



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT
362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

SEP 18 2006
CY-06-125

Docket No. 50-213

Re: 10 CFR 50.54(q)
10 CFR 50.4(b)(5)

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Haddam Neck Plant
Emergency Plan Change- Onsite Emergency Plan Exercise
Frequency from Annual to Every Other Year

On December 5, 1996, Connecticut Yankee Atomic Power Company (CYAPCO) notified the NRC that it had decided to cease operation of the Haddam Neck Plant (HNP) and all fuel had been removed from the reactor and placed in the Spent Fuel Pool. In a letter dated May 30, 1997, CYAPCO requested an exemption from the provision of 10 CFR 50.54(q) that requires emergency plans to meet all of the standards of 10 CFR 50.47(b) and all of the requirements of Appendix E to Part 50. In addition, CYAPCO submitted a proposed Defueled Emergency Plan (DEP) for NRC approval. Among other things, the DEP proposed to discontinue offsite emergency planning activities and to reduce the scope of onsite emergency planning and to meet only a portion of the standards and requirements. In a letter dated August 28, 1998, the NRC approved the DEP and granted the exemption from the provision of 10 CFR 50.54(q) that requires emergency plans to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50.

The DEP that was approved specifies that an annual exercise of its onsite emergency plan will be conducted. CYAPCO is now proposing to revise the frequency of an exercise of its onsite emergency plan from once per year to every other year. CYAPCO has determined that this proposed change in the frequency of an exercise constitutes a reduction in commitment and thus it represents a decrease in effectiveness of the Emergency Plan but the Emergency Plan as changed continues to meet the standards of 10 CFR

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50.47(b) and the requirements of Appendix E to Part 50 Regulations. 10 CFR 50.47(b)(14) states in part, "Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities..." and 10 CFR 50, Appendix E, Section IV, F.2.b, states in part, "Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years...".

Accordingly, CYAPCO hereby requests the NRC to review and approve this proposed change to the Emergency Plan. The other changes evaluated under 10CFR50.54(q) do not constitute a reduction in commitment and reflect current plant conditions in the final stage of decommissioning.

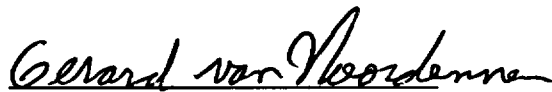
Attachment 1 provides a discussion of the changes to the existing Emergency Plan, identifies any changes considered to be a reduction in commitment, and provides a basis for concluding the Emergency Plan, as changed, continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50.

Attachment 2 is a copy of the revised CYAPCO Defueled Emergency Plan for your information.

There are no regulatory commitments contained within this letter.

If you should have any questions regarding this submittal, please contact me at (860) 267-3938.

Sincerely,



Gerard P. van Noordennen
Director of Nuclear Safety and Regulatory Affairs

9-18-06
Date

Attachments: 1. Changes to the HNP Emergency Plan.
2. Emergency Plan

cc: Mr. S. J. Collins, NRC, Region 1 Administrator
Ms. M. T. Miller, Chief, Decommissioning Branch, NRC
Region 1
Mr. T. B. Smith, NRC, Project Manager
Dr. E. L. Wilds Jr., CT DEP, Director, Radiation Division

CY-06-125
Docket No. 50-213

Attachment 1
Haddam Neck Plant
Changes to the HNP Emergency Plan

September 2006

Changes to the HNP Emergency Plan

Background and Scope:

On December 5, 1996, Connecticut Yankee Atomic Power Company (CYAPCO) notified the NRC that it had decided to cease operation of the Haddam Neck Plant (HNP) and all fuel had been removed from the reactor and placed in the Spent Fuel Pool. In a letter dated May 30, 1997, CYAPCO requested an exemption from the provision of 10 CFR 50.54(q) that requires emergency plans to meet all of the standards of 10 CFR 50.47(b) and all of the requirements of Appendix E to Part 50. In addition, CYAPCO submitted a proposed Defueled Emergency Plan (DEP) for NRC approval. Among other things, the DEP proposed to discontinue offsite emergency planning activities and to reduce the scope of onsite emergency planning and to meet only a portion of the standards and requirements. In a letter dated August 28, 1998, the NRC approved the DEP and granted the exemption from the provision of 10 CFR 50.54(q) that requires emergency plans to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50. On March 30, 2005, all spent fuel and GTCC waste had been placed into dry storage at the Independent Spent Fuel Storage Installation (ISFIS) at the HNP site. The DEP was revised to reflect the dismantling and decommissioning activities at the HNP site and the revised Emergency Plan (now known as the HNP Emergency Plan) was submitted to the NRC on April 5, 2005. Currently, all HNP buildings and structures (including Containment and Spent Fuel Building) have been dismantled and demolished. All plant related Systems and Components have been removed to various off-site disposal facilities. There are no longer liquid radioactive wastes or (significant quantities of) dry activated waste stored on site. All the decommissioning work activities are complete (will be completed by the end of 2006) except for the Final Status Survey of the site land and removing the land from the Part 50 License except the land surrounding the ISFSI.

The DEP (now currently known as the HNP Emergency Plan) that was approved specifies that an annual exercise of its onsite emergency plan will be conducted. CYAPCO is now proposing to revise the frequency of an exercise of its onsite emergency plan from once per year to every other year. CYAPCO has determined that this proposed change in the frequency of an exercise constitutes a reduction in commitment and thus it represents a decrease in effectiveness of the Emergency Plan but the Emergency Plan as changed continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50.

Description of the Change:

Section 8.2.3 of the HNP Emergency Plan requires that "an exercise will be conducted once each calendar year to demonstrate the capability to implement the Emergency Plan." However, CYAPCO is now proposing to revise the frequency of an exercise of its onsite emergency plan from once per year to every other year. CYAPCO has determined that this proposed change in the frequency of an exercise constitutes a reduction in commitment and thus it represents a decrease in effectiveness of the Emergency Plan but the Emergency Plan as changed continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50 Regulation. 10 CFR 50.47(b)(14) states in part, "Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities..." and 10 CFR 50, Appendix E, Section IV, F.2.b, states in part, "Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years...". Accordingly, CYAPCO hereby requests the NRC to review and approve the proposed change to the emergency plan.

Evaluation:

The decommissioning activities related to the Structures, Systems, and Components are complete except for Final Status Survey and removing the land from the Part 50 license except the land surrounding the ISFSI. As stated earlier, all spent fuel and GTCC waste has been placed in dry storage at the ISFSI. There are no longer liquid radioactive waste or significant quantities of dry activated waste stored on site. The risks related to accidents that could occur associated with the liquid radioactive or dry activated wastes no longer exist. The risk related to accidents that could occur associated with the physical activities of decommissioning and the risk associated with what remained of the power plant no longer exist. In addition, CYAPCO shall take actions necessary to ensure that adequate emergency response capabilities are maintained. Specifically, a requirement is added to Section 8.2.3 of the HNP Emergency Plan as follows: "During the interval between biennial exercises, CYAPCO will conduct drills, including at least one drill involving a combination of some of the principal functional areas of the onsite response capabilities (management, accident assessment, protective and corrective actions). In addition, the proposed change is also consistent with requirements (i.e., frequency of the exercise) of 10 CFR 50, Appendix E, (IV)(F)(2)(b). Based upon the above, it is appropriate and acceptable to reduce the frequency of an exercise of the onsite emergency plan from once per year to every other year.

Conclusion:

Based on the evaluation, the proposed change represents a decrease in the effectiveness of the Emergency Plan. But the Emergency Plan as changed continues to meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E, (IV)(F)(2)(b). The HNP Emergency Plan provides for an acceptable level of emergency preparedness at the HNP site and also provides reasonable assurance that adequate protective measures can and will be taken in the event of an emergency at the HNP ISFSI. Therefore, the proposed change is safe and acceptable.

Connecticut Yankee Atomic Power Company

Emergency Plan Revision 8 10CFR50.54(q) Effectiveness Review

Objective:

10CFR 50.54 states in part that; "The nuclear power reactor licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of § 50.47(b) and the requirements of Appendix E to this part."

The following is provided to verify and document that Revision 8 of the CYAPCO Emergency Plan meets the above three conditions.

Background:

On December 5, 1996, CYAPCO notified the NRC that it had decided to cease operating the Haddam Neck Plant and that all fuel had been removed from the reactor and placed in the Spent Fuel Pool.

Subsequently, power plant buildings have been dismantled and materials to be removed have been shipped off site. All decommissioning work has been completed except for Final Status Survey and removing land from the License, except for ISFSI land. All spent fuel and GTCC waste has been placed in dry storage at the ISFSI. Revision 8 of the CYAPCO HNP Emergency Plan reflects end state conditions, where the only thing remaining on site is the ISFSI and its related support systems, structures and components, such as the ISFSI Monitoring Station Building and the ISFSI Support Facility.

There are no design basis or credible events that would result in a release that would exceed the EPA PAGs at the ISFSI Owner Controlled Area boundary.

Revision 8 of the CYAPCO HNP Emergency Plan and this 10CFR50.54(q) evaluation take into consideration the exemption granted in 1998 and documented in a letter dated August 28, 1998 and Revision 7 the CYAPCO Haddam Neck Emergency Plan.

The following is a list of the changes made in revision 8 of the CYAPCO HNP Emergency Plan:

1. Change Exercise frequency from annual to every other year.
2. Revise the EAL Table to reflect current conditions.
3. Change Audit to Independent Review.
4. Eliminate any mention of power plant site, decommissioning site or any mention of any plant equipment, structure or component.

5. Eliminate any support resources or equipment previously obtained from the decommissioning site as they are no longer available.
6. Eliminate section 6.4.6 Emergency Action, which included guidance on taking actions that depart from a License Condition or Tech. Spec. in an emergency when action is immediately needed to protect the health and safety of the public.
7. Make various minor and editorial changes.
8. Eliminate the use of support staff and contractors as ERO augmentation.
9. Eliminate the use of the VCC data display software alarm in SAS that indicates a VCC air outlet temperature exceeds the ambient temperature by a specified amount.

Exemption:

In letter CY-97-047 dated May 30, 1997, CY requested NRC approval of a Defueled emergency Plan and exemption from portions of 10CFR50.54(q) related to off-site response. This exemption was approved by NRC as documented in their letter dated August 28, 1998.

CYAPCO letter CY-98-052 provided additional information regarding the above mentioned exemption request, and included as Table 1 for off-site and Table 2 for on-site, section by section comparisons of 10CFR50.47(b) and 10CFR50 Appendix E requirements and what, when the exemption was approved, CYAPCO would and would not be required to do. The following lists the portions of these that reflect what CYAPCO is not required to do, now that the exemption has been approved. Table 1 and 2 did not include exemptions to all sections of 10CFR50.47 and Appendix E. The following lists only those sections that included exemptions.

OFF-SITE

10CFR50.47(b):

- (4) "...no offsite response measures are required."
- (5) "...no offsite notification of the general public is required. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."
- (6) "...communications with the public will now be via news releases. No capability for prompt communication or telephone calls to the public is required."
- (7) "...the periodic mailings to the residents are no longer necessary as they will have no response actions."

(9) "...no methods, systems, and equipment will be maintained for the determination of actual offsite dose consequences."

(10) "...As there are no design basis or other credible events that would result in doses beyond the exclusion area boundary that would exceed the EPA PAGs, the EPZs and associated protective actions are no longer required."

10CFR50 Appendix E, (IV):

(Preamble) "...evacuation times and protective actions within the EPZ are no longer required."

(A)(2)(c) "...the coordination and implementation of offsite emergency measures are no longer required. However, this coordinator will still exchange information with offsite authorities. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(A)(4) "...offsite dose projections are no longer required. However, any dose projections for the exclusion area boundary will still be transmitted. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(A)(8) "...identification of State and local authorities responsible for protective actions is no longer required."

(B) "...offsite protective measures and monitoring are no longer required. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate. The Town of Haddam has not expressed an interest in the HNP EAL Tables, as the Town does not use the Tables. However, the HNP EAL Tables will be reviewed at the Town of Haddam training sessions, annually."

(C) "...offsite radiation monitoring shall not be conducted. Containment pressure sensors and the Emergency Core Cooling system are no longer required in the permanently shutdown and defueled condition. Site area and general emergency are no longer credible emergency classifications."

(D)(1) "...the prompt notification of the public shall no longer be required. Notification of Federal, and State should occur within 1 hour. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(D)(2) "...no annual mailing will be conducted. Similarly, no signs or other measures for notification of transient populations shall be required."

(D)(3) "...notifications to State agencies will take place within 1 hour. Similarly, no alert notification system shall be required. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(E)(9)(a) "...only communications will be conducted with the State and local agencies. Such equipment, for contacting State agencies, will be tested monthly. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(E)(1) Last Paragraph "...the training of local news media is no longer required."

(F)(2) "...the public notification system will no longer be required"

(F)(2)(a) "...the offsite full participation exercise will no longer be required."

(F)(2)(c) "...the offsite full participation exercise will no longer be required."

(F)(2)(e) "...the offsite drills will no longer be required. However, CYAPCO will notify State and local response organizations of scheduled drills and determine their interest in participating. What is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and Hospitals, as appropriate."

(F)(2)(f) "...the biennial offsite full participation exercise will no longer be required. Hence remedial exercises will similarly no longer be required."

ON-SITE

10CFR50.47(b):

(3) "...the HNP EOF shall no longer be retained."

10CFR50 Appendix E(IV):

(A)(3) "...The level of emergency response required by the HNP Defueled Emergency Plan does not require response to the plant by headquarters personnel."

(A)(5) "...The HNP Defueled Emergency Plan does not specify individuals with "special qualifications" for emergency response."

(E)(8) "...The HNP Defueled Emergency Plan does not require the use of an EOF. Effective direction and control during an emergency shall emanate from the HNP Control Room or the TSC."

(E)(9)(c) "...Communications with the EOF and local emergency operations centers are no longer required as these facilities shall no longer be maintained. Communications under the HNP Defueled Emergency Plan are tested in accordance with 10CFR50, Appendix E, (IV)(E)(9)(a)."

(E)(9)(d) "...Communications with the EOF are no longer required as this facility shall no longer be maintained. Communications, with the NRC, under the HNP Defueled Emergency Plan are tested monthly."

(F)(2)(b) "...CYAPCO shall exercise the HNP Defueled Emergency Plan each year. The HNP Defueled Emergency Plan does not require the use of an EOF, or an OSC. Effective direction and control during an emergency shall emanate from the HNP Control Room or the Technical Support Center."

Changes:

The following provides an explanation of major changes made to the Emergency Plan in Revision 8.

1. Change Exercise frequency from annual to every other year:

10CFR50 Appendix E section F.2.b, States that, "Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years.

There is no longer liquid radioactive waste or dry activated waste on site. There is no longer dismantlement, decontamination or decommissioning work in progress on site. The risks related to accidents that could occur associated with the physical activities of decommissioning and the risks associated with what remained of the power plant no longer exist. Based on the demolition of the power plant site having been completed, all that remains is the ISFSI, and the risk to on-site and off-site personnel, based on the NAC SAR Chapter 11 Accident Analysis, is quite low. With decommissioning completed the response to events as described in the Emergency Plan has become considerably less complex, and the need for actions to be taken in a timely manner is greatly reduced. With decommissioning work completed the On-Shift Security personnel are not occupied with or distracted by activities associated with decommissioning.

A requirement has been added in Section 8.2 paragraph 2 to conduct one drill between exercises to include a combination of principal areas of emergency response capabilities (management, accident assessment, protective and corrective actions).

Based on the above information, changing the exercise frequency from annual to once every two years does not result in a reduction in the effectiveness of the Emergency Plan.

2. Revise the EAL Table.

Delete ICs OU1 "Unplanned Release", GU1 "Fire", GU2 "Toxic / Flammable Gases" and AU1 "Unexpected Increase in ISFSI Radiation". Incorporate IC JU1 "Judgment" into IC HU1 "Damage to a Loaded Cask Confinement Boundary".

Since there is no longer any radioactive liquid waste on site, there is no potential for a radiological liquid release and there is no need for IC OU1 "Unplanned Release".

The only significant radiological consequences associated with the accident analyses presented in Section 11 of the NAC-MPC SAR are associated with elevated dose rates caused by:

- A hypothetical VCC tip-over exposing the bottom of the cask that has limited shielding.
- VCC damage resulting from a design basis tornado induced missile that causes concrete to be removed from a small area on the VCC.

None of the NAC-MPC postulated accidents result in a loss of canister confinement boundary, so a radiological release is not expected. Even if the confinement boundary was affected, the consequences to the public health and safety would be insignificant, as there is no driving force for the release of radioactive material. Direct radiation surveys will provide adequate information for assessment of any potential event.

As a result, radiological assessment and protective actions would be limited to the determination of dose rates in the area of an affected VCC, the establishment of controls to prevent personnel from entering the area, and assuring that any recovery or repair activities are planned and executed in a manner that minimizes exposure.

The ICs and EALs in both revision 7 and revision 8 of the CYAPCO Emergency Plan are based on those listed in NEI 99-01 Rev. 4. There are two ICs listed in NEI 99-01 for ISFSIs. IC HU1 "Damage to a Loaded Cask Confinement Boundary" has three EALs. EAL 1. "Natural Phenomena Events Affecting a Loaded Cask Confinement Boundary", EAL 2. "Accident Conditions Affecting a Loaded Cask Confinement Boundary", and EAL 3. "Any Condition in the opinion of the Emergency Director that indicates loss of Loaded Fuel Storage Cask Confinement Boundary". IC HU2 "Confirmed Security Event with Potential Loss of Safety to the ISFSI" has one EAL, "Security Event at the ISFSI That Results in the necessity to request LLEA to respond to the ISFSI emergency.

As indicated in Appendix E “Basis for ISFSI Initiating Conditions” of NEI 99-01, Fire is one of the accident conditions considered. There is therefore no need for a separate IC for Fire.

As indicated in Appendix E “Basis for ISFSI Initiating Conditions” of NEI 99-01, Fire and Explosion are accident conditions considered. With plant dismantlement and decommissioning completed there are no toxic gases on site. There is therefore no need for the IC for “Toxic / Flammable Gases.”

The EAL associated with IC AU1 “Unexpected Increase in ISFSI Radiation”, is based on limits specified in the NAC Certificate of Compliance Technical Specifications for Radiation Protection. The applicability for this is ‘Prior to or at the beginning of STORAGE OPERATIONS’. Since loading has been completed this requirement is not applicable and this IC is not needed.

Although the wording is different, there continues to be an EAL that is based on judgment and IC JU1 “Judgment” is relocated to the third EAL associated with IC HU1, as stated above.

Based on the above information, the changes made to the EAL Table do not result in a reduction in the effectiveness of the Emergency Plan.

3. Change Audit to Independent Review:

10CFR50.54(t) states in part, “The licensee shall ensure that all program elements are reviewed by persons who have no direct responsibility for the implementation of the emergency preparedness program ...”

Revision 7 of the Plan stipulated that this requirement would be met by conducting an audit in accordance with the QAP. Based on the requirement for the reviewer to be independent and an assumption that the person has appropriate related experience, the independent review is equivalent to the QAP audit, and either would meet the requirement of 10CFR50.54(t), assuming the scope includes all program elements.

Since either the audit or the independent review meet the regulatory requirement and accomplish the objective, changing the requirement from an audit to an independent review does not result in a reduction in the effectiveness of the Emergency Plan.

4. Eliminate any mention of the power plant site, decommissioning site or any mention of any plant equipment, structure or component.

With power plant dismantlement completed and decommissioning completed except for Final Status Survey related activities, the design basis accidents

considered in revision 7 and earlier versions of the Plan, such as a fire involving dry radioactive waste or a radioactive liquid release accident, no longer need to be considered. Also the potential for fires is greatly reduced. In general, with power plant dismantlement completed and decommissioning completed except for Final Status Survey related activities, there are fewer risks and challenges to be dealt with by the ERO.

Based on the above information, eliminating mention of the power plant site, decommissioning site or any mention of any plant equipment, structure or component, does not result in a reduction in the effectiveness of the Emergency Plan.

5. Eliminate any support resources or equipment previously obtained from the decommissioning site as they are no longer available.

With decommissioning work in progress, certain expertise, equipment and supplies were readily available to be used at the ISFSI, should the need arise. With decommissioning completed these are no longer readily available.

With regard to routine operations and maintenance, the ISFSI has been in operation for approximately two years and the needs in this area are well known and are accommodated via on shift personnel and contractors.

With regard to needs that may exist during emergency events that could occur, based on NAC SAR Chapter 11 accidents, the near term needs are limited to people capable of recognizing off normal and accident conditions, and taking actions prescribed in Emergency Plan Implementing Procedures. On-shift personnel satisfy these needs.

Examples of resources no longer available include HP Technicians and a nurse. The only HP Technician task during an off normal or accident situation would be taking radiation dose rate measurements and restricting access based on these measurements, and on-shift personnel are capable of doing this. Based on the fact that operation of the ISFSI does not involve the use of heavy equipment used to dig, break up concrete and load waste, the use of torches to cut steel or other such work that is associated with decommissioning, the risk of personnel injury at the ISFSI is low and a nurse is not needed. On-shift personnel are trained in first aid and additional medical services are available from the East Hampton Ambulance service.

Examples of equipment and supplies available include items such as HP instruments, protective clothing and medical equipment and supplies. Items such as these that are needed are stored at the ISFSI.

Based on the above information, eliminating support resources or equipment that could previously have been obtained from the decommissioning site does not result in a reduction in the effectiveness of the Emergency Plan.

6. Eliminate section 6.4.6 Emergency Action, which included guidance on taking actions that depart from a License Condition or Tech. Spec. in an emergency when action is immediately needed to protect the health and safety of the public.

10CFR50.54 (x) states that "A licensee may take reasonable action that departs from a license condition or a technical specification (contained in a license issued under this part) in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent."

It is 10CFR50.54(x) that authorizes this action, not the Emergency Plan. For this reason it is best that this guidance be in Emergency Plan Implementing Procedures and not in the Emergency Plan..

Based on the information provided above, removing this guidance is appropriate and does not result in a reduction in the effectiveness of the Emergency Plan.

7. Make various minor and editorial changes:

These were made to improve clarity, eliminate duplication or provide additional information. By their nature they do not adversely affect the Plan. The more substantive of these minor changes include:

- Add "Radiological orientation training will also be offered." to Section 8.1.3 Offsite Assistance Training.
- Add a list of NAC SAR Chapter 11 off-normal events and a brief description of Chapter 11 accidents as section 3.0.
- Revise Table of Contents and sequence of sections to make them more closely match how an event would progress.
- Add, "one drill between exercises to include a combination of principal areas of emergency response capabilities", to Section 8.2 as paragraph 2.
- Add a description of interfaces to section 7.2.1, "On-Shift organization."
- Add guidance on ensuring assistance resources are used effectively to section 7.2 "Emergency Response Organization."

These changes provide additional information and/or enhance the clarity and therefore do not result in a reduction in the effectiveness of the Emergency Plan.

8. Eliminate the use of support staff and contractors as ERO augmentation.

Based on the NAC SAR Chapter 11 accidents, the near term needs are limited to people capable of recognizing off normal and accident conditions, and taking actions prescribed in Emergency Plan Implementing Procedures. On-shift personnel are capable of doing this.

One example of contractor resources no longer on-site is HP Technicians. Based on the NAC SAR Accident Analyses, the only HP Technician task during an off normal or accident situation would be taking radiation dose rate measurements and restricting access based on these measurements. On-shift personnel are capable of doing this.

Based on the above information, eliminating the use of support staff and contractor, as ERO augmentation does not result in a reduction in the effectiveness in the emergency Plan.

9. Eliminate the use of the VCC data display software alarm in SAS that indicates a VCC air outlet temperature exceeds the ambient temperature by a specified amount.

This alarm feature is not used or relied upon. ISFSI personnel compare VCC outlet temperatures to ISFSI ambient temperature to determine that this parameter is normal.

Based on the above information, eliminating the use of the VCC data display software alarm in SAS that indicates a VCC air outlet temperature exceeds the ambient temperature by a specified amount, does not result in a reduction in the effectiveness of the Emergency Plan.

10CFR50.47(b) Compliance:

10CFR50.47(b) states that, "The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:" The following documents the evaluation of Revision 8 compliance with 10CFR50.47(b).

(1) Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various

supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Based on the 1998 exemption, no action is expected from the State or local government organizations in response to events at the site.

Section 7.3 "Local/Off-Site Support", of the CYAPCO Emergency Plan stipulates that arrangements have been made for ambulance, hospital and fire fighting services.

Procedure EO-5 "Emergency Plan Implementation" describes the State and local Government Response and stipulates that there is no response required. It states that Government response is expected to be limited to recording the notification of the emergency, periodically receiving updated information on the emergency, and coordinating public information news releases, if any. It also states that if requested, fire companies, police, and ambulances will respond to the ISFSI in the event of an emergency.

Section 7.2 of Revision 8 of the CYAPCO Emergency Plan describes the Emergency Response Organization (ERO) and the nuclear facility licensee's responsibilities for emergency response. The on-shift ISFSI Shift Supervisor and Security staff are the initial responders to an emergency. On-shift personnel can implement the Emergency Plan without assistance from others. The on-shift ISFSI organization is a 24/7 operation. Additional ISFSI security personnel can be called in to augment the organization and provide support at the discretion of the ED, if desired.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47 (b)(1), except for portions covered by the approved exemption.

(2) On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

Based on the 1998 exemption and the initial Defueled Emergency Plan approved by NRC in conjunction with the approval of the exemption, no off-site response measures are required.

On-shift responsibilities are described in section 7.2.1 "On-Shift Organization." As stated in part in section 7.2.1, "The on-shift personnel are responsible for conducting all actions..." The on-shift organization is in place on a permanent 24/7 basis. As stated in section 7.2.1, On-Shift personnel and personnel called

ISFSI. This includes natural phenomena events and accident conditions that could potentially affect the confinement boundary of a spent fuel or GTCC cask. These are included in the Plan as Figure 4-1, "Emergency Action Levels."

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47 (b)(4), except for portions covered by the approved exemption.

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

Based on the 1998 exemption, no off-site response measures are required and no off-site notification of the general public is required.

There are therefore no State and local responses and no need for notification of emergency personnel by State and local organizations, and there is no need for a means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone.

Procedure EO-5 "Emergency Plan Implementation", provides guidance on on-site and off-site Notification, including content of messages.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(5), except for portions covered by the approved exemption.

(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Based on the 1998 exemption, no off-site response measures are required and no off-site notification of the general public is required. Communications with the public will now be via news releases. No capability for prompt communication or telephone calls to the public is required.

Section 5.2 "Notification and Activation", section 6.2 "Communications" of the Plan and procedure EO-5 "Emergency Plan Implementation" provide guidance on communication within the ERO, to outside agencies and to the public.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(6), except for portions covered by the approved exemption.

(7) Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Based on the 1998 exemption, periodic mailings to the residents are no longer necessary as they will have no response actions.

Contact information for the local news media is provided in procedure DI-01 "ERO Information and Resources".

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(7), except for portions covered by the approved exemption.

(8) Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Adequate emergency facilities and equipment exist and are described in section 6.2 "Emergency Facilities" and section 6.3 "Systems, Equipment and Advisory Services." Attachment 2 of procedure EO-1 "Emergency Planning Administration", Procedure OP-8 "ISFSI Preventive Maintenance and Surveillance Program", procedure FP-6 "ISFSI Monthly/Annual Testing Program for Fire Extinguishers, Smoke Detectors" and procedure DP-01 "Emergency Communications System Test", provide guidance on maintaining facilities and equipment in a state of readiness.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47 (b)(8).

(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition, are in use.

Based on the 1998 exemption, no off-site response measures are required and no methods, systems, and equipment will be maintained for the determination of actual offsite dose consequences."

Section 5.4 of the Plan, "Radiological Assessment", procedure EO-5 "Emergency Plan Implementation", procedure EO-2 "Response to Off-Normal Operations", procedure EO-4 "Response to Natural Phenomena" and procedure EO-5 "Response to Accidents", describe actions that would be taken to assess and monitor potential radiological emergency conditions.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(9), except for portions covered by the approved exemption.

(10) A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Based on the 1998 exemption, the EPZs and associated protective actions are no longer required.

Section 5.4.2 "Radiation Exposure Control", section 5.5 "Protective Measures" and procedure EO-5 "Emergency Plan Implementation", procedure EO-2 "Response to Off-Normal Operations", procedure EO-4 "Response to Natural Phenomena" and procedure EO-3 "Response to Accidents", provide guidance on protective actions for emergency workers.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(10), except for portions covered by the approved exemption.

(11) Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

Section 5.4.2 "Radiological Exposure Control" and Attachment 4 of Implementing Procedure EO-5 "Emergency Plan Implementation", provide guidance on controlling radiological exposure. The Emergency Dose Limits prescribed in Attachment 4 of Implementing Procedure EO-5 "Emergency Plan Implementation" are based on EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 10/91.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(11).

(12) Arrangements are made for medical services for contaminated injured individuals.

Arrangements exist for medical services for contaminated injured individuals. Section 5.6 "First Aid and Medical" and section 7.3 "Local/Off-Site Support"

provide information on this. Related letters of agreement are listed in Appendix B.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(12).

(13) General plans for recovery and reentry are developed.

Section 5.4.2 "Radiological Exposure Control", section 9.0 "Recovery" and Implementing Procedure EO-5 "Emergency Plan Implementation", provide information on Re-entry and Recovery.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(13).

(14) Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

Section 8.2 "Drills and Exercises" and provides information and guidance on these. Section 8.2.3, "Drill and Exercise Evaluation provides information on critiquing drills and exercises and dispositioning of comments.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(14).

(15) Radiological emergency response training is provided to those who may be called on to assist in an emergency.

Section 8.1 "Training", section 8.1.1 "Emergency Staff Training" and section 8.1.2 "ISFSI Access Training", provide guidance on this.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(15).

(16) Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

As stated in section 7.1 "Normal Operations", The ISFSI Manager is responsible for the overall management of the Emergency Preparedness Program. Section 8.1 "Training" describes the training provided to Emergency Planning personnel. Section 8.3 "Review and Update of Emergency Plan and Implementing Procedures", describes the review and distribution of the Plan and Implementing Procedures.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50.47(b)(16).

10CFR50 Appendix E Compliance:

The following documents the evaluation of Revision 8 compliance with 10CFR 50, Appendix E (specifically section IV, Content of Emergency Plans).

Preamble.

Based on the 1998 exemption, evacuation times and protective actions within the EPZ are no longer required. Except for this and other aspects where the exemption applies, Revision 8 of the CYAPCO Emergency Plan describes an organization and approach for being prepared to cope with events that could occur and could threaten the safe storage of spent nuclear fuel and GTCC waste at the ISFSI. This includes assessment and notification actions and maintaining needed equipment and procedures as well as conducting appropriate training.

A. Organization:

Based on the 1998 exemption, the coordination and implementation of offsite emergency measures are no longer required, offsite dose projections are no longer required, identification of State and local authorities responsible for protective actions is no longer required, the level of response required by the HNP Defueled Emergency Plan does not require response to the plant by headquarters personnel, and the HNP Defueled Emergency Plan does not specify individuals with "special qualifications" for emergency response.

Section 7.0 "Organization" includes a description of the normal and emergency organizations, including: authorities, responsibilities, duties and who is in charge during an emergency. Based on the current nature of the facility and condition of the site: there is no separate corporate organization and all functions are performed by on-site staff, and emergency response activities focus on and in the nearby vicinity of the ISFSI. Arrangements with state and local organizations are described in Section 7.0 "Organization and Responsibilities", and related letters of agreement are listed in Appendix B.

B. Assessment Actions:

Based on the 1998 exemption, offsite protective measures and monitoring are no longer required.

Section 4.0 "Classification" and Section 5.0 "Response", describe Emergency Action Levels that are used to determine classification and notification, and protective measures to be taken. Section 8.3.1 "Emergency Plan Review", stipulates that the EALs will be reviewed with State and local authorities on an annual basis.

C. Activation of Emergency Organization:

Based on the 1998 exemption, offsite radiation monitoring shall not be conducted, containment pressure sensors and the emergency core cooling system are no longer required in the permanently shutdown and defueled condition and site area and general emergency are no longer credible emergency classifications.

Section 4.2 "Emergency Action levels", section 5.0 "Response" and specifically section 5.2 "Notification and Activation", describe Emergency Action Levels, and activation. Based on current conditions, the only emergency classification level is an Unusual Event.

D. Notification Procedures:

Based on the 1998 exemption, the prompt notification of the public shall no longer be required, notification of Federal and State should occur within 1 hour, what is meant by "normal emergency services" is the local Police/Fire Departments, Ambulance Services and hospitals as appropriate, no annual mailing will be conducted, no signs or other measures for notification of transient populations shall be required and no alert notification system shall be required.

Section 5.2 "Notification and Activation" and Implementing Procedure EO-5 "Emergency Plan Implementation", describe and provide guidance on notification and public information.

E. Emergency Facilities and Equipment:

Based on the 1998 exemption, offsite participation by State and local authorities is no longer required, only communications will be conducted with the State and local agencies, the HNP Defueled Emergency Plan does not require the use of an EOF, effective direction and control during an emergency shall emanate from the HNP Control Room or the TSC, communications with the EOF and local emergency operations centers are no longer required as these facilities shall no longer be maintained, CYAPCO shall exercise the HNP Defueled Emergency Plan each year and the HNP Defueled Emergency Plan does not require the use of an EOF, or an OSC.

Section 5.0 "Response", section 6.0 "Facilities and Equipment", procedure DP-01 "Emergency Communications System Test", procedure OP-8 "ISFSI Preventive Maintenance and Surveillance Program" and procedure FP-6 "ISFSI Monthly/Annual Testing Program for Fire Extinguishers, Smoke Detectors", describe facilities, supplies and communications equipment that are appropriate for the current status of the facility. Letters of agreement related to off-site support are listed in Appendix B.

F. Training:

Based on the 1998 exemption, the training of local news media is no longer required, the public notification system will no longer be required, the offsite full participation exercise will no longer be required, the offsite drills will no longer be

required, but CYAPCO will notify State and local response organizations (local police/fire departments, ambulance services and hospitals as appropriate) of scheduled drills and determine their interest in participating, the biennial offsite full participation exercise will no longer be required and the related remedial exercises will no longer be required.

Section 8.1 "Training", section 8.2 "Drills and Exercises" and procedure AD-16 "ISFSI Training and Qualifications" describe training provided to establish and maintain response personnel capabilities and the conduct of exercises. As stated above there are no headquarters personnel, all functions are performed by on-site staff.

G. Maintaining Emergency Preparedness:

Section 8.0 "Maintaining Emergency Preparedness", procedure DP-01 "Emergency Communications System Test", procedure OP-8 "ISFSI Preventive Maintenance and Surveillance Program", procedure FP-6 "ISFSI Monthly/Annual Testing Program for Fire Extinguishers, Smoke Detectors" and procedure EO-1 "Emergency Planning Administration", describe and provide guidance on maintenance of the Plan, Implementing Procedures, equipment and supplies.

H. Recovery:

Section 5.9 "Recovery" and procedure EO-5 "Emergency Plan Implementation" describe Recovery actions.

Based on the above information, Revision 8 of the CYAPCO Emergency Plan meets the requirements of 10CFR50 Appendix E, section IV.

Conclusion:

Based on the above information, the changes made in Revision 8 of the CYAPCO Emergency Plan do not decrease the effectiveness of the Plan and the Plan continues to meet the requirements of 10CFR 50.47(b) and Appendix E.

Completed by:  Date 7-27-06
Gary H. Bouchard

Note: The completion of this evaluation and the above signature are contingent upon receiving approval from NRC that exercises need only be conducted every other year.

Reviewed and Approved by:  Date 9-13-06
ISFSI Manager

CY-06-125
Docket No. 50-213

**Attachment 2
Haddam Neck Plant
Emergency Plan**

September 2006

CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

EMERGENCY PLAN

REVISION 8

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1.0 INTRODUCTION

This document describes Connecticut Yankee Atomic Power Company's (CYAPCO's) plans for responding to emergencies that may arise at the Haddam Neck Independent Spent Fuel Storage Installation (ISFSI).

This document provides the plan for responding to emergencies that may arise during dry storage of spent nuclear fuel and Greater Than Class C (GTCC) Waste at the ISFSI, including off-normal, accident, natural, and hypothetical events and consequences as presented in the NAC Multi-Purpose Canister (NAC-MPC) System Safety Analysis Report (SAR). As power plant dismantlement and decommissioning have been completed, there are no power plant or decommissioning accidents, such as those previously described in the CYAPCO HNP FSAR, addressed in this Emergency Plan.

The analyses of the radiological impact of potential accidents at the ISFSI site conclude that any releases beyond the ISFSI Owner Controlled Area (OCA) boundaries are expected to be less than the U. S. Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels, as detailed in EPA-400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents". Exposure levels, which warrant pre-planned response measures, are generally limited to the ISFSI pad and nearby vicinity, and for this reason, radiological emergency planning is focused on this area.

Since the postulated worst-case accidents involving the ISFSI have insignificant consequences to the public health and safety, all emergencies are classified as no higher than Unusual Events. If an emergency condition develops, the ISFSI Shift Supervisor (ISS) is responsible for classifying the event and assuming the role of the Emergency Director (ED). The on-shift organization is responsible for performing response activities and may be augmented with additional emergency response personnel at the discretion of the ED. Notification is made to the Connecticut Department of Emergency Management and Homeland Security (DEMHS), Connecticut Department of Environmental Protection (CT DEP) and Nuclear Regulatory Commission (NRC). Conditions are assessed and corrective actions are implemented to restore the facility to a normal, stable condition. While the need to implement is unlikely, protective actions, including on-site evacuation, accountability and access control can be implemented as determined by the ED.

The ISFSI Manager is responsible for overall management of the Emergency Preparedness Program.

The CYAPCO HNP Emergency Plan is based on applicable regulations, industry guidelines and SAR accident analysis for spent fuel storage. Regulations include 10CFR50.47(b), 10CFR50 Appendix E, 10CFR 50.54(q) and 10CFR50.54(t). The Emergency Action Levels (EALs) are based on Nuclear Energy Institute (NEI) 99-01 Rev.4 "Methodology for Development of Emergency Action Levels". This revision of the Emergency Plan is intended for end state conditions where power plant dismantlement and decommissioning have been completed and the ISFSI is the only thing remaining on the site, therefore the Emergency Plan addresses only the off-normal events and accidents described in Chapter 11 of the NAC SAR.

Although not required, the Connecticut Yankee Emergency Action Level Basis Document was kept current through revision 7. Since the above listed items are the basis for the Emergency Plan, the practice of maintaining a separate basis document is being discontinued.

2.0 FACILITY DESCRIPTION

2.1 Site

The Haddam Neck Plant (HNP) site, which was the site of the Haddam Neck Nuclear power plant, is located in the town of Haddam Neck, Middlesex County, Connecticut, on the east bank of the Connecticut River. The Haddam Neck Plant site, which is approximately 525 acres, is situated approximately 9 miles southeast of downtown Middletown, and approximately 20 miles southeast of Hartford.

Plant dismantlement is complete and the only thing on the 525 acre site is the ISFSI.

2.2 Surrounding Area

Except for several small towns and villages and a portion of Middletown, the area within a ten mile radius is predominantly rural. The majority of this area is wooded, with the remaining area devoted to general farming, resorts and some minor industry.

2.3 Independent Spent Fuel Storage Installation (ISFSI)

All of the CYAPCO spent nuclear fuel and GTCC waste has been placed into dry storage at the ISFSI, which is located within the HNP 525 acre site as shown on Figure 2.1. The ISFSI contains a total of 43 Vertical Concrete Casks (VCCs). Forty (40) VCCs (10 rows with four VCCs per row) are used for storage of the HNP spent nuclear fuel. Three additional VCCs are used for storage of GTCC waste. The ISFSI provides storage until the spent fuel and GTCC is removed by the Department of Energy for transfer to a federal long term storage facility.

The ISFSI is located near the south end of the HNP site and just north of the ridge that parallels the discharge canal. The ISFSI pad is surrounded by a Protected Area (PA) fence and a Security fence. The ISFSI has an Owner Controlled Area (OCA) that extends at least 300 meters from the spent nuclear fuel storage area.

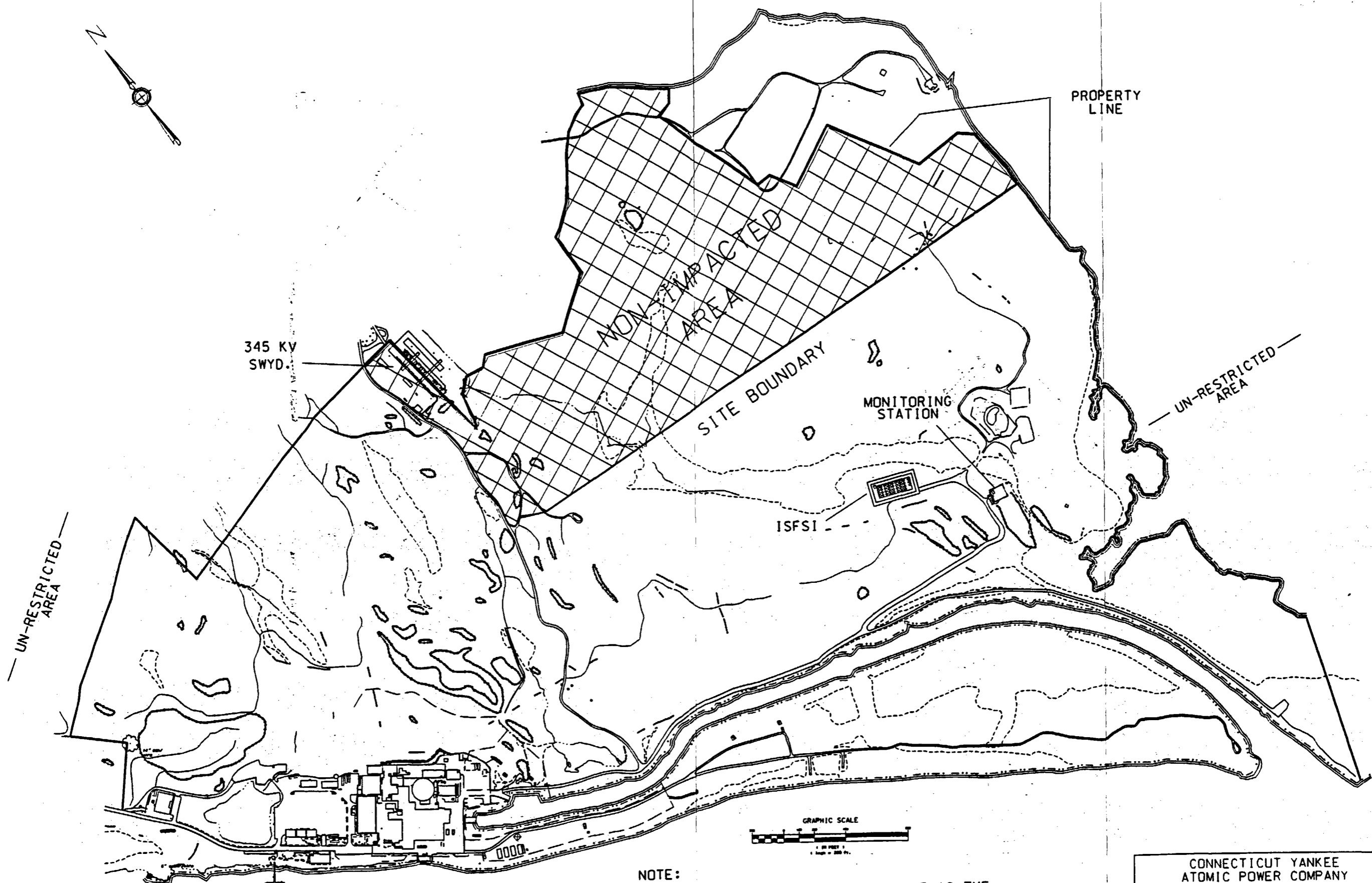
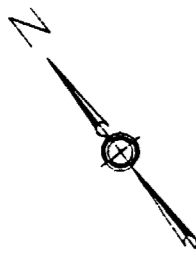
There is a Radiological Materials Area (RMA), at the ISFSI, which facilitates controlling and monitoring radiological exposure to on-site personnel. The Protected Area Boundary is also the RMA boundary.

There is an ISFSI Monitoring Station Building near and southeast of the ISFSI that houses the ISFSI Staff and security, communication and other miscellaneous equipment. Access to the ISFSI Protected Area is controlled and monitored by the ISFSI staff from this location. There is also an ISFSI Support Facility near the ISFSI Monitoring Station Building.

Implementation of protective actions related to the emergency events associated with the ISFSI is not considered necessary beyond the immediate vicinity of the ISFSI and the ISFSI Monitoring Station Building and ISFSI Support Facility.

The ISFSI is designed for interim storage of fuel in a contained shielded system. CYAPCO utilizes the NAC International Inc. (NAC) Multi-Purpose Canister (MPC) spent fuel cask storage system (NAC-MPC) in an ISFSI at the HNP under the provisions of a general license. A general license is granted by 10 CFR 72.210 for storage of spent nuclear fuel in an ISFSI at power reactor sites to persons that are authorized to possess or operate nuclear power reactors under 10 CFR 50. Currently, CYAPCO is only authorized by the NRC to store and possess the spent fuel at the HNP by possession only License (No. DPR-61) pursuant to the provisions of 10CFR50. Thus, CYAPCO has been granted a general license (Docket No. 72-0039) for the storage of spent fuel at an ISFSI at the HNP site.

The NAC-MPC System is a canister based system for the storage and transportation of spent nuclear fuel. The primary components of the NAC-MPC System consist of the Transportable Storage Canister (TSC), the Vertical Concrete Cask (VCC), and the transfer cask. The TSC is intended to be compatible with the NAC-Storable Transport Cask (STC) to allow future shipment. The VCC provides radiation shielding and contains internal airflow paths that allow decay heat from the TSC spent fuel contents to be removed by natural air circulation around the canister wall.



345 KV
SWYD.

NON-IMPACTED
AREA

PROPERTY
LINE

SITE BOUNDARY

MONITORING
STATION

UN-RESTRICTED
AREA

UN-RESTRICTED
AREA

ISFSI

CONNECTICUT RIVER



NOTE:
SITE BOUNDARY LINES ARE THE SAME AS THE
PROPERTY LINES EXCEPT AS NOTED.

CONNECTICUT YANKEE ATOMIC POWER COMPANY
GENERAL SITE PLAN
FIGURE 2-1
CY HADDAM NECK PLANT

1 03-05	ISSUE	CML RJ
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3.0 ACCIDENTS

The following is a list of Off-Normal Events and a brief description of the design basis accidents described in Chapter 11.0 of the NAC-MPC Safety Analysis Report. As power plant dismantlement and decommissioning have been completed, there are no power plant or decommissioning accidents, such as those previously described in the CYAPCO HNP FSAR, addressed in this Emergency Plan.

3.1 Off-Normal Events

There are several off-normal events. It is unlikely that these will occur, but they are postulated events that could occur once during any calendar year of operation.

- Blockage of half of the air inlets
- Canister off-normal handling load
- Failure of instrumentation
- Severe environmental Conditions (100°F and -40°F)
- Small release of radioactive particulates from the canister exterior

The above events result in no serious consequences. Handling problems are no longer considered now that ISFSI loading has been completed.

3.2 Accidents

Results of analyses of design basis and hypothetical accident conditions evaluated for the NAC-MPC system show that there is substantial design margin of safety and provides protection to the public and on-site personnel. The following accidents are considered very low probability events.

3.2.1 Accident Pressurization

This is a hypothetical event that assumes the failure of all fuel rods at the maximum internal temperature. Pressurization is caused by release of fission and fill gases. There are no radiological consequences for this accident and canister performance is not significantly affected. There are no corrective actions required.

3.2.2 Earthquake

The Analysis shows that the design basis earthquake does not affect the NAC-MPC vertical concrete cask performance. The vertical concrete cask does not tip over for the design-basis earthquake having ground accelerations of 0.25g.

Inspection of the storage casks is required following an earthquake. While the cask does not tip over, there is potential for movement of a cask relative to other casks and for superficial damage at the bottom edge due to that movement. The temperature monitoring system should be checked for operation as movement of a cask could disconnect or damage the monitoring system.

3.2.3 Explosion

An explosion is unlikely because administrative controls exclude explosive substances in the vicinity of the ISFSI.

There are no radiological consequences for this accident. Inspection of the storage casks is required to ensure that the air inlets and outlets are free of debris and to ensure that the monitoring system is intact. There are no recovery or corrective actions required for this accident event.

3.2.4 Failure of All Fuel Rods with a Subsequent Ground Level Breach of the Canister

There is no mechanistic failure of the confinement boundary of the canister.

3.2.5 Fire

A fire is a very unlikely occurrence since there are no flammable materials stored in the area of the ISFSI. Concrete that reaches 300°F could separate from the cask resulting in increased radiation levels, but this is not expected to occur.

Following a fire, the concrete cask should be inspected for general deterioration of the concrete, loss of shielding (spalling of concrete), exposed reinforcing bar, and surface discoloration that could affect heat rejection. This inspection would determine the repair activities necessary to return the concrete storage cask to its design basis configuration.

3.2.6 Flood

The NAC-MPC system is not adversely affected by a design basis flood having a depth of water of 50 feet and a flow velocity of 15 feet per second. This flood is fully immersing for the NAC-MPC.

There are no radiological consequences for this accident.

The NAC-MPC vertical concrete cask system performance is not affected by the design basis flood; the concrete cask will not slide and will not overturn.

Inspection of the storage casks is required following a flood event. While the casks do not tip over or slide, there is a potential for the collection of debris or the accumulation of silt at the base of the cask, which could clog or obstruct the air inlets. Operation of the temperature monitoring system must be verified, as flood conditions may impair its operation.

3.2.7 Fresh Fuel Loading

This is an unlikely event now that ISFSI loading has been completed.

3.2.8 Full Blockage of Air Inlets and Outlets

The likely cause of this event is a catastrophic event such as a greater than design basis earthquake or a land slide.

This is not a credible event.

3.2.9 Lightning

The NAC-MPC storage cask does not experience adverse effects due to a lightning strike.

A lightning strike is a random weather related event. Since the NAC-MPC storage cask is located on an unsheltered pad, the storage cask may be subject to a lightning strike.

A lightning strike on a storage cask may be visually detected at the time of the strike, or by visible surface discoloration at the point of entry or exit of the current flow.

The current path analyzed is from a strike point on the outer radius of the top flange of the storage cask, down through the carbon steel liner and the bottom plate to the ground.

There are no radiological consequences for this accident.

The vertical concrete cask's performance is not affected by a lightning strike.

There are no recovery or corrective actions required for this accident event.

3.2.10 Maximum Anticipated Heat Load (125°F Ambient Temperature)

The cause of this condition is a weather event that causes the NAC-MPC to be subject to a 125°F ambient temperature with full sun exposure.

There are no radiological consequences, or adverse consequences for this accident condition. The maximum component temperatures are less than the allowable temperatures for accident conditions and are also less than the temperature limits for normal conditions of storage. No corrective actions are required for this accident condition.

3.2.11 Drop of Vertical Concrete Cask

This event involves dropping a loaded vertical concrete cask during routine handling operations. This event may be due to the failure of one or more of the cask lifting jacks or of the air pad system. This is unlikely to happen now that the ISFSI is fully loaded. There are no radiological consequences for this event.

3.2.12 Tip-Over of Vertical Concrete Cask

A hypothetical non-credible accident condition has been postulated involving the non-mechanistic tip-over of a vertical concrete storage cask. Functionally, the cask is not expected to suffer significant adverse consequences due to this event. The concrete cask and canister are expected to continue providing design basis shielding, geometry control of contents, and contents confinement performance. There is an adverse localized radiological consequence due to the hypothetical tip-over event since the bottom end of the concrete cask has significantly less shielding than the sides and top of these same components. For Yankee Atomic, the estimated dose rate from the bottom of a tipped-over cask is calculated to be approximately 156 rem/hr at 1 meter and 32 rem/hr at 5 meters. The CY cask bottom is constructed differently than the Rowe cask and the CY cask bottom dose rates are therefore lower than those calculated for the Rowe-MPC System.

Following a tip-over event, supplemental shielding should be used until the concrete cask can be up-righted. Surface and top and bottom edges of the concrete cask are expected to exhibit cracking and possible loss of concrete down to the layer of reinforcing bar. The increased dose rate due to this cracking is not expected to be significant.

3.2.13 Tornado and Tornado Driven Missiles

A tornado is a random weather event having a higher probability of occurrence at certain times of the year and in certain geographical areas.

The postulated tornado wind loading and missile impacts are not capable of overturning the cask, or penetrating the boundary established by the concrete cask.

There is little potential for significant damage to the concrete cask, which provides radiation shielding. For CY the worst tornado missile impact is expected to result in a local surface radiation dose rate at the point of penetration of 1000 mrem/hr. Since the area of reduced shielding is very small, there would not be a noticeable increase in the dose rate at the site boundary.

A tornado event is not expected to result in the need to take any corrective action other than an inspection of the ISFSI. This inspection would be directed at ensuring that inlets and outlets had not become blocked by wind-blown debris and at checking for obvious (concrete) surface damage. In the worst case, a missile could dislodge concrete to a depth of approximately 6 inches.

4.0 CLASSIFICATION

4.1 Classification of Accidents

This Plan provides for an emergency classification system based on NUREG-0654/FEMA REP 1, Revision 1, Appendix 1, "Emergency Action Level Guidelines for Nuclear Power Plants", and Nuclear Energy Institute (NEI) 99-01 (NUMARC/NESP-007), Revision 4, "Methodology for Development of Emergency Action Levels".

Based on NUREG-1140, Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees, the NRC has determined that there are no credible design basis accidents that would exceed the EPA PAGs at an ISFSI owner controlled area boundary. Emergency classification guidance in Appendix E of Nuclear Energy Institute document NEI 99-01 (Rev. 4), "Methodology for Development of Emergency Action Levels", states, "The expectation of offsite response to an 'alert' classified under 10 CFR 72.32 emergency plan are generally consistent with those for a notification of unusual event in a 10 CFR 50.47 emergency plan, i.e., to provide assistance if requested". The NEI 99-01 guidance is utilized in this plan to classify ISFSI emergency events. The NRC Regulatory Analysis for Rev. 4 of Reg. Guide 1.101 to accept NEI 99-01, determined that the guidance in NEI 99-01 is appropriate for developing site specific EALs, to meet the intent of 10 CFR 50.47(b)(4) and Appendix E to Part 50.

Accidents and off-normal events that are analyzed for the ISFSI, including some events considered to be non-credible, have been reviewed and assigned a classification. There are no credible design basis accidents that would exceed the EPA PAGs at the ISFSI Owner Controlled Area boundary. Table 4-1 summarizes events that are classified as an Unusual Event.

This plan classifies events based on predetermined Emergency Action Levels (EALs). This approach provides a simple, predetermined response to an emergency event or accident, allowing a coordinated approach to the eventual mitigation of the conditions and restoring the facility to a safe status.

The State of Connecticut Radiological Emergency Response Plan (RERP) requires that incidents be assigned a posture code at the time of classification. It also defines non-emergency "General Interest Events" and "Radioactive Material Incidents". The ISFSI Shift personnel will report both the NRC Incident Classification and the State Posture Code during an event at the ISFSI to State authorities (CT DEMHS and CT DEP).

4.2 Emergency Action Levels (EALs)

An event is classified based on specific information contained in the table of Emergency Action Levels (EALs), Table 4.1. This table lists possible Initiating Conditions (ICs) and Emergency Action Levels (EALs) associated with possible incidents. EALs include predetermined values or conditions and are used to determine that the severity of an event has progressed to that which warrants being classified as an Unusual Event.

During an event, the ISFSI Shift Supervisor is responsible for evaluating the conditions that exist, comparing them to the EALs and declaring an Unusual Event if EAL criteria is met.

Upon declaring an Unusual Event, the ISS/ED uses the Emergency Operating (EO) Procedures, which implement the Emergency Plan and detail the steps to be taken to deal with the emergency that exists.

4.3 Unusual Event

The Unusual Event classification signifies that events are in progress or have occurred which indicate a potential degradation of the level of safety at the facility. Events within this classification generally characterize abnormal conditions, which alone do not constitute a hazard to personnel.

The purpose of an Unusual Event classification is to bring the on-shift staff to a state of readiness and to provide a systematic means of handling information and decision making.

TABLE 4-1
EMERGENCY ACTION LEVELS

Initiating Conditions	Emergency Action Level	NRC Emergency Classification Level	Connecticut State Posture Code
HU1 - DAMAGE TO A LOADED CASK CONFINEMENT BOUNDARY	1. Natural Phenomena Events Affecting a Loaded Cask Confinement Boundary 2. Accident Conditions Affecting a Loaded Cask Confinement Boundary 3. Any Condition in the opinion of the Emergency Director that indicates loss of Loaded Fuel Storage Cask Confinement Boundary.	UNUSUAL EVENT	DELTA ONE
HU2 - CONFIRMED SECURITY EVENT WITH POTENTIAL LOSS OF LEVEL OF SAFETY TO THE ISFSI	Security Event at the ISFSI That Results in the necessity to request LLEA to respond to the ISFSI emergency.	UNUSUAL EVENT	DELTA ONE

Note: DELTA ONE, does not involve a release of radioactive material.

DELTA TWO, involves a release of radioactive material.

5.0 RESPONSE

5.1 Recognition and Classification

Recognition and classification of the incident are the responsibility of the ISS/ED. When Conditions described in a specific Emergency Action Level (EAL) are reached, the ISS/ED classifies the event and declares an Unusual Event. Once the emergency classification is declared, the appropriate implementing procedures (listed in Appendix C) are implemented.

5.2 Notification and Activation

The ISS/ED will notify on-shift and other appropriate ERO personnel of the emergency condition and any declaration of Unusual Event made.

Upon declaration of an Unusual Event, the ISS/ED will notify the Connecticut Office of Emergency Management, Connecticut Department of Environmental Protection and NRC within one hour of classifying the emergency. A representative from the DEP may contact the ISFSI Monitoring Building and request additional information or might come to the site.

The ISS/ED or designee is responsible for handling all public information associated with an emergency. During an Unusual Event, the ISS/ED or designee will coordinate news announcements in accordance with applicable procedures, instructions or guidelines.

5.3 Emergency Response Organization (ERO) Actions

Conditions may occur which require the declaration of an Unusual Event. Upon classification and declaration of an emergency, ISFSI Shift Supervisor (ISS) assumes the position of Emergency Director (ED).

The following is a general summary of the actions taken in response to an Unusual Event:

- ISS recognizes off-normal condition and assesses its significance.
- ISS classifies the event, declares the Unusual Event and assumes to role of ED.
- Emergency classification is communicated to on-shift personnel.
- ISS/ED assesses danger to on-site personnel and provides protective action guidance.
- On-shift personnel respond as directed by the ISS/ED.
- NRC and Connecticut DEMHS and DEP are notified within one hour of declaration.
- Additional ERO support personnel are notified, as desired.
- Management personnel are notified.

- Corrective actions are implemented.
- If necessary, emergency medical, fire department, or law enforcement agencies are notified and requested to provide assistance.
- ISS/ED or designee handles public information associated with the event.
- Recovery actions are implemented, as appropriate
- ISS/ED will terminate the event, as appropriate.

5.4 Radiological Assessment

Radiological assessment may be initiated upon classification of an emergency. However, the only significant radiological consequences associated with the accident analyses presented in Section 11 of the NAC-MPC FSAR are associated with elevated dose rates caused by:

- A hypothetical VCC tip-over exposing the bottom of the cask that has limited shielding.
- VCC damage resulting from a design basis tornado induced missile that causes concrete to be removed from a small area on the VCC.

None of the NAC-MPC postulated accidents result in a loss of canister confinement boundary, so a radiological release is not expected. Even if the confinement boundary was affected, the consequences to the public health and safety would be insignificant, as there is no driving force for the release of radioactive material.

As a result, radiological assessment and protective actions would be limited to the determination of dose rates in the area of an affected VCC, the establishment of controls to prevent personnel from entering the area, and to assure that any recovery or repair activities are planned and executed in a manner that minimizes exposure.

5.4.1 Radiological Monitoring

The level of monitoring activity will depend on the severity of the accident. The Emergency Director has the responsibility to determine the level of monitoring required, and to have radiation dose rate measurements taken as necessary. On-shift personnel will perform radiation dose rate measurements as necessary.

Exposure of individuals performing emergency functions is consistent with the limits specified in facility procedures. Every attempt will be made to keep personnel exposure As Low As Reasonably Achievable (ALARA).

5.4.2 Radiological Exposure Control

The ISS/ED is responsible for emergency radiological protection activities for facility staff and support personnel. The ISS/ED approves personnel exposure limits. When required, all emergency response personnel are issued a direct reading dosimeter and a Thermo Luminescent Dosimeter (TLD) subject to provisions contained in facility radiation protection procedures. Emergency response personnel dose records will initially be based upon the results of the direct reading dosimeters. This information will be cross-referenced with TLD data, as soon as the TLDs can be processed.

During an incident, higher than normal levels of radiation may be encountered. Under all situations, steps will be taken to minimize personnel radiation exposure. Specific exposure guidelines for entry or re-entry into areas in order to remove injured persons (rescue operations) or undertake corrective actions will be in accordance with the guidance set forth in facility procedures. The ED will authorize emergency exposure limits or more restrictive limits, dependent upon incident conditions. Medical responders and the ED will discuss the hazards involved in rescue operations prior to undertaking a rescue mission of this nature. The ISS/ED will administer emergency radiation exposure control. Authorization to allow emergency response personnel to receive doses in excess of 10CFR20 limits shall be made only by the ED and only during declared emergencies. Considerations to be made prior to allowing personnel to accept risks associated with rescue operations or high dose missions are defined in facility procedures.

5.5 Protective Measures

5.5.1 Accountability/Evacuation

If determined to be necessary, the ED can initiate an accountability of all personnel on site. Initial and continuous accountability of personnel will be coordinated by Security. All reports are provided to the ED.

In the unlikely event that the ED decides that an evacuation is needed, the ED will notify personnel of the need to evacuate. Individuals leaving the site will go to an assembly

Area designated by the ED. Following an evacuation, accountability of personnel will be accomplished within 60 minutes. Appropriate steps will be taken to locate any unaccounted-for personnel.

ERO personnel remaining on-site or arriving on-site following an evacuation shall report to the ISFSI Monitoring Station or alternate location, as directed.

5.5.2 Decontamination Capabilities

Survey instrumentation for personnel frisking is available. Personnel contamination identified during the initial survey will require the contaminated individual to remove protective apparel, re-survey, and if skin contamination levels are identified, perform decontamination as specified in facility radiation protection procedures.

In the event that accident conditions result in a contaminated injured individual, the victim's rescue and medical treatment take precedence over the victim's radiation exposure due to bodily contamination. Gross decontamination of the victim (generally limited to the removal of contaminated articles of clothing) will be accomplished to the extent that the health of the patient is not affected. Decontamination measures associated with wounds will be performed by the appropriately trained medical staff at the hospital under the supervision of the attending physician.

5.5.3 Access Control

Access will usually be controlled at the vehicle barrier on the access road, but access control could be established at other locations in an emergency as necessary.

5.5.4 Protective Equipment and Supplies

Radiation dose rate survey, airborne radiation monitoring and personnel contamination survey equipment is available and surveys will be conducted as necessary to ensure that personnel responding to an emergency are provided appropriate protection. Protective Clothing (PCs) is available and will be issued to personnel when needed.

5.6 First Aid and Medical

On-Shift personnel receive first aid training. A First Aid kit is located in the ISFSI Monitoring Station and in the ISFSI Support Facility.

Injured persons requiring off-site medical care will be transported to the Middlesex Hospital for treatment. Arrangements have been made with the Middlesex Hospital and the East Hampton Ambulance service to provide medical care for radiologically contaminated, injured individuals. Both the Middlesex Hospital and the East Hampton Ambulance service have personnel trained in radiation protection measures. Personnel requiring off-site treatment will be transported to the hospital by ambulance, helicopter, company vehicle, or employee private vehicle.

5.7 Fire Fighting

On-Shift personnel are capable of using a portable fire extinguisher to put out a small, incipient stage fire. The Haddam Neck Volunteer Fire Department is responsible for all other fire fighting on site. On-shift ISFSI personnel will coordinate on-site activities with the Fire Department.

5.8 Termination

In any Emergency, immediate response actions are directed toward limiting the consequences of the incident in a manner that will afford maximum protection to on-site personnel. Once the immediate corrective and on-site protective actions have been implemented, and the facility is restored to a stable and safe condition, termination of the emergency classification condition may be initiated. The Emergency Director will terminate the event and provide notification to appropriate off-site authorities and on-site personnel.

5.9 Recovery

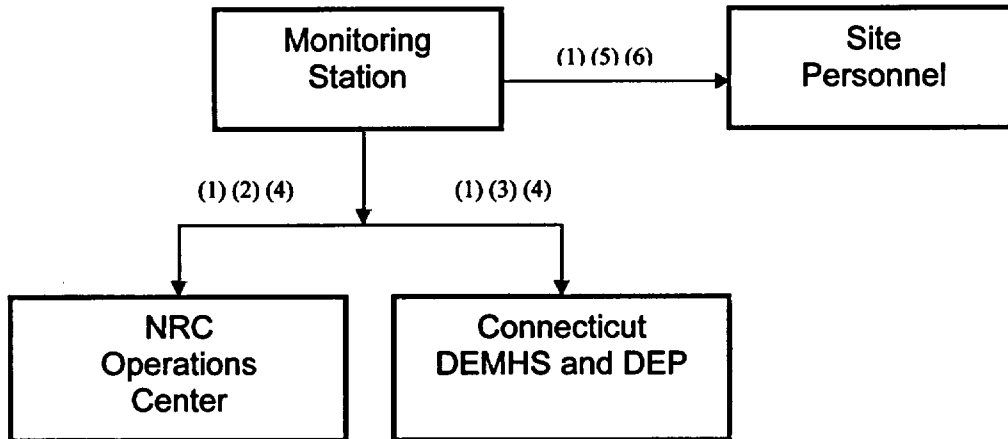
The primary objective of the facility staff is to mitigate the consequences of an emergency and restore the facility to a safe condition. Restoration of the facility effectively begins with the first action taken in response to the event and terminates when the facility resumes normal operations.

When conditions have stabilized and a full assessment of the event has been conducted, the facility staff will focus on establishing a plan to verify operability of all systems/components necessary to maintain and monitor the integrity of the spent fuel.

The ISFSI Manager or designee will coordinate the restoration of the facility and has the authority to take the necessary actions to ensure the facility is returned to a safe condition. Recovery responsibilities of the ISFSI Manager include but are not limited to:

- **Develop the site recovery plan.**
- **Prioritize clean-up of affected areas/equipment.**
- **Isolate and repair damaged equipment/systems.**
- **Document actions taken related to recovery operations.**

FIGURE 5.1
NOTIFICATION CHANNELS



NOTES:

- 1) Notification will initially be made from the Monitoring Station
- 2) NRC will be notified via FTS/ENS
- 3) CT DEMHS and DEP will be notified via commercial telephone
- 4) Back-up communications will be via satellite telephone
- 5) Site Personnel will be notified via direct face-to-face, radio or telephone
- 6) Additional ERO personnel will be notified via telephone

6.0 FACILITIES AND EQUIPMENT

6.1 Normal Facilities

Under normal conditions, the ISFSI Monitoring Station Building is the area where site access control, badging and ISFSI monitoring are performed.

6.2 Emergency Facilities

6.2.1 Emergency Response Facility

During an emergency, the ISFSI Monitoring Station Building is the primary facility where ISFSI conditions are monitored and corrective actions are developed to mitigate any abnormal occurrence. Emergency conditions are managed by the ISS/ED at this location. The ISFSI Monitoring Station Building also serves as the Technical Support Center.. The adjacent ISFSI Support Facility provides additional space when needed.

The ISFSI Monitoring Station Building and ISFSI Support Facility provide space for the designated members of the Emergency Response Organization to conduct analysis and support functions in response to the event, and are the Emergency Response Facility (ERF).

During an emergency, access will be controlled, and dosimetry will be issued (if applicable) to local/support organizations entering the site at this location. The ERF also supports accountability, when required.

6.2.2 Assembly Areas

Should a site evacuation be necessary, personnel will be directed to report to a safe assembly area designated by the ISS/ED.

6.2.3 First Aid Supplies

Emergency medical equipment and supplies are located in the ERF and first aid treatment can be provided in the ERF.

6.3 Systems, Equipment and Advisory Services

6.3.1 Equipment

Appropriate emergency equipment is stored in the ISFSI Monitoring Station Building and ISFSI Support Facility for use by the ERO. Supplies are inventoried to ensure operability and availability at all times.

Controlled copies of facility documents (Drawings, Procedures, Technical Specifications, SAR, etc.) are maintained or are accessible in the ISFSI Monitoring Station Building or ISFSI Support Facility. This information is readily available for the Emergency Response Organization use.

6.3.2 Meteorological System

General meteorological information can be obtained using the internet and may be used in dealing with an emergency.

6.3.3 Fire Detection System and Protection

Fire extinguishers are located at the pre-determined areas at the ISFSI Monitoring Station Building and can be used to extinguish or contain a fire.

The ISFSI Monitoring Station Building and ISFSI Support Facility have fire detectors.

6.3.4 VCC Temperature Monitoring System

The VCC Temperature Monitoring System measures the exit air temperature from each of the vertical concrete cask (VCC) air outlet vents and the ambient air temperature. The System displays the individual VCC air outlet temperatures at a panel in the ISFSI Monitoring Station Building.

6.3.5 Off-Site Advisories

The internet can be accessed to obtain weather information.

6.4 Communication

Communication and information flow is extremely important to ensure proper emergency response. A diagram showing Emergency Response Organization information flow is shown in Figure 6.1.

6.4.1 Onsite Communication Systems

The on-site telephone system is the primary means of communication during an emergency. This system has an independent backup power configuration, which incorporates a combination of automatic and manual transfer switches between batteries and an emergency propane generator to ensure uninterrupted operation on a loss of normal power to the ISFSI telephone system.

The ERO is equipped with portable radios for onsite communications, as required. One or more licensed frequencies are used for routine communications, and one or more state police frequencies are used for offsite routine and emergency communications.

6.4.2 Offsite Communication Systems

A commercial telephone line is provided by the local phone company that facilitates off site communications. Power for this line is provided by the local phone company. A satellite phone provides a back up method of off site communications.

Commercial telephones are used to establish communications between the ISFSI Monitoring Station Building and the Connecticut Department of Emergency Management and Homeland Security (DEMHS) and CT DEP. This is the primary method of informing the State of Connecticut of a declared emergency at the ISFSI.

In the event the commercial telephone circuits fail, the Connecticut DEMHS and DEP can be contacted via satellite phone from the ISFSI Monitoring Station Building.

In the event of an emergency at the ISFSI, the NRC will be notified in accordance with 10CFR50.72(a) using the ENS. The Emergency Notification System (ENS) is a circuit of the Federal Telecommunications System (FTS). It is not anticipated to be used continuously, but primarily to provide periodic informational updates to the NRC. In the event that the ENS fails, commercial and satellite phones provide back up.

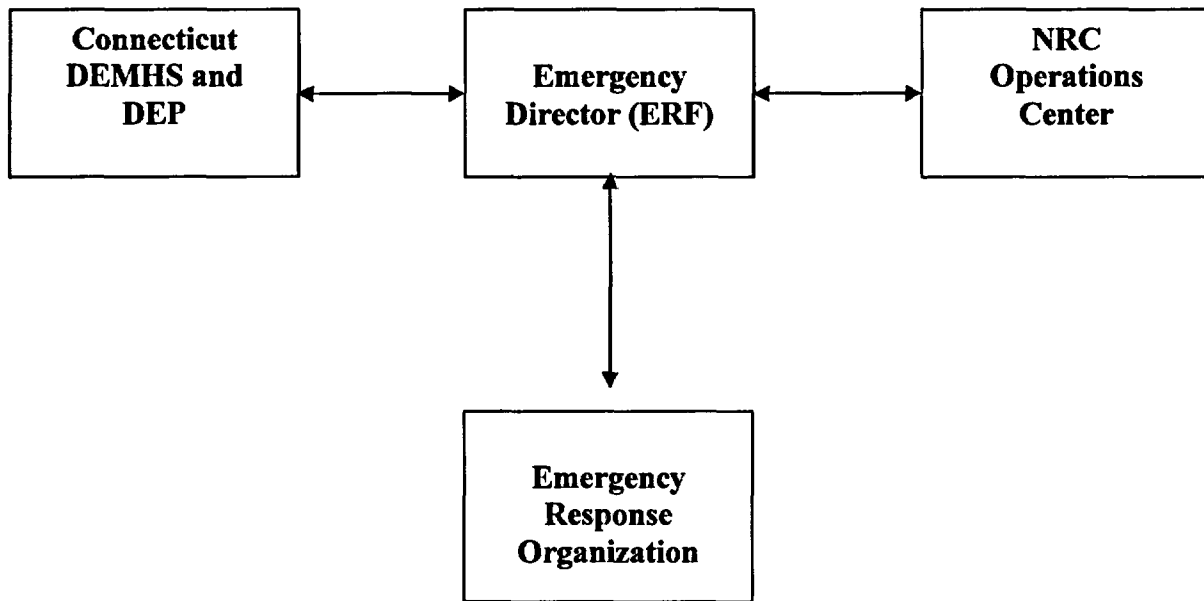
6.4.3 Facsimile Machine

A facsimile machine allows hard copy sheets of information to be transmitted between the ISFSI Monitoring Station and the off-site Agencies.

6.4.4 Backup Power Supply for Communications

On-site telephones and other emergency communications equipment, including the satellite telephone, have backup power supply capabilities.

FIGURE 6.1
ERO COMMUNICATIONS FLOW



7.0 ORGANIZATION AND RESPONSIBILITIES

7.1 Normal Organization

The Connecticut Yankee ISFSI organization is headed by the ISFSI Manager. On-Shift supervision is provided by an ISFSI Shift Supervisor (ISS), who reports to the ISFSI Manager. The ISS performs ISFSI operational duties and manages the security staff.

The minimum staff on duty during all shifts consists of one (1) ISS and the Security Force.

The Connecticut Yankee ISFSI organization is supported by the ISFSI Support Staff and off-site contracted personnel.

The ISFSI Manager is responsible for the overall management of the Emergency Preparedness Program.

7.2 Emergency Response Organization (ERO)

The Emergency Response Organization is comprised of on-shift ISFSI personnel. Detection and recognition of conditions that warrant declaration of an emergency, in accordance with the EALs, is the responsibility of the ISS/ED. Upon declaration of an emergency, the on-shift organization assumes their emergency response duties and implements this plan.

The ISS/ED can call in additional Security personnel and/or local/off-site support (fire, police and ambulance) in numbers and disciplines as desired to support the response and recovery actions required for the event. The ISS/ED will ensure personnel are given appropriate instructions and assignments to ensure that assistance resources are used effectively. Additional Security personnel are expected to respond in approximately two hours from the time that they are contacted.

7.2.1 On-Shift Organization

When initiating conditions result in an EAL being reached, the ISS has the authority and responsibility to classify the emergency and initiate any actions to mitigate the consequences of the incident. The ISS assumes the responsibilities of Emergency Director (ED) and is the person in charge of the ERO. On-Shift personnel and personnel called in to augment the ERO interface with the ED or his/her designee regarding the emergency.

Actions that the ED can not delegate are:

- **Classification of Incident.**
- **Notification of incident.**
- **Ordering of evacuation.**
- **Authorization of radiation exposure in excess of 10 CFR 20 limits.**

The primary responsibilities of the ED are:

- **Direction of emergency response activities.**
- **Command and control of the ERO.**
- **Classification and notification.**
- **Assessment of dose consequences, if necessary**
- **Authorization of onsite protective actions.**
- **Determination of the need for and requesting assistance.**
- **Implementation of Emergency Plan and Emergency Plan Implementing Procedures.**
- **Prioritization of ERO staff activities.**
- **Periodic updates to the NRC and the State.**
- **Mitigation and recovery.**
- **Interface with offsite agencies.**
- **Communications and public information.**
- **Termination of the Event.**

The Emergency Director may delegate administrative responsibilities, including logistical and clerical support, to available personnel not otherwise involved with the emergency. The ED has overall responsibility for the coordination of the emergency response activities of the augmented ERO.

The ED is responsible for directing all aspects of the response to an emergency. The ED will usually do this from the ISFSI Monitoring Station Building (ERF), but depending on the situation, the ED may carry out designated functions from another location.

The on-shift personnel are responsible for conducting all actions to bring the facility to a stable condition, including any necessary corrective actions, on-site protective actions, dose assessments, and first aid. These actions include notification to the NRC, CT DEMHS and DEP and key management personnel.

The Security Staff is responsible for maintaining facility security in accordance with the Connecticut Yankee ISFSI Physical Security Plan. Security responds to threats to physical security, performs accountability, and assists in the evacuation of on-site personnel as directed by the ED. Security personnel report to the ISS/ED or designee.

On-Shift ISFSI personnel are capable of using a portable fire extinguisher to put out a small, incipient stage fire. The Haddam Neck Volunteer Fire Department is responsible for all other fire fighting on site. ISFSI Security personnel will coordinate on-site activities with the Fire Department.

7.2.2 Augmented Organization

On-shift ISFSI personnel can implement the Emergency Plan without assistance from others. Additional personnel are available to assist the ERO, if desired, and are anticipated to respond in approximately two hours, from the time they are contacted.

Personnel called in to augment the ERO may be assigned to perform activities such as the following, if required:

- Performing spent fuel storage condition assessments.
- Assessing the extent of damaged equipment.
- Identifying short and long-term repair needs.
- Supporting maintenance and repair activities.
- Developing plans to correct technical issues.
- Establishing repair priorities and deploying repair teams.
- Coordinating available resources to restore equipment and systems.
- Handling logistical needs.
- Performing radiological surveys and assessments.
- Developing public information materials for release to the news media.
- Facilitating communications with the NRC, the state and the news media.

7.3 Local/Off-Site Support

Arrangements have been made with local organizations to provide:

- Ambulance service for the transportation of injured personnel, including a contaminated injured person.

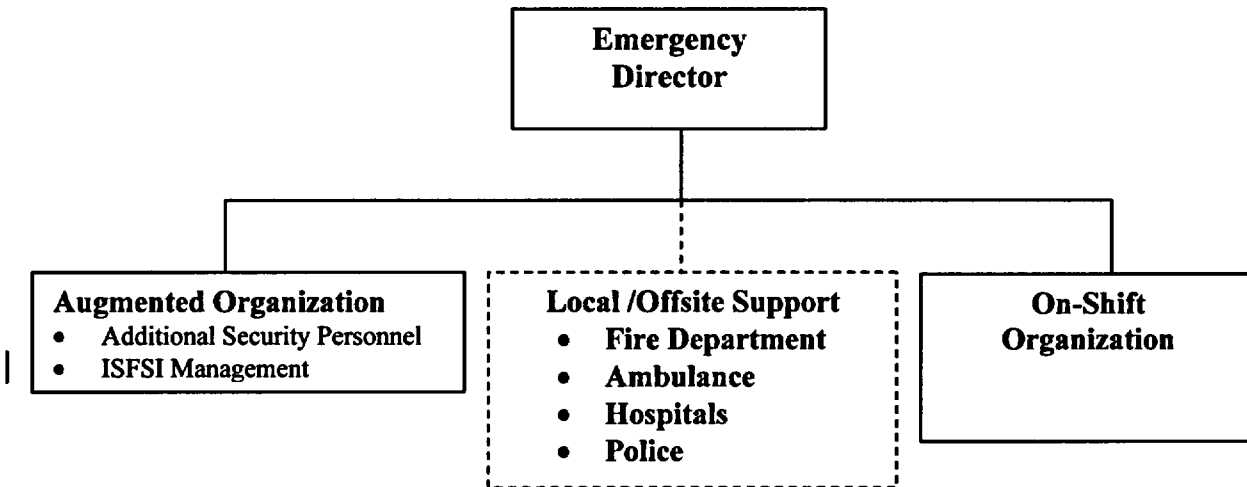
- Hospital services for the treatment of injured or radioactively-contaminated injured individuals.
- Fire fighting services.

7.4 State and Federal Government Response

State and federal government response is expected to be limited to recording the notification of the emergency, periodically receiving updated information on the emergency, and coordinating public information news releases, if necessary.

If required, provisions exist for the State of Connecticut to halt traffic on the roads leading to the ISFSI site. The ISS/ED has the authority to request such support if it is needed.

FIGURE 7.1
EMERGENCY RESPONSE ORGANIZATION



8.0 MAINTAINING EMERGENCY PREPAREDNESS

The ISFSI Manager has the overall responsibility for maintaining the Emergency Preparedness Program. The ISFSI Manager or designee is responsible for ensuring the availability of adequate resources and for ensuring the following tasks and functions are completed:

- Maintenance of readiness of the on-site emergency response facilities and equipment.
- Development and maintenance of the Emergency Plan.
- Development and maintenance of the implementing procedures.
- Preparation of scenarios for training drills and exercises.
- Conduct of drills and exercise.
- Providing input to emergency preparedness training of the support staff.
- Returning emergency equipment and supplies used during a drill, exercise or actual emergency to a state of readiness.
- Providing support for the annual radiation monitoring drill and medical emergency drill.
- Reviewing EALs with state and local government authorities on an annual basis in accordance with 10 CFR 50 Appendix E (IV)(B).

8.1 Training

Training consists of lesson plan(s) designed to provide the skills and knowledge necessary to maintain staff proficiency. Each implementing procedure will be reviewed to identify activities that are not considered to be a part of on-shift ERO personnel's day-to-day routine function (i.e. use of telephones, general communication protocol, etc.). Lessons will focus on non-routine and specialized activities that are particular to the individual functions and overall emergency response actions. Training may consist of, but not be limited to, classroom lecture, self study, practical demonstrations, and facility drills.

8.1.1 Emergency Staff Training

Each on-shift person will be provided training designed to familiarize the person with their duties, responsibilities and expected actions in the event of an emergency. This initial training will be completed prior to the individual assuming the on-shift assignment. Personnel called in will be assigned responsibilities within their specific areas of expertise.

Each on-shift person will be provided continuing training for their individual duties. This training will be conducted during the calendar year. Continuing training addresses general changes to the Emergency Plan, facilities, equipment,

regulations, policies and specific changes to their responsibilities (which are not considered part of their routine duties). It also addresses problem areas identified during audits, drills or exercises.

8.1.2 ISFSI Access Training

The ISFSI Access Training provides personnel the basic elements of the Emergency Plan and expected actions during an emergency. Information is reviewed annually as part of maintaining site access authorization.

8.1.3 Off-Site Assistance Training

Organizations, which may be called upon to render assistance onsite, will be offered general facility familiarization sessions on an annual basis. These sessions may include a walk down of the facility, safety, building layout, access protocol, communications capabilities, and security requirements. Radiological orientation training will also be offered annually.

8.2 Drills and Exercises

In addition to the emergency plan training described earlier, the facility staff will conduct periodic drills to enhance skills and knowledge of the practical implementation of the EP and demonstrate the adequacy of emergency facilities, equipment and procedures. Drills serve as an extension of the training program, allowing interaction between evaluators and ERO personnel to reinforce procedural requirements and overall process implementation. Periodic drills will be scheduled with various objectives to demonstrate these capabilities. Some drills will focus on specific functions (such as communications capabilities) while others will involve a broader amount of the EP.

Off-Site support organizations (e.g. ambulance service, fire department and police department) and CTDEP may be invited to participate in drills.

At least one drill shall be conducted between exercises, which are conducted every other year, that involves a combination of some of the principal areas of on-site response capabilities (management, accident assessment, protective and corrective actions).

8.2.1 Drills

In addition to training drills discussed above, the following drills will be conducted annually:

- Radiological Monitoring Drill - demonstrating conducting general area surveys.

- Medical Emergency Drill - demonstrating the capability for transporting an injured worker offsite.
- Fire Drill - conducted in accordance with the Fire Protection Program.

8.2.2 Exercises

An exercise will be conducted once every two years to demonstrate the capability to implement the Emergency Plan. Objectives will be developed to ensure major elements of the emergency plan are demonstrated and evaluated to ensure the appropriate level of preparedness is being maintained.

Off-site response organizations will be invited to participate in or observe the exercise.

8.2.3 Drill and Exercise Evaluation

Facility staff will evaluate the exercise and drills. Expectations for evaluators will be discussed with each evaluator prior to the drill/exercise. Evaluators should be assigned to evaluate functions/areas consistent with their expertise. Following the drill/exercise a critique of the evolution will be conducted. Comments will be evaluated and dispositioned by the ISFSI Manager and deficiencies will be corrected through retraining, remedial drills, or by other means. Comment resolution will be assigned to appropriate personnel for final implementation.

8.3 Review and Update of Emergency Plan and Implementing Procedures

8.3.1 Emergency Plan Review

This plan, including all written agreements between CYAPCO and other parties, will be reviewed annually. Approved changes to the plan will be incorporated into the appropriate implementing procedures along with the plan changes. Letters of Agreement will be reviewed annually and verified to be in effect at the time of the plan review. This may be accomplished via written correspondence or documented telephone conversation.

This plan is a controlled document to ensure changes are incorporated into distributed copies. Plan changes will be approved by the ISFSI Manager.

8.3.2 Emergency Plan Implementing Procedure Review

Procedures, which implement the EP, will be reviewed and revised in accordance with procedure control guidelines. Periodic revisions will be incorporated whenever a plan change is made that affects the procedure or other circumstances dictate a revision is necessary. Implementing procedures will be approved by the ISFSI Manager.

8.4 Periodic Surveillance

Facilities and equipment will be maintained in accordance with written procedures or instructions. Inventories of Emergency Plan equipment will be conducted on a semi-annual basis and after facility activation (actual event or drill activity).

Telephone numbers that are important to emergency notification are contained in Department Instruction ISFSI DI-01 "ERO Information and Resources", and are verified on a quarterly basis.

Telephone and radio systems used for on-site and off-site emergency communications are tested monthly using Department Instruction ISFSI DP-01 "Emergency Communications Systems Test".

8.5 Independent Review

All Emergency Plan program elements shall be reviewed by persons having no direct responsibility for the implementation of the Emergency Preparedness Program at least once every 12 months to satisfy the requirements of 10CFR50.54 (t). A QAP audit covering all program elements satisfies this requirement.

APPENDIX A

DEFINITIONS, ABBREVIATIONS AND ACRONYMS

DEFINITIONS

Actions

Assessment Actions

Those actions taken during or after an incident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

Corrective Actions

Actions taken to make improvements.

Emergency Actions

Those measures taken to improve or terminate an emergency situation.

Protective Actions

An action taken to avoid or reduce radiological exposure to ISFSI personnel.

Recovery Actions

Actions taken after an emergency to restore the facility to pre-emergency condition.

Airborne Radioactivity

Any particulate or gaseous radioactive material dispersed in the air.

Confinement Boundary

The confinement boundary of the canister consists of the canister shell, bottom plate, shield lid, structural lid, the two port covers, and the welds that join these components.

Contamination (Radioactive)

Radioactive material in any place where it is unwanted (e.g., on persons, products or equipment).

Decontamination

The reduction or removal of contaminating radioactive material from a person, area or object by cleaning or washing.

Emergency Action Level (EAL)

Thresholds for initiating emergency designating a particular class of emergency.

Emergency Director (ED)

The person in charge during an emergency.

Emergency Response Organization (ERO)

The organization responsible under emergency conditions.

Evacuation

The orderly evacuation of personnel from the Protected Area, or Owner Controlled Area, except for essential on-shift or Emergency Response Organization personnel.

Initiating Condition (IC)

An event where either the potential exists for a radiological or security emergency, or such an emergency has occurred.

ISFSI – Independent Spent Fuel Storage Installation

The facility designed and constructed to provide on-site dry storage of spent fuel and GTCC waste.

ISFSI Monitoring Station Building

The primary location where conditions of the ISFSI are monitored and where actions are directed from during an emergency.

ISFSI Support Facility

The structure adjacent to and providing addition space in support of the ISFSI Monitoring Station Building.

NAC-MPC System

The NAC International Inc. Multi-Purpose Canister System which is being used to store spent fuel and GTCC waste.

Protective Action Guides (PAGs)

Projected absorbed dose to individuals in the general population which warrants protective action.

Radioactive Material Area (RMA)

Any area or room where there is stored an amount of licensed material exceeding 10 times the quantity of such material specified in Appendix C to 10CFR20.

Radiologically Controlled Area (RCA)

An area where there is a potential for radiation exposure and dosimetry is required.

Transportable Storage Canister (TSC)

The welded canister that provides containment for the spent fuel or GTCC waste. The loaded TSCs are placed inside of the VCCs for onsite dry storage.

Unusual Event (UE)

Events are in progress or have occurred which indicate a potential for degradation of the level of safety of the facility. No release of radioactive material requiring offsite response is expected.

Vertical Concrete Cask (VCC)

The cask positioned on the ISFSI pad to store spent fuel and GTCC waste.

ABBREVIATIONS / ACRONYMS

ALARA	-	As Low As Reasonably Achievable
CFR	-	Code of Federal Regulations
DEMHS		Department of Emergency Management and Homeland Security (was previously Office of Emergency Management (OEM))
DEP		Department of Environmental Protection
EAL	-	Emergency Action Level
ED		Emergency Director
ENS	-	Emergency Notification System (NRC telephone circuit)
ERF	-	Emergency Response Facility
ERO	-	Emergency Response Organization
FTS	-	Federal Telecommunications System (NRC telephone system)
GTCC		Greater Than Class "C" (waste)
HNP		Haddam Neck Plant
ISFSI	-	Independent Spent Fuel Storage Installation
ISS	-	ISFSI Shift Supervisor
mrem/hr	-	milli-rem (1/1000 rem) per hour
NRC	-	U.S. Nuclear Regulatory Commission
OCA		Owner Controlled Area
PA		Protected Area
PAG	-	Protective Action Guide
QAP	-	Quality Assurance Program
RCA	-	Radiologically Controlled Area
rem	-	Roentgen Equivalent Man. A measure of radiation exposure.
RERP		Radiological Emergency Response Plan
TLD	-	Thermo Luminescent Dosimeter
TSC	-	Transportable Storage Canister

APPENDIX B

LETTERS OF AGREEMENT

This appendix lists the letters of agreement in effect between Connecticut Yankee Atomic Power Company and off-site authorities and organizations. These agreements are reviewed annually with the involved parties. Signed copies of these agreements are maintained by the ISFSI Manager and are available for review upon request.

Organizations

Haddam Neck Volunteer Fire Department

State of Connecticut Department of Public Safety, Division of State Police

East Hampton Ambulance, Inc.

Middlesex Hospital

APPENDIX C

EMERGENCY PLAN IMPLEMENTING PROCEDURES

I. Emergency Plan Implementing Procedures

- 1. EO-01 Emergency Planning Administration**
- 2. EO-02 Response to Off-Normal Operations**
- 3. EO-03 Response to Accidents**
- 4. EO-04 Response to Natural Phenomena**
- 5. EO-05 Emergency Plan Implementation**
- 6. EO-06 Non-Emergency Event Assessment**
- 7. ISFSI DI-01 ERO Information and Resources**
- 8. ISFSI DP-01 Emergency Communications Systems Test**