

Actions for each Emergency Classification Level (ECL)

Nuclear Regulatory Commission Emergency Classifications

The Nuclear Regulatory Commission (NRC) has established Emergency Classifications that group events or conditions according to (1) potential or actual effects or consequences, and (2) resulting onsite and offsite response actions.



The emergency classifications increase in severity from Notification of Unusual Event (NUE); Alert; Site Area Emergency (SAE); and General Emergency (GE). This planning guide will describe the actions taken by the State, Risk Counties and Utility as if the event transitions from the lowest ECL to the highest and most severe ECL.

State of Minnesota

If the Utility declares an emergency at either of the two nuclear generating plants in Minnesota, the State Emergency Operations Center (SEOC) is activated. The governor or authorized representative directs SEOC operations, and the Department of Public Safety Division of Homeland Security and Emergency Management (HSEM) coordinates agency response to the event. Using the National Incident Management System (NIMS) and the incident command structure (ICS), the state provides direction and control for the response as outlined in the Minnesota Emergency Operations Plan (MEOP).

Notification of Unusual Event (NUE)

A NUE is a low-level event that poses no threat to public safety but warrants an increased awareness on the part of plant and off-site agencies.

- The utility notifies the Minnesota duty officer.
- The Minnesota duty officer notifies various personnel as indicated by standard operating guidelines.
- The state and the utility may initiate communication about technical issues.
- NUE status is maintained until verbal termination or escalation to a higher ECL takes place.

Alert

An Alert is a low-level condition that poses no threat to public safety but precautionary mobilization of certain response functions will be implemented.

- The utility notifies the Minnesota duty officer.
- The Minnesota duty officer notifies HSEM staff and state agencies.
- The SEOC is activated and fully staffed.
- State agencies report to SEOC as required by the MEOP.
- Governor signs an executive order activating portions of the Minnesota National Guard. The order also authorizes state agencies to support response activities and establishes the Governor's authorized representative (GAR).
- The SEOC establishes communications with risk counties.
- A joint information center (JIC) is established with representatives from state agencies, counties and the utility.
- Joint media briefings are coordinated from the JIC.

- An information hotline is established.
- SEOC notifies the National Operations Center (NOC) and FEMA Region V Operations Center.
- State and federal agencies are notified of the situation. These may include:
 - State radiological assistance monitoring teams
 - Minnesota Department of Transportation (MNDOT) personnel may place barricades for traffic control
 - State Patrol troopers for traffic control points
 - Department of Agriculture (MDA) field teams
 - Department of Natural Resources (DNR) field teams
 - Emergency worker decontamination centers
 - Reception centers (where the general public goes for monitoring and decontamination)
 - U.S. Department of Energy radiological assistance
- All school districts in the 10-mile emergency planning zone (EPZ) are notified and asked to review their evacuation/relocation plans.
- Designated CVS Pharmacies located in Target Stores are asked to discontinue distribution of potassium iodide (KI).
- Air, rail and river traffic control centers are notified and alerted that restrictions may be needed in the future.
- Special populations (anybody needing additional time to evacuate, including home day cares, nursing homes, etc.) in the 10-mile EPZ are notified of the situation through general media releases.
- The SEOC Planning and Assessment Center (PAC) monitors current weather conditions and

analyzes possible scenarios if the situation at the plant deteriorates.

- National Atmospheric Release Advisory Center (NARAC) assistance may be requested for plume mapping.
- Evacuation routes are reviewed for impediments.
- Counties are consulted about any special events or concerns that may affect protective action recommendations.
- If conditions at the plant continue to degrade, the SEOC may recommend to counties that school districts in the 10-mile EPZ be notified to have buses placed on standby for evacuation or relocation.
- Alert status is maintained until termination, or escalation to a higher ECL takes place.

Hostile Action-Based Incident (Alert)

- Communication with Local Law Enforcement at the county command post and staging area is established.
- SEOC notifies appropriate Chemical Assessment Teams, State Patrol Tactical Team, Bomb Squads and Technical Rescue Teams for activation and standby status.
- Media advisory is released for residents to stay indoors and keep off the roadways.
- Request air space restrictions and close river traffic.

Site Area Emergency (SAE)

A Site Area Emergency is declared if events are in progress or have occurred which have caused (or likely will cause) major failures of plant functions that protect the public. At this time a full activation of response functions is necessary. Precautionary protective actions for high-risk portions of the general public may be recommended.

- The utility notifies the Minnesota duty officer or the Planning and Assessment Center (PAC).
- Governor issues a declaration of a State of Emergency.

- SEOC may recommend to counties that school districts with schools within the 10-mile EPZ are relocated to their designated sister school locations outside of the 10-mile EPZ.
- All school districts in the 10-mile EPZ may be advised not to send school children who live within the 10-mile EPZ home from schools outside the EPZ.
- Special populations (anybody needing additional time to evacuate, including home day cares, nursing homes, etc.) may be notified to consider relocating outside the 10-mile EPZ through the general media releases.
- State radiological teams may be pre-positioned to track potential radioactivity release.
- U.S. Department of Energy radiological assistance may be initiated.
- MDA may issue a livestock advisory recommending that livestock within 50 miles of the plant be sheltered and placed on stored feed. MDA also assesses the need to extend the livestock advisory to other areas.
- The SEOC, through MNDOT, may request closures of airspace (temporary flight restriction up to 10,000 ft.), rail and river traffic in the 10-mile EPZ.
- MNDOT personnel may place traffic control barricades in predetermined locations.
- Reception centers may be set up and staffed to receive and monitor evacuees.
- Area hospitals are alerted and bed availability is determined.
- State land within the 10-mile EPZ may be closed.
- Preparations are made to evacuate or shelter-in-place populations in special facilities such as jails, hospitals and nursing homes.
- Emergency worker decontamination facilities may be setup.
- SEOC and PAC analyze information from the utility and off-site monitoring to continually assess protective actions.

- Maintain SAE status until verbal termination or escalation to a General Emergency.

Hostile Action-Based Incident (SAE)

- State liaison sent to the command post via the county EOC.
- Two-mile traffic and access control points are implemented to restrict traffic.
- JIC issues media advisory for locals to stay indoors, off roadways and out of the area.
- Inform staff at traffic and access control points to allow utility employees and field teams with proper identification through to support on-site response activities.

General Emergency (GE)

If a GE is declared, conditions have degraded to a point threatening public safety, and some form of protective action will be initiated.

- The utility notifies the Minnesota duty officer or the SEOC PAC.
- The state recommends evacuation or sheltering in a predetermined 2-mile radius and 5-mile area downwind (for Prairie Island, if the wind is below 5 mph, evacuation or sheltering occurs within the entire 5-mile radius) in the case of actual or projected severe core damage or loss of control of the facility. The state will continue to assess the need to extend evacuation distances. The state will recommend the self-administration of KI for emergency workers if this has not been done already.
- The state recommends self-administration of KI for the entire population within the evacuation or sheltering area as a secondary protective measure.
- Emergency information will be relayed to the general public and special populations via special news bulletins (SNBs) after the Emergency Alert System (EAS) and outdoor warning sirens are activated.
- The JIC will provide additional information through media briefings.

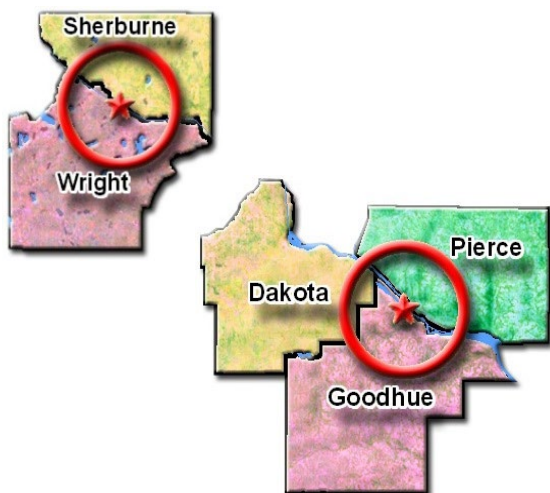
- Residents in the remainder of the EPZ are advised to go indoors and listen to EAS and SNB messages.
- Minnesota State Patrol and local jurisdictions staff traffic and access control points to assist evacuations.
- State radiological field teams conduct radiological monitoring in the area to detect and track any release of radioactive material. The National Guard 55th Civil Support Team may be used to support this mission if needed.
- The PAC conducts dose analysis of utility-provided release mixture and radiological field team data. The PAC also evaluates the need for any protective action recommendations outside the 10-mile EPZ.
- The Intermediate Phase Task Force (IPTF) is established to review recommendations to protect the food supply in the EPZ.
- MDA establishes an agricultural control area in areas 50 miles downwind from the plant. Agricultural control areas may be expanded or contracted when lab analysis of samples indicate radiation levels that exceed FDA guidelines for annual consumption of food products in the control area.
- DNR puts restrictions on hunting, fishing and recreational land use in the 50-mile downwind area.
- Hospitals are notified of the evacuation order.
- State of Minnesota will initiate a request for a Federal Emergency Declaration requesting emergency protective measures (Category B) and direct federal assistance under the Public Assistance Program.
- Maintain general emergency status until verbal termination.
- State is the lead agency for making protective action decisions (PADs).
- If a release occurs as a result of hostile action, there may be a pull-back of assets to a safe location.

Hostile Action-Based Incident (GE)

- SEOC to coordinate with Command Post to bring field monitoring teams closer when tactically safe to do so.
- If control of the site is lost, the state will request direct federal assistance to take back control of the plant.

Risk County Government

Counties in the EPZ respond to incidents at nuclear generating plants in accordance with their emergency operations plans. Each county's activities are intended to protect lives and property, ensure continuity of government, provide essential services, and support local units of government. The county activates its EOC to carry out these activities. The county EOC allows information to be exchanged between county departments and coordinates operations with other counties, state and federal agencies and tribal communities. County EOC staff are in direct contact with the state EOC and advised of all recommended protective actions.



Notification of Unusual Event (NUE)

- The utility notifies the county dispatch centers.
- County emergency management directors are notified by dispatch.
- NUE status is maintained until verbal termination or escalation to a higher ECL takes place.

Alert

- The utility notifies the county dispatch centers.
- The county EOCs are activated.
- County public information officers are sent to the JIC.
- County-operated emergency worker decontamination centers are notified and put on standby.
- County assesses special events or concerns that may affect protective action recommendations.
- County notifies school superintendents within the 10-mile EPZ.
- School superintendents notify bus transportation companies and put them on standby for evacuation.
- Alert status is maintained until verbal termination, ECL reduction or escalation to a higher ECL takes place.

Hostile Action Based-Incident (Alert)

- Local law enforcement (LLE) to respond to 911 calls for assistance as normal.
- Command post and staging are established near the site; unified command is established to coordinate the responsibilities of the utility, LLE, and state and federal agencies.
- LLE to request tactical teams/resources according to the incident from other agencies.
- LLE initiates a sweep of the owner-controlled area. When additional resources assemble, LLE pairs up with the utility security forces at tactical staging area.

Site Area Emergency (SAE)

- The utility notifies the dispatch centers or the county EOC.
- Counties may notify school superintendents to evacuate schools within the 10-mile EPZ to predetermined sister schools outside the affected area or to shelter in place within their current school after agreement with the SEOC.
- County EOC establishes communication with SEOC.
- County operated emergency worker decontamination centers may be setup and staffed.
- Road blocks are established as necessary.
- County boards declare a State of Emergency.
- Maintain SAE status until verbal termination or escalation to a GE. Termination of this ECL requires NRC approval.

Hostile Action-Based Incident (SAE)

- Implement 2-mile traffic and access control points and close Interstate 94 (Monticello).
- City police/county sheriff will provide LLE to support schools.

General Emergency (GE)

- The utility notifies the dispatch centers.
- PADs are implemented as necessary.
- Counties sound their sirens and deputies run their routes for evacuation as called for.
- Mobility-impaired persons are evacuated.
- Counties prepare for the re-entry and relocation of the displaced population.
- Maintain GE status until verbal termination. Termination of this ECL requires NRC approval.

Hostile Action-Based Incident (GE)

- Implement PADS for the 2-mile and 5-mile areas.
- If a release occurs as a result of hostile action, there may be a pull-back of assets to a safe location.
- Radiological exposure control to be implemented at the GE, if not already done.
- Incident commander is responsible for relocating the command post and staging per recommendations from the SEOC and PAC.
- If control of the facility is lost, the state will request direct federal assistance to take back control of the facility.

Utility

Control room operators continuously monitor the operation of nuclear generating plant. When an unexpected event occurs, its effect on the public is evaluated. If necessary, the utility communicates an ECL to federal, state and county governments.



Notification of Unusual Event (NUE)

- Utility assesses and responds to the abnormal condition.
- Minnesota duty officer, local county dispatchers, tribes and the Nuclear Regulatory Commission (NRC) are promptly notified of the unusual event status and reason for the ECL.
- NUE is escalated to a more severe class, if appropriate, or terminated by a briefing of off-site authorities at EOCs by phone followed by a faxed, written summary.

Alert

- The state(s), local county dispatchers, tribes and NRC are promptly notified of Alert status and reason for the ECL.
- Utility staff report to the SEOC.
- On-shift resources are augmented by activating the Technical Support Center (TSC), Operational Support Center (OSC), and the Emergency Operations Facility (EOF). These facilities are activated at the nuclear generating plant to assist the control room; TSC and the OSC, which are located on the property and owned by the utility, are activated to deploy teams to operate and repair equipment and monitor radiological conditions in the plant.
- The EOF is activated to provide engineering support to the control room and to communicate conditions to off-site authorities. Periodic status updates are provided by the EOF to off-site authorities.
- Public information officers (PIO) staff the JIC at the SEOC.
- Results of periodic meteorological assessments and (if a release is occurring) dose projections for releases are provided to off-site authorities.
- Alert is escalated to a more severe class, if appropriate, or reduced or terminated by a briefing of off-site authorities at EOCs.

Hostile Action-Based Incident (Alert)

- Utility notifies off-site agencies.
- A security and operations liaison reports to the LLE command post.
- Vehicle barriers to be in place.
- Utility security will not engage at owner-controlled area.
- Facility goes into lockdown.

Site Area Emergency (SAE)

- The state(s), local county dispatchers, tribes and NRC are promptly informed of SAE status and reason for the ECL.
- Control room staff and response personnel continue to monitor plant conditions and repair systems when possible. If not already staffed, the EOF and other on-site response centers are activated. If conditions permit, on-site non-essential personnel are evacuated.
- Field monitoring teams are dispatched to monitor radiation levels around the plant.
- A PIO coordinates media updates on the plant status with state and county authorities at the JIC.
- Senior technical and management staff on-site may periodically consult with the NRC and state authorities.
- In the case of an actual release, the utility provides meteorological and dose projections to off-site authorities via dedicated individual or automated data transmission.
- SAE is escalated to a more severe class, if appropriate, or terminated with a briefing of off-site authorities at EOCs. Termination of this ECL requires NRC approval.

Hostile Action-Based Incident (SAE)

- Notification to LLE via 911 and the NRC.
- Notify counties and state as per normal procedures.
- A security and operations liaison reports to the LLE command post.
- Facility goes into lockdown.

General Emergency (GE)

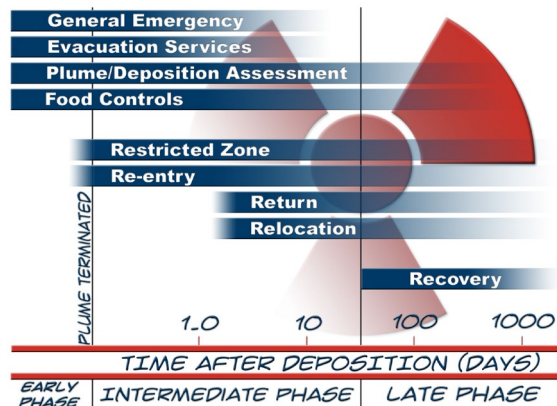
- The state(s), local county dispatchers, tribes and NRC are notified of GE status and the reason for the ECL.
- All on-site response centers are staffed and made operational.
- Plant conditions are monitored and systems repaired when possible.
- On- and off-site monitoring teams are dispatched.
- PIO coordinates plant status updates to off-site authorities and gives periodic media briefings in cooperation with the state JIC.
- Senior technical and management staff may consult with NRC and state authorities on a periodic basis.
- Off-site protective action recommendations are made to state and local authorities based on actual or potential plant conditions and radiological releases.
- Release-rate and dose projections based on plant conditions are provided to off-site authorities.
- Once the situation is under control and the release is stopped, the GE is terminated with a briefing of off-site authorities at EOCs.
- The utility begins the recovery phase of the incident.
- Termination of this ECL requires NRC approval.

Hostile Action Based Incident (GE)

- Notification to LLE via 911 and the NRC.
- Notify counties and state as per normal procedures.
- A security and operations liaison reports to the LLE command post.
- Facility goes into lockdown.

Intermediate/Ingestion Phase

When the release has ended and the situation brought under control, attention shifts from the immediate actions of the plume phase to the longer-term issues of the ingestion phase. These include the establishment of relocation areas, restricted zones, re-entry protocols, return protocols, recovery and additional food control measures.



Relocation Areas Established

- The initial post-plume priority is to determine if there is contamination in areas outside the initial evacuation areas that require additional measures (evacuation or relocation) to protect the public.
- Relocation areas are where the removal or continued exclusion of people from contaminated areas is needed to avoid chronic (long-term) radiation exposure.
- These areas are established anywhere there is a concern about long-term exposure due to contamination.
- Relocation from an area is indicated when soil samples exceed EPA protective action guidelines for 1- and 2-year periods of occupancy.

Restricted Zones Established

- Restricted zones are established to protect area residents from the potential effects of chronic exposure to low-level radiation.

- These are areas with controlled access from which the population has been evacuated or relocated.
- Re-entry into the restricted zone is limited to essential activities only.
- All persons entering a restricted zone must be registered, briefed on radiation exposure, given dosimetry, and may need to be escorted.
- People leaving a restricted area will need to be monitored for radiological contamination and may need to be decontaminated.
- An area remains restricted until a combination of remediation efforts and the natural decay of radiation allow for safe long-term residency.

Re-Entry Protocols Established

- Protocols and procedures are implemented to authorize the temporary re-entry into a restricted zone for activities including:
 - Protection of valuable infrastructure
 - Law enforcement
 - Fire fighting
 - Tending livestock
 - Control of industrial processes and public utilities
 - Animal rescue and control

Return Areas Established

- Return areas are established for the orderly return of people to areas where there was no contamination or there is no long-term exposure health risk.
- Following verification and establishment of restricted zone boundaries and traffic control points, some areas can be cleared for return to unrestricted residence or use.
- The timing of the return is coordinated with state and local agencies.
- Although people can return, some of these areas may still have low-level contamination and may require some ingestion pathway food controls or restrictions.

Recovery

Recovery involves continued and extensive field sampling, damage and impact assessments, the coordination of federal assistance and nuclear insurance benefits, and coordinating the remediation of contamination and restoration to pre-event conditions and activities.



Food Control Measures

Food control measures emphasize public protection and balance the long-term and short-term implications for economic damage to the state.

- Livestock advisories are a type of food protection measure issued during a site area emergency (SAE). This advisory lets owners of livestock know to shelter their animals and place them on stored feed and water. These advisories are issued to protect the animals that we rely upon to produce food for consumption.

- Agricultural control zones are food protection measures issued during a general emergency (GE) to protect all shipments of food, feed, livestock and poultry moving into and out of the affected area. Agricultural control zones are established in all evacuated and sheltered areas and in counties 50 miles downwind from the plant.
- Additional agricultural control zones will be established if lab analysis indicate that radiation levels exceed strict FDA guidelines for annual consumption.

Risk County Activities

- Coordinate establishment of relocation areas, restricted areas, re-entry and return with the state.
- Coordinate recovery issues with the state.

Ingestion County Activities

- Receive initial notification of emergency from the SEOC.
- Notify appropriate officials as needed.
- Prepare to receive ingestion brochures and distribute them to food producers in the county.
- Coordinate with the state for control zone planning and protection of food products in the county.
- Maintain communications with the SEOC.
- Coordinate implementation of relocation areas, restricted areas, re-entry and return with the SEOC.

Restricted Zone Planning Guidance

Why Designate a Restricted Zone?

Restricted zones are established to protect people from chronic exposure to low-level radiation. Access to areas where the population has been evacuated or relocated must be controlled.

Protective Action Guidelines (PAGs)

The Environmental Protection Agency's (EPA) protective action guidelines (PAG) are used to establish threshold radiation levels for a restricted zone.

- First year: 2 rem total effective dose (TED) or higher;
- Any subsequent year: 0.5 rem TED or higher.

Areas where contamination levels exceed the EPA PAGs must be designated as restricted zones until a combination of remediation efforts and natural radioactive decay allow for safe long-term residency. Radiation monitoring will be ongoing in any area declared a restricted zone.

Considerations for Implementation of Restricted Zones

The following guidance may be used to develop an initial restricted zone plan:

- Designate traffic control points and staffing to prevent and control entry (*State Patrol, Minnesota Department of Transportation, county*).
- Monitor the situation and maintain security inside the restricted zone and on its boundaries (*State Patrol*).
- Discuss availability of the National Guard to assist (*State, Military Affairs*).
- Limit re-entry into a restricted zone to essential personnel only.
- Register, brief on radiation exposure, and issue dosimetry to all persons entering a restricted zone. In some cases, a radiation safety escort may be required (state, county).
- Monitor for radiological contamination and (if necessary) decontaminate all persons leaving a restricted zone. Use existing facilities, or establish new ones. Transportation to these sites may be provided (county).

Re-Entry Planning Guidance

Re-entry means that workers or the public are approved to go into a restricted zone on a temporary basis and under controlled conditions for an essential activity.

Re-entry activities may include:

- Public safety services
- Family reunification
- Livestock care
- Critical infrastructure, industrial process and utility service
- Pet retrieval/animal control

Priorities for Re-Entry

The priority activities for re-entry are:

- Life safety
- Incident stabilization
- Animal care
- Critical infrastructure, industrial process and utility service
- Recovery

The counties have the primary responsibility for implementation and coordination of re-entry.

This includes:

- Establishing locations where re-entry access control occurs.
- Approving requests for re-entry.
- Providing briefings, dosimetry, potassium iodide (KI) and just-in-time training for people re-entering.
- Providing escorts for people re-entering as needed.

All persons re-entering an evacuated area or restricted zones during the plume phase, are considered emergency workers and are to be treated as emergency workers for exposure control and personal protection concerns.

Implementation of Re-Entry

Re-entry starts as soon as an evacuation area is established and access to the area is controlled. Re-entry will continue for an extended period of time and will include entry into restricted zones once established.

Initial Re-Entry Exposure Guidelines

Location	Exposure Limit
Outside Projected Plume & Upwind	Eight-hour stay time, or 1R turn-back (dosimeter reading)
Inside Projected Plume & Downwind	100 mR/hr (meter reading), or 1R turn-back (dosimeter reading)

Initial Re-Entry

Initial Re-Entry to evacuated zones will be limited and will be dependent on who is requesting re-entry and location.

- Radiological monitoring teams will be the first people assigned to work in the evacuated area or restricted zones. Monitoring teams have protocols for entering and their own exposure control procedures.
- Essential plant workers may also need to enter the evacuated areas.
- Access to the evacuated area by other essential people will be coordinated and approved by the county radiological officer (RO).
- Re-entry into the evacuated area may be permitted for essential tasks. It is recommended that people entering the evacuated area have a security escort to

ensure they only go to the location indicated in the re-entry request.

- Re-entry into the evacuated area outside and upwind of the plume footprint (actual or projected) will not have radiological exposure stay-time projections, because there is no contamination there. Stay time should be based on the time needed to complete the task and should not exceed a day (eight-hour scheduled work shift). Longer stay times may be authorized on a case-by-case basis.
- Re-entry into an area inside, around or downwind of a plume footprint (actual or projected) should initially be limited to life-safety purposes. Persons entering may be escorted and should have projected stay times based on actual or projected contamination levels.
- Everyone entering an evacuated area or restricted zones will be considered as an emergency worker and treated as such.

Sustained Re-Entry

More refined protocols and stay-time calculations will be provided by the SEOC to the counties as more details of the deposition footprint is determined.

- Re-entry into the evacuated and restricted areas may be permitted for essential tasks. We recommend that people entering have a security escort to ensure they only go to the location indicated in their re-entry request.
- Re-entry into the evacuated area outside the plume footprint (actual footprint based on monitoring) should not require a radiological exposure stay-time projection or a radiological escort, because there is no contamination indicated in that area. Stay time should be based on the time needed to complete the task and should not exceed a day (eight-hour scheduled work shift). Longer stay times may be authorized on a case-by-case basis.

- Re-entry into an area inside and around a deposition footprint (validated by monitoring and sampling) should be permitted for essential purposes. Persons entering may be escorted and should have projected stay times based on actual contamination levels. (See Post Plume Table below.)
- The state will provide general guidance on stay times and exposure control for re-entry by geographic area based on contamination levels as more detailed monitoring and sampling information is available.

Minnesota Post Plume Phase Re-Entry Standard

Re-entry Activity	Exposure Limit
General Public (Property Retrieval) and General Agriculture	0.5 rem/year
Critical Infrastructure Animal Support/Care Operations	2 rem/1 st year
Emergency Workers	5 rem/year

Note: Re-Entry Stay times will be determined once deposition is better characterized.

Considerations for the Implementation of Re-Entry Protocols

The counties must implement protocols and procedures to authorize and track temporary re-entry.

Consider the following when developing a re-entry plan:

- Designate access control points for re-entry in each county and communicate that information to the state.
- Implement a system for receiving and approving requests for re-entry and communicate that information to the state.
- Prioritize re-entry requests.

- Register all persons re-entering a restricted zone, brief them on radiation exposure and safety, and issue and train them in the use of dosimetry and KI.
- Implement a system to track stay times and doses per individual.
- Provide monitoring and decontamination services at a designated site upon completion of re-entry.
- Communicate any complicating factors in implementing a re-entry program (timeline for implementation, resource requirements, volume of requests) to the state.

Considerations for those who Re-Enter

- The counties must designate the point or points for controlled access to the contaminated area.
- Anyone who re-enters a restricted zone will be exposed to low levels of radiation. There will be no immediate ill effects as a result of this.
- Anyone re-entering will be issued and trained in the use of dosimetry. It is important this information is watched closely and recorded.
- Persons re-entering an evacuated area outside a projected plume area will be assigned a stay time for how long it is safe to stay in the restricted zone, an eight-hour shift or a maximum dose exposure of 1R (dosimeter reading) turn back limit whichever occurs first. The county must track the stay time and dose exposure limits closely.
- Persons re-entering inside a confirmed or projected plume area will be assigned a stay time for how long it is safe to stay in the restricted zone, maximum dose exposure of 100mR/hr (meter reading) or 1R (dosimeter reading) turn back limit whichever occurs first.
- Those re-entering may be instructed to wear protective garments, including gloves, shoe

covers, and coveralls. It is important to wear these as instructed by a radiation control specialist.

- Avoid touching your face with a gloved hand and eating, drinking, or smoking while within the restricted zone; these activities increase your risk of internal contamination. All persons leaving a restricted zone will be monitored for radiological contamination, and may need to be decontaminated before being released. Transportation to monitoring sites may be provided by the county.

Discussion questions for Re-Entry

- How are requests for re-entry received and processed?
- How does the county authorize re-entry?
- When is re-entry permitted?
- Are there any areas where re-entry is not allowed? Why?
- What are the procedures to control access to the restricted areas?
- How will you staff access control on a long term basis?
- When would the “public” be allowed to re-enter? For what purposes?
- Is there a special permit or identification for re-entry?
- How do you track dose limits for people re-entering?
- How would you control possible spread of contamination?
- Would you anticipate increased criminal activity?
- How will monitoring and decontamination being done after the emergency worker decontamination sites are deactivated?
- How do you prioritize who gets to re-enter and when?

Relocation Planning Guidance

“Relocation” is the removal or continued exclusion of people (households) from contaminated areas to avoid long-term exposure to a low level of radiation.

Priorities

- The initial post-plume priority will be to examine areas that have not been evacuated, determining whether contamination levels necessitate relocation.
- The next priority will be to survey contamination levels in evacuated areas, gauging the possibility and timeline for safe return to areas where safe reoccupation can occur.

Protective Action Guidelines (PAGs)

The Environmental Protection Agency (EPA) has established conservative PAGs for the levels of radioactive contamination that indicate the need for relocation:

- First-year: 2 rem total effective dose (TED) or higher.
- Any subsequent year: 0.5 rem TED or higher.

These levels are much lower than what could be experienced in the plume phase, making relocation not as urgent as evacuation. Still, timely action is required. With the deposition of a radioactive plume, a population receives most of their first-year exposure in the first week when contamination levels (which decay naturally) are highest.

Protective Action Process

The State Emergency Operations Center (SEOC) Planning and Assessment Center (PAC) will analyze field team and lab sample data to develop protective actions for relocation.

- A map detailing the affected relocation area and a population estimate will be provided to the Intermediate Phase Task Force (IPTF) for comment.
- A technical advisor will explain the protective action recommendation (PAR) in terms of risk level, so that the state incident manager (SIM) and operations chief can communicate it to the governor or governor’s authorized representative (GAR), state agencies and counties.
- After the PAR is coordinated with state and county agencies, it will be given to the SIM for approval. Once approved, this becomes a protective action decision (PAD).
- Relocation may apply inside or outside the 10-mile emergency planning zone (EPZ). A relocation order may be needed if people evacuated from the EPZ and are unable to return due to radioactivity levels that exceed the EPA PAGs for long-term exposure.
- A media release about the PAD will be made through the joint information center (JIC). An initial implementation plan will be developed after the PAR is approved.

Considerations for Implementation of Relocation Recommendation

The following guidance may be used to develop an initial relocation implementation plan:

- Establish the boundary of the area where relocation is necessary using roadways and geopolitical boundaries (state, county).
- Set up traffic control points at boundaries to facilitate relocation and prevent entry, and maintain security checkpoints on all roadways (Department of Transportation [MNDOT], State Patrol, county).
- Designate a reception center for people being relocated to go to as needed. This may be the same one as for the 10-mile EPZ, or a new one may be designated (Department of Human Services, Minnesota Department of Public Safety Division of Homeland Security and Emergency Management [HSEM]).
- Work with hospitals and other facilities with immobile populations to arrange for special transportation and care facilities (Emergency Medical Services Regulatory Board [EMSRB], county).
- Provide instructions to people leaving the area: what to take, what to leave (Minnesota Department of Health [MDH], Minnesota Recovers Task Force).
- Assess critical infrastructure and strategies in the relocated area, including electric power and gas, water, water treatment, transportation, food processors and distributors, restaurants, lodging, day cares, and schools (Minnesota Department of Health, Minnesota Department of Agriculture, Minnesota Pollution Control Agency, MNDOT, county, HSEM).
- Identify a staging area for agricultural products not permitted for movement within or out of an agriculture control zone (county).

- Determine if workers in the relocation area should be classified as occupational radiation workers and require special training and dosimetry control. Establish protocols for the distribution of dosimetry (MDH).
- Provide accurate and coordinated media releases. Request a public information officer from the county or local jurisdiction to come to the JIC (state, county).
- Set up a disaster recovery center (state agencies, FEMA, American Nuclear Insurers).
- Determine how commerce will be affected in the area (county, state).

Discussion Questions for Relocation

- How will you describe the area that needs to be relocated?
- What is the number of people to be relocated?
- How will residents be informed that they must relocate?
- Are there any special populations affected by the relocation? What would be their concerns?
- How much time will they be allotted to leave?
- What will you do if they do not leave their homes?
- Are any special services needed for relocated individuals?
- How would you provide transportation assistance to people who need to relocate?

Return Planning Guidance

“Return” is the reoccupation of areas for unrestricted residence, or resumed use, by previously evacuated or relocated populations and businesses.

Protective Action Guidelines (PAGs)

The Environmental Protection Agency (EPA) has established PAGs for deposited radioactive materials. Cumulative exposure must be determined to be less than these limits before return can be considered:

- First-year exposure: 2 rem total effective dose (TED) or higher.
- Any subsequent year: 0.5 rem TED or higher.

Basis for Return

Return may be considered in one of the following scenarios:

- A release from the plant did not deposit radioactivity or travel over areas that were initially evacuated.
- Radioactivity was deposited in areas that were evacuated or relocated; however, remediation efforts and natural radioactive decay have brought levels low enough for inhabitants to return and reoccupy the area.

Considerations for Return

The following guidance may be used to develop an initial return implementation plan:

- The timing of the return must be coordinated between the state and local jurisdictions (county, state).

- The return area boundaries must be identified before the general population is allowed to return (county, State Patrol).
- Will the agricultural control zone in the return area be lifted? Though safe occupancy is indicated, will specific food controls/restrictions need to remain in place (state)?
- State agencies will identify vital services that need to be restored or extra services that are needed, e.g., water, gas, electric, refuse removal (especially of spoiled foods) and food distribution (state).
- Media releases relating to the return must be coordinated with the joint information center (JIC) (county, state).

Discussion Questions

- Who authorizes return?
- What areas can people return to and when?
- Are there areas that people can return to immediately?
- What areas have long-term restrictions on use?
- What precautions will people be asked to take when returning?
- How will special populations return?
- How do you communicate with the evacuees who may be scattered throughout the state or country about return issues?
- What if people are too afraid and refuse to return?
- Will it be necessary to do the return in stages, or can they all come back at once?
- What are allowable radiation levels for return?

Recovery Planning Guidance

“Recovery” is the end goal following an accident at a nuclear generating plant, when life, access and commerce return to pre-incident conditions.

Considerations for Implementing Recovery

Recovery will involve continued and extensive field sampling, damage and impact assessments, and coordination of federal assistance and nuclear insurance benefits. Many variables are present in any incident, and the conditions and time frame in which the late-phase issues of recovery are reached will be individual and varied.

The focus of recovery planning will be as follows:

- Identify priorities for remediation and recovery of contaminated areas. It will be important to do the following as soon as is reasonable:
 - Open major roadways
 - Open major waterways
 - Reduce airspace restrictions
 - Resume railroad traffic
 - Resume river traffic
 - Open critical infrastructure facilities
 - Open government facilities
 - Open businesses
 - Open homes
- Coordinate remediation of contamination and restoration to pre-event conditions and activities. Initial priorities will include:
 - Major roadways
 - Major waterways
 - Airspace
 - Railroads
 - Rivers
 - Critical infrastructure facilities

- Government facilities
- Agricultural areas
- Recreational areas
- Coordinate the establishment of disaster assistance and recovery centers as needed.
- Coordinate with the utility and American Nuclear Insurers on compensation issues for the following populations:
 - Farmers and producers affected by the agricultural control zone
 - Residents evacuated or relocated from their homes
 - Individuals out of work because their place of employment is in a restricted zone
 - Government agencies
- Provide public information and outreach addressing public health concerns and food and water safety.
- Ensure planning processes are in place at all levels of government to address the recovery transition and facilitate long-range reduction of exposure rates and concentrations to acceptable levels, when possible, allowing unconditional occupancy and use.

Long-Term Recovery Discussion Areas

General

1. What is the role of the Minnesota Recovers Task Force in this type of event?
2. What would be the priorities for long-term recovery?

Damage Assessment

3. Who would conduct damage assessment?
4. What type of damage or losses would be considered in this assessment? How would they be tracked?

Housing

5. What type of temporary housing is available for people who cannot return?
6. What financial assistance is available for temporary and long-term housing? What about people who refuse to return?
7. Will buyouts be available? For whom?
8. What support services will all residents need? How are they different for the differently affected areas?
9. Who will provide those services?

Health

10. What is the policy on people who refused to evacuate regarding future liability for latent health effects from radiation?
11. What health resources would be available for the public affected by exposure (if any)? How would the health resources be delivered?
12. Who develops a long-term health monitoring plan?
13. How would you deal with vulnerable populations (i.e. infants, pregnant women, elderly)?
14. What mental health services are available? How would they be funded and administered?
15. Is there an acceptable contamination level for different types of food and water?
16. How are health risks communicated to the public?
17. How would you address people's fears (including those who don't live in the Monticello/Prairie Island area, e.g., Minneapolis, St. Paul, Wisconsin)?

Environment

18. Discuss the effect on drinking water. How would we continue to sample for a long period of time? What advice would be given to returning people regarding drinking water?
19. What water intakes are downstream? How would these be affected?
20. Would there be any restrictions placed on the water? Would commercial use restrictions differ from those for private use? For how long?
21. What is "clean"? Who determines that the area is clean or acceptable?
22. What are possible long-term environmental impacts?
23. Would you clean up the area? Who would pay for the cleanup?
24. Who is responsible for packaging and removing contaminated waste? Where will it be stored?

Economy

25. What information do you need to determine the economic impact of this accident? Where would you get that information?
26. How would you deal with the loss of tourism/reputation?
27. What impact would this have on electric ratepayers? Who would be involved in these discussions?
28. What is the responsibility of the utility; Xcel; and federal, state and county government for economic redevelopment?
29. How would you maintain continuity of business and government in your county?
30. How many people could be unemployed because of the accident, and for how long?

Shelter-in-Place Planning Guidance for an Incident at a Nuclear Generating Plant

“Shelter in place” means to take shelter or refuge at your current location (e.g. house, business, public building) from potential hazards or exposure to radiation.

Sheltering is a temporary protective action that can be implemented immediately. It provides equal or greater protection than evacuation for incidents depending upon the type of release, shelter available, duration of the plume phase and weather conditions.

Decision to Shelter

When the utility declares an emergency, factors such as severe weather or a hostile action against the plant may present more of a danger to the public if an evacuation order was issued. The Planning and Assessment Center (PAC) may determine the best course of action to protect the public is to have people remain in their homes, businesses, or schools until it is safe to evacuate the area. The PAC recommendations will be discussed with the Risk Counties, State Incident Manager (SIM) and Governor’s Authorized Representative (GAR) to get concurrence for the protective actions. If the incident is at Prairie Island Nuclear Generating Plant, the SEOC will coordinate with the State of Wisconsin and Pierce County WI.

Sirens and Emergency Alert System Message

When a Protective Action Decision is approved, the State will coordinate the sounding of the sirens and the Emergency Alert System message with the affected Risk Counties. The EAS message is sent to the public by radio, television, Integrated Public Alert & Warning System [IPAWS] followed by Special News

bulletins with more specific information on what to do while sheltering-in-place.

Messaging to the public will be important especially during an active plume. It is important for the public to limit exposure during sheltering until the time is right to evacuate.

Messaging may include:

- If you must go outdoors, limit time to one hour or less and cover your nose and mouth with a mask.
- When returning indoors, remove clothing and place in a plastic bag and take a shower to remove any potential contamination.
- Prepare items for possible evacuation of you and your pet(s).
- Ensure essential supplies are available (e.g. food, water, medications, personal hygiene items, first aid kit, flashlight, portable radio, extra batteries).
- During a general emergency, administer potassium iodide (KI) when directed and if available.

People with Special Needs

Local emergency management officials should account for and accommodate people with special needs. This includes the elderly, physically challenged, hearing impaired, blind, etc. How will people with special needs request assistance and how will you assist them?

School Planning

Children attending school will be sheltered in place and cared for through their emergency preparedness procedures.

Evacuation Planning Guidance for an Incident at a Nuclear Generating Plant

“Evacuation” is the temporary removal of people (homes, residence, business, etc.) from potentially endangered areas to avoid possible exposure to radiation.

The State Emergency Operations Center (SEOC)

The Planning and Assessment Center (PAC) in the SEOC will review the emergency declaration sent from the Utility to determine if an evacuation is needed. The PAC will analyze plant conditions, weather conditions, population affected and other factors to make a recommendation to SEOC Command whether to evacuate, and what sub-areas to evacuate.

Protective Action Recommendation

The PAC will meet with the Risk Counties, State Incident Manager (SIM) and Governor’s Authorized Representative (GAR), to discuss the need to evacuate a sub-area or areas to get concurrence for these protective actions. If the incident is at Prairie Island Nuclear Generating Plant, the SEOC will coordinate with the State of Wisconsin and Pierce County WI.

Sirens and Emergency Alert System Message

When the Protective Action Decision is signed by the GAR and a siren time is set, the SEOC Operations will coordinate the sounding of the sirens and the Emergency Alert System message with the Risk County. The EAS message is sent to the public by radio, television, Integrated Public Alert & Warning System [IPAWS]. Special News bulletins are then sent with more specific information on what areas to evacuate, what the

public should bring with them and where the reception centers are located.

Some of the key points to tell the public is to:

- Lock up home as if you are leaving for vacation.
- Report to a county reception center.
- Keep vehicle windows and vents closed while driving.
- During a General Emergency evacuation, administer potassium iodide (KI) when directed and if available.

What People should bring with them

Bring important items with you when evacuating your home:

- Personal identification (driver’s license, ID card, passport)
- Prescription medications
- Baby formula and diapers
- Cash, checkbook and credit cards
- KI
- Personal hygiene items
- Clothing for a week (per person)
- Bedding (sleeping bags and pillows)
- Household pets, leashes, cages, supplies, medication and food

People with Special Needs

Local emergency management officials will assist those unable to evacuate on their own. This includes the elderly, physically challenged, hearing impaired, blind, someone without transportation or people with other needs. Counties must have plans in place and resources available to accommodate these requests. Additional resources can be requested through the SEOC.

Reception Centers

There are designated county emergency facilities located outside the 10-mile exposure pathway to report to for radiological contamination monitoring and evaluation. The following will occur at the reception center:

- Radiological monitoring for contamination (people, pets and vehicles)
- Decontamination if needed
- Registration
- Medical assistance if needed

Where to Stay

After registering at the emergency reception center:

- People can stay with relatives or friends outside of the affected area.
- Congregate care centers operated by the American Red Cross or other agency are available.

School Planning

Schools located within the 10-mile EPZ:

During a Site Area Emergency or a General Emergency, schools within the 10-mile EPZ will be evacuated. Children and teachers are transported to a designated sister school located outside of the 10-mile EPZ.

- Children will be fed, sheltered and supervised until their parents come for them at the sister school.
- Parents should not go to their child's normal school during the evacuation process.
- Public information messages will inform parents of their child's sister school location.

Schools located outside of the 10-mile EPZ:

Children who live within the 10-mile EPZ but attend school outside the 10-mile EPZ will not be bused home during an emergency. Parents should pick them up at their current school.

Discussion Questions for Evacuation

- Are there any special populations affected by the evacuation? What would be their concerns?
- Are any special services needed for evacuees?
- How would you provide transportation assistance to people who need to evacuate?
- How much time is needed to leave the area?
- What will you do if they do not leave their homes?
- What information is given to parents about school evacuations? Do they know where their child's sister school is located?

Child Care Provider Planning Guidance for an incident at a Nuclear Generating Plant

Emergency Planning

In Minnesota, every child care facility is required to have written policies that cover emergencies, accidents and injuries. If your day care is located within the 10-mile emergency planning zone (EPZ) of a nuclear power generating plant, your policies should also include a plan for what to do in case of an emergency at the plant.

Items to consider:

- Enroll in your county's emergency notification system to receive alerts affecting your area.
- Keep parent and guardian emergency contact information up to date.
- Maintain an up-to-date phone list and/or email distribution list.
- Establish an evacuation plan to a location outside of the 10-mile (EPZ).
- Your evacuation plan should include how you will transport your children to your alternate location.
- Make sure parents and guardians are familiar with the emergency plan, including the alternate location, and what they need to do to pick up their children.
- Identify alternate routes to your evacuation point in case road closures are put into effect.
- If you have potassium iodide (KI) tablets available at your site, ensure parents and guardians have agreed to let you administer it to their child.

Emergency Classification Levels

There are four emergency classification levels (ECLs) used by all nuclear generating plants in the United States. State and local officials use these ECLs to plan their emergency response.

Understanding these ECLs will help you determine what actions are needed to keep you and your children safe.

The classification levels drive the response actions taken based on the level of severity. An incident at a nuclear generating plant could begin at any of these classification levels.

Notification of an Unusual Event (NUE)

An NUE classification level is a condition that presents no threat to public safety. No official notifications will occur, and no emergency response is initiated.

Alert

Although there is no immediate threat to public safety during an Alert classification level, local and state agencies will begin preparing for a response in case the situation escalates.

- If notified, you should review your emergency plan and prepare to close your facility should the situation escalate.
- Monitor news media (TV and radio) for additional emergency information.

Site Area Emergency (SAE)

At the SAE classification level, although there is no immediate risk or danger to the public, precautionary protective measures should be implemented.

- When an SAE is declared, you should contact parents and guardians to come and get their children.
- Follow your emergency plan, just as you would for any other emergency closing.
- You should prepare to evacuate or shelter.
- If you have a supply of KI, locate it and review the directions, but DO NOT administer KI at this time. (Administering KI is authorized by the Minnesota Department of Health at a general emergency when the public is told to evacuate or shelter in place.)

General Emergency (GE)

At the GE classification level, conditions at the plant have escalated so that they threaten public safety. There will be a full activation of the Emergency Alert System, including the sounding of warning sirens, NOAA weather radio alerts, emergency messaging to newer cell phones and public safety announcements via TV and radio.

- When you hear warning sirens, turn on your TV or radio and listen for further instructions.
- Notify parents and guardians to pick up their children within a reasonable timeframe or meet you at your alternate location.
- In the event of an evacuation order, close your facility and go to your alternate location outside of the 10-mile EPZ.
- If you have KI readily available, administer it now. Do not delay evacuating in order to locate KI or other non-essential items.
- If you are unable to evacuate, contact your county emergency operations center.
- For more detailed evacuation instructions, consult the planning guide provided by Xcel Energy or go to their website.

Keep in mind that reception centers are designed for the general public and won't have dedicated services or supplies for day care children.

Other useful resources for preparing your nuclear generating plant emergency plans include:

- Xcel Energy's website:
https://www.xcelenergy.com/energy_portfolio/electricity/nuclear
- Dakota County emergency notification enrollment: <https://www.mn-dcc.org/>
- Goodhue County emergency notification enrollment:
<http://www.co.goodhue.mn.us/878/CodeRED>
- Sherburne County emergency notification enrollment:
<https://www.co.sherburne.mn.us/668/CodeRED-Emergency-Notices>
- Wright County emergency notification enrollment:
<https://www.co.wright.mn.us/list.aspx>
- FEMA online training IS-36 Multi Hazard Planning for Childcare:
<https://training.fema.gov/is/courseoverview.aspx?code=is-36>
- The Minnesota Homeland Security and Emergency Management Radiological Emergency Preparedness website:
<https://dps.mn.gov/divisions/hsem/Pages/default.aspx>

Radiation Dose Limits for Emergency Workers

Emergency Worker Dose Limits

Administrative dose limits for emergency workers are as follows:

Response Activity	Dose Limit
Standard response	5 Rem (5,000 mRem)
Protection of critical infrastructure/key resources	10 Rem (10,000 mRem)
Lifesaving or protection of large populations	25 Rem (25,000 mRem)

Emergency Worker Turn-Back Limits

Turn-back limits are determined based on readings on a direct reading dosimeter:

Response Activity	Turn-Back Limit
Standard response	1 R (1,000 mR)
Protection of critical infrastructure/key resources	2 R (2,000 mR)
Lifesaving or protection of large populations*	5 R (5,000 mR)

*Hostile action response activities are considered lifesaving and protection of large populations.

Emergency Worker Withdraw Limit

Field team emergency workers will withdraw immediately upon registering a dose rate at or above 100 mR/hr gamma.

Emergency Worker Contamination Levels

- In the field, emergency workers will change personnel protective equipment (PPE) when they reach 1,000 counts per minute (CPM) above background.
- For an emergency worker to return home, or for equipment to return to service, contamination levels must be below 300 CPM above background.

Evacuation and Shelter-in-Place Protective Action Guideline (PAG)

The table below lists the projected dose at which a protective action decision to evacuate or shelter in place will be made and publicly broadcast:

EPA Evacuation PAG	1-5 Rem (1,000 – 5,000 mRem)
Minnesota Evacuation PAG initiated	1 Rem (1,000 mRem)

EPA Relocation Protective Action Guidelines

Populations in areas where dose levels exceed PAGs will be relocated:

Time Period	Dose Limit
First year	2 Rem TED or higher
Any subsequent year	0.5 Rem TED or higher

Returning to these areas is allowable if lab analysis indicates dose levels will not exceed the PAG for the corresponding time period.

Minnesota Initial Re-Entry Standard

Soon after a radiological release, it can be anticipated that people will request re-entry into areas that have been evacuated, or from identified relocation areas.

Life safety, critical infrastructure, and stabilization operations will be given the highest priority.

Because it will be difficult to determine safe re-entry stay times early in an incident when field and mapping data is at a minimum, Minnesota will use the following conservative standard:

Outside Projected Plume & Upwind	Inside Projected Plume & Downwind
Eight-hour stay time, or 1R (dosimeter reading) turn-back	100 mR/hr (meter reading) or 1R (dosimeter reading) turn-back

For both cases:

- Dosimetry, PPE, and a pre-deployment briefing are required.
- KI tablets are available and recommended.
- Dosimetry readings should be reported every 60 minutes.

- Withdrawal may be ordered if re-suspension is indicated or change in meteorological conditions warrant.
- Monitoring and decontamination will be available upon exit.
- No immediate re-entry will be allowed within a 2-mile radius without radiological monitoring equipment.

Each request will be considered on a case-by-case basis, with greater flexibility allowed to those carrying radiological monitoring equipment and performing high-priority tasks.

This initial standard will be updated more precisely as field sampling continues and the extent and level of contamination are better described.

Sustained Re-Entry

More refined protocols and stay-time calculations will be provided by the SEOC to the counties as more detailed contamination monitoring, sampling and analysis is completed.

Re-entry into a restricted zone (validated by monitoring and sampling) may be permitted for essential purposes. Persons entering may be escorted and will have projected stay times based on actual contamination levels. The standard for sustained re-entry is listed in the table below.

Food Protection Guide for Emergency Managers

If an accident were to occur at a nuclear power plant in Minnesota, actions need to be taken to protect people from agricultural products that have been exposed to radiological contamination.

Control Zones

The Minnesota Department of Agriculture (MDA) will implement agricultural control zones, limit the transportation of products in and out of the control zones, and prevent them from being used in the food supply.

Agricultural control zones are geographic boundaries used to restrict the movement of agricultural products and foodstuffs that have been potentially contaminated by radiological material until sampling can be done to determine that the products are safe to be consumed. The movement of agricultural products is done through special permitting. The geographic boundaries of the agricultural control zone may be county and township borders or areas with edges defined by roadways or rivers. Some agricultural products may require their own specific control zone.

When Does Food Protection Begin?

Food protections begin in the plume phase.

Alert: No actions taken.

Site Area Emergency: A livestock advisory is issued for the entire 50-mile radius surrounding the plant. The Department of Public Safety will issue a media release recommending sheltering of exhibition/large animals.

General Emergency: The MDA establishes an agricultural control zone in areas where protective actions (evacuate or shelter in place)

have been mandated. If a release occurs, the control zone will include all counties 50 miles downwind from the plant.

Additional controls may be put in place depending on the data obtained from field sampling during the intermediate ingestion phase.

Additional agricultural control zones are mandated when lab analysis indicates radiation levels exceed strict Food and Drug Administration (FDA) guidelines for annual consumption.

Protective Action Guidelines

The guidelines issued by the FDA establish revised protective action guidelines (PAG) that restrict:

- Internal whole body radiation dose (committed effective dose equivalent - CEDE) to 0.5 Rem
- or
- Internal radiation dose to a single organ (committed dose equivalent - CDE) to 5 Rem, whichever is most limiting.

The FDA PAGs are expressed in terms of measurable quantities called derived intervention levels (DILs). A DIL corresponds to the concentration of radioactivity in food, which could lead to an individual receiving a dose equal to or greater than the FDA PAG if no intervention was taken for one year.

Basis for Guidelines

FDA guidance is based on preventing contaminated items from entering the food chain. The FDA limit is based on an individual

consuming that product in proportion to their total diet for one year.

This limit is conservative to avoid immediate health impact but encourage urgency in taking a protective action. The high priority item is milk (from any source), because grazing concentrates the amount of radioactive iodine in milk and poses the greatest risk exposure to a child's thyroid.

Other food products and feed are dependent upon the growing season and when the product is being taken to market.

Note: Counties within the 50-mile ingestion pathway zone (IPZ) will already be in the process of establishing agricultural control zones, because control zone decisions are made during the plume phase. This needs to be taken into consideration during protective action recommendation (PAR) approval and initial implementation planning.

Protective Action Recommendation (PAR)

The MN State Emergency Operations Center Planning and Assessment Center (PAC) and Intermediate Phase Task Force (IPTF) will develop the PAR for food protection.

- A map detailing the affected area will be provided.
- The MDA will be asked to prepare a list of the growers, producers, and distributors affected in relation to the growing season.
- A technical advisor will explain this PAR in terms of risk level, so that the state incident manager (SIM) and operations chief can communicate it to the governor or governor's authorized representative (GAR), state agencies, and counties.
- After the PAR is coordinated with state and county agencies, it will be given to the GAR

for approval. When approved, it becomes a protective action decision (PAD).

- A media release explaining the PAD will be made through the joint information center (JIC).
- An initial implementation plan will be developed after the PAR is approved.

Considerations for Implementation of Food Protection

Food control decisions emphasize public protection and balance the short- and long-term implications for economic damage to the state.

The following guidance may be used to develop an initial implementation plan:

1. A high priority in developing the sample plan is to survey farms inside the agricultural control zone(s) to determine if contamination is present with the goal of rezoning the area (IPTF, MDA).
2. Review normal food protections and processing actions to mitigate any additional cross-contamination and determine what actions need to be taken regarding processors outside the control zone (MDA).
3. Discuss whether stations can be set up where produce, food or feed in transit may go to be tested and reimbursed for added expense and whether food is condemned (state, American Nuclear Insurers [ANI]).
4. Request that the county assist with designation of testing and reimbursement sites; e.g., identify large areas where many vehicles may be parked, such as county fairgrounds if not in use (state, county).
5. Designate how control points should be set up. Is law enforcement required at each intersection around the embargoed area (state, county)?

6. Designate intersections where the control points will be located and determine whether extra staffing is needed (State Patrol, county).
7. Develop a media release for residents and non-ambulatory populations regarding safe food/water handling (JIC).
8. Contact rail and road transporters to return shipments for testing (MNDOT).
9. Determine where products from agricultural control zones will be disposed (state, county, MDA, MPCA).
10. Ensure that ingestion brochure distribution is taking place in the counties (state).
11. Discuss strategies weighing the minimization of the agricultural control zone short-term economic damage against the long-term reputation of Minnesota agriculture. Develop strategies for food products that exceed the DIL (IPTF, state).
12. Issue accurate and coordinated media releases.
13. Request PIO from the county or local jurisdiction to come to the JIC.
14. Coordinate state agencies for a media release.

Long-Term Ingestion Issues

Hunting and Fishing Considerations

Hunting and fishing restrictions may be larger in area than that of the agricultural control zone(s) due to the transitory nature of wildlife and fish. The season of the year may also play a role in this recommendation.

The Minnesota Department of Natural Resources (DNR) is the agency responsible for implementation of restriction and enforcement.

Milk protection considerations

1. What types of protective actions would be imposed, and by whom, to protect the milk supply?
2. How many dairy farms were affected?
3. How would you enforce the restriction of non-permitted food products?
4. How will you conduct a long-term milk sampling program?
5. How will contaminated feed and milk be disposed of?
6. How will information regarding the PADs be distributed to farmers?
7. Is it likely that all dairy farms will be unable to put livestock on stored feed and covered water?
8. How is animal feed obtained, paid for and transported into the agricultural control zone?

Food protection considerations

1. What protective actions would be imposed to protect the food supply?
2. What crops are in various stages of growing/harvesting? Will they be treated the same as one another?
3. Will contaminated farms be able to plant next year?
4. What is an estimated value for affected farms/crops/agricultural products? To whom do you provide this information?
5. How many food processing plants were affected?
6. How will food product movement within the state and outside the state be controlled?
7. How will contaminated food/crops be disposed of?

8. What steps can be taken to insure the non-contamination of Minnesota agricultural products?
9. Will personal gardens be sampled? How?
10. Are food shortages anticipated?

Livestock protection considerations

1. What protective actions would be imposed to protect livestock?
2. What services would farmers require for care of livestock (particularly if they are unwilling to re-enter to tend their herds)?
3. What methods will be used to dispose of contaminated farm animals and animals that may have died or need to be euthanized?
4. How would you sample meat products and deal with public perception of mass contamination?
5. Would you decontaminate farm animals? How?

Wildlife protection considerations

1. What is the present hunting and fishing season?
2. What protective actions would you make regarding fish, game, fowl, etc.?
3. What is your strategy for long-term sampling?
4. Who is responsible for mushroom and berry picking restrictions and sampling?
5. Where restrictions should be placed?
6. Is the river safe for fishing and recreational use?

Animal Planning Guidance

Classes of Animals

The state of Minnesota emergency operations plans recognize four classes of animals:

1. **Livestock:** Farm animals including cattle, sheep, hogs, and poultry.
2. **Exhibition/large animals:** Animals intended for show or recreational purposes; not for consumption, and not as household pets.
3. **Household pets:** Domesticated pets including dogs, cats, birds, turtles, rabbits, etc. (can travel in commercial carriers).
4. **Service animals:** Guide dogs or other animals trained to provide assistance to an individual with a disability.

State Activities by Emergency Classification Level (ECL)

Following is a list of activities specific to animal planning and evacuation to each ECL.

Alert

- As part of the messaging, animal owners are advised of the situation.

Site Area Emergency (SAE)

- People are advised to prepare for an evacuation (including preparing to evacuate their household pets or service animal).
- The Minnesota Department of Agriculture will issue a livestock advisory for livestock owners to shelter their animals and place them on stored feed and water.
- The Minnesota Department of Public Safety will issue an exhibition/large animal message telling owners to shelter their animals and put them on stored feed and water.

General Emergency (GE)

- An evacuation order is given for people in the affected area. Animal advisories are issued well before this, so people at this point can prioritize their needs.
- People are encouraged to bring their household pets and service animals to the reception centers for monitoring and, if necessary, decontamination.
- Evacuees should bring identification, health and immunization records, prescription medications, travel cages and handling equipment for their household pets and service animals to the reception centers.
- The Minnesota Department of Agriculture will establish agricultural control zones for all shipments of food, feed, livestock and poultry into and out of the affected area.

Considerations for Evacuation

- Pre-identify a place to bring your exhibition/large animals and transportation needs.
- Obtain copies of your records (ownership, vaccination, etc.) that are ready to take with you in case you have to evacuate or leave and shelter your animals.

Discussion Questions for Animal Planning

- How much food and water do you have on hand? Is it stored and covered?
- How many cages will be needed at the reception center to accommodate all the pets?

Intermediate and Ingestion Phase

REP Program Overview

On December 7, 1979, following the Three Mile Island nuclear power plant accident in Pennsylvania, President Carter transferred the federal lead role in offsite radiological emergency planning and preparedness activities from the U.S. Nuclear Regulatory Commission (NRC) to the Federal Emergency Management Agency (FEMA).

FEMA established the radiological emergency preparedness (REP) program to:

- Ensure that the health and safety of people living around commercial nuclear power plants would be adequately protected in the event of a nuclear power plant accident.
- Inform and educate the public about REP.

REP program responsibilities encompass only off-site activities. The program includes state, tribal and local government emergency planning and preparedness activities that take place beyond the nuclear power plant boundaries. On-site activities continue to be the responsibility of the NRC.

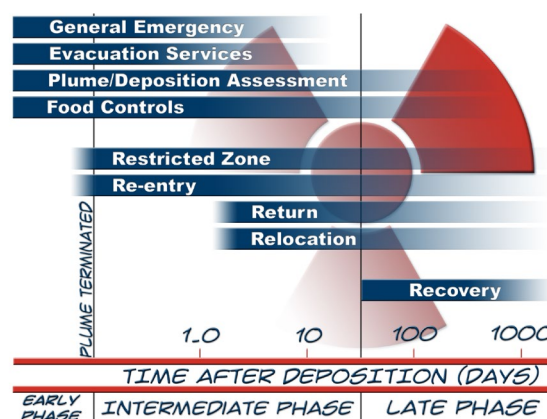
The Minnesota REP Program

The mission of the Minnesota REP program is to ensure that the health and safety of the public is protected in the event of a radiological incident at the Monticello or Prairie Island nuclear generating plant.

This is a comprehensive program that includes annual training, exercises and emergency plan reviews to ensure state agencies, local jurisdictions and the utility are ready to respond should an incident occur.

Three Phases of a Nuclear Power Plant Accident

Planning for a nuclear generating plant accident is divided into three operational phases:



Early/Plume Phase

- The plant has a release in progress and the plume is in the air.
- Protective action decisions (PAD) are initially based on computer models and subsequently confirmed by field team data.
- Each nuclear generating plant exercises this phase every other year.

Intermediate/Ingestion Phase

- The release has stopped.
- PADs are based primarily on data coming from the field and the lab.
- This phase is exercised once every eight years.

Late/Recovery Phase

- Long-term recovery
- Decontamination
- Permanent relocation

Plume phase versus Ingestion phase exercise

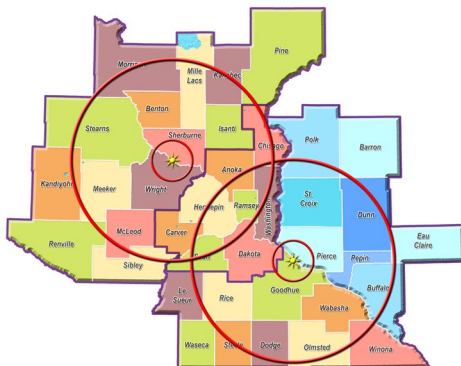
Plume phase exercises do not involve the ingestion exposure pathway and relocation, restricted zones, reentry, and return functions. The state of Minnesota and local governments in the area surrounding the Monticello and Prairie Island nuclear generating plants fully participate in a plume phase exercise at each site every two years.

Ingestion phase exercise involves ingestion exposure pathway protective action decision-making and implementation to an area within 50 miles of the plant, specifically in the areas of relocation, restricted zones, re-entry and return.

The state of Minnesota and local governments up to 50 miles from the Monticello and Prairie Island nuclear generating plants fully participate in an ingestion phase exercise at least once every eight years.

The Planning Zones

There are two planning zones surrounding a nuclear power plant that are used to prioritize the health and safety of people in either the direct pathway of a plume or in the ingestion exposure pathway.



Emergency Planning Zone (EPZ)

The EPZ is the area of concern during a plume phase exercise. This is the area located within a 10-mile radius of the plant.

- The planning priority is to respond quickly in the early phase of the incident to protect the public from direct exposure to radiation from the plume from a nuclear power plant release. This is done by sheltering-in-place or evacuation.
- Minnesota Counties within the 10-mile EPZ of the Monticello Plant are Sherburne and Wright.
- Minnesota Counties within the 10-mile EPZ for the Prairie Island Plant are Goodhue and Dakota.

Ingestion Planning Zone (IPZ)

The IPZ is the area of concern during an ingestion phase exercise. This is the area located within a 50-mile radius of the plant.

The planning priority is to implement protective actions from any radioactive materials released from the plant that could potentially contaminate water supplies, food crops and livestock above FDA guidelines, or result in ground contamination above EPA guidelines.

Special Intermediate and Ingestion Phase Concerns

In comparison with a plume phase exercise, new issues are introduced during the intermediate phase:

Relocation

- The removal or continued exclusion of people from contaminated areas to avoid chronic radiation exposure.
- Relocation from an area is indicated when soil samples exceed EPA protective action guidelines. (First year: 2 rem total effective dose [TED] or higher; any subsequent year: 0.5 rem TED or higher.)

- Relocation may be necessary both inside and outside the 10-mile EPZ.

Restricted Zones

- Restricted zones are established to protect residents from the potential effects of chronic exposure to low-level radiation.
- These are areas with controlled access from which the population has been evacuated or relocated.
- Re-entry into the restricted zone is limited to essential personnel only.
- An area remains restricted until a combination of remediation efforts and the natural decay of radiation allow for safe long-term residency.

Re-entry

- Temporary return of emergency workers and others authorized for:
 - Protection of valuable infrastructure
 - Law enforcement
 - Fire fighting
 - Securing or removing property
 - Tending livestock
 - Control of industrial processes and public utilities
 - Animal rescue and control

Return

- The reoccupation of areas cleared for unrestricted residence or use.
- Early return, following verification and correction of restricted zone boundaries, may still include contaminated areas and require ingestion pathway controls.

Recovery

- Recovery will involve continued and extensive field sampling, damage and impact assessments, and the coordination of federal assistance and nuclear insurance benefits.
- It will require the coordinated remediation of contamination and restoration to pre-event conditions and activities.

Food Protections

Food protections begin in the early/plume phase:

- Minnesota Department of Agriculture (MDA) issues a livestock advisory during the Site Area Emergency classification level for the entire 50-mile EPZ.
- An agricultural control zone is issued during the General Emergency for all areas where protective action recommendations (evacuate or shelter) have been mandated. If a release occurs, the control zone will include all counties 50 miles downwind from the plant.
- Additional controls may be put in place beyond this, depending upon the results of sampling during the intermediate phase.

Food control decisions emphasize public protection and balance the long- and short-term implications for economic damage to the state.

Decision-Making Entities

Two groups in the state EOC focus on the issues of the intermediate phase:

The Planning and Assessment Center (PAC)

The PAC is made up of trained personnel from HSEM, the Minnesota Department of Health (MDH), and the University of Minnesota.

The PAC:

- Makes technical calculations and translates data into recommendations.
- Uses data from field team sampling as the basis for developing protective action recommendations (PAR) based on federal guidelines.
- Plots maps to describe these conclusions and presents findings to the intermediate phase task force (IPTF).
- Coordinates and tracks daily sample plans and priorities.

Intermediate Phase Task Force (IPTF)

The IPTF is composed of representatives from HSEM, MDH, MDA, Department of Natural Resources (DNR) and Minnesota Pollution Control Agency. Other agencies fill key supporting roles as the situation and priorities dictate.

The IPTF:

- Translates PAC recommendations into tactics for implementation.
- Reviews PARs and gives input on impacting concerns, clarifying data, and prioritization of the recommendation.
- Develops a list of items for counties to consider when developing implementation plans before the PAR is approved.
- Sets daily priorities and sample plans.

The Eight-Year REP Exercise Schedule

The REP exercise process involves many organizations in an interrelated set of activities. It is based on an eight-year cycle, framed by various evaluation criteria; planning standards are outlined in NUREG-0654.

Each criterion relates to a specific off-site response organization (ORO) and its capacity to perform emergency functions as outlined in the plan. Examples include communication, dose assessment, public information and notification of the public.

These criteria are demonstrated at varying frequencies. Some must be demonstrated at each exercise, others are dependent on the scenario, but all must be demonstrated by the OROs at least once during the eight-year period.

Certain core activities are demonstrated by all organizations in every exercise and some are

demonstrated less frequently. Others focus on specific emergency response or preparedness capabilities demonstrated only by certain OROs.

The specific participating organizations are determined by scenario events, exercise play and the eight-year exercise schedule.

The Evaluated Ingestion Phase Exercise

The in-sequence events of the exercise itself last two full days. The full-scale plume phase is scheduled first, followed by the evaluated ingestion phase of the exercise:

Day 1

- Plume phase exercise
- Field team evaluations
- Advanced party conference call
- Sample plan development

Day 2

- A combination of table top and functional exercises
- Data processed by the PAC and field team samples analyzed by the MDH lab will determine; Relocation, Restricted zones, Re-entry, Return and Food control measures.
- Implementation of the PARs by the IPTF through communication with the risk and ingestion counties

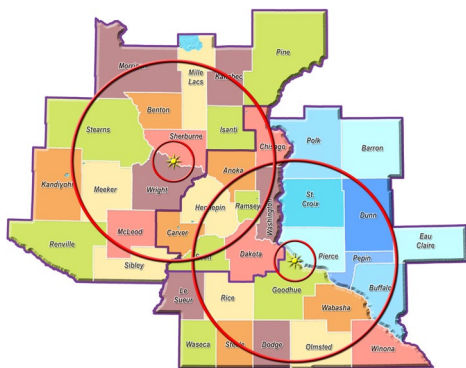
Out-of-Sequence Events

- Medical services (ambulance and hospital)
- School evacuations
- Emergency worker decontamination
- Reception centers
- MDH Public Health Lab

Intermediate/Ingestion Phase Planning Guidance

Ingestion Phase Planning

All counties located within a 50-mile radius of a nuclear plant are considered ingestion counties. Federal mandates require ingestion counties to participate in a full-scale exercise, tabletop exercise or training every eight years. The mandates also include specific planning requirements to county emergency operations plans.



State of Minnesota

The state of Minnesota provides direction, control and coordination as outlined in Minnesota Statute Chapter 12 and the Minnesota Emergency Operations Plan (MEOP) for nuclear generating plant preparedness and actual emergencies.

Ingestion counties would be asked to support the response necessary to protect population from long-term exposure and the food supply from radiological contamination. Ingestion counties located closer to the plant may be asked to support relocation activities should they become necessary.

Areas outside the 10-mile Emergency Planning Zone (EPZ) should not need emergency

evacuations, but may be asked to implement actions aimed at protecting the population from long-term exposure to low levels of radioactive contamination.

Ingestion Counties

The Minnesota ingestion counties for the Monticello Nuclear Generating Plant are: Anoka, Benton, Carver, Chisago, Dakota, Hennepin, Isanti, Kanabec, Kandiyohi, McLeod, Meeker, Mille Lacs, Morrison, Pine, Ramsey, Renville, Scott, Sherburne, Sibley, Stearns, Washington and Wright.

The Minnesota ingestion counties for the Prairie Island Nuclear Generating Plant are: Anoka, Carver, Chisago, Dakota, Dodge, Goodhue, Hennepin, LeSueur, Olmsted, Ramsey, Rice, Scott, Steele, Wabasha, Waseca, Washington, and Winona.

Ingestion County Expected Activities by Emergency Classification Level (ECL)

The following describes the activities most likely to occur at each ECL in an ingestion county during a nuclear generating plant emergency.

Notification of Unusual Event (NUE)

- No formal notification is made to the ingestion counties.
- No action is expected of the ingestion counties at this level.

Alert

- The ingestion county emergency manager will be notified of the Alert declaration by the State Emergency Operations Center (SEOC).
- The SEOC will maintain communications with ingestion county emergency managers.

- Ingestion counties are expected to:
 - Notify county elected officials and local jurisdictions of the event.
 - Log in to Web EOC and maintain situational awareness of the event.
 - Communicate concerns to the SEOC through the local communicator.
 - Provide support to any community reception centers in the county.
 - Communicate any special events (large public gatherings) that are occurring or scheduled in the county.
 - Alert status is maintained until verbal termination, ECL reduction or escalation to a higher ECL takes place.
- The SEOC will maintain communications with ingestion county emergency managers.
 - The ingestion county is expected to:
 - Open the county EOC and maintain at least minimal 24-7 staffing.
 - Notify the agricultural agencies in the county of the event.
 - Support implementation of protective actions needed to protect the population from a possible contaminated food supply. This would include agricultural control zone restrictions on food and livestock movement and hunting and fishing restrictions.
 - Participate in daily SEOC briefings.
 - Support the efforts of field sampling and monitoring teams.
 - Prepare to receive ingestion brochures and food protection information and distribute them to food producers in the county.
 - Provide support to any community reception centers in the county.
 - Coordinate any implementation of relocation areas, restricted areas, reentry, and return with the SEOC as requested.
 - GE status is maintained until verbal termination, ECL reduction or escalation to a higher ECL takes place.

Site Area Emergency (SAE)

- The ingestion county emergency manager will be notified of the SAE declaration by the SEOC.
- The SEOC will maintain communications with ingestion county emergency managers.
- Ingestion Counties are expected to:
 - Notify county elected officials and the local jurisdictions of the current ECL.
 - Log in to WebEOC and maintain situational awareness of the event.
 - Communicate concerns to the SEOC through the local communicator.
 - Provide support to any community reception centers in the county.
 - Communicate any special events (large public gatherings) that are underway in the county.
- SAE status is maintained until verbal termination, ECL reduction or escalation to a higher ECL takes place.

General Emergency (GE)

- The ingestion county emergency manager will be notified of the GE declaration by the SEOC.

Intermediate/Ingestion Phase

When the release has ended and the situation is under control, attention shifts from the immediate actions of the plume phase to the longer term issues of the ingestion phase. These include the establishment of relocation areas, restricted zones, re-entry protocols, return protocols, recovery and additional food control measures.

Support the establishment of Food Control Measures

- Food protections begin with the issuing of an embargo order when flyover data indicates contamination is detected outside the evacuation areas.
- Additional food protection controls may be put in place following the results of field sampling during the intermediate/ingestion phase.
- Additional food embargoes are mandated when lab analysis indicates radiation levels exceeding strict FDA guidelines for annual consumption.
- Food control decisions emphasize public protection and balance the long- and short-term implications for economic damage to the state.
- The ingestion county is expected to:
 - Coordinate with the state on the agricultural control zone and protection of food products in the county.
 - Identify areas where trucks can be held when an embargo is issued.

Support the establishment of Relocation Areas outside the EPZ counties

- The initial post-plume priority is to determine if there is contamination in areas outside of the initial evacuation areas that require additional measures (relocation) to protect the public from long-term exposure to low-level radioactive material.
- Relocation areas are where the removal or continued exclusion of people from contaminated areas is needed to avoid long-term radiation exposure.
- Relocation from an area is indicated when soil samples exceed EPA protective action guidelines. (First year: 2 rem total effective dose [TED] or higher; any subsequent year: 0.5 rem TED or higher.)

Support the establishment of Restricted Zones

- Restricted zones are established to protect area residents from the potential effects of chronic exposure to low-level radiation.
- These are areas with controlled access from which the population has been evacuated or relocated.
- Re-entry into the restricted zone is initially limited to essential personnel only.
- All persons entering a restricted zone must be registered, briefed on radiation exposure and given dosimetry, and may need to be escorted.
- People leaving a restricted area will need to be monitored for radiological contamination and may need to be decontaminated.
- An area remains restricted until a combination of remediation efforts and the natural decay of radiation allow for safe long-term residency.

Support the establishment of Re-Entry Protocols

- Protocols and procedures are implemented to authorize the temporary re-entry into a restricted zone for activities including:
 - Public safety services
 - Family reunification
 - Livestock care
 - Critical infrastructure, industrial process and utility service
 - Pet retrieval/animal control

Support the establishment of Return Areas

- Facilitate the orderly return of people to areas where there was no contamination or long-term exposure health risk.
- Following verification and establishment of restricted zone boundaries and traffic

control points, some areas can be cleared for return to unrestricted residence or use.

- The timing of the return is coordinated with state and local agencies.
- Although people can return, some of these areas may still have low-level contamination and may require some ingestion pathway food controls or restrictions.

Support the establishment of Recovery

- Recovery will involve continued and extensive field sampling, damage and impact assessments, and the coordination of federal assistance and nuclear insurance benefits.
- Coordinate remediation of contamination and restoration to pre-event conditions and activities.

County Emergency Operations Plan Requirements

Ingestion county emergency operations plans will need to include the following information in a section on nuclear generating plant radiological emergency preparedness:

- A description of when the County EOC would be activated and staffed for a nuclear generating plant emergency.
- The title and position of the person(s) responsible for:
 - Coordinating with the agricultural industries in the county for

implementation of food and agricultural product embargos.

- Coordinating traffic and access control points to restrict the movement of people, animals and agricultural products.
 - Coordinating the implementation of restrictions on consumption of food products.
 - Coordinating the relocation of people from a restricted zone should one be necessary in the county.
 - Coordinating the release of information to the public in cooperation with the state Joint Information Center.
- A brief description of what the county will do for each Emergency Classification Level (NUE, Alert, SAE and GE).
 - Describe how the county will support:
 - The implementation of food control measures.
 - The establishment of relocation areas if needed.
 - The establishment of restricted areas if needed.
 - The establishment of re-entry protocols if needed.
 - The establishment of return areas if needed.
 - Recovery strategies if needed.

Federal Response Assets

National Atmospheric Release Advisory Center (NARAC) - U.S. DOE

Mission/Function

NARAC provides emergency managers with timely and accurate real-time assessment advisories from actual or potential hazardous nuclear or chemical material releases into the atmosphere.

Delivery

- For NARAC supported sites, the first plots can be delivered as quickly as 5 to 10 minutes after the accident information is received.
- For non-supported sites delivery will take no longer than one to two hours.

Radiological Emergency Assistance Center/Training Site (REAC/TS) - U.S. DOE

Mission/Function

REAC/TS deploys and provides emergency medical services at incidents involving radiation anywhere in the world, 24/7.

REAC/TS also provides advice and consultation on radiation emergency medicine from its Oak Ridge, Tennessee headquarters or at the scene of an incident.

Deployment

- REAC/TS is on call 24/7 to offer its expertise on managing the medical component of a radiation incident.
- Each team consists of a physician, nurse/paramedic and a health physicist.

Radiological Assistance Program (RAP) - U.S. DOE

Mission/Function

RAP makes U.S. Department of Energy resources and expertise available to organizations responding to incidents involving radioactive materials.

Deployment

- RAP team members normally arrive at the scene within 4 to 6 hours after notification.
- RAP is usually the first National Nuclear Security Administration (NNSA) responder for assessing the emergency situation and deciding what further steps should be taken to minimize the hazards of a radiological emergency.
- Additional RAP teams and resources can be deployed as necessary.
- A fully configured RAP team consists of a team leader, a team captain, four health physicists, survey/support personnel and a public information officer.
- A regional team based in Chicago is equipped for radiological monitoring and assessment, support for monitoring and decontamination, and public information.

Federal Radiological Monitoring and Assessment Center (FRMAC) - U.S. DOE

Mission/Function

FRMAC coordinates and manages all federal radiological monitoring and assessment activities during major radiological emergencies within the United States in support of state, local and tribal governments through the lead federal agency (LFA).

Deployment

The NNSA may respond to a state or LFA request for assistance by deploying a radiological assistance program (RAP) team. If the situation requires more assistance than RAP can provide, NNSA will activate a FRMAC mission upon request.

The FRMAC deploys as a phased response:

- Consequence Management Response Team (CMRT) I is “wheels up” within four hours of activation.
- CMRT II deploys within 12 hours of activation.
- CMRT III is underway within 24 hours of activation.

If required, the full interagency FRMAC can be operational 24 to 36 hours after the LFA or state has asked for help.

Aerial Measuring System (AMS) - U.S. DOE

Mission/Function:

Provide rapid response to radiological emergencies with helicopters and fixed-wing aircraft equipped to detect and measure radioactive material deposited on the ground.

Deployment

- Fixed-wing aircraft are used to determine the path of the radioactive plume and the location of any ground contamination.
- Helicopters are used to perform detailed surveys of any ground contamination.

The four-wheel drive vehicle-based radiation detection system known as KIWI can be used to develop highly detailed maps of any ground contamination.

Hostile Actions Based (HAB) Planning and Response Guidance for an Incident at a Nuclear Generating Plant in Minnesota

Planning Considerations

Planning needs to accommodate three major events happening simultaneously:

1. Hostile action-based (HAB) event (an act toward a nuclear power plant or its personnel that includes the use of violent force – guns, explosives, projectiles, vehicles, or other destructive devices – to destroy equipment, take hostages and/or intimidate the licensee to achieve an end).
2. Radiological emergency situation at the nuclear generating plant.
3. Increased state and national threat level and the precautionary measures that will need to be implemented at other locations.

Planning needs to address various types of hostile actions occurring at a nuclear generating plant including:

- Land-based
- Water-based
- Aircraft-based
- Insider-based
- Combination of insider attack and external attack

A HAB incident will rapidly escalate through the emergency classification levels (ECLs), and by the time the initial notification is made, the site may be at a General Emergency.

The initial notification may be from the 911 call from plant security requesting assistance with the official notification and emergency classification level being determined later.

A command post at or near the site will need to be established and added into plans and procedures. The command post will have primary responsibility for coordinating the on-

site (inside or near the fence) response to the hostile action.

The state and county emergency operations centers (EOCs) will maintain primary responsibility for coordination of the off-site (outside the fence) response to the radiological emergency portion of the incident.

The responsibility of protective action decision (PAD) making, for the public, will remain with the state EOC.

Emergency worker radiological exposure control coordination and emergency worker turn-back limit decisions and procedures will remain at 1 rem in the state plan and procedures.

Considerations for responders going to the site:

- Pre-issue Thermoluminescent dosimeters (TLDs) and potassium iodine (KI) to all designated on-site responders, or
- Pull responders back at a General Emergency, issue dosimeters, TLDs, KI and do just-in-time training if needed, or
- Quick authorization to exceed dose limits for critical lifesaving or law enforcement actions.

Emergency worker decontamination procedures will remain the same and will use the existing sites designated in the Minnesota Emergency Operation Plan (MEOP).

Media Briefings

Initial media information and briefings will be coordinated and conducted by the joint

information center (JIC) from the SEOC for all events simultaneously.

- Initial media advisories and news releases will be done by the JIC in the SEOC Media Briefing Room.
- A media briefing location near the nuclear power plant will be established once the event is stabilized and the decision is coordinated with the SEOC, JIC, county EOC and incident command post.
- The JIC will establish a process to coordinate with FBI and law enforcement on timely sharing and release of information while understanding the need to withhold sensitive information to protect the integrity of the criminal investigation and evidence collection.

Protective Actions

Radiological emergency protective actions will be implemented in accordance with the approved plans and procedures with the following modifications:

- Traffic and access control points for the 2-mile area around the plant may be established at a Site Area Emergency ECL to restrict traffic near the plant site and establish an outer perimeter.
- The preferred initial PAD for the 2-mile area at a General Emergency ECL will be to shelter in place. The 5-mile down-wind PAD will be to shelter or evacuate based on plant conditions in accordance with existing plans and procedures.
- Precautionary messages will be issued to the public in the 2-mile area asking residents to stay indoors and off roadways.
- Local resources will need to be available to support the on-site response and will not be able to do off-site activities simultaneously.

Communication

Agencies will need to staff all on-site HAB and off-site REP functions simultaneously.

- Baseline plans may need to be updated with responsibilities transferred to other agencies based on the on-site HAB response functions of the various agencies.
- Communication with the command post will need to be established.
- Communication will need to be established to manage threat information coming from the utility as well as how the state or local jurisdictions will notify the utility of a threat.
- All existing notification systems and communication protocols will remain the same.
- All existing REP protocols and procedures, unless modified, will remain in place and be used during a HAB incident.
- A plan will need to be established for heightened security if a different plant is attacked. If a plant is attacked in the U.S., all plants will be placed in a heightened security environment and local and state governments will be asked to provide heightened security as well.
- Plans need to reflect how the Minnesota Fusion Center at the Bureau of Criminal Apprehension (BCA) will be integrated into the information flow at the state and county level.

Coordination Considerations

Current radiological emergency response plans do not incorporate the implementation of an on-site or near-site command post, because there is no on-site response required in traditional REP response plans.

For a HAB incident, an on-site response element is required and a command post must be established to coordinate and manage the activities at or near the plant.

Command Post

A command post must be established near the site to coordinate the on-site response. The command post should be established in a safe area from both a tactical and downwind perspective.

- Local responders have the responsibility for locating and establishing the command post.
- Pre-determined locations for the command post should be developed.
- The possibility of a second attack on responding personnel should be considered when determining the command post location.
- Local responders are responsible for notifying the appropriate agencies where the command post is located.
- Pre-determine what agencies will be represented at the command post.
- Establish a tactical staging area.

Unified Command

Unified command will be implemented with city, county, state, federal and utility representation at the command post.

- The command post staff will focus on the coordination of the response to the hostile action at the site.
- Coordination and cooperation between the SEOC and county EOCs will be critical in ensuring seamless operations.
- Plans must define who has overall coordination authority at the command post.
- Primary and backup communication will be established between the command post and county and state EOCs.
- Plans and procedures must identify primary and backup communications methods.

- Radio communications between the on-site security and off-site responders must be established at the command post.
- A state homeland security liaison will be dispatched to the command post. When the state liaisons arrive, which will not be immediate, they will report to the command post to assist the local authorities and coordinate on-site state assistance.
- FBI should deploy to the command post.
- NRC should deploy to the command post
- Other federal agencies will be deploying to the site as needed.
- Determine what other federal agencies will be responding directly to the site and the EOCs.
- A utility security and radiological protection liaison will deploy to the command post. Each liaison must be an individual with detailed working knowledge of the facility, plant layout, security procedures, equipment, detailed blueprints and floorplans of the facility, ability to communicate with the security force and the ability to commit resources.
- The command post must be able to conduct an analysis of intelligence and information obtained at the site and communicate that information off-site to the appropriate agencies.

Public Information Officer

A state PIO, if required, will be deployed to the command post, but media briefings will be from the JIC. The initial media briefing will be conducted at the media briefing room in St. Paul.

- The command post PIO will be a liaison between the command post, the state joint information center and the state incident manager.
- The command post PIO will work with the incident commander to ensure the

appropriate information about the response to the incident is communicated.

- After the incident is stabilized, and if there has not been a release of radioactive material, a near-site media briefing area may be established as coordinated with the incident commander, PIO and the EOCs.

Command Post

The command post will coordinate response activities at or near the site (inside or near the fence).

- Establish a 360-degree inner perimeter based on incident conditions (note that the outer perimeter will be the 2-mile sub area and implemented by the EOCs at an SAE).
- Control and manage water-based access onto the site.
- Control and manage land-based access into the site.
- Establish and maintain communications with county and state EOCs.
- Establish and maintain communications with utility security staff on site.
- Coordinate and communicate with the state field teams for sampling inside the 2-mile area when it is safe to do so.

Staging Area

Establish a staging area that is a safe distance from the site from both a tactical and downwind exposure perspective.

- Communicate staging area information to the county EOCs.
- Pre-identify primary and secondary staging areas.

County EOC Responsibilities

Support the command post requests for on-site activities.

- County EOC will determine where the sheriff (top county law enforcement official)

will be located (either at the command post or at the county EOC).

- Implement off-site protective actions as determined by the SEOC in accordance with the REP plan.
- At the SAE, establish outer perimeter by implementing the 2-mile area traffic access control point staffing.
- At the declaration of a general emergency (GE), people in the 2-mile area will shelter-in-place and people in the 5 miles downwind area will evacuate, as directed by the SEOC.
- Coordinate with the command post to determine when it is safe to evacuate the 2-mile area and notify the SEOC when evacuations can be implemented.
- Coordinate with command post to pull back emergency workers and issue dosimetry, KI and TLDs and conduct responders briefings at a General Emergency if there is a release of radioactive material.
- Establish family assistance centers to track and reunite family members during long-term incidents.

State EOC Responsibilities

- Support command post requests for on-site response activities through the county EOC.
- Coordinate state agency response activity requests.
- Coordinate federal agency response assistance.
- Implement off-site protective actions as determined by the governor's authorized representative (GAR) in accordance with state statutes and the Minnesota Emergency Operations Plan (MEOP).
- Implement enhanced security protocols for the non-affected nuclear power plant and other critical infrastructure in the state.

- Implement situational notifications to other critical infrastructure sites.
- Integrate information between the BCA's Minnesota Fusion Center and the SEOC.
- Establish the JIC to provide and coordinate all media requests and release of information to the public.
- At SAE, coordinate the implementation of the 2-mile area traffic and access control points.
- Coordinate media information advising people in the 2-mile area to stay indoors and keep the roadways open for emergency vehicle response.
- Coordinate with the state field teams to monitor for radiation early in the event outside of the 2-mile area to assure the public of no release.
- At the declaration of a GE, shelter the 2-mile area and evacuate five-miles downwind.
 - Coordinate with command post, through the county EOC, to determine when it is safe to evacuate the 2-mile area.
- Request a federal emergency declaration.
- If control of the site is lost and a radioactive material release occurs, pull resources back to a safe area (outside the affected sub-areas) and request direct federal assistance for resources to take back control of the plant.
- Coordinate the federal radiological support resources.
- Request key federal agency representation in the SEOC from:
 - FBI liaison
 - FBI PIO
 - DHS liaison
 - DHS PIO
 - FEMA liaison
 - NRC liaison

- Senior federal law enforcement agency

Nuclear Generating Plant HAB Coordinated Response Actions Based on ECL

HAB Alert ECL Actions

- Local agencies respond to the scene and engage in the situation.
- Establish a unified command post.
- Local and state EOCs fully activated.
- Governor issues an emergency executive order activating the SEOC and National Guard and establishes the GAR.
- A JIC is established by the state and initial media releases are distributed.
- JIC media briefings are conducted by the SEOC.
- *[Media advisory is released notifying residents within 2 miles of the plant to stay indoors and off roadways.]*
- The command post will establish the inner perimeter.
- SEOC coordinates requests for National Guard, State Patrol tactical team, state bomb squads, state hazardous materials teams, etc.
- Incident-related calls are transferred from the State Duty Officer to the SEOC upon activation.

HAB Site Area Emergency ECL Actions

Ensure that all activities are implemented for HAB alert ECL.

- Governor issues an emergency executive order declaring a state of emergency.
- Media advisory issued by the JIC requesting residents within 2 miles of the plant to stay indoors and off roads.
- Implement the 2-mile area traffic and access control points and restrict access into the area.

- Initiate evacuation of schools in the 10-mile EPZ.
- Deploy field monitoring teams outside the 2-mile area to confirm that there is no release.
 - [SEOC will coordinate with the command post to bring field teams in closer as soon as it is tactically safe to do so.]

HAB General Emergency ECL Actions

Ensure all activities are implemented for the HAB alert and SAE ECL.

- Implement PAD by the state to shelter in place the 2-mile area and evacuate or shelter 5 miles downwind according to procedure.
- If a release occurs as a result of the hostile action, pull back and reevaluate current activities. This includes pulling back assets and regrouping in a safe location (outside of an affected sub area) away from the plant.
- *[Conduct a conference call with command post, county and state EOCs to determine next steps.]*
- State of Minnesota will initiate a request for a federal emergency declaration requesting emergency protective measures (category B) and direct federal assistance under the public assistance program.
- If control of the site is lost, the state will request direct federal assistance to take back control of the plant.

HAB-Specific Plan Updates Needed

State and county plans and procedures need to define the following:

1. Determine how credentialing will be established for emergency workers at or near the site.
2. Identify how the integration of utility security staff and off-site response personnel will occur (providing prompt plant access for in-bound first responders).

HAB-Specific Considerations

Off-site and on-site emergency operation plans need to be synchronized and the following need to be agreed upon:

1. Coordination of staging areas for initial deployment and pre-staging of assets.
[There will be a need for two levels of staging: one for on-site response and one for regional pre-positioning of assets that will be deployed by various federal agencies.]
2. Plans need to identify the state and federal agency responsibilities for a HAB response.



State Response Assets for a HAB Incident at a Nuclear Generating Plant in Minnesota

MN Department of Public Safety (DPS)

State Fire Marshall

Chemical Assessment Teams (CAT)

Minnesota has CATs composed of trained personnel. The primary responsibilities of a CAT at an incident scene are hazard assessment, technical assistance, simple mitigation and basic decontamination.

Emergency Response Team (ERT)

The ERT is located in the city of Saint Paul and is composed of trained personnel, with specialists, technicians, and a medical support officer on duty at all times.

The ERT may take action necessary to protect life, property and the environment from the effects of a release of a hazardous material. Their actions include, but are not limited to, preventing a hazardous release, mitigating the effects of the release and stabilizing the emergency situation.

Bomb Disposal Units

There are four contracted bomb disposal units in the state teams program: Minneapolis PD, St. Paul PD, Bloomington PD and Crow Wing County Sheriff's Office. These bomb squads are universally trained and equipped, licensed Minnesota peace officers who are certified hazardous devices technicians and hazardous materials technicians or specialists.

The squads perform post-blast investigations, evidence handling and packaging, reconstruction of detonated devices, clandestine lab operations, and site safety. Each team is equipped with hazardous device disposal robots, portable digital X-ray machines,

single-vent (open) trailers, and total containment vessels (for chemical/biological devices).

Structural Collapse Team – Minnesota Task Force 1 (MNTF1)

MNTF1 is composed of Minneapolis Fire Department, Edina Fire Department, St. Paul Fire Department, Rochester Fire Department, Dakota County Special Operations Team personnel, and firefighters and paramedics from surrounding metro agencies.

MNTF1 is equipped and prepared to deploy and be completely self-contained and able to logistically support a field deployment in areas with little or no infrastructure.

MNTF1 is equipped for structural collapse heavy rescue to include breaching and breaking reinforced concrete and steel, trench rescues, confined space rescues, and rope rescues.

All members of MNTF1 are trained and function at the structural collapse technician level, including structural collapse-light, -medium and -heavy construction; breaching; breaking; cutting concrete and steel; shoring; trenching; and tunneling.

The training prepares the rescuers to serve as hazmat technician/specialists and perform high/low angle rescues, confined space rescues, trench rescues, and structural collapse rescues.

Bureau of Criminal Apprehension (BCA)

Investigations

The BCA is the state of Minnesota's lead investigatory agency and is responsible for coordinating the state's interests in criminal investigations.



BCA special agents, crime scene investigation teams and forensics lab capabilities are used for crime scene investigation and processing and analysis of evidence.

Minnesota Fusion Center

The Minnesota Fusion Center at the BCA is tasked with collecting, evaluating, analyzing and disseminating information regarding organized criminal, terrorist and all-hazards activity in Minnesota.

Minnesota State Patrol

Special Response Team (SRT)

Structure: Team commander, operators and trained tactical medics.

Capabilities include: Sniper/scout team, operators and medics trained in rappelling from static structures or off of the helicopter via the skids (used for tactical insertions and rescue situations in remote areas). The team is also trained in tracking (used for tracking suspects fleeing on foot).

Each operator is assigned a squad, in which they keep all issued personal equipment, allowing for a rapid response from any location. One SRT truck, deployed with the team, acts as a command center and can be used to insert a large number of team members into an incident. The SRT truck contains all specialized equipment required for response. It is equipped with 800 MHz and VHF radio systems and has downlink capabilities from the helicopter for a live video feed overhead.

Mobile Field Force (MFF)

The MFF is trained and equipped to deal with crowd control/civil disobedience incidents and general police duties as needed. When deployed, the size of MFF squads/platoons/divisions is determined by the needs of the incident and the number of MFF troopers available for the incident.

MFF line troopers are equipped with helmets, gas masks, riot batons, and body protection. MFF troopers are trained to perform all functions in a normal or gas environment which includes moving, restricting and separating crowds; providing site security; providing motorcade security; and providing conventional police patrol/enforcement, on foot or mechanized, in civil disturbance areas.

Aviation Section

The Aviation Section has bases in St. Paul and Brainerd. Trooper pilots train annually for nuclear disaster responses, including the use of dosimeters.

The equipment used during nuclear drills includes fixed-wing aircraft used to transport personnel and three helicopters that combine thermal imagery equipment with video downlinks to local MSP dispatch centers or mobile sites, night vision capabilities, and rappelling systems to insert SRT members and medics.

All aircraft are equipped with state-of-the-art radio systems, allowing communication between law enforcement agencies, news media helicopters, military operations, and the SEOC.

Rapid Response Team (RRT)

The RRT is composed of troopers, supervisors, and clerical staff to handle communications and administrative efforts related to a callout. The RRT was formed to allow for a quick law enforcement response to an event. The wide disbursement of members allows RRT troopers to respond to an event on short notice.

The goal is to respond quickly and be self-sufficient for the first 24-48 hours until additional logistical support arrives; staffing models have been built to account for relief and 24/7 operations lasting several days.

The RRT is available for callouts for law enforcement events, perimeter containment,

checkpoints, evacuations, searches, tornados, floods, spills, fires, etc.

Department of Military Affairs (Minnesota National Guard)

Quick Reaction Forces (QRF)

The Minnesota National Guard has three strategically located QRF units that are capable of supporting local, state and federal authorities with an initial response up to a company-sized element after notification.

Rapid Reaction Forces (RRF)

The Minnesota National Guard has one RRF that is capable of supporting local, state and federal authorities with a response up to a battalion-sized element after notification and as mission dictates.

55th Civil Support Team (CST)

This federally funded, full-time unit that supports civil authorities at a domestic chemical, biological, radiological, or nuclear (CBRN) incident site in order to identify CBRN agents/substances, assessing current and projected consequences, advising on response measures and assisting with appropriate requests for support.

The CST will deploy to the incident location following notification. Full-time active duty personnel are ready to respond 24/7.

CBRN Enhanced Response Force Package (CERFP)

Responds to a CBRN incident and assists local, state and federal agencies in conducting consequence management by providing capabilities to conduct patient decontamination, emergency medical services and casualty search and extraction.

The CERFP will deploy to the incident location following notification.

Department of Natural Resources (DNR)

DNR Enforcement Division can provide personnel; assist with search and rescue; and provide specialized equipment such as watercraft, ATVs and snowmobiles.

Department of Health

Disaster Portable Morgue Unit (DPMU)

Equipment includes 8- by 25-foot trailers, one being a command center offering full morgue operations.

DPMU Victim Identification Methods include X-ray, dental, DNA and fingerprints.

Potential temporary morgue sites include local mortuaries, airport hangars, armories and closed strip malls.

Minnesota Disaster Mortuary Emergency Response Team (DMERT)

DMERT is composed of private citizens, each with a particular field of expertise, who are activated in the event of a mass fatality incident. DMERT specialties include dental assistants, forensic anthropologists, forensic odontologists, forensic pathologists, radiologists, mental health practitioners, administrative support, coroners, fingerprint and/or DNA specialists, funeral directors, information technology, medicolegal investigators, radiologic technologists and security/safety personnel.

Health and Medical Resources

Multiple Casualty Incident Buses

Emergency uses include: patient transport, responder rehabilitation, strike team or task force support.

Buses include: stretchers or seats for patients, advanced/basic life support, transport vents, cardiac monitors and wireless central monitor.

REP Exercise Requirements

Requirement for Radiological Emergency Preparedness (REP) Exercises

FEMA and the U.S. Nuclear Regulatory Commission (NRC) cooperate to promote and regulate REP in communities near commercial nuclear power plants. The responsibilities of FEMA and the NRC in this regard derive from executive and Congressional actions following the March 1979 accident at the Three Mile Island nuclear power station.

FEMA is the lead federal agency for providing assistance to state, tribal, and local governments and for review and evaluation of REP plans and exercises.

Congress directed the NRC to establish emergency preparedness as a criterion for licensing commercial nuclear power facilities. The NRC is prohibited from issuing an operating license for a power plant unless it finds that *“there exists a state, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by the operation of the facility concerned.”*

FEMA has issued regulations outlining the process and standards with which they will evaluate the REP program.

FEMA Regulation 44 CFR §350

Incorporates the joint FEMA/NRC guidance document, NUREG-0654/FEMA-REP-1.

Each state which has a commercial nuclear power plant within its boundaries shall fully participate in an exercise jointly with the nuclear power plant licensee and appropriate local governments at least every two years.

Each state with multiple sites within its boundaries shall fully participate in a joint exercise at some site on a rotational basis at least every two years. When not fully participating in an exercise at a site, the state shall partially participate at that site to support the full participation of appropriate local governments.

FEMA REP Exercise Evaluation

The REP exercise evaluation tests the functional areas described in the FEMA REP planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1. Some evaluation area criteria focus on fundamental radiological emergency response capabilities and should be demonstrated in every exercise. Other evaluation area criteria focus on important emergency preparedness capabilities that should be demonstrated at least once every eight years by each organization with responsibility for them.

Capability Targets

Capability Targets function as a general organizing principal for exercise demonstration and evaluation purposes. At each physical location (state EOC, county EOC, reception center, etc.) there are numerous criteria selected for evaluation that are associated with a specific capability target. Each capability target may involve the examination of as many as 10 specific items.

For example, when FEMA evaluates Capability Target 1.3: Protective Action Recommendation, criteria D.4, J.7, J.8, J.8.b, J.9, O.1. is evaluated. These criteria may also be selected elsewhere. For instance: Criterion J.8 is also selected for evaluation of Capability Target 1.4 Protective Action Decision for the Plume Phase.

Exercise Scenario

The scenario for a simulated nuclear power plant accident is developed jointly by the state and licensee and includes plant conditions and off-site consequences sufficient to drive activities necessary for the demonstration of the agreed-upon exercise evaluation area criteria. The scenario is submitted to the FEMA Regional Offices for review and includes the following information:

- A chronology of all key events
- A narrative description of exercise events and activities
- Meteorological data and forecasts
- Radiological data; e.g., characteristics of release, projected dose, exposure rates and concentrations in the environment
- Injects that include simulated traffic impediments and interruption of communications
- Simulated calls into the information hotline for identifying and tracking rumors and trends
- Out-of-sequence scenarios for the hospital and ambulance

Plume Phase Exercise

During a plume phase exercise, a simulated accident occurs resulting in the declaration of either a Notification of Unusual Event (NUE) or an Alert ECL. Throughout the course of the exercise, simulated conditions continue to worsen and the ECL escalates to a Site Area Emergency (SAE) and ultimately to a General Emergency (GE).

The state of MN and the risk counties within the 10-mile EPZ are required to demonstrate many tasks, including:

- Setting up and activating their EOCs
- Establishing direction and control of the situation

- Demonstrating functional backup communications
- Demonstrating public messaging and media briefings
- Evacuating school children and special populations (simulated)
- Evacuating the public (simulated)
- Re-routing of traffic around simulated impediments

State-only requirements:

- Staff a public information hotline to track rumors and trends
- Conduct dose assessment and plume modeling
- Use field teams to track the plume

In order to demonstrate many of these tasks, exercise controllers will supply information (a.k.a. injects) about various simulated conditions to different players at the proper time.

Injects may include:

- Information about traffic impediments to require re-routing traffic
- Artificial loss of communications to demonstrate backup capabilities
- Mock media to ask questions during the media briefings
- Release rate and meteorological conditions for plume modeling and dose assessment
- Field team sampling data for plume tracking

Intermediate/Ingestion Phase Exercise

Some evaluation area criteria are required to be demonstrated once in every eight-year cycle. These include, but are not limited to, the following:

- Decision making and implementation of ingestion phase Protective Action Recommendations (PARs)
- Radiological assessment, decision making and implementation of re-entry, relocation and return
- Post-plume field measuring and sampling
- Laboratory operations

Demonstration of these evaluation area criteria requires an extra day where the EOCs in the state and risk counties are active.

There is also participation of some of the counties within the 50-mile Ingestion Planning Zone (IPZ) as well as participation of federal agencies, which may include: FRMAC, USDA, FDA, CDC, FEMA, USDOT.

Additionally, more controller data is required to support this phase of the exercise.

- Injects to drive responses directed toward re-entry, relocation, return, and food protections
- Field team plume deposition data
- Maps that have incorporated field measurement data and radiological doses
- Samples necessary for laboratory analysis

Hostile Action-Based (HAB) Exercise

The state of Minnesota and risk counties have in place a standard set of objectives for the demonstration of a response to a declared radiological emergency at a nuclear generating plant. A HAB exercise requires additional objectives reflecting the unique actions taken in response to a hostile attack. This scenario is used in at least one exercise in the eight-year cycle. The HAB scenario can coincide with either a release or “no release” scenario.

Additional evaluation variables that may differ from a non-HAB exercise may include, but are not limited to, the following:



- Establishment of an incident command post (ICP) and staging area.
- Integration of off-site resources with on-site response.
- Traffic and access control implementation.
- Demonstrating knowledge on the use of dosimetry and KI by emergency responders located at the ICP.
- Decision-making coordinated between the ICP, county EOC and SEOC planning and assessment center (PAC).






Out-of-Sequence Demonstrations

Due to the limited number of available controllers and evaluators and the time constraints placed upon a typical exercise, many criteria are demonstrated out of sequence with the rest of the exercise. These include:




- Emergency Worker Decontamination (EWD) Sites
 - Monitoring and decontamination of Emergency Workers, their vehicles and equipment
 - Field Sample drop off and handling
- Reception Centers
 - Monitoring and decontamination of the general public, their vehicles, and pets
 - Registration of those who evacuated
- Ambulances
 - Transport of a potentially contaminated patient
- Hospitals
 - Treatment of a potentially contaminated patient
- Schools
 - Evacuation to sister schools or shelter in place
- Laboratory demonstrations
 - Receipt and analysis of field samples collected by field teams


Just in Time Training Videos for Emergency Workers


Emergency Worker Briefing	
Emergency Worker Briefing  <p>The emergency worker briefing video explains dosimetry, exposure limits, potassium iodide (KI) use and proper procedures.</p> <p>(3:44 minutes) http://youtu.be/wmdi6vKyRkg</p>	Emergency Worker Briefing (Outside 10-mile EPZ)  <p>The emergency worker briefing video explains dosimetry for workers outside the 10-mile emergency planning zone (EPZ). It does not include information on KI or turn-back limits.</p> <p>(1:30 minutes) http://youtu.be/Lxeea5b6-Ms</p>

Monitoring Equipment Operation	
Ludlum 3  <p>Operational video for the Ludlum 3, a portable radiation survey meter that detects alpha, beta and gamma radiation.</p> <p>(3:36 minutes) http://youtu.be/CiO6f-ZF-a4</p>	Ludlum 26  <p>Operational video for the Ludlum 26, a hand-held, pancake-style monitor for frisking and measuring alpha, beta and gamma radiation.</p> <p>(3:54 minutes) http://youtu.be/C12wW7_RCa</p>
UltraRadiac - Electronic Dosimetry  <p>This operational video for the UltraRadiac demonstrates how to properly use this electronic dosimeter.</p> <p>(4:50 minutes) http://youtu.be/-FnBBtQrAPY</p>	DRD Charger  <p>This operational video for the DRD charger demonstrates how it is used to zero direct-reading dosimeters.</p> <p>(1:07 minutes) http://youtu.be/qaFPBV7Oj9s</p>
Portal Monitor  <p>This operational video for the portal monitors demonstrates the setup, operation and disassembly of equipment for personnel and vehicle radiological monitoring.</p> <p>(3:31 minutes) http://youtu.be/UnKUmitKPGo</p>	





Emergency Worker Decontamination (EWD) Centers	
<p>EWD - Entire Video</p>  <p>The EWD video is an overview of the responsibilities and procedures for monitoring and decontaminating vehicles, equipment and personnel for a radiological event at a nuclear generating plant.</p> <p>(26:59 minutes) http://youtu.be/Eu9fSKBWh-M</p>	<p>EWD - Vehicle Monitoring</p>  <p>The vehicle monitoring station video identifies the location of vehicle contamination levels through proper documentation and supports transfer of field samples.</p> <p>(3:35 minutes) http://youtu.be/d8_IMl8u9wg</p>
<p>EWD - Introduction</p>  <p>The introduction video explains radiological procedures for exposure control and decontamination services for personnel, vehicles and equipment.</p> <p>(1:31 minutes) http://youtu.be/_Tb7RSpTp3I</p>	<p>EWD - Vehicle Decontamination</p>  <p>This video demonstrates the decontamination process for vehicles and equipment and the proper documentation of the results.</p> <p>(4:17 minutes) http://youtu.be/g6pHohS9nEU</p>
<p>EWD - Decontamination Chief</p>  <p>The Decon Chief is responsible for maintaining direction and control of all EWD center operations for a radiological event at a nuclear generating plant.</p> <p>(2:22 minutes) http://youtu.be/8y-rn6fCS4c</p>	<p>EWD - Personnel Monitoring</p>  <p>This video demonstrates monitoring of emergency worker personnel for radiological contamination and the proper documentation of the results.</p> <p>(3:24 minutes) http://youtu.be/2sp6us3TZAs</p>
<p>EWD - Traffic Control</p>  <p>The traffic control station video shows how a station leader and traffic controller should verify, log and control traffic flow of emergency worker vehicles at the EWD center.</p> <p>(1:49 minutes) http://youtu.be/bNJlbMOuZHw</p>	<p>EWD - Personnel Decontamination</p>  <p>This video demonstrates the process for decontamination of personnel and the proper documentation of the results.</p> <p>(2:48 minutes) http://youtu.be/UIzEfdWUAYy</p>

Emergency Worker Decontamination (EWD) Centers	
<p>EWD - Radiation Protection Specialist (RPS)</p>  <p>The RPS is responsible for providing radiological technical assistance for EWD center staff regarding monitoring and decontamination.</p> <p>(4:06 minutes) http://youtu.be/7K1SlyHA0og</p>	<p>EWD - Doffing</p>  <p>The doffing video demonstrates the proper removal process of all personal protective equipment (PPE) and collection of dosimetry.</p> <p>(1:18 minutes) http://youtu.be/aD9OBpUtNio</p>
<p>EWD - Registration</p>  <p>Registration assigns and tracks monitoring equipment and dosimeters, records worker data and radiation doses, maintains custody of vehicles and maintains 24-hour staffing.</p> <p>(3:17 minutes) http://youtu.be/04yDqz2uKK8</p>	

Traffic and Access Control Points (TACPs)
<p>TACPs</p>  <p>Review the overall purpose, function and setup of TACPs that would be set up and staffed in the event of an evacuation around a nuclear generating plant.</p> <p>(3:00 minutes) https://youtu.be/Kk8he3pg-Ak</p>

School Evacuation and Student Family Reunification
<p>School Evacuation</p>  <p>Review school evacuation and parent-student reunification, in the event of a radiological incident at a Nuclear Generating Plant.</p> <p>(3:47 minutes) https://www.youtube.com/watch?v=Os9gxB0Pd4U&feature=youtu.be</p>

Hospital and EMS Videos	
<p>Introduction</p>  <p>This video provides an overview of the overall function of the hospital and EMS in a radiological incident involving a nuclear power plant.</p> <p>(3:52 minutes) http://youtu.be/GTtTM-aCxck</p>	<p>Primary RN – Contaminated Area</p>  <p>The primary RN in the contaminated area provides care for the patient and also aids in the decontamination process.</p> <p>(6:42 minutes) http://youtu.be/G7X4R0q8g-k</p>
<p>Ambulance</p>  <p>The ambulance cocoons and transports potentially contaminated and injured individuals from the reception center to the hospital.</p> <p>(2:27 minutes) http://youtu.be/gVvw7hEPmP4</p>	<p>Secondary RN – Contaminated Area</p>  <p>The secondary RN in the contaminated area provides care for the patient and also aids in the decontamination process.</p> <p>(5:43 minutes) http://youtu.be/Noe9EBJj2II</p>
<p>Charge Nurse</p>  <p>The charge nurse is responsible for the overall operations of the emergency room.</p> <p>(1:09 minutes) http://youtu.be/oaAG-l1Mj9Y</p>	<p>Physician – Contaminated Area</p>  <p>The physician directs the care of the patient and the decontamination process in the emergency room.</p> <p>(2:44 minutes) http://youtu.be/twaq7tEbw7U</p>
<p>Radiation Safety – Clean Area</p>  <p>Radiation safety personnel in the clean area are responsible for the radiation monitors and determining the background readings.</p> <p>(4:53 minutes) http://youtu.be/HL4wd-eG9zM</p>	<p>Safety Coordinator – Contaminated Area</p>  <p>The safety coordinator in the contaminated area surveys the ambulance staff, equipment and ambulance.</p> <p>(3:01 minutes) http://youtu.be/hjUpSZFHcEs</p>
<p>Radiation Safety – Contaminated Area</p>  <p>Radiation safety personnel in the contaminated area are responsible for monitoring the patient to determine the location and extent of contamination.</p> <p>(3:59 minutes) http://youtu.be/KzxFOhg7kgo</p>	<p>Taking an X-Ray</p>  <p>This video demonstrates the proper method for taking an x-ray of a contaminated patient using a portable x-ray machine.</p> <p>(1:41 minutes) http://youtu.be/r8nFJQ7sKmY</p>

Hospital and EMS Videos	
<p>Clinical Recorder</p>  <p>The clinical recorder in the clean area records all important patient data during the incident.</p> <p>(2:12 minutes) http://youtu.be/ali0lw9sHGw</p>	<p>Donning PPE – Hospital</p>  <p>This video demonstrates one method of donning PPE for hospital staff.</p> <p>(1:29 minutes) http://youtu.be/_uErzZ0ITr8</p>
<p>Safety Coordinator – Clean Area</p>  <p>The safety coordinator in the clean area distributes dosimetry, provides a briefing and ensures proper donning and doffing of PPE.</p> <p>(3:10 minutes) http://youtu.be/QjqaSIKbm4I</p>	<p>Doffing PPE – Hospital</p>  <p>This video demonstrates one method of doffing PPE for hospital staff.</p> <p>(2:02 minutes) http://youtu.be/hk98CtpG2f4</p>