



OFFICE OF THE  
GENERAL COUNSEL

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 28, 1995

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USNRC

'95 JUN 29 P4:46

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Marshall E. Miller  
Presiding Officer  
512 Magnolia  
Frederick, MD 21701

Dr. Harry Foreman  
Special Assistant  
1564 Burton Avenue  
St. Paul, MN 55108

In the Matter of  
ADVANCED MEDICAL SYSTEMS, INC.  
Material License No. 34-19089-01  
Docket No. 30-16055-ML-REN

Dear Administrative Judges:

Pursuant to 10 C.F.R. § 2.1231(c), attached please find the following documents to be included in the hearing file for this proceeding.

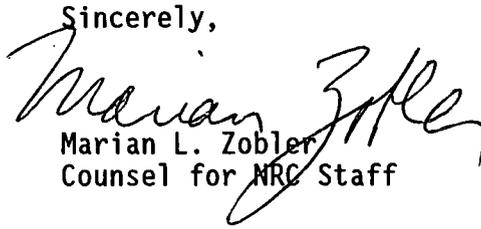
17. "Fax Message" to John Madera, Chief, Nuclear Materials Licensing Section, U.S.N.R.C. - Region III, from David Cesar, Treasurer, Advanced Medical Systems, Inc., May 30, 1995, re: Extension of time to response to request for additional information.
18. Letter to John Madera, U.S. Nuclear Regulatory Commission, Region III from David Cesar, Treasurer, Advanced Medical Systems, Inc., May 30, 1995, re: Decommission Funding Plan.
19. Letter to Advanced Medical Systems, Inc. ATTN: David Cesar, Treasurer from Kevin G. Null, Nuclear Materials Licensing Section, Nuclear Regulatory Commission, Region III, June 7, 1995, re: Granting request for extension of time.
20. Letter to Advanced Medical Systems, Inc. ATTN: David Cesar, Treasurer from J.R. Madera, Chief, Nuclear Materials Licensing Section, Nuclear Regulatory Commission, Region III, June 7, 1995, re: Review of emergency plan and request for additional information. Please note that enclosure 3, 10 C.F.R. Parts 20 and 30 have not been included.

SECY-030

DS-03  
16871

21. Letter to Mr. John Madera, U.S. Nuclear Regulatory Commission, Region III from David Cesar, Treasurer, Advanced Medical Systems, Inc., June 15, 1995, re: Forwarding Comments on Advanced Medical Systems, Inc.'s Emergency Plan. Please note that the attached guidelines referenced in the comments from the Cuyahoga County Local Emergency Planning Committee were not included in AMS's submittal to the NRC. The NRC, however, received these guidelines under separate cover and they are included here for completeness.

Sincerely,



Marian L. Zabler  
Counsel for NRC Staff

Enclosures: As stated

cc w/encl.: Service List

# Advanced Medical Systems, Inc.

121 North Eagle Street - Geneva, Ohio 44041  
(216) 486-4871 FAX (216) 486-0188

**FAXED**  
4:47 p.m.  
5-30-95

NO. OF PAGES: 1

## FAX MESSAGE

**TO:** JOHN MADERA, CHIEF  
NUCLEAR MATERIALS LICENSING SECTION  
U.S.N.R.C. - REGION III

**FAX NO.:** 708/515-1259

**FROM:** DAVID CESAR  
TREASURER



**DATE:** MAY 30, 1995

**RE:** LICENSE NO. 34-19089-01  
CONTROL NO. 97891

=====

We request an extension until June 16, 1995 to respond to your request for additional information on our license renewal.

If you have any questions, please contact me.

DC/mz

# Advanced Medical Systems, Inc.

121 North Eagle Street • Geneva, Ohio 44041  
(216) 466-4671 FAX (216) 466-0186

May 30, 1995

Mr. John Madera  
U. S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

RE: Decommissioning Funding Plan

Dear Mr. Madera:

In response to your request for information on our Decommissioning Funding Plan, the following are the answers to the concerns you raised:

- (1) The cost estimate is based on the assumption that the soil under the building is not contaminated.

Answer: There is no evidence to indicate the soil is contaminated. In NRC possession is the Waste Hold-up Tank Room evaluation which involved three core samples taken under the building. Based on this sampling which was done by an independent lab and contractor, the soil under the building is not contaminated, and accordingly providing financial assurance for contaminated soil is not necessary.

- (2) The cost for disposal of solid radioactive waste is based on a cost of \$181.00 per cubic foot.

Answer: We were instructed by the NRC that the cost for waste disposal should be based upon Barnwell, South Carolina's waste disposal cost structure. As I am sure you are aware, South Carolina producers are not charged the additional fees that out of state producers are. This reduces the cost to a South Carolina company to approximately \$181.00 per cubic foot. Based on NRC direction and Barnwell's historical cost structure, the cost for disposal of solid radioactive waste is correct.

- (3) The Decommissioning Funding Plan does not anticipate demolition of the building.

Answer: There is no evidence to indicate that the building would have to be demolished for decommissioning. The building is approximately an 80,000 square foot, two-story structure. Serious contamination is restricted to the WHUT Room and the Hot Cell. The square footage of which is approximately 800 square feet. Accordingly, this small amount of contaminated square footage does not lend itself to demolition of the building.

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REGION III

Mr. John Madera

Page 2

May 30, 1995

- (4) The Decommissioning Funding Plan contemplated that the WHUT Room will not require remote decontamination techniques.

Answer: The WHUT Room evaluation, a copy of which the NRC has, indicates that the exposure limits within the WHUT Room are significantly less than those in the NSS Report issued in 1988. This leads us to believe that remote decontamination techniques when the decommissioning takes place will not be necessary. The primary technique used to decontaminate the WHUT Room are anticipated to consist of a limited access shielded vacuum system, extension tools, and scabbling.

Regarding your questions with recent water problems at the facility:

- (1) The water may have structurally damaged some parts of the building which would need to be considered in the Decommissioning Funding Plan.

Answer: Discussions with our engineer do not lead us to believe that the building has been structurally damaged due to the basement flooding. No structural damage has been observed. The water's main entrance way was a standpipe and not through breaches in the structure.

- (2) The basement floor slab including the WHUT Room floor may have to be removed due to further intrusion of contamination to the concrete.

Answer: The WHUT Room floor will be scabbled to remove decontamination. This method of decontamination may have to be repeated several times. Surveys of the basement floor slab outside the WHUT Room indicate that contamination is not widespread in the floor slab, and it would not have to be removed.

- (3) Contaminated water may have migrated causing soil contamination.

Answer: Recent core borings outside the facility in anticipation of drain tile remediation with the recent flooding of the basement indicate that there is no significant contamination. Outside soil will be tested in the area of the four-inch drainline during the work currently being performed to address the flooded basement. At that time, additional sampling will be performed. Based on past surveys, there is no indication that there is significant contaminated concrete or soil on the exterior of the London Road facility. Therefore, the decommissioning cost is correct.

Furthermore, a DFP is a conceptual cost estimate of the cost to decommission a facility. AMS has no plans to decommission the facility, as the company is still in existence and requires the facility to continue operating. The detailed characterization of decommissioning would be done only in the submittal of the application to decommission which AMS is not submitting. The information enclosed is appropriate in detail for the decommission cost estimate to be compiled.

Mr. John Madera

Page 3

May 30, 1995

In addition, you had the question regarding costing for the Midwest Compact. As I am sure the NRC is aware, the Midwest Compact will be located in Ohio. The earliest the Midwest Compact will open is projected to be the year 2005; delays are anticipated. There are currently no regional compacts open. The last low-level waste disposal site which was open to Advanced Medical Systems, Inc. was located in Barnwell, South Carolina. We were instructed by the NRC to use Barnwell's cost structure for our waste disposal. Based upon NRC instructions, the assumption that should the Ohio-based Midwest Compact exist, the waste disposal costs for an Ohio company in the Ohio-based Midwest Compact would be approximately the same as for a South Carolina producer with access to the Barnwell disposal site is correct.

Based upon our response, the Decommissioning Funding Plan and Financial Assurance for our facility at 1020 London Road are reasonable.

If you have any further questions, please contact me.

Sincerely,



DAVID CESAR  
Treasurer

DC/cs

cc: D. Miller  
H. Billingsley  
P. Ely  
R. Meschter  
C. Berger



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351  
June 7, 1995

Advanced Medical Systems, Inc.  
ATTN: David Cesar, Treasurer  
121 North Eagle Street  
Geneva, OH 44041

Dear Mr. Cesar:

This is in response to your May 30, 1995 letter in which you requested an extension until June 16, 1995 to respond to our April 17, 1995 letter. Our April 17 letter requested additional information pertaining to your January 26, 1995 application for license renewal.

We hereby grant you an extension to June 16, 1995 to respond to our April 17 letter.

If you have any questions, please feel free to contact me at (708) 829-9854.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin G. Null".

Kevin G. Null  
Nuclear Materials Licensing Section

cc: M. Zabler, OGC



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

June 7, 1995

Advanced Medical Systems, Inc.  
ATTN: David Cesar, Treasurer  
121 North Eagle Street  
Geneva, OH 44041

Dear Mr. Cesar:

We have completed our review of your Emergency Plan (EP) submitted with your application for renewal of NRC License Number 34-19089-01 and find that we will need additional information as follows:

I. General Comments

- A. Due to the limited number of staff at your facility responsible for emergency response actions, we are concerned that you may not be able to effectively implement your Emergency Plan. Please provide an assessment regarding your ability to effectively implement your EP, and illustrate how current staffing levels will be able to fulfill all of the functions and responsibilities described in the plan.

As an alternative, you may wish to secure the services of a consultant to support implementation of the plan should an emergency occur. If you chose such an option, please submit a copy of the agreement describing the delineation of duties between AMS and the consultant.

- B. Section 3 of the EP includes your consultant's offsite dose assessment for a vandalism induced fire and explosion involving 15 curies of radwaste in the basement of the facility. The consultant's assessment also discusses natural disasters, discounting the release of radioactivity from such events due to their infrequent occurrence and because the majority of the cobalt-60 inventory is in "primary containment that is resistant to ready release." However, the assessment did not provide sufficient justification to support your conclusion that the worst case scenario would involve only 15 curies of radwaste. Specifically, your assessment did not adequately evaluate the effect of natural disasters and fire/explosion on the radioactive material you currently possess in various areas of your facility in the form of bulk and sealed sources. You currently possess about 70,000 curies of cobalt-60 in bulk and sealed source form.

In order to support your conclusion, you must conduct an engineering analysis of the facility structure and primary containment systems housing your cobalt-60 inventory to demonstrate its integrity will be maintained during a natural disaster or fire/explosion. The structural assessment of the facility and containment systems should also include the WHUT room and the offsite dose consequences if it is determined that the room's cobalt-60 inventory could be released to the environment. For example, evaluate the scenario of falling structural debris from an earthquake/tornado striking several containers of bulk cobalt-60 and releasing its contents. The loose bulk material is then exposed to a fire caused by a ruptured natural gas line in the building. Also, please evaluate the potential for an earthquake to crack the foundation of the building near the isotope garden, allowing a beam of unshielded radiation to exit the facility. Guidance for such an engineering analysis for reinforced concrete structures, for example, is contained in three documents of the American Concrete Institute (ACI) as follows. ACI 437R-91, "Strength Evaluation of Existing Concrete Buildings," ACI 201.1R, "Guide for Making a Condition Survey of Concrete in Services," and ACI 364.1R-94, "Guide for Evaluation of Concrete Structures Prior to Rehabilitation." As an example of a potential natural event, one should consider the ramifications of the January 31, 1986 NE Ohio seismic event on the facility and the magnitude of future seismic events.

In addition, the possibility of damage from an earthquake/tornado breaching the shield window to the hot cell, allowing an unshielded beam of radiation to exit the cell should also be evaluated. The potential direct radiation levels in the building and in unrestricted areas outside the building resulting from this breach should be calculated.

## II. Facility Description

- A. Section 1.1 of your EP does not include the 40 curies of cobalt-60 in the form of radwaste specified in Section 1.1 of the license application nor the cobalt-60 waste housed in the WHUT room. This section should match the possession limits specified in the license and as discussed in Item III.A. of our deficiency letter dated April 17, 1995.
- B. The plan lacks a detailed site drawing as suggested in Section 1.2 of Regulatory Guide 3.67. Figure 1-11 provides a general area drawing and Figures 1-8, 1-9, and 1-10 provide floor plans for the interior of the building. The plan should contain a detailed drawing of the entire site showing or indicating the following information:

- (1) The property boundary and all structures on the property and within approximately 100 meters of the property boundary (with descriptive labels).
- (2) A bar scale and a compass indicating North.
- (3) Roads and parking lots onsite and within approximately 100 meters of the property boundary.
- (4) All fences and gates onsite.
- (5) Exhaust stacks, storage areas, and other significant site features. The fire pumphouse on Mandalay Avenue that will be used as the command center during an emergency should be shown.

We are concerned about the adequacy of the fire pumphouse on Mandalay Avenue as your proposed command center during an emergency. Unless the pumphouse is owned by AMS, you must describe the arrangements that have been made with the owner(s) to use the pumphouse. Also, demonstrate how communications will be arranged so that individuals at the pumphouse can keep in contact with response groups, government agencies, etc.

- C. The plan should describe any hazardous chemicals used at the site including typical quantities possessed and locations of storage and use.
- D. The terminology used to describe areas in the facility should be consistent with the labeling on Figures 1-8, 1-9, and 1-10 of your plan. The paragraph at the bottom of page 1-4 refers to a decontamination room, but no decontamination room is identified on Figure 1-8. Likewise, the discussion on page 1-6 refers to the change areas and the control area, but these areas are also not identified on Figure 1-8. Please review the description of each area in the facility (primarily in Chapters 1 and 2) and verify that each area is clearly identified on Figures 1-8, 1-9, and 1-10 using the same terminology.
- E. The description of the air handling system on page 1-6 should include the stack height, flow rate, and the efficiency of the emission control devices. Incorporate this information into your EP.

- F. The quality of Figure 1-11 of your EP is poor and some of the symbols are hard to read. It is difficult to identify the location of the site. The site should have a larger label so it is easier to identify. The schools, hospitals, and other major facilities within 1 mile of the site should be identified by name. The nearest fire and police stations should be identified by name also. Please submit a modified figure(s) to address these concerns.

### III. Classification and Notification of Accidents

- A. The second action item in Sections 3.2.1 and 3.2.2 of your EP should state that the NRC Operations Center shall be notified immediately after the State and local response organizations are notified, but no later than 1 hour after an Alert or Site Area Emergency is declared.
- B. The first action item in Section 3.2.2 should include an initial offsite protective action recommendation for the offsite officials. By definition, a Site Area Emergency is an event that could require actions by offsite response organizations to protect persons offsite (sheltering, evacuation, etc.). The plan should contain the initial protective action recommendations that have been established in advance for transmittal with the initial notification. If there are no postulated accidents which would require actions by offsite response organizations to protect persons offsite, then there would be no need to declare a Site Area Emergency or prepare protective action recommendations. Please make the necessary modifications to address this issue.

In addition, your plan should contain emergency action levels (EALs). EALs are site-specific equipment readings or readily available indicators that will be used to immediately declare an Alert or Site Area Emergency. EALs should be based on conditions that can be identified within the first few minutes of an accident. Refer to Appendix A of the enclosed Regulatory Guide 3.67 for a list of example initiating conditions for declaring an Alert or Site Area Emergency.

- C. Modify Section 3.2 so that your definitions for "Alert" and "Site Area Emergency" match the definitions for these terms in 10 CFR 30.4 (enclosed).

### IV. Types of Accidents

- A. The consultant's report beginning on page 3-5 provides a detailed analysis of one scenario (fire involving radioactive waste). The quantity of cobalt-60 assumed to be involved in the fire is 15

curies, however, the renewal application requests authorization to possess 40 curies of cobalt-60 in the form of radioactive waste. It would appear that the worst case situation in this scenario would be a fire involving 40 curies of cobalt-60. The analysis should assume that a deliberately set fire would involve the entire inventory of radioactive waste. If there are specific license restrictions which would limit the amount of radioactive waste available for this scenario, those restrictions should be clearly stated. Also, you should include the inventory in the WHUT room with the scenario, or provide justification why it should not be included in the source term.

- B. Section 5.3 of your plan contains a statement that Chapter 3 described the postulated accidents as spills, fires, and natural phenomena. However, Section 3.3 lists the postulated accidents as fires, natural disasters, and vandalism. Please review these chapters and make the necessary changes so that they are consistent.

V. Responsibilities of Key Individuals and Groups

- A. Section 3.0 in Appendix A states that the Director of Regulatory Affairs has certain responsibilities including the quarterly communications checks to verify telephone numbers. However, Section 7.3 of the plan states that the Radiation Safety Officer (RSO) is responsible for the quarterly checks. The conflicting responsibilities should be resolved and the role of the Director of Regulatory Affairs (and any other company officials) in the emergency response program should be clearly defined in Chapter 4 of the plan.
- B. Section 4.1 of the plan, entitled "Normal Plan Operations" states that the RSO has overall responsibility for all aspects of the facility. Section 4.1 should provide a brief description of the entire organization present at the facility under normal circumstances.
- C. Section 4.2.1 states that when the RSO is absent, "the emergency personnel on call will contact offsite authorities." It is unclear which individuals serve as the emergency personnel on call. The plan should identify who is responsible for declaring an emergency and assuming the role of Emergency Manager when the RSO is absent.
- D. The description of the emergency organization in Sections 4.2 through 4.2.2.3 is too vague. The plan should describe how many workers have been assigned to support the RSO in responding to an emergency, and how many workers are simply responsible for

evacuating when an alarm sounds. Organizational charts comparing the normal facility organization to the emergency organization would be helpful. We have concerns that a single individual cannot reasonably be expected to fulfill all of the responsibilities assigned to the RSO in an emergency. The plan should describe the number of workers assigned to each applicable function listed in Section 4.2.2 of Regulatory Guide 3.67. It is unclear who is responsible for controlling site access and maintaining security during an emergency.

- E. Section 4.3 states that arrangements have been made with local police, fire, and medical services to respond to emergencies at the site. No letters of agreements were found in the plan or the renewal application. Please establish and submit for our review, formal letters of agreement with each offsite response organization and submit copies of the letters signed by each organization to NRC with the emergency plan.
- F. Section 4.3 states that letters indicating to whom the plan was sent are contained in Appendix B to the plan. Appendix B, however, contains maps and drawings. Please submit the letters for our review. Also, pursuant to 10 CFR 30.32(i)(4), provide any comments received from those offsite response organizations.
- G. Section 4.4 contains a single statement that the Ohio Emergency Management Agency maintains the Governor's response team for radiation accidents. Based on correspondence from the City of Cleveland and the Cuyahoga Emergency Management Assistance Center, it appears that there are city and county agencies that have responsibilities for emergencies at the facility also. For each of these agencies, the plan should describe the following:
  - (1) Its authority and responsibility in an emergency at the facility.
  - (2) Its specific response capabilities in terms of personnel and resources.
  - (3) Its location with respect to the facility.
  - (4) The rumor control arrangements that have been made including where the public and media can obtain information during an emergency.
- H. The emergency plan should contain a commitment to meet at least annually with each offsite response organization to review items of mutual interest, including changes to the licensee's program, the emergency action level scheme, notification procedures, and response coordination.

**VI. Emergency Response Measures**

- A. Section 5.5 of your EP states that the U.S. Environmental Protection Agency (EPA) guidelines for emergency exposures are 75 rem for lifesaving actions and 25 rem to protect the facility and control fires. The EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001) was revised in 1991. The current EPA guidelines are 5 rem for general emergency actions, 10 rem for protecting valuable property, and 25 rem for lifesaving or protection of large populations. Lifesaving actions exceeding 25 rem should be authorized only on a voluntary basis to persons fully aware of the risks involved (e.g., informed consent). Tables describing the risks are provided in the EPA manual. The emergency plan should be consistent with the current EPA guidelines. (See Sections 5.5, 5.5.1, 9.1, and the emergency procedures in Appendix A.) Training offered to offsite rescue personnel should include the health risks associated with emergency exposures exceeding 25 rem so these individuals can decide in advance if they would be willing to volunteer for such lifesaving actions during an emergency at the facility. The emergency plan should describe how the Emergency Manager/RSO will verify that a person is aware of the health risks before authorizing emergency exposures exceeding 25 rem. Please make the necessary modifications to your plan as noted above, and submit them for our review.
- B. Section 5.5.3 should describe how you will assure that all offsite response personnel entering the building during a fire or other emergency have been issued a dosimeter before they enter the building. The means of tracking the number of dosimeters issued, who wore each dosimeter, and the number of dosimeters returned should be described.
- C. Sections 5.6 and 5.7 should provide a better description of how contamination inside the ambulance and at the hospital will be controlled. Will licensee personnel always travel with the ambulance to the hospital to survey and release the ambulance and hospital treatment areas, or are there other qualified individuals at the hospital who can survey and release areas when licensee personnel are not available?
- D. Section 5.7 should describe the hospital's capability to evaluate and treat injuries from radiation exposure. Does the hospital have a nuclear medicine department with in-house expertise, or do they plan to use medial consultants such as the Department of Energy's Radiation Emergency Assistance Center/Training Site (REACTS)? It is often useful to have the hospital describe its capabilities in its letter of agreement.

- E. Section 7.4.2.b in Appendix A states that when smoke or fumes can be seen coming from the facility, response personnel remain upwind and police should establish road blocks to prevent traffic from passing through the downwind area. This appears to be a protective action recommendation for offsite officials. If actions by offsite officials to protect persons offsite are necessary for any airborne release, a site area emergency should be declared and an initial protective action recommendation, such as Section 7.4.2.b, should be transmitted with the initial notification to offsite officials. The procedures in Appendix A and the classification scheme in Chapter 3 should be consistent, and should clearly state how each type of emergency will be classified and what initial protective action recommendations will be made to offsite officials.
- F. Sections 13, 14, and 15 in Appendix A contain rules for ambulance and hospital personnel based on Department of Energy (DOE) documents. It is not clear whether ambulance and hospital officials have agreed to adopt these rules and train their staff to follow them. In addition, it is not clear that all of the rules are appropriate. The following are some examples that should be addressed:
- (1) Section 13.2.2 in Appendix A instructs rescue squad personnel to perform surveys, but it is not clear that rescue squad personnel will have the equipment and training to perform that function.
  - (2) Section 14.2 of Appendix A instructs emergency room personnel to notify trained health physicists/technicians and obtain a survey meter, but it is not clear that the hospital has the equipment or staff required.
  - (3) The statement at the bottom of page 11 of Appendix A refers to hospital procedures for radioactive liquid waste, but it is not clear that the hospital has such procedures.
  - (4) Section (g) on page 12 of Appendix A refers to a consultant who will provide detection equipment and treatment advice, but it is not clear that arrangements for such a consultant have been made.
  - (5) Section 15.2 instructs the hospital administrator to notify DOE and consult with DOE officials. There is no reference to NRC and it is not clear exactly which DOE officials are to be contacted.

### VII. Emergency Response Equipment and Facilities

The list of emergency supplies in Section 6.4 should specify the minimum quantity of each item that will be stored. For each survey meter/frisker, the plan should describe the type of detector, the range of detection, and calibration of the instrument.

### VIII. Maintaining Emergency Preparedness Capability

- A. Section 7.2 of your EP states that staff with limited emergency responsibilities receive limited emergency response training. This description of the training program is inadequate. Section 4.2.2.2 states that "supporting staff" shall assist the Emergency Manager/RSO with dose assessment, personnel monitoring, surveys, and decontamination. It appears that supporting staff may be required to use respirators to perform some of these functions. Section 7.2 should specify the topics and general content of the training that the supporting staff will receive to fulfill the responsibilities listed in Chapter 4. The plan should specify the frequency of retraining, and the estimated number of hours of initial training and retraining that will be provided. Section 8.2 implies that there will be annual retraining for some personnel, but the applicability of the statement is unclear. Please clarify this issue.
- B. Section 7.2 should describe the instructions and orientation tours that the applicant will offer fire, police, medical, and other offsite response personnel. You may wish to coordinate this training with the annual meeting with offsite response organizations (see Item V.H).
- C. Section 7.3 should specify that one or more nonparticipating observers will be used during drills and exercises to evaluate the effectiveness of the response and recommend changes for improvement. The plan should describe how criteria for acceptable performance will be developed and provided to these observers. Also, the plan should specify that exercise scenarios will not be known to exercise participants.
- D. Sections 7.4 and 7.5 should specify who will be responsible for tracking findings from critiques and audits, and verifying that corrective actions are completed. In addition, Section 7.5 should specify that audits will be performed by persons not having direct responsibility for implementing the emergency response program. Section 7.6 should specify that equipment calibration dates and material shelf lives will be tracked, and that operational checks of equipment will be performed.

IX. Records and Reports

- A. Section 8.2 of your EP should state that training records will include lesson plans and test questions used in training sessions. Letters of agreement with offsite response organizations should also be maintained in the records.
- B. Section 8.3 should specify a minimum frequency of updates after the initial notification. This frequency may be revised during an emergency by mutual agreement of the parties involved.

X. Recovery and Plant Restoration

- A. Section 9.1 specifies that whole body exposures will be limited to 3 rem/quarter during re-entry. A quarterly exposure limit conflicts with occupational limits of 5 rem per year annual dose in 10 CFR Part 20. Radiation exposures during re-entry and restoration should be kept within normal occupational limits. Modify your dose limit to be consistent with 10 CFR Part 20.
- B. Section 9.3 should describe provisions for documenting the recovery effort and maintaining records important to decommissioning pursuant to 10 CFR 30.35(g). Please make this modification.

XI. Compliance with Community Right-to-Know Act

Your emergency plan does not contain a certification that AMS has met its responsibilities under the Emergency Planning and Community Right-to-Know Act of 1986. A certification or an explanation why this Act is not applicable to the applicant's activities must be provided.

XII. List of Effective Pages

The table of contents of your Emergency Plan should include a list of effective pages. This list should include every page of the plan (including enclosures and attachments) and the revision number or date of each page. In addition to the list of effective pages, the page numbering in the plan does not follow the standard format described in Regulatory Guide 3.67. The revision number or date does not appear at the bottom of each page. Several pages in the appendices have no page number and those that are numbered do not reflect the appendix designation (e.g., A-1, B-1). Please modify your table of contents and appendices accordingly.

We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 398538.

If you have any questions or require clarification on any of the information stated above, you may contact us at (708) 829-9887.

Sincerely,

A handwritten signature in black ink, appearing to read "J. R. Madera", is written over a large, hand-drawn oval. The signature is fluid and cursive.

J. R. Madera, Chief  
Nuclear Materials Licensing Section

License No.: 34-19089-01  
Docket No.: 030-16055

Enclosures: 1. Regulatory Guide 3.67  
2. P&GD 84-14, Rev. 1  
3. 10 CFR Parts 20 and 30

cc w/o encl: Ms. Jane Harf  
State Emergency Response  
Commission



# REGULATORY GUIDE

## OFFICE OF NUCLEAR REGULATORY RESEARCH

### REGULATORY GUIDE 3.67 (Task DG-3005)

#### STANDARD FORMAT AND CONTENT FOR EMERGENCY PLANS FOR FUEL CYCLE AND MATERIALS FACILITIES

##### A. INTRODUCTION

The Nuclear Regulatory Commission's (NRC's) regulations in 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Part 40, "Domestic Licensing of Source Material"; and Part 70, "Domestic Licensing of Special Nuclear Material," require some fuel cycle and materials licensees to prepare emergency plans. The information specified in this guide should be included in the licensee's emergency plan to comply with the requirements of 10 CFR 30.32(i)(3), 40.31(j)(3), or 70.22(i)(3).

This regulatory guide provides guidance acceptable to the NRC staff on the information to be included in emergency plans and establishes a format for presenting the information. Use of a standard format will help ensure uniformity and completeness in the preparation of emergency plans.

An acceptable emergency plan should describe the licensed activities, the facility, and the types of accidents that might occur. It should provide information on classifying postulated accidents and the licensee's procedures for notifying and coordinating with offsite authorities. The plan should provide information on emergency response measures that might be necessary, the equipment and facilities available to respond to an emergency, and how the licensee will

maintain emergency preparedness capability. It should describe the records and reports that will be maintained. There should also be a section on recovery after an accident, including plans for restoring the facility to a safe condition.

Detailed descriptive information on processes, materials storage areas and containers, ventilation, process controls, activity locations, vessels, and confinement of radioactive or other hazardous materials may be necessary for the NRC to evaluate the adequacy of the emergency plan. Detailed information that would help response organizations assess accident consequences and estimate releases should be included in the plan. Other detailed information that is needed primarily for the licensing review may be submitted separately as a supplement to the plan or incorporated by reference to other licensing submittals.

This regulatory guide supersedes Revision 1 of NUREG-0762, "Standard Format and Content for Emergency Plans for Fuel-Cycle and Materials Facilities" (Ref. 1). Licensees who prepared emergency plans in accordance with NUREG-0762 should review their plans against this guide. Preparing plans in accordance with this guide will facilitate NRC review and approval of applications made pursuant to 10 CFR 30.32, 40.31, or 70.22.

##### USNRC REGULATORY GUIDES

Regulatory Guides are issued to describe and make available to the public methods acceptable to the NRC staff of implementing specific parts of the Commission's regulations, to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants. Regulatory Guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission.

This guide was issued after consideration of comments received from the public. Comments and suggestions for improvements in these guides are encouraged at all times, and guides will be revised, as appropriate, to accommodate comments and to reflect new information or experience.

Written comments may be submitted to the Regulatory Publications Branch, DFIPS, ADM, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

The guides are issued in the following ten broad divisions:

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| 1. Power Reactors                 | 6. Products                       |
| 2. Research and Test Reactors     | 7. Transportation                 |
| 3. Fuels and Materials Facilities | 8. Occupational Health            |
| 4. Environmental and Siting       | 9. Antitrust and Financial Review |
| 5. Materials and Plant Protection | 10. General                       |

Copies of issued guides may be purchased from the Government Printing Office at the current GPO price. Information on current GPO prices may be obtained by contacting the Superintendent of Documents, U.S. Government Printing Office, Post Office Box 37082, Washington, DC 20013-7082, telephone (202)275-2060 or (202)275-2171.

Issued guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5285 Port Royal Road, Springfield, VA 22161.

An effective response to an emergency comprises WHAT is to be done (procedures), BY WHOM (response personnel), and WITH WHAT (equipment in designated locations). The emergency plan reflects, in general terms, the preplanning done in preparing to cope with an emergency, but the details of the actual response are contained in the emergency plan's implementing procedures.

The implementing procedures are the heart of the emergency response. They must be clear, precise, and easily understood. Each procedure should pertain to a narrow, specific response action.

Throughout this guide, the licensee or applicant will be asked to describe procedures instead of submitting them to the NRC for approval. NRC uses this practice to eliminate the need for a license amendment every time the procedures need to be changed. Details contained in the procedures will need to be changed from time to time. If each change in a procedure required NRC approval, frequent and time-consuming license amendments would be required. Therefore, the license is issued on the basis of the descriptions of procedures in the emergency plan. The procedures may be changed within the scope of these descriptions. However, this practice makes it necessary for the licensee or applicant to give close attention to the way the implementing procedures are described. In preparing the implementing procedures, the applicant should be aware that the NRC may review them during the licensing process and during inspections to ensure that the procedures are current and workable and that they conform with the descriptions in the emergency plan.

Any changes to the emergency plan that decrease the effectiveness of the plan must have NRC approval before implementation pursuant to 10 CFR 30.34(f), 40.35(f), and 70.32(i). The licensee may change the emergency plan without prior NRC approval if the changes do not decrease the effectiveness of the plan. These changes should be submitted to the appropriate NRC licensing office and to affected offsite response organizations within six months after the changes are made. The submittals should include the date the changes became effective.

The licensee is encouraged to have a single emergency plan to meet the requirements of State agencies or the Community Right-To-Know Act as well as to comply with the regulations of the NRC. Additional material to meet these other regulations should either be included in the plan or referenced in the licensee's emergency plan submitted to the NRC. This additional material will be reviewed by the NRC only to ensure that it does not diminish compliance with the NRC's requirements.

Finally, the licensee should certify that it is in compliance with Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499, entitled "Emergency Planning and Community Right-to-Know Act of 1986," with respect to any hazardous materials possessed at the plant site.

Any information collection activities mentioned in this regulatory guide are contained as requirements in 10 CFR Parts 30, 40, or 70, which provide the regulatory basis for this guide. The information collection requirements in 10 CFR Parts 30, 40, and 70 have been cleared under OMB Clearance Nos. 3150-0017, 3150-0020, and 3150-0009, respectively.

## B. FORMAT

### Graphical Presentations

Graphical presentations such as drawings, maps, diagrams, sketches, and tables should be employed if the information may be presented more accurately or conveniently by such means. Due concern should be taken to ensure that all information presented is legible, that symbols are defined, and that scales are not reduced to the extent that visual aids are necessary to interpret pertinent items of information. These graphical presentations should be located in the section where they are primarily discussed.

References used may appear as footnotes to the page where discussed or at the end of each chapter.

### Physical Specifications

#### Paper size

- (1) Text pages: 8-1/2 x 11 inches.
- (2) Drawings and graphics: 8-1/2 x 11 inches; however, a larger size is acceptable provided the finished copy when folded does not exceed 8-1/2 x 11 inches.

*Paper stock and ink.* Suitable quality in substance, paper color, and ink density for handling and reproduction by microfilming or image-copying equipment.

*Page margins.* A margin of no less than 1 inch should be maintained on the top, bottom, and binding side of all pages submitted.

#### Printing

- (1) Composition: text pages should be single spaced.
- (2) Typeface and style: should be suitable for microfilming or image-copying equipment.
- (3) Reproduction: may be mechanically or photographically reproduced. All pages of text should be printed on both sides and the image printed head to head.

*Binding.* Pages should be punched for standard 3-hole loose-leaf binders.

*Page numbering.* Pages should be numbered with the digits corresponding to the chapter followed by a hyphen and a sequential number, e.g., the third page of Chapter 4 should be numbered 4-3. The chapter numbers should correspond to the chapters in this guide. Do not number the entire plan sequentially.

*List of Effective Pages.* A list of every page in the plan and the effective revision number or revision date of each page should be provided as a means of **December 1991** verifying that the plan is complete and current. The list should include the pages of any enclosures or attachments that are part of the plan.

*Table of contents.* A table of contents and an index of key items should be included.

### Procedures for Updating or Revising Pages

Data and text should be updated or revised by replacing pages. The changed or revised portion on each page should be highlighted by a "change indicator" mark consisting of a bold vertical line drawn in the margin opposite the binding margin. The line should be of the same length as the portion actually changed.

All pages submitted to update, revise, or add pages to the plan should show the revision number or revision date. Each revision should include a new list of effective pages and an instruction sheet listing the pages to be inserted and the pages to be removed. Readers should be instructed to check the plan against the list of effective pages to verify that the revised plan is complete.

## C. EMERGENCY PLANS

### 1. FACILITY DESCRIPTION

The information in this section is to provide perspective about the facility and the licensed activity such that the adequacy and appropriateness of the licensee's emergency planning, emergency organization, and emergency equipment can be evaluated.

#### 1.1 Description of Licensed Activity

Present briefly the principal aspects of the overall licensed activity. A general description of licensed and other activities conducted at the facility, the location of the facility, and the type, form, and quantities of radioactive and other hazardous materials normally present should be included. Any radioactive materials authorized under a State license should also be described.

### 1.2 Description of Facility and Site

Provide a detailed drawing of the site for the emergency plan. An enlarged duplicate of the drawing suitable for use as a wall map (24 x 30 inch minimum) should also be provided. The detailed drawing should be drawn to scale and show or indicate the following:

1. Onsite and near-site structures with building numbers (if applicable) and descriptive labels.
2. A bar scale in both meters and feet.
3. A compass indicating north.
4. Roads and parking lots onsite and main roads and highways near the site.
5. Site boundaries, showing fences and gates.
6. Exhaust stacks, storage areas, retention ponds, and other major site features.
7. Rivers, lakes, streams, or other ground-water sources onsite and within approximately 1 mile.

Provide a concise description of all site features affecting emergency response, including communication and assessment centers, assembly and relocation areas, and process and storage areas. Identify any additional site features likely to be of interest because they are related to the safety of site operations. The emergency plan should include a list of all hazardous chemicals used at the site, typical quantities possessed, locations of use and storage, and the hazardous characteristics (radioactivity, pH, other) of material in sediment and retention ponds. The stack heights, typical stack flow rates, and the efficiencies of any emission control devices should be summarized in the emergency plan to help response organizations assess releases.

#### 1.3 Description of Area Near the Site

Include a description of the principal characteristics of the area near the site at which licensed activities are conducted. Indicate the site on a general area map (approximately 10-mile radius) and on a United States Geological Survey 7.5' topographical map\* (approximately 1-mile radius). Provide a map or aerial photograph indicating onsite structures and near-site structures (about 1-mile radius). On this photograph or map, include the following:

\*Topographical maps can be obtained from the U.S. Geological Survey, Map Distribution, Denver Federal Center, P.O. Box 25286, Denver, CO 80225. The telephone number is (303) 236-7477.

1. Locations of population centers (towns, cities, office buildings, factories, schools, arenas, stadiums, etc.);
2. Locations of facilities that could present potential protective action problems (schools, arenas, stadiums, prisons, nursing homes, hospitals);
3. Identification of primary routes for access of emergency equipment or for evacuation, as well as potential impediments to traffic flow (rivers, drawbridges, railroad grade crossings, etc.);
4. Locations of fire stations, police stations, hospitals, and other offsite emergency support organizations (specify whether qualified to handle exposure to radioactive contamination or toxic chemicals);
5. The sites of potential emergency significance (e.g., liquefied petroleum gas (LPG) terminals, chemical plants, pipelines, electrical transformers, and underground cables);
6. Identification of the types of terrain and the land use patterns around the site.

## 2. TYPES OF ACCIDENTS

Emergency planning is concerned with individual and organizational responses to a range of potential accidents, including those accidents that have been hypothesized but that have a very low probability of occurrence.

### 2.1 Description of Postulated Accidents

Identify and describe each type of radioactive materials accident for which actions may be needed to prevent or minimize exposure of persons offsite to radiation or radioactive materials. Exposure levels at the site boundary should be treated as the levels potentially affecting persons offsite.

Describe the accidents in terms of the process and physical location where they could occur. Describe how the accidents could happen (equipment malfunction, instrument failure, human error, etc.), possible complicating factors, and possible onsite and offsite consequences. Accident descriptions should include nonradioactive hazardous material releases that could impact emergency response efforts. Facilities that can have criticality accidents should evaluate the direct radiation exposure from postulated criticality accidents in addition to the dose from released radioactive materials.

### 2.2 Detection of Accidents

Describe the means provided to detect and to alert the licensee's operating staff of any abnormal operating condition or of any other danger to safe operations (e.g., a severe weather warning). For each type of accident identified in the emergency plan, describe the means of detecting the accident, the means of detecting any release of radioactive or other hazardous material, the means of alerting the operating staff, and the anticipated response of the operating staff. Examples are visual observation, radiation monitors, smoke detectors, process alarms, and criticality alarms. Indicate at what stage of the accident it would be detected. Also indicate if the area of the postulated accidents or remote readouts of alarms or detectors located in such areas are under continuous visual observation.

## 3. CLASSIFICATION AND NOTIFICATION OF ACCIDENTS

Accidents should be classified as an alert or a site area emergency according to the definitions in 10 CFR 30.4, 40.4, and 70.4. In its emergency plan and in coordination meetings with offsite authorities, the licensee should convey the concept that fuel cycle and materials facilities do not present the same degree of hazard (by orders of magnitude) as are presented by nuclear power plants. Thus, the classification scheme for these facilities is different. The licensee should explain to offsite authorities the definitions of accident severity and the expected response actions associated with alert and site area emergency conditions. NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees" (Ref. 2), contains a description of past incidents involving radioactive materials.

### 3.1 Classification System

An alert is defined as an incident that has led or could lead to a release to the environment of radioactive or other hazardous material, but the release is not expected to require a response by an offsite response organization to protect persons offsite. An alert reflects mobilization of the licensee's emergency response organization, either in a standby mode that will activate some portions of the licensee's organization or full mobilization, but does not indicate an expectation of offsite consequences. However, an alert may require offsite response organizations to respond to onsite condition such as a fire.

A site area emergency is defined as an incident that has led or could lead to a significant release to the environment of radioactive or other hazardous material and that could require a response by an offsite organization to protect persons offsite. A site area emergency reflects full mobilization of the licensee's

emergency response organization and may result in requests for offsite organizations to respond to the site.

In the emergency plan, identify the classification (alert or site area emergency) that is expected for each of the accidents postulated in Section 2.1 of this guide. Relate the classification to the accident description and detection means described in Section 2.2. Identify the emergency action levels (EALs) at which an alert or site area emergency will be declared. EALs are specific conditions that require emergency response measures to be performed. Licensees should establish specific initiating conditions relative to particular events or changes in instrument sensors. Appendix A provides a list of examples of initiating conditions for declaring an alert or site area emergency.

Although it is unlikely that a site area emergency requiring offsite actions will occur at a fuel cycle or materials facility, the licensee must be able to recognize potential offsite hazards and make the required notifications in such a manner that offsite response organizations can take appropriate actions, such as sheltering or evacuating persons in the affected area.

The NRC intends that licensees be allowed to have a single emergency plan that can apply to all licensee needs and regulatory requirements. To this end, it should be understood that a licensee may wish to include in the emergency plan some incidents that do not fall within the jurisdiction of the NRC. For example, the licensee may wish to include industrial accidents or fires unrelated to the licensee's work with nuclear materials. The licensee may include such incidents in the emergency plan.

The classification of emergencies involving potential or actual releases of nonradioactive hazardous materials should be coordinated with the local emergency planning committee established under the provisions of Section 301(c) of the Emergency Planning and Community Right-To-Know Act of 1986 (Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499). The licensee should clearly identify any part of the emergency plan that does not apply to activities licensed by the NRC.

## 3.2 Notification and Coordination

### 3.2.1 Alert

The purpose of declaring an alert is to ensure that emergency personnel are alerted and at their emergency duty stations to mitigate the consequences of the accident, that the emergency is properly assessed, that offsite officials are notified, and that steps can be taken to escalate the response quickly if nec-

essary. The licensee should describe how and by whom the following actions will be taken:

- Decision to declare an alert.
- Activation of onsite emergency response organization.
- Prompt notification of offsite response authorities that an alert has been declared (normally within 15 minutes of declaring an alert).
- Notification to the NRC Operations Center at 301-951-0550 immediately after notification of offsite authorities, and in any case within 1 hour of the declaration of an alert. (See 10 CFR Part 20 for additional notification requirements.)
- Decision to initiate any onsite protective actions.
- Decision to escalate to a site area emergency, if appropriate.
- Decision to request support from offsite organizations.
- Decision to terminate the emergency or enter recovery mode.

### 3.2.2 Site Area Emergency

The purpose of declaring a site area emergency is to ensure that offsite officials are informed of potential or actual offsite consequences, that offsite officials are provided with recommended actions to protect persons offsite, and that the licensee's response organization is augmented by additional personnel and equipment. The licensee should describe how and by whom the following actions will be taken:

- Decision to declare a site area emergency.
- Activation of onsite emergency response organization.
- Prompt notification of offsite response authorities that a site area emergency has been declared, including the licensee's initial recommendation for offsite protective actions (normally within 15 minutes of declaring a site area emergency).
- Notification to the NRC Operations Center at 301-951-0550 immediately after notification of the appropriate offsite response organizations and not later than 1 hour after the licensee has declared a site area emergency. (See 10 CFR Part 20 for additional notification requirements.)
- Decision on what onsite protective actions to initiate.

- Decision on what offsite protective actions to recommend.
- Decision to request support from offsite organizations.
- Decision to terminate the emergency or enter recovery mode.

### 3.3 Information To Be Communicated

The licensee should be prepared to provide clear, concise information to offsite response organizations. The communication should avoid technical terms and jargon and should be stated to prevent an under- or over-evaluation of the seriousness of the incident. Describe the types of information that will be communicated with respect to facility status, releases of radioactive or other hazardous materials, and recommendations for protective actions to be implemented by offsite response organizations. The emergency plan should contain the preplanned protective action recommendations the licensee will make to each appropriate offsite organization (including the NRC) for each postulated accident. The licensee should try to make protective action recommendations directly to State or local officials responsible for implementing the specific protective actions. The recommendations should specify the size of the area where the actions are to be taken. The licensee should obtain the input of offsite organizations to ensure that they recommend the most practical and efficient protective actions for each postulated accident. A standard reporting checklist should be developed to facilitate timely notification. Provide assurance to the NRC that the information has been received by offsite response organizations and that it is periodically reaffirmed and updated with these agencies.

The standard reporting checklist should be developed in cooperation with offsite officials to ensure that it meets their information needs and that their personnel are trained to receive and relay such information. The licensee should provide initial protective action recommendations at the same time it initially notifies offsite authorities of a site area emergency declaration.

## 4. RESPONSIBILITIES

In this section, describe the emergency organization to be activated onsite for possible events, as well as its augmentation and support offsite. Delineate the authorities and responsibilities of key individuals and groups, and identify the communication chain for notifying and mobilizing the necessary personnel during normal and nonworking hours.

### 4.1 Normal Facility Organization

Provide a brief description of the normal (day-to-day) facility organization and identify by position those individuals who have the responsibility and authority to declare an emergency and to initiate the appropriate response.

### 4.2 Onsite Emergency Response Organization

Describe the onsite emergency response organization for the facility, and include the organization for periods such as offshift, holidays, weekends, and extended outages when normal operations are not being conducted. Use organization charts and tables when appropriate. If the organization is activated in phases, describe the basic organization and each additional component that may be activated to augment the organization.

#### 4.2.1 Direction and Coordination

Designate the position of the person and alternates who have the overall responsibility for implementing and directing the emergency response. Discuss this person's duties and authority, including control of the situation, termination of the emergency condition, coordination of the staff and offsite personnel who augment the staff, communication with parties requesting information about the event, authority to request support from offsite agencies, and authority to delegate responsibilities. Indicate the individuals who may be delegated certain emergency responsibilities.

#### 4.2.2 Onsite Staff Emergency Assignments

Specify the organizational group or groups assigned to the functional areas of emergency activity listed below. Indicate the basis for personnel assignment for both working and nonworking time periods. For each group, describe duties, authority, and interface with other groups and outside assistance.

The organizational groups should provide capability in the following areas:

- Facility system operations
- Fire control
- Personnel evacuation and accountability
- Search and rescue operations
- First aid
- Communications
- Radiological survey and assessment (onsite and offsite)
- Personnel decontamination

- Facility decontamination
- Facility security and access control
- Facility repair and damage control
- Post-event assessment
- Recordkeeping
- Media contact
- Criticality safety assessment

#### 4.3 Local Offsite Assistance to Facility

Describe provisions and arrangements for assistance to onsite personnel during and after an emergency. Indicate the location of local assistance with respect to the facility if not previously stated. Ensure that exposure guidelines are clearly communicated to offsite emergency response personnel. Identify the services to be performed, means of communication and notification, and type of agreements that are in place for the following:

- Medical treatment facilities
- First aid personnel
- Fire fighters
- Law enforcement assistance
- Ambulance service

Describe the measures that will be taken to ensure that offsite agencies maintain an awareness of their respective roles in an emergency and have the necessary periodic training, equipment, and supplies to carry out their emergency response functions. Discuss any provisions to suspend security or safeguards measures for site access during an emergency.

#### 4.4 Coordination with Participating Government Agencies

Identify the principal State agency and other government (local, county, State, and Federal) agencies or organizations having responsibilities for radiological or other hazardous material emergencies at the facility. For each agency or organization, describe:

- Its authority and responsibility in a radiological or hazardous material emergency and its interface with others, if any;
- Its specific response capabilities in terms of personnel and resources available;
- Its location with respect to the facility;
- The rumor control arrangements that have been made with the agency or organization. (The emergency plan should describe where

the public and media can obtain information during an emergency.)

Typical agencies to be included are the local emergency planning committee established under the Emergency Planning and Community Right-To-Know Act of 1986; State departments of health, environmental protection, and emergency or disaster control; and local fire and police departments. Ensure that the licensee will meet at least annually with each offsite response organization to review items of mutual interest, including relevant changes in the licensee's emergency preparedness program. The licensee should discuss the emergency action level scheme, notification procedures, and overall response coordination process during these meetings.

### 5. EMERGENCY RESPONSE MEASURES

Specific emergency response measures should be identified for each class of emergency and related to action levels or criteria that specify when the measures are to be effected. Response measures include assessment actions, mitigative actions, onsite and offsite protective actions, exposure control, authorization of emergency exposures in excess of Part 20 limits, and aid to injured persons.

#### 5.1 Activation of Emergency Response Organization

Describe the means used to activate the emergency response organization for each class of emergency during both regular and nonregular hours. Include a description of the method used to authenticate messages. Identify the activation levels for each class and relate them to the responsibilities identified in Chapter 4. In this and subsequent sections, describe the specific written procedures to be used.

#### 5.2 Assessment Actions

For each class of emergency, discuss the actions to be taken to determine the extent of the problem and to decide what corrective actions may be required. Describe the types and methods of onsite and offsite sampling and monitoring that will be done in case of a release of radioactive or other hazardous material. Describe provisions for projection of offsite radiation exposures.

#### 5.3 Mitigating Actions

For the events identified in Chapter 2, briefly describe the means and equipment provided for mitigating the consequences of each type of accident. Include the mitigation of consequences to workers onsite as well as to the public offsite. In the event of a warning of impending danger, describe the criteria that will be used to decide whether a single process or

the entire facility will be shut down, the steps that will be taken to ensure a safe orderly shutdown of equipment, and approximate times required to accomplish a safe shutdown of processes. Mitigating actions could include steps to reduce or stop any releases and steps to protect personnel (e.g., evacuation, shelter, decontamination).

Means for limiting releases could include:

- Sprinkler systems and other fire-suppression systems
- Fire detection systems
- Firefighting capabilities
- Filtration or holdup systems
- Use of water sprays on airborne releases of radioactive material
- Automatic shutoff of process or ventilation flows
- Storage in fire-resistant containers
- Use of fire-resistant building materials
- Criticality controls

## 5.4 Protective Actions

The nature of onsite and offsite protective actions, the criteria for implementing those actions, the areas involved, and the procedures for notification to affected persons should be described in the plan. To prevent or minimize exposure to radiation, radioactive materials, and other hazardous materials, the plan should provide for timely relocation of onsite persons, timely recommendation of offsite actions, effective use of protective equipment and supplies, and use of appropriate contamination control measures.

### 5.4.1 Onsite Protective Actions

**5.4.1.1 Personnel Evacuation and Accountability.** This segment of the emergency plan should include:

- Criteria for ordering an evacuation
- The means and time required to notify persons involved
- Evacuation routes, transportation of personnel
- Locations of onsite and offsite assembly areas
- Search and rescue

- Monitoring of evacuees for contamination and control measures if contamination is found
- Criteria for command center and assembly area evacuation and reestablishment at alternate location
- Procedures for evacuating and treating injured personnel, including contaminated personnel
- Provisions for determining and maintaining the accountability of assembled and evacuated personnel.

**5.4.1.2 Use of Protective Equipment and Supplies.** Effective use of protective equipment and supplies, including the proper onsite distribution or availability of special equipment, is an important measure for minimizing the effects of exposure to or contamination by radioactive materials. Measures that should be considered are:

- Individual respiratory protection
- Use of protective clothing
- Communications equipment associated with any self-contained breathing apparatus
- Use of potassium iodide to block uptake of radioactive iodine (if appropriate).

For each measure that might be used, describe:

- Criteria for issuance of emergency equipment, if appropriate
- Locations of emergency equipment and supplies
- Inventory lists indicating the emergency equipment and supplies at each specified location
- Means for distribution of these items.

**5.4.1.3 Contamination Control Measures.** Describe provisions for preventing further spread of radioactive materials and for minimizing radiation exposures from radioactive materials that are unshielded or released by abnormal conditions.

Onsite protective actions should be described and should include isolation, area access control, and application of criteria for permitting return to normal use. Action criteria for implementing the planned measures should be described.

### 5.4.2 Offsite Protective Actions

Describe the conditions that would require protective actions offsite and list postulated accidents

that could meet any of the conditions. Discuss what protective action recommendations would be made to offsite authorities, when each recommendation would be made, and what area offsite would be affected. Protective action recommendations should be consistent with the analysis results in NUREG-1140 (Ref. 2) and the guidance in the EPA Manual of Protective Action Guides (Ref. 3).

## **5.5 Exposure Control in Radiological Emergencies**

In this section, describe the means for controlling radiological exposures for emergency workers.

### **5.5.1 Emergency Radiation Exposure Control Program**

**5.5.1.1 Radiation Protection Program.** Describe the onsite radiation protection program to be implemented during emergencies, including methods to comply with exposure guidelines. Identify individuals, by position or title, who can authorize workers to receive emergency doses. Procedures should be provided in advance for permitting onsite volunteers to receive radiation doses in the course of carrying out lifesaving and other emergency activities. Procedures should provide for expeditious decisionmaking and a reasonable consideration of relative risks.

**5.5.1.2 Exposure Guidelines.** Specify onsite exposure guidelines consistent with the EPA Manual of Protective Actions Guides (Ref. 3) to be used in actions to control fires, stop releases, or protect facilities. Guidelines for exposure to uranium, plutonium, or other toxic materials should be based on the chemical toxicity when the toxicity hazard is greater than the radiation hazard. Exposure guidelines should be provided for:

- Removing injured persons
- Undertaking mitigating actions
- Performing assessment actions
- Providing onsite first aid
- Performing personnel decontamination
- Providing ambulance service
- Providing offsite medical treatment.

**5.5.1.3 Monitoring.** Describe provisions for determining the doses and dose commitments from external radiation exposure and any internally deposited radioisotopes received by emergency personnel involved in any accidents, including volunteers and emergency workers from offsite support organizations who may receive radiation exposure while performing their duties at the licensee's facility. Include provisions for distribution of dosimeters, both self-reading

and permanent record devices, and means for assessing inhalation exposures.

Describe provisions for ensuring that dose and dose commitment records are maintained for licensee and offsite support organization's emergency workers involved in any nuclear accident.

### **5.5.2 Decontamination of Personnel**

Specify action levels for decontaminating personnel. Describe the means for decontaminating emergency personnel, supplies, instruments, and equipment; and describe the means for collecting and handling radioactive wastes. Describe provisions for surveying and decontaminating relocated onsite personnel, including providing extra clothing and decontaminates suitable for the type of contamination expected.

## **5.6 Medical Transportation**

Specify how injured personnel, who may also be radiologically contaminated, will be transported to medical treatment facilities. Describe how chemicals or hazardous materials used in conjunction with radioactive materials may impact medical transportation.

## **5.7 Medical Treatment**

Describe arrangements made for hospital and medical services, both local and backup, and their capabilities to evaluate and treat injuries from radiation, radioactive materials, and other hazardous materials used in conjunction with radioactive materials. The description should include the capabilities to control any contamination that may be associated with physical injuries. The licensee should be prepared to provide ambulance and hospital personnel with health physics support if needed. If needed during an emergency, the NRC can obtain physicians for consultation and other medical assistance through the Department of Energy (DOE).

## **6. EMERGENCY RESPONSE EQUIPMENT AND FACILITIES**

In this chapter, describe the onsite equipment and facilities designated for use during emergencies. Provide sufficient detail to allow the NRC staff to determine the adequacy of the equipment to perform its function during an emergency.

### **6.1 Command Center**

Describe the principal and alternative locations from which control and assessment for the emergency will be exercised. Identify the criteria used to predetermine the number and location of command centers in order to ensure that at least one will be habitable

during any emergency. Indicate the means for identifying which command center will be used in a given emergency. Specify the criteria for evacuating a command center and re-establishing control from an alternative location. Provide a description of the primary and alternative locations from which licensee emergency workers would be dispatched for radiation survey, damage assessment, emergency repair, or other mitigating tasks if these persons would not be dispatched from the command centers.

## 6.2 Communications Equipment

### 6.2.1 Onsite Communications

Describe the primary and any alternative onsite communication systems that would be used to transmit and receive information throughout the course of an emergency and the subsequent recovery. Discuss the frequency of operational tests.

### 6.2.2 Offsite Communications

A backup means of offsite communication, other than commercial telephone, should be provided for notification of emergencies and requests for assistance. Operational tests of backup communications systems should be conducted periodically.

## 6.3 Onsite Medical Facilities

Describe the facilities and medical supplies at the site designated for emergency first aid treatment and contamination control of injured individuals.

## 6.4 Emergency Monitoring Equipment

List and describe the dedicated emergency equipment that will be available for personnel and area monitoring, as well as that for assessing the release of radioactive materials to the environment. The description should include the purpose of the equipment. The location of all monitoring equipment should be described. The emergency plan should discuss how the storage locations will ensure that sufficient emergency monitoring equipment will be accessible in a nonhazardous location for each type of postulated accident. Include similar descriptions of routine effluent monitors and meteorological measurement systems, if present. Describe how these are to be used to assess the magnitude and dispersion of releases. In addition to the radiological monitoring equipment, indicate, if applicable, the instrumentation to be used for monitoring chemically toxic materials. Describe available meteorological monitoring equipment, including locations of monitors, elevations of sensors, and location of readout.

## 7. MAINTAINING EMERGENCY PREPAREDNESS CAPABILITY

### 7.1 Written Emergency Plan Procedures

Identify the means for ensuring that written emergency plan procedures will be prepared, kept up to date, and distributed to all affected parties. Describe the review process that will ensure these procedures clearly state the duties, responsibilities, action levels, and actions to be taken by each group or individual in response to an emergency condition. Describe provisions for approval of the procedures, making and distributing changes to the procedures, and ensuring that each person responsible for an emergency response function has easy access to a current copy of each procedure that pertains to his or her functions.

### 7.2 Training

Describe the topics and general content of training programs used for training the onsite emergency response staff. Specify the training afforded to those personnel who prepare, maintain, and implement the emergency plan. Ensure that the procedures include schedules and lesson plans for the training, frequency of retraining, and the estimated number of hours of initial training and retraining that will be provided. Include the training requirements for each position in the emergency organization. Describe training to be provided on the use of protective equipment such as respirators. Describe the training program for onsite personnel who are not members of the emergency response staff so that they are aware of what actions they may have to take following the declaration of an emergency. Discuss what special instructions and orientation tours the licensee will offer periodically to fire, police, medical, and other offsite emergency response personnel. Topics to be addressed during training for offsite emergency response personnel should include exposure guidelines, personnel monitoring devices, and basic contamination control principles.

### 7.3 Drills and Exercises

Describe provisions for periodic drills and exercises to test the adequacy of implementing procedures, to test emergency equipment and instrumentation, and to ensure that the emergency personnel are familiar with their duties. Typically, drills are internal tests of specific licensee emergency response functions, related functions are often simulated, and offsite organizations are not invited to participate. Exercises are typically full-scale tests of the licensee's entire emergency response organization, and offsite organizations are invited to participate. Preplanned descriptions of accidents should be used to prepare

scenarios appropriate to the objective of each drill and exercise. The procedures should include a requirement for one or more nonparticipating observers to evaluate the effectiveness of the personnel, the procedures, the readiness of equipment and instrumentation, and to recommend needed changes. For those drills and exercises that involve simultaneous activities at more than one location, observers should be provided at each location. Describe how criteria for acceptable performance will be prepared and provided to observers for evaluating the performance of participants.

### 7.3.1 Biennial Exercises

Ensure that an exercise will be held biennially and that offsite response organizations will be invited to participate in the biennial exercise in order to exercise coordination with offsite assistance organizations, including testing procedures and equipment for notifying and communicating with local and State agencies. Ensure that the NRC will be invited to participate or observe if they wish. Ensure that exercise scenarios are not known by exercise participants and are plausible for the specific site. Discuss any provisions to suspend security or safeguards measures for site access during an exercise. These exercises should be planned so that all emergency response activities are adequately demonstrated. The exercise objectives and scenario should be provided to the NRC at least 60 days before the exercise to obtain NRC comments on how well the exercise will test the licensee's emergency response capabilities.

### 7.3.2 Quarterly Communications Checks

Ensure that checks are conducted with offsite response organizations each quarter to verify and update all necessary telephone numbers.

## 7.4 Critiques

Ensure that a critique will be prepared for each drill and exercise by one or more of the nonparticipating observers and that it will evaluate the appropriateness of the emergency plan, procedures, facilities, equipment, personnel training, and overall effectiveness. The emergency plan and implementing procedures should be reviewed after each exercise, based on the evaluation of the exercise. The emergency plan should be reviewed and revised, if necessary, whenever changes occur in processes, kinds of material at risk, or plant organization. Describe how deficiencies identified by the critique will be corrected in a timely manner. (See Chapter 8 for records of exercises and exercise critiques.)

## 7.5 Independent Audit

Discuss the program to be used annually to review and audit the licensee's emergency preparedness program, including the emergency plan and its procedures; training activities; emergency facilities, equipment, and supplies; and records associated with offsite support agency interface to ensure that the overall emergency preparedness program is being adequately maintained. Describe the minimum qualifications of the persons who will perform the annual audit and ensure that the audits will be made by persons not having direct responsibilities for implementing the emergency response program. Changes in plant layout should be included in the changes that would warrant revision of the emergency plan. Describe the provisions for initiating corrective actions based on audit findings and for ensuring completion of these actions.

## 7.6 Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies

Describe the plans for ensuring that the equipment and instrumentation are in good working condition and that an adequate stock of supplies is maintained. A quarterly inventory should be made to ensure all emergency equipment and supplies are intact and in good operating condition, including instrumentation for operation and calibration, demand respirators, self-contained breathing apparatus, fire-fighting equipment and gear, supplemental lighting, and communications equipment. The procedures should include timely corrective actions to be taken when deficiencies are found during these checks.

## 7.7 Letters of Agreement

Changes to the emergency plan should be communicated to the appropriate offsite response organizations; ensure that letters of agreement with offsite agencies are reviewed annually and renewed at least every four years or more frequently if needed. Letters of agreement may be included in the emergency plan or maintained separately.

# 8. RECORDS AND REPORTS

## 8.1 Records of Incidents

Describe the assignment of responsibility for reporting and recording incidents of abnormal operation, equipment failure, and accidents that led to a plant emergency, including permanent retention with the licensee's decommissioning records. Provide a detailed description of the records that will be kept. The records should include the cause of the incident, personnel and equipment involved, extent of injury and damage (onsite and offsite) resulting from the incident, all locations of contamination with the final

decontamination survey results, corrective actions taken to terminate the emergency, and the action taken or planned to prevent a recurrence of the incident. The records should also include the onsite and offsite support assistance requested and received, as well as any program changes resulting from the lessons learned from a critique of emergency response activities. The titles of the personnel responsible for maintaining the records should be specified. Those records unique to a radiological emergency, not covered by existing NRC regulations or license conditions, should be retained until the license is terminated.

## 8.2 Records of Preparedness Assurance

Provide a description of the records that will be kept. These should include records of:

- Training and retraining (including lesson plans and test questions)
- Drills, exercises, and related critiques
- Inventory and locations of emergency equipment and supplies
- Maintenance, surveillance, calibration, and testing of emergency equipment and supplies
- Agreements with offsite support organizations
- Reviews and updates of the emergency plan
- Notification of all personnel and offsite agencies affected by an update of the plan or its implementing procedures.

## 9. RECOVERY AND PLANT RESTORATION

Describe plans for restoring the facility to a safe status. Although it is not possible to detail specific plans for every type of incident, the plans should include the general requirements for (1) assessing the damage to and the status of the facility's capabilities to control radioactive materials, (2) determining the actions necessary to reduce any ongoing releases of radioactive or other hazardous material and to prevent further incidents, (3) accomplishing the tasks to meet any required restoration action, and (4) describing in general the key positions in the recovery organization.

Specifically, recovery plans should include requirements for checking and restoring to normal operations all safety-related equipment involved in the incident (e.g., criticality alarms, radiation monitoring instruments, respiratory protection equipment, fire-suppression and fire-fighting equipment, containments, and air filters) and assignment of responsibility for compiling, evaluating, and ensuring retention of all records associated with the incident.

During any planned restoration operations, personnel exposures to radiation must be maintained within 10 CFR Part 20 limits and maintained as low as reasonably achievable.

## 10. COMPLIANCE WITH COMMUNITY RIGHT-TO-KNOW ACT

Show compliance with Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499, entitled "Emergency Planning and Community Right-To-Know Act of 1986," with respect to any hazardous materials possessed at the plant site.

### REFERENCES

1. U.S. Nuclear Regulatory Commission, "Standard Format and Content for Emergency Plans for Fuel-Cycle and Materials Facilities," NUREG-0762, Draft Revision 1, November 1987.\*
2. S. A. McGuire, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," NUREG-1140, U.S. Nuclear Regulatory Commission, January 1988.\*\*
3. Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA 520/1-75-001-A, January 1990.\*\*

\*Copies may be obtained, to the extent of supply, from the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Distribution and Mail Services Section.

\*\*Copies may be purchased from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082; or from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

**APPENDIX A  
EXAMPLES OF INITIATING CONDITIONS**

Conditions that Initiate an Alert

1. Fire onsite that might affect radioactive material or safety systems.
2. Severe natural phenomenon that might affect radioactive material or safety systems (e.g., earthquake, flood, tsunami, hurricane, tidal surge, hurricane force winds, tornado striking facility).
3. Other severe incidents that might affect radioactive material or safety systems—aircraft crash into the facility, damage to the facility from explosives, uncontrolled release of toxic or flammable gas in the facility.
4. Elevated radiation levels or airborne contamination levels within the facility that indicate severe loss of control (factor of 100 over normal levels).
5. Ongoing security compromise (greater than 15 minutes).
6. Spent reactor fuel accident with release of radioactivity to containment or fuel-handling building.
7. Discovery of a critical mass quantity of special nuclear material in an unsafe geometry container or other condition that creates a criticality hazard.
8. Other conditions that warrant precautionary activation of the licensee's emergency response organization.

Conditions that Initiate a Site Area Emergency

1. Fire onsite that involves radioactive material or compromises safety systems.
2. Severe natural phenomenon that actually compromises safety systems or the integrity of radioactive material (e.g., earthquake, flood, tsunami, hurricane force winds, tornado striking facility).
3. Other severe incidents that actually compromise safety systems or the integrity of radioactive material—aircraft crash into the facility from explosives, uncontrolled release of toxic or flammable gas in the facility.
4. Elevated radiation levels or airborne contamination levels outside the facility that indicate a significant release to the environment (factor of 100 over normal levels).
5. Imminent or actual loss of physical control of the facility.
6. Major damage to spent reactor fuel with release of radioactivity outside of containment or fuel-handling building.
7. Imminent or actual occurrence of an uncontrolled criticality.
8. Other conditions that warrant activation of offsite emergency response organizations or precautionary notification of the public near the site.

## **REGULATORY ANALYSIS**

A draft value/impact statement was published with the draft of this guide when it was published for public comment (Task DG-3005, September 1990). No changes were necessary, so a separate value/impact statement for the final guide has not been prepared. A copy of the draft value/impact statement is available for inspection or copying for a fee in the Commission's Public Document Room at 2120 L Street, NW, Washington, DC, under DG-3005.

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POLICY AND GUIDANCE DIRECTIVE

FC 84-14

STANDARD REVIEW PLAN (SRP) FOR EMERGENCY PLANS  
FOR FUEL CYCLE AND MATERIALS LICENSEES

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List of Effective Pages

<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>
cover	1	21	1
i	1	22	1
ii	1	23	1
iii	1	24	1
iv	1	25	1
1	1	26	1
2	1	27	1
3	1	28	1
4	1	29	1
5	1	30	1
6	1	31	1
7	1	32	1
8	1	33	1
9	1	34	1
10	1	A1	1
11	1	B1	1
12	1	B2	1
13	1	B3	1
14	1	B4	1
15	1	C1	1
16	1	C2	1
17	1	D1	1
18	1	D2	1
19	1	E1	1
20	1	E2	1
		E3	1
		E4	1

## Table of Contents

	<u>Page</u>
Purpose .....	1
Fees .....	1
A. Introduction .....	1
B. Format .....	4
Graphical Presentations .....	4
Physical Specifications .....	4
Procedures for Updating or Revising Pages .....	5
C. Emergency Plans .....	6
1. Facility Description .....	6
1.1 Description of Licensed Activity .....	6
1.2 Description of Facility and Site .....	6
1.3 Description of Area Near the Site .....	8
2. Types of Accidents .....	9
2.1 Description of Postulated Accidents .....	9
2.2 Detection of Accidents .....	10
3. Classification and Notification of Accidents .....	10
3.1 Classification System .....	11
3.2 Notification and Coordination .....	13
3.2.1 Alert .....	13
3.2.2 Site Area Emergency .....	14
3.3 Information To Be Communicated .....	15
4. Responsibilities .....	16
4.1 Normal Facility Organization .....	16
4.2 Onsite Emergency Response Organization .....	16
4.2.1 Direction and Coordination .....	17
4.2.2 Onsite Staff Emergency Assignments .....	17
4.3 Local Offsite Assistance to Facility .....	18
4.4 Coordination With Participating Government Agencies .....	19

	<u>Page</u>
5. Emergency Response Measures .....	19
5.1 Activation of Emergency Response Organization .....	20
5.2 Assessment Actions .....	20
5.3 Mitigating Actions .....	20
5.4 Protective Actions.....	21
5.4.1 Onsite Protective Actions .....	21
5.4.1.1 Personnel Evacuation and Accountability .....	21
5.4.1.2 Use of Protective Equipment and Supplies .....	22
5.4.1.3 Contamination Control Measures .....	22
5.4.2 Offsite Protective Actions .....	23
5.5 Exposure Control in Radiological Emergencies .....	23
5.5.1 Emergency Radiation Exposure Control Program .....	23
5.5.1.1 Radiation Protection Program .....	23
5.5.1.2 Exposure Guidelines .....	24
5.5.1.3 Monitoring .....	24
5.5.2 Decontamination of Personnel .....	25
5.6 Medical Transportation .....	25
5.7 Medical Treatment .....	25
6. Emergency Response Equipment and Facilities .....	26
6.1 Command Center .....	26
6.2 Communications Equipment .....	27
6.2.1 Onsite Communications .....	27
6.2.2 Offsite Communications .....	27
6.3 Onsite Medical Facilities .....	27
6.4 Emergency Monitoring Equipment .....	27
7. Maintaining Emergency Preparedness Capability .....	28
7.1 Written Emergency Plan Procedures .....	28
7.2 Training .....	28
7.3 Drills and Exercises .....	29
7.3.1 Biennial Exercises .....	30
7.3.2 Quarterly Communications Checks .....	30

	<u>Page</u>
7.4 Critiques .....	30
7.5 Independent Audit .....	31
7.6 Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies .....	31
7.7 Letters of Agreement .....	31
8. Records and Reports .....	32
8.1 Records of Incidents .....	32
8.2 Records of Preparedness Assurance .....	32
9. Recovery and Plant Restoration .....	33
10. Compliance with Community Right-to-Know Act .....	34
Appendix A - Examples of Initiating Conditions .....	A-1
Appendix B - Reviewer's Checklist .....	B-1
Appendix C - Information Notice 87-58 .....	C-1
Appendix D - Information Notice 93-07 .....	D-1
Appendix E - Information Notice 93-60 .....	E-1

STANDARD REVIEW PLAN (SRP) FOR EMERGENCY PLANS  
FOR FUEL CYCLE AND MATERIALS LICENSEES

**PURPOSE:** This SRP provides guidance to NRC licensing staff reviewing emergency plans prepared pursuant to 10 CFR 30.32(i)(3), 40.31(j)(3), or 70.22(i)(3). It is intended to supplement the guidance provided to licensees in Regulatory Guide 3.67, Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Licensees, January 1992.

**FEES:** The review of emergency plans submitted with applications for new licenses and renewals are covered by the applicable licensing fee. Revisions to an emergency plan should be set up as a license amendment for tracking purposes, but the review will only be subject to a fee if NRC approval of the revision is required by 10 CFR 30.34(f), 40.35(f), or 70.32(i). Revisions that do not decrease the effectiveness of the emergency plan are not subject to an amendment fee even if the license is amended for the convenience of the Commission to maintain up-to-date references to the plan in the license. Licensing staff must inform the License Fee and Debt Collection Branch (LFDCB/OC) of all emergency plan revisions and specify whether the revisions decrease the effectiveness of the plan.

**A. Introduction**

Regulatory Guide 3.67 was issued to describe and make available to the public guidance acceptable to the NRC staff on the information to be included in emergency plans. Regulatory Guide 3.67 and this SRP are not substitutes for the regulations and compliance with them is not required. Emergency plans that differ from the guidance are acceptable if they provide an adequate basis for the findings required for issuing or continuing a license. Regulatory Guide 3.67 supersedes Revision 1 of NUREG-0762 (Ref. 1). In addition, this SRP supersedes NUREG-0810 (Ref. 4).

Detailed descriptive information on processes, materials storage areas and containers, ventilation, process controls, activity locations, vessels, and confinement of radioactive or other hazardous materials may be necessary for the NRC to evaluate the adequacy of the emergency plan. Detailed information that would help response organizations assess accident consequences and estimate releases should be included in the plan. Other detailed information that is needed primarily for the licensing review may be submitted separately as a supplement to the plan or incorporated by reference to other licensing submittals.

Reviewer's Note: The emergency plan should be a "stand-alone" document. Applicants may not leave out critical details by referencing other documents. For example, an applicant may reference an environmental report for a complete description of its effluent monitoring program. However, the exact location of the effluent monitors and a description of how sample results are obtained must be included in the emergency plan.

The emergency plan reflects, in general terms, the preplanning done in preparing to cope with an emergency, but the details of the actual response are contained in the emergency plan's implementing procedures. Throughout the guidance, the licensee or applicant is asked to describe procedures instead of submitting them to the NRC for approval. NRC uses this practice to eliminate the need for a license amendment every time the procedures need to be changed. Details contained in the procedures will need to be changed from time to time. If each change in a procedure required NRC approval, frequent and time consuming license amendments would be required. Therefore, the license is issued on the basis of the descriptions of procedures in the emergency plan. The procedures may be changed within the scope of these descriptions. However, this practice makes it necessary for the licensee or applicant to give close attention to the way the implementing procedures are described. In preparing the implementing procedures, the applicant should be aware that the NRC may review them during the licensing process and during inspections to ensure that the procedures are current and workable and that they conform with the descriptions in the emergency plan.

Reviewer's Note: In general, implementing procedures are reviewed by the inspection staff. However, the emergency plan should describe the implementing procedures in enough detail to understand what the procedures do and do not contain. Simply providing a list of procedure titles is not enough. When key elements of the plan are addressed in the implementing procedures, the reviewer should verify that the implementing procedure in effect at the time the plan is approved appears adequate. Licensees should not use implementing procedures to address basic emergency planning requirements that are not subject to frequent revision.

Any changes to the emergency plan that decrease the effectiveness of the plan must have NRC approval before implementation pursuant to 10 CFR 30.34(f), 40.35(f), and 70.32(i). The licensee may change the emergency plan without prior NRC approval if the changes do not decrease the effectiveness of the plan. These changes should be submitted to the appropriate NRC licensing office and to affected offsite response organizations within six months after the changes are made. The submittals should include the date the changes became effective.

Reviewer's Note: Applicants are required to allow offsite response organizations 60 days to comment on the plan submitted with a new license application or a license renewal application. Offsite response organizations should also review revisions subject to NRC approval because they decrease the effectiveness of the plan. Any comments received within the 60 day period must be submitted to the NRC with the plan pursuant to 10 CFR 30.32(i)(4), 40.31(j)(4), and 70.22(i)(4). Comments from offsite agencies should be resolved before the plan is submitted to the NRC, if possible.

The licensee is encouraged to have a single emergency plan to meet the requirements of State agencies or the Community Right-To-Know Act as well as to comply with the regulations of the NRC. Additional material to meet these other regulations should either be included in the plan or referenced in the licensee's emergency plan submitted to the NRC. This

additional material will be reviewed by NRC only to ensure that it does not diminish compliance with the NRC's requirements.

**Reviewer's Note:** Take care not to comment on provisions not directly related to NRC licensed activities unless they cause confusion.

## B. FORMAT

**Graphical Presentations.** Graphical presentations such as drawings, maps, diagrams, sketches, and tables should be employed if the information may be presented more accurately or conveniently by such means. Due concern should be taken to ensure that all information presented is legible, that symbols are defined, and that scales are not reduced to the extent that visual aids are necessary to interpret pertinent items of information. These graphical presentations should be located in the section where they are primarily discussed.

References used may appear as footnotes to the page where discussed or at the end of each chapter.

### Physical Specifications

#### Paper size

- (1) Text pages: 8-1/2 x 11 inches.
- (2) Drawings and graphics: 8-1/2 x 11 inches; however, a larger size is acceptable provided the finished copy when folded does not exceed 8-1/2 x 11 inches.

**Paper stock and ink.** Suitable quality in substance, paper color, and ink density for handling and reproduction by microfilming or image-copying equipment.

**Page margins.** A margin of no less than 1 inch should be maintained on the top, bottom, and binding side of all pages submitted.

## Printing

- (1) Composition: text pages should be single spaced.
  - (2) Typeface and style: should be suitable for microfilming or image-copying equipment.
  - (3) Reproduction: may be mechanically or photographically reproduced.
- All pages of text should be printed on both sides and the image printed head to head.

**Binding.** Pages should be punched for standard 3-hole loose-leaf binders.

**Page numbering.** Pages should be numbered with the digits corresponding to the chapter followed by a hyphen and a sequential number, e.g., the third page of Chapter 4 should be numbered 4-3. The chapter numbers should correspond to the chapters in Regulatory Guide 3.67. Do not number the entire plan sequentially.

**List of Effective Pages.** A list of every page in the plan and the effective revision number or revision date of each page should be provided as a means of verifying that the plan is complete and current. The list should include the pages of any enclosures or attachments that are part of the plan.

**Table of contents.** A table of contents and an index of key items should be included.

## Procedures for Updating or Revising Pages

Data and text should be updated or revised by replacing pages. The changed or revised portion on each page should be highlighted by a "change indicator" mark consisting of a bold vertical line drawn in the margin opposite the binding margin. The line should be of the same length as the portion actually changed.

All pages submitted to update, revise, or add pages to the plan should show the revision number or revision date. Each revision should include a

new list of effective pages and an instruction sheet listing the pages to be inserted and the pages to be removed. Readers should be instructed to check the plan against the list of effective pages to verify that the revised plan is complete.

## C. EMERGENCY PLANS

### 1. FACILITY DESCRIPTION

The information in this section is to provide perspective about the facility and the licensed activity such that the adequacy and appropriateness of the licensee's emergency planning, emergency organization, and emergency equipment can be evaluated.

#### 1.1 Description of Licensed Activity

Present briefly the principal aspects of the overall licensed activity. A general description of licensed and other activities conducted at the facility, the location of the facility, and the type, form, and quantities of radioactive and other hazardous materials normally present should be included. Any radioactive materials authorized under a State license should also be described.

**Reviewer's Note:** Verify that the plan reflects the possession limits that are in effect when the plan is approved, not proposed possession limits pending review. Also verify whether Agreement State licenses have been issued for the facility.

#### 1.2 Description of Facility and Site

Provide a detailed drawing of the site for the emergency plan. An enlarged duplicate of the drawing suitable for use as wall map (24 x 30

inch minimum) should also be provided. The detailed drawing should be drawn to scale and show or indicate the following:

1. Onsite and near-site structures with building numbers (if applicable) and descriptive labels.
2. A bar scale in both meters and feet.
3. A compass indicating North.
4. Roads and parking lots onsite and main roads and highways near the site.
5. Site boundaries, showing fences and gates.
6. Exhaust stacks, storage areas, retention ponds, and other major site features.
7. Rivers, lakes, streams, or other ground-water sources onsite and within approximately 1 mile.

Provide a concise description of all site features affecting emergency response, including communications and assessment centers, assembly and relocation areas, and process and storage areas. Identify any additional site features likely to be of interest because they are related to the safety of site operations. The emergency plan should include a list of all hazardous chemicals used at the site, typical quantities possessed, locations of use and storage, and the hazardous characteristics (radioactivity, Ph, other) of material in sediment and retention ponds. The stack heights, typical stack flow rates, and the efficiencies of any emission control devices should be summarized in the emergency plan to help response organizations assess releases.

Reviewer's Note: The purpose of the enlarged duplicate drawing is to allow organizations using the plan to pull out a detailed wall map without actually removing any information from the plan. The purpose of the hazardous chemicals list is to identify bulk quantities of chemicals (i.e., drums and tanks) that could affect whether response personnel could safely enter an area during a fire or other emergency. Propane tanks and other fuel tanks should be included in the list. Verify that the information on the vent stacks is detailed enough to allow NRC dose analysts to perform a reasonably accurate estimate of releases during an emergency.

### 1.3 Description of Area Near the Site

Include a description of the principal characteristics of the area near the site at which licensed activities are conducted. Indicate the site on a general area map (approximately 10-mile radius) and on a United States Geological Survey 7.5' topographical map<sup>1</sup> (approximately 1-mile radius). Provide a map or aerial photograph indicating onsite structures and nearsite structures (about 1-mile radius). On this photograph or map, include the following :

1. Locations of population centers (towns, cities, office buildings, factories, schools, arenas, stadiums, etc.);
2. Locations of facilities that could present potential protective action problems (schools, arenas, stadiums, prisons, nursing homes, hospitals);
3. Identification of primary routes for access of emergency equipment or for evacuation, as well as potential impediments to traffic flow (rivers, drawbridges, railroad grade crossings, etc.);
4. Locations of fire stations, police stations, hospitals, and other offsite emergency support organizations (specify whether qualified to handle exposure to radioactive contamination or toxic chemicals);
5. The sites of potential emergency significance (e.g., liquefied petroleum gas (LPG) terminals, chemical plants, pipelines, electrical transformers, and underground cables);
6. Identification of the types of terrain and the land use patterns around the site.

**Reviewer's Note:** The discussion of population centers should address transient population distribution.

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<sup>1</sup>Topographical maps can be obtained from the U.S. Geological Survey, Map Distribution, Denver Federal Center, P.O. Box 25286, Denver, CO 80225. The telephone number is (303) 236-7477.

## 2. TYPES OF ACCIDENTS

Emergency planning is concerned with individual and organizational responses to a range of potential accidents, including those accidents that have been hypothesized but that have a very low probability of occurrence.

### 2.1 Description of Postulated Accidents

Identify and describe each type of radioactive materials accident for which actions may be needed to prevent or minimize exposure of persons offsite to radiation or radioactive materials. Exposure levels at the site boundary should be treated as the levels potentially affecting persons offsite.

Describe the accidents in terms of the process and physical location where they could occur. Describe how the accidents could happen (equipment malfunction, instrument failure, human error, etc.), possible complicating factors, and possible onsite and offsite consequences. Accident descriptions should include nonradioactive hazardous material releases that could impact emergency response efforts. Facilities that can have criticality accidents should evaluate the direct radiation exposure from postulated criticality accidents in addition to the dose from released radioactive materials.

**Reviewer's Note:** This section should clearly identify each type of accident that could have offsite consequences. (Identifying accidents with no potential for offsite consequences is not required, but they may be included in the plan.) The plan should not be vague about some accidents because they are unlikely. Unless an accident is so unlikely that it can be considered impossible, the accident should be postulated. Reviewers should verify that the possible accident locations are identified and the worst case scenario is summarized for each postulated accident. Dose calculations should be consistent with calculations in NUREG-1140. Licensees may use site-specific information in their dose calculations

where assumptions made in NUREG-1140 are completely unrealistic. If the license application contains accident analyses (required for fuel cycle applications), the reviewer should verify that the plan is consistent with the accident analyses. Appendix A identifies the various types of accidents that should be considered. It can be helpful for the plan to briefly identify the accidents not postulated and the reasons why, but the discussion of these accidents should not be so lengthy that it is difficult for the reader to tell which accidents are postulated.

## 2.2 Detection of Accidents

Describe the means provided to detect and to alert the licensee's operating staff of any abnormal operating condition or of any other danger to safe operations (e.g., severe weather warning). For each type of accident identified in the emergency plan, describe the means of detecting the accident, the means of detecting any release of radioactive or other hazardous material, the means of alerting the operating staff, and the anticipated response of the operating staff. Examples are visual observation, radiation monitors, smoke detectors, process alarms, and criticality alarms. Indicate at what stage of the accident it would be detected. Also indicate if the area of the postulated accidents, or remote readouts of alarms or detectors located in such areas, are under continuous visual observation.

## 3. CLASSIFICATION AND NOTIFICATION OF ACCIDENTS

Accidents should be classified as an alert or a site area emergency according to the definitions in 10 CFR 30.4, 40.4, and 70.4. In its emergency plan and in coordination meetings with offsite authorities, the licensee should convey the concept that fuel cycle and materials facilities do not present the same degree of hazard (by orders of magnitude) as are presented by nuclear power plants. Thus, the classification scheme for these facilities is different. The licensee should explain to offsite authorities the definitions of accident severity

and the expected response actions associated with alert and site area emergency conditions. NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees" (Ref. 2), contains a description of past incidents involving radioactive materials.

### 3.1. Classification System

An alert is defined as an incident that has led or could lead to a release to the environment of radioactive or other hazardous material, but the release is not expected to require a response by an offsite response organization to protect persons offsite. An alert reflects mobilization of the licensee's emergency response organization, either in a standby mode that will activate some portions of the licensee's organization or full mobilization, but does not indicate an expectation of offsite consequences. However, an alert may require offsite response organizations to respond to an onsite condition such as a fire.

A site area emergency is defined as an incident that has led or could lead to a significant release to the environment of radioactive or other hazardous material and that could require a response by an offsite organization to protect persons offsite. A site area emergency reflects full mobilization of the licensee's emergency response organization and may result in requests for offsite organizations to respond to the site.

In the emergency plan, identify the classification (alert or site area emergency) that is expected for each of the accidents postulated in Section 2.1. Relate the classification to the accident description and detection means described in Section 2.2. Identify the emergency action levels (EALs) at which an alert or site area emergency will be declared. EALs are specific conditions that require emergency response measures to be performed. Licensees should establish specific initiating conditions relative to particular events or changes in instrument sensors. Appendix A provides a list of examples of initiating conditions for declaring an alert or site area emergency.

Although it is unlikely that a site area emergency requiring offsite actions will occur at a fuel cycle or materials facility, the licensee must be able to recognize potential offsite hazards and make the required notifications in such a manner that offsite response organizations can take appropriate actions, such as sheltering or evacuating persons in the affected area.

**Reviewer's Note:** Verify that the plan contains no classification above a Site Area Emergency (i.e., no General Emergency classification). Classifications below an Alert are permissible and may have names other than Unusual Event. Please note that Parts 30, 40, and 70 do not require licensees to notify the NRC when they declare an Unusual Event (unlike Part 50). Reviewers should verify that the plan does not classify a transportation accident more than one mile from the facility as an Alert or Site Area Emergency (see Information Notice 93-07 in Appendix D). With regard to EALs, simply adopting the general examples in Appendix A is not adequate. Applicants must establish site-specific EALs in the plan, or make a clear commitment to establish them in the implementing procedures. The description of how each accident is detected in Section 2.2 usually provides a good indication what the site-specific EALs should look like.

The NRC intends that licensees be allowed to have a single emergency plan that can apply to all licensee needs and regulatory requirements. To this end, it should be understood that a licensee may wish to include in the emergency plan some incidents that do not fall within the jurisdiction of the NRC. For example, the licensee may wish to include industrial accidents or fires unrelated to the licensee's work with nuclear materials. The licensee may include such incidents in the emergency plan.

The classification of emergencies involving potential or actual releases of nonradioactive hazardous materials should be coordinated with the local emergency planning committee established under the provisions of Section 301(c) of the Emergency Planning and Community Right-To-Know Act of 1986 (Title III of the Superfund Amendments and Reauthorization Act of 1986,

Pub. L. 99-499). The licensee should clearly identify any part of the emergency plan that does not apply to activities licensed by the NRC.

Reviewer's Note: Provisions for chemical accidents or industrial accidents directly related to NRC licensed activities are subject to the approval of the license reviewer. However, reviewers should not comment on provisions for accidents unrelated to NRC licensed activities unless they cause confusion or interfere with provisions subject to NRC approval.

### 3.2 Notification and Coordination

#### 3.2.1 Alert

The purpose of declaring an alert is to ensure that emergency personnel are alerted and at their emergency duty stations to mitigate the consequences of the accident, that the emergency is properly assessed, that offsite officials are notified, and that steps can be taken to escalate the response quickly if necessary. The licensee should describe how and by whom the following actions will be taken:

- Decision to declare an alert.
- Activation of onsite emergency response organization.
- Prompt notification of offsite response authorities that an alert has been declared (normally within 15 minutes of declaring an alert).
- Notification to the NRC Operations Center at 301-951-0550 immediately after notification of offsite authorities, and in any case within 1 hour of the declaration of an alert. (See 10 CFR Part 20 for additional notification requirements.)
- Decision to initiate any onsite protective actions.
- Decision to escalate to a site area emergency, if appropriate.
- Decision to request support from offsite organizations.
- Decision to terminate the emergency or enter recovery mode.

### 3.2.2 Site Area Emergency

The purpose of declaring a site area emergency is to ensure that offsite officials are informed of potential or actual offsite consequences, that offsite officials are provided with recommended actions to protect persons offsite, and that the licensee's response organization is augmented by additional personnel and equipment. The licensee should describe how and by whom the following actions will be taken:

- Decision to declare a site area emergency .
- Activation of onsite emergency response organization.
- Prompt notification of offsite response authorities that a site area emergency has been declared, including the licensee's initial recommendation for offsite protective actions (normally within 15 minutes of declaring a site area emergency).
- Notification to the NRC Operations Center at 301-951-0550 immediately after notification of offsite authorities, and in any case within 1 hour of the declaration of a site area emergency. (See 10 CFR Part 20 for additional notification requirements.)
- Decision on what onsite protective actions to initiate.
- Decision on what offsite protective actions to recommend.
- Decision to request support from offsite organizations.
- Decision to terminate the emergency or enter recovery mode.

**Reviewer's Note:** The plan should clearly identify the decision makers (by their emergency organization title) and the decision making process. Watch out for blanket statements that the head of the emergency organization makes all decisions, followed by statements that other supervisors can decide to initiate actions on their own authority. The plan should accurately reflect who is authorized to make the various decisions listed above. Verify that the personnel who will notify the offsite response organizations and the NRC are knowledgeable about plant operations and can provide accurate and reliable answers to questions about the incident (see Information Notice 87-58 in Appendix C).

### 3.3 Information To Be Communicated

The licensee should be prepared to provide clear, concise information to offsite response organizations. The communication should avoid technical terms and jargon and should be stated to prevent an under- or over-evaluation of the seriousness of the incident. Describe the types of information that will be communicated with respect to facility status, releases of radioactive or other hazardous materials, and recommendations for protective actions to be implemented by offsite response organizations. The emergency plan should contain the preplanned protective action recommendations the licensee will make to each appropriate offsite organization (including the NRC) for each postulated accident. The licensee should try to make protective action recommendations directly to State or local officials responsible for implementing the specific protective actions. The recommendations should specify the size of the area where the actions are to be taken. The licensee should obtain the input of offsite organizations to ensure that they recommend the most practical and efficient protective actions for each postulated accident. A standard reporting checklist should be developed to facilitate timely notification. Provide assurance to the NRC that the information has been received by offsite response organizations and that it is periodically reaffirmed and updated with these agencies.

The standard reporting checklist should be developed in cooperation with offsite officials to ensure that it meets their information needs and that their personnel are trained to receive and relay such information. The licensee should provide initial protective action recommendations at the same time it initially notifies offsite authorities of a site area emergency declaration.

**Reviewer's Note:** Reviewers should verify that the necessary technical information has been identified for transmittal, and that initial protective action recommendations (PARs) for the public have been prepared and will be transmitted with the first call to offsite authorities. The PARs are discussed in Section 5.4.2. The plan should clearly identify the

offsite response organizations that will be notified every time an Alert or Site Area Emergency is declared. The maximum time period between updates to the offsite organizations should be established in the plan. Information Notice 93-60 (see Appendix E) provided licensees with the notification worksheet used by the NRC Operations Officers. Licensees may wish to use this worksheet as a basis for their reporting checklist.

#### **4. RESPONSIBILITIES**

In the section, describe the emergency organization to be activated onsite for possible events, as well as its augmentation and support offsite. Delineate the authorities and responsibilities of key individuals and groups, and identify the communication chain for notifying and mobilizing the necessary personnel during normal and nonworking hours.

##### **4.1 Normal Facility Organization**

Provide a brief description of the normal (day-to-day) facility organization and identify by position those individuals who have the responsibility and authority to declare an emergency and to initiate the appropriate response.

##### **4.2 Onsite Emergency Response Organization**

Describe the onsite emergency response organization for the facility, and include the organization for periods such as offshift, holidays, weekends, and extended outages when normal operations are not being conducted. Use organization charts and tables when appropriate. If the organization is activated in phases, describe the basic organization and each additional component that may be activated to augment the organization.

#### 4.2.1 Direction and Coordination

Designate the position of the person and alternates who have the overall responsibility for implementing and directing the emergency response. Discuss this person's duties and authority, including control of the situation, termination of the emergency condition, coordination of the staff and offsite personnel who augment the staff, communication with parties requesting information about the event, authority to request support from offsite agencies, and authority to delegate responsibilities. Indicate the individuals who may be delegated certain emergency responsibilities.

#### 4.2.2 Onsite Staff Emergency Assignments

Specify the organizational group or groups assigned to the functional areas of emergency activity listed below. Indicate the basis for personnel assignment for both working and nonworking time periods. For each group, describe duties, authority, and interface with other groups and outside assistance.

The organizational groups should provide capability in the following areas:

- Facility system operations
- Fire control
- Personnel evacuation and accountability
- Search and rescue operations
- First aid
- Communications
- Radiological survey and assessment (onsite and offsite)
- Personnel decontamination
- Facility decontamination
- Facility security and access control
- Facility repair and damage control
- Post-event assessment
- Recordkeeping

- Media contact
- Criticality safety assessment

**Reviewer's Note:** Verify that one or more groups are assigned to each of these functions. Also make sure that the groups listed in this section are consistent with the emergency organization defined in Section 4.2. If you cannot tell where a group fits into the emergency organization, the plan should be clarified. Verify that personnel are not assigned to multiple groups in such a manner that they could not perform all duties if the groups had to respond simultaneously. The group responsible for facility security should include material control and accountability (MC&A) capability if an MC&A program is required for normal operations.

### 4.3 Local Offsite Assistance to Facility

Describe provisions and arrangements for assistance to onsite personnel during and after an emergency. Indicate the location of local assistance with respect to the facility if not previously stated. Ensure that exposure guidelines are clearly communicated to offsite emergency response personnel. Identify the services to be performed, means of communication and notification, and type of agreements that are in place for the following:

- Medical treatment facilities
- First aid personnel
- Fire fighters
- Law enforcement assistance
- Ambulance service

Describe the measures that will be taken to ensure that offsite agencies maintain an awareness of their respective roles in an emergency and have the necessary periodic training, equipment, and supplies to carry out their emergency response functions. Discuss any provisions to suspend security or safeguards measures for site access during an emergency.

**Reviewer's Note:** Verify that MC&A will be maintained during an emergency.

#### **4.4 Coordination with Participating Government Agencies**

Identify the principal State agency and other government (local, county, State, and Federal) agencies or organizations having responsibilities for radiological or other hazardous material emergencies at the facility. For each agency or organization, describe:

- Its authority and responsibility in a radiological or hazardous material emergency and its interface with others, if any;
- Its specific response capabilities in terms of personnel and resources available;
- Its location with respect to the facility;
- The rumor control arrangements that have been made with the agency or organization. (The emergency plan should describe where the public and media can obtain information during an emergency.)

Typical agencies to be included are the local emergency planning committee established under the Emergency Planning and Community Right-To-Know Act of 1986; State departments of health, environmental protection, and emergency or disaster control; and local fire and police departments. Ensure that the licensee will meet at least annually with each offsite response organization to review items of mutual interest, including relevant changes in the licensee's emergency preparedness program. The licensee should discuss the emergency action level scheme, notification procedures, and overall response coordination process during these meetings.

#### **5. EMERGENCY RESPONSE MEASURES**

Specific emergency response measures should be identified for each class of emergency and related to action levels or criteria that specify when the measures are to be effected. Response measures include assessment actions, mitigative actions, onsite and offsite protective actions, exposure control, authorization of emergency exposures in excess of Part 20 limits, and aid to injured persons.

## 5.1 Activation of Emergency Response Organization

Describe the means used to activate the emergency response organization for each class of emergency during both regular and nonregular hours. Include a description of the method used to authenticate messages. Identify the activation levels for each class and relate them to the responsibilities identified in Chapter 4. In this and subsequent sections, describe the specific written procedures to be used.

## 5.2 Assessment Actions

For each class of emergency, discuss the actions to be taken to determine the extent of the problem and to decide what corrective actions may be required. Describe the types and methods of onsite and offsite sampling and monitoring that will be done in case of a release of radioactive or other hazardous material. Describe provisions for projection of offsite radiation exposures.

## 5.3 Mitigating Actions

For the events identified in Chapter 2, briefly describe the means and equipment provided for mitigating the consequences of each type of accident. Include the mitigation of consequences to workers onsite as well as to the public offsite. In the event of a warning of impending danger, describe the criteria that will be used to decide whether a single process or the entire facility will be shut down, the steps that will be taken to ensure a safe orderly shutdown of equipment, and approximate times required to accomplish a safe shutdown of processes. Mitigating actions could include steps to reduce or stop any releases, and steps to protect personnel (e.g., evacuation, shelter, decontamination). Means for limiting releases could include:

- Sprinkler systems and other fire-suppression systems
- Fire detection systems
- Firefighting capabilities
- Filtration or holdup systems

- Use of water sprays on airborne releases of radioactive material
- Automatic shutoff of process or ventilation flows
- Storage in fire-resistant containers
- Use of fire-resistant building materials
- Criticality controls

Reviewer's Note: The overall strategy for mitigating each type of accident should be clear. Reviewers should look for any inappropriate actions such as using water to extinguish fires in a moderator controlled area.

#### 5.4 Protective Actions

The nature of onsite and offsite protective actions, the criteria for implementing those actions, the areas involved, and the procedures for notification to affected persons should be described in the plan. To prevent or minimize exposure to radiation, radioactive materials, and other hazardous materials, the plan should provide for timely relocation of onsite persons, timely recommendation of offsite actions, effective use of protective equipment and supplies, and use of appropriate contamination control measures.

##### 5.4.1 Onsite Protective Actions

5.4.1.1 Personnel Evacuation and Accountability. This segment of the emergency plan should include:

- Criteria for ordering an evacuation
- The means and time required to notify persons involved
- Evacuation routes, transportation of personnel
- Locations of onsite and offsite assembly areas
- Search and rescue
- Monitoring of evacuees for contamination and control measures if contamination is found
- Criteria for command center and assembly area evacuation and reestablishment at alternate location

- Procedures for evacuating and treating injured personnel, including contaminated personnel
- Provisions for determining and maintaining the accountability of assembled and evacuated personnel

**5.4.1.2 Use of Protective Equipment and Supplies.** Effective use of protective equipment and supplies, including the proper onsite distribution or availability of special equipment, is an important measure for minimizing the effects of exposure to or contamination by radioactive materials. Measures that should be considered are:

- Individual respiratory protection
- Use of protective clothing
- Communications equipment associated with any self-contained breathing apparatus
- Use of potassium iodide to block uptake of radioactive iodine (if appropriate).

For each measure that might be used, describe:

- Criteria for issuance of emergency equipment, if appropriate
- Locations of emergency equipment and supplies
- Inventory lists indicating the emergency equipment and supplies at each specified location
- Means for distribution of these items.

**Reviewer's Note:** Planned use of respiratory equipment by emergency workers requires an NRC-approved respiratory protection program for those workers assigned to duties that may require respiratory protection (such as search and rescue teams).

**5.4.1.3 Contamination Control Measures.** Describe provisions for preventing further spread of radioactive materials and for minimizing radiation exposures from radioactive materials that are unshielded or released by abnormal conditions.

Onsite protective actions should be described and should include isolation, area access control, and application of criteria for permitting return to normal use. Action criteria for implementing the planned measures should be described.

#### 5.4.2 Offsite Protective Actions

Describe the conditions that would require protective actions offsite and list postulated accidents that could meet any of the conditions. Discuss what protective action recommendations would be made to offsite authorities, when each recommendation would be made, and what areas offsite would be affected. Protective action recommendations should be consistent with the analysis results in NUREG-1140 (Ref. 2) and the guidance in the EPA Manual of Protective Action Guides (Ref.3).

**Reviewer's Note:** Verify that offsite agencies had no concerns about the licensee's protective action recommendations in their comments.

### 5.5 Exposures Control in Radiological Emergencies

In this section, describe the means for controlling radiological exposures for emergency workers.

#### 5.5.1 Emergency Radiation Exposure Control Program

**5.5.1.1 Radiation Protection Program.** Describe the onsite radiation protection program to be implemented during emergencies, including methods to comply with exposure guidelines. Identify individuals, by position or title, who can authorize workers to receive emergency doses. Procedures should be provided in advance for permitting onsite volunteers to receive radiation doses in the course of carrying out lifesaving and other emergency activities. Procedures should provide for expeditious decisionmaking and a reasonable consideration of relative risks.

**Reviewer's Note:** Verify that the plan requires emergency workers to provide informed consent before they are authorized to receive emergency doses. Information on health risks from emergency doses can be found in Chapter 2 of the EPA Manual of Protective Action Guides (Ref. 3).

**5.5.1.2 Exposure Guidelines.** Specify onsite exposure guidelines consistent with the EPA Manual of Protective Actions Guides (Ref. 3) to be used in actions to control fires, stop releases, or protect facilities. Guidelines for exposure to uranium, plutonium, or other toxic materials should be based on the chemical toxicity when the toxicity hazard is greater than the radiation hazard. Exposure guidelines should be provided for:

- Removing injured persons
- Undertaking mitigating actions
- Performing assessment actions
- Providing onsite first aid
- Performing personnel decontamination
- Providing ambulance service
- Providing offsite medical treatment.

**Reviewer's Note:** The emergency worker dose guidelines in the PAG Manual were revised in 1991 to 5 rem TEDE for any emergency actions, 10 rem TEDE for protecting valuable property, and 25 rem TEDE for life saving or protecting large populations. There is no upper limit for life saving or protecting large populations, but any dose greater than 25 rem TEDE should only be authorized on a voluntary basis to persons fully aware of the risks involved (informed consent).

**5.5.1.3 Monitoring.** Describe provisions for determining the doses and dose commitments from external radiation exposure and any internally deposited radioisotopes received by emergency personnel involved in any accidents, including volunteers and emergency workers from offsite support organizations who may receive radiation exposure while performing their duties at the licensee's facility. Include provisions for distribution of

dosimeters, both self-reading and permanent record devices, and means for assessing inhalation exposures.

Describe provisions for ensuring that dose and dose commitment records are maintained for licensee and offsite support organization's emergency workers involved in any nuclear accident.

#### 5.5.2 Decontamination of Personnel

Specify action levels for decontaminating personnel. Describe the means for decontaminating emergency personnel, supplies, instruments, and equipment; and describe the means for collecting and handling radioactive wastes. Describe provisions for surveying and decontaminating relocated onsite personnel, including providing extra clothing and decontaminates suitable for the type of contamination expected.

#### 5.6 Medical Transportation

Specify how injured personnel, who may also be radiologically contaminated, will be transported to medical treatment facilities. Describe how chemicals or hazardous materials used in conjunction with radioactive materials may impact medical transportation.

#### 5.7 Medical Treatment

Describe arrangements made for hospital and medical services, both local and backup, and their capabilities to evaluate and treat injuries from radiation, radioactive materials, and other hazardous materials used in conjunction with radioactive materials. The description should include the capabilities to control any contamination that may be associated with physical injuries. The licensee should be prepared to provide ambulance and hospital personnel with health physics support if needed. If needed during an emergency, the NRC can obtain physicians for consultation and other medical assistance through the Department of Energy (DOE).

Reviewer's Note: The description of the hospital's capabilities may be provided in their letter of agreement. Hospitals may have nuclear physicists on staff if they have a nuclear medicine department. If there is no capability in-house, the hospital should have a consulting physician available 24 hours a day. DOE provides a free, 24-hour Hospital Disaster Network through REACTS (Radiation Emergency Assistance Center/Training Site) in Oak Ridge, TN. Physicians may call REACTS directly. Please note that only the consultation is free. REACTS must be paid if it performs services (such as cytogenetic studies).

## 6. EMERGENCY RESPONSE EQUIPMENT AND FACILITIES

In this chapter, describe the onsite equipment and facilities designated for use during emergencies. Provide sufficient detail to allow the NRC staff to determine the adequacy of the equipment to perform its function during an emergency.

### 6.1 Command Center

Describe the principal and alternative locations from which control and assessment for the emergency will be exercised. Identify the criteria used to predetermine the number and location of command centers in order to ensure that at least one will be habitable during any emergency. Indicate the means for identifying which command center will be used in a given emergency. Specify the criteria for evacuating a command center and re-establishing control from an alternative location. Provide a description of the primary and alternative locations from which licensee emergency workers would be dispatched for radiation survey, damage assessment, emergency repair, or other mitigating tasks if these persons would not be dispatched from the command centers.

## 6.2 Communications Equipment

### 6.2.1 Onsite Communications

Describe the primary and any alternative onsite communication systems that would be used to transmit and receive information throughout the course of an emergency and the subsequent recovery. Discuss the frequency of operational tests.

### 6.2.2 Offsite Communications

A backup means of offsite communication, other than commercial telephone, should be provided for notification of emergencies and requests for assistance. Operational tests of backup communications systems should be conducted periodically.

Reviewer's Note: The plan should indicate whether licensee radios are compatible with local fire and police radios. (Compatibility is not required.) The licensee should be able to communicate with offsite response units that enter the site. It is acceptable for licensee personnel with radios to escort fire and rescue units while onsite.

### 6.3 Onsite Medical Facilities

Describe the facilities and medical supplies at the site designated for emergency first aid treatment and contamination control of injured individuals.

### 6.4 Emergency Monitoring Equipment

List and describe the dedicated emergency equipment that will be available for personnel and area monitoring, as well as that for assessing the release of radioactive materials to the environment. The description should include the purpose of the equipment. The location of all monitoring equipment should be described. The emergency plan should

discuss how the storage locations will ensure that sufficient emergency monitoring equipment will be accessible in a nonhazardous location for each type of postulated accident. Include similar descriptions of routine effluent monitors and meteorological measurement systems, if present. Describe how these are to be used to assess the magnitude and dispersion of releases. In addition to the radiological monitoring equipment, indicate, if applicable, the instrumentation to be used for monitoring chemically toxic materials. Describe available meteorological monitoring equipment, including locations of monitors, elevations of sensors, and location of readout.

**Reviewer's Note:** If there are numerous equipment storage locations, they should be shown on one of the drawings in the plan.

## **7. MAINTAINING EMERGENCY PREPAREDNESS CAPABILITY**

### **7.1 Written Emergency Plan Procedures**

Identify the means for ensuring that written emergency plan procedures will be prepared, kept up to date, and distributed to all affected parties. Describe the review process that will ensure these procedures clearly state the duties, responsibilities, action levels, and actions to be taken by each group or individual in response to an emergency condition. Describe provisions for approval of the procedures, making and distributing changes to the procedures, and ensuring that each person responsible for an emergency response function has easy access to a current copy of each procedure that pertains to his or her functions.

### **7.2 Training**

Describe the topics and general content of training programs used for training the onsite emergency response staff. Specify the training afforded to those personnel who prepare, maintain, and implement the emergency plan. Ensure that the procedures include schedules and lesson plans for the training, frequency of retraining, and the estimated number

of hours of initial training and retraining that will be provided. Include the training requirements for each position in the emergency organization. Describe training to be provided on the use of protective equipment such as respirators. Describe the training program for onsite personnel who are not members of the emergency response staff so that they are aware of what actions they may have to take following the declaration of an emergency. Discuss what special instructions and orientation tours the licensee will offer periodically to fire, police, medical, and other offsite emergency response personnel. Topics to be addressed during training for offsite emergency response personnel should include exposure guidelines, personnel monitoring devices, and basic contamination control principles.

### 7.3 Drills and Exercises

Describe provisions for periodic drills and exercises to test the adequacy of implementing procedures, to test emergency equipment and instrumentation, and to ensure that the emergency personnel are familiar with their duties. Typically, drills are internal tests of specific licensee emergency response functions, related functions are often simulated, and offsite organizations are not invited to participate. Exercises are typically full-scale tests of the licensee's entire emergency response organization, and offsite organizations are invited to participate. Preplanned descriptions of accidents should be used to prepare scenarios appropriate to the objective of each drill and exercise. The procedures should include a requirement for one or more nonparticipating observers to evaluate the effectiveness of the personnel, the procedures, the readiness of equipment and instrumentation, and to recommend needed changes. For those drills and exercises that involve simultaneous activities at more than one location, observers should be provided at each location. Describe how criteria for acceptable performance will be prepared and provided to observers for evaluating the performance of participants.

### 7.3.1 Biennial Exercises

Ensure that an exercise will be held biennially and that offsite response organizations will be invited to participate in the biennial exercise in order to exercise coordination with offsite assistance organizations, including testing procedures and equipment for notifying and communicating with local and State agencies. Ensure that the NRC will be invited to participate or observe if they wish. Ensure that exercise scenarios are not known by exercise participants and are plausible for the specific site. Discuss any provisions to suspend security or safeguards measures for site access during an exercise. These exercises should be planned so that all emergency response activities are adequately demonstrated. The exercise objectives and scenario should be provided to the NRC at least 60 days before the exercise to obtain NRC comments on how well the exercise will test the licensee's emergency response capabilities.

### 7.3.2 Quarterly Communications Checks

Ensure that checks are conducted with offsite response organizations each quarter to verify and update all necessary telephone numbers.

### 7.4 Critiques

Ensure that a critique will be prepared for each drill and exercise by one or more of the nonparticipating observers and that it will evaluate the appropriateness of the emergency plan, procedures, facilities, equipment, personnel training, and overall effectiveness. The emergency plan and implementing procedures should be reviewed after each exercise, based on the evaluation of the exercise. The emergency plan should be reviewed and revised, if necessary, whenever changes occur in processes, kinds of material at risk, or plant organization. Describe how deficiencies identified by the critique will be corrected in a timely manner. (See Chapter 8 for records of exercises and exercise critiques.)

## 7.5 Independent Audit

Discuss the program to be used annually to review and audit the licensee's emergency preparedness program, including the emergency plan and its procedures, training activities; emergency facilities, equipment, and supplies; and records associated with offsite support agency interface to ensure that the overall emergency preparedness program is being adequately maintained. Describe the minimum qualifications of the persons who will perform the annual audit and ensure that the audits will be made by persons not having direct responsibilities for implementing the emergency response program. Changes in plant layout should be included in the changes that would warrant revision of the emergency plan. Describe the provisions for initiating corrective actions based on audit findings and for ensuring completion of these actions.

## 7.6 Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies

Describe the plans for ensuring that the equipment and instrumentation are in good working condition and that an adequate stock of supplies is maintained. A quarterly inventory should be made to ensure all emergency equipment and supplies are intact and in good operating condition, including instrumentation for operation and calibration, demand respirators, self-contained breathing apparatus, fire-fighting equipment and gear, supplemental lighting, and communications equipment. The procedures should include timely corrective actions to be taken when deficiencies are found during these checks.

**Reviewer's Note:** Verify that the plan requires calibration dates and shelf-lives to be tracked.

## 7.7 Letters of Agreement

Changes to the emergency plan should be communicated to the appropriate offsite response organizations; ensure that letters of agreement with

offsite agencies are reviewed annually and renewed at least every four years or more frequently if needed. Letters of agreement may be included in the emergency plan or maintained separately.

## **8. RECORDS AND REPORTS**

### **8.1 Records of Incidents**

Describe the assignment of responsibility for reporting and recording incidents of abnormal operation, equipment failure, and accidents that led to a plant emergency, including permanent retention with the licensee's decommissioning records. Provide a detailed description of the records that will be kept. The records should include the cause of the incident, personnel and equipment involved, extent of injury and damage (onsite and offsite) resulting from the incident, all locations of contamination with the final decontamination survey results, corrective actions taken to terminate the emergency, and the action taken or planned to prevent a recurrence of the incident. The records should also include the onsite and offsite support assistance requested and received, as well as any program changes resulting from the lessons learned from a critique of emergency response activities. The titles of the personnel responsible for maintaining the records should be specified. Those records unique to a radiological emergency, not covered by existing NRC regulations or license conditions, should be retained until the license is terminated.

### **8.2 Records of Preparedness Assurance**

Provide a description of the records that will be kept. These should include records of:

- Training and retraining (including lesson plans and test questions)
- Drills, exercises, and related critiques
- Inventory and locations of emergency equipment and supplies
- Maintenance, surveillance, calibration, and testing of emergency equipment and supplies

- Agreements with offsite support organizations
- Reviews and updates of the emergency plan
- Notification of all personnel and offsite agencies affected by an update of the plan or its implementing procedures.

Reviewer's Note: The training records should be the lesson plans and test questions actually used during classes. This will allow inspectors to review the topics covered. Records should be retained long enough for inspectors to review them.

## 9. RECOVERY AND PLANT RESTORATION

Describe plans for restoring the facility to a safe status. Although it is not possible to detail specific plans for every type of incident, the plans should include the general requirements for (1) assessing the damage to and the status of the facility's capabilities to control radioactive materials, (2) determining the actions necessary to reduce any ongoing releases of radioactive or other hazardous material and to prevent further incidents, (3) accomplishing the tasks to meet any required restoration action, and (4) describing in general the key positions in the recovery organization.

Specifically, recovery plans should include requirements for checking and restoring to normal operations all safety-related equipment involved in the incident (e.g., criticality alarms, radiation monitoring instruments, respiratory protection equipment, fire-suppression and fire-fighting equipment, containments, and air filters) and assignment of responsibility for compiling, evaluating, and ensuring retention of all records associated with the incident.

During any planned restoration operations, personnel exposures to radiation must be maintained within 10 CFR Part 20 limits and maintained as low as reasonably achievable.

**Reviewer's Note:** The plan should clearly state that records important to decommissioning the site will be maintained pursuant to 10 CFR 30.35(g), 40.36(f), and 70.25(g).

## 10. COMPLIANCE WITH COMMUNITY RIGHT-TO-KNOW ACT

Show compliance with Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499, entitled "Emergency Planning and Community Right-To-Know Act of 1986," with respect to any hazardous materials possessed at the plant site.

### REFERENCES

1. U.S. Nuclear Regulatory Commission, "Standard Format and Content for Emergency Plans for Fuel-Cycle and Materials Facilities," NUREG-0762, Draft Revision 1, November 1987.<sup>2</sup>
2. S. A. McGuire, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," NUREG-1140, U.S. Nuclear Regulatory Commission, January 1988.<sup>3</sup>
3. Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA 520/1-75-001-A, January 1990.<sup>3</sup> (Revised October 1991, but the serial number on the May 1992 reprint is EPA 400-R-92-001. This number will change every time the manual is reprinted.)
4. U.S. Nuclear Regulatory Commission, "Standard Review Plan for the Review of Radiological Contingency Plans for Fuel Cycle and Materials Facilities," NUREG-0810, July 1981.<sup>2</sup>

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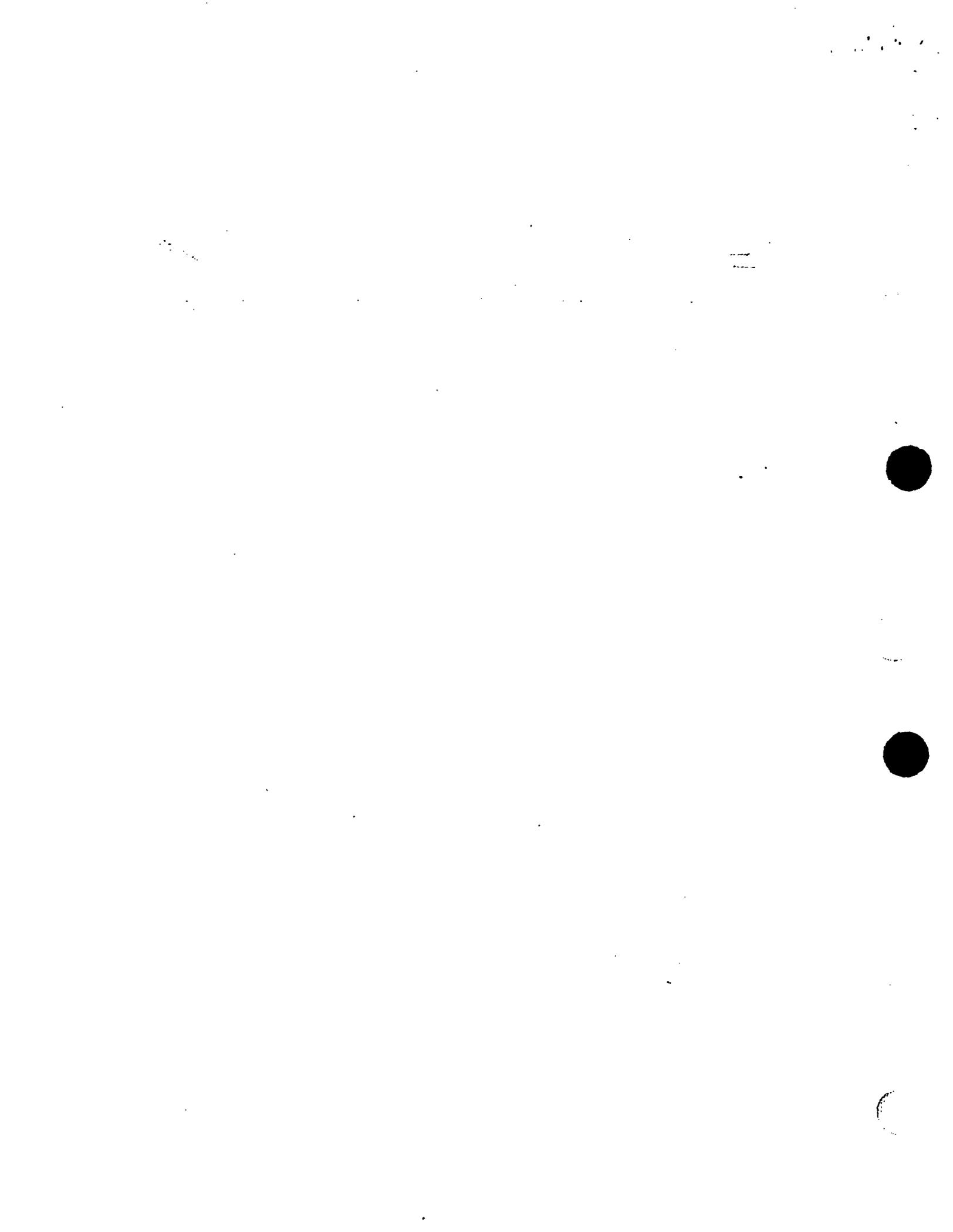
<sup>2</sup>Copies may be obtained, to the extent of supply, from the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Distribution and Mail Services Section.

<sup>3</sup>Copies may be purchased from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082; or from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

APPENDIX A

EXAMPLES OF INITIATING CONDITIONS

Conditions that Initiate an Alert	Conditions that Initiate a Site Area Emergency
<ol style="list-style-type: none"> <li>1. Fire onsite that might affect radioactive material or safety systems.</li> <li>2. Severe natural phenomenon that might affect radioactive material or safety systems (e.g., earthquake, flood, tsunami, hurricane, tidal surge, hurricane force winds, tornado striking facility).</li> <li>3. Other severe incidents that might affect radioactive material or safety systems -- aircraft crash into the facility, damage to the facility from explosives, uncontrolled release of toxic or flammable gas in the facility.</li> <li>4. Elevated radiation levels or airborne contamination levels within the facility that indicate severe loss of control (factor of 100 over normal levels).</li> <li>5. Ongoing security compromise (greater than 15 minutes).</li> <li>6. Spent reactor fuel accident with release of radioactivity to containment or fuel-handling building.</li> <li>7. Discovery of a critical mass quantity of special nuclear material in an unsafe geometry container or other condition that creates a criticality hazard.</li> <li>8. Other conditions that warrant precautionary activation of the licensee's emergency response organization.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fire onsite that involves radioactive material or compromises safety systems.</li> <li>2. Severe natural phenomenon that actually compromises safety systems or the integrity of radioactive material (e.g., earthquake, flood, tsunami, hurricane force winds, tornado striking facility).</li> <li>3. Other severe incidents that actually compromise safety systems or the integrity of radioactive material -- aircraft crash into the facility, damage to the facility from explosives, uncontrolled release of toxic or flammable gas in the facility.</li> <li>4. Elevated radiation levels or airborne contamination levels outside the facility that indicate a significant release to the environment (factor of 100 over normal levels).</li> <li>5. Imminent or actual loss of physical control of the facility.</li> <li>6. Major damage to spent reactor fuel with release of radioactivity outside of containment or fuel-handling building.</li> <li>7. Imminent or actual occurrence of an uncontrolled criticality.</li> <li>8. Other conditions that warrant activation of offsite emergency response organizations or precautionary notification of the public near the site.</li> </ol>



Appendix B

Checklist for Reviewing Emergency Plans

Applicant Information:

Name: \_\_\_\_\_  
Licensing  
Action: \_\_\_\_\_

- [ ] Comments from offsite response agencies included (not required for revisions that do not decrease the effectiveness of the plan).
- [ ] Applicable fee paid (fee not required if the submittal is a revision that does not decrease the effectiveness of the plan).

[ ] Format:

- [ ] All graphics (maps, diagrams, etc.) are legible.
- [ ] All pages have page number and revision number/date.
- [ ] List of effective pages provided.
- [ ] Table of Contents provided.
- [ ] Instructions for inserting revised pages provided (rev. only).

[ ] 1. Facility Description:

Plan Ref.

- [ ] 1.1 Licensed activities described (including State licenses). \_\_\_\_\_
- [ ] 1.2 Description of facility and site.
  - [ ] Detailed drawing adequate. \_\_\_\_\_
  - [ ] Enlarged duplicate of drawing provided. \_\_\_\_\_
  - [ ] Site features described. \_\_\_\_\_
  - [ ] List of hazardous chemicals provided. \_\_\_\_\_
  - [ ] Data on emission controls provided (see 5.3). \_\_\_\_\_
- [ ] 1.3 Description of area near site.
  - [ ] General area map adequate (approx. 10 miles). \_\_\_\_\_
  - [ ] USGS map provided. \_\_\_\_\_
  - [ ] Area near site described. \_\_\_\_\_

[ ] 2. Types of Accidents:

- [ ] 2.1 Postulated accidents.
  - [ ] Each type of accident clearly defined. \_\_\_\_\_
  - [ ] Accident locations identified. \_\_\_\_\_
  - [ ] Worst case scenarios conservative. \_\_\_\_\_
- [ ] 2.2 Detection of accidents.
  - [ ] Detection of each type of accident described. \_\_\_\_\_
  - [ ] Means of alerting staff described. \_\_\_\_\_

[ ] 3. Classification and Notification:

- [ ] 3.1 Classification system.
  - [ ] Alert and Site Area Emergency (SAE) defined. \_\_\_\_\_
  - [ ] Classification of postulated accidents adequate. \_\_\_\_\_
  - [ ] Emergency Action Levels (EALs) defined. \_\_\_\_\_
- [ ] 3.2 Notification and coordination.
  - [ ] Decision making during an Alert described. \_\_\_\_\_
  - [ ] Decision making during an SAE described. \_\_\_\_\_



- 5.4.1.3 Onsite contamination control.
  - Provisions for restricting access to contaminated areas described. \_\_\_\_\_
  - Procedures for frisking emergency workers described. \_\_\_\_\_
  - Criteria for removing emergency contamination controls established. \_\_\_\_\_
- 5.4.2 Offsite protective actions.
  - Conditions requiring offsite actions described. \_\_\_\_\_
  - Procedures for recommending offsite protective actions described. \_\_\_\_\_
  - Basis for recommendations described. \_\_\_\_\_
- 5.5 Exposure control during emergencies.
  - 5.5.1 Exposure control program.
    - Program for monitoring and controlling emergency worker exposures described. \_\_\_\_\_
    - Individuals who can authorize emergency doses identified. \_\_\_\_\_
    - Procedures for authorizing emergency doses based on informed consent described. \_\_\_\_\_
    - Exposure guidelines for emergency actions provided. \_\_\_\_\_
    - Procedures for issuing dosimeters to onsite and offsite emergency workers described. \_\_\_\_\_
    - Procedures for determining internal and external doses described. \_\_\_\_\_
  - 5.5.2 Decontamination of personnel.
    - Means of decontaminating personnel provided. \_\_\_\_\_
    - Procedures for decontaminating personnel described. \_\_\_\_\_
- 5.6 Medical Transportation (contam. control adequate). \_\_\_\_\_
- 5.7 Medical Treatment.
  - Ability to treat radiation injuries described. \_\_\_\_\_
  - Contamination control procedures described. \_\_\_\_\_
  - Provisions for health physics support adequate. \_\_\_\_\_
- 6. Emergency Equipment and Facilities:
  - 6.1 Command center.
    - Primary and alternate locations identified. \_\_\_\_\_
    - Locations habitable during postulated accidents. \_\_\_\_\_
    - Use of command centers described. \_\_\_\_\_
  - 6.2 Communications equipment.
    - Means of onsite communication described. \_\_\_\_\_
    - Means of offsite communication described. \_\_\_\_\_
  - 6.3 Onsite medical facilities. \_\_\_\_\_
  - 6.4 Emergency monitoring equipment.
    - List of dedicated emergency equipment provided. \_\_\_\_\_
    - Purpose of monitoring devices described. \_\_\_\_\_
    - Storage locations accessible during postulated accidents. \_\_\_\_\_
  - Effluent monitors and meteorological monitors described. \_\_\_\_\_

[ ] 7. Maintaining Emergency Preparedness:

Plan Ref.

[ ] 7.1 Written procedure controls.

[ ] Review and approval process described.

[ ] Distribution and availability adequate.

[ ] 7.2 Training.

[ ] Training requirements for emergency workers and general staff described.

[ ] Program for training onsite personnel described.

[ ] Program for training offsite personnel described.

[ ] 7.3 Drills and exercises.

[ ] Frequency of drills and exercises described.

[ ] Provisions for observers and acceptance criteria provided.

[ ] NRC review of biennial exercise scenario addressed.

[ ] Procedure for quarterly communications check described.

[ ] 7.4 Critiques (weaknesses and corrective actions tracked).

[ ] 7.5 Independent audit (program reviewed annually).

[ ] 7.6 Maintenance and inventory of equipment/supplies.

[ ] Inventory procedures described.

[ ] Equipment operational checks required.

[ ] Instrument calibrations and material shelf-lives tracked.

[ ] 7.7 Letters of Agreement (less than 4 years old).

[ ] 8. Records and Reports:

[ ] 8.1 Records of incidents.

[ ] 8.2 Records of preparedness assurance.

[ ] 9. Recovery and Plant Restoration:

[ ] Organization for damage assessment and repair described.

[ ] Provisions for restoring and testing safety-related equipment described.

[ ] Provisions for documenting recovery effort described.

[ ] 10. Compliance With Community Right-to-Know Act.

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, DC 20555

November 16, 1987

NRC INFORMATION NOTICE NO. 87-58: CONTINUOUS COMMUNICATIONS FOLLOWING  
EMERGENCY NOTIFICATIONS

Addressees:

All nuclear power reactor facilities holding an operating license and the following fuel facilities that have Emergency Notification Systems (ENS): Nuclear Fuel Services, Erwin, Tennessee; General Atomics, San Diego, California; UNC, Montville, Connecticut; and B & W LRC and B & W Navy, Lynchburg, Virginia.

Purpose:

This information notice is provided to clarify NRC's role in emergency response and initial event analysis and to reiterate the responsibility of licensees to maintain adequate personnel on shift to permit continuous communications with the NRC in an emergency without diminishing the ability to expeditiously place the plant in a safe condition. Recipients are expected to review this information notice for applicability and consider action, as appropriate, to preclude occurrence of similar problems at their facilities. However, no specific action or written response is required.

Description of Circumstances:

On July 15, 1987 at 6:25 a.m., North Anna Unit 1 experienced a steam generator tube rupture while operating at 100% power. The unit was manually tripped by the operators, and an automatic safety injection actuation occurred on low pressurizer pressure at 6:36 a.m. Safety injection was terminated by the operators at 7:05 a.m. A small radioactive release to the environment occurred via the main condenser air ejector exhaust and the auxiliary feedwater pump turbine exhaust.

An Unusual Event was declared at 6:39 a.m., and the emergency classification was upgraded to an Alert at 6:54 a.m. The licensee notified the NRC Headquarters Operations Center of the event via the Emergency Notification System (ENS) at 7:04 a.m. The Operations Center requested that the licensee maintain continuous communications with the NRC via the ENS and provide updates of the event status as additional information became available.

The NRC Region II Incident Response Center and the Headquarters Operations Center were activated in the Standby mode. ENS communications were maintained until the NRC Centers were returned to Normal mode at 12:41 p.m. The licensee downgraded the emergency classification from Alert to Recovery when the unit reached a cold shutdown condition at 1:31 p.m.

8711090140

Discussion:

In a meeting with industry representatives after the event, licensee management indicated a concern regarding the burden placed on the plant staff by NRC requests for information during the event. In later discussions with the licensee, the licensee stated that the intent during that meeting was to inform other industry representatives of the importance of planning to provide for communications with the NRC during an emergency.

10 CFR 50.72(c)(3) requires reactor licensees to maintain continuous communications with the NRC when they are requested to do so. This requirement was reemphasized in IE Information Notice 86-97, "Emergency Communications System." IE Information Notice 85-80, "Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications," reiterated licensees' event notification responsibilities. Licensees have a responsibility to provide enough on-shift personnel knowledgeable about plant operations and emergency plan implementation to enable timely, accurate, and reliable reporting of operating events without interfering with plant operation.

The effectiveness of the NRC during an event depends in large measure on complete and accurate reports from licensees. During an emergency, the Region Incident Response Center and the Headquarters Operations Center become focal points for action by the NRC. Licensee actions during an emergency are monitored by the NRC to ensure that appropriate action is being taken to protect the health and safety of the public. When requested, the NRC supports licensees with technical analysis and coordinates logistics support. The NRC keeps other Federal agencies informed of the status of an incident and provides information to the media. In addition, the NRC assesses and confirms the appropriateness of protective actions recommended by the licensee to local and state authorities.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi, Director  
Division of Operational Events Assessment  
Office of Nuclear Reactor Regulation

Technical Contact: Kevin P. Wolley, AEOD  
(301) 492-8373

Attachment: List of Previously Issued Information Notices

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555

February 1, 1993

NRC INFORMATION NOTICE 93-07: CLASSIFICATION OF TRANSPORTATION EMERGENCIES

Addressees:

All Licensees required to have an emergency plan.

Purpose:

The U.S. Nuclear Regulatory Commission is issuing this information notice to alert licensees of a recent incident where the classification of a transportation accident was confusing and misleading. It is expected that licensees will review this information for applicability to their licensed activities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this notice do not constitute any new NRC requirements, and no written response is required.

Description of Circumstances:

On December 16, 1991, a truck carrying unirradiated (fresh) nuclear fuel was involved in an accident in Massachusetts. The fuel was being shipped from a fuel fabrication plant in North Carolina, to a reactor in Vermont. The fuel shipment consisted of 24 fresh fuel assemblies, packaged 2 each, in 12 shipping containers.

As a result of the accident, the truck and shipping containers carrying the fresh fuel were engulfed in a fire that lasted for almost 3 hours. The shipper declared a "Site Emergency" and responded in accordance with its emergency plan. Despite the collision and subsequent fire, there were no deaths nor serious injuries. However, the accident did result in substantial property loss, which included the truck, shipping containers, and damaged fuel assemblies.

After the incident, NRC staff reviewed the emergency response measures taken. The results were reported in NUREG-1458, "Emergency Response to a Highway Accident in Springfield, Massachusetts, on December 16, 1991." This report concluded that the shipper's classification "is confusing since it does not have the same meaning as a site emergency for a fixed facility. Consideration should be given to developing a standard classification for transportation events that has its own terminology."

Discussion

The emergency classifications defined in 10 CFR Parts 30, 40, 50, and 70 are intended for emergencies at a fixed site (i.e., the licensee's facility). When a Notification Of Unusual Event (NOUE), Alert, or Site Area Emergency is declared, the licensee is required to immediately notify offsite response

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agencies responsible for taking actions to protect the public within a few miles of the licensee's facility. Declaring an NOUE, Alert, or Site Area Emergency for a transportation accident tens or hundreds of miles away from a licensee's facility causes unnecessary confusion among offsite response agencies.

After considering the need to develop a standard classification for transportation events, the staff concluded that a rulemaking to establish an additional emergency classification was not warranted. Most transportation accidents are reported by licensees that are not required by regulation to have an emergency plan. The cause of the confusion in the Springfield accident was the classification of an offsite emergency using the scheme established in the regulations for an onsite emergency. Only licensees required to have an emergency plan would tend to use this classification scheme. Therefore the staff believes that making licensees with emergency plans aware of the potential for confusion and having NRC licensing staff determine how transportation accidents are classified in future reviews of emergency plans is sufficient to address this problem.

Licensees required to maintain an emergency plan may want to review their emergency classification procedures and consider the need to establish a separate classification (e.g., transportation emergency) for offsite transportation accidents that require activation of the licensee's emergency organization.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate regional office.

**ORIGINAL SIGNED BY**

Richard E. Cunningham, Director  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards

Technical contact: Kevin M. Ramsey, NMSS  
(301) 504-2534

**Attachments:**

1. List of Recently Issued NMSS Information Notices
2. List of Recently Issued NRC Information Notices

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555

August 4, 1993

NRC INFORMATION NOTICE 93-60: REPORTING FUEL CYCLE AND MATERIALS  
EVENTS TO THE NRC OPERATIONS CENTER

Addressees

All fuel cycle and materials licensees.

Purpose

The U.S. Nuclear Regulatory Commission is issuing this information notice to alert addressees to recent problems with personnel reporting safety-related events to the NRC Operations Center that are not prepared to provide necessary information. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action nor written response is required.

Description of Circumstances

Changes to the incident reporting requirements in 10 CFR Parts 30, 40, and 70 (56 FR 40757), and the emphasis on criticality safety controls (NRC Bulletin 91-01) have increased the number of event reports to the NRC Operations Center from fuel cycle and materials licensees. This is in addition to the numerous reports made by reactor licensees pursuant to 10 CFR Part 50. The Headquarters Operations Officers (HOOs) who receive reports at the NRC Operations Center are responsible for documenting each report and determining whether the immediate attention of the NRC technical staff is required. In several cases, callers have not been prepared to answer HOO questions about the facility or the event.

Discussion

HOOs are engineers who have received extensive training in emergency response procedures and reactor operations, but they are not familiar with every facility licensed by NRC. Therefore, licensees should avoid industry jargon and technical terms (beyond generally accepted engineering terms) when reporting events to the NRC Operations Center. Personnel reporting events should be prepared to answer questions about licensee operations, equipment functions, and the safety significance of events to workers and the public. Licensees may wish to verify that personnel responsible for reporting events are properly trained and sufficiently knowledgeable of licensee operations to explain the events completely and correctly.

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Personnel reporting events should be prepared to answer questions similar to the following:

1. What type of facility (or operation) is involved?
2. What chemical process or physical operations are involved?
3. What is the chemical form and physical form of the material involved?
4. At what point in the process did the event occur?
5. What is the safety significance of the event?
6. Have releases occurred and are future releases possible?
7. What safety systems (including safeguards systems) are affected?
8. What corrective actions are being taken?

NRC has developed forms to help HOOs document safety-related event reports. An example of the form for fuel cycle and materials incidents is attached for your information.

This information notice requires no specific action nor written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate regional office.

ORIGINAL SIGNED BY  
ELIZABETH TEN EYCH FOR

Robert F. Burnett, Director  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

ORIGINAL SIGNED BY

Carl J. Paperiello, Director  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards

Technical contacts: Kevin M. Ramsey, NMSS  
(301) 504-2534

C. N. (Mike) Smith, NMSS  
(301) 504-3497

Attachments:

1. Fuel Cycle and Materials Event Notification Worksheet
2. List of Recently Issued NMSS Information Notices
3. List of Recently Issued NRC Information Notices





# Advanced Medical Systems, Inc.

121 North Eagle Street • Geneva, Ohio 44041  
(216) 466-4671 FAX (216) 466-0186

June 15, 1995

Mr. John Madera  
U. S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-9820

Dear Mr. Madera:

Enclosed are comments on Advanced Medical Systems, Inc.'s Emergency Plan from the following agencies:

State of Ohio Adjutant General's Department  
Ohio State Emergency Response Commission  
Cuyahoga Emergency Management Assistance Center

As of this letter, no other agencies have responded to our request for comments on our Emergency Plan. We will address the concerns of these three agencies when we respond to your June 7, 1995, letter for answers to comments on our Emergency Plan.

In addition, we will also respond to each of these agencies' concerns individually.

Sincerely,

*David Cesar/cs*

DAVID CESAR  
Treasurer

DC/cs  
Enclosures

RECEIVED  
JUN 15 1995  
REGION III



STATE OF OHIO  
ADJUTANT GENERAL'S DEPARTMENT  
2855 WEST DUBLIN GRANVILLE ROAD  
COLUMBUS, OHIO 43235-2206

EMERGENCY MANAGEMENT AGENCY

AGOH-EM

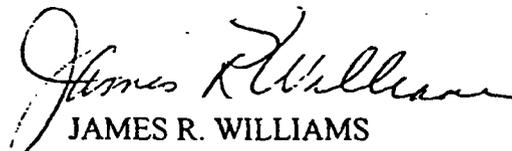
June 2, 1995

Mr. David Cesar, Treasurer  
Advanced Medical Systems, Inc.  
121 North Eagle Street  
Geneva, Ohio 44041

Dear Mr. Cesar:

Thank you for the opportunity to review your onsite Emergency Plan. Our comments are attached. Most of Our comments relate to dose limits for emergency workers. We have also provided a copy of the Environmental Protection Agency's Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001). This document replaced the old EPA-520.

If you have any questions, please contact Darryl Walden, Radiological Planning Supervisor, at 614-799-3687.

  
JAMES R. WILLIAMS  
Chief of Staff

DW:red

Enclosures as stated.



## COMMENTS ON AMS EMERGENCY PLAN

Page 5-4, Section 5.5, second line

"In the event of an emergency, however, it may be necessary for members of the emergency response team to receive exposures up to the EPA guidelines: i.e., less than 75 Rem for either a lifesaving action or less than 25 Rem for entry into hazardous areas to protect the facility or control fire." EPA guidelines (table 202 on page 2-10 of EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents) states 25 Rem for life saving or protection of large populations and 10 Rem for protecting valuable property.

Page 5-4, Section 5.5.1

75 Rem is again used for lifesaving activities. EPA-400 guidelines state 25 Rem.

Page 9-1, Section 9.1

The second paragraph refers to EPA-520. EPA-400 is the applicable document.

Appendix A, Page 4, Section 2.g.

"The maximum dose allowable to save equipment is 25 Rem." The EPA-400 limit for protecting valuable property is 10 Rem. The limit for all other activities is 5 Rem.

Appendix A, Page 9, Section 13.1.3

"The maximum dose allowable for lifesaving actions is 75 Rem." EPA-400 limit for lifesaving is 25 Rem. 25 Rem may be exceeded only on a voluntary basis to persons fully aware of the risks involved.

Appendix C

There are three agencies that play a primary role in radiological response and planning on the state level. They are Ohio Emergency Management Agency, Ohio Department of Health and Ohio Environmental Protection Agency. We recommend that you add ODH and OEPA to your distribution list. Their addresses are:

Robert Owens, Chief  
Bureau of Radiological Health Services  
Ohio Department of Health  
P.O. Box 118, 246 North Street  
Columbus, Ohio 43266-0118  
Phone: (614) 644-2727

Jane Harf, Chairperson  
State Emergency Response Commission  
Ohio Environmental Protection Agency  
LLRW Project  
P.O. Box 1049, 1600 WaterMark Drive  
Columbus, Ohio 43216-1049  
Phone: (614) 644-2776





**Ohio State Emergency Response Commission**

Emergency Planning and Community Right-to-Know  
P.O. Box 163669, 1800 WaterMark Drive  
Columbus, Ohio 43216-3669

George V. Voinovich  
Governor

*"Working to improve statewide preparedness and response to chemical emergencies and to improve public awareness of potential chemical hazards."*

May 31, 1995

Advanced Medical Systems, Inc.  
121 N. Eagle Street  
Geneve, Ohio 44041

Dear Mr. Cesar:

The following comments were developed by Zack Clayton, a health physicist on my staff in the Ohio EPA Division of Emergency and Remedial Response, about Advanced Medical Systems, Inc.'s January, 1995 Emergency Plan for the 1020 London Road, Cleveland, Ohio facility.

1.1 Licensed Activity Description.

This section lists three forms of <sup>60</sup>Cobalt at the facility; 23,000 Ci of solid metal bulk, 75,000 Ci of sealed sources, and 15 mCi of sealed calibration sources. It goes on to mention 29 Ci of unspecified material in a location and form that would allow dispersal, most of which is in sealed 55 gallon drums or B-25 boxes. This may be the licensed material, but it fails to mention <sup>60</sup>Cobalt Oxide dust in the WHUT room of the basement. I realize this room is sealed, but in an emergency that may cause a breach of the room, this dust is in a readily dispersible form. This material was mentioned in a remedial action report prepared in February 1988. From the quantities listed in that report about 230 Ci of <sup>60</sup>Cobalt should remain in the room, a significant amount and a hazard if the room were breached.

1.2 Area and Facility Description

The floor plans included shows the basement Dry Waste Storage Area and the WHUT room. There is no text in the emergency plan describing this area or any hazards associated with it. There is also no text in the plan describing what, if any hazards are associated with these areas. Specifically, there is no text warning response personnel that they may risk exposure to high radiation fields if they enter these areas.

It is my understanding that since this plan was submitted, the basement area including at least the dry waste storage room has flooded. It would be prudent to indicate in an



Mr. Cesar  
Page 2

addendum what safety consequences this may have. Flooding was not one of the emergencies covered in the plan, but it now appears to require attention. It is our understanding that the water in the basement has been measured and found to contain 170,000 picocuries/liter. At a minimum, the plan should describe the notifications which would be made and the action plan, should the water from the basement be released in an uncontrolled manner.

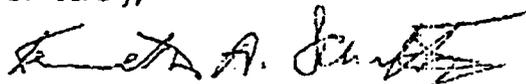
Attachment 1: CAP88-PC Summary Output

The scenario for this release uses the WHUT room, as mentioned earlier, an undescribed location. The estimate of release for this room is 15 curies. Calculation indicates this room has up to 230 curies of <sup>60</sup>Cobalt remaining. No explanation is given for a partial release of the activity in this room. If the model estimate is that not all of the material is available for release, an explanation should be included in the discussion.

Since there was an evaluation of "loose powdery material" on the floor of the WHUT room in 1988, and the room was sealed shut until the radiation levels are safe in the year 2004 to enter and clean up the room; if for some reason emergency workers entered the WHUT room today, what are the risks, and what precautions, if any, could be taken for safe entry?

Thank you for providing us a copy of the emergency plan and inviting our comments.

Sincerely,



Kenneth A. Schultz, Section Manager  
Chemical Emergency Preparedness and Prevention

cc: Jane Harj, Chair, SI RC.  
John Grobe, NRC Region III  
Larry Grove, Ohio EMA  
Mike Kalstrom, Cuyahoga Co. LEPC  
Kevin Zumbro, Ohio EPA



State of Ohio Environmental Protection Agency

STREET ADDRESS:

1800 WaterMark Drive  
Columbus, OH 43215-1099

TEL: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:

P.O. Box 1049  
Columbus, OH 43216-1049

FACSIMILE INFORMATION

SEND TO:

*Mr. Cox*

PHONE #:

COMPANY NAME:

FACSIMILE NUMBER RECEIVING INFO:

FROM:

*Kon Schultz*

- 614-644-3196 (ER)
- 614-644-3042 (SIU)
- 614-644-3063 (PCB)
- 614-644-2924 (DERR)
- 614-644-2260 (SERC/RTK)

FACSIMILE NUMBER SENDING INFO: 614-644-3250

NUMBER OF PAGES:

*3*

(INCLUDING THIS INSTRUCTION PAGE)

SPECIAL INSTRUCTIONS:

SENDER: AFTER TRANSMISSION, ORIGINAL SHOULD BE (CHECK ONE)

DISCARDED

PICKED UP

RECEIVER: IF YOU DO NOT RECEIVE THE NUMBER OF PAGES SPECIFIED ABOVE OR RECEIVE POOR COPY, PLEASE NOTIFY US.

NOTE TO RECEIVER:



COUNTY OF  
CUYAHOGA

**Cuyahoga Emergency Management  
Assistance Center (CEMAC)**

**Commissioners**  
Mary O. Boyle  
Timothy F. Hagan  
Lee C. Weingart

June 2, 1995

VIA CERTIFIED U.S. MAIL  
David Cesar, Treasurer  
Advanced Medical Systems, Inc.  
121 North Eagle St.  
Geneva, Ohio 44041

Dear Mr. Cesar:

The Cuyahoga County Local Emergency Planning Committee (LEPC) is pleased to submit comments on the Emergency Plan for the Advanced Medical Systems, Inc. (AMS) facility located at 1020 London Rd., Cleveland, Ohio 44112. These comments are timely submitted pursuant to 10 CFR 30.32 (i)(4), which allows offsite response organizations expected to respond in case of an accident 60 days to comment.

We have carefully reviewed the document submitted and offer the following general comments and the attached page-referenced comments.

1. The Waste Hold-up Tank Room or WHUT room is not included in the Emergency Plan for this facility, save for a map with no supporting text or documentation. Emergency responders must be made aware of the response risks involved with the WHUT room and its current contents. The LEPC believes that the WHUT room must be included in the Emergency Plan for this facility.
2. The "Consultant's Report" following Section 3.4 makes no assessment of the contents of the WHUT room. The only materials discussed in the "Dose Assessment from a "Worst-Case" Release of <sup>60</sup>Co" are an undocumented 29 curies of materials (based upon the consultant's "understanding"), whose location is neither mapped nor specifically discussed. It is presumed that the assessment was meant to include "unsealed sources" of radioactive materials and that it excludes the WHUT room, though the only exclusion mentioned is the Hot Cell. The NRC presented a somewhat different inventory at recent public meetings in Columbus and offered a modeling approach using all materials (both sealed and unsealed). The LEPC believes that both of these approaches leave room for

David Cesar  
Advanced Medical Systems, Inc.  
June 2, 1995

further inquiry, that the WHUT room must be included in the "Dose Assessment," and that the assessment should examine possible exposures starting at the property line.

The LEPC also believes that the hazards for Cuyahoga County are not adequately represented. The risk of tornadic storms is virtually dismissed without documentation. Other hazards for this facility are not even discussed. For example, the facility's location adjacent to a railroad, and the planned installation of an evaporation unit inside the building suggest additional accident scenarios that should be examined. The LEPC believes that more work is necessary to complete and document a representative hazards analysis for this facility.

3. The Emergency Plan includes no detailed inventory of the radioactive materials stored at this facility. The LEPC believes that the specific locations and amounts of all radioactive materials on site should be included in the Emergency Plan. The inventory should also provide information to emergency responders regarding the physical condition of these materials. For example, emergency responders should know that the unsealed radioactive waste materials in the WHUT room may offer a higher respiratory risk than sealed sources stored elsewhere.
4. The "Emergency Pre-Plan Operating Procedures" included as Appendix A appear to be generic procedures. Have any of the officials referred to in various sections of Appendix A agreed to the procedures outlined? If so, they should be listed at least by title and agency. For example the emergency room for University Hospital has well established protocols which should be included (or referenced) in the Emergency Plan. Do they match the procedures outlined in the AMS plan? The plan should also include a reference to the Radiological Incident and HazMat Protocols for the Cuyahoga Major Emergency Incident Management System. These are the procedures which will be followed locally.
5. The Emergency Plan makes a reference to the authority of the Radiation Safety Officer in its "Statement of Policy." No similar reference is made to his alternates, listed as Secondary Contacts on the "Emergency Contact Personnel" summary. Are they authorized to make decisions in the event the Radiation Safety Officer is not available?
6. The LEPC believes that the following telephone numbers should be added to the list of "Emergency Civil Response Agencies:"

Cuyahoga County LEPC - 443-7597

Cuyahoga County LEPC Spill notifications - 771-1365 (see attached guidelines)

Cuyahoga County Emergency Management Division - 443-5700

COUNTY OF  
CUYAHOGA

David Cesar  
Advanced Medical Systems, Inc.  
June 2, 1995

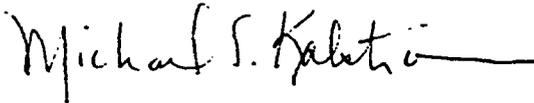
Northeast Ohio Regional Sewer District - 641-6000 (day) 641-3200 (evenings and weekends)

The LEPC believes that emergency numbers for all Cleveland public utility services, appropriate private utilities and environmental clean-up contractors should also be added.

7. The AMS Plan does not include procedures for reporting an emergency release of more than 10 curies of <sup>60</sup>Co. Such a release report must follow the attached guidelines by federal and state law. Agencies to be notified and the reportable amount should be made clear to the responsible officials and be included in the Plan.

The LEPC believes that the above issues must be addressed to provide the local involvement necessary for an effective emergency plan. Additional Section and page referenced comments are attached. If you have any questions please call me at 216-443-7597.

Sincerely,



Michael S. Kalstrom  
Secretary, Cuyahoga County LEPC

encl.

cc: James L. Caldwell, Deputy Director, NRC Region III  
Commander Robert Cermak, Cleveland Police Dept.  
Lawrence English, NEORSD  
Edmund Mecklenburg, Cuyahoga County Emergency Management  
Edwin Price, Cuyahoga County Community Services  
Dr. Rao, University Hospitals  
Chief Thomas Root, Cleveland Fire Marshal  
James Williams, Ohio Emergency Management Agency

## Referenced Comments

### Emergency Plan for Advanced Medical Systems, Inc.

### Cuyahoga County LEPC

Page Section

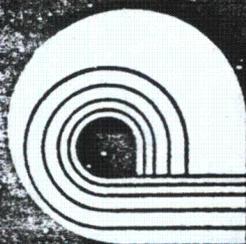
Is the plan available to employees for review?

	2	We are not convinced that the "absolute worst-case incident" referred to in paragraph one has been identified.
	2	In #1 WHUT room is excluded.
	2	In #2 where is the "emergency area?"
iv		Who is in charge if RSO is not available?
1-2	1.1	WHUT room is excluded from the general inventory discussion at the top of this page.
1-2	1.2	An effort to list schools, hospitals, extended care care facilities and fire stations by name and address would have added to the plan by illustrating a community evaluation in the context of this facility.
1-2	1.2	Population estimates would have added to the plan for the reasons listed above
1-2	1.2	The basement is listed as "restricted" without explanation.
1-3	1.2.1	Had trouble locating "heavy dashed line" listed in paragraph 3.
1-3	1.2.1	WHUT room excluded from list of "restricted areas" in paragraph 4.
1-4	1.2.3	Discussion about Hot Cell "window" does not mention lead bricks for shielding in the event of an accident.
1-4	1.2.3	The service life of the hot cell door is listed as "long." When was it installed and how much of its estimated life expectancy remains?

- 1-6 1.2.4 Where is the emergency generator listed in paragraph 2? Is there a manual activating procedure?
- 2-5 A.9. Where is the "clean side of the basement?"
- 2-5 2.1.2.2 Where is the "portable HEPA system?"
- 3-1 3.2.1 What are releases "permitted by 10 CFR Part 20?"
- 3-2 3.3 There are other accidents that could occur. For example, there could be an accident involving the evaporation unit that is to be installed inside the building, or there could be a rail accident.
- 3-3 3.3 The risk of a tornado should not be dismissed without documentation. There is a tornado risk for this area. We also have a risk of urban flooding, thunderstorms and winter storms. Earthquakes are possible. We have had Presidential declarations for federal disaster assistance twice in the last five years and required state assistance for a wind storm that caused widespread debris' damage and loss of electricity in 1993.
- IEM letter The consultant's report needs further analysis (see cover letter). Some effort to review the possibility of soil and other types of collateral contamination should also be evaluated.
- 4-1 4.2.1 Who would report emergency release of more than 10 curies of <sup>60</sup>Co to the Cleveland Fire Department, LEPC, SERC and the National Response Center? See attached guidelines.
- 5-2 5.1.2 Who is authorized to act in the absence of the RSO?
- Contact Personnel List of contacts is incomplete (see cover letter).
- Emergency Pre-Plan Operating Procedures seem rather generic (see cover letter).
- 4 2.b. Should there be any precautions (i.e. evacuation or shelter-in-place announcement) for residents and businesses?
- 8 12.1(11.) An accurate inventory would assist with the "theft" investigation.
- Appendix C The Distribution List needs to be revised to reflect the additional local agencies reviewing this document by NRC order

**HAZARDOUS  
MATERIALS  
EMERGENCY  
RELEASE  
NOTIFICATION  
GUIDELINES**

for  
Cuyahoga  
County  
Facilities,  
Transporters  
or Vessels



**COUNTY OF  
CUYAHOGA**

**SARA Local  
Emergency  
Planning  
Committee**

**(Version 2, 1992)**

**Release Discovered by Transporter****TRANSPORTER ▼**

1. Notify first responders by calling **9-1-1** if emergency assistance is needed.
  - Identify name of chemical released and location of problem.
  
2. Determine if release requires a Section 304 emergency release notification.
  
3. If notification is required, collect the following information:
  - The chemical name or identity of any substance involved in the release.
  - An indication of whether the substance is a SARA (Section 302) or a CERCLA (Section 102(a)) substance.
  - An estimate of the quantity of any such substance that was released into the environment.
  - The time and duration of the release.
  - The medium or media into which the release occurred.
  - Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.
  - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator pursuant to the emergency plan).
  - The name and telephone number of the person or persons to be contacted for further information.
  
4. Report above to:
  - **Local Fire Department**
  - **Cuyahoga County Local Emergency Planning Committee**
  - **State Emergency Response Commission**
  - **National Response Center (for CERCLA substance)**

**Release Discovered by Transporter**

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**TRANSPORTER ▼**

5. Prepare follow-up report which summarizes:
  - Actions taken to respond to and contain the release.
  - Any known or anticipated acute or chronic health risks associated with the release.
  - Where appropriate, advice regarding medical attention necessary for exposed individuals.
  - A summary of actions taken by the owner or operator to prevent a recurrence of the release.

6. Submit follow-up report within 30 days to:

**SARA Information Coordinator**

Cuyahoga County Local Emergency Planning Committee  
CEMAC/Suite 102  
1255 Euclid Avenue  
Cleveland, OH 44115-1807  
216/443-7597

**Ohio EPA, DERR-ER**

P.O. Box 1049  
1800 WaterMark Drive  
Columbus, OH 43266-0149  
614/644-2260  
ATTN: Duty Officer

7. Request other assistance as appropriate.

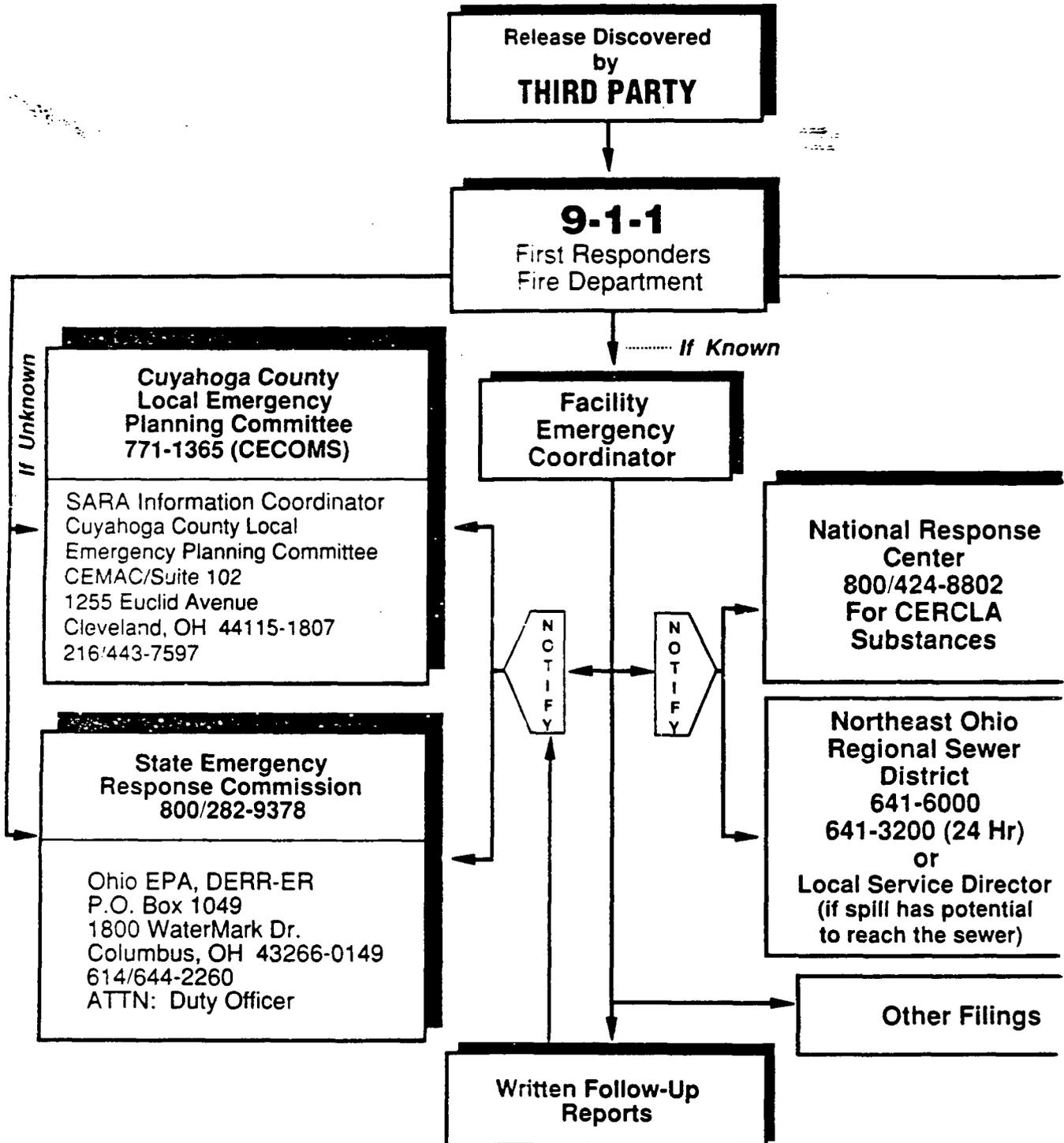
**FIRE DEPARTMENT ▼**

1. If spill has reached or has the potential to reach the sewer system, report release to:
  - **Northeast Ohio Regional Sewer District (641-6000) or (641-3200, between 4:30 p.m. and 8:00 a.m.).**

If sewer problem is in another sewer jurisdiction, contact Cuyahoga County Sanitary Engineer (443-8201) or municipal service director.

# EXHIBIT 2

## Emergency Notification Decision Tree



**MANDATORY ACTIONS**  
for Title III Compliance

## EXHIBIT 2 • RESPONSIBILITIES

### Release Discovered by Third Party

#### THIRD PARTY ▼

1. Report release to first responders by dialing **9-1-1**.

#### FIRE DEPARTMENT ▼

1. Determine **responsible party** (Facility Emergency Coordinator or other).
2. If **responsible party is unknown or unavailable**, investigate and assemble Section 304 required information listed below under Exhibit 2: Facility Emergency Coordinator #2 (as available) and notify:
  - **Cuyahoga County Local Emergency Planning Committee**
  - **State Emergency Response Commission**
  - **National Response Center (for CERCLA Substance)**
3. If spill has reached or has the potential to reach the sewer system, report release to:
  - **Northeast Ohio Regional Sewer District (641-6000) or (641-3200, between 4:30 p.m. and 8:00 a.m.).**If sewer problem is in another jurisdiction, contact:  
Cuyahoga County Sanitary Engineer (443-8201) or local service director.
4. If **responsible party is known**, contact him and identify facility emergency coordinator who must take actions listed under Exhibit 2: Facility Emergency Coordinator #1- #7.
5. Request other assistance as appropriate.

**Release Discovered by Third Party****FACILITY EMERGENCY COORDINATOR ▼**

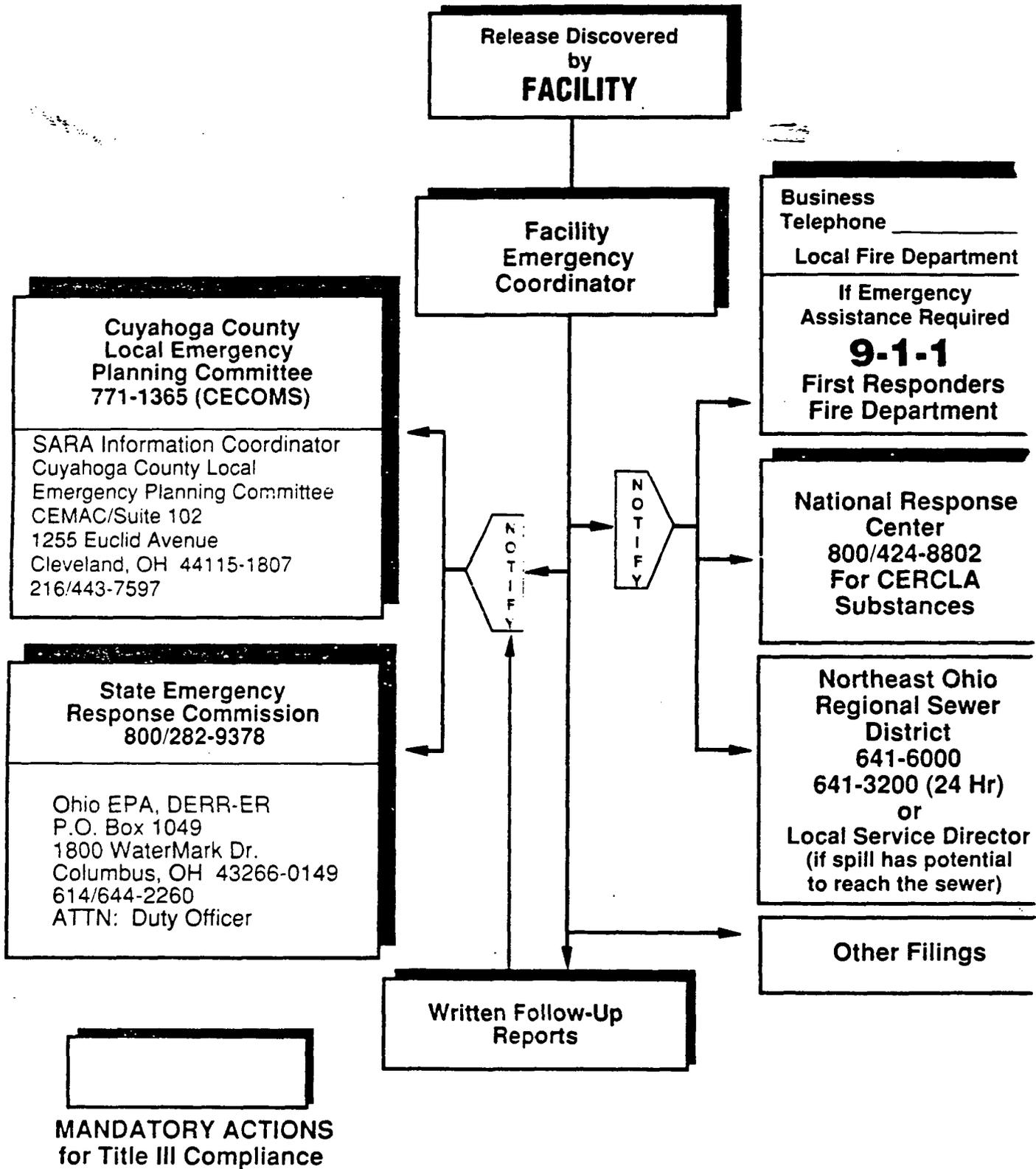
1. Determine if release requires Section 304 emergency release notification.
2. If notification is required, collect the following information:
  - The chemical name or identity of any substance involved in the release.
  - An indication of whether the substance is a SARA (Section 302) or a CERCLA (Section 102(a)) substance.
  - An estimate of the quantity of any such substance that was released into the environment.
  - The time and duration of the release.
  - The medium or media into which the release occurred.
  - Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.
  - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator pursuant to emergency plan).
  - The name and telephone number of the person or persons to be contacted for further information.
3. Report above to:
  - **Local Fire Department**
  - **Cuyahoga County Local Emergency Planning Committee**
  - **State Emergency Response Commission**
  - **National Response Center (for CERCLA substance)**
4. If spill has reached or has the potential to reach the sewer system, report release to:
  - **Northeast Ohio Regional Sewer District (641-6000) or (641-3200, between 4:30 p.m. and 8:00 a.m.).**If sewer problem is in another jurisdiction, contact:  
Cuyahoga County Sanitary Engineer (443-8201) or municipal service director.
5. Prepare follow-up report which summarizes:
  - Actions taken to respond to and contain the release.
  - Any known or anticipated acute or chronic health risks associated with the release.
  - Where appropriate, advice regarding medical attention necessary for exposed individuals.
  - A summary of all actions taken by the owner or operator to prevent a recurrence of the release.
6. Submit follow-up report within 30 days to:

<b>SARA Information Coordinator</b> Cuyahoga County Local Emergency Planning Committee CEMAC/Suite 102 1255 Euclid Avenue Cleveland, OH 44115-1807 216/443-7597	<b>Ohio EPA, DERR-ER</b> P.O. Box 1049 1800 WaterMark Drive Columbus, OH 43266-0149 614/644-2260 ATTN: Duty Officer
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7. Request other assistance as appropriate.

# NOTES

# EXHIBIT 3

## Emergency Notification Decision Tree



# EXHIBIT 3 • RESPONSIBILITIES

## Release Discovered by Facility

### FACILITY EMERGENCY COORDINATOR ▼

1. Notify first responders by calling **9-1-1** if emergency assistance is needed.
  - Identify name of chemical released and location of problem.
  
2. Determine if release requires a Section 304 emergency release notification.
  
3. If notification is required, collect the following information:
  - The chemical name or identity of any substance involved in the release.
  - An indication of whether the substance is a SARA (Section 302) or a CERCLA (Section 102(a)) substance.
  - An estimate of the quantity of any such substance that was released into the environment.
  - The time and duration of the release.
  - The medium or media into which the release occurred.
  - Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.
  - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator pursuant to the emergency plan).
  - The name and telephone number of the person or persons to be contacted for further information.
  
4. Report above to:
  - **Local Fire Department**
  - **Cuyahoga County Local Emergency Planning Committee**
  - **State Emergency Response Commission**
  - **National Response Center (for CERCLA substance)**

## **EXHIBIT 3 • RESPONSIBILITIES**

### **Release Discovered by Facility**

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#### **FACILITY EMERGENCY COORDINATOR ▼**

5. If spill has reached or has the potential to reach the sewer system, report release to:

- **Northeast Ohio Regional Sewer District (641-6000) or (641-3200, between 4:30 p.m. and 8:00 a.m.).**

If sewer problem is in another sewer jurisdiction, contact:

Cuyahoga County Sanitary Engineer (443-8201) or municipal service director.

6. Prepare follow-up report which summarizes:

- Actions taken to respond to and contain the release.
- Any known or anticipated acute or chronic health risks associated with the release.
- Where appropriate, advice regarding medical attention necessary for exposed individuals.
- A summary of all actions taken by the owner or operator to prevent a recurrence of the release.

7. Submit follow-up report within 30 days to:

#### **SARA Information Coordinator**

Cuyahoga County Local Emergency Planning Committee

CEMAC/Suite 102

1255 Euclid Avenue

Cleveland, OH 44115-1807

216/443-7597

#### **Ohio EPA, DERR-ER**

P.O. Box 1049

1800 WaterMark Drive

Columbus, OH 43266-0149

614/644-2260

ATTN: Duty Officer

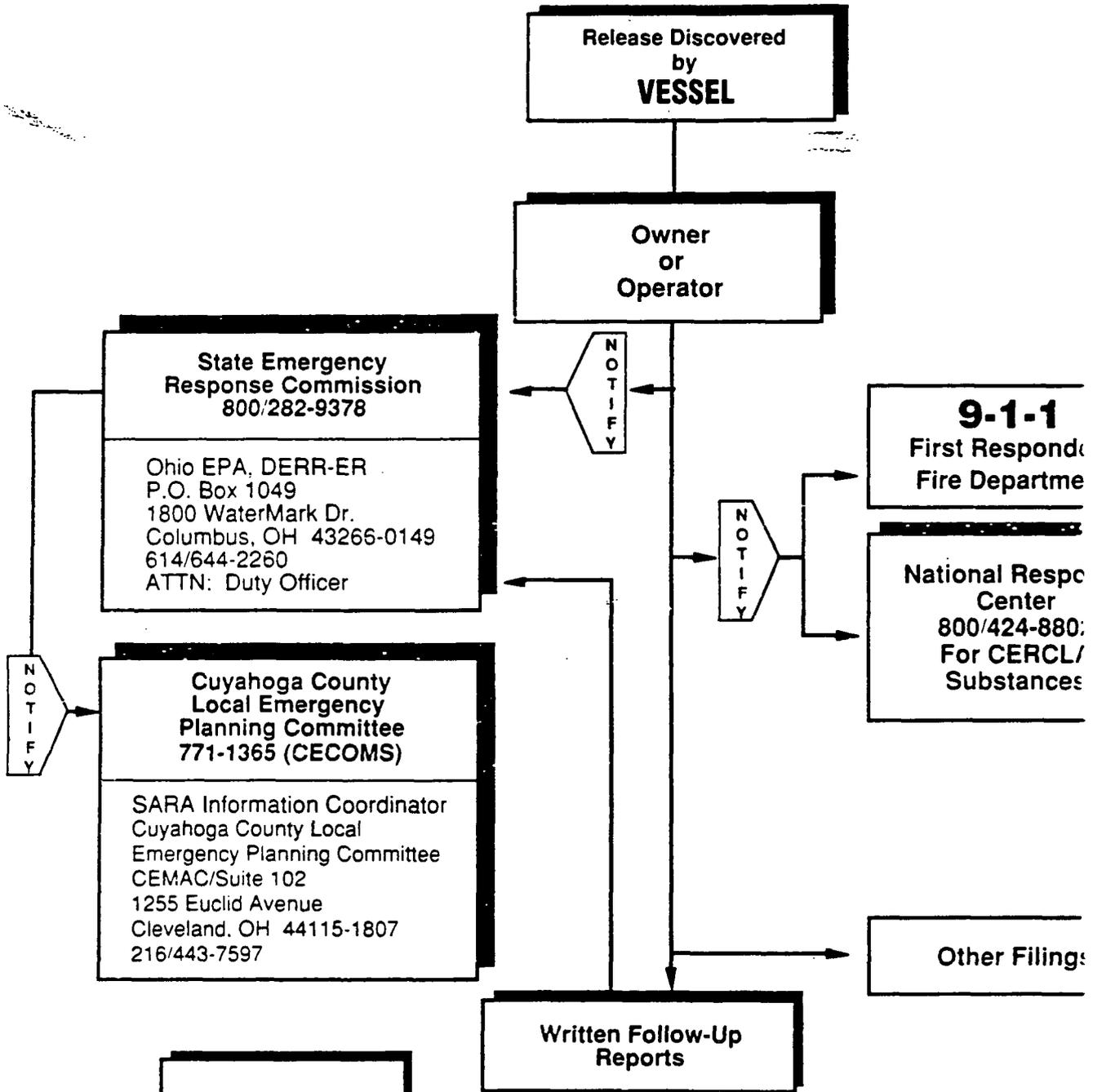
8. Request other assistance as appropriate.

# NOTES

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# EXHIBIT 4

## Emergency Notification Decision Tree



**MANDATORY ACTIONS  
for Title III Compliance**

**Release Discovered by Vessel**

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**OWNER/OPERATOR OF VESSEL ▼**

1. Notify first responders by calling **9-1-1** if emergency assistance is needed.
  - Identify name of chemical released and location of problem.
  
2. Determine if release requires a Section 304 emergency release notification.
  
3. If notification is required, collect the following information:
  - The chemical name or identity of any substance involved in the release.
  - An indication of whether the substance is a SARA (Section 302) or a CERCLA (Section 102(a)) substance.
  - An estimate of the quantity of any such substance that was released into the environment.
  - The time and duration of the release.
  - The medium or media into which the release occurred.
  - Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.
  - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator pursuant to the emergency plan).
  - The name and telephone number of the person or persons to be contacted for further information.
  
4. Report above to:
  - **State Emergency Response Commission**
  - **National Response Center (for CERCLA substance)**

# EXHIBIT 4 • RESPONSIBILITIES

## Release Discovered by Vessel

### OWNER/OPERATOR OF VESSEL ▼

5. Prepare follow-up report which summarizes:
  - Actions taken to respond to and contain the release.
  - Any known or anticipated acute or chronic health risks associated with the release.
  - Where appropriate, advice regarding medical attention necessary for exposed individuals.
  - A summary of actions taken by the owner or operator to prevent a recurrence of the release.

6. Submit follow-up report within 30 days to:

**Emergency Response Unit**  
State Emergency Response Commission  
Ohio EPA  
P.O. Box 1049  
1800 Watermark Drive  
Columbus, OH 43266-0149  
614/644-2260

**Ohio EPA, DERR-ER**  
P.O. Box 1049  
1800 WaterMark Drive  
Columbus, OH 43266-0149  
614/644-2260  
ATTN: Duty Officer

7. Request other assistance as appropriate.

### OHIO EPA ▼

1. Report the above verbal notification information immediately to:
  - **Cuyahoga County Local Emergency Planning Committee**
2. Send a copy of the above written follow-up report immediately to:
  - **Cuyahoga County Local Emergency Planning Committee**

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*This manual produced as a public service to  
Cuyahoga County by BP America Inc.*