to: NRC Operations Center, Bethesda, MD (301) 951-0550

to: _____ (NRC Contact)

Message repeated at _____ / _____ to NRC Region II Office, Atlanta, GA
(Time) (Date)

(404)331-4503

to: _____ (NRC Contact)

EPIP-9 RADIOLOGICAL SURVEYS

Purpose: Provide guidance for performance of radiological surveys of the Reactor Facility, the surrounding area within the site and if needed, off-site areas nearby.

Users: Health Physics Personnel (or reactor staff member until relieved by HP).

Entry Condition:

A. Activated by another major EPIP (2,3,4 or 5).

1. Initiate Procedure:

a. Initiated by: _____

Time: _____

Date: _____

2. Survey Methods:

a. Precautions:

- (1) If dose rate field exceeds 500 mR/hr, discontinue survey, leave area immediately and notify Health Physics and/or the Emergency Director.
- (2) If the survey instrument fails to respond, discontinue survey, leave area immediately and notify Health Physics and/or the Emergency Director.
- (3) Do not enter an area or room where the dose rate is expected to exceed the range scale on the survey instrument.

b. Procedures for Radiation Level Survey:

- (1) Obtain nearest available calibrated ionization chamber or GM tube, copies of survey maps of the area(s) of interest (provided as Attachments to this EPIP) and protective clothing (if necessary). A self-reading dosimeter should be worn when entering an area where an unknown radiation field exists.
- (2) Before entering a potentially contaminated area, don protective clothing (if time and circumstances permit).
- (3) Perform battery check on survey instrument and allow as much time as possible (up to five minutes) for instrument to warm up in one of the "on" modes.
- (4) Read exposures in mR/hr and set scale selector switch to highest setpoint on the survey instrument prior to entering an area or room. Observe needle movement. If needle does not respond or pegs scale, check failsafe mode of instrument and try other scales. If needle pegs on highest scale discontinue survey and leave area. Select scale that indicates reading between 0 and end of scale.
- (5) Survey the area by holding the instrument initially at waist level with the arm extended in front of the body. Move instrument with a slow 180° sweep. Allow several seconds for the instrument to respond (varies from less than one second

to several seconds depending on the instrument).

- (6) If a radiation level greater than 10 mR/hr is detected in a room or an area, sweep the instrument in such a manner as to localize the source of radiation. If a "hot spot" exists and can be localized, take readings at contact and at 1 meter.
- (7) Carefully note all readings on a survey map (may be hand-drawn, if necessary).

c. Procedures for Airborne Samples Analysis:

- (1) Obtain either the AC or DC-powered air pump (as appropriate) from either the Health Physics Office or OEHS. Also obtain filters to fit the chosen instrument aperture (47 mm for the AC-powered unit, 100 mm for the DC-powered unit). Locate associated operations manual stored with sampler.
 - (2) The AC powered unit is to be used inside the Reactor Facility in the following manner:
 - (a) Check the air pump in the lab by plugging it in, turning it on and holding the air flow meter in an upright position. Adjust the flow rate by turning the knob at the bottom of the meter. Set the flow rate to 40 l/m. If the flow falls below 30 l/m check for crimped intake or output hoses.
 - (b) Place the air sampler(s) in the desired area, turn on and place a 47 mm filter paper, soft side up, over the pump intake. Record the initial flow rate and start time.
 - (c) Allow the pump to run for 30 minutes. Check and record the final flow rate. Turn off the pump and record the shut-off time. Remove the filter paper and place it in a clean plastic bag or envelop.
 - (d) Exercise extreme caution not to disturb the surface of the filter paper. Take it, along with a clean, unexposed paper, to location it will be analyzed.
 - (e) Count sample filters with appropriate, calibrated instrumentation.
 - (f) Convey the raw counting results to Health Physics or the Emergency Director for further analysis.
 - (3) The DC powered air pump requires a 12 volt (automobile or truck type) battery for operations.
 - (a) Set up the pump in the desired area. Attach the positive and negative cables to the appropriate poles of the battery. Turn the pump on.
 - (b) Place a 100 mm filter paper (soft side up) over the inlet port. Note the start time and start air flow rate.
 - (c) Turn unit off, note stop time and final flow rate. Disconnect the cable.
 - (d) Count this filter with appropriate, calibrated instrumentation.

- (e) Convey the raw counting results to Health Physics or the Emergency Director for further analysis.
 - d. Procedures for Water Sample Analysis:
 - (1) Obtain clean plastic collection container.
 - (2) Collect the samples at the designated locations.
 - (3) Analyze these samples by following appropriate procedures and using appropriate instrumentation .
- 3. Planned Survey and Sampling Locations:
 - a. Unusual Event Emergency
 - (1) Non-routine radiation level surveys and water and air analysis are to be performed to determine if this emergency classification should be implemented. Similar routine surveys and analysis are performed on a regular basis by Health Physics Personnel and include all areas of the facility, all areas outside the facility out to and including the site boundary, and all effluents released to non-restricted areas.
 - (2) Projected levels of radiological effluents at the site boundary which may (in the determination of Health Physics or Emergency personnel) exceed Emergency Action Level limits, (EAL's), are to be individually assessed by the RSO or other, Health Physics personnel.
 - (a) Downstream water samples are to be collected from the creek at the Intersection of Barracks Road and Rt. 29 North (off Meadowbrook road).
 - (b) Site boundary air samples are to be collected with the portable air monitor, first at a location at the site boundary downwind of the Reactor Facility, then at appropriate points designated by the Health Physicist and/or Emergency Director.
 - (c) Site boundary radiation level readings are to be taken along the entire perimeter of the site boundary.
 - b. Alert Emergency
 - (1) The same routine procedures as used in this EPIP-9.3.A are to be followed.
 - (2) Ambient exposure levels within and outside the Reactor Facility are to be routinely monitored to detect increases above EAL's. In addition, at the discretion of either RSO, Health Physicist or the Emergency Director, an emergency survey is to be made throughout the Reactor Facility with appropriate survey meters.
 - c. Site Area Emergency/General Emergency
 - (1) The same routine procedures as used in this EPIP-9.3.A. are to be followed.

- (2) Furthermore, emergency radiation surveys shall be conducted at any time and throughout the facility and at the site boundary if either the RSO, Health Physicist or the Emergency Director projects that Emergency Action at the site boundary may be exceeded.

4. Emergency Control Center Location Hierarchy:

- a. A hierarchy of locations within the facility to be used as Emergency Control Centers in case of an emergency shall be established. A determination of suitability for occupancy will be made by the Radiation Safety Officer and/or the Emergency Director.
- b. If deemed suitable for temporary occupancy, the following areas may be selected as Emergency Control Centers (in descending order of preference):
 - (1) Office #126 (front office at Reactor Facility)
 - (2) Any available first floor office
 - (3) Nearest available and suitable area outside the Reactor Facility building.
- c. After the Radiation Safety Office and/or the Emergency Director has deemed that an Emergency Control Center should be abandoned, a reassessment will be made to determine the next available location.

5. Radiological Survey Assessment Considerations:

- a. Portable instruments
 - (1) Portable instruments used will be calibrated in accordance with UVa license requirements. (Currently yearly calibration with operational checks before and after each use).
- b. Low Background Counter:
 - (1) The low background alpha-beta proportional counter located in the low-background counting room (as of October 2003) may be used to count swipes, filters or other samples if the room is accessible, the instrument is available and is calibrated. Other appropriate instrumentation is located at OEHS and may be used for such analysis.
 - (2) The counter is to be calibrated or cal. checked during such use, with an NIST traceable source or laboratory standard.
- c. Results of Surveys and Recommended Corrective Actions are to be given to the Emergency Director.

6. Terminate EPIP-9, "Radiological Surveys":

- a. Forward completed EPIP and forms to Emergency Director for review and record keeping.
- b. Return to initiating EPIP.

c. Close-out:

1) Completed by: _____

Time: _____

Date: _____

EPIP-10 Assessment Actions

Purpose: Provide guidance for assessment of emergency situations.

User: Emergency Director or Senior member of emergency team present at the Facility upon initiation of emergency condition(s).

Entry Conditions:

Activated by another major EPIP (2, 3, 4 or 5).

1. **Initiate Procedure:**

a. **Initiated by:** _____

Time: _____

Date: _____

In the event of an emergency situation, classification of the severity of the emergency will be determined by the criteria in EPIP-1, Attachment 1. This determination will be made by the Emergency Director or Senior member of the emergency team present at the onset of the emergency. Assessment actions can be divided into several areas of interest rather than being grouped under specific emergency classifications, since certain assessment actions are necessary to gather preliminary information prior to the classification of an emergency.

2. **Reactor Facility Assessment Actions**

a. **Evacuation due to High Radiation Levels**

If an emergency arises that involves high radiation within the Facility, immediately evacuate personnel to a safe area and follow procedures in EPIP-11, "Personnel Accountability".

Call emergency team if they are not at the Facility as noted in EPIP-6, "Notification of Emergency Response Personnel". Obtain self-reading dosimeters and portable survey instruments (locations are listed in EPIP-15) for key emergency response personnel. Attempt to identify the cause or source of high radiation. Check radiation levels at site boundary to determine if unrestricted areas are affected. Activate EPIP-9, "Radiological Surveys" when Health Physics personnel arrive or earlier if required.

b. **Responses to Personnel Injury**

Administer first aid as noted in EPIP-13 and determine if outside medical help is needed. If radioactive contamination is present or suspected notify Health Physics personnel and activate EPIP-12. If injured personnel are in a high radiation area, move them to a safe location and cordon off the high radiation area.

c. **Evacuation due to Fire**

If the emergency situation involves a fire, attempts should be made to extinguish the

fire with existing equipment, if feasible. Locations of extinguishers are listed in EPIP-15. Make fire emergency announcement over Facility intercom. A call should also be made for assistance from the local Fire Department. Determine if the fire involves possible radioactive contamination and outside assistance is needed. Follow recommended procedures in EPIP-16 on fire fighting, if feasible.

d. Evacuation due to Bomb Threats

Immediately evacuate building and notify police dispatcher at 9-911 or (4-7166). Lock doors and check all sensitive areas. Account for all personnel as per EPIP-11. Senior staff member should accompany police into building when they arrive. Personnel should be assembled at a safe distance from Facility and the surrounding area cordoned off by police. If an explosive device is actually detonated at the Facility, initiate EPIP-19, "Reentry" to assess damage and recommend recovery actions.

e. Preparation for Natural Phenomena

If there is evidence of unusually violent storm activity or an impending earthquake assure that communications are available with off-site personnel. Personnel safety should be of primary concern in such situations.

3. Off-Site Rad-Survey Assessment Actions

If an emergency situation develops that might involve areas beyond the site boundary EPIP-9, "Radiological Surveys" should be activated as soon as possible. The results of these surveys should be analyzed to determine the emergency classification as described in EPIP-1. The Emergency Director or his designee will make this determination.

If it is suspected that radiological effluents have been released beyond the site boundary that are in excess of 10 CFR part 20 limits, the following actions should be considered.

If the effluent is liquid, consideration should be given to releasing as much of the hold-up pond as necessary to act as a dilutant.

If the effluent is airborne, determine wind direction and velocity and obtain air samples downwind of the facility.

4. Personnel Emergency Exposure Limits

Should a situation occur in which emergency personnel are needed for entry into an area of high radiation that would result in personal exposures in excess of 10CFR20 limits, for the purpose of saving life, reducing property damage or reducing the risk of exposure to the general public, volunteers will be approved by the Emergency Director.

Recommended limits for emergency exposure are 25 Rem, whole body dose to reduce property damage and 75 Rem, whole body dose to save a life. According to 10 CFR 20.403,

if emergency doses have been received, the Administrator of Region II has to be notified of the occurrence by telephone and telex within 24 hours. A written report has to be sent to the Director of Regulatory Operations (our current title), NRC, Wash. D.C. 20545 with a copy to the Administrator of Region II, within 30 days. If 10CFR-20 exposure limits are indeed exceeded, the Nuclear Regulatory Commission shall be notified in accordance with 10 CFR 20.403.

5. Terminate EPIP-10.

Terminate by: _____

Time: _____

Date: _____

EPIP-11 Personnel Accountability

Purpose: To determine if personnel are unaccounted for in the Facility or the On-Site area following the declaration of an emergency (and within about 30 minutes following an unannounced evacuation).

User: Emergency Coordinator or designated Senior Reactor Operator.

Entry Conditions:

Any one of the following

- a. Activation by another major EPIP (2, 3, 4, or 5), or
- b. Declaration of an emergency evacuation, or
- c. Anytime deemed necessary by the Emergency Director.

1. Initiate EPIP-11.

- a. Initiated by: _____
Time: _____
Date: _____

2. Verify Evacuation Status:

- a. If evacuation has been ordered, go to Step 4 of this EPIP-11.

3. Initiate Evacuation:

- a. Make announcement over the Reactor Facility intercom (dial 707 on any phone) as follows:

*Attention all personnel, attention all personnel, report immediately to

_____ for accountability.

(location)

4. Collect the dosimetry badge racks, the pocket dosimeters and the visitors log from the front lobby before evacuating the building.

Note: Lists of personnel granted unescorted access to the facility, updated periodically, will be kept in a holder behind the film badge racks.

5. Perform Personnel Accountability:

- a. Determine which personnel are present at the Reactor Facility by a search of the dosimetry badge racks for missing and unaccounted for badges, by noting whose cars are present in the parking lot, by reviewing the visitors log and by questioning those present at the assembly area about who might still be in the building.

Because of the small number of individuals now using the building security badges are no longer issued to all those granted unescorted access.

- b. Ascertain which personnel, if any, have a likelihood of still being in the building. If personnel are thought to still be in the building, and it is safe and possible to do so,

send a staff member into the building to search for the missing personnel. If high radiation levels are involved, issue dosimeters and portable monitors to personnel re-entering the building.

6. Inform Emergency Director and Repeat Accountability Check:
 - a. Forward list of missing personnel to the Emergency Director.
 - b. Repeat one more time Step 5 of this EPIP
7. During re-entries by authorized personnel for the purpose of determining the extent of the emergency, a visual check of all accessible areas will be made to detect personnel still within the facility.
8. Terminate EPIP-11, "Personnel Accountability":
 - a. Forward completed EPIP to Emergency Director for review and record keeping.
 - b. Return to initiating EPIP.
 - c. Close-out:

(1) Completed by: _____

Date: _____

Time: _____

EPIP-12 Personnel Monitoring and Decontamination

Purpose: Provide guidance for decontamination of personnel.

User: Health physics personnel.

Entry Conditions:

Activated by another major EPIP (2, 3, 4 or 5).

1. Initiate Procedure:

- a. Initiated by: _____
Time: _____
Date: _____

2. Obtain Monitoring Equipment:

- a. Obtain necessary portable monitoring equipment from the emergency lockers, other designated areas within the Reactor Facility or from the Office of Environmental Health and Safety and proceed immediately to designated decontamination area or monitoring area. EPIP-15, "Emergency Equipment and Instrumentation" lists the available equipment and their location.

3. Contaminated Individual With Injuries:

- a. If a contaminated individual is injured and requires first aid activate EPIP-13 after notifying the Emergency Director.
- (1) If injury is serious, the first priority is to provide rapid medical treatment for the affected person.
 - (2) decontamination should be done prior to medical treatment only if this delay in medical treatment will not jeopardize the individual or make their condition worse.
 - (3) perform as much decontamination as medical status permits.

4. Perform Survey:

- a. Perform initial body contamination survey, documenting results on Attachment 1 and 2 of this EPIP-12.
- (1) pay particular attention to the nose and mouth area to determine possible internal contamination.
- b. If internal contamination is suspected, note this on Attachment 1 and:
- (1) have individual clean nose with wet cotton swabs.
 - (2) have individual blow nose frequently.
 - (3) record swab reading on Attachment 1.

Note: Cease decontamination if skin becomes reddened or starts bleeding.

5. Contamination Limits:

- a. If individuals are decontaminated to levels as low as reasonable achievable (below 100

CPM above background) they may be released.

- b. If individuals cannot be decontaminated at levels less than 100 CPM above background:
 - (1) inform Emergency Director prior to releasing the individual.
 - (2) individual may be released if contamination is found to be fixed (≤ 2 mR/hr) and follow-up decontamination and/or dose evaluation is made.

6. Internal Contamination:

- a. Individuals suspected of having internal contamination should be evaluated with a bio-assay program.
- b. Arrangements should be made with Va. Power at the North Anna Nuclear Generating Station to perform a Whole Body Count.

7. Perform Decontamination:

- a. Refer to Step 5 of this EPIP-12 for contamination limits.
- b. Remove contaminated clothing from individual and bag clothing.
- c. If contamination problem is widespread:
 - (1) shower using soap and water, keeping radioactive material away from body openings.
 - (2) dry thoroughly, placing towel in plastic bag or contaminated material waste barrel.
 - (3) repeat survey and log again data on Attachment 1.
 - (4) if contamination still exists repeat showering and surveying, recording survey data on Attachment 1.
 - (5) if contamination still exists, select most highly contaminated areas and start decontamination for localized areas.
- d. If contaminated area is localized, isolate the area and perform the following actions (Survey and record data on Attachment 1 after each step):
 - (1) clean using soap and water.
 - (2) apply non-abrasive soap and water.
 - (3) carry out other recommendations from Health Physics personnel
- e. If contamination is found in eyes or open wound:
 - (1) flush copiously with water.
 - (2) record contamination data on Attachment 1.
- f. If contamination is found in hair:
 - (1) shampoo, isolating face and shoulders.
 - (2) consider cutting or shaving hair from the affected area if contamination cannot be removed.

8. Administration:

- a. Return all completed survey results to the Emergency Director for review and record keeping.

9. Terminate EPIP-12, "Personnel Monitoring and Decontamination":

- a. Forward completed EPIP-12 to Emergency Director for review and recordkeeping.
- b. Return to initiating EPIP.
- c. Close-out:

(1) Completed by: _____

Date: _____

Time: _____

PERSONNEL DECONTAMINATION PROCEDURE

1. Contaminated Individual: _____
2. Dosimetry Badge #: _____ Date: _____ Time: _____
3. Contamination Occurred in (Area): _____
4. While Involved in (Type Work): _____
5. Personal Clothing or Equipment Contaminated: Yes _____ No _____
6. Items(List): _____
7. Disposition of above listed items _____
8. If internal contamination is suspected, the individual should be given a whole body count.
Contact Virginia. Power at North Anna Nuclear Power Station.
9. Internally Contaminated? Yes _____ No _____ Not Sure _____
If yes, notify the Emergency Director immediately.
10. Body Areas Externally Contaminated: _____
11. Decontamination:

Survey Instrument	Decon.	HP			
<u>Time</u>	<u>Skin Area</u>	<u>Probe</u>	<u>Reading</u>	<u>Agent</u>	<u>Initials</u>

12. Health Physics Remarks: _____
13. Return to Step 5 of EPIP-12 and continue.
14. Health Physics clearance and signoff by: _____
Date: _____

EPIP-13 First Aid and Medical Care

Purpose: To provide guidance for first aid and medical care of accident victims.

User: Emergency team and/or Rescue squad personnel.

Entry Conditions:

Activated by another EPIP.

1. **Initiate Procedure**

a. Initiated by: _____

Time: _____

Date: _____

It is beyond the scope of this procedure to describe treatment for every possible injury that might occur. It is important to assess the situation immediately and get professional medical help, if needed. Some typical initial actions are recommended.

2. **Prerequisites:**

a. Check for emergency medical identification on the victim.

b. Check breathing and vital signs.

1) Airway open - open and maintain victim's airway.

2) Breathing - if victim is not breathing, begin rescue breathing techniques immediately.

3) Circulation - if victim has no pulse, start external cardiac compression immediately, i.e. CPR.

c. Check for bleeding - apply direct pressure and elevate injured limb.

d. Look for signs of shock and broken bones (*fractures*). Do not move victim with fracture until splint has been properly applied.

e. Get professional medical help quickly if needed. Call local rescue squad at 9-911.

Describe problem, number of individuals involved, your name and location. If radioactive contamination is involved activate EPIP-12. Refer to EPIP-15 for location of emergency equipment and instrumentation.

3. **Bleeding:**

a. Have victim lie down. Elevate injured limb higher than heart unless you suspect a broken bone.

b. Control bleeding by applying direct pressure on the wound with a sterile pad or clean cloth.

c. If bleeding is controlled by direct pressure, bandage firmly with clean bandages to protect wound. Check pulse to be sure bandage is not too tight.

d. If direct pressure is ineffective, apply pressure to arteries leading to the affected area.

e. **Apply a tourniquet only as a last resort.**

4. Burns:

Caution:

Do not clean or break blisters.

Do not remove any clothing that sticks to burns.

Do not apply grease, ointment or medication to a severe burn.

Do not use cotton or material with loose fibers to cover burns.

a. First degree burns: redness or discoloration of skin surface; mild swelling and pain.

(1) Apply cool, wet cloths or immerse in cool water. Do not use ice.

(2) Blot gently: apply a dry, sterile pad or cloth if necessary.

b. Second degree burns: - deep burn with red or mottled appearance; blisters; considerable pain and swelling; skin surface appears wet.

(1) Treat as for first degree burn.

(2) If arms and legs are affected, elevate above heart level.

(3) Be alert for signs of shock or infection.

c. Third degree burns - deep tissue destruction with a white or charred appearance; no pain at burn site.

(1) Treat for shock (see Step 5).

(2) Do not touch or cough over burned areas. Victims with facial burns should be propped up and observed for breathing difficulty. Maintain open airway.

(3) If arms or legs are affected, elevate above heart level.

(4) Apply cold pack only to face, hands or feet.

(5) Cover burns with sterile non-stick pads or clean cloths.

(6) Arrange transportation to hospital as soon as possible.

5. Shock

Caution: Shock is a dangerous condition and can be fatal. Expect some degree of shock in any emergency. Do not give anything by mouth.

Symptoms:

Unusual weakness or faintness; cold, pale, clammy skin; rapid, weak pulse shallow irregular breathing; chills; nausea; unconsciousness.

Treatment:

a. Treat known cause of shock as quickly as possible, i.e. breathing difficulties, bleeding, etc.

b. Maintain an open airway. If victim vomits, gently turn head to side.

c. Keep patient warm and lying flat. (In head and chest injuries, elevate head and shoulders approximately ten inches higher than feet if possible.)

d. Get professional medical help as soon as possible.

6. Terminate EPIP-13, "First Aid and Medical Care":

a. When professional medical personnel have assumed responsibility for the injured personnel, terminate EPIP-13.

b. Forward completed EPIP-13 to Emergency Director for review and record-keeping.

c. Close-out:

(1) Completed by: _____

Date: _____

Time: _____

EPIP-14 Evacuation of On-Site Areas

Purpose: Provide guidance for the orderly evacuation of facility personnel and visitors.

Entry conditions:

Activated by another EPIP or by the Emergency Director.

1. Initiate Procedure:

- a. Initiated by: _____
Time: _____
Date: _____

2. Evacuation of Areas Within the Facility

If an emergency situation requires the evacuation of an area within the Reactor Facility but not of the entire building, the following procedure should be followed:

- a. Announce over the building intercom that personnel should immediately leave the affected area. The building intercom can be activated by dialing 707 on any phone in the building.

Announcement made by: _____
Time: _____
Date: _____

- b. Notify the Emergency team:

Notification made by: _____
Time: _____
Date: _____

- c. Send personnel to affected area with appropriate monitors, etc. to assess situation.
Activate EPIP-1 if needed.

3. Evacuation of Entire Facility

If situation requires evacuation of the entire Reactor Facility, the following procedure should be followed:

- a. Evacuation Alarm

Activated by: _____ At time: _____

Activated from:

- UVAR Confinement
- First Floor Hallway
- Ground Floor Experimental Area
- CAVALIER Control Room

Note: The evacuation alarm can only be silenced by the same switch that activated it.

- b. Obtain two-way radios, police radios, fire radio and cell phone from reactor facility front office.

- c. Initiate EPIP-11 (Personnel accountability)
Time: _____ By: _____
 - d. If outside assistance is required call UVA police at 4-7166. If building cannot be re-entered to make phone call, contact police with two-way radio as described in EPIP-17.
 - e. Personnel should assemble at the east end of Reactor Facility building, near the entrance gate. (Primary Assembly Area). If it is determined that this site should also be evacuated, direct personnel there to re-assemble at OEHS (Special Materials Handling Facility) at the bottom of Observatory Hill. Assign a staff member to stand by at the gate to the Reactor Facility to prevent visitors from entering the site.
Personnel assigned to gate: _____
Dosimeter No. issued: _____
 - f. When personnel have assembled at OEHS, initiate EPIP-11 "Personnel Accountability" again:
Time: _____ By: _____
 - g. If data from EPIP-9 indicated radiation levels or activity beyond the site boundary in excess of one of the Emergency Action Levels described in EPIP-1, notify police to evacuate the affected areas outside the site boundary. Phone numbers of the building near the facility are attached.
4. Termination of EPIP_14 "Evacuation of On-Site Areas":
- a. Forward completed EPIP-14 to Emergency Director for review and record keeping.
 - b. Return to initiating EPIP.
 - c. Close-out:
 - (1) Completed by: _____
 - Date: _____
 - Time: _____

Phone numbers of the building near the facility

	<u>Phone Number</u>
U.Va. Aerospace Research Laboratory	982-5350
U.Va. McCormick Observatory ..	924-7080
Filtration Plant (Rivanna Water and Sewer Authority) .	295-2306
U.Va. High Energy Physics Laboratory.....	982-5373
National Radio Astronomy Observatory Building (NRAO)	296-0211
Virginia Highway Research Council Building	293-1900
Virginia Department of Mineral Resources Building	293-5121
Virginia Forestry Department Building	977-6555
U.Va. Physical Plant Maintenance Shops.....	924-1777 or 982-5880
U.Va. Intramural Athletic Facility (Slaughter Rec. Bldg.)	982-5101
U.Va. Observatory Hill Dining Facility	982-5116
Special Materials Handling Facility	982-4911

EPIP-15 Emergency Equipment and Instrumentation

Purpose: Provide listing of emergency equipment and instrumentation to be used in an emergency.

User: Emergency Response Personnel

Entry Conditions:

Activated by another EPIP or by the Emergency Director.

1. **Fire Extinguishers** (In the event of a fire refer to EPIP-16) Portable Fire Extinguishers are located in the following areas:
 - a. UVAR confinement (two)
 - b. CAVALIER control room
 - c. First floor corridor (two)
 - d. Mezzanine old health physics lab (room M019)
 - e. Mezzanine hallway (by room M011)
 - f. Old ground floor experimental area (two)
 - g. Old machine shop (room G008)
 - h. Counting room
2. **First Aid Supplies**
 - a. Emergency locker (First floor outside UVAR room)
 - b. Emergency locker (Ground floor experimental area)
3. **Decontamination Supplies and Protective Clothing**
 - a. Emergency Lockers
5. **Radiation Survey Instruments**
 - a. Emergency lockers (first floor and ground floor)
6. **Dosimeters**
 - a. Digital dosimeters (by front entrance)
 - b. Direct reading dosimeters (in both emergency lockers)
7. **Emergency Showers**
 - a. On mezzanine level, rooms M005 and M008
 - b. Men's room on ground floor, room G003
8. **Emergency Communications** (see EPIP-17)

If any emergency equipment is used, complete the following checklist at termination of the emergency. **Enter date and give your initials**

- a. First aid supplies replenished _____
- b. Fire extinguishers recharged _____
- c. Dosimeters read and recharged _____
- d. Survey instruments returned to proper location _____

9. Termination of EPIP-15, "Emergency Equipment and Instrumentation":

- a. Forward completed EPIP-15 to Emergency Director for review and record keeping.
- b. Return to initiating EPIP.
- c. Close-Out:

(1) Completed by: _____

Time: _____

Date: _____

EPIP-16 Firefighting

Purpose: Provide guidance for actions to be taken in the event of a fire.

User: Members of Emergency Team

Entry Conditions:

Activated by another EPIP or by Emergency Director or designee.

1. **Initiate Procedure:**

a. Initiated by: _____

Time: _____

Date: _____

2. **Assessment:**

If a fire is detected at the Reactor Facility, immediately Call 911 and/or activate a fire alarm pull station. Activate EPIP 14 if necessary to evacuate building.

The alarm will initiate a repetitive series of blasts on the evacuation alarm and alert U.Va. System Control who will contact the Fire Department and other emergency personnel.

a. Evacuate building and assemble at designated assembly area.

b. Once at assembly area, use cell phone if available to verify that the Fire Department has been notified.

c. Wait for Fire Department to arrive.

3. **EPIP Action:**

a. Activate EPIP-11 (Personnel accountability) if Reactor Facility is evacuated:

(1) Notify Health Physics personnel and determine if fire might involve radioactive material.

(2) If radioactive material is involved advise Fire Department of such a situation and emphasize the need for protective clothing, self-breathing apparatus, etc.

(3) Cordon off the area.

b. Activate EPIP-9:

(1) Have Health Physics personnel take air samples downwind of fire to determine if airborne activity is being released.

(2) Consider the necessity of evacuating personnel from the site.

4. **Location of Fire Extinguishers:**

a. UVAR confinement (two)

b. CAVALIER control room

c. First floor corridor (two)

d. Mezzanine old health physics lab (room M019)

e. Mezzanine hallway (by room M011)

f. Old ground floor experimental area (two)

g. Old machine shop (room G008)

h. Counting room

5. Location of Fire Alarm Pull-Boxes:

a. First floor outside UVAR room

b. Mezzanine level

c. Ground floor, experimental area

d. Ground floor, machine shop

6. Termination of EPIP-16, "Firefighting":

a. Forward completed EPIP-16 to Emergency Director for review and record keeping.

b. Return to initiating EPIP after closeout below.

c. Close-out:

(1) Completed by: _____

Date: _____

Time: _____

EPIP-17 Emergency Communications

Purpose: To provide guidance for emergency communications within the Facility and between the Facility and outside the facility.

User: Emergency Director or designee.

Entry Conditions:

Activated by another EPIP or by Emergency Director

1. **Initiate Procedure:**

a. Initiated by: _____

Time: _____

Date: _____

2. **Communications Within the Facility**

a. Building Public Address System:

(1) Any of the telephones located throughout the building can be tied in to the public address system by dialing "7-0-7".

3. **Communications Outside Facility**

a. U.Va. Police:

If assistance is needed outside the facility the U.Va. Police dispatcher can be called on the normal phone lines by dialing 9-911 or 4-7166.

b. Reaching external telephone line:

If assistance is needed from outside the University, dial 9, and then dial the desired number.

c. Two-way radio:

If the normal phone system is inoperable, there are two-way radios located in the reactor front office (room 126) that can be used to call the U.Va. Police dispatcher.

The Facility call letters are "University 501". The radio is operated as follows:

(1) Turn radio on to maximum volume

(2) Adjust squelch control to minimize static

(3) Depress switch on side of radio and transmit as follows:

"This is University 501 to Services". Release switch. If you receive no response within approximately 10 seconds, repeat message. When U.Va. Police respond, identify yourself and give your location, nature of emergency and request assistance as needed.

4. Terminate EPIP-17:

- a. Forward completed EPIP-17 to Emergency Director for review and record keeping.
- b. Return to initiating EPIP after close-out below.
- c. Close-out:

(1) Completed by: _____

Time: _____

Date: _____

EPIP-18 Reactor Facility Security

Purpose: To insure that under emergency conditions only personnel with an emergency response function have access to the on-site area.

User: University, local, or state police enforcement agencies under the guidance of the Emergency Director or Reactor Facility staff.

Entry Conditions:

Any one of the following:

- a. Activation by another EPIP
 - b. any time deemed necessary by the Emergency Director.
1. Initiate Procedure:
 - a. Initiated by: _____
Time: _____
Date: _____
 2. Notify Visitors:
 - a. Notify visitors at the Reactor Facility that an emergency is in progress. They should be advised to leave the on-site area if they have not been overexposed or contaminated. Their personal dosimeters (if any were issued) should be collected, read and recorded. If necessary, they should perform a whole-body survey for contamination.
 3. Establish Site Access Control:
 - a. Dispatch members of law enforcement agencies to control entrance by way of the gate at the Reactor Facility.
 - b. Activate EPIP-11, "Personnel Accountability" and account for all facility personnel and visitors.
 4. Access Traffic:
 - a. Allow traffic which meets the following criteria onto the site if so directed by the Emergency Director;
 - (1) Persons who belong to the Reactor Facility staff and which possess valid University of Virginia identification cards, or
 - (2) Persons who are physically recognized as belonging to the Reactor Facility staff, or
 - (3) Persons who possess U.S. NRC. ID cards, or
 - (4) Persons associated with off-site fire, rescue squad, or law enforcement agencies, with their vehicles, or
 - (5) Persons who receive access clearance by the Emergency Director.

5. Verify Emergency Status:

a. If the emergency - has not terminated:

(1) Observe Steps 2, 3 and 4 of EPIP-18.

b. If the emergency has terminated:

(1) check with the Emergency Director to determine if access control is still needed.

(2) if access control is still needed:

(a) return to Step 2 of this EPIP-18.

(3) if access control is not needed any longer:

(a) proceed to Step 6 of this EPIP-18.

6. Terminate EPIP-18:

a. Return to initiating EPIP after close-out below.

b. Close-Out:

1) Completed by: _____

Time: _____

Date: _____

2) Forward completed form to Emergency Director for review and record keeping.

EPIP-19: Re-entry

Purpose: Provide guidance for re-entry to Reactor Facility after an evacuation due to an emergency situation.

User: Members of the Emergency Team.

Entry Conditions: By Emergency Director or designee.

1. Initiate Procedure:

- a. Initiated by: _____
Time: _____
Date: _____

2. Re-entry to Assess Extent of Emergency

- a. Re-entry into the Facility after an evacuation due to an emergency can only be done under the authorization of the Emergency Director or designee. Personnel will be issued portable monitors and dosimeters before entering the Facility.
- b. If entry is during an emergency to evaluate its extent, go to Step 3 of this EPIP-19.
- c. If entry is at the termination of an emergency, go to Step 4 of this EPIP-19.

3. Re-entry During Emergency:

- a. Personnel assigned by Emergency Director to re-enter Facility:

<u>Name</u>	<u>Dosimeter Number</u>	<u>Initial & Final Readings</u>
		/ _____
		/ _____
		/ _____
		/ _____

Portable monitors issued of type _____

- b. Check EPIP-11 "Personnel Accountability":
If all personnel are not accounted for, begin search of building while at the same time surveying all areas for possible high radiation levels. Complete surveys as per EPIP-9, "Radiological surveys". Evaluate cause and extent of emergency situation.
- c. Report results of surveys and assessments of situation to Emergency Director and recommend corrective actions to be taken.
- d. Emergency Director will determine extent of emergency as per EPIP-1 and take appropriate action.

4. Re-entry at Termination of Emergency:

a) Before allowing re-entry to the facility at the termination of an emergency complete the following check-list:

- (1) _____ Emergency situation no longer exist.
- (2) _____ All pertinent EIPs have been terminated.
- (3) _____ Health Physics personnel have declared the building is safe.
- (4) _____ State, local and NRC agencies have been notified of planned re-entry.
- (5) _____ The Emergency Director has given general re-entry approval.
- (6) _____ As per EP 7.4(2), a minimum of 24 hrs has elapsed since the facility evacuation was called and therefore the emergency has been properly assessed.

5. Terminate EPIP-19, "Reentry":

- a) Forward completed EPIP-19 to Emergency Director for review and record keeping.
- b) Return to initiating EPIP.
- c) Close-Out:

1) Completed by: _____
Time: _____
Date: _____

EPIP- 20 Recovery

Purpose: To provide guidance for actions to be taken to recover from an emergency situation.

User: Emergency Director or designee

Entry Conditions:

Activated by another EPIP or by the Emergency Director

1. **Initiate Procedure:**

a. Initiated by: _____

Date: _____

Time: _____

2. **Instructions:**

a. If emergency situation involved:

(1) a fire, go to Step 3 of this EPIP-20.

(2) high radiation levels, go to Step 4 of this EPIP-20.

(3) personnel injury, go to Step 5 of this EPIP-20.

(4) security breach, go to Step 6 of this EPIP 20.

(5) if none of the above or if already addressed, proceed to Step 7 of this EPIP-20.

3. **Recovery from Fire:**

a. Check the following:

(1) Has fire been extinguished IAW EPIP-16? _____

(2) Have fire-fighting personnel been monitored for possible contamination?

(3) Have all personnel been accounted for IAW EPIP-11? _____

(4) Has EPIP-16 been terminated? _____

(5) If radioactive contamination was involved, have Health Physics personnel completed EPIP-9, "Radiological Surveys"? _____

(6) Has decontamination of affected area been initiated? _____

when completed _____

(7) Have Local, State and Federal Agencies been notified? _____

b. Resume normal activities only after Emergency Director has declared Facility safe and terminated EPIP-1.

c. Return to Step 2 of this EPIP-20.

4. **Recovery from High Radiation Levels:**

a. Check the following:

1) Has EPIP-9 "Radiological Surveys" been terminated? _____

2) Has source/cause of high radiation levels been identified? _____

3) Have actions been taken to reduce cause of high radiation? _____

- 4) Have H.P. personnel surveyed and released affected area? _____
 - 5) Have all personnel been accounted for IAW EPIP-11? _____
 - 6) Have local, state and federal agencies been notified? _____
- b. Assume normal activities only after Emergency Director has declared facility safe and terminated EPIP-1.
 - c. Return to Step 2 of this EPIP-20.
5. Recovery from Personnel Injury:
- a. Check the following:
 - 1) Has EPIP-13, "First Aid and Medical Care" been terminated? _____
 - 2) Has injured individual recovered or been sent to hospital? _____
 - 3) If contamination was involved was H.P. performed radiological surveys IAW EPIP-9 and IAW EPIP-9 and IAW EPIP-12? _____
 - b. After termination of emergency the staff should discuss the cause of the injury and actions to be taken to reduce the possibility of this happening in the future.
 - c. Return to Step 2 of this EPIP-20.
6. Recovery from Security Breach:
- a. If the event is a bomb threat, take the following actions:
 - (1) Verify that the building is evacuated IAW EPIP-10, "Assessment Actions" Part 2.d and IAW EPIP-14 "Evacuation of On-Site Areas".
 - (2) Verify that all personnel are accounted for IAW EPIP-11, "Personnel Accountability".
 - (3) Verify that police have searched the Facility along with a senior staff member and either found and removed the "bomb" or have determined that none is present.
 - (4) Ascertain who received phone call. If person receiving call has had time to fill out a "Bomb Threat Check-list", turn a copy of this list over to the police to aid in their investigation.
 - b. If event is due to an intruder take the following actions:
 - 1) If intruder is still in the Facility, try to reason with him or her and attempt to alert another staff member to notify police. If normal phone lines are inoperable, use two-way radio IAW EPIP-17, "Emergency Communications".
 - 2) If intruder is armed, do not attempt to take action on your own that might endanger your life. Let police handle the situation.
 - 3) If intruder forces you to unlock a security area, do so but do not bypass alarm system.
 - 4) When event is terminated, perform physical inventory of all SNM in facility.

- c. Resume normal operation after threat has been eliminated.
- 5. Terminate EPIP-20 "Recovery":
 - a. Forward completed EPIP-20 to Emergency Director for review and record keeping.
 - b. Return to initiating EPIP.
 - c. Close-Out:
 - (1) Completed by: _____
 - Time: _____
 - Date: _____

EPIP- 21 Emergency Training

Purpose: To provide guidance for periodic training of Emergency Response personnel.

User: Senior staff member involved with training.

Entry Conditions:

Activated by training personnel as needed.

1. **Initiate Procedure:**

a. Initiated by: _____

Date: _____

Time: _____

2. The training program for Emergency Response Personnel will include initial training and yearly refresher training. Because the requirement for an emergency plan no longer exists and staff at the facility has been reduced, it has been determined by the Reactor Decommissioning Committee that regular emergency drills are no longer necessary. All individuals who may be members of the Emergency Organization will be trained and familiar with the Plan. The initial training and refresher training should include some, or all, but not limited to, the following topics:

a. Emergency Assessment by responsible personnel.

b. Decision making and transmitting of emergency information and instructions by responsible personnel.

c. Radiological monitoring.

d. First Aid, CPR, and rescue techniques.

3. A written record of each training session shall be completed listing the date, instructor, subject covered and personnel attendance. The completed record shall be retained as part of the Facility's training records.

3. Termination of EPIP-21

Terminated by: _____

Time: _____

Date: _____

EPIP- 22 Tests

Purpose: Provide guidance for periodic tests and drills

User: Reactor Director

Entry Conditions: As needed

1. Initiate Procedure:

a. Initiated by: _____

Date: _____

Time: _____

2. Annual:

- a. At least semi-annually the emergency evacuation horn system will be tested to assure that it is operable. Various places in the building should be checked to assure that the sound from the horns can be heard. Also annually, the building fire alarm system will be tested.

3. Termination of EPIP-22

Terminated by: _____

Time: _____

Date: _____

EPIP- 23 Documentation and Records

Purpose: To provide guidance for proper documentation and record keeping.

User: Emergency Director

Entry Conditions: Termination of Emergency or Drill

1. **Initiate Procedure:**

a. Initiated by: _____

Date: _____

Time: _____

2. **Emergency**

Check:

Emergency has been terminated.

All appropriate EPIP's have been terminated, signed, and forwarded to
Emergency Director for review and retention.

All used forms and checklists have been reviewed and filed.

Forms and checklists have been replaced in procedures and copies sent to
appropriate agencies.

All records of emergencies shall be kept on file for inspection and review by appropriate
State and Federal Agencies.

3. **Termination of EPIP-23**

Terminated by: _____

Time: _____

Date: _____