

Einsteinville Facility

Plant Description

The Einsteinville plant is an U.S. Department of Energy (DOE)-owned, contractor-operated facility located outside the town of Einsteinville. Figure 1 is a map of the Einsteinville plant. The plant consists of two distinct sections. The east end (see Figure 2) contains storage areas, maintenance areas, and shipping and receiving. The west end of the plant contains three laboratories, one test facility, and various administrative support buildings. The west end of the plant also contains the plant EOC, the fire station, and a medical facility.

The plant was built in the early 1970s. Most buildings are cinder block construction with wood frame roofs. Receiving and some storage areas are open-sided, with metal frame roofs. The distance between each building has been controlled to allow for fire truck access. The plant grounds consist of well-maintained lawns with short (2-3 foot) hedges.

The three laboratories within the Einsteinville plant conduct experiments and analyses for DOE. One of the laboratories' primary missions is to process and/or conduct research experiments with 239 plutonium within radiological glove boxes. Various combinations of radiological and chemical wastes are generated, stored, or transported from the site. Numerous types of chemicals are used throughout the plant. Most common are:

- Ammonia
- Hydrogen fluoride
- Formaldehyde
- Chlorine
- Perfluoroisobutylene
- Hydrogen
- Liquid nitrogen

Plant Emergency Organization

The Einsteinville emergency management organization is depicted in Figure 5. There is a good working relationship between the Einsteinville Emergency Management Department and the rest of the plant. Most organizations have met the 100% participation goal in emergency management drills and exercises. The emergency management plan has been developed and implemented.

Emergency Management Facilities and Equipment

This facility has a small EOC on the west end of the plant. The center contains multiple telephone and radio communications capabilities. It has a backup generator for power. Sirens within the plant are activated from either the EOC or, as a backup, the fire station. The EOC can be sealed and has its own air filtration system. There is a public address capability in each building. The system is operated from the manager's office, security office, or EOC.

Within the Einsteinville Plant, there are two ambulances, three fire trucks, and two dedicated monitoring team vehicles. The plant has a small medical facility with a full-time nurse and on-call doctor. The medical facility has five beds and two treatment rooms and maintains a small stock of medical supplies.



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Emergency Procedures Summary

Response personnel use the incident command system (ICS) during training, exercises, and actual response. All first-response fire, security, and emergency management personnel have been trained and drilled within this command structure.

The joint information center (JIC) is located in the Cecil Township High School gym. Cecil is approximately 12 miles south of the Einsteinville plant. The JIC is activated, according to procedures, if an operational emergency reaches or passes the alert class.

All first-response fire, security, and emergency management personnel have been trained and drilled within this command structure. The senior supervisor at the scene becomes the initial incident commander. As soon as the fire chief arrives, the initial incident commander will brief the chief. The fire chief will formally relieve the initial incident commander and assume the responsibilities of the incident commander.

The Einsteinville Plant uses a simple accountability system. There are four assembly stations located in each of the two halves of the plant. An assembly station is located at the north, south, east, and west ends of each of the halves of the plant. When evacuation is required, the assembly station number and associated direction for assembly will be announced over the public address system. As an example, if evacuation is required of the eastern half of the plant, the announcement may be: "Due to an incident at Building X-200, an evacuation of all personnel in the eastern half of the plant is required. Please report to Assembly Station #2 at the north end of the plant." An assembly supervisor will take the names of the personnel who assemble at each station and call them into the EOC.

Demographics

The town of Einsteinville is located 1/2 mile from the plant boundary (see Figure 3). The town and surrounding area have a population of 12,000 people. The business environment consists of light industry, agricultural, and DOE plant supporting establishments (consulting firms).

State and Local Emergency Management

Kentville is the site of the county government. The county EOC is located in the police station in Kentville. DOE, the county, the township, and the Einsteinville plant maintain a JIC in Kentville. (See Figure 6.)

Einsteinville maintains a township EOC. It is collocated with the fire station. The local emergency preparedness committee is active within the community. The county and township share one full-time emergency planner.

Between the county and township, there are 3 fire trucks, 2 ambulances, and 14 police squad cars. The county, the township, and the Einsteinville Plant have mutual aid agreements.



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Special Considerations

The emergency planning zones (EPZs) are detailed in Figure 4. A school, a nursing home, and a day care center are located within the EPZs. The Lomas Flats Hospital is located just north of the border of Zone A. The school has had one evacuation drill.

Geography

The Einsteinville area consists of relatively low, rolling hills. The area is mostly farmland and forest. Winds are normally from the south and have a yearly average speed of 5 mph. The average annual temperature is 65 degrees Fahrenheit, with a range from 40 degrees in January to 95 degrees in August.

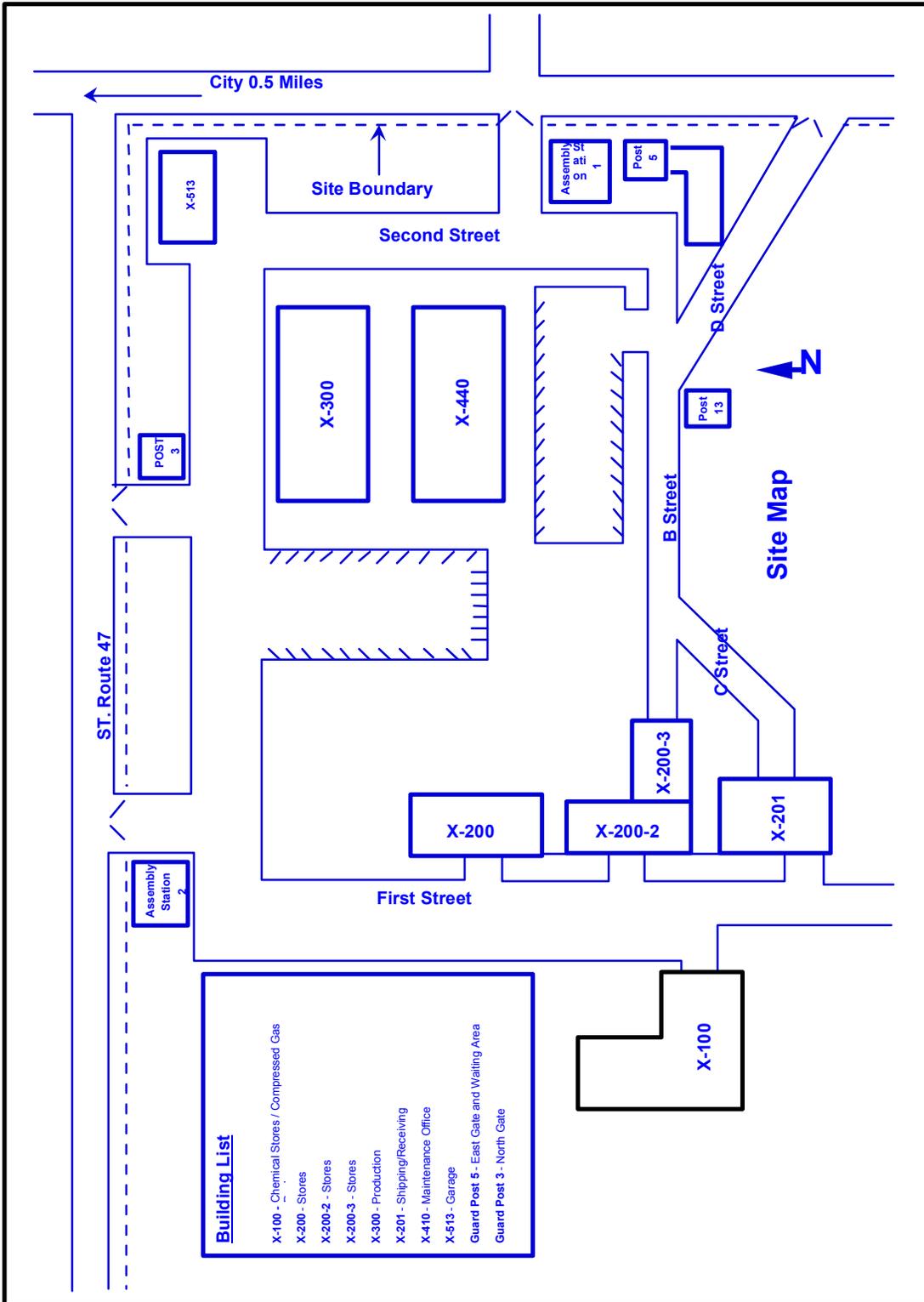


Figure 1 Einsteinville Plant

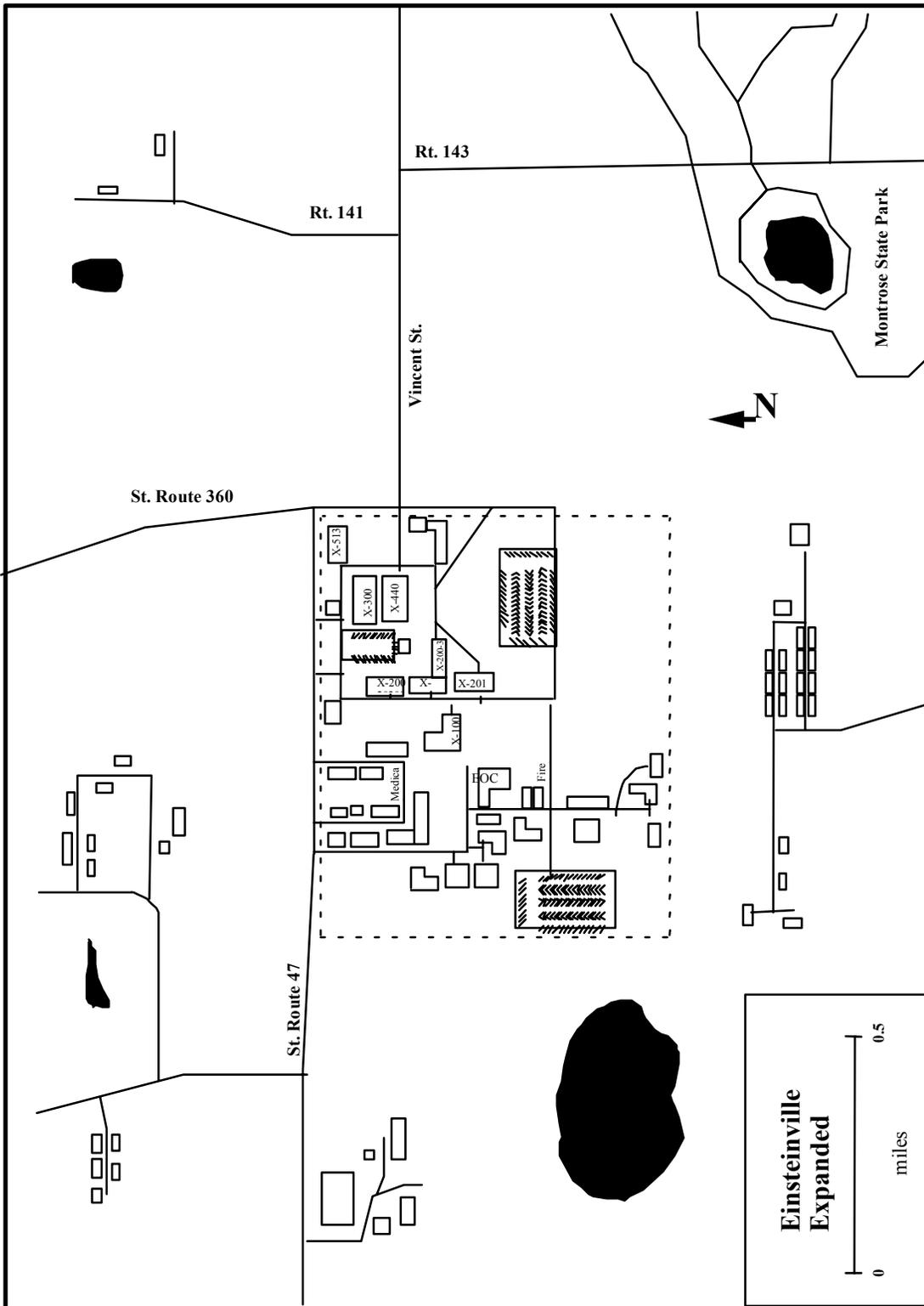


Figure 2 East End of the Einsteinville Plant

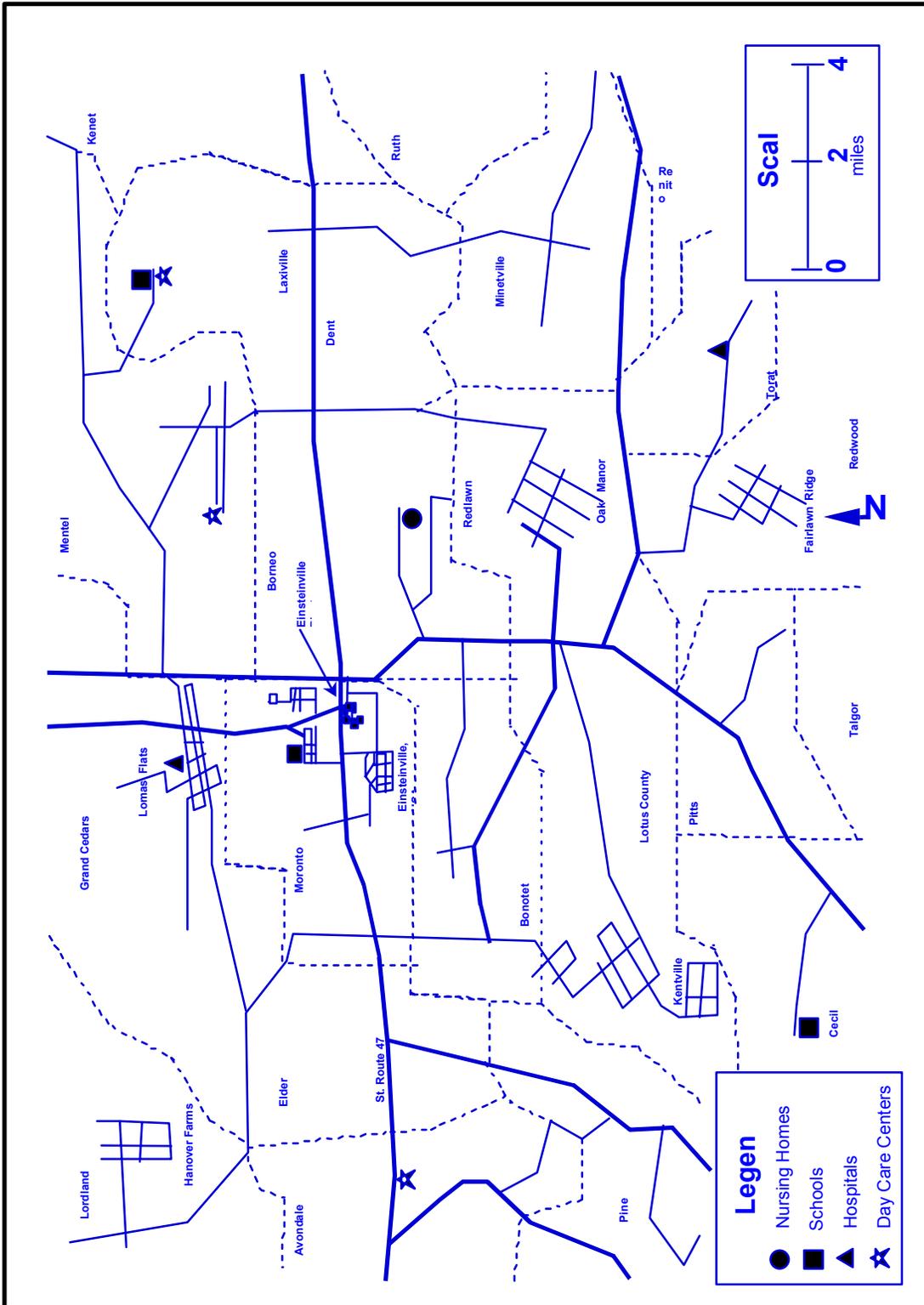


Figure 3 Einsteinville and Surrounding Townships

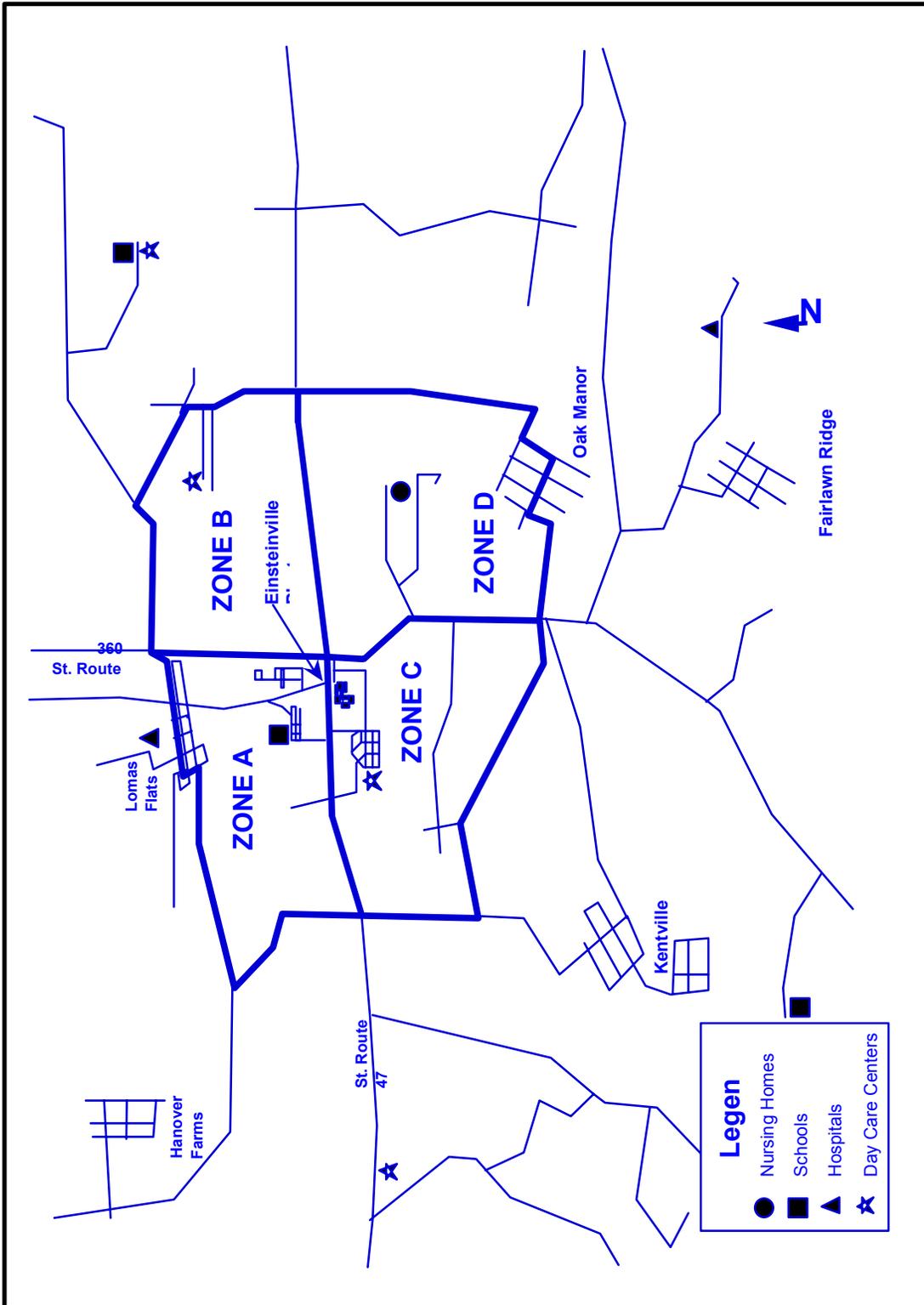


Figure 4 Emergency Planning Zone

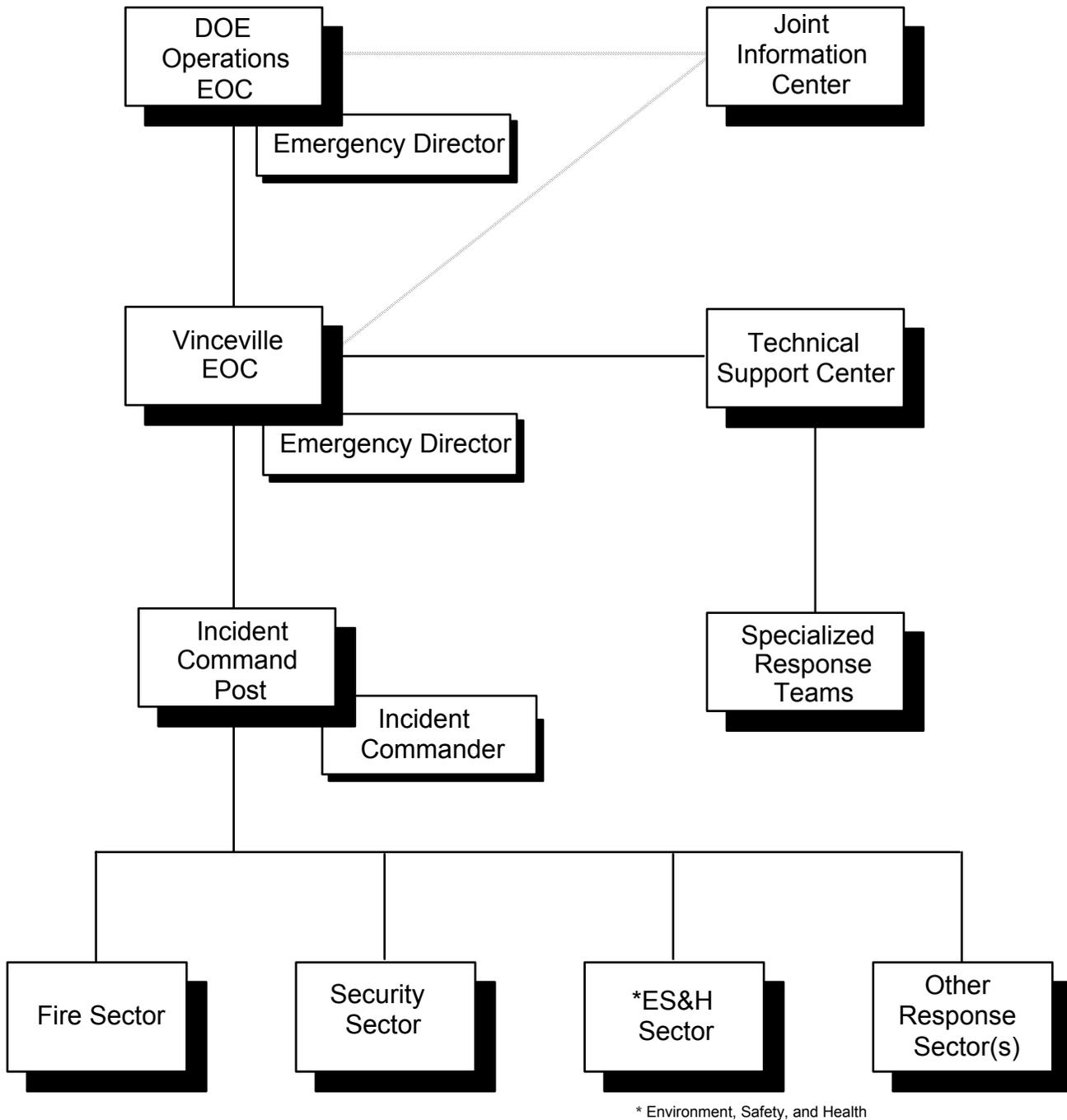
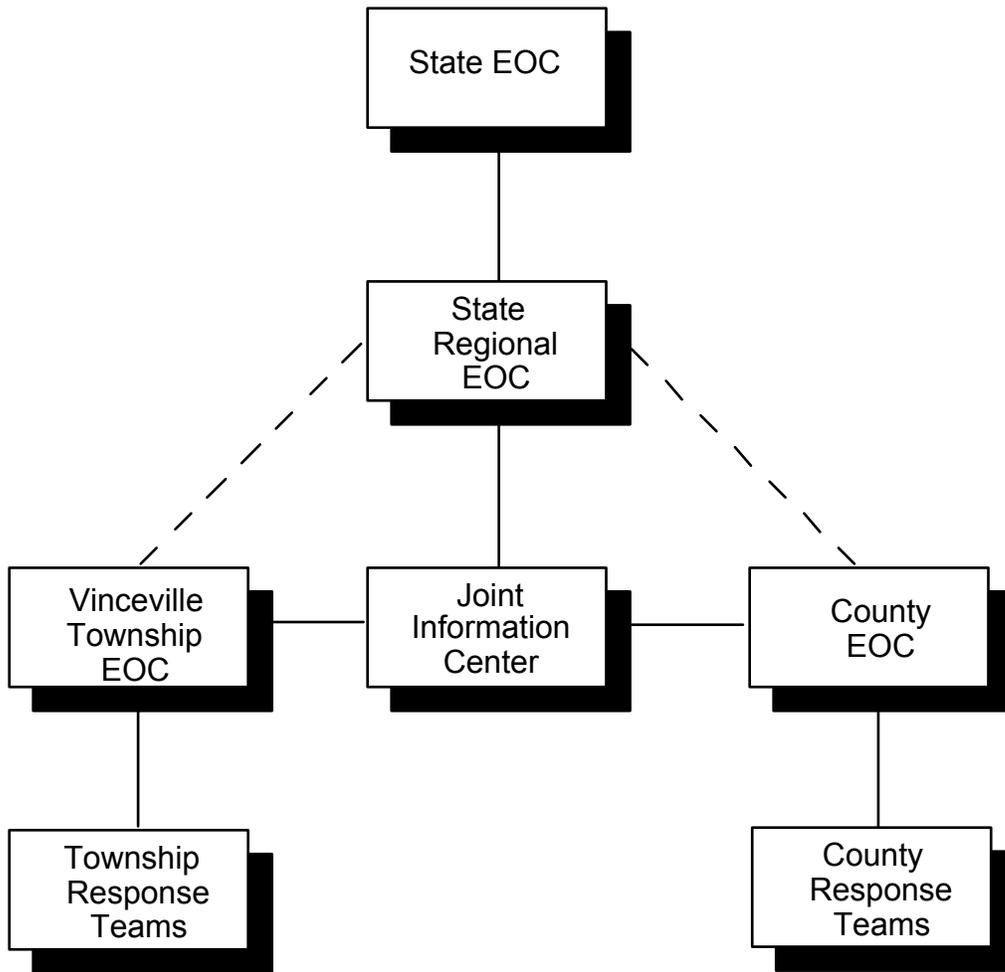


Figure 5: Einsteinville Facility Emergency Management Organization



**Figure 6 Einsteinville State and Local
Emergency Management Organization**



Einsteinville Facility

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EMERGENCY CLASSIFICATION

1.0 PURPOSE

The purpose of this procedure is to provide guidance in the prompt classification of an operational emergency condition at the Einsteinville facility.

2.0 SCOPE

- 2.1** This procedure is used upon confirmation of an abnormal condition by the emergency operations center (EOC).
- 2.2** This procedure defaults to the Department of Transportation (DOT) Emergency Response Guidebook (DOT P 5800.5) for classifying unanalyzed transportation accidents or those where the source term cannot be determined.

3.0 TERMS/DEFINITIONS

3.1 Alert

Represents events in progress or having occurred that involve actual or potential substantial reduction in the level of facility safety and protection. At Einsteinville, an alert has occurred if unplanned events result in hazardous material being released to the environment in concentrations that will result in exposures greater than or equal to the protective action criteria (PACs) at 30 meters from the source.

3.2 Consequence

The result or effect (especially projected exposure to radiological or chemical hazards) of a release of hazardous materials into the environment.

3.3 Emergency Action Level (EAL)

Specific, predetermined, observable criteria used to detect, recognize, and determine the emergency classification.

3.4 Emergency Classification

Differentiates an emergency by the degree of severity, depending on the actual or potential consequence of the emergency situation. The emergency subcategory classes are alert, site area emergency (SAE), and general emergency (GE). See Attachment 2 for a graphic presentation of emergency classification.

EMERGENCY CLASSIFICATION

3.5 Emergency Response Planning Guideline - 2 (ERPG-2)

ERPG-2 is the maximum concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair their abilities to take protective actions.

3.6 Facility Boundary

At Einsteinville, the facility boundary is normally defined as the security boundary or fence. For transportation or other incidents occurring outside a physically defined facility boundary, the facility boundary, for purposes of emergency classification, is 100 meters from the point of release.

3.7 General Emergency (GE)

Represents events that are in progress or have occurred that involve actual or imminent catastrophic failure of facility safety systems, or catastrophic failure of safety or protection systems threatening the integrity of a weapon or test device that could lead to substantial offsite impacts. Environmental releases of hazardous materials can reasonably be expected to equal or exceed the appropriate protective action criteria at the site boundary.

3.8 Hazardous Material

Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment.

3.9 Operational Emergency

Operational emergencies are significant accidents, incidents, events, or natural phenomena that seriously degrade the safety or security of a facility. Operational emergencies apply to facilities (nuclear and nonnuclear) involved with hazardous materials; nuclear weapons, components, or test devices; safeguards and security events; and transportation accidents involving hazardous material.

EMERGENCY CLASSIFICATION

3.10 Protective Action Criteria

A personnel radiation exposure level (for example, 1 rem total effective dose equivalent [TEDE]) based on the Environmental Protection Agency (EPA) Protective Action Guides (PAGs) or toxic chemical concentration (for example, ERPG-2) which, when exceeded at specific distances from the release point (receptor location), prompt an emergency declaration.

3.11 Release

An airborne effluent release to the environment, as this pathway typically represents the most time-urgent situation. Releases to aquatic and ground pathways in most instances do not have the same time urgency as airborne releases.

3.12 Site Area Emergency

Represents events that are in progress or have occurred involving actual or likely major failure(s) of facility safety or safeguards systems needed for the protection of onsite personnel, public health and safety, the environment, or national security. Environmental releases of hazardous materials are expected to exceed the appropriate PACs at or beyond the facility boundary but not expected to exceed the appropriate PACs at or beyond the site boundary.

3.13 Site Boundary

In general, the perimeter of the DOE-owned and-controlled land at Einsteinville is the site boundary.

3.14 Source Term

The amount of hazardous material released into the environment.

3.15 Safeguards and Security Phase Declarations

System used by the security contractor (ESOP 2-200, Section 5) to categorize security-related events. The level of the security event is used as an EAL to declare the corresponding emergency classification.

Security Alert: Event requiring management attention and increased security vigilance (no EAL).

EMERGENCY CLASSIFICATION

Phase I: A potential threat has been identified that warrants increased management awareness and requires heightened capability to implement security response actions (no EAL).

Phase II: A known threat has been identified that requires heightened capability to implement security response actions (Alert EAL).

Phase III: A major verified security incident is in progress or has occurred that requires the immediate implementation of security response actions (SAE EAL).

Phase IV: A major verified security incident is in progress or has occurred that requires special operations procedures (GE EAL).

3.16 Total Effective Dose Equivalent (TEDE)

The sum of the deep dose equivalent (from external exposure) and the committed effective dose equivalent (from internal exposure).

4.0 RESPONSIBILITIES

4.1 Duty Officer (DO)

Until the EOC is activated, the DO is responsible for classifying emergencies.

4.2 Emergency Director

Once the EOC is activated, assumes the responsibility from the DO for classifying emergencies.

5.0 PROCEDURES

5.1 Determining Emergency Classification

5.1.1 If the event involves a chemical release, determine the ERPG-2 value.

- ERPG-2 values and several calculated equivalent values are contained within Attachment 3. The ERPG-2 values are approved by the American Industrial Hygiene Association.

EMERGENCY CLASSIFICATION

- The methodology for calculating equivalent ERPG-2 values was developed by the Chemical Exposures Working Group under the Subcommittee for Consequence Assessment and Protective Actions (SCALA).
 - If a chemical is encountered that is not contained within Attachment 3, complete the worksheet in Attachment 4 to calculate the equivalent value.
- 5.1.2** If the event is a transportation accident on the general site, go to section 5.3 to classify the event.
- 5.1.3** Use Attachment 1, Einsteinville Prompt Classification Matrix.
- 5.1.4** Select the appropriate event category from the classification matrix.
- 5.1.4.1** Begin at the top of the column on the classification matrix, and then go down the column. Compare the abnormal conditions to the EAL statements.
- 5.1.4.2** If there is a match, then:
- Identify the corresponding emergency classification as read on the left-hand margin.
 - Where two or more conditions exist, use the more restrictive parameter to determine the more conservative emergency class.
- 5.1.4.3** If there is no direct match, evaluate conditions and use supervisory judgement, as appropriate.
- 5.1.5** Declare the event as indicated.
- 5.2 Subsequent Actions**
- 5.2.1** Implement applicable emergency response procedures for the indicated emergency classification level.
- 5.2.2** Continue to assess conditions. As conditions change, evaluate the data against the appropriate classification criteria. In a worsening situation where clear trending is evident, it is appropriate to upgrade to a classification level that matches the projected situation.

EMERGENCY CLASSIFICATION

- 5.2.3 Until the EOC is activated, the DO is responsible for upgrading the classification.
- 5.2.4 The DO is relieved of classification responsibilities by the emergency director.
- 5.2.5 Termination of an emergency classification requires approval from the emergency director.

5.3 Use of DOT Emergency Response Guidebook for Transportation Accidents

Section 7 of the Einsteinville Prompt Classification Matrix (Attachment 1) is the transportation operational emergency section. Section 7 assumes an actual or projected downwind consequence is available. In those cases where downwind consequences cannot be determined or projected, the DOT Emergency Response Guidebook is used to classify the emergency. The DOT Guidebook contains five distinct sections highlighted by colored pages. They are:

Yellow	Listing of hazardous materials by ID number
Blue	Listing of hazardous materials by name

- These two sections are used to determine the correct emergency response guide and the initial isolation and protective action zone.

White	Instructions on use of the guidebook and a placard listing
Orange	Emergency response guides
Green	Table of initial isolation and protective action distances

5.3.1 Identify the material by any one of the following:

- The four-digit number on a placard or orange panel located on the vehicle or package
- The four-digit number after (UN/UP) on a shipping paper or package
- The name of the material on a shipping paper, placard, or package

5.3.2 If the four-digit number or name cannot be found but a placard can be seen, use the placard table in the white section of the guidebook and implement the associated emergency response guide number shown (guides in orange section).

EMERGENCY CLASSIFICATION

- 5.3.3 Look up the material's two-digit guide number, noting whether it is highlighted or not, in either:
- The ID number index (yellow section)
 - The material name index (blue section)
- 5.3.4 Turn to the numbered guide (orange section). Read and follow the guide. If the index entry (yellow or blue section) **is not** highlighted, an operational emergency does not exist. Go back to step 5.1.6.
- 5.3.5 Turn to the table of initial isolation and protective action distances (green section). Find the name of the material in the table.
- 5.3.6 Using the definitions of large and small spills printed at the top of the table, find the applicable distance, in miles, that the guidebook recommends for protection of persons downwind.
- 5.3.7 Determine the distance from the accident scene to the nearest site boundary. Declare the emergency as follows:
- If the distance to the site boundary is greater than the DOT protective action distance: **Declare a site area emergency.**
 - If the distance to the site boundary is less than the DOT protective action distance: **Declare a general emergency.**
- 5.3.8 If a reference to a guide cannot be found in the guidebook and it is believed the accident involves a hazardous material, implement Guide 11 until additional information becomes available.

6.0 RECORDS

Logs, messages, or other documents generated by use of this procedure during a drill, exercise, or emergency will be forwarded to the Emergency Services Department manager and processed for retention in accordance with 1Q, Einsteinville Quality Assurance Manual.

7.0 REFERENCES

- 7.1 DOT P 5800.5, 1993 Emergency Response Guidebook
- 7.2 Einsteinville Emergency Plan

EMERGENCY CLASSIFICATION

8.0 ATTACHMENTS

- 8.1 Attachment 1 - Einsteinville Prompt Classification Matrix
- 8.2 Attachment 2 - Isodose Concept for Event Classification
- 8.3 Attachment 3 - List of ERPG-2 and Calculated Equivalents
- 8.4 Attachment 4 - ERPG-2 Equivalent Calculation Worksheet

EMERGENCY CLASSIFICATION

**ATTACHMENT 1
 EINSTEINVILLE PROMPT CLASSIFICATION MATRIX**

CATEGORY # CLASSIFICATION\	1-RADIOACTIVE RELEASE	2-TOXIC CHEMICAL RELEASE
General Emergency (GE)	<p>(1-A-GE-1.1) § 1 rem TEDE (actual or projected) at or beyond the boundary.</p> <p>(1-A-SA-2.1) ³⁵rem thyroid dose (actual or projected) at or beyond the site boundary.</p>	<p>(2-A-GE-1.1) Chemical concentration (actual or projected) at or beyond the site boundary is ³ERPG-2 values.)</p>
Site Area Emergency (SAE)	<p>(1-A-SA-2.1) §1 rem TEDE (actual or projected) at the facility boundary but —1 rem at the site boundary.</p> <p>(1-A-SA-2.2) ³⁵rem thyroid dose (actual or projected) at the facility boundary but —5 rem at the site boundary.</p>	<p>(2-A-SA-1.1) Chemical concentration (actual or projected) at or beyond the facility boundary is ³ERPG-2 at the site boundary.</p> <p>See Attachment 3 for ERPG-2 values.)</p>
ALERT	<p>(1-A-A-2.1) §1 rem TEDE (actual or projected) at 30 meters from the release but —1 rem TEDE at the facility boundary.</p> <p>(1-A-A-2.2) ³⁵rem thyroid dose (actual or projected) at 30 meters from the release but —5 rem at the site boundary.</p>	<p>(2-A-A-1.1) Chemical concentration (actual or projected) at 30 meters from the spill is ³ERPG-2 but —ERPG-2 at the facility boundary.</p> <p>See Attachment 3 for ERPG-2 values.)</p>

(End of Categories 1 & 2)

EMERGENCY CLASSIFICATION

**ATTACHMENT 1 (continued)
 EINSTEINVILLE PROMPT CLASSIFICATION MATRIX**

CATEGORY # CLASSIFICATION\	3-OPERATIONAL EVENTS	4-NATURAL DISASTERS
General Emergency (GE)	NONE	(4-B-GE-1,1) Earthquake onsite ³ 5.3 on Richter scale as determined by site seismologist.
Site Area Emergency (SAE)	NONE	(4-B-SA-2.1) Earthquake onsite ³ 5.3 -but- —5.3 on Richter scale as determined by site seismologist.
Alert	(3-F-A-3.1) A confirmed, unplanned criticality has occurred.	(4-A-A-3.1) Hurricane forecast by National Weather Service to arrive at Einsteinville in ² 1 hour.

(End of Categories 3 & 4)

EMERGENCY CLASSIFICATION

**ATTACHMENT 1 (continued)
 EINSTEINVILLE PROMPT CLASSIFICATION MATRIX**

CATEGORY # CLASSIFICATION\	5-SECURITY	6-FIRES AND EXPLOSIONS
General Emergency (GE)	(5-A-GE-1.1) A phase iv security declaration has been declared by the Security Force.	NONE
Site Area Emergency (SAE)	(5-A-SA-2.1) A Phase III security declaration has been declared by the Security Force.	(6-A-SA-2.1) Missile or explosion compromising the function of any safety system.
Alert	(5-A-A-3.1) A Phase II security declaration has been declared by the Security Force. (5-A-A-3.2) A credible bomb threat has been received for a facility containing hazardous material.	(6-A-A-3.1) Missile or explosion resulting in any facility structural damage. (6-A-A-3.2) Fire in Building X-201 that involves two or more Type A containers -or- (6-A-A-3.3) Fire in any building that involves structural damage.

(End of Categories 5 & 6)

EMERGENCY CLASSIFICATION

**ATTACHMENT 1 (continued)
 EINSTEINVILLE PROMPT CLASSIFICATION MATRIX**

CATEGORY # CLASSIFICATION\	7-TRANSPORTATION	8-OTHER
<p align="center">General Emergency (GE)</p>	<p>NOTE: If actual or projected consequences are not available, use the DOE Emergency Response Guidebook to determine the emergency class as per Section 5.3, then refer to this matrix for the appropriate EAP number.</p> <p>(7-B-GE-1.1) Onsite transportation accident resulting in site boundary dose (actual or projected): □ ³ 1 rem TEDE -or- □ ³ 5 rem thyroid -or- □ Chemical concentration³ ERPG-2</p> <p>(7-E-GE-1.2) The distance to the site boundary is —the DOE guidebook protective action distance.</p>	<p>(8-F-GE-1.1) SUPERVISORY JUDGEMENT</p> <p>If you anticipate that general emergency conditions re imminent declare a general emergency.</p>
<p align="center">Site Area Emergency (SAE)</p>	<p>(7-E-GE-1.2) Transportation accident within protected area fence, compromising the function of the safety system.</p> <p>7-B-SA-2.2) Onsite transportation accident resulting in a dose (actual or projected) at 100 meters:</p>	<p>(8-E-SA-2.1) SUPERVISORY JUDGEMENT</p> <p>Any existing condition that warrants activation of state/county emergency response facilities.</p>

EMERGENCY CLASSIFICATION

	<p>☐ ³ 1 rem TEDE -or- ☐ ³ 5 rem thyroid -or- ☐ Chemical concentration³ ERPG-2, but —the above criteria at the site boundary.</p> <p>(7-E-SA-2.3) The distance to The site boundary is TMthe DOT Guidebook protective action distance.</p>	
<p>Alert</p>	<p>(7-E-A-3.1) Accident within a limited area fence, resulting in structural damage to a facility containing a safety system.</p> <p>(7-B-A-3.2) Onsite transportation accident resulting in dose (actual or projected) at 30 meters: ☐ ³ 1 rem TEDE -or- ☐ ³ 5 rem thyroid -or- ☐ Chemical concentration³ ERPG-2, but —the above criteria at 100 meters.</p>	<p>(8-E-A-3.1) SUPERVISORY JUDGEMENT Any existing condition that warrants activation of site-level emergency response facilities</p> <p>-or-</p> <p>**certain conditions exist (see Q12.3, Einsteinville OC 316-1) at PAR Pond Dam or Steel Creek (L-Lake) Dam.</p>

Use classification in onsite and DOE HQ notifications **only.

EMERGENCY CLASSIFICATION

**ATTACHMENT 2
ISODOSE CONCEPT FOR EVENT CLASSIFICATION**

CLASS	ISODOSE	WHERE
NoUE	9 0.1 mrem TEDE*	At and beyond the site boundary
Alert	9 1 rem TEDE 9 ERPG-2	At 30 meters to facility boundary
SAE	9 1 rem TEDE 9 ERPG-2	At facility boundary to site boundary
GE	9 1 rem TEDE 9 ERPG-2	At and beyond the site boundary

*Not part of isodose concept

EMERGENCY CLASSIFICATION

**ATTACHMENT 3
 ERPG-2 AND EQUIVALENT VALUES**

*Chemical Name	RPG-2	Units	*Chemical Name	RPG-2	Units
Acetone	8500	ppm	Chloroform (Ca)	100	ppm
Acrolein	0.5	ppm	Chloropicrin	0.2	ppm
Acrylic Acid	50	ppm	Chlorosulfonic Acid	10	mg/m ³
Acrylonitrile (Ca)	50	ppm	Chlorotrifluoroethylene	100	ppm
Allyl Chloride	40	ppm	Crotonaldehyde (Ca)	10	ppm
Aluminum Oxide	15	mg/m ³	Dichlorodifluoromethane (FC12)	10000	ppm
Ammonia	200	ppm	Dichlorofluoromethane (FC21)	100	ppm
Arsenic (inorganic) as (Ca)	1.4	mg/m ³	Dichlorotetrafluoroethane (FC114)	10000	ppm
Arsine (Ca)	1	ppm	Diketene	5	ppm
Benzene (Ca)	50	ppm	Dimethylamine	100	ppm
Beryllium (Ca)	25	mg/m ³	Dimethylformamide	10	ppm
Bromine	1	ppm	1,1-Dimethylhydrazine (Ca)	5	ppm
Bromotrifluoromethane	25000	ppm	Epichlorohydrine (Ca)	20	ppm
1,3-Butadiene (Ca)	50	ppm	Ethanolamine	50	ppm
Carbon Disulfide	50	ppm	Ethylene Glycol	40	ppm
Carbon Monoxide	400	ppm	Ethylene Oxide (Ca)	20	ppm
Carbon Tetrachloride (Ca)	25	ppm	Fluorine	7.5	ppm
Chlorine	3	ppm	Formaldehyde (Ca)	10	ppm
Chlorine Trifluoride	3	ppm	Formic Acid	20	ppm

EMERGENCY CLASSIFICATION

*Chemical Name	RPG-2	Units	*Chemical Name	RPG-2	Units
Chloroacetyl Chloride	1	ppm	Hexachlorobutadiene	10	ppm
Hydrazine (Ca)	0.8	ppm	Ozone	1	ppm
Hydrogen Chloride	20	ppm	Perchloroethylene	200	ppm
Hydrogen Fluoride	20	ppm	Perfluoroisobutylene	0.1	ppm
Hydrogen Peroxide (30%)	25	ppm	Phenol	50	ppm
Hydrogen Sulfide	30	ppm	Phosgene	0.2	ppm
Isobutyronitrile	50	ppm	Phosphine	50	ppm
Isopropyl Alcohol	400	ppm	Phosphoric Acid	5	mg/m ³
Lithium Bromide	15	mg/m ³	Phosphorous Pentoxide	25	mg/m ³
Lithium Chromate	0.1	mg/m ³	Sodium Hydroxide	40	mg/m ³
Lithium Hydroxide	5	mg/m ³	Styrene (Ca)	200	ppm
Mercury Vapor (as Hg)	0.2	mg/m ³	Sulfur Dioxide	3	ppm
Methane	5000	ppm	Sulfuric Acid	10	mg/m ³
Methanol	200	ppm	Tetrafluoroethylene	1000	ppm
Methyl Chloride (Ca)	300	ppm	Titanium Tetrachloride	20	mg/m ³
Methyl Fluoride (as fluoride)	12.5	mg/m ³	Toluene	300	ppm
Methyl Iodide (Ca)	50	ppm	Trichloroethylene (Ca)	500	ppm
Methyl Mercaptan	25	ppm	Trichlorofluoromethane (FC1)	1500	ppm

EMERGENCY CLASSIFICATION

*Chemical Name	RPG-2	Units	*Chemical Name	RPG-2	Units
Monomethylamine	100	ppm	Trichlorotrifluoroethane (FC113)	1500	ppm
Monomethylhydrazine (Ca)	0.5	ppm	Trimethylamine	100	ppm
Nickel Carbonyl (as Ni) (Ca)	0.05	ppm	Vinyl Acetate	75	ppm
Nitric Acid	15	ppm	Vinylidene Chloride	10	ppm
Nitrogen Dioxide (or NO _x s)	15	ppm	Xylene	200	ppm
Nitrous Oxide	10000	ppm			

* If chemical is not listed, use Attachment 4 to calculate an equivalent value.

EMERGENCY CLASSIFICATION

**ATTACHMENT 4
ERPG-2 AND EQUIVALENTS CALCULATION WORKSHEET**

Attachment 3 provides the ERPG-2 or equivalent values to be used for determination of emergency classification at Einsteinville. If a chemical is encountered that is not on the list, an appropriate equivalent value can be calculated from readily available resources. The methodologies listed below are in the preferred hierarchy.

1. Use the Permissible Exposure Limit-Ceiling (PEL-C) listed in 29 CFR-1910.1000 (Occupational Safety and Health Administration {OSHA} regulations).

Chemical: _____ PEL-C: _____

2. Use the Threshold Limit Value-Ceiling (TLV-C) listed in the most recent revision of Threshold Limit Values and Biological Exposure Indices (published by the American Conference of Governmental Industrial Hygienists).

Chemical: _____ TLV-C: _____

3. Use the Threshold Limit Value-Time Weighted Average (TLV-TWA) listed in the most recent version of Threshold Limit Values and Biological Exposure Indices (published by the American Conference of Governmental Industrial Hygienists) multiplied by five (5).

Chemical: _____ TLV-TWA: _____

TLV-TWA x 5 = _____

EOC ACTIVATION

1.0 PURPOSE

This procedure is designed to provide guidance for initial emergency response and activation of the emergency operations center (EOC).

2.0 SCOPE

This procedure is applicable during emergencies requiring activation of the EOC. The duty officer and/or emergency director is responsible for the immediate actions required in the early phases of an emergency. These actions include, but are not limited to, recognition and classification of emergencies, event communications and notifications to appropriate personnel or agencies, activation of the EOC, personnel accountability, protective action recommendations, and guidelines for sheltering or evacuation actions.

3.0 RESPONSIBILITIES

3.1 Duty Officer

Responsible for the following until relieved by the emergency director:

- Uses facility-specific procedures to classify the event into one of the classes of operational emergencies. If the event meets the emergency action level criteria for one of the emergency classes, ensures a formal notification (Step 3.3 of this procedure) of EOC cadre personnel stating emergency class declaration is performed.
- Ensures that fire, medical, and security responders have been notified for any immediate emergency response personnel/equipment assistance.
- Upon declaring an emergency class, assigns a person to assist as a communicator and directs that person to perform Step 3.3 of this procedure.
- Determines the need for implementing protective actions based on the protective action guide procedures.
- Reviews any additional emergency plan implementing procedures as applicable to the event.

EOC ACTIVATION

- Remains in contact with the incident commander and provides support until relieved by the emergency director.
- Upon arrival of the emergency director, provides an event briefing and turnover of emergency director duties and responsibilities, including a copy of all logs, message/notification forms, etc.

3.2 Emergency Director

Responsible for the following:

- Ensures that facility-specific procedures are used to classify or reclassify the event into one of the classes of operational emergencies.
- Ensures that fire, medical, and security responders have been notified for any immediate emergency response personnel/equipment assistance.
- Determines the need for implementing protective actions based on protective action guide procedures.
- Upon arrival, receives an event briefing and turnover of emergency director duties and responsibilities, including a copy of all logs, message/notification forms, etc.
- Reviews any additional emergency plan implementing procedures as applicable to the event.
- Upon arrival of the EOC cadre, declares the EOC activated.

3.3 Communicator

Responsible for the following:

- Contacts the EOC Notification Center at 6-6000, reports the emergency class, and requests activation of the EOC. Notes time of call on Notification Form 5050 and obtains the signature of the DO.

EOC ACTIVATION

- Obtains current meteorological data by contacting the weather station at 5-4444, and records the wind speed, wind direction, and current weather prediction; and reports the information to the DO.
- Logs and directs all requests for information to the EOC Notification Center.

3.4 EOC Notification Center

The EOC Notification Center staff person on duty contacts the following EOC cadre and directs them to report to the EOC immediately.

Emergency Director	6-8604
EOC Manager	6-5702
ES&H Manager	6-2205
Operations and Facility Manager	6-1809
Security Manager	6-6172
Logistics Manager	6-3388
Public Affairs Manager	6-2902

4.0 REFERENCES

- 4.1 Quality Assurance Manual
- 4.2 Einsteinville Emergency Plan
- 4.3 Emergency Classification EPIP

EVENT NOTIFICATIONS

1.0 PURPOSE

This procedure is designed to provide guidance for notification of emergency event classification.

2.0 SCOPE

This procedure is applicable during emergencies requiring notifications to appropriate personnel or agencies. The duty officer and/or emergency director is responsible for the immediate actions required in the early phases of an emergency. These actions include, but are not limited to, recognition and classification of emergencies, event communications and notifications to appropriate personnel or agencies, activation of the emergency operations center (EOC), personnel accountability, protective action recommendations, and guidelines for sheltering or evacuation actions.

3.0 RESPONSIBILITIES

3.1 Duty Officer (DO)

Responsible for the following notifications until relieved by the emergency director:

ALERT: In the case of an alert, notify the following:

- DOE operations office EOC
- DOE headquarters EOC (through the DOE operations office EOC)
- Einsteinville Township EOC
- Kentville county EOC
- State EOC
- Regional Environmental Protection Agency (EPA) and other agencies as required by regulatory guidance.

EVENT NOTIFICATIONS

These notifications will occur as soon as possible, **but not more than 15 minutes after an event is classified as an alert**. The activation of the joint information center (JIC) is optional at the alert level. All previously notified individuals or groups are notified again when the event classification is changed or terminated.

SITE AREA EMERGENCY: In the case of a site area emergency, notify the following:

- DOE operations office EOC
- DOE headquarters EOC (through the DOE operations office EOC)
- Einsteinville Township EOC
- Kentville county EOC
- State EOC
- Regional EPA and other agencies as required by regulatory guidance

These notifications will occur as soon as possible, **but not more than 15 minutes after an event has been classified as a site area emergency**. Notification of a site area emergency allows response groups to prepare for a general emergency, if necessary. Activation of the EOC and JIC is required. All previously notified individuals or groups are notified again when the event classification is changed or terminated.

GENERAL EMERGENCY: In the case of a general emergency, notify the following:

- DOE operations office EOC
- DOE headquarters EOC (through the DOE operations office EOC)
- Einsteinville Township EOC
- Kentville county EOC

EVENT NOTIFICATIONS

- State EOC
- Regional EPA and other agencies as required by regulatory guidance

These notifications will occur as soon as possible, **but not more than 15 minutes after an event is classified or has been reclassified as a general emergency.** Activation of the EOC and the JIC is required. All previously notified individuals or groups are notified again when the event classification is changed or terminated.

3.2 Emergency Director

Responsible for ensuring that the following notifications are made:

ALERT:

- DOE operations office EOC
- DOE headquarters EOC (through the DOE operations office EOC)
- Einsteinville Township EOC
- Kentville county EOC
- State EOC
- Regional EPA and other agencies as required by regulatory guidance

These notifications will occur as soon as possible, **but not more than 15 minutes after an event is classified as an alert.** The activation of the JIC is optional at the alert level. All previously notified individuals or groups are notified again when the event classification is changed or terminated.

SITE AREA EMERGENCY: In the case of a site area emergency, notify the following:

- DOE operations office EOC

EVENT NOTIFICATIONS

- DOE headquarters EOC (through the DOE operations office EOC)
- Einsteinville Township EOC
- Kentville county EOC
- State EOC
- Regional EPA and other agencies as required by regulatory guidance

These notifications will occur as soon as possible, **but not more than 15 minutes after an event is classified or has been reclassified as a site area emergency.** Activation of the EOC and JIC is required. All previously notified individuals or groups are notified again when the event classification is changed or terminated.

3.3 Regulatory Notification

For all event classifications, the DO or emergency director will ensure that all required notifications are made, including the notification to DOE. The DOE operations office will provide oversight of the notification process.

3.4 Non-Emergency Event Reporting

The Einsteinville facility has established a system for collecting and reporting event information in accordance with DOE Order 5000.3A. An occurrence reporting handbook has been prepared and a program has been developed for occurrence reporting. All reports are put into the Occurrence Reporting and Processing System (ORPS).

4.0 REFERENCES

- 4.1 Quality Assurance Manual
- 4.2 Einsteinville Emergency Plan
- 4.3 Einsteinville Occurrence Reporting Plan

PROTECTIVE ACTIONS

1.0 PURPOSE

This procedure provides guidance to site emergency response facilities for the formation and issuance of onsite protective actions and the recommendation of offsite protective actions.

2.0 SCOPE

This procedure is applicable during events that cause the activation of site-level emergency response facilities.

3.0 TERMS/DEFINITIONS

3.1 Total Effective Dose Equivalent (TEDE)

The TEDE is the sum of the effective dose equivalent from external radiation and the committed effective dose equivalent from internally deposited radionuclides.

3.2 Committed Dose Equivalent

The calculated dose equivalent projected to be received by tissues or organs over a 50-year period after an intake of a radionuclide into the body. It does not include contributions from external dose.

3.3 Committed Effective Dose Equivalent (CEDE)

The sum of the committed dose equivalents to various tissues in the body, each multiplied by the appropriate weighting factor. It does not include contributions from external dose.

3.4 Effective Dose Equivalent (EDE)

The sum of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated from external sources.

3.5 Emergency Response Planning Guidelines (ERPG)

ERPG-1: The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing other than mild transient health effects or perceiving a clearly defined objectionable odor.

PROTECTIVE ACTIONS

ERPG-2: The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair their abilities to take protective actions.

ERPG-3: The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

3.6 Protective Action

Action taken to avoid or reduce a projected or actual exposure to radioactive or toxic substances or to ensure physical safety of facilities and personnel during hazardous material or safeguards and security emergencies. Protective actions include:

Remain-in-Doors: Remaining in doors, closing doors and windows and turning off ventilation systems that draw in outside air, as appropriate, if turning off a ventilation system does not constitute an additional safety or health hazard. This protective action is normally only appropriate for toxic gas releases where the release poses immediate danger to personnel, since even temporary buildings such as trailers or frame buildings will provide a level of protection from this type of release. This should **not** be used in areas where there is sufficient time to shelter or evacuate. The signal for remain-in-doors is the toxic gas release alarm (very fast warble). For A and D areas, a series of three short blasts on the powerhouse steam whistle may be used as an alternate signal.

Shelter: The movement of site populations into designated shelters, typically substantial brick or concrete permanent structures. This protective action is normally appropriate for radiological releases of short duration or when relocation requires travel through the plume.

Sheltering is also appropriate for some types of natural phenomena, such as high winds or tornado warnings, and when toxic gas releases in areas where [remain-in-doors] is neither practical nor warranted based upon conditions. The signal for shelter is a slow warble. For A and D areas, a series of long blasts on the powerhouse steam whistle may be used as an alternate signal.

Evacuation: Evacuation for a Einsteinville emergency means the movement of site populations in a facility or area to a rally point or assembly area or the movement of residents in affected offsite zones or potentially affected offsite zones to reception centers established by local officials.

PROTECTIVE ACTIONS

Relocation: The movement of people onsite out of an affected area or a potentially affected area. Movement may be to an unaffected area onsite (for staging, monitoring, and/or decontamination) or offsite (early release from work if no potential contamination exists), as appropriate.

3.7 Protective Action Guide (PAG) / Protective Action Criteria (PACs)

A trigger point for implementing onsite protective actions or issuing offsite protective action recommendations. The values are defined below.

Onsite - Nonessential Workers

- Radiological PAG
- Chemical PAG

100 mrem TEDE
ERPG-1 or equivalent value

PROTECTIVE ACTIONS

Onsite - Essential Workers

- Decision call
- See Attachment 3 for radiological exposure hazards
- See Attachment 4 for chemical exposure hazards

Offsite

- | | |
|---|--|
| <input type="checkbox"/> Radiological PAG | 1 (one) rem TEDE or 5 (five) rem thyroid |
| <input type="checkbox"/> Chemical PAG | ERPG-2 or equivalent value |

3.8 Facility Boundary

Locations typically within an area fence.

3.9 Emergency Operations Center (EOC)

Location designated for use in an emergency, staffed by emergency response organization (ERO) members.

4.0 RESPONSIBILITIES

4.1 Duty Officer (DO)

Responsible for the following until relieved by the EOC manager:

- Determining and issuing protective actions for areas outside the incident area.
- Restricting boat, rail, and air traffic, as needed.
- Issuing offsite protective action recommendations to state/local officials.
- Determining the location and timing for closing/opening site barricades.
- Determining if an alternate EOC should be activated.

4.2 Emergency Director

Responsible for the following:

PROTECTIVE ACTIONS

- Determining and issuing protective actions for areas outside the incident area.
- Directing the restriction of rail and air traffic, as needed.
- Responsible for approving offsite protective action recommendations to state/local officials after the EOC is activated.
- Determining timing for closing/opening site barricades.
- Determining if an alternate EOC should be activated.

4.3 ES&H Manager

Responsible for coordinating the formulation and issuance of offsite protective action recommendations with the emergency director after the EOC is activated.

4.4 Einsteinville Security

Responsible for implementing access control measures.

5.0 PROCEDURE

5.1 Alert

5.1.1 The DO shall:

- ☐ Verify that the area has implemented remain-in-doors, sheltering (permanent structure), or evacuation for the incident facility/area.
- ☐ Determine if an alternate EOC should be activated based on the guidance contained in Attachment 3 (radiological) or Attachment 4 (chemical).

5.1.2 The DO (or emergency director) shall:

- ☐ Using Attachment 1 (and Attachment 5, if needed) to determine protective actions for other onsite areas.
- ☐ Determine if remote workers should be cleared from the site.
- ☐ Ensure the following precautionary actions are performed for events that involve actual or potential environmental releases.

PROTECTIVE ACTIONS

- Close site perimeter barricades.
- Restrict rail traffic through Einsteinville.
- Restrict air traffic over Einsteinville by notifying the FAA.
- Advise Einsteinville Security of areas where additional roadblocks are needed.

- Continually review the need to activate an alternate EOC based on the guidance contained in Attachment 3 or Attachment 4.
- Ensure operations in areas requiring protective actions are safely shut down.

5.2 Site Area Emergency

5.2.1 The DO shall:

- Verify that the area has implemented remain-in-doors, sheltering (permanent structure), or evacuation for the incident facility/area.
- Determine if an alternate EOC should be activated based on the guidance contained in Attachment 3 (radiological) or Attachment 4 (chemical).

5.2.2 The DO (or emergency director if the EOC is activated) shall:

- Close site perimeter barricades.
- Use Attachment 1 (and Attachment 5, if needed) to determine protective actions for other onsite areas and direct the area emergency coordinators of affected areas to implement appropriate actions.
- Relocate all remote workers from the site.
- Restrict rail traffic through the site.
- Restrict air traffic over the site.
- Advise Einsteinville Security of areas where a PAG may be exceeded so that additional roadblocks, as needed, may be erected.

PROTECTIVE ACTIONS

- Verify that operations in areas requiring protective actions have been shut down.
- Continually review the need to activate an alternate EOC based on the guidance contained in Attachment 3 and Attachment 4.

5.3 General Emergency

5.3.1 The DO (or emergency director) shall:

- Implement actions listed under site area emergency.

5.3.2 The DO (or emergency director) shall:

- Determine and issue offsite protective action recommendations according to Attachment 2 and Attachment 5.

6.0 RECORDS

Logs, messages, or other documents generated by use of this procedure during a drill, exercise or emergency will be forwarded to the Emergency Management Department manager and processed for retention in accordance with the Quality Assurance manual.

7.0 REFERENCES

7.1 Quality Assurance Manual

7.2 Einsteinville Emergency Plan

8.0 ATTACHMENTS

8.1 Attachment 1 - Onsite Protective Action Guide

8.2 Attachment 2 - Offsite Protective Action Recommendations Guide

8.3 Attachment 3 - Emergency Operations Center (EOC) Evacuation Guidelines -Radiological Exposure Hazards

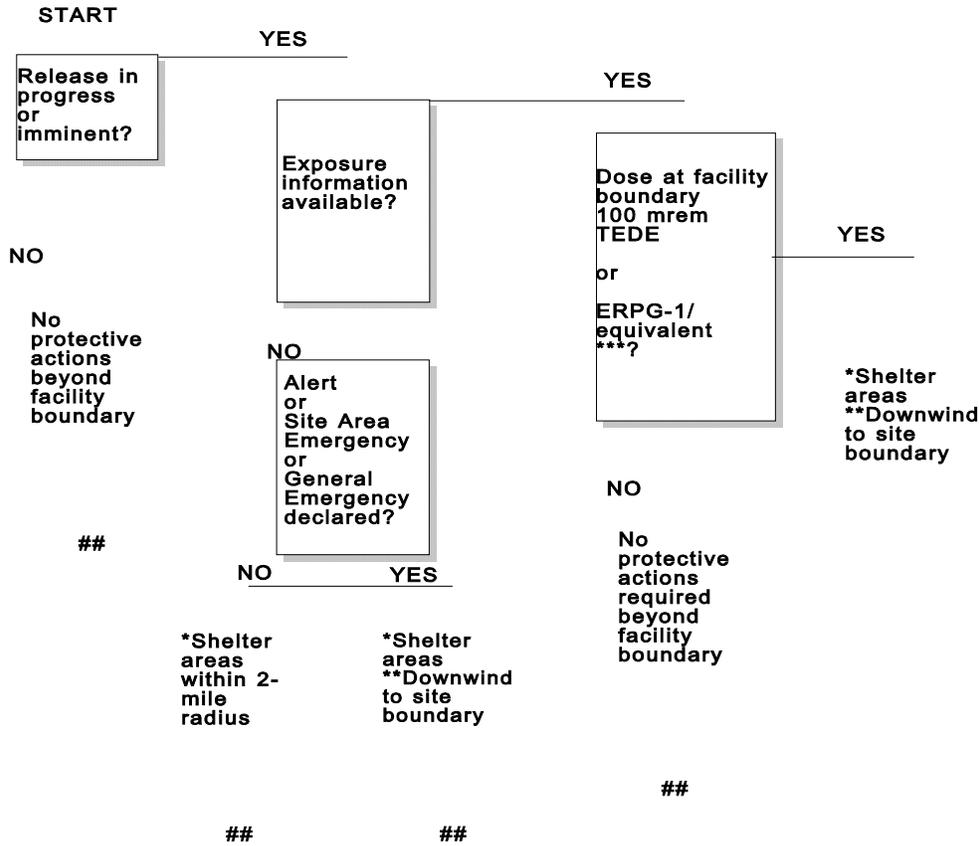
8.4 Attachment 4 - Emergency Operations Center (EOC) Evacuation Guidelines - Chemical Exposure Hazards

PROTECTIVE ACTIONS

8.5 Attachment 5 - ERPG or Equivalent Values Chart

PROTECTIVE ACTIONS

**Attachment 1
 ONSITE PROTECTIVE ACTION GUIDE**



##Continue to assess conditions

**Align 67 overlay with wind direction to determine downwind areas

***Reference Attachment 5 for ERPG values and equivalents

*** Other protective actions that should be considered:**

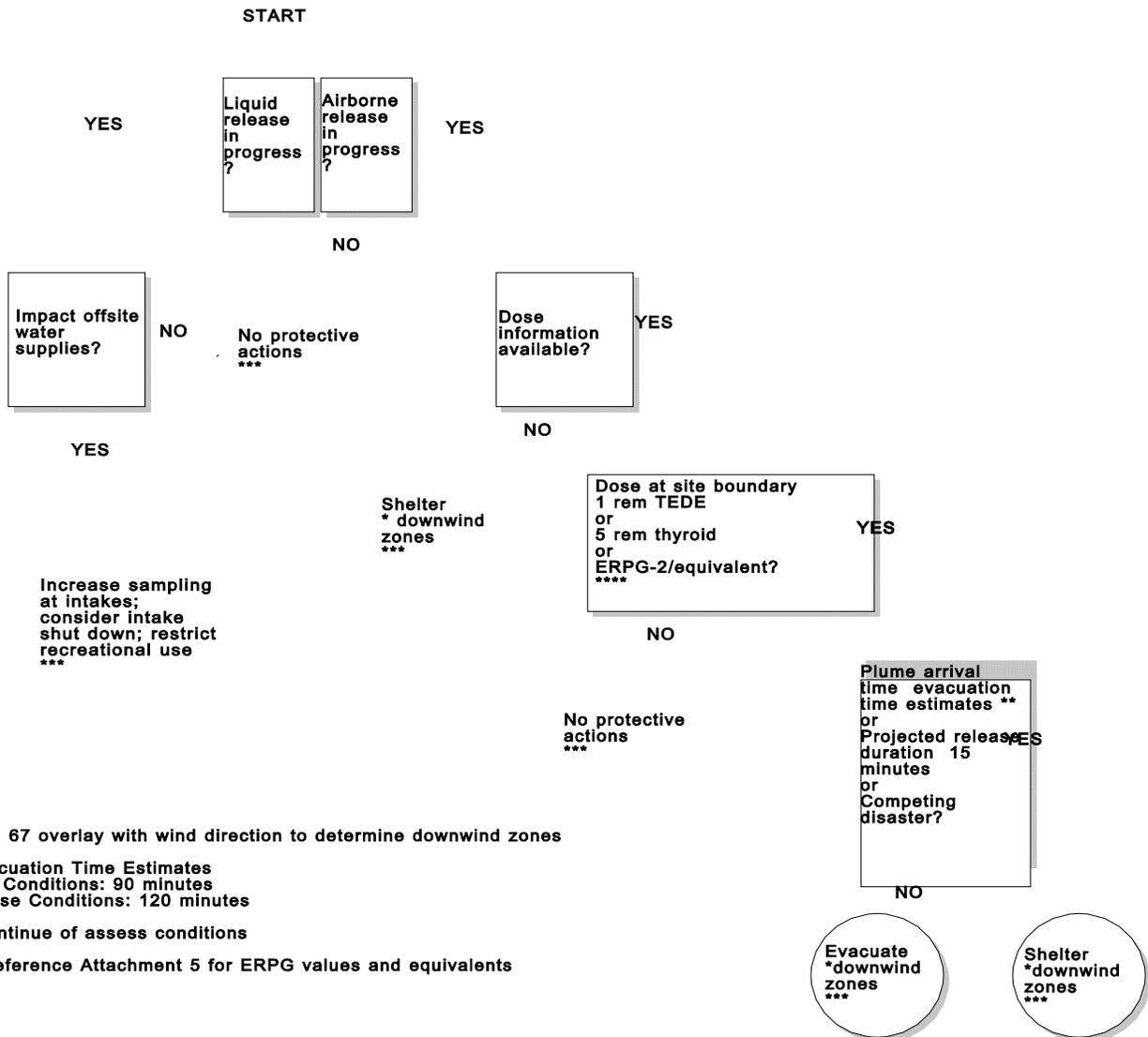
1. Remain Indoors, closing doors and windows and turning off ventilation systems that draw in outside air (if shutting down these systems do not impact health and safety) any be used for releases of toxic chemicals to avoid/reduce inhalation/skin dose (even a trailer or other non-permanent structure will provide a level off protection) in areas where the release poses imminent danger to personnel.

2. Relocation involves the evacuation of non-essential workers to rally points or assembly areas for movement to reception centers in unaffected are(s) of the site for staging and/or monitoring/decon purposes. This protective action can also include releasing non-essential workers from work early.

PROTECTIVE ACTIONS

**ATTACHMENT 2
 OFFSITE PROTECTIVE ACTION RECOMMENDATIONS GUIDE**

This chart used at GENERAL EMERGENCY



*Align 67 overlay with wind direction to determine downwind zones

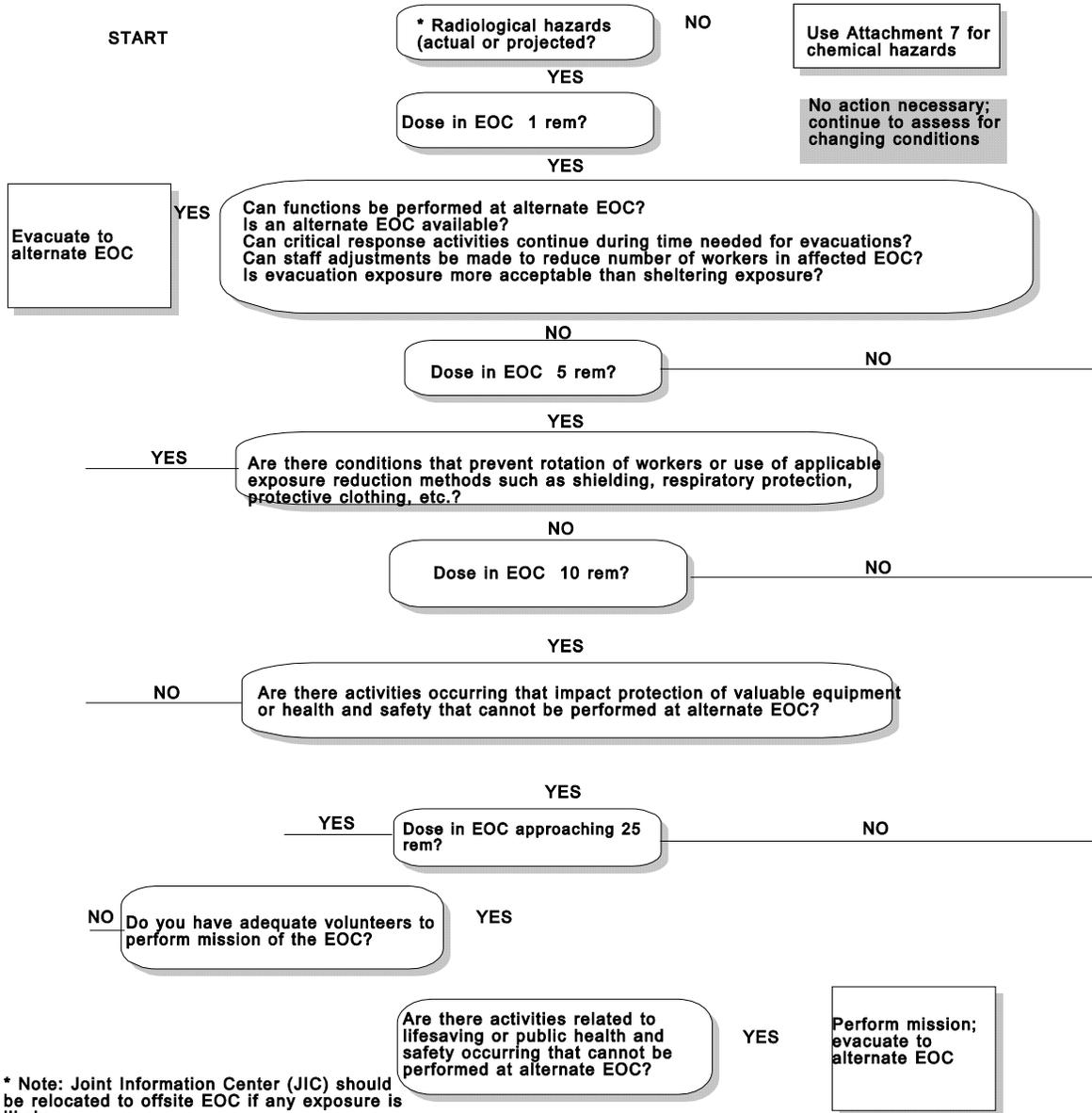
**Evacuation Time Estimates
 Good Conditions: 90 minutes
 Adverse Conditions: 120 minutes

***Continue of assess conditions

****Reference Attachment 5 for ERPG values and equivalents

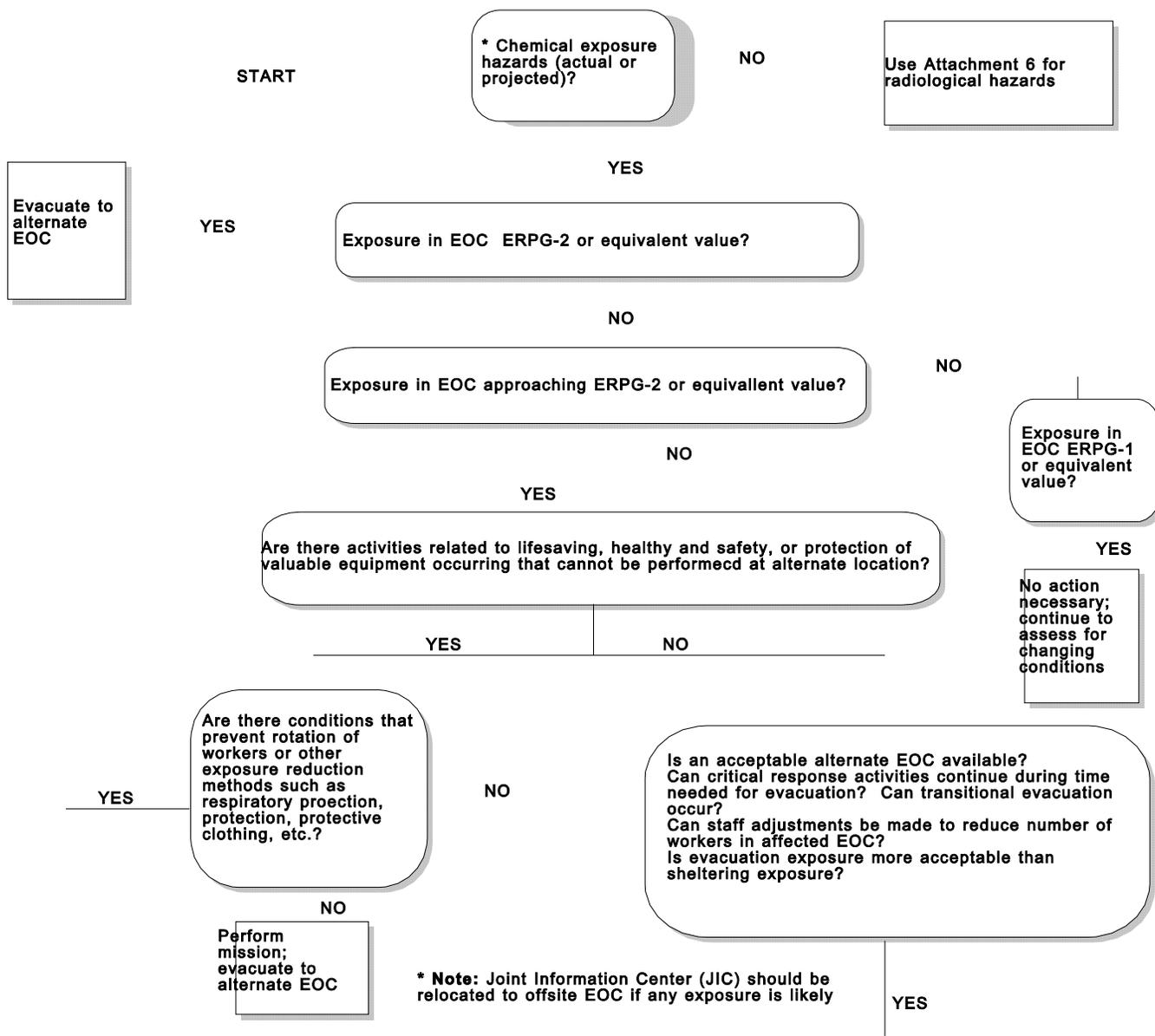
PROTECTIVE ACTIONS

**ATTACHMENT 3
 EMERGENCY OPERATIONS CENTER (EOC) EVACUATION GUIDELINES
 RADIOLOGICAL EXPOSURE HAZARDS**



PROTECTIVE ACTIONS

**ATTACHMENT 4
 EMERGENCY OPERATIONS CENTER (EOC) EVACUATION GUIDELINES
 CHEMICAL EXPOSURE HAZARDS**



PROTECTIVE ACTIONS

**ATTACHMENT 5
 EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)
 OR EQUIVALENT VALUES
 (4 PAGES)**

Chemical Name	ERPG-1	ERPG-2	ERPG-3	UNITS
Acetone	1000	8500	20000	ppm
Acrolein	0.1	.05	3	ppm
Acrylic Acid	2	50	750	ppm
Acrylonitrile (Ca)	10	50	500	ppm
Allyl Chloride	3	40	300	ppm
Aluminum Oxide	15	15	25	mg/m3
Ammonia	25	200	1000	ppm
Arsenic (inorganic) as (Ca)	0.69	1.4	--	mg/m3
Arsine (Ca)	1	1	5	ppm
Benzene (Ca)	5	50	3000	ppm
Beryllium (Ca)	0.005	25	100	mg/m3
Bromine	0.2	1	5	ppm
Bromotrifluoromethane	3000	25000	40000	ppm
1,3-Butadiene (Ca)	10	50	5000	ppm
Carbon Disulfide	1	50	500	ppm
Carbon Monoxide	400	400	750	ppm
Carbon Tetrachloride (Ca)	15	25	300	ppm
Chlorine	1	3	20	ppm
Chlorine Trifluoride	1	3	20	ppm
Chloroacetyl Chloride	0.1	1	10	ppm
Chloroform (Ca)	30	100	1000	ppm

PROTECTIVE ACTIONS

Chemical Name	ERPG-1	ERPG-2	ERPG-3	UNITS
Chloropicrin	0.2	0.2	3	ppm
Chlorosulfonic Acid	2	10	30	mg/m ³
Chlorotrifluoroethylene	20	100	300	ppm
Crotonaldehyde (Ca)	2	10	50	ppm
Dichlorodifluoromethane (FC12)	3000	10000	50000	ppm
Dichlorofluoromethane (FC21)	30	100	50000	ppm
Dichlorotetrafluoroethane (FC114)	3000	10000	50000	ppm
Diketene	1	5	50	ppm
Dimethylamine	1	100	500	ppm
Dimethylhormamide	5	10	100	ppm
1,1-Dimethylhydrazine (Ca)	1.5	5	50	ppm
Epichlorohydrine (Ca)	2	20	100	ppm
Ethanolamine	6	50	1000	ppm
Ethylene Glycol	20	40	60	ppm
Ethylene Oxide (Ca)	3	20	8000	ppm
Fluorine	2	7.5	10	ppm
Formaldehyde (Ca)	1	10	25	ppm
Hexachlorobutadiene	3	10	30	ppm
Hydrazine (Ca)	0.3	0.8	10	ppm
Hydrogen Chloride	3	20	100	ppm
Hydrogen Fluoride	5	20	50	ppm
Hydrogen Peroxide (30%)	3	25	50	ppm
Hydrogen Sulfide	10	30	100	ppm

PROTECTIVE ACTIONS

Chemical Name	ERPG-1	ERPG-2	ERPG-3	UNITS
Isobutyronitrile	10	50	200	ppm
Isopropyl Alcohol	400	400	12000	ppm
Lithium Bromide	7	15	--	mg/m3
Lithium Chromate	0.05	0.1	--	mg/m3
Lithium Hydroxide	0.075	5	55	mg/m3
Mercury Vapor (as Hg)	015	02	28	mg/m3
Methane	5000	5000	--	ppm
Methanol	200	200	400	ppm
Methyl Chloride (Ca)	100	300	10000	ppm
Methyl Fluoride (as fluoride)	7.5	12.5	--	mg/m3
Methyl Iodide (Ca)	25	50	125	ppm
Methyl Mercaptan	05	25	100	ppm
Monomethylamine	10	100	500	ppm
Monomethylhydrazine (Ca)	0.24	0.5	50	ppm
Nickel Carbonyl (as Ni) (Ca)	0.05	0.05	7	ppm
Nitric Acid	2	15	30	ppm
Nitrogen Dioxide	2	15	30	ppm
Nitrous Oxide	150	10000	20000	ppm
Ozone	0.3	1	10	ppm
Perchloroethylene	100	200	500	ppm
Perfuloroisobutylene	0.01	0.1	0.3	ppm
Phenol	10	50	200	ppm
Phosgene	0.2	0.2	1	ppm

PROTECTIVE ACTIONS

Chemical Name	ERPG-1	ERPG-2	ERPG-3	UNITS
Phospine	1	50	100	ppm
Phosphoric Acid	3	5	10000	mg/m3
Phosphorous Pentoxide	5	25	100	mg/m3
Sodium Hydroxide	2	40	100	mg/m3
Styrene (Ca)	100	200	500	ppm
Sulfur Dioxide	0.3	3	15	ppm
Sulfuric Acid	2	10	30	mg/m3
Tetrafluoroethylene	200	1000	10000	ppm
Titanium Tetrachloride	5	20	100	mg/m3
Toluene	150	300	20000	ppm
Trichloroethylene (Ca)	100	500	1000	ppm
Trichlorofluoromethane (FC1)	300	1500	10000	ppm
Trichlorotrifluroethane (FC113)	1250	1500	4500	ppm
Trimethylamine	10	100	500	ppm
Vinyl Acetate	5	75	500	ppm
Xylene	150	200	1000	ppm

TERMINATION AND RECOVERY PLANNING

1.0 PURPOSE

This procedure is designed to provide guidance for:

- Reentry for recovery-related purposes
- Recovery planning
- Termination of the emergency classification and emergency response phase
- Deactivation of the emergency response organization (ERO)
- Activation of the recovery organization
- Resumption of operations

2.0 SCOPE

This procedure is applicable during emergencies requiring activation of the Emergency Operations Center (EOC).

3.0 TERMS/DEFINITIONS

3.1 Reentry

Planned activity that is conducted prior to emergency termination to determine or verify the status of facility/area conditions for recovery purposes. Within the context of this procedure, reentry does not include missions performed during the emergency response phase for mitigation purposes.

3.2 Termination

Change from a classifiable event to no emergency classification level and an end to the emergency response phase.

3.3 Recovery

Actions taken to restore the incident facility and surrounding environs to a pre-emergency or safe condition.

TERMINATION AND RECOVERY PLANNING

4.0 RESPONSIBILITIES

4.1 Emergency Director

Responsible for the following:

- Approve recovery plan/outline.
- Provide oversight, through senior staff, of recovery plan implementation.
- Ensure that DOE reviews and approves all special recovery procedures prior to implementation.
- Ensure that DOE reviews and approves any special recovery procedures enacted for the purpose of disposing hazardous wastes generated by response or recovery activities.
- Approve termination from the emergency classification and emergency response phase for those emergencies that cause activation of the EOC.
- Review draft recovery plan/outline; implement approved recovery plan.
- Ensure that, if determined necessary by the recovery planning team, additional recovery organization members (such as legal, environmental protection, industrial hygiene, or public information representatives) are provided by the appropriate departments/divisions.

5.0 PROCEDURE

5.1 Preparation

Review Attachment 1, Typical Recovery Organization, and Attachment 2, Planning, Termination, and Recovery Flowchart (which provides an overview of the process covered by this procedure).

TERMINATION AND RECOVERY PLANNING

5.2 Data Collection

The EOC Manager shall coordinate and approve recovery-related reentry activities (see Attachment 3, Reentry Guidelines, and Attachment 4, Assessment Guidelines) into evacuated facilities/areas, as needed to accomplish the following:

- Perform hazard, casualty, or damage assessments.
- Reestablish facility/area security or preserve crime scene.
- Restore or operate equipment providing vital services.
- Perform materials control and accountability functions.

5.3 Recovery Planning

5.3.1 Recovery Planning Team Formation

5.3.1.1 The recovery planning team shall assemble to develop a draft recovery plan/outline (see Attachment 5, Typical Components of a Recovery Plan) if any one of the following occurs:

- Significant damage to vital equipment
- Significant structural damage to a facility
- Environmental release causing the relocation of site personnel beyond the incident area
- Evacuation of offsite populations

5.3.2 Recovery Plan Development, Review, and Approval

5.3.2.1 Using recovery planning worksheets as guides (see Attachment 7 for examples), the recovery planning team shall prepare a draft recovery plan/outline.

TERMINATION AND RECOVERY PLANNING

5.3.2.2 The emergency director shall:

- Approve the recovery plan/outline prior to implementation.
- Ensure the recovery plan/outline is coordinated with the following:
 - DOE headquarters
 - State and local agencies

5.4 Emergency Termination

5.4.1 The emergency director shall perform the following:

- Determine timing for termination.
- Determine participation in post-event critiques.
- Ensure information on post-event critiques and activities is included in termination announcements to facility staff.
- Approve reentry into evacuated non-incident facilities/areas (see Attachment 3, Reentry Guidelines, and Attachment 4, Assessment Guidelines).
- Coordinate activities related to resumption of normal operations at non-incident facilities/areas.

5.5 Recovery Phase

5.5.1 The recovery manager shall:

- Direct the transition from the emergency response phase to the recovery phase.
- Request additional staff, such as legal, public information, and/or environmental protection representatives, for the recovery organization, as needed or as established in the recovery plan.

TERMINATION AND RECOVERY PLANNING

- Implement the recovery plan.
- Coordinate Einsteinville interactions with vendors and contractors whose services are needed during the recovery phase.
- Review and ensure DOE-Einsteinville approves special procedures prior to implementation.
- Review news releases concerning recovery activities.
- Provide (or appoint designee to provide) periodic briefings on environmental impacts to:
 - State and local agencies
 - Federal Radiological Monitoring and Assessment Center (FRMAC), if activated.

5.5.2 The recovery organization may be deactivated when the affected facility is in compliance with the technical specifications or operational safety requirements and surrounding environs have been returned to pre-emergency or safe conditions. If the above conditions are not met within one week, DOE-Einsteinville will determine the deactivation criteria.

5.5.3 The recovery manager will coordinate deactivation of the recovery organization with:

- DOE-Einsteinville
- State and local agencies
- FRMAC, if activated

TERMINATION AND RECOVERY PLANNING

6.0 RECORDS

Logs, messages, and other documents generated by use of this procedure during a drill, exercise, or emergency will be forwarded to the Emergency Management Department manager and processed for retention in accordance with the Quality Assurance Manual.

7.0 REFERENCES

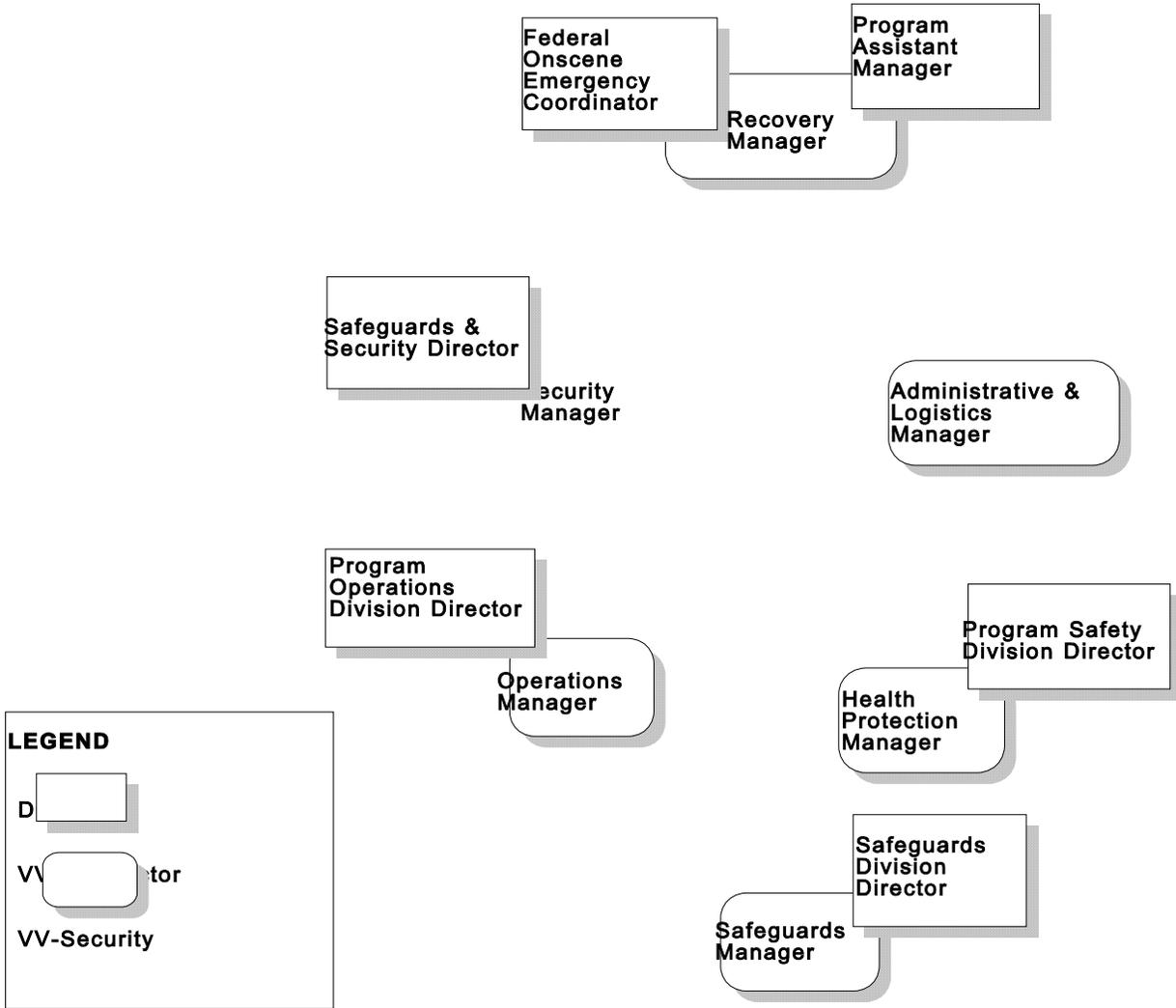
- 7.1 Quality Assurance Manual
- 7.2 Einsteinville Emergency Plan
- 7.3 Radiological Control Manual
- 7.4 Emergency Classification EPIP

8.0 ATTACHMENTS

- 8.1 Attachment 1, Typical Recovery Organization
- 8.2 Attachment 2, Planning, Termination, and Recovery Flowchart
- 8.3 Attachment 3, Reentry Guidelines
- 8.4 Attachment 4, Assessment Guidelines
- 8.5 Attachment 5, Typical Components of a Recovery Plan
- 8.6 Attachment 6, Termination Criteria
- 8.7 Attachment 7, Typical Recovery Planning Worksheet

TERMINATION AND RECOVERY PLANNING

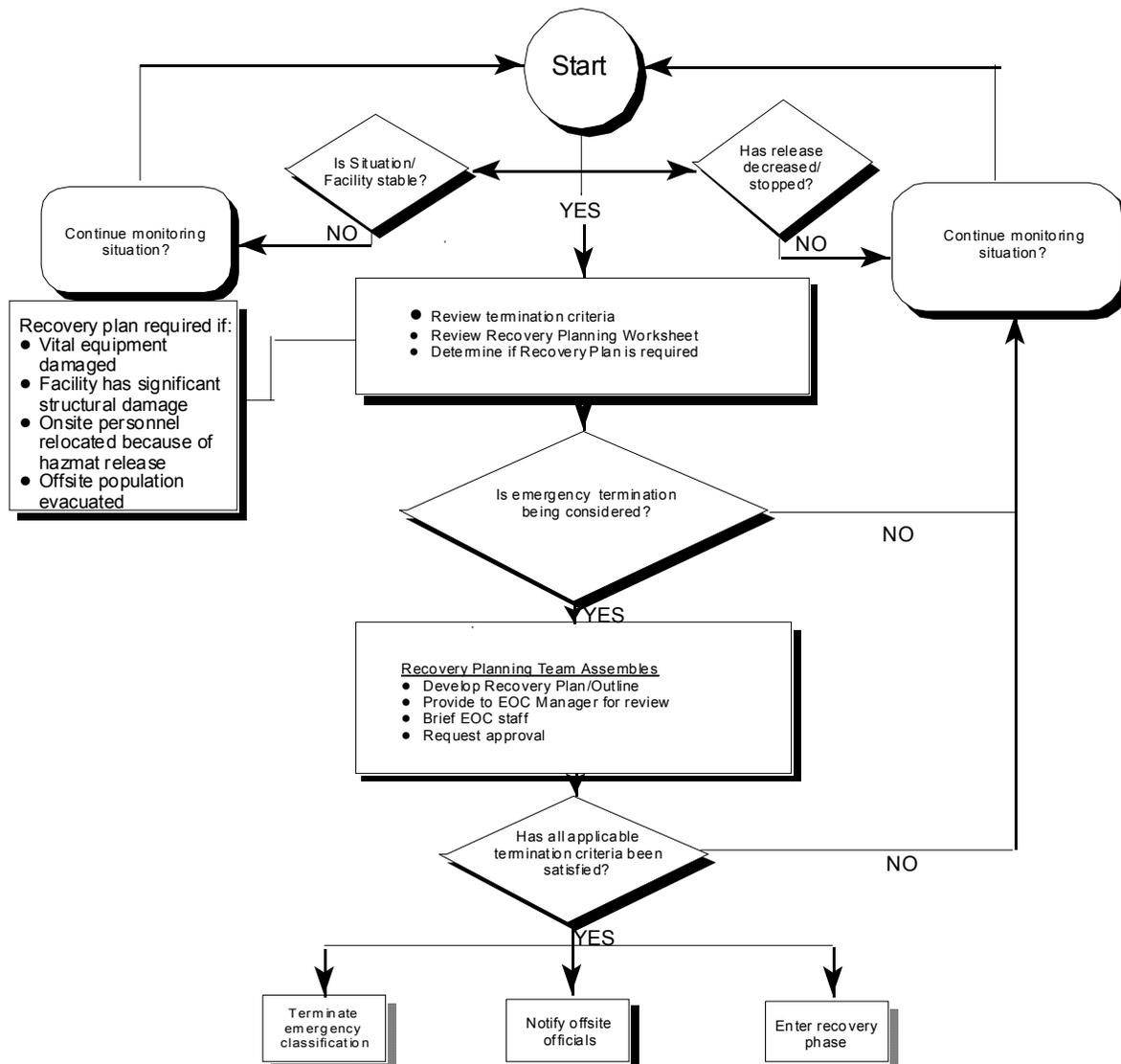
**ATTACHMENT 1
TYPICAL RECOVERY ORGANIZATION**



TERMINATION AND RECOVERY PLANNING

RECOVERY ORGANIZATION

ATTACHMENT 2
 PLANNING, TERMINATION, AND RECOVERY FLOWCHART



TERMINATION AND RECOVERY PLANNING

ATTACHMENT 3 REENTRY GUIDELINES

RESTRICTIONS

No person shall enter the following unsafe areas without required planning and approval in coordination with the incident commander:

- Unknown radiation fields
- Potential exposure to hazardous materials
- Potential fire flare-ups or explosions
- Potential structural collapse
- Areas of hostile activity prior to confirmation by the field commander that the areas are safe

PLANNING REQUIREMENTS

The following items shall be determined prior to reentry into unsafe areas:

- Protective clothing required (chemical suit, coveralls, etc.)
- Respiratory protection requirements (self-contained breathing apparatus, pressure hood, etc.)
- Tools/equipment needed
- Estimated exposure (limited to normal occupation guidelines)
- Means of communications
- Criteria for aborting reentry
- Estimated duration of reentry
- Areas of hostile activity have been cleared by the field commander for reentry

EXCEPTIONS

The following emergency actions are exempt from the above restrictions and planning requirements:

- Reentry by firefighters
- Response to alarms by health protection personnel
- Rescue of injured or unconscious persons

NOTE: An exception to these exemptions is controls placed in areas of hostile activity.

TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 4
 ASSESSMENT GUIDELINES**

STRUCTURAL COMPONENTS	STATUS/IMPACT
<input type="checkbox"/> Exterior walls	
<input type="checkbox"/> Interior walls/floors	
<input type="checkbox"/> Ceilings/roofs	
<input type="checkbox"/> Tanks	
UTILITY/VITAL SERVICES	
<input type="checkbox"/> Electricity	
<input type="checkbox"/> Water	
<input type="checkbox"/> Gas/oil/steam	
<input type="checkbox"/> Telephone	
<input type="checkbox"/> Sewage	
CRITICAL SYSTEMS	
<input type="checkbox"/> Can be occupied as is	
<input type="checkbox"/> Can be occupied after minor recovery effort	
<input type="checkbox"/> Can be occupied after major recovery effort	
<input type="checkbox"/> Cannot be occupied (recommend demolition)	

TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 5
TYPICAL COMPONENTS OF A RECOVERY PLAN**

1. Define operational and environmental impact.
2. Establish entry requirements for all evacuated facilities/areas.
3. Define tasks to be accomplished and overall strategy.
4. Identify the recovery organization and the facility to be used.
5. Identify environmental monitoring and restoration requirements.
6. Identify near-term and long-term safeguards and security requirements.
7. Identify near-term and long-term logistic requirements.
8. Identify near-term and long-term health protection requirements.
9. Identify near-term and long-term operational and maintenance requirements.
10. Identify required interfaces with offsite authorities.
11. Establish schedule, incorporating key milestones.

TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 6
 TERMINATION CRITERIA**

CRITERIA	MET	NOT MET
1. Radiation/hazardous material exposure levels at the scene are stable or decreasing.		
2. Incident facility/scene is in a stable condition and can be maintained in that condition indefinitely.		
3. Fire or other emergency conditions no longer constitute a hazard to personnel or safety-related systems or equipment.		
4. Releases of radioactive or hazardous materials to the environment have ceased or have been controlled within permissible regulatory limits listed below: <ul style="list-style-type: none"> <li data-bbox="272 1024 1101 1100">☐ The total estimated additional release of hazardous material is less than the allowable limits on reportable quantities. <li data-bbox="272 1121 1052 1197">☐ The total estimated additional site boundary close is less than the allowable limits for normal operations. 		
5. Incident scene can be preserved until cognizant investigative authority concurs that recovery or normal operations may be resumed.		
6. Crime scene can be preserved and sufficient security personnel are available to re-man security posts.		
7. Discussions with Einsteinville management, applicable members of the ERO, and appropriate offsite authorities do not identify a valid reason to continue in an emergency classification.		
8. Security declaration is terminated.		
9. A recovery plan is developed and approved.		

TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 7
 TYPICAL RECOVERY PLANNING WORKSHEET**

Section I - Incident Facility Impact/Recovery Planning

***Operations and Facility Manager**

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Structural damage, systems or equipment damage, process schedule impact, restoration tasks	
B. Facility/area reentry (if evacuated)/occupancy requirements	
C. System damage, restoration tasks	
D. Needed resources (personnel, equipment, etc.)	
E. Service systems (utilities), restoration tasks	
F. Logistics for coordination and scheduling	
G. Personnel staffing, shifts, rotation, health physics considerations, food, water, sanitation	
H. Communications capabilities, needs	
I- Incident area environmental impacts, restoration tasks	
J. Accident scene preservation	
K. Staff augment for recovery organization	

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TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 7 (continued)
TYPICAL RECOVERY PLANNING WORKSHEET**

Section II - Onsite Impact/Recovery

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Onsite (non-incident) facility/area impacts, restoration tasks, resumption of normal operations	
B. Reentry requirements for evacuated areas/facilities	
C. Personnel requirements, actions, notification, human relations needs	
D. Available onsite support, resources, communications	
E. Staff augmentation needed for recovery organization	
F. Restoration of vital service (telephone, power, steam, oil, water, etc.)	
G. Air and rail traffic restriction status	
H. SNM/safeguards considerations	

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TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 7 (continued)
 TYPICAL RECOVERY PLANNING WORKSHEET**

Section II - Onsite Impact/Recovery (continued)

ES&H Manager

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Incident facility/area: personnel, environmental monitoring/decon; access control, reentry	
B. Affected area(s): personnel, environmental monitoring/decon; access control, reentry	
C. Offsite HP issues	
D. Environmental exposure: total dose determination, tracking	
E. Personnel exposure: total dose determination, tracking	

Security Manager

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Site perimeter, onsite, incident area/facility, affected area(s) security/access control	
B. Offsite support status (provided to or requested from offsite)	
C. Crime scene preservation	

TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 7 (continued)
TYPICAL RECOVERY PLANNING WORKSHEET**

Section III - Offsite Impact/Recovery

Logistics Manager

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Overall strategy and logistics	
B. Comprehensive recovery organization member selection, chart, location	
C. Staff augmentation for recovery organization	
D. Comprehensive milestone schedule	
E. Investigation required/type (A, B, C, FBI, etc.)	

Public Information Officer

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Review, approval of recovery-related news releases	
B. Offsite Einsteinville personnel action, notifications, assistance	
C. Public information, community outreach program	
D. Media monitoring, methods to correct errors/rumors	
E. Need for continued JIC operations	

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TERMINATION AND RECOVERY PLANNING

**ATTACHMENT 7 (continued)
TYPICAL RECOVERY PLANNING WORKSHEET**

Section III - Offsite Impact/Recovery

EOC Manager

PLANNING CONSIDERATIONS	PROPOSALS/COMMENTS
A. Regulatory notifications, required reports, required times	
B. DOE HQ, federal, state, and local notifications/communications	
C. Offsite public impacts, restoration tasks, federal/state support	
D. Periodic progress review, schedule	
E. DOE members for recovery organization, responsibilities	

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