

**INCIDENT ANNEX 9A
RADIOLOGICAL EMERGENCY RESPONSE PLAN - FIXED FACILITY**

PRIMARY AGENCY:

Department of Public Safety, Division of Emergency Management and Homeland Security

SUPPORT AGENCIES:

Vermont Department of Health
Department of Public Safety; Vermont State Police, Fire Safety (Hazardous Materials Response Team)

I. INTRODUCTION

- A. This plan identifies actions and delineates responsibilities to prevent or minimize public health effects from an incident at a fixed nuclear facility that might lead to exposure to radioactive materials and ingestion of contaminated foods.
- B. This plan calls for the State of Vermont to act as part of a coordinated response with onsite, local, neighboring state, and federal responders. It provides for timely warning of an emergency, organized preventive or protective actions for the general public, and the use of state resources to assist in response and recovery efforts.
- C. Until all of the spent fuel at Vermont Yankee is removed, the state will plan to respond as necessary during an incident at that facility.
- D. Until all of the spent fuel at Yankee Rowe is removed, the state will plan for a limited response as necessary during an incident at that facility.

II. SITUATION AND ASSUMPTIONS

A. Situation

- 1. Any incident involving a nuclear facility will alarm some members of the public, regardless of actual threat, and may require some state response.
- 2. Vermont Yankee is a nuclear power station in Vernon, Vermont that ceased operation in December of 2014. There is spent fuel in the fuel pool which is expected to remain there until 2020 and on site in dry storage after that.
- 3. Yankee Rowe was a nuclear power station in Rowe, Massachusetts that ceased operation in February of 1992. There is spent fuel in dry storage onsite.

4. Radiation

- (a) Radiation is potentially harmful to living tissue, but it is everywhere - Americans on average receive a dose of 620 millirem every year. Radioactive material is considered contamination when it is in a place that it should not be. People near contamination can be exposed to its radiation but people who have been exposed but not contaminated cannot expose others.
- (b) Federal Protective Action Guides (PAGs) call for sheltering or evacuation of an area if people there are expected to receive a Total Effective Dose Equivalent (TEDE) of 1 rem (1,000 millirem) or more over the entire duration of the nuclear incident. Dose between 5 and 10 rem usually results in no acute health effects, but it does slightly increase the risk of getting cancer in the future. Radiation dose above 70 rem delivered externally to the whole body in a short period of time (typically a few minutes) will result in observable health effects to the individual exposed. The larger the amount of dose received in a short period of time the lower the survival rate.

5. Emergency Classifications

- (a) The Vermont Yankee Emergency Director declares an emergency when an Emergency Action Level (EAL) is met. An EAL is a pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the plant in a given emergency classification level. The two emergency classifications are UNUSUAL EVENT and ALERT. The classification of an incident may change as conditions change. The (EALs) are provided in the sites' Permanently Defueled Emergency Plans (PDEPs).
- (b) UNUSUAL EVENT indicates that events are in process or have occurred that indicate a potential degradation in the level of plant safety. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs. Off-site officials are notified of an Unusual Event to ensure that the first step in any response later found to be necessary has been carried out, bring the operating staff to a state of readiness, and provide systematic handling of information and decision making.
- (c) ALERT indicates that events are in process or have occurred that involve an actual or potential substantial degradation in the level of plant safety. Releases are expected to be limited to small fractions of the U.S. Environmental Protection Agency (EPA) Protective Action Guides (PAGs) exposure levels. The purpose of an Alert declaration is to ensure that on-site emergency personnel are readily available to respond if the situation

becomes more serious or to perform confirmatory radiation monitoring if required, ensure that off-site response centers are staffed, and provide off-site authorities with current status information.

- (d) A facility cancels a declared emergency classification when the underlying conditions have been mitigated and the site is considered safe. The act of canceling that condition is called termination. Emergency classifications do not de-escalate. Once declared, all of the underlying conditions must be corrected before the condition is canceled.

6. Meteorology

- (a) The release of radioactive material from a nuclear facility may create a broad range of effects. Airborne releases produce what is referred to as a plume. The most general description of plume behavior is that it will travel downwind at slightly less than wind velocity, becoming wider as it moves outward from its source, while its radioactive intensity declines proportionately.
- (b) The time for a plume to travel any given distance can be estimated by dividing the distance by the wind speed. For example, with a wind speed of 4 mph, a plume might arrive at a point 8 miles from the plant in 2 hours. Such an estimate does not account for mitigating factors such as weather and topography.
- (c) A plume may assume many shapes, spreading unevenly, vertically or horizontally, or even standing still for a time. The primary factors which affect plume behavior are wind speed and direction. Cloud formations and precipitation also contribute to the character of a plume to a lesser degree. Ambient temperature, air stability, and wind speed affect plume rise. Plume stability can be determined through meteorology.
- (d) While there are models and computer programs for projecting plume behavior, physically measuring radiation and contamination levels is the most accurate and authoritative method.

B. Assumptions

- 1. The State of Vermont has the responsibility and authority to initiate protective actions when a radiological incident results in radioactive contamination of food, water or milk. The Governor would order protective actions with the advice of the Commissioner of the Department of Health, the Secretary of the Agency of Agriculture, Food and Markets, and the Secretary of the Agency of Natural Resources. Necessary protective measures and public concern may require modification of the collection, production, processing, and marketing cycle of potentially contaminated products within the affected areas.

2. The decision to recommend protective actions is based on known releases to the environment, radiological measurements, laboratory analyses, and integrated dose projections. With the exception of precautionary sheltering of milk producing animals, actions should not be taken without consideration of the health, economic, and social impacts.
3. Federal Support
 - (a) Both technical and non-technical assistance is available from the federal government at the request of the state. The assistance available is outlined in the Nuclear/Radiological Incident Annex to the National Response Framework (NRF) and the Federal Radiological Monitoring and Assessment Plan (FRMAP). Federal non-technical assistance includes interagency coordination, communications, and logistics. Technical assistance includes radiological monitoring, incident assessment, protective action decision making, and radiological exposure control.
 - (b) The State Emergency Operations Center (SEOC) Manager or designee will determine the needed federal non-technical assistance and recommend to the Governor that support be requested. The assistance will be requested by the EOC Manager through FEMA Region I in Boston. The State Support Function (SSF) 8 or designee can request federal technical assistance directly from the Department of Energy's (DOE) Brookhaven National Laboratory in New York. The EOC Manager will request a Federal Radiological Monitoring and Assessment Center (FRMAC). All requested federal assistance will be coordinated through the EOC Manager.
 - (c) Upon activation of the Nuclear/Radiological Incident Annex to the NRF, a federal operations center will be established to serve as the focal point for federal response team interactions with the state. The DOE will establish the FRMAC. From the FRMAC, DOE coordinates the monitoring and assessment efforts of all federal agencies. The FRMAC is usually established near the site of the incident. The size and complexity of the FRMAC will depend on the incident. The FRMAC can provide the most extensive monitoring and assessment capabilities available in the U.S. It will take from 24 to 72 hours for a fully operational FRMAC to be established. DOE has delegated the responsibility for establishing the FRMAC to the DOE Nevada Operations Office. EPA assumes long-term environmental leadership of the FRMAC including planning for the long-term environmental monitoring program. EPA provides monitoring, laboratories, and support for the FRMAC.
4. The legal liability for damages resulting from an incident at any nuclear facility is established at the time of the issuance of an operating license. The Nuclear

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Regulatory Commission requires each licensee to have and maintain financial protection in the form of liability insurance. If an incident results in damages greater than the amount covered by their private insurance carrier, additional liability will be assumed by the government of the United States of America under the Price-Anderson Act, Public Law 85-256. The Price-Anderson Act is an amendment to the Atomic Energy Act of 1954 and provides for indemnification up to seven billion dollars, including reasonable costs for the investigation and settlement of claims.

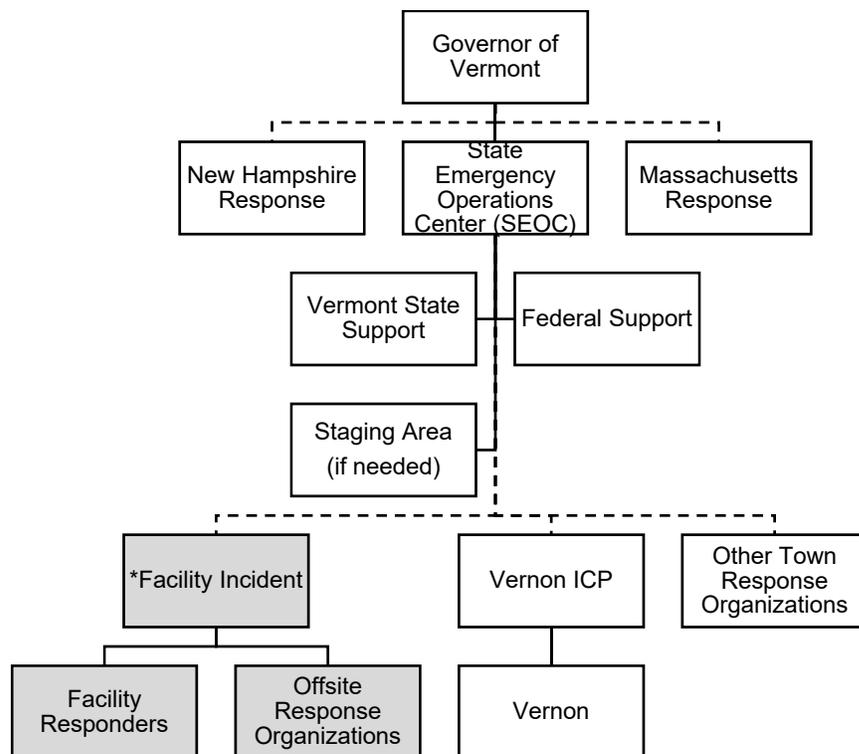
III. MISSION

The State of Vermont will coordinate operations, information, and resources in support of local operations during a radiological incident at Vermont Yankee or Yankee Rowe to prevent or minimize radiation exposure to the general public.

IV. CONCEPT OF OPERATIONS

A. General.

1. The SEOC coordinates the state response to a Vermont Yankee or Yankee Rowe incident in support of onsite and local incident commands and organizations as shown below.



* The facility incident organization may be site-internal for a technical issue or accident, commanded from the VY control room or YR admin building, or may fall under a Law

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Enforcement (LE) unified command structure for a Hostile Action Based (HAB) incident, with an Incident Command Post (ICP) appropriate to the situation.

2. Radiological emergency operations generally flow through the following phases, which may overlap.
 - (a) Onsite Response (covered by the facility PDEP)
 - (b) Offsite Activations
 - (c) Incident Assessment and Radiological Exposure Control
 - (d) Preventative and Precautionary Measures
 - (e) Recovery
3. The SEOC serves as the coordination center for offsite response efforts. It also serves as the central point for the receipt and analysis of field monitoring data used in incident assessment.
4. If necessary, the SEOC will establish a staging area for emergency response personnel performing tasks such as radiological monitoring and traffic and access control. Radiological monitoring and decontamination of emergency workers may be performed at the staging area. The Vermont State Guard can provide personnel to staff the staging area.
5. The Vermont Yankee Control Room / Administration Building is used to coordinate the activities of site emergency response personnel, evaluate off site incident conditions, and maintain coordination and communications with off-site response authorities. Direct links are established between Vermont Yankee and the Vermont, Massachusetts, and New Hampshire SEOCs for up to date emergency status reports. Yankee Rowe's administration building performs similar tasks for Massachusetts and Vermont.
6. The Town of Vernon will establish an Incident Command Post any time there is an Alert or Hostile Action Based Unusual Event at Vermont Yankee to coordinate offsite response actions with town and school activities and preventative and protective measures.
7. Other affected towns may establish Emergency Operations Centers or Incident Command Posts to coordinate the activities of their responders and implement preventative and protective measure.

B. Offsite Activations

1. If an incident occurs at Vermont Yankee or Yankee Rowe, each organization is notified in accordance with established state procedures. (See para VI B.)

2. Vermont Yankee or Yankee Rowe onsite responders will call for local offsite response support in accordance with standard emergency procedures and local agreements. The facility will alert the SEOC as their emergency plans require.
3. The SEOC will use VT-Alert to send notifications and may open at a partial activation for an Unusual Event. It will upgrade to a partial or full activation for an Alert.
4. In a HAB event at Vermont Yankee, local and state law enforcement will establish a joint Law Enforcement Incident Command Post (LEICP) with Vermont Yankee Security personnel near the site. Specific tactical response actions and locations are Law Enforcement Sensitive (LES). Unless a HAB incident is large (e.g. an organized attack on the plant), the LEICP will operate largely autonomously.
5. Towns and other organizations will activate as the situation dictates. Vernon will activate an ICP for any Alert at Vermont Yankee.

C. Incident Assessment and Radiological Exposure Control

1. Incident Assessment.

- (a) Incident assessment includes determining the extent of actual or projected off-site radiological consequences. Assessments are based upon the collection and analysis of data originating from facility monitors, Vermont Department of Health sampling stations (located around Vermont Yankee), reported weather conditions, and other relevant and appropriate resources.
- (b) The facility has initial responsibility for incident assessment. The site Emergency Director is responsible for recognizing that abnormal events have occurred, classifying the incident in accordance with the Emergency Action Levels, and notifying designated off site authorities. Throughout any incident, the facility will provide pertinent information to state officials to assist in assessing the consequences of the incident.
- (c) The SEOC coordinates offsite incident assessment. SSF 8, assisted by the Radiological Health Advisor, has overall responsibility for incident assessment and directs all state radiological monitoring, environmental sampling, and technical assessment activities to determine the impact of any radiological release on the health and safety of the public. SSF 12 monitors plant conditions and coordinates with any facility incident assessment personnel. Other state agencies provide information and data as necessary in support of incident assessment activities.

- (d) There are two types of field teams that can collect data to assist in determining dose projections. A Radiological Plume Tracking Team performs off-site radiological monitoring during any initial plume phase of an incident. Once any plume has settled or dissipated, a Radiological Sampling Team performs off-site environmental sampling.
- (1) If needed, the state will create a radiological plume tracking team or teams from the Vermont Hazardous Materials Response Team (VHMRT). The team(s) will determine sampling locations based on the situation and transmit results of the field surveys to the Radiological Health Advisor at the SEOC for incident assessment and protective action decision making.
- (2) If needed, the state will create a radiological sampling team with personnel from the Departments of Health (VDH) and Labor (VDOL) and Agencies of Natural Resources (ANR) and Agriculture, Food, and Markets (VAAFAM). The Radiological Health Advisor will determine sampling strategies and provide tasking for all environmental sampling and analysis activities. The Department of Health and Agencies of Natural Resources and Agriculture, Food and Markets will provide information regarding the identification and location of farms, food processors, and water sources that may be impacted.
- (e) The Vermont Department of Health Laboratory will serve as the central point for receipt of most samples unless and until a FRMAC is established. Additional laboratory support is available through activation of the NRF from the Food and Drug Administration Laboratory in Winchester, MA, and Brookhaven National Laboratory in New York. The Radiological Health Advisor will coordinate the sending of samples to federal laboratories, as needed, and keep the Vermont Department of Health Laboratory informed.
- (f) SSF 8, assisted by the Radiological Health Advisor, will direct dose assessment activities. SSF 8 will use information from the facility, weather conditions, field monitoring team reports, and other relevant data to perform continual off-site dose projections as warranted for all phases of an incident. The SEOC will use dose projections and relevant EPA Protective Action Guides (PAGs) to evaluate potential off-site consequences and determine appropriate protective actions.

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Total Effective Dose Equivalent (TEDE): <1 rem	Recommended Actions No planned protective action. State may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels
Committed Dose Equivalent (CDE) to the Thyroid: <5 rem	Comments No specific minimum level is established for initiation of sheltering. Sheltering should be considered at projected doses below PAGs (1 rem TEDE); however, implementing sheltering at very low levels may not be reasonable (e.g., <0.1 rem TEDE).
Total Effective Dose Equivalent (TEDE): ≥ 1 rem	Recommended Actions Conduct evacuation (or, some situations, sheltering) of populations in the predetermined area. Monitor environmental radiation levels and adjust area for evacuation or sheltering based on these levels. Control access.
Committed Dose Equivalent (CDE) to the Thyroid: ≥ 5 rem	Comments Sheltering would be an alternative if evacuation is not immediately possible. Sheltering also may be the preferred protective action when it will provide protection equal to or greater than evacuation due to the nature of release composition from plant or other off-site-specific conditions (e.g., presence of severe weather, competing disaster and local physical factors which impede evacuation).

SOURCE: EPA 400-R-92-001, *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1992, Section 2.3*

- (g) Assistance in performing incident assessment activities is available through the New England Compact on Radiological Health Protection or through FEMA as requested by the state through the Nuclear/Radiological Annex to the National Response Framework and the Federal Radiological Monitoring and Assessment Plan (FRMAP).

2. Radiological Exposure Control

- (a) SSF 8 is responsible for all decisions regarding the radiological health of state and local emergency workers as well as the general public. SSF 8 establishes guidelines and procedures to limit exposure and to decontaminate personnel and equipment. If necessary, SSF 8 is also responsible for authorizing exposures to emergency workers in excess of specified limits.

(b) Personnel Exposure Control

- (1) During a radiological incident, Incident Commanders will identify dosimetry requirements and forward them to the SEOC, where the Radiological Health Advisor will coordinate procurement and organize issue of dosimetry packets.

- (2) Issuing organizations should maintain a log of the dosimetry issued. Before leaving on a mission, local Radiological Officers would provide each emergency worker with instructions on dosimetry use, when to report exposure levels, and the allowed exposure limits. Each emergency worker would also receive an individual "Radiation Exposure Record" card. After receiving a dosimeter, the emergency worker must record the initial readings and the exposure received from each mission on the card. Upon return from a mission, the local Radiological Officer would record the worker's exposure on the log. After the emergency has been terminated, the records would be forwarded to the Department of Health for permanent record maintenance.
- (3) The State of Vermont's policy is to limit exposure to not exceed 5 REM to the whole body in a calendar year. In the event it becomes necessary to exceed this limit, the Commissioner, VDH or designee (acting as SSF 8) may authorize the following Emergency Worker Exposure Limits on a case-by-case basis.

Dose limit ^(a)	Activity	Condition
5 rem	all	
10 rem	protecting valuable property	lower dose not practicable
25 rem	life-saving or protection of large populations	lower dose not practicable
>25 rem	life-saving or protection of large populations	only on a voluntary basis to persons fully aware of the risks involved
<small>(a) Limits correspond to EPA limits set forth in EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (see Chapters 3 and 4). Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to three times the listed value and doses to any other organ (including skin and body extremities) to ten times the listed value. These limits apply to all doses from an incident, except those received in un restricted areas as members of the public during the intermediate phase of the incident</small>		

- (4) Emergency workers, the Radiological Plume Tracking Team(s), and the Radiological Sampling Team(s) may be assigned mission turn-back limits to control exposure. The tracking and sampling teams have a mission turn-back limit of 1R (1,000 millirem) unless otherwise specified by the Radiological Health Advisor.

(c) Personnel Monitoring

- (1) Emergency workers, equipment, vehicles, and supplies used in emergency response, as well as evacuees and their possessions and vehicles may become contaminated if there has been a release of radioactive material. Monitoring will be performed to determine the presence of contamination and the need for subsequent actions such

as decontamination. Monitoring is performed in accordance with established procedures.

- (2) State and local emergency workers and vehicles will be monitored at a staging area or other locations as needed. The field monitoring teams have the capability to monitor themselves. An emergency worker Radiological Monitoring and Decontamination (RM&D) Unit may set up a station to monitor and decontaminate emergency workers. If there is a need to monitor the general public for contamination, the state will develop a plan and coordinate to do so.

- (d) Unless the Radiological Health Advisor deems otherwise based on the situation, decontamination measures are required when radiological monitoring indicates a level of contamination of 100 disintegrations per minute (dpm) or greater above background. Survey instruments may report this as 100 counts per minute, or cpm. State and local emergency workers, vehicles, and equipment will be decontaminated at or near a staging area or other locations as appropriate. Individuals who are contaminated and injured will be referred to a designated hospital for treatment. VDH will coordinate disposal of any contaminated waste.

D. Precautionary and Preventative Measures

1. Protective Action Decision Making and Implementation

- (a) The following is a list of potential response actions. Some, none, or all of these may be appropriate. Other than standard emergency response procedures at the beginning of an incident, Incident Commanders and the SEOC Manager will make decisions about which action(s) to implement depending on the situation.

- (b) The SEOC Manager, with the advice of SSF 8 and SSF 12, determines the need for protective actions. He or she will provide any recommended protective actions to the Governor for approval as required. The State of Vermont will coordinate with the Commonwealth of Massachusetts and State of New Hampshire regarding the protective actions and to establish times for activation of the Public Notification System; VT-Alert and Emergency Alert System (EAS).

- (c) The SEOC will notify local towns of recommended protective actions and the time established for activation of the Public Notification System. The SEOC will then notify the public at the established times.

- (d) The SEOC Manager is responsible for coordinating the implementation of protective actions. Affected towns will implement the directed protective

actions in accordance with their plans and procedures and with state support as requested and available.

2. Sheltering (in Place)

- (a) Sheltering refers to the use of readily available nearby structures for protection against exposure to an airborne plume or other danger. The determination to shelter is based on an evaluation of projected doses and estimated plume arrival times, plus factors such as release duration and hazardous weather conditions. Sheltering involves remaining inside, closing all doors and windows, turning off ventilation systems that draw in outside air and sealing, to the extent possible, all other access to outdoor air. Sheltering can be implemented rapidly with no inherent risks such as road travel. It is the preferred protective action to evacuation when it provides equal or greater protection. Sheltering may be an alternative if evacuation is not immediately possible.
- (b) Sheltering nearby populations is usually appropriate during Hostile Action Based (HAB) incidents, regardless of whether there has been a release. Unless the situation and IC dictate otherwise, the SEOC initial default reaction to a HAB Alert at Vermont Yankee is to immediately recommend the Town of Vernon shelter in place. Having the public take shelter gives them cover from any hostile actions and keeps them out of the way of law enforcement responders. It also helps prepare them for any potential radiological release from the incident if it escalates. This default Protective Action Recommendation applies only at the Alert classification when a Security Emergency Action Level is declared. SEOC and LEICP leadership will coordinate as initial scene developments occur and will adjust this recommendation as necessary.
- (c) Sheltering-in-place may be the best action for people in health care facilities during any incident. Evacuation of these facilities requires a large number of resources and a very long time and in many cases moving a patient/resident represents a considerably larger risk than any potential exposure.
- (d) Travel conditions that would present an extreme hazard may prompt offsite officials to initially shelter rather than evacuate the nearby population until conditions improve. Sheltering may also be the appropriate initial protective action for transit dependent persons, who should be advised to remain indoors until transportation resources arrive, if possible. In addition, sheltering may be the appropriate protective action for controlled releases of radioactive material if there is assurance that the release is short term (puff release) and the area near Vermont Yankee cannot be evacuated before the plume arrives.

- (e) The composition and thickness of the wall materials, size of the structure, and number of stories overhead all contribute to reduced exposure to radiation. Therefore, shelter should be sought in a central location within the structure that affords the most protection.

3. Transfer of Schoolchildren

- (a) Children are more vulnerable to radiation than adults. Therefore where children are in groups such as in public schools, private schools, and childcare facilities, it may be appropriate to transfer them out of an incident area before the incident has time to escalate even when such escalation is unlikely.
- (b) As a precaution, school buses may be mobilized and pre-staged at respective schools.
- (c) The Windham Southeast Supervisory Union (WSESU) assigns each school in Brattleboro, Dummerston, Guilford, Halifax, Marlboro, and Vernon a host school where students would go in case of emergency. The SEOC may direct the transfer of school children to include public schools, private schools, and child care centers to their host schools, or other previously identified locations, as appropriate. The SEOC will publish VT-Alert messages and news advisories to inform parents that the precautionary action is being implemented.

4. The Radiological Health Advisor may recommend the precautionary protective action of sheltering and placing milk producing animals in an area on stored feed and protected water supplies. This precautionary protective action may be extended as necessary based on the situation.

5. Traffic and Access Control

- (a) Traffic Control Points (TCPs) facilitate the flow of outbound traffic, discourage normal inbound traffic, and prioritize inbound response vehicle traffic during an evacuation or HAB incident. Access Control Points (ACPs) use roadblocks, road barriers, or other means to control unauthorized public entry into designated areas.
- (b) Traffic and access control may be required throughout southern Vermont as a result of an incident at Vermont Yankee. Planned traffic and access control points are listed in the following tables. Additional TCPs/ACPs will be established as conditions warrant. Local TCPs and ACPs, staffed by local response personnel, assist in channeling the evacuation traffic.
- (c) SSF 13 coordinates the staffing of the state borders with the Commonwealth of Massachusetts and State of New Hampshire.

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(d) State Traffic and Access Control Points

TCP/ACP	Town/State	Highway Location
1	Brattleboro, VT	I-91, Exit 1 southbound
2	Brattleboro, VT	I-91, Exit 2 southbound
3	Brattleboro, VT	I-91, Exit 3 southbound
4	Brattleboro, VT	I-91, Exit 4 southbound
5	Brattleboro, VT	I-91, Exit 5 southbound
6	Rockingham, VT	I-91, Exit 6
7*	Guilford, VT	I-91 Northbound lane at Massachusetts state line
8**	Vernon, VT	VT Route 142 (Fort Bridgman Road) at Massachusetts state line
9	Guilford, VT	US Route 5 at Massachusetts state line
10	Town line between Dummerston and Newfane, VT	VT Route 30 at junction with Depot Rd
11	Putney, VT	US Route 5 at Carol Brown Way
12	Townshend, VT	Junction of Route 30 and Route 35
13	Westminster, VT	US Route 5 at Westminster Road
14	Westminster, VT	US Route 5 at VT Route 123
15	Wilmington, VT	VT Route 9 at junction with VT Route 100 south
16	Wilmington, VT	VT Route 9 west of Wilmington Village
* Established by the Massachusetts State Police.		
** Established by the Bernardston, Massachusetts Police Department.		

(e) Local Traffic and Access Control Points.

Vernon	TCP/ACP	Highway/Road Location
V1	TCP/ACP	Intersection of VT Rt 142 (Ft Bridgman Rd) and TH #6 (Broad Brook Rd)
V2	TCP/ACP	Intersection of TH #1 (Tyler Hill Rd) and TH #7 (Franklin Rd)
V3	TCP/ACP	Intersection of TH #23 (Depot Rd) and VT Rt 142 (Ft Bridgman Rd)
V4	TCP/ACP	Intersection of Huckle Hill Rd and Pond Rd
V5	TCP/ACP	Intersection of Scott Rd and Pond Rd
Guilford	TCP/ACP	Highway/Road Location

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G1	TCP	Intersection of U.S. Rt 5 and TH #1 (Guilford Center Rd) (traffic flow north)
G2	TCP	Intersection of U.S. Rt 5 and Vernon TH #7 (Franklin Rd) (traffic flow north)
G3	TCP	Intersection of U.S. Rt 5 and Vernon TH #1 (Tyler Hill Rd)
G4	TCP	Intersection of TH #1 (Guilford Center Rd) and TH #4 (Weatherhead Hollow Rd) (traffic flow north, east and west)
G5	TCP	Intersection of TH #1 (Guilford Center Rd) and TH #14 (Bonnyvale Rd) (traffic flow north, east, and west)
G6	TCP	Intersection of TH #4 (Weatherhead Hollow Rd) and TH #6 (Sweets Pond Rd) (traffic flow south and west)
Brattleboro	TCP/ACP	Highway/Road Location
B1	TCP/ACP	Intersection of VT Rt 142 (Vernon St), US Rt 5 (Main St, Canal St [Plaza]) and VT Rt 119 (Bridge St) to re-route traffic north
B2	TCP/ACP	Intersection of VT Rt 142 (Vernon St) and Cotton Mill Hill to re-route traffic north. (Directional signage at So Main and top of Cotton Mill Hill)
B3	TCP/ACP	Intersection of Fairground Rd and US Rt 5 (Canal St) to re-route traffic to I-91 north
B4	TCP/ACP	Intersection of Fairview St and US Rt 5 (Canal St) to re-route traffic to I-91 north
B5	TCP/ACP	I-91, Exit 1 and US Rt 5 (Canal St) to re-route traffic north on I-91
B6	TCP/ACP	Intersection of VT Rt 9 (Western Ave) and Orchard St to re-route traffic north or west
B7	TCP/ACP	Intersection of VT Rt 9 (Western Ave) and Bonnyvale Rd to re-route traffic north or west
B8	TCP/ACP	Intersection of VT Rt 9 (Western Ave) and Greenleaf St to re-route traffic north or west
B9	TCP/ACP	Intersection of US Rt 5 (Putney Rd) and VT Rt 30 (Park Place)
B10	TCP/ACP	I-91, Exit 2 on VT Rt 9 (Western Ave) to re- route traffic onto I-91 north
B11	TCP/ACP	Intersections of US Rt 5 (Putney Rd), VT Rt 9, and I-91, Exit 3
B12	TCP/ACP	Loader Standby - Western Avenue

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B13	TCP/ACP	Loader Standby - Plaza
B14	TCP/ACP	Loader Standby - Route 5, 9 & I-91, Exit 3 - Roundabout
B15	TCP/ACP	Sign placement - Fairview and Canal Street
B16	TCP/ACP	Sign placement - Western Ave and Orchard Street
B17	TCP/ACP	Sign placement - Western Ave and Bonnyvale Rd.
B18	TCP/ACP	Sign placement - Western Ave and Greenleaf St.
B19	TCP/ACP	Sign placement - Route 5 and Route 30 (Putney Rd and Linden St)
B20	TCP/ACP	Sign placement - Park Place and Linden Street
B21	TCP/ACP	Sign placement - Linden Street and Cedar Street
Dummerston	TCP/ACP	Highway/Road Location
D1	TCP	Intersection of School House Rd and East West Rd
D2	TCP	Intersection of Middle Rd and East West Rd
D3	TCP	Intersection of VT Rt 30 (Covered Bridge) and East West Rd
D4	TCP	Intersection of US Rt 5 and School House Rd to direct traffic north
Halifax	TCP/ACP	Highway/Road Location
H1	ACP	Intersection of Green River Rd and Guilford town line
H2	ACP	Intersection of Jacksonville Stage Rd and Guilford town line

- (f) Access control is both a state and local responsibility. It is implemented in conjunction with sheltering and evacuation. Access control restricts individuals from entering an area where they could be exposed to radiation. Access control clears traffic from roads in designated areas and provides security in evacuated areas. Once an area is evacuated, everyone, with the exception of emergency workers and authorized individuals, will be prohibited from entering the area until off-site radiological assessments confirm the levels of radioactivity.

6. Evacuation

- (a) The primary objective of evacuation is to avoid exposure to airborne radioactive material by moving individuals away from the path of a plume. The effectiveness of evacuation depends on various factors such as the time required to initiate, implement, and complete the actions, and the

nature of the incident. Advanced planning is essential to identify potential problems that may occur in an evacuation.

- (b) Evacuation will be implemented on a town-by-town basis. Upon the order of the Governor to evacuate, instructions will be provided to the public over EAS. The primary means of evacuation will be by private vehicle. Local emergency response organizations will provide assistance with supplementary transportation. Brattleboro, Dummerston, Guilford, Halifax, Marlboro, and Vernon have routes and provisions for evacuating residents, including special needs individuals, institutions, and transportation dependent individuals. Evacuation of school children is addressed in school-specific plans.

7. Law Enforcement Response to a Hostile Action Based Incident

- (a) Unless a HAB incident is large (e.g. an organized attack on the plant), the IC will operate largely autonomously. The SEOC will support the IC and provide appropriate situational awareness information to local town ICPs. Towns will staff their ICPs to a level consistent with the threat. If the security incident escalates to a higher emergency classification the ICP would continue to operate and keep the SEOC informed.
- (b) If a HAB incident has resulted or is likely to result in a radiological release the Incident Commander and the SEOC Manager will closely coordinate offsite response actions. The ICP and SEOC will stay in constant communications with the SSF 13 representative acting as the primary liaison between the two. If possible, the SEOC will also provide a liaison at the ICP. The IC will maintain complete tactical control with other decisions, such as Protective Action Recommendation planning, being made jointly between the ICP and SEOC. The ICP will have a representative in any SEOC decision-maker meetings (typically by telephone). The SEOC will keep local town ICPs informed of decisions and appraised of the situation, as appropriate, through secure means.

8. As recommended by VDH, the Agency of Natural Resources (ANR) will implement any controls on the use of water from contaminated public water supplies, surface water, and private wells from an area that may have been radiologically contaminated.

9. As recommended by VDH, the Vermont Agency of Agriculture, Food and Markets (VAAFMM) will implement any necessary controls on milk or other food from an area that may have been radiologically contaminated.

E. Recovery

If there has been radioactive contamination offsite, the State of Vermont will make decisions on the relocation, re-entry, and return of the general public to protect against long-term exposure to deposited radioactive material.

1. Relocation

(a) Relocation refers to a protective action where individuals are asked to vacate a contaminated area to avoid chronic exposure from deposited radioactive material.

(b) Temporary Restricted Zone

(1) The State of Vermont may identify a Temporary Restricted Zone (TRZ) based on initial assessments, projections, hostile actions, and traffic control requirements. The state will update the boundary of the TRZ as data becomes available or as warranted.

(2) Individuals within the Temporary Restricted Zone may be asked to vacate the area until further notice.

(3) The state may develop an environmental sampling strategy in support of relocation activities to determine contamination levels in soil and water. When the factors causing the incident are resolved and the state can evaluate sample analytical results or other data deemed appropriate, the state will lift the TRZ or replace it with a Restricted Zone as appropriate.

(c) Restricted Zone

(1) A Restricted Zone boundary defines an area where it is estimated that an individual's projected dose may exceed a specified combined projected internal and external dose.

(2) The EPA provides guides for the establishment of a Restricted Zone boundary. Those guides are 2 rem TEDE (or 100 rem DE skin beta) in the first year following the incident (also referred to as the EPA first year Relocation PAG) and 0.5 rem TEDE in the second or any subsequent year post incident; or 5 rem TEDE over 50 years post incident.

(3) The process of determining the actual physical boundaries of the Restricted Zone is a collaborative one. The SEOC Manager and staff will facilitate and coordinate this process. Some of the entities involved and their respective roles are as follows.

- i. The Vermont Department of Health (VDH), in cooperation with ANR and VAAFM, determines where the appropriate guidance value(s) is (are) exceeded.
- ii. The Vermont State Police and the affected town(s) recommend actual physical boundaries and control points at the edge of or outside the area that exceeds appropriate guidance value(s) that are conducive to control. The actual boundaries are established using easy to distinguish and control land marks.
- iii. The Agency of Transportation (AOT) and the Vermont National Guard (VTNG) assist by providing resources.
- iv. The Public Information Officer (PIO) ensures that a comprehensive press release is issued before Restricted Zone boundaries are established.
- v. There will be consultation with the Commonwealth of Massachusetts and State of New Hampshire at various levels.
- vi. The Governor or designee approves the Restricted Zone boundaries.
- vii. Other local, state and federal resources are consulted as needed.

2. Re-Entry

- (a) After a Restricted Zone has been established, people may need to re-enter the area for a variety of reasons including recovery activities, retrieval of property, security patrols, operation of vital services, and care and feeding of farm and other animals.
- (b) The SEOC will establish guidance for re-entry into the Restricted Zone under controlled conditions in accordance with dose limitations proscribed by the VDH.
- (c) The town or towns in the zone will issue appropriate dosimetry and passes to individuals who re-enter the Restricted Zone.

3. Return

- (a) Before allowing residents to return, the state will convert actual measured levels of contamination into projected doses and compare them with the appropriate guidance values from the Radiological Health Advisor. The results of these comparisons will allow the state to determine the following.

- (1) Some evacuees may be allowed to return and re-occupy their homes and businesses on an unrestricted basis if monitoring data confirms the locations are not significantly contaminated.
 - (2) Those who were evacuated from areas found to be only slightly contaminated may be able to return after monitoring and data analyses determine whether the projected dose will exceed the appropriate guidance value.
 - (3) Those who were evacuated from areas found to be significantly contaminated will not be able to return for occupancy until the area is decontaminated.
- (b) Recovery actions may reduce radiation levels to permit unrestricted, long-term use of property.
- (c) SSF 8 and the Radiological Health Advisor will make long term decisions on recovery of areas restricted from occupancy due to contamination in conjunction with qualified representatives from various state and federal agencies.

V. ROLES AND RESPONSIBILITIES

A. Vermont Yankee

1. Vermont Yankee has established an Emergency Response Organization (ERO). This organization includes on shift personnel, corporate personnel, local services support, and private organization support.
2. In the initial phase of an incident, the on shift organization will be responsible for incident assessment, classification, notification, and completion of primary emergency actions. Subsequently, additional resources will be activated with the capability of continuous (24 hours per day) operations for a protracted period.
3. Vermont Yankee has the responsibility for initiating the actions required to limit the consequences of an incident, evaluating conditions and determining the magnitude of an incident, minimizing radiation exposure or injury to the public and site personnel, and taking immediate steps to limit or reduce the loss to property. The PDEP describes the specific emergency responsibilities of the onsite ERO.

B. Local Incident Command

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1. In response to an emergency, each affected town will mobilize and use available resources to mitigate the off-site consequences in accordance with their own plans.
2. The state will coordinate with local organizations, relay information, and provide additional resources to support the local response.

C. State Emergency Operations Center (SEOC)

1. General

- (a) Perform all normal emergency coordination, information, and command and control functions in accordance with established procedures and guidelines with the addition of the specific radiological emergency tasks listed herein.
- (b) Direct all state operational activities under the delegated authority of the Governor.
- (c) Determine and recommend protective actions to the Governor in conjunction with the appropriate agency representatives.
- (d) Issue protective action recommendations to local officials upon the order of the Governor.
- (e) Coordinate with the Commonwealth of Massachusetts and the State of New Hampshire on response activities, including Public Notification System activation and protective action recommendations and implementation.
- (f) Ensure notification of the public through the Public Notification System.
- (g) Coordinate incident assessment and tracking/sampling activities.
- (h) Plan and manage relocation, re-entry, and return activities.

2. Radiological Health Advisor (from VDH)

- (a) Serve as the essential technical advisor to the SEOC for radiological emergencies.
- (b) Direct and coordinate the activities of any plume tracking, radiological sampling, or other monitoring teams.
- (c) Establish and implement radiation exposure control measures for emergency workers and the general public.

- (d) Provide guidance to monitoring and decontamination personnel at decontamination stations.
- (e) Coordinate estimates, including graphics products, of plume direction, deposition footprint, and off-site dose projections as necessary.

3. SSF 1, Transportation

- (a) Identify appropriate evacuation routes based on road and traffic conditions in coordination with the Police Services Coordinator.
- (b) Maintain and/or clear evacuation routes with problems which could affect evacuation (e.g., emergency snow, ice, or impediment removal).
- (c) Assist in providing traffic and access control devices (barricades, signs, etc.).
- (d) Provide transportation assistance to towns for transportation dependent individuals.

4. SSF 6, Mass Care, Emergency Assistance, Housing and Human Services

- (a) Coordinate with the American Red Cross (ARC) for congregate (mass) care shelter facilities and assign state personnel to support them as requested by the American Red Cross.
- (b) Consult with the American Red Cross regarding additional relief services and state organizations that might be needed for the provision of meals, bedding, and basic sanitation articles for evacuees at congregate (mass) care facilities.

5. SSF 8, Health and Medical Services

- (a) Provide for laboratory analysis of air, water, soil, vegetation, milk, and other environmental samples for radionuclide content at the State of Vermont Department of Health or other relevant laboratory as necessary and appropriate.
- (b) Provide trained personnel to serve on the Radiological Sampling Teams.
- (c) Coordinate health related decisions including ingestion pathway decisions for Vermont with incident assessment personnel from state agencies, other affected states, federal agencies, and Vermont Yankee. This coordination will ensure consistency of action among the states and will ensure effective utilization of federal and interstate assistance.

- (d) Formulate protective action recommendations for approval by the Governor in conjunction with the SEOC Manager, Radiological Health Advisor, and SSF 12.

6. SSF 11, Agriculture and Natural Resources

- (a) Advise the SEOC concerning actual or projected consequences which may affect the environment, water supplies, and air and water quality.
- (b) Provide information, guidance, and recommendations on the impact of protective actions.
- (c) Implement control of harvesting, sale of crops, and if necessary, the condemnation of contaminated foods, such as meat, meat products, poultry, and poultry products.
- (d) Coordinate response activities with the U.S. Department of Agriculture and the University of Vermont Extension.

7. SSF 12, Energy

- (a) Coordinate with site personnel regarding current and projected conditions onsite as well as the response effort.
- (b) Evaluate the nature, extent, and potential danger to the public resulting from the event in conjunction with the Radiological Health Advisor.
- (c) Participate in the protective action decision making process with the SEOC Manager and SSF 8.
- (d) Provide contact and liaison with the Nuclear Regulatory Commission.

8. SSF 13, Law Enforcement

- (a) Identify, coordinate, and control state Access Control Points and Traffic Control Points (ACPs/TCPs), as well as coordinate assistance to local police organizations in the operation of local ACPs/TCPs.
- (b) Provide law enforcement support to suppress looting and other criminal activities following an evacuation.

9. Special Teams

- (a) If needed, the SEOC will create a radiological plume tracking team based on the Vermont Hazardous Materials Response Team to monitor any plume and deposition of radiological contamination.
- (b) If needed, the SEOC will create a sampling team with personnel from the VDH, VAAF, the Vermont Department of Labor (VDOL), and ANR to collect samples for assessing the impact of any release.

D. Governor's Office

1. The Governor is responsible for ensuring that all available state governmental resources are available and utilized in response to a radiological emergency, declaring a State of Emergency if conditions warrant, authorizing protective actions for the public, and coordination with other states and the Federal Government at an executive level.
2. As the first interim successor to the Governor, the Lieutenant Governor is responsible for assuming the duties of the Governor when the Governor is not available or as directed by the Governor.
3. The Commissioner of the Department of Public Safety may serve as an advisor to the Governor during emergency response operations.

E. Federal

Emergency aid and disaster assistance to state and local governments is available from the federal government through the Nuclear/Radiological Incident Annex of the National Response Framework and the Federal Radiological Monitoring and Assessment Plan (FRMAP). The incident annex provides for both federal technical and non-technical support at the request of the state.

F. Special Organizations

1. The ARC provides food and shelter for persons who have evacuated. ARC will mobilize and coordinate its local volunteers to provide these services at shelters. All services provided by ARC will be in accordance with the Statement of Understanding between the State of Vermont and ARC.
2. Radio Amateur Civilian Emergency Services (RACES) is a network of volunteer radio operators using privately owned amateur radio equipment. These volunteer radio operators are available to provide backup or supplementary radio communications where needed.
3. Vermont may mobilize Community Emergency Response Teams (CERTs) from around the state to support response and recovery operations.

4. Vermont 2-1-1, an organization of the United Ways of Vermont, provides information for the general public about housing and human services.

VI. COMMUNICATIONS

A. Communication Systems

1. Commercial telephone and the internet (DisasterLAN and email) are the primary communication systems for state response personnel.
2. InForm is a notification system used by Vermont Yankee that consists of a network of computers, a server, and associated software. InForm rapidly distributes emergency notification messages and records message delivery and acknowledgement times. InForm Destination Client Computers are located at the Vermont, Massachusetts, and New Hampshire State Warning Points (SWPs), Alternate State Warning Points (ASWPs), and SEOCs.
3. The Nuclear Alert System (NAS) is a party selectable, limited access system used as the back-up for initial notification to Vermont, New Hampshire and Massachusetts through the State Warning Points. This dedicated communication system also links essential emergency response facilities, including the three SEOCs and the Vermont Yankee Control Room and is used for interstate coordination and administrative exchange of information. In Vermont, there are additional NAS telephones at the SWP and ASWP.
4. Emergency Management Radio (45.52 MHZ) provides the SEOC with radio communication with emergency management bases located in the Vermont Yankee Control Room, Brattleboro, Dummerston, Guilford, Halifax, Marlboro, and Vernon.
5. RACES volunteer radio operators provide a statewide backup communication network. RACES will provide equipment and operators at various locations. Primary assignments include any affected towns and other field locations as requested. Additional RACES sites include all Vermont hospitals, Vermont Department of Health locations, and the Vermont National Guard Joint Operations Center (JOC).
6. The Federal National Message System (FNAMS) is a dial up dedicated message system capable of sending and receiving messages between all state emergency management agencies and FEMA.
7. The Federal National Radio System (FNARS) provides high frequency voice and data communication with FEMA.

8. The National Warning System (NAWAS) is a dedicated nationwide early warning system. It is used to broadcast information to each of the 50 states, U.S. territories and possessions, and selected military bases. The NAWAS uses land lines as well as microwave channels.

B. Notification

1. Notification to State and Local Emergency Response Personnel

(a) Initial Reporting.

- (1) The Vermont Yankee Control Room sends initial notifications of an incident to the SWPs through the InForm system. The NAS or commercial telephone are backup reporting means.
- (2) The Yankee Rowe Independent Spent Fuel Storage Installation (ISFSI) sends incident notifications to the SWPs by commercial telephone with a satellite phone as backup.
- (3) At the beginning of a Hostile Action Based incident, reporting may come through law enforcement channels.

(b) The SWP or ASWP will send a VT-Alert notification message to key response personnel by phone, text, email, and pagers.

(c) State and local agencies will use internal procedures to notify any additional response personnel as the situation requires.

(d) The SWP, ASWP, and SEOC will make individual calls to alert organizations and individuals that are not responding. If necessary, the SWP will dispatch uniformed law enforcement officers to the community to notify local officials.

2. Notification of the Public

(a) The Vermont SEOC will use VT-Alert to pass on public messages using phone, text, email, pager, and E911 notifications as well as the EAS to provide emergency guidance and instructions through local EAS radio stations.

(b) Towns will notify special facilities including schools according to their local plans.

(c) Towns will dispatch local personnel to parks and recreation areas to notify transient populations.

C. Response Communications

1. The SEOC's primary communication with affected towns is by radio, with phone, DisasterLAN, and email as alternate means. The SEOC's primary means of communication with the Commonwealth of Massachusetts and State of New Hampshire is the NAS phone with commercial telephones as an alternate.
2. Responders and local incident command structures use their normal radio, telephone, and face-to-face procedures and systems.
3. The EAS, including VT-Alert, is the primary means of providing information to the public. Activation of the Public Notification System requires the coordination of Vermont, Massachusetts, and New Hampshire due to the overlap of the radio stations. The PIO is responsible for issuing the request for EAS activation and message broadcast. This is done after the decision to implement protective actions is authorized by the Governor, or designee, including the declaration of a State of Emergency. EAS messages will contain clear, understandable, and accurate information and instructions. Information in the EAS messages will include, but is not limited to, a description of the current emergency classification level, conditions at Vermont Yankee, sheltering instructions, location of congregate care facilities, reference to previously distributed informational material, as well as instructions for transients, special populations, transportation dependent individuals, and parents of school children.
4. The state, federal representatives, and the utility will conduct joint news media briefings at the SEOC or a local Joint Information Center (JIC).
5. A toll-free inquiry telephone number will be made available in order to respond to public concerns as well as provide information and emergency instructions. State Public Inquiry (rumor control) operations will be conducted at the United Way "211" center or the SEOC. The state-wide toll free Public Inquiry number will be provided in news releases issued during the emergency.

D. System Testing

The various systems used for notification and communication must be tested on a regular basis to identify problem areas and minimize the possibility of malfunctions during an emergency.

System Components	Frequency of Test
Nuclear Alert System, WESCOM SS-4A	Monthly as scheduled by Vermont Yankee

System Components	Frequency of Test
Notification System	Statewide monthly test
RERP Radio Local Interface	Monthly, initiated by towns
NAWAS	Daily at 12:00
FNARS	Thursday mornings at 09:10
RACES	Quarterly in conjunction with statewide hospital communications drill
Commercial telephone and other standard communications systems	Daily usage

VII. ADMINISTRATION, FINANCE, AND LOGISTICS

A. Maintenance of Monitoring Equipment and Supplies

1. The Division of Emergency Management and Homeland Security or the Vermont Department of Health, as appropriate, is responsible for the maintenance and calibration of equipment.
2. Direct-reading dosimeters will be tested initially for accuracy. DRDs will be inspected for electrical leakage annually and recharged or replaced if necessary.
3. Survey instruments will be calibrated annually. Dosimetry and meters will be operationally checked quarterly. DLRs will be collected for readout and replaced annually as appropriate.

VIII. PLAN MAINTENANCE AND PREPAREDNESS

A. Emergency Response Planning

1. The Commissioner of Public Safety has designated DEMHS as the state planning authority for the development of the Vermont RERP. Other state agencies conduct their own internal planning and personnel designations. DEMHS is responsible for ensuring that all plans and procedures are compatible and interoperable with one another.
2. Town planning authority and personnel designations are local responsibilities. DEMHS will provide assistance, as resources allow, to any community which could be affected by a radiological emergency to support development of local plans that supplement the state plan.

- B. DEMHS coordinates training of state and local emergency response organizations and the public. Radiological emergency response training is available to state and local response personnel as well as communities and schools around Vermont Yankee. The purpose of training is to ensure personnel are knowledgeable of their assigned roles and responsibilities during an incident. DEMHS will provide tailored training as requested.
- C. DEMHS will schedule Vermont Yankee exercises as part of its long term training plans.

IX. AUTHORITIES AND REFERENCES

A. Authorities

1. Radiological Emergency Response Planning is authorized under Title 20, Vermont Statutes Annotated, Section 38.
2. The Commissioner of Public Safety has designated DEMHS as the State Planning Authority for the development of the Vermont Radiological Emergency Response Plan.
3. Local (town) planning authority and personnel designations are local responsibilities.

B. References

1. EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, May 1992.
2. FDA, 1998 Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies.
3. FRMAC Operations Manual, (DOE/NV/25946-980), May 2010.
4. FRMAC Health and Safety Manual (DOE/NV/25946 – 1447), March 2012.
5. FRMAC Monitoring Manual, Volume 1, (DOE/NV/25946 – 1554), July 2012.
6. FRMAC Monitoring Manual, Volume 2, Radiation Monitoring and Sampling, (DOE/NV/25946 – 1558), July 2012.
7. FRMAC Laboratory Analysis Manual, (SAND2013-10382P), December 2013.
8. FRMAC Assessment Manual, Volume 1, Overview and Methods, (SAND2015-2884R), April 2015.

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9. FRMAC Assessment Manual, Volume 2 - Pre-assessed Default Scenarios, (SAND 2010-2575P), February 2010.
10. Vermont Statutes Annotated (VSA), Title 18, Chapter 31, New England Compact on Radiological Health Protection.
11. VSA Title 18, Chapter 32, Ionizing and Non-ionizing Radiation Control.
12. VSA Title 20, Internal Security and Public Safety.
13. Letter of Agreement, Yankee Atomic Electric Company and Vermont and Massachusetts (Yankee Rowe).
14. Letter of Agreement, Vermont Yankee Nuclear Power Station and the States of Vermont and New Hampshire and the Commonwealth of Massachusetts.
15. Letter of Agreement, WTSA - AM/FM and State of Vermont.
16. Permanently Defueled Emergency Plan (PDEP), Entergy Vermont Yankee, Revision 0, April 19, 2016.
17. EPAP-EAL-10106, Emergency Plan Classification and Action Level Scheme Emergency Preparedness Administrative Procedure, Vermont Yankee Nuclear Power Station, Revision 0, April 19, 2016.

APPENDICES

- A. Procedures
- B. Radiological Emergency Common Reference

APPENDIX A - PROCEDURES

This appendix contains the SEOC procedures for responding to an incident at Vermont Yankee.

Tabs

- 1 - Unusual Event
- 2 - Alert
- 3 - Escalation Beyond Alert
- 4 - Recovery

Tab 1 (Unusual Event) to Appendix A

Response Activities

Notify key personnel including local EMDs.

Actions for Consideration

If escalation seems possible, partially activate the SEOC.

If the circumstances are of public interest, issue public information about the ongoing situation

Potential Contingency Actions (Planning Priorities)

If there is a continuing Hostile Action Based incident, direct shelter-in-place for the Town of Vernon.

Direct a precautionary transfer or early closing of Vernon Elementary School (local decision).

Assemble school buses at affected schools and licensed childcare facilities for transfer to host schools (priority to Vernon).

Activate a staging area for buses, vans, and ambulances in the event of a precautionary transfer or evacuation.

Prepare for the Governor's declaration of a State of Emergency and airing a special news advisory.

Tab 2 (Alert) to Appendix A

Response Activities

- Activate facilities including Local ICPs and/ or EOCs, VYEC, the SEOC, and the 211 Call Center.
- Issue public information about the ongoing situation.
- Coordinate any external support required.
- Identify dosimetry requirements for emergency workers.

Actions for Consideration

- If the situation is a major Hostile Action Based incident, immediately recommend that the Town of Vernon shelter-in-place.
- Direct a precautionary transfer or early closing of Vernon Elementary School (local decision).
- Assemble school buses at affected schools and licensed childcare facilities for transfer to host schools (priority to Vernon).
- Activate a staging area for buses, vans, and ambulances in the event of a precautionary transfer or evacuation.
- Prepare for the Governor's declaration of a State of Emergency and airing a special news advisory.

Potential Contingency Actions (Planning Priorities)

- Support EAS message(s).
- Perform early traffic and access control planning in the event of an evacuation.
- Plan for a precautionary transfer of schools, child care facilities, and health care facilities- based on mitigating factors effecting expediency of transfer.
- Consider requests for supplemental assistance (federal, regional, mutual aid).

Tab 3 (Escalation Beyond Alert) to Appendix A

Response Activities

- Track completion of precautionary transfers (schools and other special facilities) at host schools and receiving health care facilities (as implemented).
- Acquire and issue dosimetry for emergency workers.
- Issue EAS Messages to the affected area with protective action recommendations from the State of Vermont.
- Issue public information about the ongoing situation.
- Coordinate opening of congregate care shelters.
- Activate a staging area for responding resources.

Actions for Consideration

- Plan for a precautionary transfer of school children from affected schools and childcare facilities to host schools.
- Request visitors in State Parks and recreation areas within the affected area leave.
- Advise farmers to shelter milk-producing animals and place them on stored feed and water.
- Advise transients in the area to leave.
- Advise boaters in the area to get off waterways.
- Prepare for the Governor's declaration of a State of Emergency (if not already completed).
- Shelter-in-place parts or all of some towns.
- Deploy Plume Tracking team(s).
- Activate traffic and access control plans as required.
- Evacuate parts or all of some towns
- Establish and operate Emergency Worker Monitoring and Decontamination Station(s).

Potential Contingency Actions (Planning Priorities)

- Perform transportation and staging area planning in the event of an evacuation.
- Monitor conditions at Vermont Yankee and adjust protective actions based on updated information on releases.
- Establish restricted zones in which to control access.
- Establish protocols for access and control.
- Mobilize and deploy Radiological Sampling Team(s) for post-plume sampling.
- Consider requests for supplemental assistance (federal, regional, mutual aid).

Tab 4 (Recovery) to Appendix A

Response Activities

- Authorize reentry for permitted purposes for limited periods of time.
- Authorize return for towns or portions of towns that are deemed safe to reoccupy on a permanent basis.
- Authorize relocation of persons living in contaminated areas.
- Determine proper disposition of food, water, crops, and animals.
- Issue news releases and conducting press conferences on the above and other relevant issues.

Actions for Consideration

- Establish a temporary restricted zone as soon as a town is sheltered or evacuated.
- Establish a more permanent restricted zone as radiological data is developed.
- Request Federal resources.
 - Prepare for the FRMAC Advance Party Meeting. Complete the state portion of the Advance Party Check List. Coordinate and negotiate with New Hampshire and Massachusetts.
 - Send representatives to the FRMAC Advance Party Meeting.
 - Send representatives to the FRMAC.
 - Assist the FRMAC in establishing itself and in providing resources to Vermont.
- Plan the restoration of vital facilities and services such as medical facilities, utilities, roads and streets, schools, and intermediate term housing for relocated persons.
- Assist in the provision of compensation and reimbursement to individuals, businesses, and governments (local and state).
- Plan the long term recovery of contaminated areas.

APPENDIX B - RADIOLOGICAL EMERGENCY COMMON REFERENCE

This common reference contains information, forms, and other products that many organizations across Vermont use in their radiological emergency plans. These standard products are generally the same across different organizations and do not change frequently. While the Division of Emergency Management and Homeland Security (DEMHS) offers these as standards, organizations are free to create and use their own versions of these products.

Tabs

- 1 - Planning Support Information
- 2 - Radiological Emergency Worker Information and Forms
- 3 - Radiological Officer Information and Forms
- 4 - General Forms

Tab 1 (Planning Support Information) to Appendix B

State Response Organization

News Release Guide and Template

Recommended Protective Action Guides (PAGs)

Shielding

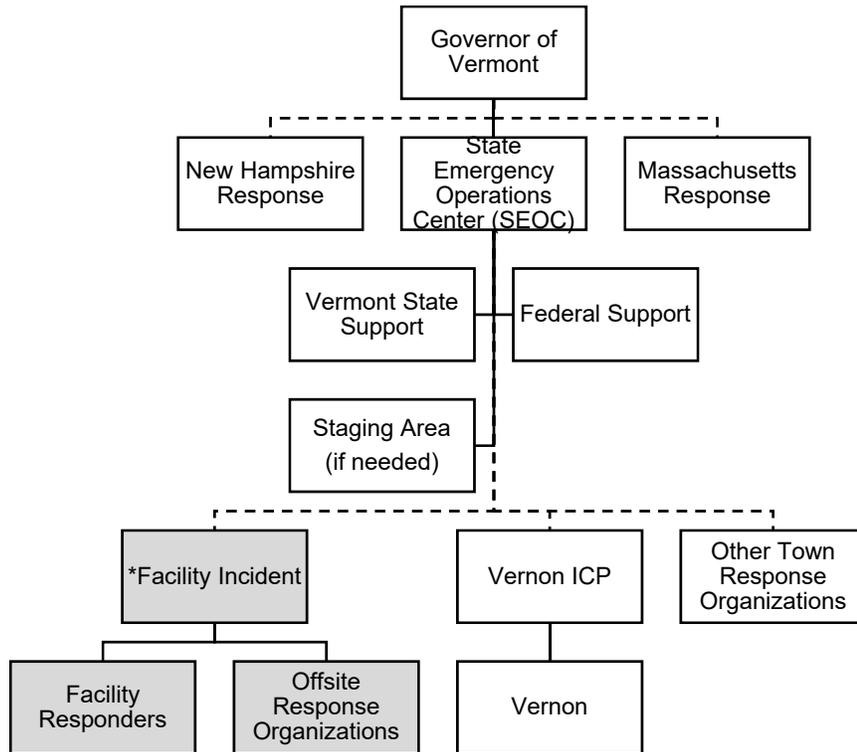
Dose Limits

Glossary

Acronyms

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State Response Organization



* The facility incident organization may be site-internal for a technical issue or accident, commanded from the VY control room or YR admin building, or may fall under a Law Enforcement (LE) unified command structure for a Hostile Action Based (HAB) incident with an Incident Command Post (ICP) appropriate to the situation.

News Release Guide and Template

The following template is a guide for preparing releases of information to the news media. The news release should be periodically updated as activities within your community change.

ONLY PROVIDE INFORMATION CONCERNING YOUR OWN ACTIVITIES.

REFER ALL INQUIRIES REGARDING OTHER LOCAL ACTIVITIES, STATE ACTIVITIES, AND/OR PLANT STATUS TO:

The Joint Information Center (JIC) at the State Emergency Operations Center
(800) 347-0488

1. Identify yourself and your town/activity.

John Doe, Selectboard Member and Public Information Officer, Town of Vernon

2. Briefly indicate what happened and where.

The Town of Vernon was notified at (TIME) of an (EMERGENCY CLASSIFICATION) at Vermont Yankee located in Vernon, Vermont.

3. Give a status of local emergency response workers.

Our Incident Command Post (ICP) was activated at (TIME). All emergency response services have been activated. We have established communications with the State Emergency Operations Center.

4. Give a status of schools, hospitals, and other institutions:

The Superintendent of Schools has been notified of the situation at Vermont Yankee. The school will (give its status). (Provide similar information concerning other institutions within your town.)

5. If the Emergency Alert System (EAS) or other notification systems have been activated, give a status.

The state of Vermont has sent out a notice through VT-Alert and local radio stations. The ICP is also contacting people with special access and functional needs and checking local parks and waterways.

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6. Provide information on the latest precautionary or protective action recommended for the public.

(Monitor) At this time there is no indication of any risk to the public and the only thing we are asking the public to do is stay alert for future information.

(Shelter) Residents of Vernon should shelter in place - take shelter in their homes or public buildings and take precautionary measures such as placing a handkerchief or towel folded several times over their mouths and nose to filter the air should they be required to go outdoors.

(Evacuation) The town is directing an evacuation. Emergency workers have set up traffic control points and residents should proceed out of the area immediately. The American Red Cross is opening shelters in (list the areas) for people who need a place to stay outside the area.

7. Give direction that members of the public should not take potassium iodide (KI).

Neither Vermont Yankee nor Yankee Rowley can release radioactive iodine, so members of the public should not take potassium iodide (KI).

8. Provide any other guidance on the emergency situation.

The state has recommended the following protective actions for the care of livestock, status of drinking water, and vegetation samples. (List protective actions.)

9. Tell people how to get more information.

Stay tuned to any local radio station for further emergency notifications and information. We will continue to send information through VT-Alert for those who are signed up with mobile phones or e-mails, even if they are out of the area. We will also be posting information on local activities on the town website.

REMINDER: Only provide information concerning your own activities. Other response organizations will be issuing their own news releases and if you comment on their actions you risk giving outdated or inaccurate information that may cause confusion.

Recommended Protective Action Guides (PAGs)

Projected Dose to the Population:

Total Effective Dose Equivalent (TEDE) less than 1 Rem (**<1 Rem**)

Committed Dose Equivalent (CDE) to the Thyroid less than 5 Rem (**<5 Rem**)

Recommended Actions: No planned protective action. State may issue an advisory to seek shelter and await further instructions. Environmental radiation levels are monitored.

Comments: No specific minimum level is established for initiation of sheltering. Sheltering should be considered at projected doses below PAGs (1 Rem TEDE). However, implementing sheltering at very low levels may not be reasonable (e.g., less than 0.1 Rem [**<0.1 Rem**] TEDE).

Projected Dose to the Population:

Total Effective Dose Equivalent (TEDE) greater than or equal to 1 Rem (**≥1 Rem**)

Committed Dose Equivalent (CDE) to the Thyroid greater than or equal to 5 Rem (**≥5 Rem**)

Recommended Actions: Conduct evacuation (or, in some situations, sheltering) of populations in the predetermined area. Monitor the environmental radiation levels and adjust the area for evacuation or sheltering based on these levels. Control access to the area.

Comments: Sheltering would be an alternative if evacuation is not immediately possible. Sheltering also may be the preferred protective action when it will provide protection equal to or greater than evacuation due to the nature of release composition from Vermont Yankee or other off-site-specific conditions (e.g., presence of severe weather, competing disaster, and local physical factors which impede evacuation).

SOURCE: EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1991, Section 2.3.1

Shielding

Shielding is accomplished by placing mass between the radiation source and the individual. When the radiation interacts with the shielding material, it loses a little of its energy. The amount of radiation attenuation that occurs depends on the type and thickness of the material and the particular type of radiation that is attempting to penetrate the mass.

Gamma Cloud Source Shielding Factors

Structure or Location	Shielding Factor
Outside	1.0
Vehicles	1.0
Wood-Frame House b (No Basement)	0.9
Basement of Wood House	0.6 ^c
Masonry House (No Basement)	0.6 ^c
Basement of Masonry House	0.04 ^c
Large Office or Industrial Building	0.02 ^{c,d}
^a The ratio of interior dose to exterior dose. ^b A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes. ^c There is variation in the shielding factor due to different wall materials and different geometries. ^d The shielding factor depends on where personnel are located within a building, e.g., the basement or an inside room.	

SOURCE: FRMAC Assessment Manual Volume 1 Overview and Methods dated April 2015, Table 6.1.

Surface Deposition Shielding Factors for Vehicles

Structure or Location	Representative Shielding Factor
Cars on Fully Contaminated Road	2
Cars on Fully Contaminated 50 Foot Road	4
Trains	2.5

SOURCE: FRMAC Assessment Manual Volume 1 Overview and Methods dated April 2015, Table 6.2.

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Dose Limits

Recommended Guidance on Dose Limits for Emergency Workers

Dose Limit ¹	Work Activity	Comments
5 Rem Total Effective Dose Equivalent (TEDE)	All	Maintain ALARA ² and control exposure of team members to extent practicable to these levels. (Appropriate controls for emergency workers will include time limitations, respirators, and stable iodine.)
10 Rem Total Effective Dose Equivalent (TEDE)	Protecting Valuable/Essential Property	Lower dose not practicable. (Appropriate controls for emergency workers will include time limitations, respirators, and stable iodine.) Knowledgeable volunteers will be used whenever possible.
25 Rem Total Effective Dose Equivalent (TEDE)	Lifesaving or Protection of Large Population	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.) Knowledgeable volunteers will be used whenever possible.
Greater than 25 Rem Total Effective Dose Equivalent (TEDE)	Lifesaving or Protection of Large Population	Only on a voluntary basis to persons fully aware of the risks involved. This includes the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.
<p>¹ Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to three times the listed value and doses to any other organ (including skin and body extremities) to ten times the listed value..</p> <p>² As Low As Reasonably Achievable (ALARA). The radiation protection philosophy of minimizing radiation exposure to the lowest practical level.</p>		

SOURCE: EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1991, Table 2-2.

Glossary

ACCESS CONTROL: The establishment of roadblocks, road barriers, or other means to control public entry into designated areas.

ACCESS CONTROL POINT (ACP): A key intersection or area of road designated to restrict traffic into and within a Restricted Zone.

AGRICULTURAL FACILITY: Any building or tract of land used for producing crops and/or raising livestock and in varying degrees the preparation and marketing of these commodities.

ALARA: As defined in Title 10, Section 20.1003, of the Code of Federal Regulations (10 CFR 20.1003), ALARA is an acronym for "as low as (is) reasonably achievable," which means making every reasonable effort to maintain exposures to ionizing radiation as far below the dose limits as practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

ALERT: An emergency classification which indicates events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

ALTERNATE STATE WARNING POINT: A place that can receive and transmit emergency notification messages should communications at the State Warning Point fail.

ALPHA PARTICLE: A positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to a helium nucleus that has a mass number of 4 and an electrostatic charge of +2. It has low penetrating power and a short range of a few centimeters in air. The most energetic alpha particle will generally fail to penetrate the dead layers of cells covering the skin, and can be easily stopped by a sheet of paper. Alpha particles are hazardous when an alpha-emitting isotope is inside the body.

BACKGROUND RADIATION: The natural radiation that is always present in the environment. It includes cosmic radiation which comes from the sun and stars, terrestrial radiation which comes from the Earth, and internal radiation which exists in all living things. The amount of background radiation a person receives is dependent upon a variety of factors such as geographical location and the altitude of

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the city in which the individual lives. On average, a person living in the United States receives about 620 mrem per year from exposure to background radiation.

BETA PARTICLE: A charged particle with a mass equal to 1/1837 that of a proton that is emitted from the nucleus of a radioactive element during radioactive decay or disintegration of an unstable atom. A negatively charged beta particle is identical to an electron, while a positively charged beta particle is called a positron. Beta particles may be stopped by thin sheets of metal or plastic.

BUFFER ZONE: An area adjacent to a restricted zone that residents may enter, but requires protective measures to minimize exposure to radiation.

CANCELLATION: Cessation of school activities until further notice.

CLADDING: The thin-walled metal tube that forms the outer jacket of a nuclear fuel rod. It prevents corrosion of the fuel by the coolant and the release of fission products into the coolant. Aluminum, stainless steel, and zirconium alloys are common cladding materials.

CONGREGATE CARE: The support function that provides shelter, food, and other essential services for evacuees.

CONGREGATE CARE CENTER (CCC): A facility for temporary housing, care, and feeding of evacuees.

CONTAMINATION: Undesirable radiological, chemical, or biological material with a potentially harmful effect that is airborne, deposited in, or on the surface of structures, objects, soil, water, or living organisms in a concentration that makes the medium unfit for its next intended use.

DECAY HEAT: The heat produced by the decay of radioactive fission products after a reactor has been shut down.

DECONTAMINATION: A process used to reduce, remove, or neutralize radiological, chemical, or biological contamination to reduce the risk of exposure. Decontamination may be accomplished by cleaning or treating surfaces to reduce or remove the contamination, filtering contaminated air or water, subjecting contamination to evaporation and precipitation, or covering the contamination to shield or absorb the radiation. The process can also simply allow adequate time for natural radioactive decay to decrease the radioactivity.

DERIVED RESPONSE LEVEL: A calculated radionuclide concentration in foodstuffs, milk, and water, which if ingested without any protective actions, would result in a projected dose commitment equivalent to the preventive or emergency Protective Action Guides.

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DIRECT READING DOSIMETER (DRD): A device that measures the cumulative dose of ionizing radiation received by the individual wearing it. It is usually clipped to a person's clothing between the neck and the waist.

DOSE: A general term which may be used to refer to the amount of energy absorbed by an object or person per unit mass. Known as the "absorbed dose," this reflects the amount of energy that ionizing radiation sources deposit in materials through which they pass, and is measured in units of radiation-absorbed dose (rad). The related international system unit is the gray (Gy), where 1 Gy is equivalent to 100 rad. By contrast, the biological dose or dose equivalent, given in Rem or Sieverts (Sv), is a measure of the biological damage to living tissue as a result of radiation exposure.

DOSE RATE: The dose of ionizing radiation delivered per unit time. For example, Rem or Sieverts (Sv) per hour.

DOSIMETER CHARGER: A device used to zero direct reading dosimeters prior to issuance.

DOSIMETER OF LEGAL RECORD (DLR): A small device used to capture a permanent record of an individual's radiation dose. DLRs are not readable by the emergency worker and must be processed in a laboratory.

DOSIMETRY: Devices used to calculate the absorbed dose in matter and tissue resulting from indirect and direct exposure to ionizing radiation.

DOSIMETRY PACKET: A package that contains dosimeters, information, and forms for measuring and documenting a worker's exposure to radiation.

DRILL: A supervised instruction period aimed at developing and maintaining skills in emergency response.

EMERGENCY ACTION LEVELS (EALs): A pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the plant in a given emergency classification. The thresholds are based upon specific instrument readings, system abnormalities, event observation, or radiological levels.

EMERGENCY ALERT SYSTEM (EAS): A national warning system in the United States put into place in 1997 superseding the Emergency Broadcast System (EBS) and the CONELRAD System. It is jointly coordinated by the Federal Communications Commission (FCC), Federal Emergency Management Agency (FEMA), and National Weather Service (NWS).

EMERGENCY CLASSIFICATION LEVEL (ECL): One of a set of names or titles established by the US Nuclear Regulatory Commission for grouping off-normal events or conditions according to (1) potential effects or consequences, and (2) resulting onsite and offsite response actions. The emergency classification levels, in

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ascending order of severity, are UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY (no longer a Vermont Yankee ECL), and GENERAL EMERGENCY (no longer a Vermont Yankee ECL).

EMERGENCY OPERATIONS CENTER (EOC): The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction.

EMERGENCY PLANNING ZONE (EPZ): An area required to have standing Radiological Emergency Response Plans. A Plume Exposure Pathway EPZ accommodates practical planning considerations and is based on the area within 10 miles of an operating nuclear reactor. An Ingestion Exposure Pathway EPZ is the area within a 50-mile radius of an operating nuclear reactor and includes the Plume Exposure Pathway EPZ. For a shutdown nuclear plant such as Vermont Yankee, the EPZ is the site boundary.

EMERGENCY RESPONSE ORGANIZATION: A combination of local, state, federal, and private agencies that implement emergency response procedures.

EXCLUSION AREA: The area established to control access to a previously evacuated area. It is established to control the spread of contamination and provide security.

EVACUATION: The act of moving individuals and animals away from the path of the plume to avoid exposure to airborne radioactive material.

EVACUATION ROUTES: Those roadways identified in state and local plans as the principal routes leading out of an area for use by vehicles in the event of an incident requiring evacuation.

EXERCISE: An evaluated event involving response to a simulated emergency. The purpose of an exercise is to evaluate integrated responses of all or a portion of the components in an emergency response organization. Exercises also help to clarify roles and responsibilities, improve interagency coordination, find resource gaps, develop individual performance, and identify opportunities for improvement.

EXPOSURE LIMIT: An upper limit on the acceptable amount of radiation dose an individual may receive.

FUEL ASSEMBLIES: A structured group of fuel rods. Depending on the design, each reactor vessel may have dozens of fuel assemblies (also known as fuel bundles), each of which may contain 64 or more fuel rods.

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FUEL RODS: A long, slender, zirconium metal tube containing pellets of fissionable material which provide fuel for nuclear reactors. Fuel rods are assembled into bundles called fuel assemblies which are loaded individually into the reactor core.

GAMMA RADIATION: High energy, short wavelength, electromagnetic radiation emitted from the nucleus of an atom. Gamma radiation frequently accompanies alpha and beta emissions. Gamma rays are very penetrating and are best stopped or shielded by dense materials such as lead or depleted uranium. Gamma rays are similar to x-rays.

HALF-LIFE: The time in which one half of the atoms of a particular radioactive substance disintegrate into another nuclear form. Measured half-lives vary from millionths of a second to billions of years.

HOST FACILITY: Any facility that is opened for evacuated residents or individuals in special facilities.

INCIDENT COMMAND POST (ICP): The field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be collocated with the incident base or other incident facilities.

INITIAL NOTIFICATION: The first communication from the Vermont Yankee Control Room to the off-site Emergency Response Organization that an incident has occurred.

IONIZING RADIATION: A form of radiation which includes alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. When ionizing radiation passes through material such as air, water, or living tissue, it deposits enough energy to produce ions by breaking molecular bonds and displacing or removing electrons from atoms or molecules. This electron displacement may lead to changes in living cells.

ISOTOPE: Two or more forms of a given element that have the same number of protons in their nucleus and the same or very similar chemical properties, but a different number of neutrons in their nucleus and distinct physical properties.

MILLIREM (mR or mr): A radiation measurement equivalent to one-thousandth of a REM.

MONITORING: Periodic or continuous determination of the amount of ionizing radiation or radioactive contamination in an area.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA): A scientific agency within the United States Department of Commerce focused on the conditions

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of the oceans and atmosphere. It is the parent agency for the National Weather Service which activates weather alert radios.

NATIONAL WARNING SYSTEM (NAWAS): A system used to convey warnings to United States-based federal, state and local governments as well as the military and civilian population. The original mission of NAWAS was to warn of an imminent enemy attack or an actual accidental missile launch upon the United States. NAWAS still supports this mission but the emphasis is on natural and technological disasters.

NEWS MEDIA / JOINT INFORMATION CENTER (JIC): A co-located group of representatives from local, state, federal, and private organizations designated to handle public information needs during an incident.

NOTIFICATION OF AN UNUSUAL EVENT: An emergency classification which indicates that events are in process or have occurred that indicate a potential degradation in the level of plant safety or a security threat to facility protection. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

NUCLEAR ALERT SYSTEM (NAS): A dedicated microwave system utilized as a means of communication between the state and Vermont Yankee during an emergency.

NUCLIDE: A particular isotope of an element identified by the number of protons and neutrons in the nucleus.

OFF-SITE: The area outside the authority of the nuclear facility licensee.

ON-SITE: The area under the authority of a nuclear facility licensee.

PLANNING BASIS: Guidance in terms of size of the planning area (distance), time dependence of a release, and radiological characteristics of releases.

PLUME: A visible or measurable discharge of a contaminant from a given point of origin. In the case of a nuclear power plant, the contaminant consists of radioactive particles and gases.

PLUME EXPOSURE PATHWAY: An area where individuals could receive external whole body exposure to radiation emitted from the plume and deposited particulates as well as internal exposure due to inhalation of radioactive material.

POTASSIUM IODIDE (KI): A thyroid blocking agent that prevents the accumulation of radioiodine in the thyroid gland by blocking its absorption using stable (nonradioactive) iodine. KI is the chemical formula, not an abbreviation.

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PRECAUTIONARY ACTION: An action taken in advance to protect individuals and animals from incidents that may escalate faster than their ability to react.

PRECAUTIONARY TRANSFER: The movement of one or more segments of the population to a host facility prior to an evacuation of the general public. Likely population segments include children in schools, child care centers, and patients in health care facilities.

PREVENTATIVE PROTECTIVE ACTIONS: Things done to prevent or reduce contamination of milk, water, and/or food products. The FDA Protective Action Guides (PAGs) are 1.5 REM to the thyroid and 0.5 REM to the whole body.

PROJECTED DOSE: An estimate of the radiation dose which affected population groups could potentially receive through direct exposure to a radioactive plume if protective actions are not taken.

PROTECTIVE ACTIONS: Things done to reduce or eliminate the public's exposure to radiation or other hazards.

PROTECTIVE ACTION GUIDE (PAG): The projected dose to reference man, or other defined individual, from an unplanned release of radioactive material at which a specific protective action to reduce or avoid that dose is recommended.

PROTECTIVE ACTION RECOMMENDATION (PAR): Those actions to protect the health and safety of the general public in the event of an emergency that are recommended by the state.

QUALIFIED REPRESENTATIVE: Designated, trained state agency representative with the authority to respond and act in the name of the agency in lieu of or until replaced by an agency head.

RADIATION: The emission of energy as electromagnetic waves or as moving subatomic particles, especially high-energy particles that cause ionization.

RADIO AMATEUR CIVIL EMERGENCY SERVICE (RACES): Licensed volunteer amateur radio (HAM) communications personnel equipped by and affiliated with the state and local Emergency Management Agencies.

RADIOACTIVITY: The property possessed by some elements or isotopes to spontaneously emit energy in the form of radiation as a result of the decay or disintegration their nuclei. The units of measure for radioactivity are curies (Ci), Becquerels (Bq), or disintegrations per unit of time.

RADIOLOGICAL EMERGENCY RESPONSE PLAN (RERP): The State of Vermont emergency response plan to be implemented in the event of a radiological incident at Vermont Yankee.

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RADIOLOGICAL OFFICER: A person who is responsible for radiological exposure control activities in a given community.

RECOVERY: The process of reducing radiation exposure rates and concentrations of radioactive material in the environment to acceptable levels so that unconditional occupancy by the general public is possible following a radiological incident.

RE-ENTRY: Temporary access to a restricted zone under controlled conditions (i.e., to allow a farmer care for livestock).

RELOCATION: A protective action that occurs in the post-emergency phase whereby individuals not already evacuated during the emergency phase are asked to vacate a contaminated area to avoid chronic radiation exposure from deposited radioactive material.

REM: An acronym that stands for Roentgen Equivalent Man. It is defined as the dosage in Rad that will cause the same amount of biological injury as one Rad of X rays or gamma rays. For beta and gamma radiation, the dose equivalent is the same as the absorbed dose. By contrast, the dose equivalent is larger than the absorbed dose for alpha and neutron radiation because these types of radiation are more damaging to the human body. The dose equivalent in Rem is equal to the absorbed dose in Rad multiplied by the quality factor of the type of radiation.

RESTRICTED ZONE: An area from which the population has been evacuated or relocated where entry by individuals is controlled..

RETURN: The reoccupation of areas previously restricted to the public when the radiation risk has been reduced to acceptable levels.

ROENTGEN (R): A unit of exposure to ionizing radiation which is the amount of gamma or x-rays required to produce one electrostatic unit of charge in one cubic centimeter of dry air at 0° Centigrade and standard atmospheric pressure.

ROUTE ALERTING: A supplement to the public notification system which is implemented in the event of a public notification system failure. It is accomplished by municipal route alert teams traveling in vehicles along pre-planned routes delivering a predetermined message.

SAMPLING: The collection of material at specified field locations.

SHELTER: A protective action advising the at-risk population to go inside, or remain indoors, as protection from a potential or actual radiological release.

SHELTER-IN-PLACE: A process for taking immediate shelter during and following the passage of a radioactive plume in a location readily accessible to the affected

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individual by sealing a single area such as a room from outside contaminants and shutting off all ventilation systems.

SHIELDING: Any material or obstruction that absorbs radiation and thus tends to protect personnel or materials from the effects of ionizing radiation.

SOURCE TERM: An estimate made by researchers of the amount and chemical form of a contaminant released to the environment from a specific source over a certain period of time. The phrase is used in risk assessment studies to refer to estimates of toxic chemicals and radioactive materials released from a source.

SPECIAL ALERTING: Special Alerting is used to provide emergency notification to individuals with special access and functional needs, specific facilities, campgrounds, recreation areas, or geographic areas of concern.

SPECIAL FACILITIES: Public and private schools, day care centers, nurseries, hospitals, nursing homes, or other facilities responsible for, or occupied by, at risk individuals.

SPECIAL NEEDS POPULATION: Individuals in the general population who are unable to take protective actions on their own. These individuals may require transportation and/or assistance to move to a safe location.

STAGING AREA: A location established at or near an incident where resources can be placed while awaiting assignment. There may be more than one staging area for an incident.

STANDBY STATUS: A term used to describe the level of readiness of emergency personnel. It indicates that personnel have been notified and are available to activate duty stations if called upon.

STATE WARNING POINT (SWP): The state designated point to receive initial notification of an incident at Vermont Yankee or Yankee Rowe.

SUPPORT AGENCIES: State, local, and private agencies which provide personnel, equipment, facilities, or special knowledge to support the implementation of an emergency response.

SURVEY METER: Any portable radiation detection instrument especially adapted for inspecting an area or individual to establish the amount of radioactive material present.

TERMINATION: The act of canceling a declared emergency classification because all of the underlying conditions are no longer present at the facility. All entities that were notified of the initial declaration are informed that the emergency classification is no longer valid.

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THERMOLUMINESCENT DOSIMETER (TLD): A small device used to measure an individual's exposure to ionizing radiation by measuring the intensity of visible light emitted from a crystal in the device when the crystal is heated. The intensity of light emitted is dependent upon the radiation exposure. It is typically used to document an individual's total beta/gamma exposure. TLDs cannot be read by an emergency worker and must be processed in a laboratory.

TRAFFIC CONTROL POINTS (TCP): Any of a number of key route intersections designed to facilitate the flow of traffic in a desired direction while discouraging the flow of traffic in other directions. Traffic Control Points may sometimes double as Access Control Points to restrict entry into an area.

TRANSIENT POPULATION: That segment of the public residing outside an area, but visiting or working at places inside it.

TRANSPORTATION RESOURCES: Vehicles such as ambulances, buses, and trucks used for evacuation of nursing home residents, school staff, students, and other population groups.

UNMET NEEDS: Resources required to support emergency operations that were neither provided nor available.

UNUSUAL EVENT: Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

VERIFICATION: The process of confirming the validity of a notification message or action to be taken.

WAYPOINT: An intermediate location where special needs individuals are directed to the facility that will accommodate them until they can return to their normal housing.

WTSA: The primary EAS radio station located in Brattleboro, Vermont.

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Acronyms

AAFM - (Vermont) Agency of Agriculture, Farms, and Markets
ACP - Access Control Point
AHS - (Vermont) Agency of Human Services
ALARA - As Low As Reasonably Achievable
ANR - (Vermont) Agency of Natural Resources
AOT - (Vermont) Agency of Transportation
ARC - American Red Cross
CAP - Civil Air Patrol
CPCS-1 - Common Program Control Station - 1
CPM - Counts Per Minute
CD - Civil Defense
DEMHS - (Vermont) Division of Emergency Management and Homeland Security
DLR - Dosimeter of Legal Record
DOC - (U.S.) Department of Commerce
DOD - (U.S.) Department of Defense
DOE - (U.S.) Department of Energy
DRD - Direct Reading Dosimeter
DRL - Derived Response Level
EAS - Emergency Alert System
EMS - Emergency Medical Services
ECL - Emergency Classification Levels
EOC - Emergency Operations Center
ERF - Emergency Response Facility
EWMDS - Emergency Worker Monitoring and Decontamination Station
EPA - Environmental Protection Agency
EPZ - Emergency Planning Zone
FDA - Food and Drug Administration
FEMA - Federal Emergency Management Agency
FRERP - Federal Radiological Emergency Response Plan
FRMAC - Federal Radiological Monitoring and Assessment Center
FRMAP - Federal Radiological Monitoring and Assessment Plan
HHS - (U.S. Department of) Health and Human Services
IC - Incident Commander
ICP - Incident Command Post
IEP - Ingestion Exposure Pathway
JIC - Joint Information Center
KI - Potassium Iodide (chemical formula)
mR - milliRoentgen
NAS - Nuclear Alert System
NAWAS - National Warning System
NIAT - Nuclear Incident Advisory Team
NOAA - National Oceanic and Atmospheric Administration of the U.S. Department of
Commerce
NRC - Nuclear Regulatory Commission

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NWS - National Weather Service
PAG - Protective Action Guides
PIO - Public Information Officer
R - Roentgen
RACES - Radio Amateur Civil Emergency Service
RAD - Radiation Absorbed Dose
REM - Roentgen Equivalent Man
RERP - Radiological Emergency Response Plan
RM&D - Radiological Monitoring and Decontamination
TCP - Traffic Control Point
TDD - Telecommunications Device for the Deaf
TLD - Thermoluminescent Dosimeter
UE - Unusual Event
USAF - U.S. Air Force
USCG - U.S. Coast Guard
USDA - U.S. Department of Agriculture
VAAF - Vermont Agency of Agriculture, Food and Markets
VDH - Vermont Department of Health
VTNG - Vermont National Guard
VY - Vermont Yankee
YAEC - Yankee Atomic Electric Company
YR - Yankee Rowe

Tab 2 (Radiological Emergency Worker Information and Forms) to Appendix B

Dosimetry Just-In-Time Training

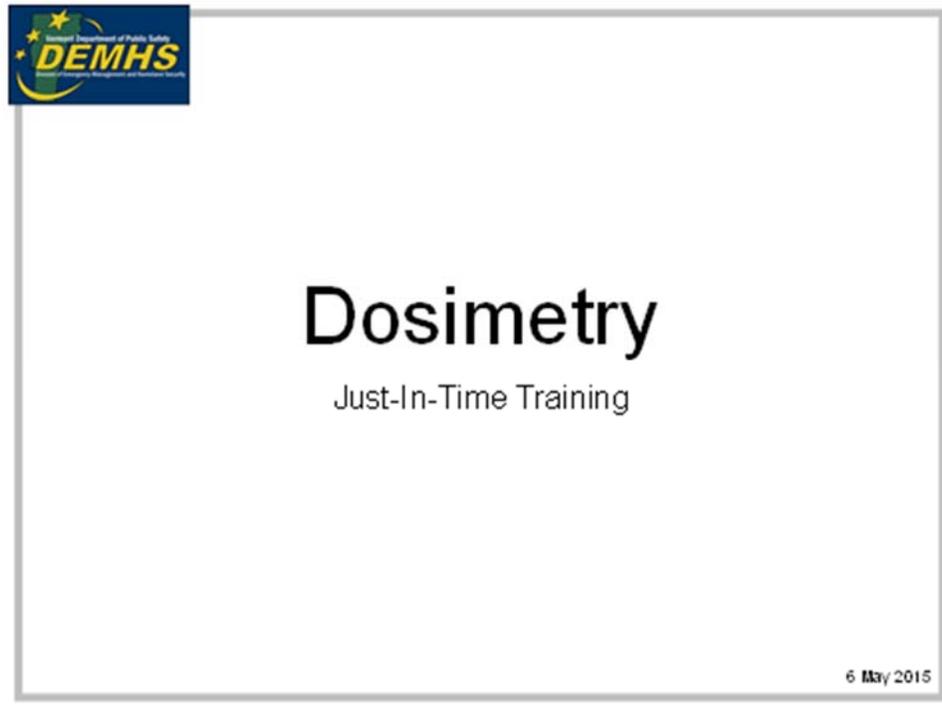
Emergency Worker Information Sheet and Radiation Exposure Record

Regulatory Guide 8.13 Instruction Concerning Prenatal Radiation Exposure

Regulatory Guide 8.13 Acknowledgment Form

Regulatory Guide 8.13 Declaration of Pregnancy

Slide 1



This is the Vermont Division of Emergency Management and Homeland Security's Just in Time Training on Dosimetry.

Slide 2

 **DEMHS**
Vermont Department of Public Safety
Emergency Management and Response Services

Dosimetry

- Dosimeters are small devices that measure an individual's exposure to radiation
- There are two types of dosimeters:
 - Direct Reading Dosimeter
 - Measures gamma exposure
 - Dosimeter of Legal Record
 - Measures gamma and beta exposure




Dosimeters are small devices that measure your exposure to ionizing radiation. Emergency workers receive two dosimeters: a direct reading dosimeter, or DRD, that looks like a pen, and a dosimeter of legal record, or DLR, that is a badge about the size of a credit card.

Slide 3

 Direct Reading Dosimeter (DRD)



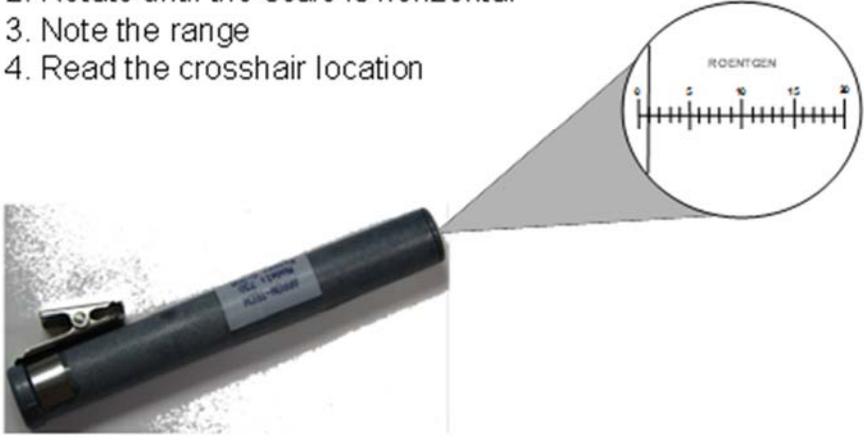
- Indicates Emergency Worker external exposure to gamma radiation
- Can be read in the field
- Reading may be changed by dropping

Your DRD measures your exposure to gamma radiation. You can check this dosimeter yourself which enables you to keep track of any dose you are receiving in real time. Unfortunately one disadvantage of your DRD is that the reading can change if it is dropped or bumped - the fiber may move up or down the scale and any dose registered will be lost.

Slide 4

 **Reading a Dosimeter**

1. Direct the dosimeter toward a light source
2. Rotate until the scale is horizontal
3. Note the range
4. Read the crosshair location



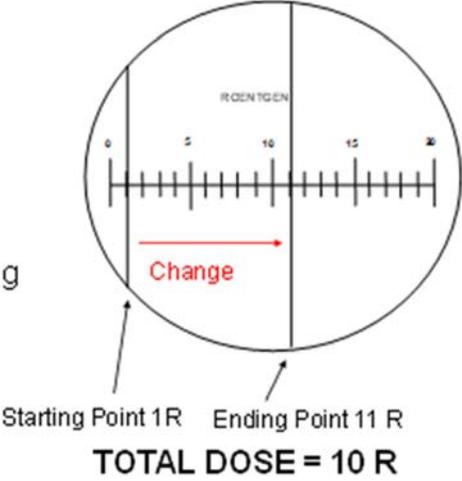
To read your DRD, point it towards a light source and look in the end with the clip. The point where the fiber intersects with the scale is the current reading. Be careful not to point it directly at the sun.

Slide 5



Reading a Dosimeter

- Dosimeter should be zeroed when issued
- If not, note starting position
- TOTAL Dose = Final Reading – Initial Reading



Starting Point 1R Ending Point 11 R
TOTAL DOSE = 10 R

The diagram shows a circular dosimeter scale labeled 'ROENTGEN' at the top. The scale has major markings at 0, 5, 10, 15, and 20. A vertical line is drawn at the 10 mark. A red arrow labeled 'Change' points from the 1 mark to the 11 mark. Below the scale, two arrows point to the 1 and 11 marks, labeled 'Starting Point 1R' and 'Ending Point 11 R' respectively. Below these labels, the text 'TOTAL DOSE = 10 R' is displayed.

When you are first issued the DRD it should be on zero and any dose measured will be reflected on the scale. If your dosimeter is not on zero when you first receive it, note your starting reading - your total will then be the final reading minus the starting reading. For example, if you start with 1R and you end with 11R, your total dose is 10R.

Slide 6



Readings

- You'll be asked to Read, Record and Report every 15-30 minutes

OR

- At any other time you get a 1R or more reading

- Try not to drop it
- Do not point it at the sun when you read it
- Compare readings with those around you

You will be asked to read your dosimeter every 30 minutes, or 15 minutes if there is a release or you have 1R of exposure. Record your readings in your white dosimetry record. Remember not to drop your dosimeter or point it at the sun. If a reading seems abnormal, compare it with those closest to you.

Slide 7

 **DEMHS**
Department of Public Safety
Emergency Management and Response

Dosimeter of Legal Record

- Records both beta and gamma radiation
- Labs read after incident is over
- You will receive a copy of the final reading



The Dosimeter of Legal Record, or DLR, reads both beta and gamma radiation. This dosimeter records your total dose for a given time. A laboratory will read your DLR when the incident is over and the final reading is reported as a legal record.

Slide 8

 **DEMHS**
Vermont Department of Public Safety
Emergency Management and Preparedness Branch

Dosimetry Placement

- **Dosimetry should be worn**
 - On the outermost layer of clothing
 - In the central chest region
 - Between the waist and shoulders



Wear dosimetry on the outermost layer of your clothing between your neck and waist on the lanyard provided. Dosimeter placement is important because wearing your dosimetry in the wrong location on your body may alter the readings and result in unnecessary exposure.

Slide 9



Dose Limits

- **Dose Limits**
 - 1 Roentgen – Report into your supervisor
 - 5 Roentgen – General Work for entire incident
 - 10 Roentgen – Protect Valuable Property
 - 25 Roentgen – Protect Life
- **Only the Vermont Department of Health can authorize continuing exposure for any dose greater than 5 Roentgen**

When your DRD reads 1R or more you need to report to your supervisor - you are allowed to receive no more than 5R during normal work. However, you may be authorized to receive larger doses in order to save critical infrastructure or lives. You may receive up to a 10R dose for protecting critical infrastructure and 25R for protection of populations. You can only do this if you volunteer to do so and the Vermont Department of Health has to approve the exposure ahead of time.

Slide 10



Pregnancy

- **Pregnancy**
 - If you believe you are pregnant, tell your supervisor and you will be reassigned
- **All female emergency workers must receive a copy of NRC Regulatory Guide 8.13:
INSTRUCTION CONCERNING PRENATAL
RADIATION EXPOSURE**

If you are pregnant or believe you may be pregnant, please see your supervisor or radiological officer. A fetus is more susceptible to the effects of ionizing radiation than an adult and if pregnant you should probably avoid exposure.

Slide 11

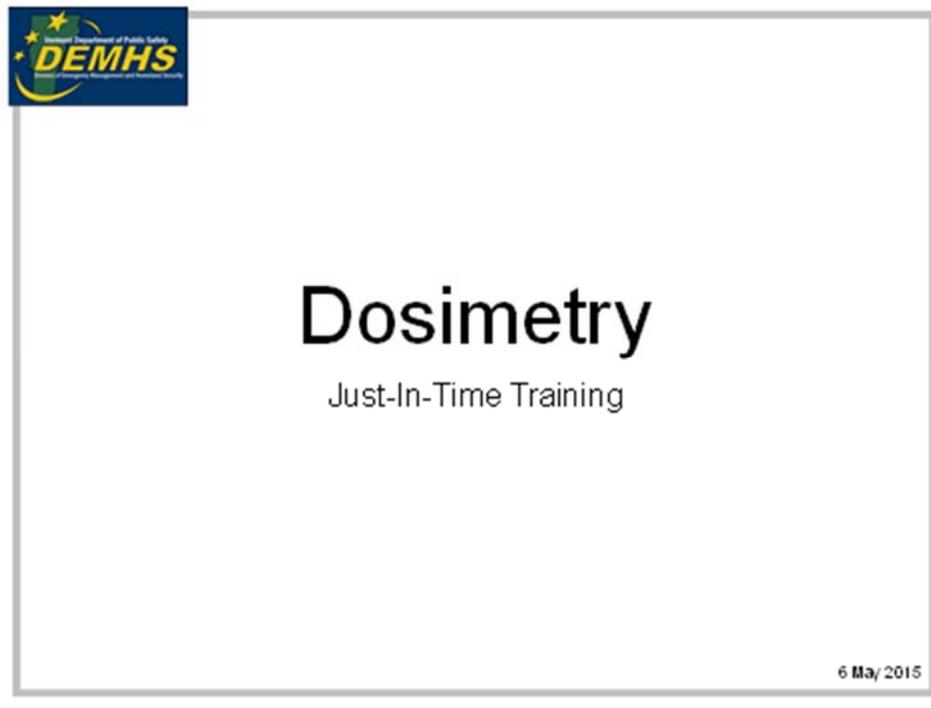


Questions

- See your Radiological Officer
- Talk to your supervisor

If you have any questions on your dosimetry please see your radiological officer or your supervisor. If you do not feel you can perform your duties please see your supervisor.

Slide 12



This concludes the Just in Time Training on Dosimetry. Remember that dosimetry is for your protection and is meant to keep you aware of the dose you receive during a Radiological Emergency.

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

<p>State of Vermont</p>  <p>Emergency Worker Information Sheet And Radiation Exposure Record</p> <p>Card _____ of _____</p> <p style="font-size: small;">Emergency Worker Information Sheet and Exposure Record Revised 2013</p>	<p>Name: _____</p> <p>Address: _____ _____</p> <p>SSN: _____</p> <p>Date of Birth: _____</p> <p>Assignment: _____</p> <p>Supervisor: _____</p> <p>Contact Number: _____</p> <p style="text-align: center;"><u>KI Information</u></p> <p>Dose Taken: _____ 130mg _____</p> <p>Start Date: _____ Time: _____</p> <p>End Date: _____ Time: _____</p>															
<p style="text-align: center;"><u>Dose Limits</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Dose Limit</th> <th style="width: 15%;">Work</th> <th style="width: 70%;">Comments</th> </tr> </thead> <tbody> <tr> <td>5 REM</td> <td>All</td> <td>Maintain ALARA and exposure control</td> </tr> <tr> <td>10 REM</td> <td>Protect critical infrastructure</td> <td>Knowledgeable volunteer will be used when possible</td> </tr> <tr> <td>25 REM</td> <td>Lifesaving</td> <td>Knowledgeable volunteer will be used when possible</td> </tr> <tr> <td>>25 REM</td> <td>Lifesaving</td> <td>Voluntary Basis ONLY</td> </tr> </tbody> </table> <p>Turn Back Dose: 1.5R (1500 mR) on Dosimeter Turn Back Dose Rate: 1.0 R/Hr (1000mR/Hr) on Meter</p> <p>ALARA (As Low As Reasonable Achievable): The radiation protection principal of minimizing radiation exposure to the lowest practical level using:</p> <p>Time: Minimize time in a radiation area</p> <p>Distance: Increase distance to the maximum possible level between yourself and a source of exposure</p> <p>Shielding: Incorporate shielding to block radiation exposure to your body</p>	Dose Limit	Work	Comments	5 REM	All	Maintain ALARA and exposure control	10 REM	Protect critical infrastructure	Knowledgeable volunteer will be used when possible	25 REM	Lifesaving	Knowledgeable volunteer will be used when possible	>25 REM	Lifesaving	Voluntary Basis ONLY	<p style="text-align: center;"><u>Potassium Iodide (KI) **</u></p> <p>KI is taken to prevent radioactive iodine from accumulating in the thyroid gland. It does not provide any other protection against radiation.</p> <p>Take KI only when its use has been authorized by the Vermont Commissioner of Health. You will be advised of this from your radiological officer or supervisor.</p> <p style="text-align: center;">Daily KI Doses for Adults over 18: 130mg</p> <p>Short-term use of KI at the proper dosage is safe for most people. People should avoid KI if they are allergic to iodine, have dermatitis herpetiformis or hypocomplementemic vasculitis, or have nodular thyroid disease with heart disease, because these conditions may increase the chances of side effects to iodine. Possible side effects: swelling of the salivary glands, nausea, vomiting, diarrhea, stomach ache, fever, headache, metallic taste, and allergic reactions; including: skin rashes, swelling, fever with joint pain, trouble breathing, speaking, or swallowing, wheezing or shortness of breath.</p> <p>If side effects occur stop taking KI, report to your supervisor or radiological officer. Seek medical attention immediately if you have one of the following symptoms: trouble breathing, speaking, or swallowing, wheezing or shortness of breath, swelling of the lips, tongue, or throat, or irregular heartbeat or chest pain.</p>
Dose Limit	Work	Comments														
5 REM	All	Maintain ALARA and exposure control														
10 REM	Protect critical infrastructure	Knowledgeable volunteer will be used when possible														
25 REM	Lifesaving	Knowledgeable volunteer will be used when possible														
>25 REM	Lifesaving	Voluntary Basis ONLY														

*** The KI information is included only because it is on the current version of the printed card. If the card is reprinted, that block should be deleted or replaced.*

U.S. Nuclear Regulatory Commission
REGULATORY GUIDE

Office of Nuclear Regulatory Research
REGULATORY GUIDE 8.13

(Draft was issued as DG-8014/Revision 3, JUNE 1999)

INSTRUCTION CONCERNING PRENATAL RADIATION EXPOSURE

A. INTRODUCTION

The Code of Federal Regulations in 10 CFR Part 19, "Notices Instructions and Reports to Workers: Inspection and Investigations," in Section 19.12, "Instructions to Workers," requires instruction in "the health protection problems associated with exposure to radiation and/or radioactive material, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed." The instructions must be "commensurate with potential radiological health protection problems present in the work place."

The Nuclear Regulatory Commission's (NRC's) regulations on radiation protection are specified in 10 CFR Part 20, "Standards for Protection Against Radiation": and 10 CFR 20.1208, "Dose to an Embryo/Fetus," requires licensees to "ensure that the dose to an embryo/fetus during the entire pregnancy, due to occupation exposure of a declared pregnant woman, does not exceed 0.5 rem (5mSv). "Section 20.1208 also requires licensees to "make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman." A declared pregnant woman is defined in 10 CFR 20.1003 as a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

This regulatory guide is intended to provide information to pregnant women, and other personnel, to help them make decisions regarding radiation exposure during pregnancy. This Regulatory Guide 8.13 supplements Regulatory Guide 8.29, "Instruction Concerning Risks from Occupation Radiation Exposure" (Ref. 1), which contains a broad discussion of the risks from exposure to ionizing radiation.

Other sections of the NRC's regulations also specify requirements for monitoring external and internal occupational dose to a declared pregnant woman. In 10 CFR 20.1502, "Conditions Requiring Individual Monitoring of External and Internal Occupation Dose," licensees are required to monitor the occupational dose to a declared pregnant woman, using an individual monitoring device, it is likely that the declared pregnant woman will receive, from external sources, a deep dose equivalent in excess of 0.1 rem (1mSv). According to Paragraph (c) of 10 CFR 20.2106, "Records of Individual Monitoring Results," the licensee must maintain records of dose to an embryo/fetus if monitoring was required, and the records of dose to the embryo/fetus must be kept with the records of dose to the declared pregnant woman. The declaration of pregnancy must be kept on file, but may be maintained separately from the dose records. The licensee must retain the required form or record until the Commission terminates each pertinent license requiring the record.

The information collections in this regulatory guide are covered by the requirements of 10 CFR Parts 19 or 20, which were approved by the Office of Management and Budget, approval numbers 3150-0044 and 3150-0014, respectively. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number.

B. DISCUSSION

As discussed in Regulatory Guide 8.29 (Ref. 1), exposure to any level of radiation is assumed to carry with it a certain amount of risk. In the absence of scientific certainty regarding the relationship between low dose exposure and health effects, and as a conservative assumption for radiation protection purposes, the scientific community generally assumes that any exposure to ionizing radiation may cause undesirable biological effects and that the likelihood of these effects increases as the dose increases. At the occupational dose limit for the whole body of 5 rem (50 mSv) per year, the risk is believed to be very low.

The magnitude of risk of childhood cancer following in utero exposure is uncertain in that both negative and positive studies have been reported. The data from these studies “are consistent with a lifetime cancer risk resulting from exposure during gestation which is two to three times that for the adult.” (NCRP Report No. 116, Ref. 2). The NRC has reviewed the available scientific literature and has concluded that the 0.5 rem (5 mSv) limit specified in 10 CFR 20.1208 provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers associated with radiation exposure during pregnancy.

In order for a pregnant worker to take advantage of the lower exposure limit and dose monitoring provisions specified in 10 CFR Part 20, the woman must declare her pregnancy in writing to the licensee. A form letter for declaring pregnancy is provided in this guide or the licensee may use its own form letter for declaring pregnancy. A separate written declaration should be submitted for each pregnancy.

C. REGULATORY POSITION

1. Who Should Receive Instruction

Female workers who require training under 10 CFR 19.12 should be provided with the information contained in this guide. In addition to the information contained in Regulatory Guide 8.29 (Ref. 1), this information may be included as part of the training required under 10 CFR 19.12.

2. Providing Instruction

The occupational worker may be given a copy of this guide with its Appendix, an explanation of the contents of the guide, and an opportunity to ask questions and request additional information. The information in this guide and Appendix should also be provided to any worker or supervisor who may be affected by a declaration of pregnancy or who may have to take some action in response to such a declaration.

Classroom instruction may supplement the written information. If the licensee provides classroom instruction, the instructor should have some knowledge of the biological effects of radiation to be able to answer questions that may go beyond the information provided in this guide. Videotaped presentations may be used for classroom instruction. Regardless of whether the licensee provides classroom training, the licensee should give workers the opportunity to ask questions about information contained in this ‘Regulatory Guide 8.13. The licensee may take credit for instruction that the worker has received within the past year at other licensed facilities or in other courses or training.

3. Licensee’s Policy on Declared Pregnant Women

The instruction provided should describe the licensee’s specific policy on declared pregnant women, including how those policies may affect a woman’s work situation. In particular, the instruction should include a description of the licensee’s policies, if any, that may affect the

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

declared pregnant woman's work situation after she has filed a written declaration of pregnancy consistent with 10 CFR 20.1208.

The instruction should also identify who to contact for additional information as well as identify who should receive the written declaration of pregnancy. The recipient or the woman's declaration may be identified by name (e.g., John Smith), position (e.g., immediate supervisor, the radiation safety officer), or department (e.g., the personnel department).

The instruction should also identify who to contact for additional information as well as identify who should receive the written declaration of pregnancy. The recipient of the woman's declaration may be identified by name (e.g., John Smith), position (e.g., immediate supervisor, the radiation safety officer), or department (e.g., the personnel department).

4. Duration of Lower Dose Limits for the Embryo/Fetus

The lower dose limit for the embryo/fetus should remain in effect until the woman withdraws the declaration in writing or the woman is no longer pregnant. If a declaration of pregnancy is withdrawn, the dose limit for the embryo/fetus would apply only to the time from the estimated date of conception until the time the declaration is withdrawn. If the declaration is not withdrawn, the written declaration may be considered expired one year after submission.

5. Substantial Variations Above a Uniform Monthly Dose Rate

According to 10 CFR 20.1208(b), "The licensee shall make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman so as to satisfy the limit in paragraph (a) of this section," that is, 0.5 rem (5 mSv) to the embryo/fetus. The National Council on Radiation Protection and Measurements (NCRP) recommends a monthly equivalent dose limit of 0.05 rem (0.5 mSv) to the embryo/fetus once the pregnancy is known (Ref. 2.) In view of the NCRP recommendation, any monthly dose of less than 0.1 rem (1 mSv) may be considered as not a substantial variation above a uniform monthly dose rate and as such will not require licensee justification. However, a monthly dose greater than 0.1 rem (1 mSv) should be justified by the licensee.

D. IMPLEMENTATION

The purpose of this section is to provide information to licensees and applicants regarding the NRC staffs plans for using this regulatory guide.

Unless a licensee or an applicant proposes an acceptable alternative method for complying with the specific portions of the NRC's regulations, the methods described in this guide will be used by the NRC staff in the evaluation of instructions to workers on the radiation exposure of pregnant women.

REFERENCES

1. USNRC, "Instruction Concerning Risks from Occupational Radiation Exposure," Regulatory Guide 8.29, Revision 1, February 1996.
2. National Council on Radiation Protection and Measurements, *Limitation Exposure to Ionizing Radiation*, NCRP Report No. 116, Bethesda, MD, 1993.

QUESTIONS AND ANSWERS CONCERNING PRENATAL RADIATION EXPOSURE

1. Why am I receiving this information?

The NRC's regulations (in 10 CFR 19.12, "Instructions to Workers") require that licensees instruct individuals working with licensed radioactive materials in radiation protection as appropriate for the situation. The instruction below describes information that occupational workers and their supervisors should know about the radiation exposure of the embryo/fetus of pregnant women.

The regulations allow a pregnant woman to decide whether she wants to formally declare her pregnancy to take advantage of lower dose limits for the embryo/fetus. This instruction provides information to help women make an informed decision whether to declare a pregnancy.

2. If I become pregnant, am I required to declare my pregnancy?

No, the choice whether to declare your pregnancy is completely voluntary. If you choose to declare your pregnancy you must do so in writing and a lower dose limit will apply to your embryo/fetus. If you choose not to declare your pregnancy, you and your embryo/fetus will continue to be subject to the same radiation dose limits that apply to other occupational workers.

3. If I declare my pregnancy in writing, what happens?

If you choose to declare your pregnancy in writing, the licensee must take measures to limit the dose to your embryo/fetus to 0.5 rem (5 millisievert) during the entire pregnancy. This is one-tenth of the dose that an occupational worker may receive in a year. If you have already received a dose exceeding 0.5 rem (5mSv) in the period between conception and the declaration or your pregnancy, an additional dose of 0.05 rem (0.5 mSv) is allowed during the remainder of the pregnancy. In addition, 10 CFR 20.1208, "Dose to an Embryo/Fetus," requires licensees to make efforts to avoid substantial variation above a uniform monthly dose rate so that all the 0.5 rem (5 mSv) allowed dose does not occur in a short period during the pregnancy.

This may mean that, if you declare your pregnancy, the licensee may not permit you to do some of your normal job functions, if those functions would have allowed you to receive more than 0.5 rem, and you may not be able to have some emergency response responsibilities.

4. Why do the regulations have a lower dose limit for the embryo/fetus of a declared pregnant woman than for a pregnant worker who has not declared?

A lower dose limit for the embryo/fetus of a declared pregnant woman is based on a consideration of greater sensitivity to radiation of the embryo/fetus and the involuntary nature of the exposure. Several scientific advisory groups have recommended (References 1 and 2) that the dose to the embryo/fetus be limited to a fraction of the occupational dose limit.

5. What are the potentially harmful effects of radiation exposure to my embryo/fetus?

The occurrence and severity of health effects caused by ionizing radiation are dependent upon the type and total dose or radiation received, as well as the time period over which the exposure was received. See Regulatory Guide 8.29, "Instruction Concerning Risks from

Occupational Exposure” (Ref. 3), for more information. The main concern is embryo/fetal susceptibility to the harmful effects of radiation such as cancer.

6. Are there any risks of genetic defects?

Although radiation injury has been induced experimentally in rodents and insects, and in the experiments was transmitted and became manifest as hereditary disorders in their offspring, radiation has not been identified as a cause of such effect in humans. Therefore, the risk of genetic effects attributable to radiation exposure is speculative. For example, no genetic effects have been documented in any of the Japanese atomic bomb survivors, their children or their grandchildren.

7. What if I decide that I do not want any radiation exposure at all during my pregnancy?

You may ask your employer for a job that does not involve any exposure at all to an occupational radiation dose, but your employer is not obligated to provide you with a job involving no radiation exposure. Even if you receive no occupational exposure at all, your embryo/fetus will receive some radiation dose (on average 75 mrem (0.75 mSv)) during your pregnancy from natural background radiation.

The NRC has reviewed the available scientific literature and concluded that the 0.5 rem (5 mSv) limit provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers. If this dose limit is exceeded, the total lifetime risk of cancer to the embryo/fetus may increase incrementally. However, the decision on what level of risk to accept is yours. More detailed information on potential risk to the embryo/fetus from radiation exposure can be found in References 2-10.

8. What effect will formally declaring my pregnancy have on my job status?

Only the licensee can tell you what effect a written declaration of pregnancy will have on your job status. As part of your radiation safety training, the licensee should tell you the company’s policies with respect to the job status of declared pregnant women. In addition, before you declare your pregnancy, you may want to talk to your supervisor or your radiation safety officer and ask what a declaration of pregnancy would mean specifically for you and your job status.

In many cases you can continue in your present job with no change and still meet the dose limit for the embryo/fetus. For example, most commercial power reactor workers (approximately 93%) receive, in 12 months, occupational radiation doses that are less than 0.5 rem (5mSv) (Ref. 11). The licensee may also consider the likelihood of increased radiation exposures from accidents and abnormal events before making a decision to allow you to continue in your present job.

If your current work might cause the dose to your embryo/fetus to exceed 0.5 rem (5mSv), the licensee has various options. It is possible that the licensee can and will make a reasonable accommodation that will allow you to continue performing your current job, for example, by having another qualified employee do a small part of the job that accounts for some of your radiation exposure.

9. What information must I provide in my written declaration of pregnancy?

You should provide, in writing, your name, a declaration that you are pregnant, the estimated date of conception (only the month and year need be given), and the date that you give the letter to the licensee. A form letter that you can use is included at the end of these questions and answers. You may use that letter, use a form letter the licensee has provided to you, or write your own letter.

10. To declare my pregnancy, do I have to have documented medical proof that I am pregnant?

NRC regulations do not require that you provide medical proof of your pregnancy. However, NRC regulations do not preclude the licensee from requesting medical documentation of your pregnancy, especially if a change in your duties is necessary in order to comply with the 0.5 rem (5mSv).

11. Can I tell the licensee orally rather than in writing that I am pregnant?

No. The regulations require that the declaration must be in writing.

12. If I have not declared my pregnancy in writing, but the licensee suspects that I am pregnant, do the lower dose limits apply?

No, the lower dose limits for pregnant women apply only if you have declared your pregnancy in writing. The United States Supreme Court has ruled (in *United Automobile Workers International Union v Johnson Controls, Inc.*, 1991) that “Decisions about the welfare of future children must be left to the parents who conceive, bear, support, and raise them rather than to the employers who hire those parents” (Reference 7). The Supreme Court also ruled that your employer may not restrict you from a specific job “because of concerns about the next generation.” Thus, the lower limit applies only if you choose to declare your pregnancy in writing.

13. If I am planning to become pregnant but are not yet pregnant and I inform the licensee of that in writing, do the lower dose limits apply?

No. The requirement for lower limits applies only if you declare in writing that you are already pregnant.

14. What if I have a miscarriage or find out that I am not pregnant?

If you have declared your pregnancy in writing, you should promptly inform the licensee in writing that you are no longer pregnant. However, if you have not formally declared your pregnancy in writing, you need not inform the licensee of your non-pregnant status.

15. How long is the lower dose limit in effect?

The dose to the embryo/fetus must be limited until you withdraw your declaration in writing or you inform the licensee in writing that you are no longer pregnant/. If the declaration is not withdrawn, the written declaration may be considered expired one year after submission.

16. If I have declared my pregnancy in writing, can I revoke my declaration of pregnancy even if I am still pregnant?

Yes you may. The choice is entirely yours. If you revoke your declaration of pregnancy, the lower dose limit for the embryo/fetus no longer applies.

17. What if I work under contract at a licensed facility?

The regulations state that you should formally declare your pregnancy to the licensee in writing. The licensee has the responsibility to limit the dose to the embryo/fetus.

18. Where can I get additional information?

The references to this Appendix contain helpful information, especially Reference 3, NCR's Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure", for general information on radiation risks. The licensee should be able to give this document to you.

For information on legal aspects, see Reference 7, "The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children-What Can the Employer Do?" which is an article in the journal of *Radiation Protection Management*.

You may telephone the NRC Headquarters at (301)415-7000. Legal questions should be directed to the Office of the General Council, and technical questions should be directed to the Division of Industrial and Medical Nuclear Safety.

You may also telephone the NRC Regional Offices at the following numbers: Region I, (610) 337-5000; Region II, (404)562-4400; Region III, (630) 829-9500; and Region IV, (817) 860-8100. Legal questions should be directed to the Regional Counsel, and technical questions should be directed to the Division of Nuclear Materials Safety.

REFERENCES FOR QUESTIONS AND ANSWERS

1. National Council on Radiation Protection and Measurements, Limitation of Exposure to Ionizing Radiation, NCRP Report No. 116, Bethesda, MD, 1993.
2. International Commission on Radiological Protection, 1990 Recommendations of the International Commission on Radiological Protection, ICRP Publications 60, Ann. ICRP 21: No.1-3, Pergamon Press, Oxford, UK, 1991.
3. USNRC, "Instruction Concerning Risks from Occupational Radiation Exposure, "Regulatory Guide 8.29, Revision 1, February 1996.¹ (Electronically available at www.nrc.gov/NCR/RG/index.html)
4. Committee on the Biological Effects of Ionizing Radiations, National Research Council, *Health Effects of Exposure to Low Levels of Ionizing Radiation* (BEIR V), National Academy Press, Washington, DC, 1990.
5. United Nations Scientific Committee on the Effects of the Atomic Radiation, *Sources and Effects of Ionizing Radiation*, United Nations, New York, 1993.
6. R. Doll and R. Wakeford, "Risk of Childhood Cancer from Fetal Irradiation," *The British Journal of Radiology*, 70, 130-139, 1997.
7. David Wiedis, Donald Jose, and Timm o. Phoebe, "The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children-What Can the Employer Do?" *Radiation Protection Management*, 11, 41-49, January/February 1994.
8. National Council on Radiation Protection and Measurements, *Considerations Regarding the Unintended Radiation Exposure of the embryo, Fetus, or Nursing Child*, NCRP Commentary No. 9, Bethesda, MD, 1994.
9. National Council on Radiation Protection and Measurements, *Risk Estimates for Radiation Protection*, NCRP Report No. 115, Bethesda, MD, 1993.
10. National Radiological Protection Board, *Advice on Exposure to Ionizing Radiation During Pregnancy*, National Radiological Protection Board, Chilton, Didcot, UK, 1998.
11. M.L. Thomas and D. Hagemeyer, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities, 1996", Twenty-Ninth Annual Report, NUREG-0713, Vol.18, USNRC, 1998.²

¹ Single copies of regulatory guides, both active and draft, and draft NUREG documents may be obtained free of charge by writing the Reproduction and Distribution Services Section, OCIO, USNRC< Washington, DC 20555-0001, or by fax to (301) 415-2289, or by email to <DISTRIBUTION@NRC.GOV>. Active 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. Copies of active and draft guides are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW, Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202) 634-3273; fax (202)634-3343.

² Copies are available at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington DC 20402-9328 (telephone (202) 512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161. Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202) 634-3273; fax (202)634-3343.

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Regulatory Guide 8.13
Instruction Concerning Prenatal Radiation Exposure Acknowledgment Form

I, _____ (*printed name*), have read and/or been advised of the contents of Regulatory Guide 8.13. I understand that if I am pregnant, or suspect that I may be pregnant, I should notify my supervisor in writing. I understand that my decision to declare my pregnancy is completely voluntary on my part. I further understand that my emergency assignment or responsibilities may be changed to limit my radiation exposure from all sources to 500 mR during the entire term of the declared pregnancy.

Signature: _____

Date: _____

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Regulatory Guide 8.13
Declaration of Pregnancy

In accordance with EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", which references the requirements in 10 CFR 20.1208, "Dose Equivalent to an Embryo / Fetus", I am declaring that I am pregnant.

I believe I became pregnant in _____.
month / year

I understand that the radiation dose to the embryo / fetus during my entire pregnancy will not be allowed to exceed 0.5 rem (500 millirem or 5 millisievert) unless that dose has already been exceeded between the time of conception and submitting this letter. I also understand that meeting the lower dose limit may require a change in emergency assignment or responsibilities during my pregnancy.

Signature: _____

Print Name: _____

Date: _____

Tab 3 (Radiological Officer Information and Forms) to Appendix B

LM-26 Survey Meter Operation

Control Dosimetry Form

Background Radiation Reading Form

Dosimetry Packet Issuance Record

Exposure Log

Ludlum Model 26 (LM-26) Pancake Frisker Survey Meter Operation

Summary of Normal Use

1. Remove clear plastic storage cover from back
2. Turn on by pressing green button
3. Survey by holding back approximately 1/2" from scanned surface and reading cpm (counts per minute) on front
4. When done, turn off by holding green button for a few seconds and replace clear plastic storage cover



Instrument Use

With only two front-panel buttons, a green ON/ACK button on the left and a red MODE button on the right, the Ludlum Model 26 (LM-26) is simple and easy to use. It detects beta and gamma radiation (though it displays only the resulting cpm of contamination). It powers up in the default NORMAL mode, which displays the current count rate in cpm. Pressing the MODE button will switch it to MAX mode, which displays the highest count rate detected. Pressing the MODE button again will switch it to SCALER mode, which will display a timer for taking background radiation levels. Pressing MODE again returns it to NORMAL mode.

- Remove the clear plastic protective cover over the window before use. The storage cover interferes with accurate contamination monitoring.
- ON/ACK button: used to power the Model 26 ON and OFF.
 - Power On: Press and release (instrument beeps and display will show all LCD segments, then the firmware version, then begin reading cpm).
 - Power Off: Hold for approximately five seconds (countdown will display 3, 2, 1, and then LCD will clear when instrument is off).
- MODE button: used to advance between the three operating modes, NORMAL, MAX, and SCALER. An administrator or calibrator can disable the MAX and/or SCALER modes.
 - The LM-26 is used in the default NORMAL mode most of the time to provide a constant radiation reading. While in NORMAL mode, quickly pressing the green button turns the beeping on and off.
 - The MAX mode is used to identify a peak reading. While in MAX mode, pressing the green button twice resets the peak.
 - The SCALER mode is used to determine background radiation (see below). While in SCALER mode, pressing the green button starts or resets the timer.
- The Radiological Officer should be familiar with the operating manual for the Ludlum Model 26 and be able to assist users with questions. The Radiological Health Advisor at the State Emergency Operations Center (EOC) is available to assist the Radiological Officer if he or she has any concerns.

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

- Normally measurements of **100 cpm greater than background** are considered contaminated. The Department of Health will make any decision to use higher levels above background, and if so all responders will be notified. Stop when you see a reading that is greater than 100 cpm over background and verify whether or not the area is contaminated. With contamination, the count rate will remain elevated. If the count rate does not stay elevated, the reading was probably a false positive and there may be no contamination.

Determining Background Radiation Level

1. Ensure you are not near radioactive materials.
2. Use the red MODE button to switch to SCALER mode. The display will start at 1:00.
3. Press the green button and the display will count down from 60 to 0 seconds, after which you will see the background count rate in cpm.
4. Record the background CPM for reference as you scan for contamination.
5. Press the red MODE button to switch the mode back to NORMAL.

Operational Test

1. Turn the instrument ON by pressing the green ON/ACK button. The instrument should beep and activate all the LCD segments and then display the firmware version. It will then begin displaying the current count rate.
2. Check for a low-battery indicator. If the low-battery indicator is present, replace the two AA batteries in the instrument handle as soon as possible. Batteries should last 500-1000 hours; the warning indicator comes on when the batteries are down to 16 hours or less.
3. Check the meter by taking a check source out of its packaging and placing it on a flat surface, label side up. (Vermont provides sources with labeled ranges.) Remove the storage cover and place the meter directly over the source for at least five seconds. If the readings are not within the ranges shown on the labels on the sources and meters, turn the meter off and try again. If it still does not read within the ranges shown, turn the meter in to the Radiological Officer and request a replacement.

Notes: The LM-26 is designed to be durable and water resistant for outdoor use, but the detector window is delicate (and should be stored with the plastic protective cover). It is not designed to be submerged in water and users should try to keep water from getting into the detector window opening. It has no maximum altitude and a temperature range of -40 to 150 °F. Its range is 0 to 99,900 cpm (99.9 kcpm) with 1,000 cpm (1 kcpm) approximately equal to 0.3 mR/hour.

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Control Dosimetry Form

In the event of an incident at Vermont Yankee that requires the distribution of emergency worker dosimetry, it is useful to track reference exposure levels at a location for comparison with individual exposure readings. The radiological officer should select one Dosimeter of Legal Record (DLR) and set it aside as a control. The control dosimetry should be kept secure so that it is not lost but should not be subject to any special protections that people working in the area do not have (i.e. it does not have to be stored in a lead-lined box).

Complete this form and forward it along with the control dosimetry to the Vermont Department of Health representative at the State Emergency Operations Center after termination of local operations (e.g. when the incident ends, when the Incident Command Post relocates, etc.).

Facility: _____
(e.g. Town of Vernon EOC)

Site Address: _____

The control dosimetry was stored at (include the exact location in the building):

Control Dosimetry serial number (accompanied by this form): _____

Dosimetry issued / set aside (date and time): _____

Dosimetry packed for turn-in (date and time): _____

Control Dosimetry submitted by:

Name: _____

Signature: _____

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Background Radiation Reading Form

Use this form to record background radiation readings for specific areas. Use a separate form for each geographically separated facility as required. (For example, use two forms if a town is operating an Incident Command Post in one place and a Staging Area in another place.)

Take one reading immediately when the facility is activated. Take other readings as required or directed if there is a radiological release - generally every 24 hours if there is no expected contamination in the area, every 4 hours if the facility is well outside any plume, and every hour if the facility is within a likely plume of contaminants. Take readings in the same place each time. Do not risk significant exposure to take readings (e.g. if a facility is sheltering in place and background radiation levels are rising inside, do not take an outside reading).

Facility: _____
(e.g. Town of Vernon EOC)

Site Address: _____

Inside Location: _____	Date	Time	Counts per minute
Outside Location: _____	Date	Time	Counts per minute

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Exposure Log

Facility: _____

Date: _____

Use this form to record times when workers report reaching different exposure levels. Use one form for each day and record the time when a worker reports reaching each 1R increment (in 24 hour format, e.g. 1315). If a worker begins the day with exposure from earlier in the incident, list them first with an X in each block for their previous exposure level.

Name	1 R	2 R	3 R	4 R	5 R	6 R	7 R	8 R	9 R	10 R	11 R	12 R	13 R	14 R	15 R	16 R	17 R	18 R	19 R	20 R	21 R	22 R	23 R	24 R	25 R	

Tab 4 (General Forms) to Appendix B

Vermont Yankee Emergency Notification Form

Access Control Instructions

Restricted Zone Reentry Instructions

Reentry Processing Form

Restricted Zone Pass

Restricted Zone Log

Radio Log

Operations Log Form

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Vermont Yankee Notification Form

This is a/an: <input type="checkbox"/> Actual Event <input type="checkbox"/> Drill		Vermont Yankee Notification Form	
The Time is: _____	The Date is: _____	<input type="checkbox"/> Lowband	Message Number _____
		<input type="checkbox"/> RACES	
1. Emergency Classification: Vermont Yankee has declared a/an:	<input type="checkbox"/> Unusual Event	<input type="checkbox"/> Alert	<input type="checkbox"/> Site Area Emergency
	<input type="checkbox"/> Unusual Event Terminated	<input type="checkbox"/> Entry to Recovery	<input type="checkbox"/> General Emergency
2. Declared at:	Time _____	Date _____	Based on EAL _____ . _____
3. The Plant is	<input type="checkbox"/> Continuing Normal Operations	<input type="checkbox"/> Reducing Power	<input type="checkbox"/> Shut Down
4. Radiological Release	<input type="checkbox"/> Has not occurred <input type="checkbox"/> Has occurred and is continuing <input type="checkbox"/> Has occurred but has been terminated		
5. Present Meteorological Conditions:	Wind Speed (MPH) _____	Wind Direction from _____	degrees true north
6. State Protective Action Recommendations: <input type="checkbox"/> None <input type="checkbox"/> As Listed Below			
A. <u>EVACUATE Towns of:</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
B. <u>SHELTER-IN-PLACE:</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
C. <u>Early Assembly of Buses</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
D. <u>Transfer Schools & Childcares</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
E. <u>Transfer of Health Care</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
F. <u>Shelter Livestock</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
G. <u>Clear Parks, Rec, Waterways</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
H. <u>Transients Advised to Leave</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
Potassium Iodide			
I. <u>KI for Emergency Workers</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
J. <u>KI for Persons under care</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
K. <u>KI for General Public</u>	<input type="checkbox"/> All Towns	<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Dummerston
	<input type="checkbox"/> Gullford	<input type="checkbox"/> Halifax	<input type="checkbox"/> Marlboro
	<input type="checkbox"/> Vernon		
7. Reception Centers Open:	<input type="checkbox"/> BFUHS	<input type="checkbox"/> Greenfield	<input type="checkbox"/> Keene
	<input type="checkbox"/> None	<input type="checkbox"/> OTHER	_____
8. Public Notifications:	Decision Time _____	Sirens activated _____	EAS activated _____
	RENTS activated _____		
9. The Governor	<input type="checkbox"/> has declared a state of emergency <input type="checkbox"/> has not declared a state of emergency		
10. Remarks	_____		
11. This is a/an: <input type="checkbox"/> Actual Event <input type="checkbox"/> Drill			
Local Use Only			
Received By: _____			
Time: _____ Date: _____			
Reviewed By (EOC Manager or Designee): _____			
Time: _____ Date: _____			
Radio Message Acknowledgment			
<input type="checkbox"/> Brattleboro	<input type="checkbox"/> Marlboro	<input type="checkbox"/> EOF	
<input type="checkbox"/> Dummerston	<input type="checkbox"/> Vernon	<input type="checkbox"/> Staging Area	
<input type="checkbox"/> Guilford	<input type="checkbox"/> BFUHS Reception Center		
<input type="checkbox"/> Halifax			
Distribution: White - Communications Unit Leader, Yellow - Planning Section Chief, Pink - PIO, Gold - Operations Section Chief			
VY Notification Form 4/1/13			

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Access Control Instructions

Police service personnel, with assistance from county and state law enforcement personnel (as requested), fire department personnel, and town highway personnel are responsible for staffing access control points. Some points are manned while others only have barricades. The Police Branch Director will give instructions to all access control personnel - do not implement any access control measures without specific directions.

Location:

Access Control Point Instructions:

Upon arriving at the access control point, check in with the Incident Command Post and stand by unless directed otherwise. When access control is necessary, the Police Branch Director will contact the control point staff. At that time, set up a check point or put up barricades to prevent unauthorized entry to the town.

Allow entry of:

- Emergency response personnel with reasonable identification, i.e., federal, state, town employees, utility employees, etc.
- Emergency response vehicles with specific missions and destinations, i.e., buses, ambulances, wreckers, highway and fire vehicles.
- Members of the press with press credentials.
- Residents re-entering the area for justifiable needs, e.g., livestock and poultry farmers, essential services workers, etc. (These individuals may be required to be escorted by an emergency worker with dosimetry.)

Note: When in doubt, check whether or not to allow entry with the local Incident Command Post or State Emergency Operations Center.

Do NOT allow entry of:

- Transients and commercial traffic
- Sightseers, rubbernecks, disaster tourists, looters, etc.

In response to requests for information from the public, the officers should refer them to one of the local Emergency Alert System Stations for news and instructions as follows.

WTSA	96.7 FM / 1450 AM	Brattleboro, VT
WKVT	92.7 FM / 1490 AM	Brattleboro, VT
WTHK	100.7 FM	West Dover, VT

Restricted Zone Reentry Instructions

Reentry Instructions

1. Use designated routes/directions to reach your destination.
2. Do not stay in the restricted zone longer than your stay time.
3. Conduct and complete your duties as soon as possible.
4. If unsure what to do, leave the area and return to the reentry point.

Dosimetry Instructions

Wearing the Dosimeters

- Wear the Direct Reading Dosimeter (DRD) and Dosimeter of Legal Record (DLR) on the outer most layer of clothing on the upper torso area of the body between the neck and waist. They may be clipped to a shirt, jacket, or coverall pocket. The Direct reading Dosimeter should always be worn next to the Dosimeter of Legal Record.
- ONLY if the area being entered is wet: wear the DRD inside the outer clothing (to protect it from getting contaminated or damaged).
- Handle the DRD gently - try not to drop it and do not submerge it in water.

Reading the DRD

- Read your DRD dosimeter at frequent intervals (approximately every 15 minutes).
- Point the DRD toward a light source and look through the eye piece.
- Locate the hairline and estimate the reading.
- Always read the dosimeter scale in the horizontal position to minimize the effects of gravity on the fiber.
- Return to the reentry point if you lose or break your DRD or if your DRD reads off-scale.

Exiting Instructions

1. Return to the same reentry point that you entered.
2. Follow instructions explained at reentry point.

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Reentry Processing Form

Use this form to request and track reentry to the restricted zone. There should be one form for each entry, though agencies can make copies and list different dates to allow people to return regularly (e.g. farmers caring for livestock). Individuals request access, towns or other agencies approve the request and provide dosimetry, and control point officers collect the forms and dosimetry when individuals exit the zone.

Name: _____ Date: _____

Contact Information: _____

Destination: _____

Purpose of Entry: _____

Estimated Stay Time in Restricted Zone: _____

Approval for Reentry

Approved by: _____ Reentry Date: _____

Agency: _____ Pass Number: _____

Location of Access Control Point: _____

Dosimetry

Issued by: _____ Date / Time: _____

Direct Reading Dosimeter (DRD) Serial Number: _____

Dosimeter of Legal Record (DLR) Serial Number: _____

Control Point Officer

Entry Date / Time: _____ DRD Reading: _____ R

Exit Date / Time: _____ DRD Reading: _____ R Dose: _____ R

Dosimetry Turned In? Yes No (Individuals returning multiple times should keep their dosimetry)

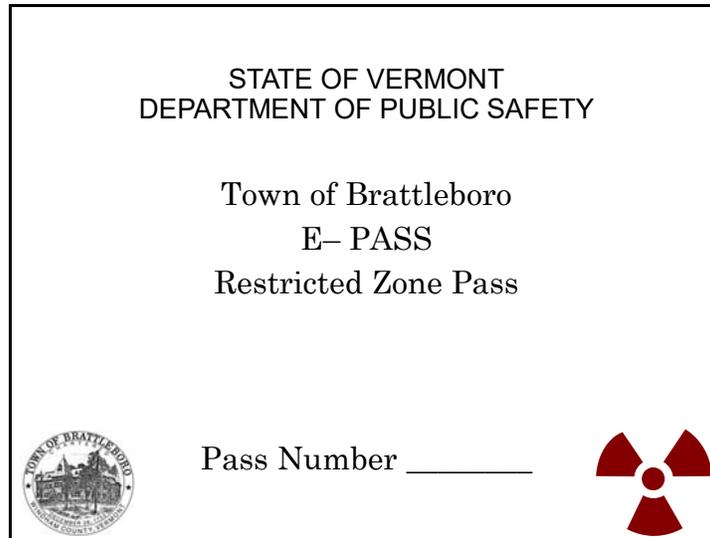
ORIGINAL: Issuing agency periodically sends to Health Department representative at the Staging Area.

COPY: Individual carries into the restricted zone and gives to the Control Point Officer on exiting.

STATE OF VERMONT EMERGENCY OPERATIONS PLAN

Restricted Zone Pass

Sample front and back views:



Note: The E-PASS may vary in color in order to be used as a control device. For example, orange passes may be issued on even numbered days and green passes on odd numbered days; other colors may denote different towns. For a long duration emergency, a more rigid pass system is likely to replace this initial one.

Restricted Zone Log

Access Control Point: _____

Page ____ of ____

Agency: _____

Officer: _____

Name of Person Entering	Restricted Zone Pass No.	Reason For Entry	IN Date Time	OUT Date Time	Initials of Access Control Personnel

State Emergency Operations Plan

Operations Log

Position: _____

Page ____ of ____

Name: _____

Start Date / Time: _____

TIME (when)	INCIDENT, EVENT, or ACTION (who what where why)	STATUS	
		in progress	complete
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>