

Appendix A: Approach to the Statement of Work

To review the critical preparedness components at Indian Point, Millstone and the affected jurisdictions in New York we conducted an outreach effort into the surrounding community, and reviewed public information efforts, previous exercise results for the site, current response plans and exercise data, and the data underlying the response plans, such as population data, evacuation time estimates, alert and notification system specifications, offsite accident impact analysis methodologies, and communication capabilities. Our approach to conducting this outreach effort and these reviews is described in the sections below.

Approach to Outreach

A significant part of our effort was outreach into the community at large. The purpose of this activity was three-fold: to assess the degree to which individuals and community groups and their members are aware and informed; to gain an understanding of the varied community concerns; and to solicit a range of ideas regarding the best way to resolve major issues. By interacting directly with the public, we also sought to establish the credibility, integrity, and validity of the review process and ourselves as its agents. Public education was not an objective of this effort, but may have occurred as a natural consequence.

To begin the process, JLWA met with each County Executive and their key staff to ensure high level understanding and support, and to establish trust and gather ideas for the overall approach. Based on these meetings and on input from the State, target groups for our outreach effort were identified.

Before beginning the concentrated outreach effort (September 9 through October 10) care was taken to obtain and review materials thought relevant by those wanting to close the plants. That was done for two purposes. Although those involved in the review are well aware of the issues involved in offsite safety around nuclear power plants, it was important to learn what plant opponents were specifically concerned about regarding Indian Point and Millstone, rather than assuming what their concerns might be based on our experience elsewhere. Studying that body of information prior to initiating the outreach also helped us to focus the questions we asked during subsequent outreach efforts.

Target groups included both public officials and private citizens, such as: elected and appointed officials of both the executive and legislative sides of local government; individuals with a role in implementation of the response plans; individuals with an interest in the issue from a public policy perspective; the general public; and the media. Those contacted usually fell into one or more of the following categories: fire, police, public works, schools, transportation, health care, business, private individuals and federal or state facilities. Although in the course of our review we had many occasions to interact with our colleagues in the emergency planning profession, they were not a specific target of our outreach into the community because of the purposes of that effort as described above.

Our approach to contacting the targeted individuals and groups was to obtain lists from the counties including current contact numbers and to make a quasi-random selection, keeping in mind the need for balance and the time limitations of the contract. These lists were supplemented by use of the internet or phone books as appropriate. Most of the contacts were in Westchester and Rockland Counties, where there was the greatest infrastructure, population at risk, planning difficulty and degree of County cooperation.

Those who have an interest in the issue from a public policy perspective and who were in favor of closing the plant often self-identified themselves by contacting us and asking for a meeting. Such groups we have labeled, for convenience and with no disparagement implied or intended, “advocacy groups.” Their requests were honored. Subsequent recommendations that we meet with their associates for verification or elaboration were acted upon when the meeting was otherwise desirable and consistent with our overall approach.

Meetings with the general public were held where elected officials both expressed interest and were willing to activate the machinery of local government to make it happen. With few exceptions, the most vocal participants in these meetings were associated with advocacy groups or repeated the positions of advocacy groups. We know we cannot determine the beliefs and attitudes of the general public from such meetings. Nevertheless these meetings, when combined with individual and group interviews, were useful for revealing a higher than expected level of distrust of government and the plant within the community.

In each individual or group interview ideas for improvement were solicited and cards were left should participants want to submit information later. Upon learning that some might not share concerns for fear of retribution, we began to assure participants that the report would not contain names. With few exceptions the meetings were face-to-face and on-site. While phone interviews would have resulted in more interviews for a given expenditure of time and effort, they would be less likely to involve others on the staff who could contribute to the discussion, and the context, including the facility itself, would be less clear. Body language and facial expressions would have been missed. Being on-site and in person also allowed the interviewers to become well acquainted with the area, its population distribution, roads and traffic patterns.

While some of the purposes and approach outlined above applied to both Indian Point and Millstone, there were some major differences. Those differences trace back to the lack of a developed infrastructure and population concentration near to the plant, which is separated by water from New York. Discussions with those few primarily responsible for Fishers Island’s response to an event at Millstone were quickly accomplished. Outreach did not end there however, because local officials on Long Island properly observed that while their residents were outside of the 10 mile EPZ, shadow evacuation would occur and create significant public safety issues. Consequently, consideration of these effects was appropriate even when shadow evacuation did not interfere with evacuation directed by responsible authorities. The purpose of our outreach beyond Fishers Island then was to learn of these effects so as to be able to recommend measures to address the public safety issues they raise.

Approach to Public Education and the Media

JLWA reviewed public information documents and communication materials to find out whether they informed and educated citizens. We examined the public education section of each county's emergency response plan and the emergency planning brochure that is sent to every household in the ten-mile EPZ. Additionally, we evaluated county websites, press releases, public announcements, and other communication materials.

Our approach to the media was to be responsive, accessible and thorough, whether initiating contact or answering a media request.

We began the media outreach by contacting as many local media representatives as possible to introduce ourselves, explain our role and provide any necessary background material. JLWA targeted the most appropriate media by obtaining media lists from the affected counties. To supplement these lists, we also made additional calls and researched the internet to locate other key media representatives. Finally, we researched past news stories to find other journalists who wrote about the issues.

When we contacted the media representatives, many were unaware of the review and its purpose. In these cases, we would inform them about the review and then direct them to the Governor's press releases for further explanation. We also told them that they could call us back with any additional questions. When the media contacted JLWA, we gave them information about the review and provided them pertinent websites that housed additional information. In some instances, we arranged interviews with James Lee Witt and/or the Program Manager.

After the initial contact to local media, some media requested periodic updates on the review. JLWA then contacted them before both the Indian Point drill and the exercise, offering them interviews with James Lee Witt and/or the Program Manager to explain how the review was being conducted and its emergency preparedness goals. Of those contacted, few knew about the drill or exercise and why either was being performed.

Approach to Historical Review

IEM completed a historical emergency planning review for Indian Point and the jurisdictions within its 10-mile emergency planning zone. The review is based on FEMA-certified exercise and Nuclear Regulatory Commission reports for 2002, 2001, 2000, 1999, 1998, and 1996. For Millstone, IEM reviewed Inspection and exercise reports from 2002, 2001, 2000, and 1997: IEM reviewed the Areas Requiring Corrective Action and Significant Findings identified in the reports and created tables so that FEMA and Nuclear Regulatory Commission report information will be accessible for future Indian Point exercises. The purpose of the review was to:

- Establish a historical baseline of findings that occurred during exercises at the state and local jurisdictions, and
- Identify findings within the departments responsible for radiological emergency preparedness at Indian Point and Millstone.

Also as part of the historical review, IEM gathered previous performance information and critical response milestone data for Indian Point and Millstone to establish baselines of previous performance information for the facilities.

Approach to Planning Review

In order to ensure that required the elements of emergency planning are addressed by the responsible jurisdictions, we reviewed the radiological emergency preparedness plans for the licensees and jurisdictions involved in coordinating emergency response for the nuclear plants in question. For Indian Point, this effort included a review of the plans for Indian Point, the State of New York, and Putnam, Rockland, Orange, and Westchester Counties. For Millstone, we reviewed emergency plans for the Millstone Power Station, the State of Connecticut, Fishers Island, and Suffolk County. In both cases, the primary focus was on determining the plans' regulatory compliance with Nuclear Regulatory Commission, FEMA, Code of Federal Regulations, and Environmental Protection Agency planning criteria.

Two exercises involving the safety of the communities surrounding Indian Point were held in September 2002. The first was a September 5 drill that was preparatory to the second, a full scale exercise held on September 24. For both exercises we stationed observers at each County EOC, the State EOC, the plant and the Joint News Center. Because there were also "out of sequence events" such as FEMA interviews at congregate care centers, we took the few opportunities available to us to observe these as well. We observed these events to evaluate communications, coordination, resources management, command and control, and personnel management. The exercise evaluations are part of the integrated plan review. The focus of this review is to evaluate how well licensee, county, and state plans and other identified organizations work together in a coordinated emergency response.

In addition to the exercise evaluation approach used by FEMA, we prepared a list of things to look for that was based on the objections of those who find the plans faulty. For example, one question was, "What explicit attention did they (decision makers) pay to shadow evacuation?" Another was, "What was assumed about the ability to move school populations before the general public became aware of the decision to evacuate?"

We were also interested in the effectiveness of the exercise program as it is presently constituted, and in particular whether a successful exercise is an indicator of a successful plan. Accordingly, our observers were asked to look at such things as the extent to which the scenario was realistic and was a test of participants' capabilities.

Our post-exercise evaluations followed the same approach, using the FEMA criteria supplemented by specific and widespread issues of concern regarding Indian Point.

Because Millstone had had a full scale exercise in 2002, the State initially requested we observe a special tabletop exercise focusing on communications. During the development of this exercise, however, Connecticut authorities were unable to devote the time and resources to the effort that would be required for a meaningful test. Consequently, no exercise related to Millstone was observed or evaluated.

Approach to Operations Review

JLWA/IEM reviewed critical portions of the planning basis for radiological emergency preparedness for Indian Point, Millstone, and the associated jurisdictions. Specifically, population basis information, evacuation time estimates, alert and notification system specifications, offsite accident impact analysis methodologies, and communications technology capabilities were reviewed. This involved the following:

- An independent verification of population estimates for permanent residents, transient populations, and special facilities within the 10-mile emergency planning zone of Indian Point, as well as within 2, 5, and 10-mile rings, 22.5 degree sectors, and emergency response and planning areas. For Millstone, IEM analyzed only those portions of the emergency planning zone located in New York.
- Review of the evacuation time estimate methodology being used by the contractor currently providing updated evacuation time estimate to the Indian Point facility. For Millstone, IEM evaluated the most recent ETE report provided.
- Evaluation of the adequacy of the alert and notification system and backup systems at Indian Point and Millstone, as well as the facilities' process of notification.
- Determination of the adequacy of the respective Indian Point and Millstone current dose assessment methodologies.
- Review of the adequacy of technology currently in place at Indian Point, Millstone, and their associated jurisdictions (based on observations and information provided), as well as the backup technologies and technologies in development; reviewers also provided recommendations for future use of emergency communications technology at these sites.

Appendix B: Detail on Offsite Accident Impact Analysis Review

Indian Point

JLWA/IEM completed a thorough review of relevant documentation and conducted detailed interviews and follow-up with Indian Point personnel responsible for offsite accident impact analysis in an emergency. Plans and associated administrative procedures were evaluated for technical soundness and completeness. Methods detailed were compared with Nuclear Regulatory Commission Standards and dispersion modeling and meteorological best practices. An evaluation was also done on how well the Indian Point methods handled effects local to the plant and surrounding area such as channeling of the airflow (or radiological plume if a release occurred) by the Hudson River Valley.

The information on the dose assessment methodology used at Indian Point was obtained from the following documents provided by the Indian Point:

- IP-EP-115, Emergency Plan Forms;
- IP-EP-510, Meteorological, Radiological, and Plant Data Acquisition System;
- IP-EP-620, Estimating Total Population Exposure;
- IP-EP-520, Modular Emergency Assessment and Notification System ;
- Selection of Air Monitoring Locations, Calculations of Dispersion Patterns for Diffusion Overlays, and Recommendation for a Meteorological Program to Satisfy A.E.C. Safety Guide 23 at Indian Point Power Generating Complex, prepared by Joseph Laznow, Mitchell M. Wurmbrand, and Edward J. Kaplan, for Consolidated Edison Co. of New York, Inc., New York, NY, July 31, 1972;
- Radioactive Release Overlays Based on Nuclear Regulatory Commission Pasquill Categories for Indian Point Station, prepared by Lester A. Cohen, Nuclear and Emissions Control, Engineering Department, Revised May 1977;
- Appendix 2, Meteorological Criteria for Emergency Preparedness at Operating Nuclear Power Plants
- Regulatory Guide 1.112, Calculation of Release of Radioactive Materials in Gaseous and Liquid Effluents from Light-Water-Cooled Power Reactors, U.S. Nuclear Regulatory Commission, Office of Standards Development, May 1977;
- Regulatory Guide 1.111, Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, U.S. Nuclear Regulatory Commission, Office of Standards Development, May 1977;
- Regulatory Guide 1.111, Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, U.S. Nuclear Regulatory Commission, Office of Standards Development, July 1977;

Additional Detail on Offsite Accident Impact Analysis at Indian Point

To estimate the noble gas release rate at the source of the accident using field monitoring readings, the following data are required:

- field data reading;
- location of the field data reading;
- sector where the field reading was taken (see discussion on population analysis for a description of “sectors”);
- wind speed;
- normalized concentration at that location ($\chi U/Q$) (taken from the plant’s dose assessment overlays and base map);
- dose factor based on time after shutdown .

The Hudson River Valley surrounding the Indian Point facility produces local effects that dominate the airflow in the region during conditions of weak-to-moderate synoptic pressure gradients (i.e., wind speeds less than 4 meters/sec). Under these conditions, the daytime air flow is predominately up-valley toward the N or NNE and the nighttime flow is predominately down-valley toward the S or SSW. The predominant direction of strong winds is from the WNW to NW, which pushes the winds across the valley toward the SE to ESE.^{1, 2} The paper by Laznov, et. al., describes these conditions as determined by an experiment using balloons to track the airflow. Laznov combined airflow patterns with a calculation of the dispersion of the plume to produce a set of 18 map overlays that can be used along with 7.5-minute U.S. Geological Survey maps and some calculations to determine the expected pattern of doses. These were later revised by Cohen to produce the currently used set of 21 overlays.

The dose rate in millirem per hour (mrem/hr) at a point on the map downwind from the accident source is determined by multiplying by a conversion factor that depends on the time after shutdown for noble gas releases and on the iodine isotopes present for iodine releases. An additional factor is applied if the release contains significant particulates. The dose (mrem) is finally determined by multiplying by the release duration (hrs). These calculations are done at the site boundary and at distances of 2 miles, 5 miles, and 10 miles downwind. When field data of dose rate (mrem/hr) are obtained, an estimate of the release rate can be obtained by reversing the calculations just described.

New York State Dose Assessment Plan

IEM reviewed the State’s plan and associated documentation on offsite impact analysis for accuracy and completeness, as well as for any specific content that was in conflict with Indian Point or Millstone’s methodology.

¹ Laznov, et. al, 1972, *op. cit.*

² Coehn, 1977, *op. cit.*

The State of New York uses an explicit methodology for offsite impact analysis that is different from both Indian Point and Millstone. Specifically, the State uses the Radiological Assessment System for Consequence Analysis (RASCAL) model. RASCAL is a software modeling system that runs on a computer. It takes input from a meteorological source and information about the potential or actual radiological release and calculates effects of the radiological plume on population that is threatened. IEM evaluated the accuracy and suitability of RASCAL and made a determination on whether or not RASCAL was used in accordance with Nuclear Regulatory Commission methodology. IEM further reviewed the expected accuracy of results, along with uncertainties associated with model predictions. Specifically, IEM also reviewed how well RASCAL handled local effects such as river valley channeling of airflow at lower wind speeds.

If RASCAL cannot be run for some reason, the New York REP plan describes other dose estimating procedures based on the diffusion overlays and base maps provided by the Indian Point. The procedures are detailed as follows:

- If a release is anticipated, but no material has yet been released, or no data from monitors within the plant are available, the dose can be estimated using the type of accident, the final safety analysis report (final safety analysis report) accident analysis and estimated dose projections, the meteorological data (atmospheric stability, wind speed, and wind direction), and the diffusion overlays and base map. This methodology is fairly crude, but seems reasonable when there is no real data available. As stated in the plans, the results from this dose assessment would be updated when more data becomes available.
- If release rate information is obtained from monitors or direct measurements taken within the plant, the dose can be estimated using the release rate, meteorological data, diffusion overlays, duration of exposure, time after shutdown, and data from the Response Technical Manual and Environmental Protection Agency Protective Action Guidelines Manual.
- If gamma exposure rate information is obtained from offsite monitoring data, the dose can be estimated using the gamma exposure rate, meteorological data, diffusion overlays and base map, and exposure time. To include decay of radionuclides, the time after reactor shutdown and data from the RTM and Environmental Protection Agency protective action guidelines manual would be used.
- If the nuclide concentration is known and the release is at ground-level and under average or unknown meteorological conditions, the dose can be estimated using pre-calculated doses at 0.25 and 1 mile from a 1 μCi release, assumed average meteorological conditions (D stability, 4 mph wind speed, no rain), dose conversion factors from the RTM, and activity of each isotope. The dose can be adjusted for distance, elevation, and rain. If the nuclide concentration is known and the meteorological conditions are also known, the dose can be estimated using the release rate of each isotope, data from the RTM, exposure duration, and average wind speed. Again, the dose can be adjusted for distance, elevation and rain.

Meteorological Data Handling

IEM reviewed the procedures for obtaining current meteorological data associated with dose assessment at Indian Point, Millstone and the State of New York. IEM evaluated how the meteorological data were collected, where towers and instruments were located or sited, the type

of instrumentation used on the towers, and calibration/maintenance schedules or other procedures for ensuring proper operation. IEM also looked specifically at how atmospheric stability (a measure of turbulence in the air) was calculated during an accident, how meteorological data was transmitted to the dose assessor, redundant sources of meteorological information and how power was supplied to instruments.

The primary source of meteorological data at Indian Point is a 400-foot tower located on the top of the containment building for the number 1 reactor³. This tower has instrument packages at 10 meters, 60 meters, and 122 meters above ground. Each package measures temperature, dew point, wind speed, and wind direction. Wind speed and direction are measured by a Climatronics Model F460 cup anemometer and wind vanes. Precipitation is also measured at a height of 1 meter. Pasquill stability class is calculated based on the 10-meter and 122-meter instrument levels, but can also be computed from the 10-meter and 60-meter levels. Data are logged at the tower and transmitted by an auto feed to the Emergency Operations Facility by way of land lines and optical fibers for storage on a mainframe computer. The data logger computes stability and finds 15-minute averages for use in the impact analysis.

A secondary, backup source of meteorological data is a tower located about 1,200 feet northeast of the primary tower, about halfway between the two power reactors. This tower measures wind speed and direction and sigma theta at 10 meters above ground. The instruments are similar to those on the main tower.

A third set of meteorological instruments is located on the top of the Emergency Operations Facility building. These instruments measure wind speed and direction and sigma theta. The wind flow to these instruments is obstructed by the Emergency Operations Facility, but data from these instruments are logged and monitored and can be used in the event that data from the other two towers are not available.

³ Information on the meteorological data at Indian Point was obtained during a phone conversation between IEM and Entergy on November 1, 2002.

Appendix C: Individual Plan Review Compliance Matrices

The tables in this section contain the findings noted during the individual reviews of the radiological emergency plans for the following organizations:

- Indian Point Energy Center
- State of New York
- Putnam County
- Rockland County
- Orange County
- Westchester County
- Millstone Power Station
- State of Connecticut
- Fishers Island
- Suffolk County

The plan document for each organization was evaluated for its compliance with planning criteria from the following organizations: the Nuclear Regulator Commission, the FEMA, the Code of Federal Regulations, and the Environmental Protection Agency. For each requirement listed in the tables, the individual plan was assigned a rating of “Met” or “Not Met.”

Please Note:

To facilitate review of the matrices, in the following tables any requirement which the particular organization was judged as having satisfactorily “Met” with no other comment from the reviewer has been removed. The following tables contain only those items which each organization was judged to have “Not Met,” as well as any requirements (“Met” or “Not Met”) for which the reviewer included a comment.

Compliance Review Matrix for Indian Point Facility

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization	NUREG 0654	2.A.1.a	Met	<p>It would be helpful to have a consolidated table of all organizations involved in the response, since that information does not appear in one place in the plan.</p> <p>Specific tasks for State agencies are discussed in the State Plan.</p> <p>No federal agencies are listed. Presumably, FEMA, the US Department of Agriculture (USDA) or the Department of Health and Human Services (DHHS) and others have a role in some scenarios. Also, West Point is in the 10-mile emergency planning zone; there are other federal facilities as well.</p>
II.A.1.b—Concept of Operations and relationship to the total effort specified for all parties with an operational role	NUREG 0654	2.A.1.b	Met	<p>The plan would benefit from significant expansion on this issue. Most of the relevant concept of operations (CONOPS) information appears elsewhere in the plan. This would be a good section for consolidating that information and defining what is expected.</p>
II.A.1.c—Interrelationships in response organization illustrated in a block diagram in the plan	NUREG 0654	Figure A-1	Met	<p>The plant relies on the State or FEMA to contact other ingestion pathway states according to the diagram provided.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.e—Provisions made for 24 hour staffing of communications links and 24 hour/day emergency response	NUREG 0654	2.A.1.e	Not Met	The plan states that such provisions have been made, but provides no description of them. Details may be discussed in the Implementing Procedures, but could not be verified.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.	NUREG 0654	2.A.3, App.2	Not Met	The plan refers to Letters of Agreement provided in a separate appendix, as permitted by NUREG-0654. However, because the reviewer was not provided with a copy of the appendix, the content and currency of the LOAs could not be verified
II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.	NUREG 0654	2.A.4	Not Met	The plan states that such capability exists, but does not provide any details in this section. Details may be discussed in the Implementing Procedures but could not be verified.
II.B.1—Onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement is specified	NUREG 0654	2.B.1	Met	The plan provides sufficient separate detail about both organizations; however, it would be helpful to provide discussion about how the emergency response organization (ERO) compares to the normal staffing organization.
II.B.2—Emergency Coordinator designated for all shifts who has authority and responsibility to initiate emergency actions, including providing protective action recommendations.	NUREG 0654	2.B.2	Met	The plan would benefit from more emphasis on the responsibility of the Emergency Coordinator to make protective action recommendations.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.B.3—Line of succession established for Emergency Coordinator position. Specific conditions established for higher-level utility officials to assume this function.	NUREG 0654	2.B.3	Met	The plan provides details concerning the succession of the Emergency Director (ED) after activation of the ERO; however, there is no detail or contingency in the plan if the initial on-call ED is not able to be reached. (Note: This may appear in the Implementing Procedures, which were not available to this reviewer.)
II.B.6—Interfaces between on-site functional areas, licensee HQ, local services support, and State and Local government response organization are specified, including a block diagram.	NUREG 0654	2.B.6	Not Met	The block diagram depicts well the Indian Point organization, but it does not explicitly show the licensee headquarters, local services support, and State and local government interfaces.
II.B.7—Corporate support personnel augmenting plant staff shall be specified for logistics support, technical support for planning and reentry/recovery, mgmt. interface with government authorities, and release of information to news media.	NUREG 0654	2.B.7	Not Met	The plan asserts the requirement for augmentation of plant staff by corporate personnel, but it provides no details about the positions and departments involved.
II.B.8—Contractor and private organizations who may be requested to provide technical assistance and augmentation of the emergency organization are specified.	NUREG 0654	2.B.8	Met	The plan references a number of supporting organizations. Additionally, it states that letters of agreement (not required) appear in Appendix 2, which was not provided to the reviewer.
II.B.9—Services to be provided by local agencies for handling emergencies, e.g., police, ambulance, fire-fighting, medical, hospital, are specified. Transport & treatment of contaminated injured personnel is provided for. Copies of arrangements and agreements between licensee and others are appended to the plan.	NUREG 0654	2.B.9	Not Met	The plan states that the required letters of agreement appear in Appendix 2, which was not provided to the reviewer. While it is presumed the plant could provide such letters upon request, compliance could not be verified.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.C.1.a—Person authorized to request Federal assistance is specified by title.	NUREG 0654	2.A.1.a (DOE), 2.C.1.a	Not Met	The plan states only that the Department of Energy (DOE) is authorized to make such a request. It does not identify an individual by title.
II.C.1.b—Specific Federal resource needs expected and anticipated arrival time for them are specified.	NUREG 0654	2.C.1.b	Not Met	The plan does not specify expected Federal resource needs or anticipated arrival times.
II.C.1.c—Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654	2.C.1.c	Not Met	The plan does not specify the available resources. Details may be discussed in the Implementing Procedures, but could not be verified.
II.C.3—Radiological labs, their capabilities, and expected availability to provide radiological monitoring and analysis services in an emergency are specified.	NUREG 0654	2.C.3	Not Met	This section does not provide specifics concerning the labs and their capabilities/availability. While such details may appear in the letters of agreement, the letters are not included with the plan.
II.C.4—Organizations have identified nuclear and other facilities, organizations, or individuals that can be relied upon to assist in an emergency. Appropriate letters of agreement have been established for this support.	NUREG 0654	2.C.4	Not Met	This section does not provide specifics concerning the stated resources. While such details may appear in the letters of agreement, the letters are not included with the plan, so compliance could not be verified.
II.D.1—An emergency classification and emergency action level scheme has been established. The plan identifies parameter values and equipment status for each emergency class.	NUREG 0654	2.D.1	Met	Sufficient detail is provided in the plan. Additional information appears in the Implementing Procedures.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.D.2—The initiating conditions for emergency classification and EALs include the example conditions in Appendix 1 and all postulated accidents in the FSAR for the nuclear facility	NUREG 0654	2.D.2	Met	Sufficient detail is provided in the plan. Additional information appears in the Implementing Procedures.
II.E.3—Contents of initial emergency messages to be sent from the plant have been established with State and Local organizations. It shall include information about: Class of emergency Whether a release is taking place Potentially affected population/areas Whether protective measures may be necessary	NUREG 0654	2.E.3 IP-EP-115	Met	Part I of the NY State Radiological Emergency Data Form is used.
II.E.6—Each organization has established a system for public warning within the 10-mile emergency planning zone. Licensee is responsible for demonstrating that means exist for doing so. State and Local governments are responsible for activating such a system	NUREG 0654	2.E.6	Met	No backup means is specified in the plan for activating the sirens in a given County if the encoder equipment or radio transmitter/repeater prevents the EOC from activating sirens. While such a contingency is not required by regulation to be in the plan, consideration should be given to establishing one if one does not already exist.
II.F.2—Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.	NUREG 0654	2.F.1	Not Met	The communication links for medical support to Indian Point are not discussed in the plan. The default assumption is that the commercial phone exchange is the only means of direct communication with medical providers.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.F.3—Each organization shall conduct periodic testing of the entire emergency communications system (see evaluation criteria H.10, N.2.a, and Appendix 3)	NUREG 0654	2.F.1 2.N.2	Met	While this regulation was technically met, during the 9/5/02 exercise it was openly noted that an operational problem with the Executive Hotline was known for at least 4+ months and not corrected-- indicating a need to review the efficacy of the test and follow-up process.
II.G.2—The public information program shall provide the permanent and transient adult population within the plume exposure emergency planning zone an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway emergency planning zone, appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.	NUREG 0654	2.G.2	Not Met	County booklets are not available on the Indian Point website. According to IP emergency preparedness personnel, school programs are not used to reaching parents through their children. Few signs have been posted yet for transients. There is no evidence of a coordinated program to inform the large population that commutes into the 10-mile emergency planning zone to work.
II.G.3.a—Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency.	NUREG 0654	2.G.3.a	Met	The Indian Point Corporate Spokesperson is the only POC noted in the plan.
II.G.3.b—Each licensee shall provide space which may be used for a limited number of the news media at the nearsite EOF.	NUREG 0654		Not Met	While details may be discussed in the Implementing Procedures (not provided to this reviewer), there is no discussion of this issue in the plan, and no evidence presented during the exercise.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.G.4—A spokesperson is designated who should have access to all necessary information. Arrangements are established for timely exchange of information among designated spokespersons. Coordinated rumor control processes have been established.	NUREG 0654	2.G.4	Met	The plan assumes all rumors will be identified by the Joint News Center staff. The plan should also address rumor identification by plant staff or other Emergency officials (as actually occurred during the 9/24/02 exercise). Everyone in the ERO should be aware of the rumor control process.
II.G.5—Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	NUREG 0654	2.G.5	Met	This outreach was planned prior to the 9/24/02 exercise.
II.H.4—Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	NUREG 0654	2.H.1 2.H.2 2.E.1	Met	The plan calls for the Technical Support Center (TSC), Operational Support Center (OSC), and Emergency Operations Facility (EOF) to be activated with minimum staff within 60 minutes following declaration of an Alert, Site Area Emergency (SAE), or General Emergency (GE). The estimated time of 60 minutes may be overly optimistic, given the potential for delays in reaching the site by necessary personnel during an event.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.H.5—Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1, as well as those to be used for conducting assessment. The equipment shall include:</p> <p>Geophysical phenomena monitors (met, hydrological, seismic, etc.)</p> <p>Radiological monitors</p> <p>Process monitors</p> <p>Fire and combustion products detectors</p>	NUREG 0654	2.H.6 2.H.9	Not Met	Hydrological monitoring equipment is not discussed in this section of the plan.
<p>II.H.6—Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:</p> <p>Geophysical phenomena monitors</p> <p>Radiological monitors</p> <p>Laboratory facilities, fixed or mobile</p>	NUREG 0654	2.H.7	Met	Additionally, the plan should list consultants available for seismic monitoring backup support.
<p>II.H.9—Each licensee shall provide for an onsite Operations Support Center, which shall have adequate capacity and supplies.</p>	NUREG 0654	2.H.1	Not Met	There is no discussion in the plan regarding the capacity or necessary supplies for the Operations Support Center. Details may be discussed in the Implementing Procedures, but these were not available to the reviewer, so compliance could not be verified.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.H.11—Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies.</p>	<p>NUREG 0654</p>	<p>Table H-1</p>	<p>Met</p>	<p>The level of information provided in the plan concerning this issue fulfills the regulation, but would be of questionable use during an event. The plan does note that more detailed information is provided in the Implementing Procedures. Clarification should be sought concerning the Nuclear Regulatory Commission/FEMA intent underlying this requirement to determine the appropriate amount of detail that should be included in the plan.</p>
<p>II.H.12—Each organization shall establish a central point (preferably associated with the licensee's near-site EOF), for the receipt and analysis of all field monitoring data and coordination of sample media</p>	<p>NUREG 0654</p>	<p>2.H.12</p>	<p>Not Met</p>	<p>This section does not state where the central point is located at Indian Point, though it is believed to be near the EOF.</p>
<p>II.I.6—Each licensee shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable.</p>	<p>NUREG 0654</p>	<p>2.I.6</p>	<p>Met</p>	<p>A methodology is stated in the plan. No details are provided in this section, although the topic is covered in the dose assessment Implementing Procedures.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.1.7—Each organization shall describe the capability and resources for field monitoring within the plume exposure emergency planning zone which are an intrinsic part of the concept of operations for the facility.</p>	<p>NUREG 0654</p>	<p>2.1.7</p>	<p>Met</p>	<p>The description provided in this section is minimal. The following information would also be useful in this section:</p> <ul style="list-style-type: none"> • The number of field teams that can be dispatched from Indian Point if needed • A map of Reuter Stokes Monitor locations • A map of Thermoluminescent Dosimeter (TLD) locations • A map of Air Sampler locations
<p>II.1.8—Each organization, where appropriate, shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times.</p>	<p>NUREG 0654</p>	<p>2.1.8</p>	<p>Not Met</p>	<p>Out of the required list, only the notification means and estimated deployment times are not discussed in the plan. Details may be discussed in the Implementing Procedures, but could not be verified.</p>
<p>II.1.9—Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure emergency planning zone as low as 10^{-7} uCi/cc under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable capability.</p>	<p>NUREG 0654</p>	<p>2.1.9</p>	<p>Met</p>	<p>The required capability is stated in the plan, but no detailed information is provided regarding how this detection/ measurement is to be accomplished. The plan states that further details appear in the Implementing Procedures.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.I.10—Each organization shall establish means for relating the various measured parameters (contamination and activity levels, etc.) to dose rates for key isotopes (Table 3, pg. 18) and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.</p>	NUREG 0654	2.I.10	Met	Dose assessment procedures are being assessed in a different part of this review.
<p>II.J.1—Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including:</p> <p>Employees not having emergency assignments</p> <p>Visitors</p> <p>Contractor and construction personnel, and</p> <p>Other persons who may be in the public access areas on or passing through the site or within the owner controlled area</p>	NUREG 0654	2.J.1	Not Met	This section does not discuss the time required for warning. Also, the requirement for the Security Force to notify individuals within the Owner Controlled Area or passing through public access areas is not specified. Details may be discussed in the Implementing Procedures, but could not be verified.
<p>II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.</p>	NUREG 0654	2.J.2	Met	This issue is discussed briefly in the plan sufficient to meet the requirement; the plan states that further details are provided in the Implementing Procedures.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.J.7—Each licensee shall establish a mechanism for recommending protective actions to the appropriate State and Local authorities. These shall include Emergency Action Levels corresponding to projected dose to the population at risk... Prompt notification shall be made directly to the offsite authorities responsible for implementing protective measures within the plume exposure pathway emergency planning zone.</p>	NUREG 0654	2.J.7	Met	<p>Protective action recommendations for the plume exposure pathway are based on EPA Protective Action Guides discussed in EPA-400-R-92-001. The plant procedure for making protective action recommendations only factors in meteorological conditions, not road conditions or other similar factors. The process defaults to evacuation protective action recommendations downwind. Counties are expected to be aware of that fact in making protective action decisions (protective action decisions).</p>
<p>II.J.8—Each licensee’s plan shall contain time estimates for evacuation within the plume exposure emergency planning zone. These shall be in accordance with Appendix 4.</p>	NUREG 0654	2.J.8	Met	<p>Note: The evacuation time estimate update is expected to be completed by KLD in late December 2002.</p>
<p>II.J.10—The organization’s plans to implement protective measures for the plume exposure pathway shall include:</p> <p>Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas</p> <p>Maps showing population distribution around the nuclear facility. This shall also be by evacuation areas (licensees shall also present the information in a sector format)</p> <p>Means for notifying all segments of the transient and resident population</p>	NUREG 0654	2.J.10	Not Met	<p>The required maps are not in the Indian Point emergency plan. The maps do exist elsewhere and some of the data required to be displayed on them appears in the plan; however, no graphic representation (map) is included.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.J.10.m—Bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded in residential units or other shelter for direct and inhalation exposure, as well as evacuation time estimates.</p>	NUREG 0654	2.J.10.m	Met	<p>This requirement was met, but without the proper emphasis. It appears that the plant never issues a sheltering protective action recommendation. If the State would make a sheltering protective action recommendation under certain conditions, it might be advisable to document those conditions and ensure that the plant's protective action recommendations are in line with them.</p>
<p>II.K.1—Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides (EPA 400-R-92-001) for: removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services.</p>	NUREG 0654	2.K.1	Met	<p>It would be helpful to specify where the bulleted activities fall into the table of more general activities provided in the plan.</p>
<p>II.K.2—Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize emergency workers to receive doses in excess of 10CFR20 limits. Procedures should be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities. These procedures shall include expeditious decision making and a reasonable consideration of the relative risks.</p>	NUREG 0654	2.K.1 2.K.2	Met	<p>The plan discusses this issue in sufficient detail to satisfy the regulation, and refers to the Implementing Procedures for more information. However, the content of the procedures was not available to the reviewer and could not be evaluated.</p>
<p>II.K.5—Each organization, as appropriate, shall specify action levels for determining the need for decontamination. Shall also establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.</p>	NUREG 0654	2.K.5	Not Met	<p>The action levels for determining the need for decontamination are not specified in the plan.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.K.7—Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of decontamination expected, with particular attention given to radioiodine contamination of the skin.	NUREG 0654	2.K.7	Met	The plan discusses this issue in sufficient detail to satisfy the regulation; it is assumed that more specific information appears in the Implementing Procedures, but this could not be verified. Also, because decontamination is routinely performed in nuclear plants for radiation workers, it is assumed that the plant has established protocols for decontamination.
II.L.1—Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	NUREG 0654	2.L.1	Met	The plan cites available resources and states that written agreements have been executed and are included in the plan; however, copies of the agreements were not available to the reviewer (not required).
II.L.4—Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	NUREG 0654	2.L.3	Met	The plan cites available resources and states that written agreements have been executed and are included in the plan; however, copies of the agreements were not available to the reviewer (not required).
II.M.3—Each licensee and State plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur	NUREG 0654	2.M.3	Not Met	The plan states that members of the response organizations are informed, but the means for accomplishing this notification are not specified.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.N.1.b—An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00PM and midnight, and another between midnight and 6:00AM once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.</p>	NUREG 0654	2.N.1.b	Not Met	<p>One exercise every 6 years is conducted between 6 PM and 4 AM. An unannounced drill/exercise is included in the 6 year plan. There is no mention in the plan of conducting exercises under various weather conditions.</p>
<p>II.N.2.a—<u>Communication Drills</u>. Communications with State/Local governments within the plume exposure pathway emergency planning zone shall be tested monthly. Communications with Federal ER organizations and States within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, state, and local EOC's and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.</p>	NUREG 0654	2.N.2.a	Not Met	<p>There is no mention in the plan of testing communication with other States in the 50-mile ingestion pathway.</p>
<p>II.N.2.b.—<u>Fire Drills</u>. Fire Drills shall be conducted in accordance with the plant technical specifications.</p>	NUREG 0654	2.N.2.b	Met	<p>It would be good to note the governing technical specifications and any applicable procedures if no information about the frequency of fire drills is provided in the plan.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.N.2.d—<u>Radiological Monitoring Drills</u>. Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media and provisions for communications and record keeping. The state drills need not be at each site. Where appropriate, local organizations shall participate.</p>	NUREG 0654	2.N.2.d	Not Met	There is no mention in the plan of local participation in annual drills.
<p>II.N.2.e(1)—Health Physics Drills. Health Physics drills shall be conducted semi-annually which involve response to and analysis of simulated elevated airborne and liquid samples and direct radiation measurements in the environment. The state drills need not be at each site.</p>	NUREG 0654	2.N.2.e	Not Met	The plan only states that water samples “may” be included.
<p>II.N.2.e(2)—Health Physics Drills. Analysis of in plant liquid samples with actual elevated radiation levels including use of the post-accident sampling system shall be included in Health Physics drills by licensees annually.</p>	NUREG 0654	2.N.2.e	Not Met	The plan only says water samples “may” be included.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.N.3—Each organization shall describe how exercises are to be carried out to allow free play for decision making and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by Nuclear Regulatory Commission and FEMA the scenarios for use in exercises and drills shall include but not be limited to the following:</p> <p>The basic objective of each drill and exercise and appropriate evaluations criteria;</p> <p>The date(s), time period, place(s) and participating organizations;</p> <p>The simulated events</p> <p>A time schedule of real and simulated initiating events;</p> <p>A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams and public information activities</p> <p>A description of the arrangements for and advance materials to be provided to official observers.</p>	NUREG 0654	2.N.3	Not Met	A description of how “free play” is implemented into exercises is not provided in the plan.
<p>II.O.3—Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.</p>	NUREG 0654	2.O.3	Not Met	No discussion of the first aid training provided or its equivalency to Red Cross training appears in the plan. Details may be provided in the Implementing Procedures but could not be verified.
<p>II.O.4.f—First aid and rescue personnel</p>	NUREG 0654	2.O.4.f	Not Met	Training for first aid and rescue personnel is not discussed in Section 2.O.3, which is referenced here.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.O.4.h—Medical support personnel.	NUREG 0654		Not Met	Training for medical support personnel is not discussed in the plan.
II.O.4.i—Licensee headquarters support personnel.	NUREG 0654		Not Met	Training for licensee headquarters support personnel is not discussed in the plan.
II.P.4—Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	NUREG 0654	2.P.4	Met	Agreements are supposed to be in the Appendix to the Plan, though they are not in the copy made available to the reviewer. It is assumed that they would be reviewed annually as required.
II.P.5—The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.	NUREG 0654	2.P.5	Met	The plan states that copies of the Indian Point plan and procedures are forwarded to the Nuclear Regulatory Commission and county and State agencies involved with the planning effort. While other federal agencies besides Nuclear Regulatory Commission do not have direct responsibility for implementing the Indian Point plan, perhaps consideration should be given to providing copies of the plan to other federal agencies and facilities that might be involved in a large-scale release. While a process may already be in place to accomplish this, it is not discussed here.
II.P.6—Each plan shall contain a detailed listing of supporting plans and their source.	NUREG 0654	2.P.6	Met	A list of the plans directly supporting the Indian Point plan is provided; however, it may be desirable to include the next tier of subordinate plans which support those listed here, since those next-tier plans indirectly support the Indian Point plan.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.P.9—Each licensee shall arrange for and conduct independent reviews of the Emergency preparedness program at least every 12 months. The review shall include the emergency plan, its implementing procedures and practices, training readiness testing, equipment and interfaces with State and local governments. Management controls shall be implemented for evaluation and corrections of review findings. The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involve Federal, State and local organizations and be retained for a period of five years.</p>	<p>NUREG 0654</p>	<p>2.P.9</p>	<p>Met</p>	<p>The audit approach, using the IP Nuclear Quality Assurance organization, meets the letter of the requirement. However, the intent of this review is directed at improvement of the emergency response system. Therefore, it would be advisable to use reviewers outside of the IP organization with emergency management and planning expertise to maximize potential benefits. Such expertise could be obtained from other Entergy-owned plants, from other utility companies, or from outside consultants. IP brought in a consultant with this expertise to observe their 9/5/02 practice exercise.</p>
<p>Potential Exposure pathways, populations at risk and projected doses.</p>	<p>EPA 400 1.4 (1-6)</p>		<p>Not Met</p>	<p>There did not appear to be any mention of projected doses from an event in the plan.</p>
<p>Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.</p>	<p>EPA 400 1.4 (1-7) Appendix C</p>		<p>Not Met</p>	<p>There did not appear to be any cost analysis discussion in the plan.</p>
<p>Exposure pathways identified and consistent.</p>	<p>EPA 400 2.4; 2.5</p>	<p>2.J.10.m</p>	<p>Met</p>	<p>These are also discussed in more detail in the Dose Assessment Procedures and Accident Assessment Section.</p>

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)		Met	During the observed exercise, this aspect was coordinated with the local/State authorities and made available on a timely basis. Offsite notifications are covered for the plant in 10 CFR Appendix E Part 50
Designation of an emergency planning zone for protective action for plume exposure.	EPA 400 5.2.2 (5-3)		Met	10 CFR Appendix E Part 50 applies to the plant portion of the requirements for the emergency planning zone.
Air sampling techniques/flow rates/ time in plume/ analysis information.	EPA 400 5.3	2.1	Met	The plan refers to the details which appropriately appear in the Implementing Procedures.
Documentation of sequence of events	EPA 400 7.1.3 (7-4)		Met	There appeared to be no requirement for this documentation in the plan. However, a process is discussed in the Implementing Procedures, and its implementation was observed throughout the exercise.
Recommendations for surface contamination limits.	EPA 400 7.6.3 7.6.1		Not Met	No mention of this issue was found in the plan.
Dispatching information for radiological monitoring teams.	10 CFR App. E Pt. 50	2.1	Met	Specific dispatching information is not included in the plan, but should appear in the Field Monitoring Implementing Procedures. The practice of providing this information was observed during both exercises.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Equipment used (can include diagrams and operational procedures)	10 CFR App. E Pt. 50	Table H-1	Met	The plan provides sufficient information to meet the requirement; however, additional detail regarding the equipment used might be beneficial in an event.
Licensees headquarters personnel who will be sent out in the event of an emergency should be identified.	10 CFR App. E Pt. 50	2.B.7	Not Met	The plan does not identify licensee headquarters personnel to be sent out in the event of an emergency.
Facilities and supplies at the site for decontamination	10 CFR App. E Pt. 50	2.L	Met	The only decontamination facility that appears to be mentioned in the plan is the Unit 3 first aid room. If other resources are available onsite, they should be mentioned.
Medical Supplies for first aid treatment on site	10 CFR App. E Pt. 50	2.L	Met	The requirement is met, but the plan contains little description of the first aid supplies on hand and no information about the quantities of such supplies. Details may be provided in the Implementing Procedures.

Compliance Review Matrix for the State of New York

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization	NUREG 0654	Sect. I-IV 1-2, 1-2, 1-3, 1-2	Met	This section discusses this information in great detail.
II.A.1.e—Provisions made for 24 hour staffing of communications links and 24 hour/day emergency response	NUREG 0654	Sect. III 3,22 Proc. B	Met	This section also references each respective county’s radiological emergency preparedness program protocol.
II.A.3— Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.	NUREG 0654	Appx. E 1	Not Met	The plan refers to Letters of Agreement provided in a separate appendix, as permitted by NUREG-0654. However, because the reviewer was not provided with a copy of the appendix, the content and currency of the LOAs could not be verified
II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.	NUREG 0654	Sect. III 3	Met	This capability is referred to as the Resource Continuity Organization in the plan.
II.E.2—Procedures have been established for alerting, notifying, and mobilizing emergency response personnel.	NUREG 0654	Proc B All Sect III 22,24 Proc. D	Met	These procedures are well established in the plan.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.E.7—Draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection (handkerchief over mouth, etc.) thyroid blocking, or evacuation.</p>	<p>NUREG 0654</p>	<p>Sect III 6,25 Proc C All Proc B All</p>	<p>Met</p>	<p>This section also refers to the site Joint News Center (JNC) procedures.</p>
<p>II.F.1—The communication plans for emergencies shall include all organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local and State response organizations. Such systems should be selected to be compatible with one another. (See NUREG-0654 for detailed requirements)</p>	<p>NUREG 0654</p>	<p>Sect III 5,20,22,24 App G 12-14 Proc. B All Sect III 5 Proc H</p>	<p>Met</p>	<p>This section also refers to the Nuclear Facility Operator (NFO) Site Emergency Plan.</p>
<p>II.G.1—Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> educational information on radiation contact for additional information protective measures special needs of the handicapped 	<p>NUREG 0654</p>	<p>Sect II 7 Proc C Att. 5 Proc C 1-3</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.G.2—The public information program shall provide the permanent and transient adult population within the plume exposure emergency planning zone an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway emergency planning zone, appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.</p>	<p>NUREG 0654</p>	<p>Proc C Proc E</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.</p>
<p>II.G.3.a—Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency.</p>	<p>NUREG 0654</p>	<p>Sect III 10 Proc C 1-3 Att 1</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. This section also refers to the Joint News Center (JNC) procedures.</p>
<p>II.G.4—A spokesperson is designated who should have access to all necessary information. Arrangements are established for timely exchange of information among designated spokespersons. Coordinated rumor control processes have been established.</p>	<p>NUREG 0654</p>	<p>Proc. C 1-3 Sect III 10</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.</p>
<p>II.H.3—Each organization shall establish an emergency operations center for use in directing and controlling response functions.</p>	<p>NUREG 0654</p>	<p>Proc. D Sect III 20</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.H.4—Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	NUREG 0654	Proc B,D, H Sect III 20	Met	The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.
II.H.7—Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.	NUREG 0654	App. G 8,9,14,15 Proc. M	Met	The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.
II.I.8—Each organization, where appropriate, shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times.	NUREG 0654	Assigned to respective counties.	Met	The State Plan assigns this requirement to the respective county radiological emergency preparedness program.
II.I.9—Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure emergency planning zone as low as 10^{-7} uCi/cc under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable capability.	NUREG 0654	Assigned to respective counties	Met	The State Plan assigns this requirement to the respective county radiological emergency preparedness program.
II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.	NUREG 0654	Sect III, 11	Met	The State plan contains sufficient detail to meet the requirement. The State plan also refers to the Nuclear Facility Operator (NFO) and County emergency plan on this issue.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.J.10—The organization’s plans to implement protective measures for the plume exposure pathway shall include:</p> <p>Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas</p> <p>Maps showing population distribution around the nuclear facility. This shall also be by evacuation areas (licensees shall also present the information in a sector format)</p> <p>Means for notifying all segments of the transient and resident population</p>	<p>NUREG 0654</p>	<p>Proc. B,C,E Sect III 6,7,10,11,25</p>	<p>Met</p>	<p>The State plan contains sufficient detail to meet the requirement. The State plan also refers heavily to the county radiological emergency preparedness program plan on this issue.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.J.10—Plans to implement protective measures for the 10-mile emergency planning zone shall include:</p> <p>Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement (State & Local only)</p> <p>Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the 10-mile emergency planning zone who may not be able to evacuate immediately</p> <p>Method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the pre-determined conditions under which such drugs may be used by offsite emergency workers</p> <p>Means of relocation</p> <p>Relocation centers in host areas which are at least 5 miles and preferably 10 miles beyond the boundaries of the plume exposure emergency planning zone (see J.12)</p> <p>Projected traffic capacities of evacuation routes under emergency conditions</p> <p>Control of access to evacuated areas and organization responsibilities for such control</p> <p>Identification and means for dealing with potential impediments to use of evacuation routes, and contingency measures</p> <p>Time estimates for evacuation of various sectors and distances based on a dynamic analysis for the plume exposure pathway emergency planning zone (See Appendix 4)</p>	<p>NUREG 0654</p>	<p>Proc. E 2 Sect III 34 Proc G 8 & Att. 7 Proc. G 8,9 Sect III 11,12 Sect III 14</p>	<p>Met</p>	<p>The State plan refers to the County radiological emergency preparedness program plans and respective site evacuation travel time estimates.</p>

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.J.12—Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure emergency planning zone arriving at relocation centers.	NUREG 0654	Sect III 12	Met	The State plan contains sufficient detail to meet the requirement. The State plan also refers to the county radiological emergency preparedness program plans on this issue.
II.L.4—Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	NUREG 0654	Sect III 13	Met	The State plan refers to the county radiological emergency preparedness program plans (EMS Section) on this issue.
Evacuation (urgent removal of persons/animals) and Sheltering (supplemented by bathing and changing of clothes) to protect the public from exposure to direct radiation and inhalation from airborne plume.	EPA 400 1-3 2.3.1 5.5.1 5.5.2 5.5.3 Appendix E	Assigned to respective counties	Met	The State Plan assigns this requirement to the respective county radiological emergency preparedness program.
Relocation and decontamination for protection against whole body dose (external exposure) due to deposited material and from inhalation of any resuspended radioactive particulate.	EPA 400 1.4 Appendix E	Sect III 11,12	Met	Note that relocation and evacuation are two distinct actions. The State plan also refers to the county radiological emergency preparedness plans.
All PAG's should be consistent for all of the population.	EPA 400 2.1 (2-2)	Sect I 4 Sect III 7,8,26-41 Sect IV 7,8	Not Met	All PAGs are consistent for all of the population except for prisons and prisoner considerations.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Mechanism for obtaining detailed content of the plume.	EPA 400 2.2 (2-4)	Assigned to respective counties	Met	The State plan assigns this requirement to the respective county radiological emergency preparedness program.
Guidance on dose limits cited in plan	EPA 400 2.5 (2-9)		Not met	The plans states that means will be provided, but does not tell exactly how and no dose limits were found.
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)	Sect I 4 Sect III 7,8,26-41 Sect IV 7,8	Met	Recommendations were coordinated with the local/State authorities and made available on a timely basis. Offsite notifications are covered for the plant in 10 CFR Appendix E Part 50. The State plan refers to the county radiological emergency preparedness program.
Designation of an emergency planning zone zone for protective action for plume exposure.	EPA 400 5.2.2 (5-3)	Assigned to respective counties	Met	The State plan assigns this requirement to the respective county radiological emergency preparedness program.
Establishment of Exposure Patterns using atmospheric transports and field teams including plume tracking.	EPA 400 5.2.2 (5-4)	Assigned to respective counties	Met	The State Plan assigns this requirement to the respective county radiological emergency preparedness program.
Air sampling techniques/flow rates/time in plume/analysis information.	EPA 400 5.3	Assigned to respective counties	Met	The State plan assigns this requirement to the respective county radiological emergency preparedness program.
Procedures for calculating dose conversion factors and derived response levels.	EPA 400 5.4; 5.6	Assigned to respective counties	Met	The State plan assigns this requirement to the respective county radiological emergency preparedness program.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Documentation of sequence of events.	EPA 400 7.1.3 (7-4)		Not Met	The State's methodology for event documentation is not specified in the plan.
Recommendations for surface contamination limits.	EPA 400 7.6.3 7.6.1	Assigned to respective counties	Met	The State plan assigns this requirement to the respective county radiological emergency preparedness program.
Dosemetric models, agricultural transport models, dietary intake, and other calculations relating to potential dose.	EPA 400 7.6.2 7.4 7.3 Appendix B	Sect III 9,26-33 Proc H Proc J Sect III 34-41 Proc K Proc L	Met	The State plan refers to the county radiological emergency preparedness program plans on this issue.
Disseminating information to the public.	10 CFR App. E Pt. 50	Proc C 1-3 Sect III 10	Met	The State plan refers to the county radiological emergency preparedness program plans on this issue.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Personnel monitoring.	10 CFR App. E Pt. 50		Not Met	<p>A description of personnel monitoring should appear in the local and State plans, but it is not specifically mentioned here. Although DOH may provide monitoring and staffing of monitoring centers, all monitoring devices and methods should be discussed in the State plan.</p> <p>The State plan refers to the NFO site emergency plans on this issue, as well as the County REPP plans.</p>

Compliance Review Matrix for Putnam County

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identification of Response Organizations	NUREG-0654	I.5; III.3; Figure III-1; Table III-3a; Table III-3b	Met	Tables III-3a and III-3b are an excellent display of primary and secondary responsibilities.
II.A.1.c—Organizational Interrelationships Block Diagram	NUREG-0654	Figure III-1; Procedures 1-4, 7-9; Appendix 2, 3; Procedures 5, 6, 10; Appendix 3	Met	Individual organizational block diagrams add good detail to the plan.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.	NUREG-0654	II.2.b; Appendix K	Not Met	The plan refers to Letters of Agreement provided in a separate appendix, as permitted by NUREG-0654. However, because the reviewer was not provided with a copy of the appendix, the content and currency of the LOAs could not be verified
II.C.1.c—Resources to Support Federal Response	NUREG-0654	I.5.b	Met	The County plan refers to the State REPP plan on this issue.
Potential Exposure Pathways, Populations at Risk, and Projected Dose	EPA 400: 1.4 (1-6)	Refers to State EOP; (Field Monitoring, etc.) I.4.b, III.2.f, III.3.n, Appx. M, Proc. 4, Sec. 4.0, 5.0, 6.0, Att. 4	Met	Capabilities for field monitoring and plume exposure in the emergency planning zone exist; however, information on the potential populations affected and the projected dose comes from the State EOC.

¹ Location of NUREG-0654 requirements is based on the *Putnam County Radiological Emergency Response Plan (Revised 04/02)* Appendix L (NUREG-0654 Cross Reference and Procedure Cross Reference).

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Incident Evaluation Presented to Authorities for Action	EPA 400: 1.4 (1-7)	I.4.b, III.2.f, III.3.n, Appx. M, Proc. 4, Sec. 4.0, 5.0, 6.0, Att. 4	Met	Again, this issue is presented to the State for evaluation and determination via field teams.
Estimate of Total Dose Received Prior to Relocation of Population	EPA 400: 2.1.3 (2-3)	Refers to State plan.	Met	Dose projections are provided via the State Radiological Health Agency located at the State EOC.
Exposure Pathways Identified and Consistent	EPA 400: 2.4; 2.5	Refers to State plan.	Met	The County plan refers to the State REPP plan and states "Not Applicable" ("N/A") in relation to tracking of the radioactive plume using State and/or Federal resources.
Procedures for Calculating Dose Conversion Factors and Derived Response Levels	EPA 400: 5.4; 5.6	Refers to State plan.	Met	The County plan refers to the State REPP plan for Health Physics dose calculations.
Dosemetric Models, Agricultural Transport Models, Dietary Intake and Other Calculations Relating to Potential Dose	EPA 400: 7.6.2, 7.4, 7.3, Appendix B	Refers to State plan.	Met	The County Plan refers to the State REPP plan for Health Physics dose calculations

Compliance Review Matrix for Rockland County

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.A.2—Functions and responsibilities for major elements in emergency response are specified for each organization and key individuals by title. Legal basis for such authorities is cited.</p>	<p>NUREG 0654</p>	<p>Section Part II</p>	<p>Not Met</p>	<p>The legal basis for the major authorities is not cited.</p>
<p>II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.</p>	<p>NUREG 0654</p>	<p>Appendix K</p>	<p>Not Met</p>	<p>Appendix K contains a list of the letters of agreement, which are kept under separate cover. While the County does have copies of the letters of agreement and provided them to the reviewer upon request, their maintenance under separate cover technically does not fulfill the requirement in NUREG-0654.</p>
<p>II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.</p>	<p>NUREG 0654</p>	<p>Part 2 OFES—4</p>	<p>Not Met</p>	<p>The plan makes no mention of 24-hour operational capability.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.C.1.c—Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654		Not Met	There did not appear to be any mention of resources available to support Federal response.
II.C.2—Provisions are made for licensee reps to go to offsite EOCs, and for off-site organizations to send reps to the licensees EOF.	NUREG 0654	III—3b	Not Met	The plan did not appear to contain information on providing representatives at the licensee's EOF.
II.F.3—Each organization shall conduct periodic testing of the entire emergency communications system (see evaluation criteria H.10, N.2.a, and Appendix 3)	NUREG 0654	III—12—13 Section (8)	Met	While the plan does not look at evaluation criteria, it does mention testing procedures.
II.H.10—Each organization shall make provisions to inspect, inventory, and operationally check emergency equipment/instruments at least once each calendar quarter and after each use.	NUREG 0654	II—2.A Appendix G	Not Met	The plan only mentions periodic updates for inspecting, inventorying, and checking equipment.
II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density, and specific radiological conditions.	NUREG 0654	Appendix D	Met	The plan includes detailed information for evacuating from Rockland County. The Indian Point plan should contain information about evacuation of onsite individuals.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.K.4—Each State and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (for emergency workers and lifesaving activities).</p>	<p>NUREG 0654</p>	<p>DOH 7 5.3.6</p>	<p>Met</p>	<p>The plan does establish such a decision chain, but it does not provide a very clear discussion of how it will work.</p>
<p>II.N.1.b—An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00PM and midnight, and another between midnight and 6:00AM once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.</p>	<p>NUREG 0654</p>	<p>Admin 3</p>	<p>Not Met</p>	<p>Rockland County calls for elements of the Plan and all preparedness organizations to be tested every 6 years rather than every 5 years as specified in the regulation.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.N.2.a—Communication Drills. Communications with State/Local governments within the plume exposure pathway emergency planning zone shall be tested monthly. Communications with Federal ER organizations and States within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, state and local EOC's and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.</p>	<p>NUREG 0654</p>	<p>Admin 3</p>	<p>Met</p>	<p>The requirement is met, but only minimal details are provided in the plan.</p>
<p>II.N.2.c—Medical Emergency Drills. A medical emergency drill involving a simulated contaminated individual, which contains provisions for participation by the local support services agencies shall be conducted annually. The offsite portions of the medical drill may be performed as part of the requires annual exercise.</p>	<p>NUREG 0654</p>	<p>Admin 3</p>	<p>Met</p>	<p>The requirement is met, but only minimal details are provided in the plan.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.N.2.d—Radiological Monitoring Drills. Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media and provisions for communications and record keeping. The state drills need not be at each site. Where appropriate, local organizations shall participate.	NUREG 0654	Admin 3	Met	The requirement is met, but only minimal details are provided in the plan.
II.P.10—Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.	NUREG 0654	Admin 7	Met	Time sensitivity for the updating of information is not mentioned.
Protective action for Milk Supply	EPA 400 1-3 & App D DHHS FDA Vol. 47, #205 FDA 82-8196		Not Met	Appendix H mentions milk as a method for taking KI, but there is no discussion of protection of the milk supply.
Relocation and decontamination for protection against whole body dose (external exposure) due to deposited material and from inhalation of any resuspended radioactive particulate.	EPA 400 1.4 Appendix E	DOH—2 5.5	Met	Note that relocation and evacuation are two distinct actions.
Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.	EPA 400 1.4 (1-7) Appendix C		Not Met	The plan does not appear to discuss data collection for cost analysis.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
All PAG's should be consistent for all of the population.	EPA 400 2.1 (2-2)	DOH—5 5.5	Not Met	The plan does not specify population.
Estimate of total doses received prior to relocation of population.	EPA 400 2.1.3 (2-3)	III—20 7.A	Met	The requirement is met, but the discussion is not very clear.

Compliance Review Matrix for Orange County

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization.	NUREG 0654	I.5, III.3 Figure III-1a, III-1b Table III-3a, III-3b	Met	Figures III-1a and III-1b are not titled in the report.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.	NUREG 0654	I.6 Appendix M	Not Met	The plan refers to Letters of Agreement provided in a separate appendix, as permitted by NUREG-0654. However, because the reviewer was not provided with a copy of the appendix, the content and currency of the LOAs could not be verified
II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.	NUREG 0654	II.2, III.2.b, III.3.a	Not Met	While the plan does treat the issue of 24-hour capability, no specific mention of planning for food resources appears in the sections.
II.C.1.c—Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654	I.5.b 1.6	Met	Section I.5 does not have a listing of the agencies. State responsibilities/agencies receive more complete treatment in Section I.6

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.E.5—System established for disseminating appropriate information from licensee to the public, including appropriate notification to the media, e.g., EAS.	NUREG 0654	I.4.e, II.2.d, III.2.d, III.2.e, III.2.h (4), III.2.h (7), III.3.j Procedure 1, Section 7 Procedure 2, Section 7	Met	Although mentioned in the County plan addressing the criteria, III.2.h (4), actually deals with the evacuation procedure and not with notification.
II.E.7—Draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and Local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection (handkerchief over mouth, etc.) thyroid blocking, or evacuation.	NUREG 0654	III.2.e (1) III.3.b, III.3.j Appendix B	Met	Appendix B provides the draft messages. Other sections of the plan dealing with this issue are mostly focused on notification procedure and agencies involved in the process.
II.F.1—The communication plans for emergencies shall include all organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local and State response organizations. Such systems should be selected to be compatible with one another. (See NUREG-0654 for detailed requirements).	NUREG 0654	III.2.c, III.2.b, III.3.b, III.3.e Appendix E Appendix L Figure III-1 Figure III-2 Table III-3a Table III-3b	Met	III.3.b deals with Alert & Notification, which is redundant here.
II.G.5—Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	NUREG 0654	II.2.f	Met	While this requirement is met, no mention is made of the frequency of this operation.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.	NUREG 0654		Not Met	The County plan notes that this requirement is N/A for the County. However, NUREG-0654 requires that licensee, state, and local plans will address this issue.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.J.10—The organization’s plans to implement protective measures for the plume exposure pathway shall include:</p> <p>Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas;</p> <p>Maps showing population distribution around the nuclear facility; This shall also be by evacuation areas (licensees shall also present the information in a sector format);</p> <p>Means for notifying all segments of the transient and resident population.</p>	<p>NUREG 0654</p> <p>C-44</p>	<p>Appendix R (inserted map)</p> <p>Procedure 5, Attachment 8</p> <p>Procedure 4, Attachment 5</p> <p>Appendix S</p> <p>Appendix F</p> <p>Appendix I</p> <p>Procedure 2, Attachment 5</p> <p>III.2.h, III.3.b, III.2.d, Procedure 1, Section 7.0</p> <p>Procedure 2, Section 7.0</p> <p>Procedure 4, Attachment 1</p> <p>Procedure 5, Attachment 1</p>	<p>Met</p>	<p>The Map in Procedure 2, Attachment 5 is difficult to read. Too many details are incorporated within the same map.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.K.4—Each state and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (for emergency workers and lifesaving activities).	NUREG 0654	III.2.g Procedure 3, Attachment 6	Met	III.2.g (1) specifically deals with emergency workers.
II.P.4—Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	NUREG 0654	II.2.a Procedure 11	Met	No specific required intervals/frequencies for updating the plan are mentioned.
Protective action for milk supply	EPA 400 1-3 & App D DHHS FDA Vol. 47, #205 FDA 82- 8196		Not Met	There is no mention of protective action for the milk supply. While some sections do talk about protective action for livestock, there is no discussion specific to milk supplies.
Relocation and decontamination for protection against whole body dose (external exposure) due to deposited material and from inhalation of any resuspended radioactive particulate.	EPA 400 1.4 Appendix E	Procedure 3, Attachment 7 Procedure 10, Attachment 8	Met	Note that relocation and evacuation are two distinct actions.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Restrictions on the use of contaminated food and water.	EPA 400 1-5 Ch.3, Appdx D DHHS FDA Vol. 47, #205 FDA 82- 8196	Procedure 3, Attachments 7, 8	Met	This issue has not been highlighted in the plan as a protective action against contamination.
Notification of Authorities. Identification of Principle agencies.	EPA 400 1.4; 5.2.1	I.5 II.2, III.2, III.3, Table III-3a Table III-3b Figure III-1a, III-1b Procedure 1	Met	
Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.	EPA 400 1.4 (1-7) Appendix C		Not Met	There is no discussion in the plan of this topic.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.</p>	<p>EPA 400 4.1 (4-1)</p>	<p>I.4.b, III.2.f. (1), III.3.n Appendix G Procedure 3, Attachments 2,8,9</p>	<p>Met</p>	<p>The County coordinated with the local/state authorities and made this information available on a timely basis.</p>

Compliance Review Matrix for Westchester County

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization.	NUREG 0654	1.E; I II.B Table III-1	Met	The plan provides few details on private sector organizations other than the licensee.
II.A.1.b—Concept of Operations and relationship to the total effort specified for all parties with an operational role.	NUREG 0654	Sec. III.B	Met	The plan calls for uncharacteristically heavy County involvement in dose/accident assessment.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of the letters and a signature page from the cooperating organizations.	NUREG 0654	App. B	Not Met	The plan refers to Letters of Agreement provided in a separate appendix, as permitted by NUREG-0654. However, because the reviewer was not provided with a copy of the appendix, the content and currency of the LOAs could not be verified.
II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.	NUREG 0654	II-B	Met	This requirement is met only marginally; the plan contains little discussion of capabilities for sustained operations.
II.C.1.c—Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654	I.B.2	Not Met	No specific section of the plan is dedicated to this information; instead, it is scattered throughout the plan.
II.C.4—Organizations have identified nuclear and other facilities, organizations, or individuals than can be relied upon to assist in an emergency. Appropriate letters of agreement have been established for this support.	NUREG 0654	App. B	Met	The letters of agreement are referred to in the plan and kept in a separate appendix that was not available to the reviewer.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.D.4—Procedures are in place for off-site agencies to take emergency actions consistent with those recommended by the licensee, taking into account local offsite conditions that exist at the time of the emergency.</p>	<p>NUREG 0654</p>	<p>Vol. 2</p>	<p>Met</p>	<p>Field monitoring and Joint Information Center (JIC) operations are discussed in separate documents which are not provided. Note: It might be helpful to include these details in the Implementing Procedures (Vol 2), rather than binding them separately.</p>
<p>II.E.1—Procedures are established which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and EAL scheme in Appendix 1. Procedures include means for verification of messages, though this does not need to be in the plan</p>	<p>NUREG 0654</p>	<p>III.E IP#1</p>	<p>Met</p>	<p>The plan is vague on who is notified when, but the Implementing Procedures are relatively clear on this point.</p>
<p>II.E.5—System established for disseminating appropriate information from licensee to the public, including appropriate notification to the media, e.g., EAS.</p>	<p>NUREG 0654</p>	<p>III.B.10 App. K</p>	<p>Met</p>	<p>The plan seems to imply that the Emergency Alert System (EAS) is activated from the Joint News Center (JNC) by the Public Information Officer (PIO); however, during the exercise the EAS was activated from the EOC.</p>
<p>II.E.7—Draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and Local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection (handkerchief over mouth, etc.) thyroid blocking, or evacuation.</p>	<p>NUREG 0654</p>	<p>App. F App. K</p>	<p>Not Met</p>	<p>Joint News Center (JNC) procedures are bound separately from the main plan and the reviewer was not provided a copy. While it is believed that this information appears in the JNC procedures, compliance could not be verified.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.G.1—Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> educational information on radiation contact for additional information protective measures special needs of the handicapped 	NUREG 0654	III.B.10 Ap.K.6	Met	The plan implies that the Emergency Alert System (EAS) is activated from the Joint Information Center (JIC) by the Public Information Officer (PIO); however, during the exercise the EAS was activated from the EOC.
<p>II.G.3.a—Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency.</p>	NUREG 0654	III.B.10 App. K	Not Met	Joint News Center (JNC) procedures are bound separately from the main plan and the reviewer was not provided a copy. While it is believed that this information appears in the JNC procedures, compliance could not be verified.
<p>II.G.4—A spokesperson is designated who should have access to all necessary information. Arrangements are established for timely exchange of information among designated spokespersons. Coordinated rumor control processes have been established.</p>	NUREG 0654	III. B. 10 App. K	Not Met	Joint News Center (JNC) procedures are bound separately from the main plan and the reviewer was not provided a copy. While it is believed that this information appears in the JNC procedures, compliance could not be verified.)
<p>II.H.3—Each organization shall establish an emergency operations center for use in directing and controlling response functions.</p>	NUREG 0654	III.B, C, E	Not Met	<p>Very little information is provided on EOC layout, setup, operations, or capabilities.</p> <p>An Alternate EOC is mentioned as well as the County Fire Academy, but no other information is provided.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.H.4—Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	NUREG 0654	III.E IP #1	Not Met	The referenced IP notification list is not provided, so this information cannot be determined.
II.H.12—Each organization shall establish a central point (preferably associated with the licensee’s near-site EOF), for the receipt and analysis of all field monitoring data and coordination of sample media.	NUREG 0654	III.F IP #3	Met	The plan is unclear, referring to to “Assessment Room” and the County EOC, as if each County and the State do their own independent dose assessments. The language in Implementing Procedure #3 is much clearer and should be considered for inclusion in the main plan document. Compliance was verified through practice during the exercise.
II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.	NUREG 0654		Not Met	The plan appears not to contain any specific reference for evacuation of Indian Point personnel.
II.J.9—Each State and local organization shall establish a capability for implementing protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure resulting from passage of radioactive airborne plumes, (EPA-520/1-75-001) and with those of DHEW (DHHS)/FDA regarding radioactive contamination of human food and animal feeds as published in the Federal Register of December 15, 1978 (43 FR 58790)	NUREG 0654	III.G IP #3	Met	The plan provides sparse information on this issue, but the Implementing Procedure provides good detail.
II.J.10—Plans to implement protective measures for the 10-mile emergency planning zone shall include: a. Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring	NUREG 0654	IP#3 IP #9 III.D	a-Met b-Met c-Met	d—Specific highway capacity is not documented. l—Current as of 1993; a new evacuation time estimate is under

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>points, relocation centers, and shelter areas</p> <p>b. Maps showing population distribution around the nuclear facility.</p> <p>c. Means for notifying all segments of the transient and resident population</p> <p>d. Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement (State & Local only)</p> <p>e. Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the 10-mile emergency planning zone who may not be able to evacuate immediately</p> <p>f. Method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the pre-determined conditions under which such drugs may be used by offsite emergency workers</p> <p>g. Means of relocation</p> <p>h. Relocation centers in host areas which are at least 5 miles and preferably 10 miles beyond the boundaries of the plume exposure emergency planning zone (see J.12)</p> <p>i. Projected traffic capacities of evacuation routes under emergency conditions</p> <p>j. Control of access to evacuated areas and organization responsibilities for such control</p> <p>k. Identification and means for dealing with potential impediments to use of evacuation routes, and contingency measures</p> <p>l. Time estimates for evacuation of various sectors and</p>		<p>IP #3</p> <p>App. A</p> <p>IP #3,4 , 5, 6</p> <p>IP #2, App. A</p> <p>IP #2</p> <p>IP #2, 5</p> <p>App. A</p> <p>App. F</p> <p>App. I</p>	<p>d—Met</p> <p>e—Met</p> <p>f—Met</p> <p>g—Met</p> <p>h—Met</p> <p>i—Not Met</p> <p>j—Met</p> <p>k—Met</p> <p>l—Met</p>	<p>development, but incomplete at the time of this review.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
distances based on a dynamic analysis for the plume exposure pathway emergency planning zone (See Appendix 4)				
II.J.12—Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure emergency planning zone arriving at relocation centers.	NUREG 0654	IP #6 IP #3 Att.11	Not Met	The plan provides no discussion concerning the capability for processing evacuees or the number of monitoring teams available.
II.L.1—Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	NUREG 0654	IP #10 Att. 6 Table 6-2	Met	Meets MS-1 requirements according to the plan.
II.O.4.h—Medical Support personnel	NUREG 0654	IP #13 4.1.5	Not Met	The plan provides information specific only to EMS. There is no mention of hospital training.
II.O.4.j—Personnel responsible for transmission of emergency information and instructions	NUREG 0654		Not Met	This issue is not mentioned specifically.
II.P.1—Each organization shall provide for the training of individual's responsible for the planning effort.	NUREG 0654		Not Met	This issue is not mentioned specifically.
II.P.7—Each plan shall contain as an appendix listing by title, procedures requires to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	NUREG 0654	Vol. 2 TOC	Not Met	Nowhere does the plan specify which Implementing Procedures refer to which sections of the plan.

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Evacuation (urgent removal of persons/animals) and Sheltering (supplemented by bathing and changing of clothes) to protect the public from exposure to direct radiation and inhalation from airborne plume	EPA 400 1-3 2.3.1 5.5.1 5.5.2 5.5.3 Appendix E	Sec. III.G App. A App. D IP #3	Met	Protective measures for plant consideration within each emergency planning zone are covered in 10 CFR Appendix E Part 50
Protective action for Milk Supply	EPA 400 1-3 & App D DHHS FDA Vol. 47, #205 FDA 82-8196	Sec. III, G-5 IP #3 5.4.2 6.4.2	Met	This is primarily a State Agriculture function.
Relocation and decontamination for protection against whole body dose (external exposure) due to deposited material and from inhalation of any resuspended radioactive particulate.	EPA 400 1.4 Appendix E	Decon— IP#3 Att. 11 Reloc—N/A	Not Met	Note that relocation and evacuation are two distinct actions. Relocation is primarily a function of the State, but the appropriate procedure/responsible agency should be referenced in the County plan.
Restrictions on the use of contaminated food and water	EPA 400 1-5 Ch.3,AppdxD DHHS FDA Vol. 47, #205 FDA 82-8196	III.G.5	Met	This is primarily a State responsibility.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
All PAG's should be consistent for all of the population.	EPA 400 2.1 (2-2)	III.F/G IP#3	Met	Note: The plan provides for different Early Warning protective action guidelines (EW PAG) for the special risk population of pregnant females in IP#3 Att. 8
Mechanism for obtaining detailed content of the plume.	EPA 400 2.2 (2-4)	N	Not Met	While this is not primarily a County role, there is not sufficient discussion of the issue in the plan.
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)	III.F & G IP#3	Met	These were coordinated with the local/state authorities and made available on a timely basis. Offsite notifications are covered for the plant in 10 CFR Appendix E Part 50
Air sampling techniques/flow rates/time in plume/analysis information.	EPA 400 5.3	IP #3 Att. 12	Not Met	This issue may be addressed in the separately bound field monitoring procedures manual; however, a copy was not provided to the reviewer, so compliance could not be verified.
Disseminating information to the public.	10 CFR App. E Pt. 50	III.B.10 App. F, App. K	Met	Separately bound procedures for the Joint Information Center (JIC) exist but were not provided for review.

Compliance Review Matrix for Millstone Facility

Note: Copies of the Appendices, Section 3, and the majority of Section 5 of the Millstone Plant Emergency Plan were not provided to the reviewer. Due to the lack of a Table of Contents, there was no way to infer the contents of Section 3. However, based on the limited pages from Section 5 that were provided, it appears that Section 5 spells out the roles and responsibilities of all positions within the Millstone Station Emergency Response Organization.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization.	NUREG 0654	1.2	Met	The only private sector organizations noted in the review copy of the plan are hospitals.
II.A.1.c—Interrelationships in response organization illustrated in a block diagram in the plan	NUREG 0654	Figure 1-1, Figure 1-2	Unknown	Figure 1-2 referenced in 1.3, but a copy was not provided to the reviewer.
II.A.1.d—Individual in charge of emergency response for each organization identified by title.	NUREG 0654	1, 5	Unknown	Organizations involved in response are noted in Section 1, but the individuals in charge of those organizations are not called out in the sections of the plan available for review. This information could be in Section 5, which was not provided to the reviewer.
II.A.1.e—Provisions made for 24 hour manning of communications links and 24 hour/day emergency response.	NUREG 0654	6.1	Met	Licensee has 24-hour manning in the control room. Use of radio-pager for notification implies 24-hour/day ability to receive notification offsite. However, no mention is made in the plan regarding off-site ability to respond on a 24-hour/day basis.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan.	NUREG 0654	Various	Not Met	The plan notes that arrangements have been made with several organizations,

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
includes descriptions of these matters.				e.g. Haddam Neck Plant (backup decontamination), local community ambulance services (medical transportation), Middlesex Hospital and Lawrence and Memorial Hospital (Medical Treatment). However, there is little detail of the arrangements and no copies of written agreements in the copy of the plan provided for review. Also, note that Haddam Neck Plant ceased operations in December 1996. While it may retain capability to provide backup support to Millstone, if such capability has not been recently verified and agreements to do so have not been recently reviewed, this should be done.
II.A.4—24-hour operational capability for a protracted period has been planned for (personnel, food, supplies, etc.) and person responsible for assuring continuity of resources (technical, admin., material) is specified by title.	NUREG 0654	7, 5.2.17	Not Met	Manager of Resources (MOR) is designated person responsible for continuity of resources. However, the reviewer did not find mention in the plan of planning for a 24-hour operational capability. This may be in procedures for individual facilities, but could not be verified.
II.B.2—Emergency Coordinator designated for all shifts who has authority and responsibility to initiate emergency actions, including providing PARs.	NUREG 0654	Section 5	Unknown	Not evaluated. The position is implied in the plan, but most of Section 5 was not available for review.
II.B.3—Line of succession established for Emergency Coordinator position. Specific conditions established for higher-level utility officials to assume this function.	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.B.4—Functional responsibilities assigned to the Emergency Coordinator are specified. Those that cannot be delegated are	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
specified. Decision to notify and recommend PARs to off-site agencies cannot be delegated.				
II.B.5—Positions in ERO and major tasks to be performed are specified for functional areas of emergency activity	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.B.6—Interfaces between on-site functional areas, licensee HQ, local services support, and State and Local government response organization are specified, including a block diagram.	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.B.7—Corporate support personnel augmenting plant staff shall be specified for logistics support, technical support for planning and reentry/recovery, mgmt. interface with government authorities, and release of information to news media.	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.B.8—Contractor and private organizations who may be requested to provide technical assistance and augmentation of the emergency organization are specified.	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.B.9—Services to be provided by local agencies for handling emergencies, e.g., police, ambulance, fire-fighting, medical, hospital, are specified. Transport and treatment of contaminated injured personnel is provided for. Copies of arrangements and agreements between licensee and others are appended to the plan.	NUREG 0654	Various	Unknown	Local police, ambulance, fire-fighting, medical, and hospital agencies are noted in various parts of the plan as having roles. In some cases the specific agencies are not specified by name. The plan states that copies of agreements are available in Appendix B, which was not provided to the reviewer.
II.C.1 a—Person authorized to request Federal assistance is specified by title	NUREG 0654	Section 5	Unknown	Not evaluated. Most of Section 5 was not available for review. Section 1.4 notes that Director of Connecticut OEM is authorized to request this assistance. It is not apparent whether anyone in the Station Emergency Response Organization (SERO) is authorized to

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				do so.
II.C.1.b - Specific Federal resource needs expected and anticipated arrival time for them are specified.	NUREG 0654		Not Met	No discussion or reference appeared in the portions of the plan provided to the reviewer.
II.C.1.c - Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654		Not Met	No discussion or reference appeared in the portions of the plan provided to the reviewer.
II.C.2—Provisions are made for licensee reps to go to offsite EOCs, and for off-site organizations to send reps to the licensees EOF.	NUREG 0654	6.1	Met	The licensee sends representatives to the State Emergency Operations Center (EOC). The Connecticut Department of Environmental Protection (DEP), NRC, and the Town of Waterford send representatives to the Emergency Operations Facility. The plan makes no mention of the licensee sending representatives to local EOCs in New York, Connecticut, or to the New York State EOC.
II.C.3—Radiological labs, their capabilities, and expected availability to provide radiological monitoring and analysis services in an emergency are specified.	NUREG 0654	7.10, Appendix H	Unknown	The plan notes that off-site monitoring instruments and laboratory facilities are available 24 hours a day and are listed in Appendix H. Appendix H was not available in the copy of the plan provided for review.
II.C.4—Organizations have identified nuclear and other facilities, organizations, or individuals than can be relied upon to assist in an emergency. Appropriate letters of agreement have been established for this support.	NUREG 0654	6.2.4.i, 6.5.3	Not Met	The referenced sections discuss assistance from Haddam Neck Plant for monitoring and decontamination if needed. No mention is made regarding a letter of agreement. No other facilities, organizations, or individuals are discussed in the copy of the plan

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				provided for review. It is unknown if these issues have been revisited in light of the 1996 shut down of the Haddam Neck Plant.
II.D.1—An emergency classification and emergency action level scheme has been established. The plan identifies parameter values and equipment status for each emergency class.	NUREG 0654	4	Unknown	Section 4 of plan notes that example Emergency action level (EAL) tables are provided in Appendix I, which was not available for review. It also notes that complete EAL tables are in procedure MP-26-EPI-FAP06 rather than in the plan. Millstone Unit 2 and Unit 3 EAL tables were not included in the copy of this procedure provided for review.
II.D.2—The initiating conditions for emergency classification and emergency action levels (EALs) include the example conditions in Appendix 1 and all postulated accidents in the FSAR for the nuclear facility	NUREG 0654	Appendix I	Unknown	Not evaluated. Appendix I was not available in the copy of the plan provided for review.
II.E.1—Procedures are established which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and EAL scheme in Appendix 1. Procedures include means for verification of messages, though this does not need to be in the plan	NUREG 0654	4, 6.1	Met	No mention is made whether the electronic transmission of notification information provided via the Emergency Response Notification System (ERNS) is followed up by an electronic transmission of written information either by fax or Internet. Licensee should consider this.
II.E.3—Contents of initial emergency messages to be sent from the plant have been established with State and Local organizations. It shall include information about: Class of emergency Whether a release is taking place	NUREG 0654	6.1	Not Met	The plan does not specify that information regarding potentially affected populations/areas is transmitted via the Emergency Response Notification System (ERNS). The Nuclear Incident Report Form (MP-

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>Potentially affect population/areas</p> <p>Whether protective measures may be necessary</p>				<p>26-EPI-FAP07-001) includes information on the class of emergency and whether a release is taking place. It does not include information on potentially affected populations (by zone or otherwise) or whether protective measures may be necessary. It does include wind direction information.</p>
<p>II.E.4—Each licensee shall make provisions for followup messages from the facility to offsite authorities which shall contain the following information if it is known or appropriate:</p> <p>Location of incident and name and telephone number of caller</p> <p>Date/time of incident</p> <p>Class of emergency</p> <p>Type of release, expected duration</p> <p>Estimated quantity of radioactive material released, points, height of release</p> <p>Chemical and physical form of released material, including relative quantities and concentration of noble gases, particulates, and iodines.</p> <p>Met conditions at appropriate levels</p> <p>Dose rates and integrated dose projection at site boundary</p> <p>Projected dose rates and integrated dose at the projected peak and at 2, 5, and 10 miles, including sectors affected.</p> <p>Estimate of any surface radioactive contamination inplant, onsite, or offsite.</p> <p>Licensee emergency response actions underway.</p> <p>Recommended emergency actions, including protective actions</p>	<p>NUREG 0654</p>	<p>6.1</p>	<p>Not Met</p>	<p>The plan does not specify the content of follow-up messages to the appropriate level of detail described here. The Nuclear Incident Report Form (MP-26-EPI-FAP07-001) includes information on the following items:</p> <p>Location of incident and name and telephone number of caller</p> <p>Date/time of incident</p> <p>Class of emergency</p> <p>Met conditions at appropriate levels</p> <p>Request for any needed onsite support by offsite organizations</p> <p>Prognosis for worsening or termination of event based on plant information.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Request for any needed onsite support by offsite organizations Prognosis for worsening or termination of event based on plant information.				
II.E.6—Each organization has established a system for public warning within the 10-mile EPZ. Licensee is responsible for demonstrating that means exist for doing so. State and Local governments are responsible for activating such a system	NUREG 0654	1.5	Met	The plan notes that the Emergency Alert System (EAS) and sirens are used for public warning and that the State Radiological Emergency Response Plan (RERP) contains procedures for providing prompt notification and information to the public. The plan does not provide information regarding which agency or agencies can activate public warning systems for Fishers Island and Plum Island.
II.E.7—Draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and Local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection (handkerchief over mouth, etc.) thyroid blocking, or evacuation.	NUREG 0654	6.6, 1.5, 6.1	Not Met	The plan does not include a discussion of the preparation or content of draft messages to facilitate instructions to the public during an event.
II.F.1—The communication plans for emergencies shall include all organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local and State response organizations. Such systems should be selected to be compatible with one another. (See NUREG-0654 for detailed requirements)	NUREG 0654	7.9	Not Met	The Emergency Response Notification System (ERNS) is the primary means of communicating with Fishers Island and commercial telephone is the secondary means. Commercial telephone lines are commonly considered to be an unreliable means of communication during a large-scale emergency. Figure 7-1c does not seem to indicate a dedicated phone line or radio linkage to either the New York State Emergency Management Office or to Fishers Island.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.F.2—Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.</p>	<p>NUREG 0654</p>	<p>6.5.5, 6.5.6, 7.9</p>	<p>Met</p>	<p>Communications with hospitals will be via commercial telephone lines. Ambulances can be requested via dedicated or commercial telephone lines. Ambulances can communicate with hospitals via radio.</p>
<p>II.G.1—Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> educational information on radiation, contact for additional information, protective measures, special needs of the handicapped. 	<p>NUREG 0654</p>	<p>8.4</p>	<p>Met</p>	<p>Annual dissemination is via the primary telephone directory serving each emergency planning zone community according to the plan.</p>
<p>II.G.2—The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ, appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.</p>	<p>NUREG 0654</p>	<p>8.4</p>	<p>Met</p>	<p>The plan says that telephone directories containing emergency information are available to transient populations within the emergency planning zone. The plan also notes that the State of Connecticut Office of Emergency Management is provided with information for posting or distribution, as appropriate, at selected public areas within the emergency planning zone. The requirement appears to be met. More information on the number and location of signs posted would be helpful in assessing the availability of information to transient populations. Likewise, an effort to distribute information to regular transient populations should be</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				considered.
II.G.3.b—Each licensee shall provide space which may be used for a limited number of the news media at the nearsite EOF.	NUREG 0654	7.7	Met	The plan says that while State and licensee plans do not include use of the Station Emergency Operations Facility for a media center, limited space is available for media briefings or conferences at the facility.
II.G.4—A spokesperson is designated who should have access to all necessary information. Arrangements are established for timely exchange of information among designated spokespersons. Coordinated rumor control processes have been established.	NUREG 0654	6.1, 6.6	Not Met	The Executive Spokesperson (ES) is the designated licensee spokesperson. Information exchange is coordinated with the Nuclear News Manager (NMM). A Rumor Control Liaison (RCL) position is discussed, but no mention is made in the plan of established rumor control processes, although the issue is discussed in the State plan.
II.H.4—Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	NUREG 0654	5, 7	Unknown	Not evaluated. Detailed information regarding the activation and staffing of the facilities could not be located in the copy of the plan provided for review.
II.H.5—Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1, as well as those to be used for conducting assessment. The equipment shall include: Geophysical phenomena monitors (met, hydrological, seismic, etc.) Radiological monitors. Process monitors. Fire and combustion products detectors.	NUREG 0654	6.2.3.a, 6.2.4.i	Unknown	Other Nuclear Regulatory Commission regulations require the licensee to have the equipment listed in order to operate, so it certainly is installed. However, the plan does not specifically discuss these monitors and their use in initiating emergency measures. They are likely discussed in the emergency action level (EAL) procedure (MP-26-EPI-FAP06) if not in the sample EALs the plan references as being in Appendix I. Appendix I and the EAL attachments to

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				EPI-FAP06 were not included in the copy provided for review.
<p>II.H.6—Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:</p> <p>Geophysical phenomena monitors</p> <p>Radiological monitors</p> <p>Laboratory facilities, fixed or mobile.</p>	NUREG 0654	7.10, 7.13	Not Met	The plan notes that off-site monitoring instruments and laboratory facilities are available. It also notes that meteorological data can be obtained from an assisting weather service organization if needed. This requirement may be met; however, it is not possible to say for certain based on the information provided in the plan.
<p>II.H.7—Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.</p>	NUREG 0654	6, 7.10	Not Met	No discussion appears in the appropriate sections of the plan regarding whether the licensee has installed off-site radiological monitoring equipment in the vicinity of the nuclear facility.
<p>II.H.11—Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies.</p>	NUREG 0654	7.4.5, 7.5, Appendix E	Unknown	Not Evaluated. Appendix E was not included in the copy of plan available for review.
<p>II.H.12—Each organization shall establish a central point (preferably associated with the licensee’s near-site EOF), for the receipt and analysis of all field monitoring data and coordination of sample media.</p>	NUREG 0654	7.2.1, 7.10	Met	The Emergency Operations Facility is the central point for coordination of radiological and environmental assessments.
<p>II.I.1—Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accident, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1. Such parameter values and the corresponding emergency class shall be included in the</p>	NUREG 0654	4	Unknown	Not Evaluated. The attachments to Procedure MP-26-EPI-FAP06, “Classification and PARs” containing the emergency action level tables were not available in the copy of the procedure provided for review.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
appropriate facility emergency procedures. Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.				
II.I.5—Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2. There shall be provisions for access to meteorological information by at least the nearsite EOF, the TSC, the Control Room and an offsite NRC center. The licensee shall make available to the State suitable meteorological data processing interconnections which will permit independent analysis by the State, of facility generated data in those States with the resources to effectively use this information.	NUREG 0654	7.13	Not Met	Meteorological data is continuously available in the Unit 2 and Unit 3 Control Rooms as well as in shelters at the base of the two towers. There is no discussion regarding access to meteorological data by other licensee facilities or via interconnections to the State of New York or Connecticut.
II.J.1—Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including: Employees not having emergency assignments, Visitors, Contractor and construction personnel, and Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.	NUREG 0654	6.1, 6.4.1.a	Not Met	The plan notes that radiation alarms, public address system, pager system, and the station emergency alarm are used for notification. The plan does not discuss the time required to warn all on-site personnel by one or more of these means.
II.J.2—Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density, and specific radiological conditions.	NUREG 0654	6.4.1.d	Not Met	Evacuation of on site individuals is discussed in the plan. No specific discussion is provided regarding evacuation routes or alternatives for various adverse conditions. There is a discussion regarding the use of sheltering in place if the hazard will be short-lived or if the safety of the evacuation population would be threatened. Procedure MP-26-EPI-FAP06 states “Station personnel do not

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				typically have the necessary information to determine whether offsite conditions would require sheltering instead of evacuation. Therefore, an effort to base [public action recommendations (PARs)] on external factors (such as road conditions, traffic/traffic control, weather, or offsite emergency worker response) should not be attempted.” This is information that licensee personnel should maintain an awareness of in coordination with offsite organizations.
II.J.5—Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter.	NUREG 0654	6.4.1.h	Not Met	The plan notes that accountability is required to be completed within 45 minutes of its initiation, rather than the 30 minutes required. There is no discussion in the plan regarding maintenance of accountability after the initial assessment.
II.J.8—Each licensee’s plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with Appendix 4.	NUREG 0654		Unknown	Not evaluated. No mention of evacuation time estimates (ETEs) appears in the copy of the plan provided for review. However, MP-26-EPI-FAP06 (“Classification and PARs”) which was provided for review does not indicate the use of ETEs by the licensee in making protective action recommendations
II.J.10—The organization’s plans to implement protective measures for the plume exposure pathway shall include: Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in	NUREG 0654	6.1	Not Met	Except for the means of notifying the resident population, the copy of the plan provided for review does not contain this level of information. It may be

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>host areas, and shelter areas</p> <p>Maps showing population distribution around the nuclear facility. This shall also be by evacuation areas (licensees shall also present the information in a sector format)</p> <p>Means for notifying all segments of the transient and resident population</p>				<p>provided in parts of the plan unavailable in the review copy or in plant procedures. However, this information is not included in the copy of MP-26-EPI-FAP06, "Classification and PARs" that was provided for review.</p>
<p>II.J.10.m—Bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded in residential units or other shelter for direct and inhalation exposure, as well as evacuation time estimates.</p>	<p>NUREG 0654</p>	<p>6.2.2</p>	<p>Not Met</p>	<p>The bases for choosing protective action recommendations (PARs), expected local protection afforded by sheltering, and evacuation time estimates are not provided in the plan. Additionally the copy of MP-26-EPI-FAP06, "Classification and PARs" provided for review does not contain this information.</p>
<p>II.K.1—Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides (EPA 400) for:</p> <p>Removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, providing medical treatment services.</p>	<p>NUREG 0654</p>	<p>6.5.1</p>	<p>Met</p>	<p>Table 6-1 provides guidelines for the general categories of:</p> <p>Annual Part 20</p> <p>Mission to protect valuable property</p> <p>Mission to save a life or prevent/mitigate a severe accident</p> <p>Voluntary mission to save a life or prevent/mitigate a severe accident.</p> <p>While it is reasonably apparent how these match the requirement, additional detail might be considered.</p>
<p>II.K.2—Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize</p>	<p>NUREG 0654</p>	<p>6.4.4, 6.5.1</p>	<p>Not Met</p>	<p>An onsite radiation protection program has been established for normal and emergency operations. The plan does not identify the individual(s) who can</p>

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>emergency workers to receive doses in excess of 10CFR20 limits. Procedures should be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities. These procedures shall include expeditious decision making and a reasonable consideration of the relative risks.</p>				<p>authorize workers to receive doses in excess of 10CFR20 limits. There is no discussion of procedures having been worked out in advance for on-site volunteers to receive radiation exposures, though the plan does mention that risks and consequences of potential exposure and injury will be weighed against the probability of success and the benefits to be gained from such actions.</p>
<p>II.K.3.a—Each organization shall make provision for 24 hour/day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.</p>	<p>NUREG 0654</p>	<p>6.4.4</p>	<p>Met</p>	<p>Health Physics coverage is provided 24 hours per day during normal operations and emergencies.</p>
<p>II.K.5—Each organization, as appropriate, shall specify action levels for determining the need for decontamination. Shall also establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.</p>	<p>NUREG 0654</p>	<p>6.4.1.i, 6.4.2, 6.5.3</p>	<p>Not Met</p>	<p>The plan does not specify action levels for determining the need for decontamination, e.g. surface concentration/activity. It is possible that this information is contained in the radiation protection procedures.</p>
<p>II.K.6—Each licensee shall provide onsite contamination control measures including: area access control drinking water and food supplies criteria for permitting return of areas and items to normal use (see Draft ANSI 13.12.)</p>	<p>NUREG 0654</p>	<p>6.4.3</p>	<p>Not Met</p>	<p>The plan does not specify criteria for permitting the return of areas and items to normal use. It is possible this information is contained in the normal radiation protection procedures</p>
<p>II.K.7—Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of</p>	<p>NUREG 0654</p>	<p>6.4.1.i, 6.5.3</p>	<p>Unknown</p>	<p>The plan discusses available on site decontamination facilities. It notes that a shower with a holding tank and supplies</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
decontamination expected, with particular attention given to radioiodine contamination of the skin.				for personnel decontamination are provided in the Emergency Operations Facility. The plan does not specify the types of decontaminants available or whether extra clothing is included in the supplies. This information may be in Appendix E, which was not provided in the copy of the plan available for review.
II.L.1—Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	NUREG 0654	6.5.6	Met	Arrangements have been made with two hospitals. The plan does not specifically discuss the hospitals' capability to evaluate radiation exposure and uptake, though this would be a normal hospital lab capability. Training is provided on treating contaminated patients.
II.L.4—Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	NUREG 0654	6.5.5	Met	The licensee should consider listing local ambulance services that have received proper training from the licensee within the plan.
II.M.1—Each organization, as appropriate, shall develop general plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures (e.g., allow reentry into an evacuated area) are reached. This process should consider both existing and potential conditions.	NUREG 0654	9	Not Met	The plan only describes when the recovery phase is entered and provides a general description of the recovery organization.
II.M.3—Each licensee and State plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur	NUREG 0654	6.1, 9	Not Met	Though this is likely done as part of the process of providing follow-up messages to off site officials, it is not specifically discussed in the plan.
II.M.4—Each plan shall establish a method of periodically	NUREG	6.2.3, 6.2.4	Met	Methods clearly exist for estimating total

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
estimating total population exposure.	0654			population exposure. Licensee and off-site agencies (including New York jurisdictions) should have a pre-existing agreement on the frequency with which these estimates will be periodically revisited by the licensee and the State of Connecticut Department of Environmental Protection (DEP).
II.N.1.b - An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00PM and midnight, and another between midnight and 6:00AM once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.	NUREG 0654	8.2.2.f	Not Met	The plan notes that plant procedures ensure 6-year exercise cycle objectives are met. The activity described in the plan seems adequate to ensure that all major elements of plans and preparedness organizations are tested within a 5-year period, but the plan does not specifically state this as a goal of the exercise program. The plan also does not specifically address conducting exercises that are not announced or under various weather conditions.
II.N.2.e(2)— <u>Health Physics Drills</u> . Analysis of in-plant liquid samples with actual elevated radiation levels including use of the post-accident sampling system shall be included in Health Physics drills by licensees annually.	NUREG 0654	8.2.2.d	Not Met	The plan does not describe this aspect of Health Physics drills.
II.N.3 - Each organization shall describe how exercises are to be carried out to allow free play for decision making and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by NRC and FEMA the scenarios for use in exercises and drills shall include but not be limited to the following:	NUREG 0654	8.2, 8.2.2.f	Not Met	The plan does not discuss how exercises are to be carried out to allow free play for decision making and to meet objectives. The elements to be included in exercise scenarios are not specified in the plan. This information may be included in plant procedures.

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>The basic objective of each drill and exercise and appropriate evaluations criteria;</p> <p>The date(s), time period, place(s) and participating organizations;</p> <p>The simulated events</p> <p>A time schedule of real and simulated initiating events;</p> <p>A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams and public information activities</p> <p>A description of the arrangements for and advance materials to be provided to official observers.</p>				
<p>II.O.3 - Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.</p>	<p>NUREG 0654</p>	<p>7.11</p>	<p>Met</p>	<p>EMT qualified personnel are available to provide first aid on-site.</p>
<p>II.O.4 - Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological ER plans. The specialized initial training and periodic retraining programs shall be provided in the following categories:</p>	<p>NUREG 0654</p>		<p>Unknown</p>	<p>See below for specifics</p>
<p>II.O.4.a - Directors or coordinators of the response organization</p>	<p>NUREG 0654</p>	<p>Table 5-1</p>	<p>Unknown</p>	<p>Not evaluated. Most of Section 5 was not available for review.</p>
<p>II.O.4.b - Personnel responsible for accident assessment</p>	<p>NUREG 0654</p>	<p>Table 5-1</p>	<p>Unknown</p>	<p>Not evaluated. Most of Section 5 was not available for review.</p>
<p>II.O.4.c - Radiological monitoring teams and radiological analysis personnel</p>	<p>NUREG 0654</p>	<p>Table 5-1</p>	<p>Unknown</p>	<p>Not evaluated. Most of Section 5 was not available for review.</p>
<p>II.O.4.d - Police, security, and fire fighting personnel</p>	<p>NUREG 0654</p>	<p>8.1.2</p>	<p>Met</p>	<p>The plan discusses annual training in radiation protection, emergency classification, notification, emergency</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				plan overview, and general plant access information.
II.O.4.e - Repair and damage control/corrective action teams (onsite)	NUREG 0654	Table 5-1	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.O.4.f - First aid and rescue personnel	NUREG 0654	Table 5-1, 8.1.3	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.O.4.g - Local support services personnel including Civil Defense/Emergency Service personnel	NUREG 0654	8.1.2	Met	The plan discusses annual training in radiation protection, emergency classification, notification, emergency plan overview, and general plant access information. It would probably be appropriate for emergency management personnel to receive a different course of training than emergency responders.
II.O.4.h - Medical support personnel	NUREG 0654	8.1.2	Met	The plan discusses annual training in plant access and the medical treatment of contaminated, injured patients.
II.O.4.i - Licensee headquarters support personnel	NUREG 0654	Table 5-1	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.O.4.j - Personnel responsible for transmission of emergency information and instructions	NUREG 0654	Table 5-1	Unknown	Not evaluated. Most of Section 5 was not available for review.
II.P.5 - The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.	NUREG 0654	8.3	Not Met	Forwarding of approved changes is not specifically discussed. Plan distribution may be addressed in procedures that were not available at the time of this review.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.P.7 - Each plan shall contain as an appendix listing by title, procedures required to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	NUREG 0654		Unknown	Not Evaluated. No plan appendices were available for review.
II.P.8 - Each plan shall contain a specific table of contents. Plans submitted for review should be a cross-referenced to these criteria.	NUREG 0654		Not Met	No table of contents or cross-reference to NUREG-0654 criteria appeared in the copy of the plan provided for review.
II.P.9 - Each licensee shall arrange for and conduct independent reviews of the Emergency preparedness program at least every 12 months. The review shall include the emergency plan, its implementing procedures and practices, training readiness testing, equipment and interfaces with State and Local governments. Management controls shall be implemented for evaluation and corrections of review findings. The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involve Federal, State and Local organizations and retained for a period of five years.	NUREG 0654	8.3	Met	The plan discusses annual reviews performed by a licensee oversight group or an industry peer evaluation team. The licensee might consider the potential to add value to reviews by using non-utility emergency management professionals to review at least the offsite aspects of their program.
Preliminary evaluations should determine whether conditions indicate a significant possibility of a major release and, to the extent possible, determine potential exposure pathways, populations at risk and projected doses	EPA 400 1.4 (1-6)	6.2.1	Not Met	The reviewer believes this evaluation is performed in response. However, the plan does not specifically discuss inclusion of potential exposure pathways, populations at risk, and projected dose in initial assessment. Note that the list of initial information provided to off-site jurisdictions via the Emergency Response and Notification System (ERNS) (pg. 6-2) does not specifically include this information.
Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.	EPA 400 1.4 (1-7)	n/a	Not Met	No cost analysis considerations are discussed in the plan. Discussion of recovery is limited to descriptions of

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
	Appendix C			when the recovery phase is entered and the recovery organization.
Levels of exposure to radiation identified which should initiate protective action.	EPA 400 2.1 (2-1)	6.2.2, 6.4	Not Met	EPA 400 Protective Action Guidelines are referenced, but are not provided in the plan. MP-26-EPI-FAP06 states that “Evacuation of a 5 mile radius and 10 miles downwind (with sheltering of all other subzones) will be recommended for plant conditions in which: c. EPA PAGs (≥ 1 Rem TEDE or ≥ 5 Rem CDE Thyroid) are or are suspected to be exceeded beyond 5 miles.” This is the only reference to levels of exposure in the copy of the procedure provided for review.
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)	6.1	Not Met	The plan states that “Details concerning release type, quantities and actual or projected dose rates will be developed, as appropriate and provided to responsible officials, when requested.” This implies the information is not necessarily provided when it becomes available, as it should be.
Designation of an EPZ zone for protective action for plume exposure.	EPA 400 5.2.2 (5-3)	1.1	Met	No maps were included in the copy of the plan provided for review. A map of the approximate 10-mile emergency planning zone with identification of planning zones should be provided in the plan.
Air sampling techniques/flow rates/time in plume/analysis information.	EPA 4005.3	6	Not Met	This level of detail is not provided in the plan. Radiological Monitoring Team (RMT) sample types generally

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				described in 6.2.4.h. This information is likely contained in the field monitoring procedure(s). It is not contained in the dose assessment procedure.
Documentation of sequence of events	EPA 400 7.1.3 (7-4)		Not Met	Not evaluated. This issue was not discussed in the sections of the plan provided for review.
Recommendations for surface contamination limits.	EPA 400 7.6.3 7.6.1		Not Met	This issue was not addressed in the plan. It may be addressed in the procedures.
Dosemetric models, agricultural transport models, dietary intake and other calculations relating to potential dose.	EPA 400 7.6.2 7.4 7.3 Appendix B	6.2	Not Met	Models are not specified in the plan. The plan only refers to "computerized methods." It may be specified in the dose assessment procedures.
Equipment used (can include diagrams and operational procedures)	10 CFR App. E Pt. 50	7.5	Unknown	Not Evaluated. Appendix E was not provided in the review copy of the plan.
Procedures for maintaining emergency preparedness	10 CFR App. E Pt. 50	8	Met	Procedure MP-26-EPA-FAP01, "Management Program for Maintaining Emergency Preparedness" is cited

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Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Organizational charts, individual responsibilities, duties, and who will take charge in the event of an emergency should be specifically mentioned.	EPA 400 10 CFR App. E Pt. 50	Section 5, Fig. 5-1	Unknown	Figure 5-1 provides organization charts. Responsibilities and duties appear in Section 5, most of which was not provided for review
Licensee's headquarters personnel who will be sent out in the event of an emergency should be identified.	10 CFR App. E Pt. 50		Unknown	Not evaluated. Most of Section 5 was not available for review.
Description of offsite emergency services to be provided in support of the licensee's emergency organization.	10 CFR App. E Pt. 50	Various	Met	The plan identifies organizations for specific services.
Identification of the State and/or Local Officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary	10 CFR App. E Pt. 50	1, 2	Met	The plan identifies State and local agencies and defines their responsibilities fairly well. Federal agencies are identified, but the plan just states they will respond in accordance with established federal plans.
All communications plans shall have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communications links and the primary backup means of communication.	10 CFR App E Pt. 50		Unknown	This issue is addressed partially in Section 7, though no titles are specified. It is expected that these would appear in Section 5, which was not provided to the reviewer.
Provisions for communications with Federal emergency response organizations. Must be tested annually.	10 CFR App. E Pt .50	8.2.1.a	Met	The plan states these are tested quarterly by the State Office of Emergency Management.
Provisions for communications with the nuclear power control room, the onsite technical support center, near-site emergency operations facility, and among the nuclear facility, the principle	10 CFR App. E Pt.	8.2.1.a	Met	The plan states that these are tested monthly.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
state and local EOC's and field assessment teams. Tested annually.	50			
Provisions for communication with NRC Headquarters and the appropriate NRC regional office operations center from the control room the onsite technical support center and the near site EOF. Tested monthly.	10 CFR App. E Pt. 50	8.2.1	Met	The plan states that these are tested monthly.
Recovery Plan - Criteria to be used to determine when, following an accident, reentry of the facility would be appropriate or when operation could be resumed shall be described.	10 CFR App. E. Pt 50	9	Not Met	Criteria for re-entry and resumption of normal operations are not described in the plan. The plan only provides descriptions of the start of the recovery phase and the recovery organization.

Compliance Review Matrix for Connecticut

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met Or Not Met	Comments
II.A.1.d—Individual in charge of emergency response for each organization identified by title	NUREG 0654		Not Met	Organizations are mentioned in the plan but not specific titles for those in charge.
II.A.2—Functions and responsibilities for major elements in emergency response are specified for each organization and key individuals by title. Legal basis for such authorities is cited.	NUREG 0654	RERP 2.2	Met	Agencies with responsibilities for major elements of the response are mentioned; however, it is not clear who the designated responsible individuals within each agency are.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of these matters.	NUREG 0654		Not Met	There is no mention of any type of written agreement between various organizations in the plan.
II.C.1.c - Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654		Not Met	There is mention of the Federal role in the plan, but resources available to the Federal response are not included.
II.C.4—Organizations have identified nuclear and other facilities, organizations, or individuals that can be relied upon to assist in an emergency. Appropriate letters of agreement have been established for this support.	NUREG 0654		Not Met	Several organizations were discussed in the plan but the letters of agreement were not included.
II.E.2—Procedures have been established for alerting, notifying, and mobilizing emergency response personnel.	NUREG 0654		Not Met	In section 1.0 Concept of Operations there is mention of alerting and mobilizing emergency personnel. However, the procedures are not included.
II.G.2—The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for	NUREG 0654		Not Met	Information for the transient population is not included.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met Or Not Met	Comments
written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ, appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.				
II.H.4—Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	NUREG 0654		Not Met	The timeliness for activation and staffing of facilities is not in the plan. It is alluded to but not clearly stated.
II.H.11—Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).	NUREG 0654		Not Met	The plan was not designed to include appendices.
II.I.9—Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10^{-7} uCi/cc under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable capability.	NUREG 0654	8.1.2.b	Met	The specific information on the equipment is on file with the Connecticut Department of Environmental Protection, Division of Radiation.
II.I.10—Each organization shall establish means for relating the various measured parameters (contamination and activity levels, etc.) to dose rates for key isotopes (Table 3, pg. 18) and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.	NUREG 0654		Not Met	The methods for calculating dose rates are not included in the plan. However, different levels of dose rates are included.
II.J.10—The organization's plans to implement protective measures for the plume exposure pathway shall include:	NUREG 0654		Not Met	There is no evacuation map included in the plan.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met Or Not Met	Comments
<p>Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas</p> <p>Maps showing population distribution around the nuclear facility. This shall also be by evacuation areas (licensees shall also present the information in a sector format)</p> <p>Means for notifying all segments of the transient and resident population</p>				
<p>II.K.5—Each organization, as appropriate, shall specify action levels for determining the need for decontamination. Shall also establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>Decontamination is given brief mention in the plan; however, the levels and means for determining decontamination are not discussed.</p>
<p>II.L.4—Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.</p>	<p>NUREG 0654</p>	<p>RERP 5.0</p>	<p>Met</p>	<p>Section RERP 5.0 could use more detail about medical staging areas.</p>
<p>II.O.4.a - Directors or coordinators of the response organization</p>	<p>NUREG 0654</p>	<p>RERP 15.0</p>	<p>Met</p>	<p>While directors and coordinators are not mentioned directly, they are alluded to throughout the section.</p>
<p>II.O.5 - Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>The retraining and assimilation of new emergency personnel is not included in the plan.</p>
<p>II.P.7 - Each plan shall contain as an appendix listing by title, procedures requires to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>There is no appendix section in the plan.</p>
<p>II.P.8 - Each plan shall contain a specific table of contents. Plans submitted for review should be a cross-referenced to these criteria.</p>	<p>NUREG 0654</p>	<p>Table of Contents</p>	<p>Met</p>	<p>There is no consistent page numbering for quick referencing.</p>

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met Or Not Met	Comments
Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.	EPA 400 1.4 (1-7) Appendix C		Not Met	A cost analysis is not part of the plan.
Officials to be notified for approval of stable iodine administration.	EPA 400 2.3.2 (2-7)	RERP 10.3.4	Met	The State of Connecticut will only approve iodine for critical State employees; it will be issued via the Office of Emergency Management.
Exposure pathways identified and consistent.	EPA 400 2.4; 2.5	RERP 1.0 Attachment 4	Met	Attachment 4 is a map of the exposure pathway.
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)	RERP 1.0 Attachment 1	Met	Attachment 1 is a series of tables that explain the actions to be taken during each level of notifications. Estimated time frames for protective action after new data becomes available is not stated within this section.
Procedures for calculating dose conversion factors and derived response levels.	EPA 400 5.4; 5.6		Not Met	The derived response level for dose is mentioned in the plan, while the procedures for calculating dose are not.
Documentation of sequence of events	EPA 400 7.1.3 (7-4)		Not Met	There is no mention of documenting the sequence of events. Of the sections that were not available for review, there did not seem to be any that might contain this information.

Compliance Review Matrix for Fishers Island

The Fishers Island plan provided for review appears to be essentially an operations plan, composed mainly of various checklists. For the most part, it did not address planning and mitigation issues. It could not be verified whether Fishers Island maintains a separate plan which addresses pre-event planning and mitigation.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.A.1.a—Identifies State, Local, Federal, and private sector organizations that are part of the overall response organization.	NUREG 0654		Not Met	State and Federal Agencies are not clearly identified.
II.A.2—Functions and responsibilities for major elements in emergency response are specified for each organization and key individuals by title. Legal basis for such authorities is cited.	NUREG 0654		Not Met	The plan does not cite the legal basis for key elements in emergency response.
II.A.3—Written agreements between various organizations with emergency response roles are included in the plan or the plan includes descriptions of these matters.	NUREG 0654		Not Met	The plan does not clearly address the issue of Mutual Agreements and copies are not included in the plan.
II.C.1.a—Person authorized to request Federal assistance is specified by title.	NUREG 0654		Not Met	It would appear that the Chief Executive Officer (CEO) would be responsible for requesting Federal assistance, but it is not mentioned as a specific CEO task.
II.C.1.c - Licensee, Local, and State resources available to support the Federal response, e.g. air fields, command posts, telephone lines, radio frequencies, etc., are specified.	NUREG 0654		Not Met	Resources for Federal assistance and support are not identified.
II.C.2—Provisions are made for licensee reps to go to offsite EOCs, and for offsite organizations to send reps to the licensees EOF.	NUREG 0654		Not Met	Sending a representative to the Emergency Operations Facility and the Plant sending a representative to Fishers Island is not in the plan.
II.C.4—Organizations have identified nuclear and other facilities, organizations, or individuals than can be relied upon to assist in an emergency. Appropriate letters of agreement have been	NUREG 0654		Not Met	The actual Letters of Agreement are not in the plan.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
established for this support.				
II.E.7—Draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and Local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection (handkerchief over mouth, etc.) thyroid blocking, or evacuation.	NUREG 0654		Not Met	Draft letters for protective action are not in the plan. Also, the specific protective actions that need to be taken are not mentioned.
II.F.1—The communication plans for emergencies shall include all organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local and State response organizations. Such systems should be selected to be compatible with one another. (See NUREG-0654 for detailed requirements)	NUREG 0654		Not Met	Communication plans were not clearly stated. The plan did not mention organizational titles and alternates nor did it include a clear demonstration of a backup communications system.
II.F.2—Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.	NUREG 0654		Not Met	The plan provided to the reviewer contains no reference to medical support. This could be due to the fact that there is only a temporary doctor's office on the island.
II.G.1—Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to: educational information on radiation, contact for additional information, protective measures, and special needs of the handicapped.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of preplanning activities or of dissemination of information on a yearly basis.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>II.G.2—The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ, appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>The plan provided to the reviewer contains no mention of disseminating information to the transient population.</p>
<p>II.G.5—Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>Media training and coordination was not mentioned in the plan; however, there was some mention of the Joint News Center during the emergency.</p>
<p>II.H.10—Each organization shall make provisions to inspect, inventory, and operationally check emergency equipment/instruments at least once each calendar quarter and after each use.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>There was no discussion of equipment inspections, inventory, and operability in the plan.</p>
<p>II.H.11—Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies.</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>The plan did not include an appendix or a listing of emergency kits.</p>
<p>II.H.12—Each organization shall establish a central point (preferably associated with the licensee's near-site EOF), for the receipt and analysis of all field monitoring data and coordination of sample media</p>	<p>NUREG 0654</p>		<p>Not Met</p>	<p>The plan did not clearly identify the required information in regard to field data reporting and analysis.</p>
<p>II.J.10—The organization's plans to implement protective</p>	<p>NUREG</p>			

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>measures for the plume exposure pathway shall include:</p> <ul style="list-style-type: none"> a) Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas. b) Maps showing population distribution around the nuclear facility. This shall also be by evacuation areas (licensees shall also present the information in a sector format). c) Means for notifying all segments of the transient and resident population. d) Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement (State & Local only). e) Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the 10-mile EPZ who may not be able to evacuate immediately. f) Method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the pre-determined conditions under which such drugs may be used by offsite emergency workers. g) Means of relocation. h) Relocation centers in host areas which are at least 5 miles and preferably 10 miles beyond the boundaries of the plume exposure emergency planning zone (see J.12). i) Projected traffic capacities of evacuation routes under emergency conditions. j) Control of access to evacuated areas and organization responsibilities for such control. k) Identification and means for dealing with potential impediments to use of evacuation routes, and contingency. 	<p>0654</p>	<ul style="list-style-type: none"> a) LCP 2.0 Attchmt. 4 b) -- c) LCP 4.4 1.2 d) LCP 4.5 # 1, pg.3 e) LCP 4.2 Attchmt 10, pg.27 f)-- g) LCP 2.0 2.5 pg.3 h)-- i)-- j) LCP 2.0 2.3 pg. 2 k) LCP 2.1 2.1.1 pg. 1 	<ul style="list-style-type: none"> a) Met b) Not Met c) Met d) Met e) Met f) Not Met g) Met h) Not Met i) Not Met j) Met k) Met l) Not Met 	<ul style="list-style-type: none"> b) A population data map was not included. f) The plan mentions public health is responsible, but there is no discussion of the decision methodology. h) The host area is included in the plan but not the reception center location. i) Traffic Capacity during an evacuation is not discussed in the plan. l) Times estimates are not included in

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
<p>measures</p> <p>l) Time estimates for evacuation of various sectors and distances based on a dynamic analysis for the plume exposure pathway EPZ (See Appendix 4).</p>		l)--		the plan
<p>II.J.12—Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure EPZ arriving at relocation centers.</p>	NUREG 0654		Not Met	The plan includes no discussion of the functions of a relocation center.
<p>II.K.3.a—Each organization shall make provision for 24 hour/day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.</p>	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of 24-hour surveillance of emergency workers. However, the plan does state that such workers should not be exposed to more than .4R without a supervisor's approval.
<p>II.K.4—Each State and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (for emergency workers and lifesaving activities).</p>	NUREG 0654	LCP 4.2 Attachment 1 #9 pg.5	Not Met	The plan mentions the need to call to receive new exposure limits but does not mention or demonstrate the decision tree for determining new dose limits.
<p>II.K.5—Each organization, as appropriate, shall specify action levels for determining the need for decontamination. Shall also establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.</p>	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of action levels for decontamination.
<p>II.L.1—Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that</p>	NUREG 0654		Not Met	There are no hospitals on Fishers Island, and only a temporary doctor's office. It is expected that the plan will

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
persons providing these services are adequately prepared to handle contaminated individuals.				provide details of backup forms of medical support.
II.N.1.a - An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases, which would require response by offsite authorities. Exercises shall be conducted as set forth in NRC and FEMA rules.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting exercises.
II.N.1.b - An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00PM and midnight, and another between midnight and 6:00AM once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting exercises.
II.N.2.a— <u>Communication Drills</u> . Communications with State/Local governments within the plume exposure pathway EPZ shall be tested monthly. Communications with Federal ER organizations and States within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, state and local EOC's and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting drills.
II.N.2.c— <u>Medical Emergency Drills</u> . A medical emergency drill involving a simulated contaminated individual, which contains provisions for participation by the local support services agencies	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting drills.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
shall be conducted annually. The offsite portions of the medical drill may be performed as part of the requires annual exercise.				
II.N.2.d— <u>Radiological Monitoring Drills</u> . Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media and provisions for communications and record keeping. The state drills need not be at each site. Where appropriate, local organizations shall participate.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting drills.
<p>II.N.3 - Each organization shall describe have exercises are to be carried out to allow free play for decision making and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by NRC and FEMA the scenarios for use in exercises and drills shall include but not be limited to the following:</p> <p>The basic objective of each drill and exercise and appropriate evaluations criteria;</p> <p>The date(s), time period, place(s) and participating organizations;</p> <p>The simulated events;</p> <p>A time schedule of real and simulated initiating events;</p> <p>A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams and public information activities;</p> <p>A description of the arrangements for and advance materials to be provided to official observers.</p>	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of conducting exercises.
II.N.4 - Official observers from Federal, State or local governments will observe, evaluate and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of evaluating exercises.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique.				
II.N.5 - Each organization shall establish means by for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. Each organization shall establish management control used to ensure that corrective actions are implemented.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of plan assessment or implementing procedures.
II.O.1 - Each organization shall assure the training of appropriate individuals: Each facility to which the plant applies shall provide site specific ER training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency. Each offsite response organization shall participate in and receive training. Where mutual aid agreements exist between local agencies such as fire, police, and ambulance rescue, the training shall also be offered to the other departments who are members of the mutual aid district.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4 - Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological ER plans. The specialized initial training and periodic retraining programs shall be provided in the following categories:	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4.a - Directors or coordinators of the response organization	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4.d - Police, security, and fire fighting personnel	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
				program.
II.O.4.f - First aid and rescue personnel.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4.g - Local support services personnel including Civil Defense/ Emergency Service personnel.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4.h - Medical support personnel.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.4.j - Personnel responsible for transmission of emergency information and instructions.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.O.5 - Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.P.1 - Each organization shall provide for the training of individual's responsible for the planning effort.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a training program.
II.P.3 - Each organization shall designate an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of a Planning Coordinator.
II.P.4 - Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	NUREG 0654		Not Met	The plan provided to the reviewer contains no mention of plan update.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
II.P.5 - The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.	NUREG 0654		Not Met	The plan provided to the reviewer contains no discussion of plan distribution.
II.P.7 - Each plan shall contain as an appendix listing by title, procedures required to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	NUREG 0654		Not Met	The design of the plan did not include appendices.
II.P.8 - Each plan shall contain a specific table of contents. Plans submitted for review should be cross-referenced to these criteria.	NUREG 0654	Table of Contents	Met	The plan meets the requirement; however, the page numbering system is not conducive to quick referencing.
II.P.10 - Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.	NUREG 0654		Not Met	There are no critical phone numbers listed in the plan. Also, there is no discussion of a system for updating the phone numbers.
Evacuation (urgent removal of persons/animals) and Sheltering (supplemented by bathing and changing of clothes) to protect the public from exposure to direct radiation and inhalation from airborne plume.	EPA 400 1-3 2.3.1 5.5.1 5.5.2 5.5.3 Appendix E		Not Met	Protective actions for civilians are not addressed in the plan provided.
Protective action for milk supply.	EPA 400 1-3 & App D		Met	The plan discusses taking protective action for dairy cows in order to protect their milk.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
	DHHS FDA Vol. 47, #205 FDA 82- 8196			
Relocation and decontamination for protection against whole body dose (external exposure) due to deposited material and from inhalation of any resuspended radioactive particulate.	EPA 400 1.4 Appendix E		Not Met	The process for relocation and decontamination protection is not mentioned in the plan provided.
Restrictions on the use of contaminated food and water.	EPA 400 1-5 Ch.3,Appd xD DHHS FDA Vol. 47, #205 FDA 82- 8196		Not Met	The plan does not mention what should be done with contaminated food and water.
Notification and preliminary evaluation of the conditions and location of the incident.	EPA 400 1.4		Not Met	The plan does not mention analysis of an event. The plan does discuss the collection of data, but not the reporting and analysis of the data.

Review of Emergency Preparedness at Indian Point and Millstone—DRAFT

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Cost analysis and radiological decontamination data to form a basis for radiation protection decisions and for recovery.	EPA 400 1.4 (1-7) Appendix C		Not Met	The plan provided to the reviewer contains no mention of a decision theory for protective actions and recovery.
Levels of exposure to radiation identified which should initiate protective action.	EPA 400 2.1 (2-1)		Not Met	The plan identifies only the level of exposure for emergency workers; it does not include the levels of exposure for the public.
All PAG's should be consistent for all of the population.	EPA 400 2.1 (2-2)		Not Met	Public protection is not discussed in the plan.
Estimate of total doses received prior to relocation of population.	EPA 400 2.1.3 (2-3)		Not Met	Population relocation is not referred to in the plan.
Mechanism for obtaining detailed content of the plume.	EPA 400 2.2 (2-4)		Not Met	A mechanism for gathering information about the plume is not identified in the plan.
Levels of PPE identified for radiological workers.	EPA 400 2.5 (2-9)		Not Met	The plan only mentions equipment for measuring dose. All other equipment is not discussed in the plan.
Coordination and recommendations based on plant conditions, for early evacuations and/or sheltering in pre-designated areas. Early estimates of the various components of projected doses to the population at the site area boundary as well as more distant locations. Estimated time frames as soon as relevant source or release data becomes available.	EPA 400 4.1 (4-1)		Not Met	Plume information is not clearly identified in the plan.

Planning Standard/Requirement	Source Document	Where Addressed in the Plan	Requirement Met or Not Met	Comments
Establishment of Exposure Patterns using atmospheric transports and field teams including plume tracking.	EPA 400 5.2.2 (5-4)		Not Met	Plume information is not clearly identified in the plan.
Air sampling techniques/flow rates/ time in plume/ analysis information.	EPA 400 5.3		Not Met	Plume information is not clearly identified in the plan.
Procedures for calculating dose conversion factors and derived response levels.	EPA 400 5.4; 5.6		Not Met	Plume information is not clearly identified in the plan.
Documentation of sequence of events.	EPA 400 7.1.3 (7-4)		Not Met	The method for documenting the sequence of events is not clear.
Recommendations for surface contamination limits.	EPA 400 7.6.3 7.6.1		Not Met	The plan provided to the reviewer contains no mention of surface containment limits.
Dosemetric models, agricultural transport models, dietary intake and other calculations relating to potential dose.	EPA 400 7.6.2 7.4 7.3 Appendix B		Not Met	The plan provided to the reviewer contains no mention of any type of modeling.

Appendix D: Detail on Population Basis Review

The emergency planning zone surrounding Indian Point is composed of a number of planning areas that generally cover the area of a 10-mile radius circle. When the circle is used to represent the emergency planning zone, it is normally divided into a number of 22.5 degree wedges or *sectors* that are identified by compass direction. For example, N is oriented north and E is oriented east with three other sectors (NNE, NE, ENE) between. One of the reasons for this method of dividing up the emergency planning zone circle is to identify locations for offsite radiological monitoring, as described in NUREG 0654, section II J. Additional rings can also be used at distances less than 10 miles to further subdivide the sectors. This is one method used to divide the emergency planning zone into standard increments for use in emergency preparedness activities or response. Another way to divide it is to use the emergency response and planning areas that are defined by Indian Point emergency managers. The sectors in the circle and the emergency response and planning areas are two different ways to look at portions of the 10-mile circle. An example of the circle and sector method is shown in Figure D-1.

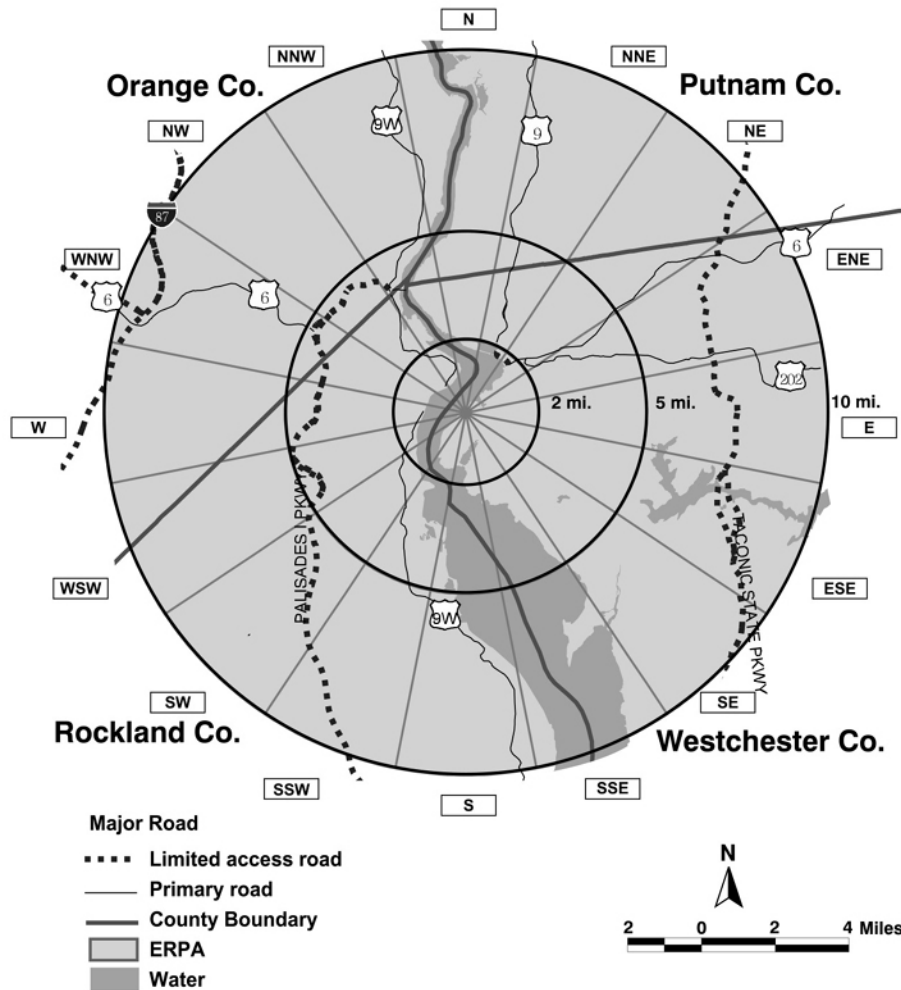


Figure D-1: Indian Point Sector Diagram with 2-, 5-, and 10-Mile Radius Rings

**Table D-1: Permanent Resident Population by
Emergency Response and Planning Area (ERPA)**

ERPA	Population	ERPA	Population
1	2,189	25	1,037
2	22,441	26	5,320
3	1,273	27	2,186
4	3,421	28	25
5	1,110	29	1,095
6	7,606	30	13,036
7	120	31	31,314
8	11,213	32	5,042
9	3,966	33	10,616
10	8,021	34	7,042
11	17,947	35	23,313
12	3,092	36	2,623
13	7,258	37	24,248
14	2,688	38	16
15	1,284	39	63
16	547	40	414
17	2,032	41	105
18	3,598	42–46	0 (Hudson River)
19	6,805	47	334
20	4,110	48	3,508
21	4,776	49	3,256
22	24,443	50	471
23	2,535	51	13,307

ERPA	Population	ERPA	Population
24	7,167	Total All ERPAs	298,013

Table D-2: Permanent Resident Population by Sector

Sector	Population in Circle of Radius			Total
	2 mile	5 mile	10 mile	
N	18	315	10,350	10,683
NNE	96	2,732	4,158	6,986
NE	2,974	16,061	11,776	30,811
ENE	2,141	9,335	24,046	35,522
E	814	2,462	10,215	13,491
ESE	403	1,492	3,579	5,474
SE	1,809	4,428	26,080	32,317
SSE	1,899	1,631	13,658	17,188
S	747	1,081	27,598	29,426
SSW	568	13,663	30,924	45,155
SW	78	7,413	12,584	20,075
WSW	323	1,285	407	2,015
W	256	201	25	482
WNW	2	5	2,041	2,048
NW	2	154	1,247	1,403
NNW	13	1,092	2,237	3,342
Totals	12,143	63,350	180,925	256,418

Table D-3: Comparison of IEM's and KLD's Population Estimates by 1-Mile Ring¹

Ring	IEM Ring Population	IEM Cumulative Population	KLD Ring Population	KLD Cumulative Population
0–1 mile	1,374	1,374	1,683	1,683
1–2 mile	10,769	12,143	10,471	12,154
2–3 mile	18,483	30,626	19,443	31,597
3–4 mile	19,632	50,258	19,071	50,668
4–5 mile	25,235	75,493	26,080	76,748
5–6 mile	29,440	104,933	28,093	104,841
6–7 mile	21,728	126,661	21,899	126,740
7–8 mile	28,058	154,719	24,432	151,172
8–9 mile	45,860	200,579	50,010	201,182
9–10 mile	55,839	256,418	56,007	257,189

Table D-4: Peak Transient Population by Emergency Response and Planning Area (ERPA)

ERPA	Population	ERPA	Population
1	2,924	25	140
2	5,269	26	1,956
3	5	27	345
4	2,244	28	250
5	145	29	364
6	3,842	30	5,978
7	44	31	16,288
8	1,117	32	2,983
9	1,802	33	4,776

¹ In table C-3, “cumulative population” means the population immediately to the left (in the ring population column) plus all populations in the ring population column that precede it.

ERPA	Population	ERPA	Population
10	2,892	34	2,947
11	9,329	35	14,245
12	721	36	1,548
13	9,420	37	13,517
14	390	38	0
15	2,619	39	9,544
16	168	40	22,657
17	797	41	2
18	182	42-46	0
19	1,721	47	163
20	330	48	1,670
21	3,213	49	118
22	12,040	50	47
23	1,002	51	6,314
24	17,049	Total	185,117

Table D-5: Peak Transient Population by Sector

Wedge	Population for Selected Rings			Totals
	0-2 mile	2-5 mile	5-10 mile	
N	25	88	18,244	18,357
NNE	0	184	476	660
NE	841	2,318	3,188	6,347
ENE	1,068	2,018	10,691	13,777
E	153	767	14,217	15,137
ESE	1,180	187	871	2,238

Population for Selected Rings				
SE	2,779	627	16,235	19,641
SSE	854	413	4,326	5,593
S	6	1,722	10,143	11,871
SSW	0	7,018	19,767	26,785
SW	0	5,369	11,941	17,310
WSW	46	781	16,059	16,886
W	93	1,226	4,784	6,103
WNW	235	5,078	1,726	7,039
NW	259	1,425	166	1,850
NNW	129	1,111	1,060	2,300
Total	7,668	30,332	133,894	171,894

Permanent Resident Population by Emergency Response and Planning Area and Sector

The estimates of permanent resident populations are based on population counts from the most recent (2000) decennial census taken by the United States Census Bureau. IEM used its geographic information system software to process the geographic data and associated population counts for census blocks in each of the counties surrounding Indian Point. IEM then combined these populations for each emergency response planning area to generate a permanent resident population count. The block data was similarly combined within each sector (circle sector method described previously) to produce a population count for each sector. This work provided two different ways to view population counts for the Indian Point 10-mile emergency planning zone.

Since boundaries of the sectors do not follow census block boundaries, many of the blocks had to be divided into sub-areas by sector boundaries. To do this, IEM overlaid the census blocks with the 10-mile and 50-mile radius sectors, splitting these blocks into sub-areas, and then allocated the block population to the sub-areas based on an area ratio method. The populations of the block sub-areas within the sector boundaries were then combined for each sector. In some cases, it was also necessary to split blocks at emergency response and planning areas boundaries. When necessary, the same method was used to allocate the block population to block sub-areas within each emergency response and planning area.

The area ratio method described above assigns each sub-area a portion of the block population based on the ratio of the area of each block part to the area of the entire block. For example, if a particular sub-area contains one-fourth the area of the total block area, the sub-area receives one-fourth of the block's total population. Figure 1 illustrates this principle. In the figure, one-fourth of the block's total area is located in the sub-area, so it includes one-fourth of the population. The area ratio method assumes that the population within the block is evenly distributed—a reasonable assumption in most cases. In the absence of additional information, this method is well-accepted for allocating census block populations to sub-block areas.²

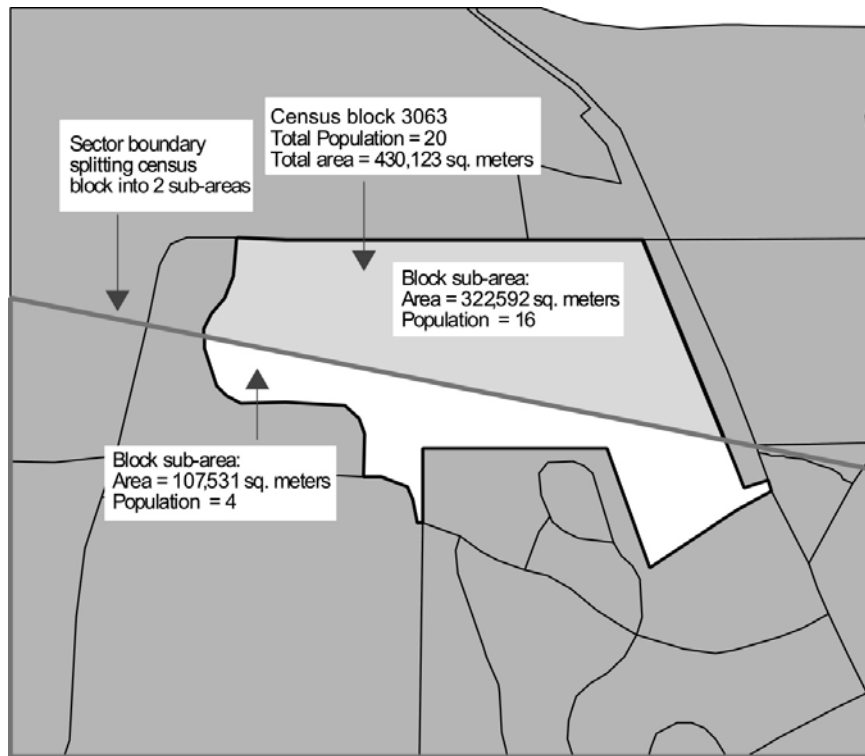


Figure 1: An Example of the Area Ratio Method Applied to a Census Block Divided into Sub-Areas

² Goodchild, M.F., Anselin, L., and Deichmann, U. 1993. "A Framework for the Aerial Interpolation of Socioeconomic Data." *Environment and Planning A*. 25: 383-397.

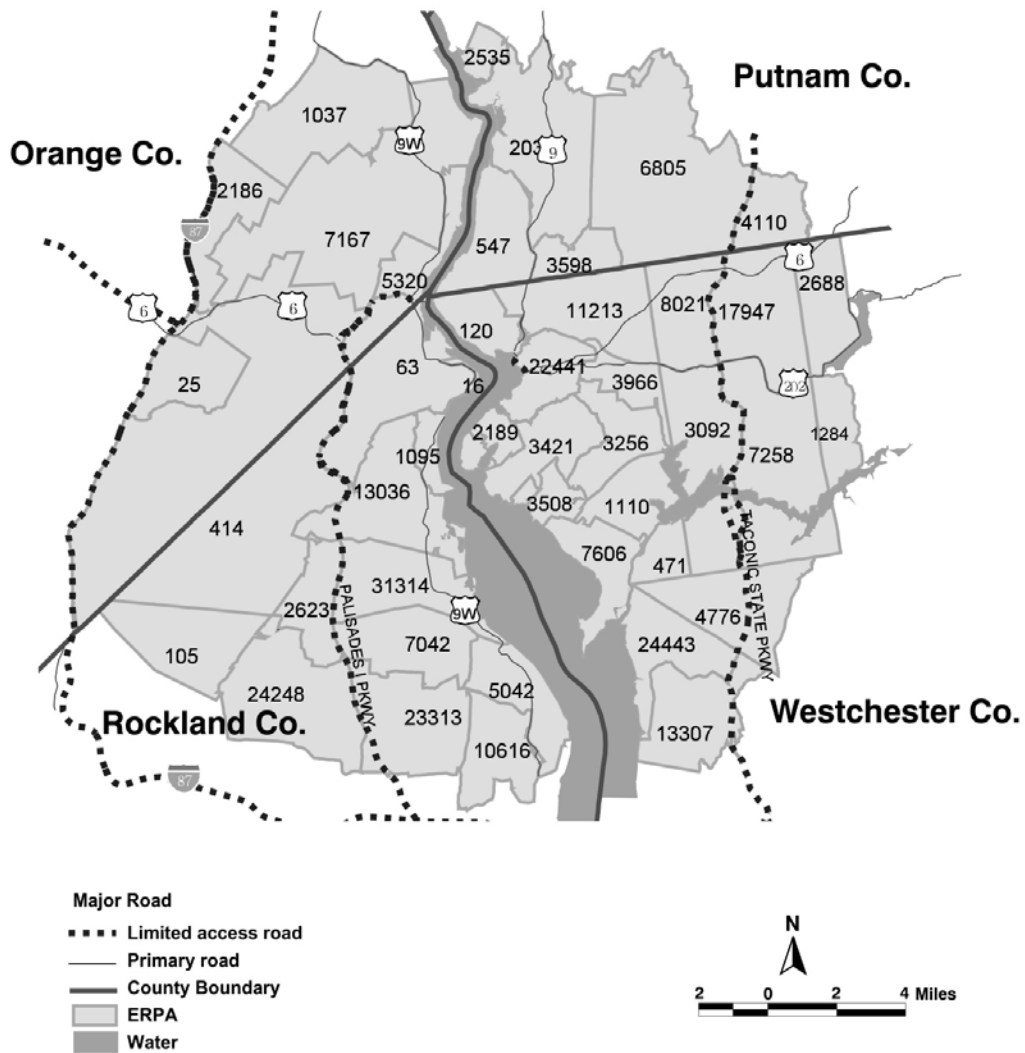


Figure D2: Permanent Residential Population by Emergency Response and Planning Area

Table D-2 in Appendix D lists the permanent resident population by sector, and Figure D3 depicts these populations graphically. The population within the 10-mile emergency planning zone when using the circle as the boundary is somewhat less than the total population within the emergency planning zone when totaling all the emergency response and planning area numbers. This is because a number of emergency response and planning area boundaries extend beyond the 10-mile radius circle and therefore capture additional population.

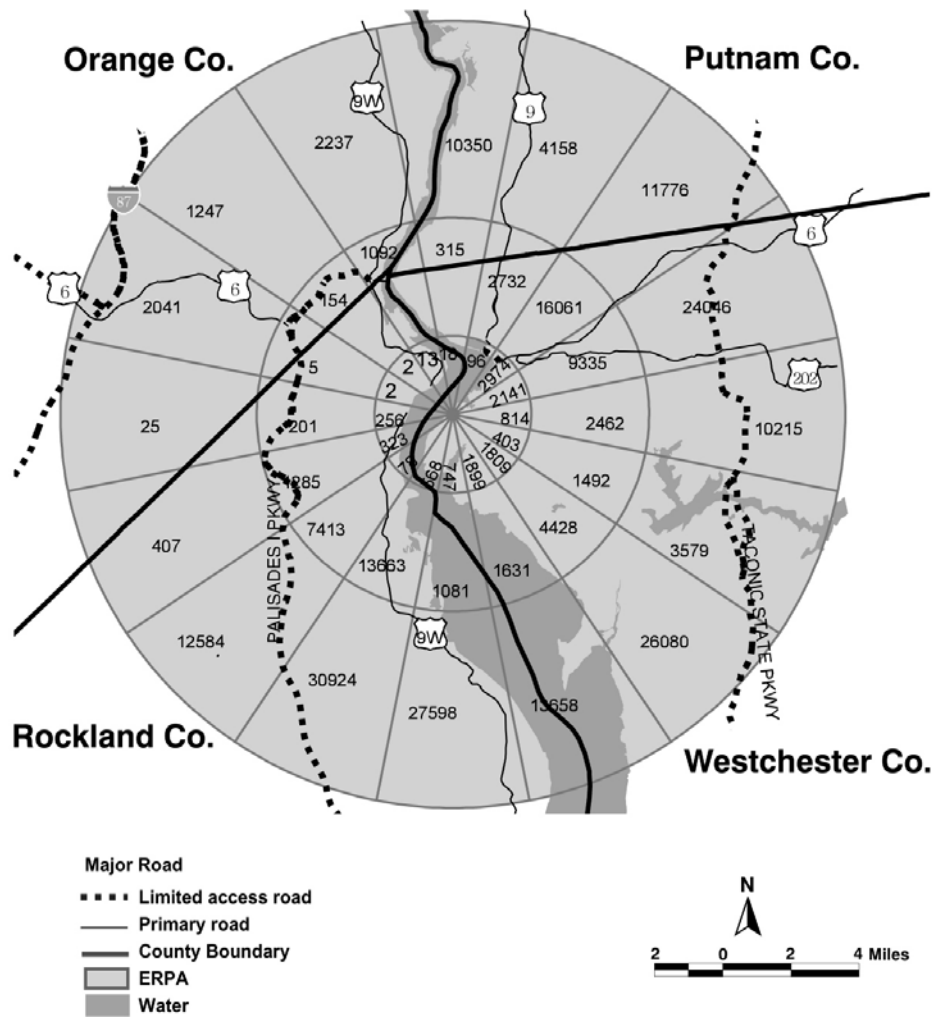


Figure D3: Permanent Resident Population by Sector

IEM received the permanent resident population estimates by Emergency Response Planning Area developed by KLD Associates, Inc. In general, the population totals agree with IEM’s estimates. The total residential emergency response and planning area population for the emergency planning zone area developed by KLD is 298,161, compared to the IEM figure of 298,013—a difference of only 0.05%. IEM also compared the KLD estimate of population within sectors of the 10-mile radius circle (circle sector method described previously). The KLD estimate of total population within the 10-mile circle is 257,189, which is 0.3% higher than the IEM estimate of 256,418 for this area. This difference may be attributable to splitting blocks or slight differences in where the sectors are centered. As with the total emergency response and planning area population comparison the difference is very small.

Although the total permanent resident counts developed by IEM and KLD match closely regardless of which basis (emergency response and planning area or circle/sectors), the counts of these residents within individual sectors of the 10-mile circle are considerably different. The following table illustrates the differences.

Table D-6: Comparison of Permanent Resident Population Estimates for IEM and KLD by 22.5 Degree Sector

Sector	IEM Estimate	KLD Estimate
N	10,683	2,878
NNE	6,986	23,147
NE	30,811	38,230
ENE	35,522	19,832
E	13,491	6,148
ESE	5,474	12,384
SE	32,317	39,517
SSE	17,188	13,669
S	29,426	47,251
SSW	45,155	32,595
SW	20,075	4,406
WSW	2,015	1,140
W	482	882
WNW	2,048	2,118
NW	1,403	1,506
NNW	3,342	11,486
Total	256,418	257,189

The estimates allocated to individual sectors show fairly sizable deviations. Given the density of the population around Indian Point, it is possible that slight differences in the location of the sectors (i.e., if the center points used for the sectors are slightly different) could result in large variations in the populations assigned to each individual sector. As an additional check, IEM compared populations for smaller concentric rings within the 10-mile circle. Table D-3 in Appendix D shows the permanent resident populations accumulated over 1 mile increments within the 10-mile circle and again compares IEM results to those produced by KLD. The relative differences in the populations by concentric rings are not as pronounced as the differences by sector.

The specific sector population differences may or may not be an indicator of a possible impact on evacuation time estimates. During the evacuation modeling process, population is typically

assigned to evacuation links independent of the sector scheme. In the modeling of evacuation, the population is assumed to load from specific population clusters (e.g., from the centroid of a census block) to the closest link³ on the evacuation network. So, the fact that the population is different by sector does not mean that the way the population is assigned to load on the evacuation network is affected. The State of New York may want to scrutinize the population assumptions published with the new evacuation time estimate report for Indian Point once it is published. Specifically, the evacuation network loading points within sectors should be checked to gain a level of confidence that population was assigned to the network appropriately. Based on information available, IEM cannot determine the specific cause of the difference in the individual sector numbers.

Table D-7: Schools within the Emergency Planning Zone

School	Address	County	Population	ERPA
Alphabet Express	62 Old Middletown Rd., New City	Rockland	29	35
Anne M. Dorner Middle School	70 Van Cortlandt Ave., Ossining	Westchester	872	22
Bais Yaakov Chafetz Chaim	P. O. Box 704, Pomona	Rockland	193	36
Bais Yakov of Ramapo	984 Haverstraw Rd., Suffern	Rockland	155	37
Benjamin Franklin Elementary School	3477 Kahmi Dr., Yorktown Heights	Westchester	794	11
BOCES	200 Boces Dr., Yorktown Heights	Westchester	1771	15
Brookside School	Pinesbridge Rd., Ossining	Westchester	678	22
Brookside Elementary School	2285 Broad St., Yorktown Heights	Westchester	599	11
Brookside Elementary School	8 Pinesbridge Rd., Ossining	Westchester	690	21
Carrie E. Tompkins Elementary School	10 Gerstein St., Croton On Hudson	Westchester	785	6
Christian Cornerstone School	384 New Hempstead Rd., New City	Rockland	118	35
Claremont Elementary School	Claremont Rd., Ossining	Westchester	755	22
Clarksville High School	151 Congers Rd., New City	Rockland	1596	35
Congers Elementary School	9 Lake Rd., Congers	Rockland	343	32
Crompond Elementary School	2901 Manor St., Yorktown Heights	Westchester	548	11
Croton Harmon High School	36 Old Post Rd. S, Croton On Hudson	Westchester	415	6

³ A link is a section of the evacuation model network that represents one or more roads.

School	Address	County	Population	ERPA
Croton Montessori School	P. O. Box 84, Croton On Hudson	Westchester	10	6
Deverux Millwood Learning Ctr.	14 Schuman Rd., Millwood	Westchester	83	21
Dominican Sister	798 Route 304, Nanuet	Rockland	522	35
Farley James A. Middle School	140 Route 210, Stony Point	Rockland	990	30
French Hill Elementary School	2051 Baldwin Rd., Yorktown Heights	Westchester	508	13
Ft. Montgomery Elementary School	P. O. Box 287, Highland Falls	Orange	212	24
George Wash Elementary School	3634 Lexington Ave., Mohegan Lake	Westchester	415	10
Gerald F. Neary Elementary School	20 George St., Haverstraw	Rockland	512	31
Gittelman Rben Hebrew Day School	360 New Hempstead Rd., New City	Rockland	395	35
Grandview Elementary School	151 Grandview Ave., Monsey	Rockland	532	37
Haverstraw Middle School	16 Grant St., Haverstraw	Rockland	767	31
Hempstead Elementary School	80 Brick Church Rd., Thiells	Rockland	608	31
Hempstead School	80 Brick Church Rd., Spring Valley	Rockland	560	37
Hendrick Hudson High School	2 Albany Post Rd., Montrose	Westchester	809	4
Hillcrest Elementary School	32 Addison Boyce Dr., New City	Rockland	487	35
Hudson Valley New City Unit	240 N Main St., New City	Rockland	23	34
Immaculate Conception School	24 E Main St., Stony Point	Rockland	220	30
Kumon Math and Reading Centers	216 Congers Rd., New City	Rockland	58	35
Lakeland Alternative High School	Rur. Rte. 132, Shrub Oak	Westchester	52	10
Lakeland Copper Beech Middle School	3401 Old Yorktown Rd., Yorktown Heights	Westchester	1008	11

School	Address	County	Population	ERPA
Liberty Elementary School	142 Lake Rd., Valley Cottage	Rockland	518	33
Lime Kiln School	35 Lime Kiln Rd., Suffern	Rockland	990	37
Lincoln-Titus Elementary School	10 Lincoln Ave., Crompond	Westchester	607	4
Link Elementary School	51 Red Hill Rd., New City	Rockland	529	35
Little Tor Elementary School	56 Gregory St., New City	Rockland	359	35
M. L. Colton Elementary School	40 Grandview Ave., Spring Valley	Rockland	41	37
Mohansic Elementary School	704 Locksley Rd., Yorktown Heights	Westchester	500	11
Montgomery Highland FLS/Ft. Sch.	P. O. Box 287, Highland Falls	Orange	573	24
North Garnerville Elementary School	63 Chapel St., Garnerville	Rockland	335	31
North Rockland High School	106 Hammond Rd., Thiells	Rockland	2535	31
Northern Westchester Music School	2014 Crompond Rd., Yorktown Heights	Westchester	12	13
Peekskill High School	1072 Elm St., Peekskill	Westchester	716	2
Peekskill Middle School	212 Ringgold St., Peekskill	Westchester	507	2
Phoenix Academy High School	P. O. Box 458, Shrub Oak	Westchester	225	10
Pierre Van Cortland Middle School	3 Glen St., Ossining	Westchester	355	22
Pomona Middle School	101 Pomona Rd., Suffern	Rockland	1016	37
Putnam Valley Middle School	142 Peekskill Hollow Rd., Putnam Valley	Putnam	533	19
Ramapo Senior High School	400 Viola Rd., Spring Valley	Rockland	1843	37
Rockland Country Day School	34 Kings Hwy., Congers	Rockland	256	33
Sacred Heart of Jesus School	6 Cozzens Ave., Highland Falls	Orange	285	26
Saint Peters School	21 Ridge St., Haverstraw	Rockland	258	31
St. Anns Parish School	16 Elizabeth St., Ossining	Westchester	430	51

School	Address	County	Population	ERPA
St. Augustine School	114 S Main St., New City	Rockland	277	35
St. Augustine School	Eagle Park, Ossining	Westchester	610	22
St. Gregory Barbarigo School	29 Cinder Rd., Garnerville	Rockland	280	31
St. Patricks School	117 Moseman Rd., Yorktown Heights	Westchester	434	13
St. Paul School	365 Kings Hwy., Valley Cottage	Rockland	468	33
St. Theresa School	300 Dalmeny Rd., Briarcliff Manor	Westchester	234	51
Stony Point Elementary School	7 Gurnee Dr., Stony Point	Rockland	784	30
Street School Community Center	31 Zukor Rd., New City	Rockland	264	34
Summit Park Elementary School	30 Route 45, New City	Rockland	544	37
Sunshine Cmnty. Nursry/Day Care	384 New Hempstead Rd., New City	Rockland	70	35
Thiells Elementary School	78 Rosman Rd., Thiells	Rockland	857	31
Todd Elementary	45 Ingham Rd., Briarcliff Manor	Westchester	889	51
Uriah Hill Elementary School	980 Pemart Ave., Peekskill	Westchester	299	2
W. Haverstraw Middle School	71 Blauvelt Ave., West Haverstraw	Rockland	797	31
Walter Panas High School	300 Croton Ave., Cortlandt Manor	Westchester	1093	9
West Orchard Elementary School	25 Granite Rd., Chappaqua	Westchester	644	21
West Point Elementary School	705 Barry Rd., West Point	Orange	910	24
Yeshiva Avir Yakow Girls School	15 N Roosevelt Ave., Spring Valley	Rockland	2455	37
Yeshiva Zichorn Yaakov	720 Union Rd., Spring Valley	Rockland	92	37
Yorktown High School	2729 Crompond Rd., Yorktown Heights	Westchester	807	11
Yorktown Middle School	2701 Crompond Rd., Yorktown Heights	Westchester	1185	11

Table D-8: Daycare Facilities within the Emergency Planning Zone

Daycare	Address	County	Population	ERPA
Accent On Learning Child Care Center	325 S Highland Ave., Briarcliff Manor	Westchester	118	51
Ages and Stages Nursery School	P. O. Box 239, Congers	Rockland	56	33
Americas Future	18 N Route 303, Congers	Rockland	17	32
Anas Care	1 Centennial Dr., Garnerville	Rockland	13	31
Barbara Ann Biele	3038 Crompond Rd., Yorktown Heights	Westchester	8	11
Bounous Montessori	224 Main St., Cold Spring	Putnam	29	23
Briarcliff Nursery School	P. O. Box 28, Briarcliff Manor	Westchester	61	22
Bright Beginnings	1974 Commerce St., Yorktown Heights	Westchester	66	13
Bubbles Daycare	1 Corinthian Rd., New City	Rockland	7	35
Building Block Child Care Center	845 Fox Meadow Rd., Yorktown Heights	Westchester	89	11
Center Nursery School Yorktown	2966 Crompond Rd., Yorktown Heights	Westchester	32	11
Children Learning Garden Day	365 Columbine Ct., Yorktown Heights	Westchester	19	13
Childrens Garden Day Nursery	470 Mountainview Ave., Valley Cottage	Rockland	21	33
Chris Learning & Fun	4 Havencrest Dr., Thiells	Rockland	6	31
Christian Nursery School	25 S State Rd., Briarcliff Manor	Westchester	68	51
CIC Early Head Start	1 Washington Ave., Spring Valley	Rockland	132	37
Circle School	56 Cleveland Dr., Croton On Hudson	Westchester	41	6
Clarkstown Teddy Bears	58 Endicott St., Congers	Rockland	17	32
Community Nursery School Ctr.	10 Academy St., Cold Spring	Putnam	35	23
Country Cousins Nursery School	P. O. Box 652, Putnam Valley	Putnam	20	19
Creative Playcare	201 Scarborough Rd., Briarcliff Manor	Westchester	19	51
Cricket Town Child Care Too	P. O. Box 630, West Haverstraw	Rockland	83	31

Daycare	Address	County	Population	ERPA
Crickett Town School	P. O. Box 27, Stony Point	Rockland	72	30
Croton Community Nursery School Inc.	25 Van Wyck St., Croton On Hudson	Westchester	36	6
Fidelios Home Day Care	1814 French Hill Rd., Yorktown Heights	Westchester	12	13
Foleys Home Day Care	2731 Hedwig Dr., Yorktown Heights	Westchester	17	11
Fun Times Day Care	13 S Highview Ave., New City	Rockland	8	37
Happy Tots Day Care Inc.	114 Grand St., Croton On Hudson	Westchester	95	6
Julies Little School	82a Oregon Rd., Cortlandt Manor	Westchester	10	8
Kid Time	8 Harrison St., Stony Point	Rockland	9	30
Kids Place	1 Emwilton Pl, Ossining	Westchester	59	21
Mrs. Manners Day Care	1264 Winding Ct., Mohegan Lake	Westchester	11	10
Nabby Day Camp	1 Susquehanna Rd., Ossining	Westchester	500	22
New Square CIC Headstart Inc.	766 N Main St. Ste. 108, Spring Valley	Rockland	22	37
Nice Care Inc.	73 Indian Brook Ln., Garrison	Putnam	15	17
Noahs Ark Nursery School	P. O. Box 342, Mahopac	Putnam	53	20
Only For Kids Inc.	577 N State Rd., Briarcliff Manor	Westchester	82	22
Ossining Childrens Center	90 S Highland Ave., Ossining	Westchester	205	51
Palace Little Peoples	15 Fersch Ln., Congers	Rockland	7	32
Pattan Zee Community Nursery	365 Strawtown Rd., New City	Rockland	25	35
Pied Piper Pre-School	P. O. Box 494, Yorktown Heights	Westchester	50	13
Pitter Patter Child Care	419 Cedar Dr. W, Briarcliff Manor	Westchester	6	51
Playgarten Day Care Center	58 Lake Rd., Valley Cottage	Rockland	125	33
Putnam Assoc. Resource Centers	141 Oscawana Lake Rd., Putnam Valley	Putnam	11	19
Quality Time Play To Learn	2930 Gomer St., Yorktown Heights	Westchester	18	11
Ramapo Community Nurser School	8 Old Schoolhouse Rd., New City	Rockland	21	35

Daycare	Address	County	Population	ERPA
Robin Hill School	70 Wesley Chapel Rd., Suffern	Rockland	72	37
Rockland Learning Center Inc.	136 Concklin Rd., Pomona	Rockland	58	34
Rockn Robins Day Care	78 Kennedy Dr., West Haverstraw	Rockland	18	31
Ruffins Home Day Care	1 Gilda Ct., Spring Valley	Rockland	15	37
Sanford Learning Center	7 Moorea Ct., Garnerville	Rockland	1	31
Seed Day Care Center Inc.	2084 Baldwin Rd., Yorktown Heights	Westchester	86	13
Small Miracles Pre-School Ctr.	17 Campwoods Rd., Ossining	Westchester	119	22
Small Miracles Pre-School Ctr.	17 Campwoods Rd., Ossining	Westchester	118	22
St. Dominics Home	57 Ridge Rd., Valley Cottage	Rockland	13	33
St. Lukes Nursery School	P. O. Box 533, Putnam Valley	Putnam	54	19
St. Pauls Christian Day School	323 S Main St., New City	Rockland	176	35
St. Philips Nursery School	S Mountain Pass, Garrison	Putnam	17	16
Strawberry Road Early Lrng. Ctr.	1770 Strawberry Rd., Mohegan Lake	Westchester	110	10
Teddy Bear Kids Care	89 Havermill Rd., New City	Rockland	7	35
Teddy Bears Childcare	119 W Main St., Stony Point	Rockland	35	30
The Building Block Child Care	845 Fox Meadow Rd., Yorktown Heights	Westchester	80	11
The Little School House	24 Govan Dr., Stony Point	Rockland	17	30
Thiells Pre-School	64 New Main St., Haverstraw	Rockland	18	31
Wescop Yorktown Heights Head Start	1974 Commerce St., Yorktown Heights	Westchester	77	13
YM-YWHA	3566 Crompond Rd., Cortlandt Manor	Westchester	56	10
Yorktown Community Nursery School	P. O. Box 1146, Yorktown Heights	Westchester	41	13

Table D-9: Nursing Homes within the Emergency Planning Zone

Nursing Home	Address	County	Population	Zone
Abbott House	55 Route 9w, Haverstraw	Rockland	24	31
Assisted Living At Northern River	89 S Route 9w, Haverstraw	Rockland	136	31
Atria Inc.	1025 Pleasantville Rd., Briarcliff Manor	Westchester	185	51
Bernstein House	228 Ramapo Rd., Garnerville	Rockland	21	31
Bethel Nursing & Rehabilitation	67 Springvale Rd., Croton On Hudson	Westchester	369	48
Bethel Nursing Home Co. Inc.	17 Narragansett Ave., Ossining	Westchester	128	22
Bethel Senior Residence	62 Springvale Rd., Croton On Hudson	Westchester	175	48
Bethel Springvale Inn	1719 Narragansett Ave., Ossining	Westchester	160	22
Brandywine Nursing Home Inc.	620 Sleepy Hollow Rd., Briarcliff Manor	Westchester	216	51
Camary Statewide Service	P. O. Box 183, Granite Springs	Westchester	17	14
Camary Statewide Services Inc.	P. O. Box 183, Yorktown Heights	Westchester	16	13
Cedar Manor Nursing Home	P. O. Box 928, Ossining	Westchester	233	22
Church St. Community Residence	6466 Church St., Garnerville	Rockland	9	31
Community Based Services Inc.	2466 Broad St., Yorktown Heights	Westchester	30	11
Community Living Corp	725 Kitchawan Rd., Ossining	Westchester	14	12
Cortlandt Hills Group Home	106 Watch Hill Rd., Cortlandt Manor	Westchester	220	4
Country House	2000 Baldwin Rd., Yorktown Heights	Westchester	150	13
Croton House	1 Mount Green Rd., Croton On Hudson	Westchester	13	6
Crystal Run Village Inc.	29 Seymour Dr., New City	Rockland	12	35
Danish Home For The Aged Inc.	P. O. Box 334, Croton On Hudson	Westchester	20	50
Faith Adult Home Inc.	P. O. Box 1078, Ossining	Westchester	14	22

Nursing Home	Address	County	Population	Zone
Field Home-Holy Comforter	P. O. Box 222, Yorktown Heights	Westchester	615	13
Friedwald House	475 New Hempstead Rd., New City	Rockland	330	37
Garnerville Home For Adults	P. O. Box 328, Garnerville	Rockland	45	31
Green Chimneys Childrens Services	183 Cedar Ln., Ossining	Westchester	11	22
Hudson Valley DDSO	52 Moseman Rd., Yorktown Heights	Westchester	10	13
Institute Applied Human D St. J	Drawer 129, Yorktown Heights	Westchester	21	12
Laurel Manor Adult Home	P. O. Box 397, New City	Rockland	47	35
Loeb House Inc.	15 Old Route 202, Pomona	Rockland	33	36
Longhill Road Community	2 Long Hill Rd., Highland Mills	Orange	11	25
Hudson Valley DDSO	63 Park Rd., Stony Point	Rockland	8	30
Micah Manor	P. O. Box 564, Stony Point	Rockland	10	30
Millwood House	45 Shingle House Rd., Millwood	Westchester	12	21
Mount Ivy Intermediate Care Facility	1048 Route 45, Pomona	Rockland	19	34
Northern Riverview Healthcare Center	87 S Route 9w, Haverstraw	Rockland	390	31
Putnam Assn. Resource Center	329 Main St., Cold Spring	Putnam	13	23
Rockland County ARC	25 Hemlock Dr., Congers	Rockland	767	32
Sky View Health Care Center	P. O. Box 130, Croton On Hudson	Westchester	262	6
Sleepy Hollow Adult Home	620 Sleepy Hollow Rd., Briarcliff Manor	Westchester	38	51
Sunrise Assited Living Management	233 N Main St., New City	Rockland	116	35
Tolstoy Foundation	P. O. Box 319, Valley Cottage	Rockland	109	33
Tolstoy Foundation Center	P. O. Box 578, Valley Cottage	Rockland	69	33
Venturesome	16 New York Ave. 18, Congers	Rockland	12	33
Victoria Nursing Home	25 N Malcolm St., Ossining	Westchester	113	22

Nursing Home	Address	County	Population	Zone
Walter Hoving Home Inc.	P. O. Box 194, Garrison	Putnam	70	17
Westledge Nursing Home	2000 Main St., Peekskill	Westchester	213	2

Table D-10: Prisons within the Emergency Planning Zone

Name	Address	County	Population	ERPA
Rockland County Correctional Center	P. O. Box 2393, New City	Rockland	275	35
Sing Sing Correctional Facility	354 Hunter St., Ossining	Westchester	2750	22

Table D-11: Large (Population > 50) Hotels/Overnight Camps within the Emergency Planning Zone

Hotels/Overnight Camps	Address	County	Population	ERPA
American Budget Inn	32 RR 17, Harriman	Orange	68	40
Bear Mountain Inn	Bear Mountain	Rockland	665	39
Best Western	17 Main St., Highland Falls	Orange	409	26
BYO Blair Lodge	221 Peekskill Hollow Rd., Putnam Valley	Putnam	150	19
Camp Addison Boyce	Mott Farm Rd., Tomkins Cove	Rockland	250	30
Day Camp In The Park Inc.	6 Kendall Dr., New City	Rockland	500	35
Holiday Inn Express	1106 Route 9W, Ft. Montgomery	Orange	175	26
Hotel Thayer	674 Thayer Rd., West Point	Orange	2255	24
Lanowa Camp	Gate Hill Rd., Stony Point	Rockland	146	30
Palisade Motel	17 Main St., Highland Falls	Orange	110	26
Peekskill Motor Inn	634 Main St., Peekskill	Westchester	119	2
Pig Hill Inn	P. O. Box 357, Cold Spring	Putnam	21	23
Rockland YMHA-YWHA	900 Route 45, New City	Rockland	54	37
Stony Point Center	17 Cricketown Rd., Stony Point	Rockland	190	30

Hotels/Overnight Camps	Address	County	Population	ERPA
Vacation Camp For Blind	111 Summit Park Rd., Spring Valley	Rockland	250	37
Watergate Motel	RR Box 9A, Croton On Hudson	Westchester	64	6
West Point Motel	156 Main St., Highland Falls	Orange	205	26

Table D-12: Hospitals within the Emergency Planning Zone

Hospital	Address	County	Population	ERPA
Franklin Delano Roosevelt VA Hospital	P. O. Box 100, Montrose	Westchester	991	48
Helen Hayes Hospital	R.R. Box 9w, Haverstraw	Rockland	621	31
Hudson Valley Hospital Center	Cortlandt Manor	Westchester	120	9
Keller Army Community Hospital	US Military Aca. Bldg. 900, West Point	Orange	291	24
St. Marys Rehabilitation Center	P. O. Box 568, Ossining	Westchester	109	21
Stony Lodge Hospital Inc.	P. O. Box 1250, Briarcliff Manor	Westchester	361	22
Summit Park Hospital	50 Sanitorium Rd. Bldg. A, Pomona	Rockland	108	37

Table D-13: Large Industries (Employment > 150) with the Emergency Planning Zone

Large Industry	Address	County	Employment	ERPA
A & T Health Care Llc.	339 N Main St., New City	Rockland	550	34
A. F. G. E. Local Union 2440	Fdr. VA Hosp. Bld. 13 Rm. 17, Montrose	Westchester	160	47
Accent Maintenance Corp	109 Croton Ave. Ste. 10, Ossining	Westchester	750	22
American Lisure Facilities Mgt	2 New Hempstead Rd., New City	Rockland	275	35
Barr Laboratories Inc.	P. O. Box 2900, Pomona	Rockland	170	36
Beacon Community Health Center	1037 Main St., Peekskill	Westchester	230	2
City of Peekskill	840 Main St., Peekskill	Westchester	200	2
Clarkstown Central School Dst	62 Old Middletown Rd., New City	Rockland	153	35

Large Industry	Address	County	Employment	ERPA
Club Fit	P. O. Box 241, Jefferson Valley	Westchester	160	22
County of Rockland	11 New Hempstead Rd., New City	Rockland	500	35
Data Com Direct Inc.	614 Corporate Way, Valley Cottage	Rockland	200	33
Department of Social Services	Sanitorium Rd. Bldg. L, Pomona	Rockland	500	37
Dolce Intrnational/Crotonville	Old Albany Post Rd., Ossining	Westchester	155	22
Elks Lodge B.P.O.E. 1486	80 Main St., Ossining	Westchester	200	22
Empire Medicare	2651 Strang Blvd., Yorktown Heights	Westchester	309	11
Entergy	P. O. Box 215, Buchanan	Westchester	850	1
Geis Toyota Inc.	P. O. Box 671, Peekskill	Westchester	170	8
Gypsum Plant	P. O. Box 711, Stony Point	Rockland	215	30
Home Depot	254 Larkin Dr., Monroe	Orange	200	40
Hudson Valley DDSO	P. O. Box 470, Thiells	Rockland	300	31
IBM	P. O. Box 218, Yorktown Heights	Westchester	3000	13
Indian Point 1 & 2	Bleakley & Broadway, Buchanan	Westchester	700	1
Inn Credible Caters Ltd	P. O. Box 337, Central Valley	Orange	200	27
Interstate Lumber & Mill	P. O. Box 816, Shrub Oak	Westchester	175	10
Jawonio Inc.	260 N Little Tor Rd., New City	Rockland	500	35
Kyto Meridian Diagnostics Inc.	216 Congers Rd., New City	Rockland	170	35
Louis Hornick & Co Inc.	152 Broadway, Haverstraw	Rockland	500	31
Macys	700 Lee Blvd., Yorktown Heights	Westchester	200	11
Mark M. D. Geller	18 Squadron Blvd., New City	Rockland	200	35
Maryland Sisters	10 Pinesbridge Rd., Ossining	Westchester	250	21
Micros-To-Mainframes Inc.	614 Corporate Way, Valley Cottage	Rockland	157	33
Omicare	704 Executive Blvd., Valley Cottage	Rockland	180	33

Large Industry	Address	County	Employment	ERPA
Philips Research	345 Scarborough Rd., Briarcliff Manor	Westchester	300	51
Putnam-Northern Westchester BOCES	200 Boces Dr., Yorktown Heights	Westchester	750	15
Rockland County Health Dept	50 Sanitorium Rd. Bldg. D, Pomona	Rockland	200	37
Telemarketing Concepts Inc.	P. O. Box 600, Yorktown Heights	Westchester	250	13
Testwell Laboratories Inc.	47 Hudson St., Ossining	Westchester	225	22
Town of Clarkstown	10 Maple Ave., New City	Rockland	313	35
Town of Cortlandt Manor	1 Heady St., Cortlandt Manor	Westchester	200	8
Town of Yorktown Inc.	P. O. Box 703, Yorktown Heights	Westchester	300	13
Tree Preservation Co. Inc.	1950 E Main St. 205, Mohegan Lake	Westchester	160	10
UPS	1785 Front St., Yorktown Heights	Westchester	200	13
Wal-Mart	3133 E Main St., Mohegan Lake	Westchester	300	10
Warehouse NY Power Authority	P. O. Box 215, Buchanan	Westchester	800	1
White Plains Linen	4 John Walsh Blvd., Peekskill	Westchester	325	2

Table D-14: Parks within the Emergency Planning Zone

Park	ERPA	Jurisdiction	Peak Population
Anthony Wayne Recreation Area—Harriman State Park	39	State; Orange	3800
Bear Mountain State Park	39	State	5,033
Beaver Pond Campgrounds—Harriman State Park	40	State	411
Blue Mountains	4, 2	Westchester	82
Congers Lake Memorial Park	33	Rockland	470
Croton Gorge Park	5	Westchester	50

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Park	ERPA	Jurisdiction	Peak Population
Croton Point Park	6	Westchester	460
Franklin D. Roosevelt State Park	13	State	Still gathering info
George's Island Park	4	Westchester	43
Harriman Group Camps	40	State	3700
Harriman Hikers	40	State	180
High Tor State Park	31, 34	State	300
Lake Sebago Beach— Harriman State Park	40	State	6000
Lake Tiorati Beach— Harriman State Park	40	State	2700
Lake Welch Beach— Harriman State Park	40	State	8400
Mohansic Park and Golf Course	12	Westchester	248
Silver Mine—Harriman State Park	40	State	600
Stony Point Battlefield State Historic Site	29	State	170

Appendix E: KLD’s Evacuation Network from Field Survey

**Table E-1: KLD's Evacuation Network from Field Survey
(Designated Evacuation Routes from County Plans)**

ERPA Number	Route Name	KLD Node IDs (upstream node to downstream node)	KLD Number of Lanes	KLD Speed (MPH)	KLD Length (Miles)	IEM Number of Lanes	IEM Speed (MPH)	IEM Length (Miles)
2	Bear Mountain State Pkwy.	701-420-279-278	2	30		1	45	
2	Hudson St.	933-772-764-773	2	30		1	25, 30	
5	Croton Dam Rd.	827-947	2	30		1	30, 25	
6	US 9	784-785	2	30		2	55	
6	CPP	972-1017	2	30		1	15	
8	Oregon Road	906-745-743	2	30		1	30	
9	Crompond Road	712-273	2	30		1	45	
9	Croton Ave.	779-826	2	30		1	30	
10	Locust Ave.	457-732	2	30	.95	1	30	.744
10	East Main St.	468-732	2	30		1	35	
10	Taconic State Pkwy.	753-271	2	30		2	55	
10	Crompond Road	273-713-714	2	30		1	45	
11	Route 202	716-717-718	2	30		1	45	
11	Route 35	840-720	2	30		1	35	
12	Taconic Pkwy.		2	30		2	55	
12	Route 129	817-818	2	30		1	30	

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ERPA Number	Route Name	KLD Node IDs (upstream node to downstream node)	KLD Number of Lanes	KLD Speed (MPH)	KLD Length (Miles)	IEM Number of Lanes	IEM Speed (MPH)	IEM Length (Miles)
13	Moseman Ave.	951-843-844	2	30		1	30	
13	Croton Lake Rd.	820-821-838-848	2	30		1	40	
14	Route 6	737-739	2	40		1	40	
14	Tomahawk St.	761-724	1	30	.59	1	30	.334
14	Granite Springs Rd.	763-762-761	2	30	1.36	1	30	1.54
15	Moseman Ave.	844-477-846	2	30		1	30	
15	Route 100	850-846	2	30		1	45	
16	Route 9D	311-310	1	30		1	45	
16	US 9	322-321	2	30		1	50	
17	Route 9D	307-303	1	30	3.42	1	45	2.712
17	US 9	320-319, 318-316	2	30		1	50	
18	Conopus Hollow Rd.	435-328	2	30		1	30	
19	Route 21	346-348	2	30		1	30	
19	Route 15	328-329	2	30		1	30	
20	6N	360-423	2	30		1	40	
21	Taconic Pkwy.	866-865	2	30		2	55	
21	Route 133	1049-1120	2	30		1	35	
22	US 9	1047-867	2	30		2	55	
23	Route 9A	303-302	1	30		1	45	
24	Route 293	553-552	1	55		2	55	
26	Route 9W	508-555-556	1	40, 55		2	30, 40	

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ERPA Number	Route Name	KLD Node IDs (upstream node to downstream node)	KLD Number of Lanes	KLD Speed (MPH)	KLD Length (Miles)	IEM Number of Lanes	IEM Speed (MPH)	IEM Length (Miles)
27	Route 34	546-547	1	30		1	50	
27	Route 9	543-323	2	30		1	50	
30	Route 106	153-286	2	30		1	55	
31	Route 202	36-16	1	55		1	40	
32	Route 303	193-67	1	30		1	55	
34	Zukor Rd.	186-185	2	30		1	45	
34	N Little Tor Rd.	40-41	1	30		1	50	
35	PIP	43-9	2	30		2	55	
35	N Little Tor Rd.	177-9	2	30		1	45	
37	Route 202	3-2	1	30		1	50	
37	Route 45	22-166	2	30		1	45	
39	Route 9W	605-512	2	55		1	55	
39	PIP	132-133	2	30		2	55	
48	Route 9A	790-791	2	30		1	35	
48	US 9	781-782	2	30		2	55	
48	Furnace Dock Rd.	799-802	2	30		1	30	
49	Maple Ave.	774-775	2	30		1	30	
49	Furnace Dock Road	775-962-903-776	2	30		1	30	
50	Quaker Bridge Road	851-747	2	30		1	30	
51	Route 9A	876-877	2	30		2	45	
51	Sleepy Hollow Rd. N	887-889	2	30		1	30	

Appendix F: Details on Alert and Notification System Review

Meteorological Conditions around Indian Point¹

Table F-1: Indian Point Site Wind Direction Distributions at 33 ft. Elevation

Direction	Frequency of Occurrence (%)
N	5.9
NNE	12.7
NE	14.7
ENE	5.6
E	2.2
ESE	1.2
SE	1.4
SSE	2.2
S	6.9
SSW	9.3
SW	8.7
WSW	3.3
W	3.2
WNW	4.2
NW	8.2
NNW	6.2
CALM	4.1

¹ Final Environmental Statement Related to Selection of the Preferred Closed Cycle Cooling System at Indian Point 3 (December 1979), pages 1-12.

Table F-2: Indian Point Site Wind Speed Frequency Distribution at 33 ft Elevation

Wind Speed Category (mph)	Frequency Distribution(%)
0-3	51.3
4-7	34.6
8-12	12.2
13-18	1.7
19-24	0.1
24+	0.0

Table F-3: JFK International Airport (NYC) Temperature, Precipitation and Humidity (Monthly Means)

Month	Temperature (F)	Precipitation (inches)	Humidity(%) Hours 1	Humidity(%) Hours 7	Humidity(%) Hours 13	Humidity(%) Hours 19
Jan	31.4	2.69	69	71	59	64
Feb	32.2	3.05	67	70	58	62
March	39.3	3.77	68	70	57	63
April	49.9	3.59	70	69	55	65
May	59.8	3.54	76	70	57	68
June	69.5	2.98	80	74	61	72
July	75.1	4.04	77	73	57	70
Aug	73.6	4.30	78	76	57	71
Sept	67.0	3.31	79	78	57	70
Oct	57.3	2.76	75	77	54	68
Nov	46.5	3.90	72	74	57	67
Dec	34.9	3.60	71	73	61	66

Functionality of the Sound Propagation Model

The sound propagation model used to generate the siren-level contours is a very simplistic model that essentially adds up the attenuation caused by different factors using empirical formulas for each factor. Attenuation is the process by which the intensity of sound is diminished as sound waves move through the air due to various environmental factors. When sound is produced by a siren the waves travel in all directions. The intensity of sound is distributed between all directions. This phenomenon is known as the spherical spreading of sound. The model uses what is known as an inverse-square-law dependence² to calculate the attenuation due to spherical spreading of sound waves in the atmosphere.

Also, since sound waves are essentially compressions and rarefactions³ of air in the atmosphere, as these compressions and rarefactions move through the air, some of the energy is absorbed internally by the air molecules. This results in lesser energy of motion of the air molecules itself and hence results in the decrease in intensity of the sound waves. The amount of sound wave energy that is absorbed in the air depends upon various factors such as the temperature, humidity, and atmospheric pressure. The sound propagation model used in the study uses seasonal averages of the maximum temperature and early afternoon relative humidity for the region to estimate air absorption coefficients at a single-tone siren frequency of 400 Hz and a dual-tone frequency of 600 Hz.

- In addition, it is an experimentally observed fact that turbulence in air causes scattering of sound waves which, in turn, results in loss of acoustic energy. The model uses two expressions to account for the attenuation due to scattering for the single- and dual-tone sirens.
- Sound waves that emanate from a siren source take several different paths as they travel through the air. Those waves that hit the ground get partially absorbed and so the reflected waves are attenuated by a factor that depends on the type of ground cover. In other words, if the ground cover is heavily forested, the amount of attenuation is different from the amount of attenuation that results from a ground cover that is rural or suburban. The model considers three different kinds of ground cover, namely water, rural/suburban, and heavily forested. Based on the experimental data presented in the report (page A8), it is evident that the formula used for either the heavily forested case or the rural/suburban case fits better at distances closer to the sirens.
- The underlying model used to predict the attenuation caused by barriers is based on the assumption that the barrier in question is thin relative to the distance that the sound wave travels⁴. The actual terrain is treated as a series of thin barriers and the maximum of this series is taken as the resulting attenuation because of the hilly barrier.
- The type of temperature and wind-speed gradient⁵ that is present at any time in the atmosphere has a significant effect on the sound wave energy. For instance, a positive

² Inverse-square law dependence in general means that the intensity falls as the square of the distance from the source. In other words, if the distance from the source increases by a factor 2, then the intensity decreases by a factor of 4, if the distance increases by a factor of 3, the intensity decreases by a factor of 9 and so on.

³ Rarefactions as against compressions, are minimum pressure areas in the air

⁴ In acoustics, this is called the classical Fresnel Diffraction model

⁵ Temperature or wind-speed gradient is defined as the change in the value of temperature or wind-speed with height above ground. So a positive gradient signifies an increase in value over height while a negative gradient signifies a decrease in value over height.

temperature and wind-speed gradient actually results in an increase in sound level than what would be expected under normal conditions. In contrast, if the temperature and wind-speed gradient is negative then there is a significant amount of propagation loss. The sound propagation model used in this study chooses to ignore the effect of the temperature gradient. This makes the model more conservative because the principal effect of ignoring the temperature gradient is to decrease the predicted sound levels in the model.

Appendix G: FEMA Exercise Report Findings

Table G1: Areas Requiring Corrective Action Noted in FEMA Exercise Reports for Indian Point

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
FEMA Agency Narrative Report for Indian Point 3 Nuclear Power Station	Orange County Traffic Control Points		The Orange County radiological emergency response plan incorrectly directed emergency workers to record DRD reading on Attachment 4, which is actually for Environmental Protection Agency guidance on dose limits for emergency workers. The Individual Radiation Exposure Record and Emergency Worker Radiological Exposure Record is where dose limits should be recorded.	November 15, 2000	No recommendation noted.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action.	The radiological emergency response plan is unclear concerning how and where dose limits should be recorded. The radiological emergency response plan should be rewritten with the dose limits documentation clearly stated.
FEMA Narrative Report for Indian Point 3 Nuclear Power	Orange County Reception Center		During the exercise, the Reception Center Director dispensed with the combined walk-down of functional areas to expedite the	November 15, 2000	No recommendation noted.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective	The walk-down of functional areas should be carried out in the next exercise.

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Station			evaluation process. This change in the operational intent was agreed to by the evaluation team.				Action.	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Orange County Reception Center		Police are responsible for security and traffic control; however, no police were observed during the demonstration	November 15, 2000	No recommendation noted.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action.	Police should be interviewed to make sure they are aware of responsibilities and proper locations.
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Orange County Reception Center		The use of portal monitors for initial monitoring is mentioned in the radiological emergency response plan; however, no portal monitor was shown on the PMC equipment list	November 15, 2000	No recommendation noted.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action.	The monitors should be placed on the PMC equipment list.
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Orange County Reception Center		The portal monitors were assembled in accordance with instructions in Addendum 10, but the staff did not initially verify proper operation by using a check source.	November 15, 2000	No recommendation noted.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action. It was later found that the monitors	The portal monitors should be clearly stated in the radiological emergency response plan.

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
							were not in accordance with the FEMA Portal Monitor Standard.	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Orange County Reception Center	Vehicle monitoring station survey vehicle was not adequate. The probe was held several inches above the vehicle and moved the probe approximately one foot per minute, which is too slow.		November 15, 2000	No recommendation noted.	Drill was stopped and controller was immediately told of his error.	Issue not specifically noted as an Area Requiring Corrective Action.	The corrective action should be properly documented.
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Emergency Operations Center		The implementation of school procedures at the exercise raised some concern about the completeness of the county's school procedures.	November 15, 2000	The School Procedure for Putnam County should be updated to include information about how and where parents would be notified about protective action recommendations (especially if they occur after parents	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action.	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
					have already been notified to pick up their children at a reception center located outside of the Emergency Planning Zone).			
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Field Monitoring Teams		Field Monitoring Team B did not include a filter counting holder, as indicated in the procedure. However, an alternate sample counting geometry was used that is in the procedure	November 15, 2000	A filter counting holder should be included in the supply list.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action.	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County Field Team Coordination and Dose Assessment		Was unable to access Meteorology Information and Dose Assessment System (Plume Dose Projection model) because it wouldn't accept the password.	November 15, 2000	Should test to make sure that all passwords are available to access needed software.	No corrective action noted.	Issue not specifically noted as an Area Requiring Corrective Action. The field coordination team was able to make a plume dose assessment using alternative methods.	
FEMA	State of New	State did not		November	Using a hard copy	No	Should be	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Narrative Report for Indian Point 3 Nuclear Power Station	York Dose Assessment	communicate the dosimeter correction factor, and associated new exposure reporting limits to Rockland and Westchester Counties. In addition, the State did not provide guidance on how to use this information.		15, 2000	system, the State should convey changes to the dosimeter correction factor and corresponding revised exposure reporting limit values. This includes informing emergency field workers. The plan and procedures should be reviewed and revised when needed.	corrective action noted.	addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	State of New York Emergency Operations Facility	Inoperable Utility Supplied Data System in Rockland, Westchester, and Orange Counties. The utility-supplied Meteorology Information and Dose Assessment System terminal and printer was inoperative in the county Emergency Operations		November 15, 2000	Work with the utility to resolve the cause of the problem with Meteorology Information and Dose Assessment System. If a permanent repair cannot be made, proceed with a different approach.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001.	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		Center's for much of the exercise.						
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	State of New York Joint News Center	Rumor control telephone number should be included on documents distributed to the media and public.		November 15, 2000	Place the rumor control number on all documents.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	State of New York Joint News Center	No follow-up messages were sent to the Emergency Alert System station.		November 15, 2000	Ensure that procedures regarding follow-up special news bulletins are followed at the Joint News Center.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	State of New York Joint News Center	At the media briefing conducted at 1035 hours, the Westchester County Public Information Officer announced at 1039 hours that sirens had been sounded at 1041 and the Emergency		November 15, 2000	When an alert and notification sequence is scheduled, the media briefings should be delayed until after the Emergency Alert System broadcast.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		Alert System message had been broadcast at 1044 hours. This was prior to events. The media briefing should have been delayed until after the alert and notification activity had concluded.						
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Emergency Operations Center	Emergency Alert System message 4 discusses how traffic control has been established to restrict access to the county. This was found not to be true.		November 15, 2000	Ensure that draft Emergency Alert System messages are reviewed for accuracy before approval is given.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Field Monitoring Teams	Procedure 4 in step 2.3 under "Airborne Survey Techniques" calls for a source check on the Eberline RM-14 meter		November 15, 2000	Putnam County Field Team A should receive further training on performing source checks.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		using the Cs-137 check source. These source checks were not performed. The equipment also included a CD V-700 survey meter.						
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Field Monitoring Teams	Team B's RM-14 instrument alarm and flashing light could not be turned off during check-out.		November 15, 2000	A spare RM-14 instrument should be available to the Putnam County Field Teams.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Putnam County Field Monitoring Teams	Field Team B did not protect the detector from contamination during particulate air monitoring. The detector should have been covered by thin, transparent plastic to avoid erroneous readings and contamination.		November 15, 2000	Field Team B should receive further training on performing particulate air monitoring.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County Emergency Operations Center	Communication between Rockland and Bergen counties needs to be improved. Bergen County continuously needed to contact Rockland Emergency Operations Center to get information that should have been transmitted.		November 15, 2000	Rockland County should provide a standard operating checklist for the Rockland/Bergen County liaison that will prompt the liaison to notify Bergen County.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County Reception Center	There was only one female monitor for the female shower at the Tappan Zee Reception Center, and two are required.		November 15, 2000	Additional female monitors should be trained to assure that staffing for the female decontamination area is sufficient.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power	Rockland County Reception Center	Holding areas in the cafeteria at the Tappan Zee Reception center are not designated for evacuees awaiting		November 15, 2000	The diagram of the reception center should include designated areas for evacuees awaiting transportation to shelters or private	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Station		transportation to shelters or private transportation.			transportation.			
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Westchester County Medical Drill	The medical team failed to isolate and control radioactive contamination within the treatment room.		November 15, 2000	No recommendation given.	No corrective action noted.	Should be addressed in an out-of-sequence exercise prior to December 31, 2001	
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School Bus Run	One of the bus drivers at Brega Bus Company was not aware that teachers are required to be with children on evacuation buses.		November 15, 2000	No recommendation noted.	With the concurrence of the controller, the drill play was stopped and the bus driver was informed of the requirement.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	A school official at the Cornerstone Christian School in Rockland County was not familiar with the school plan on October 17,		November 15, 2000	Provide training to both the principal and staff of the Cornerstone Christian School on the details and logistics to accomplish all actions needed.	The school received training on November 13, 2000.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		2000.						
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	A school official at the Cornerstone Christian School in Rockland County was only able to provide estimated travel times to reach the school reception center and was unfamiliar with the evacuation time on October 17, 2000.		November 15, 2000	Review the plan to ensure evacuation time estimate form the staff is current and travel planning is accurate	The principal demonstrated that she was familiar with the plan on November 29, 2000. She correctly indicated that the evacuation time estimate for her school is 1 hour.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	Copies of the appropriate plans and procedures were not available for review at the Playgarten Preschool, nor were copies of the information that is sent to the parents concerning possible		November 15, 2000	Rockland County Fire and Emergency Services should provide the preschool with copies of the appropriate plans and procedures, which should be kept at hand for reference in event of an emergency.	The director had copies and demonstrated knowledge of the plan on November 29, 2000.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		emergency response actions to be taken in event of an incident						
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	A school official at Playgarten Preschool was not sufficiently familiar with the notification procedures in the event of an incident at Indian Point.		November 15, 2000	The Rockland County Official of Fire and Emergency Services should provide regular training to the director and teachers.	The director had copies and demonstrated knowledge of the plan on November 29, 2000.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	No guarantee that teachers would stay with kids during an emergency because of their own family concerns.		November 15, 2000	The Rockland County Official of Fire and Emergency Services should visit the school to determine if the teachers would be willing to stay with their classes if they are evacuated to a host school.	The director confirmed on November 29, 2000, that staff is now aware of their roles and responsibilities during a radiation emergency.		
FEMA Narrative Report for Indian Point 3	Rockland County School interviews	School officials at North Rockland High School did not have a copy of		November 15, 2000	Copies of the plan should be kept in appropriate administrative areas.	The principal had a copy of the school emergency plan		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Nuclear Power Station		the radiological emergency response plan or procedures readily available.				available on November 29, 2000.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	No accountability system was in place for children who drive themselves off of the Rockland High School campus.		November 15, 2000	Commuter students should be constantly supervised by their teachers. The plan should be revised to indicate that all students will evacuate together on buses.	The principal agreed to recommendation, and an announcement will be made in the event of an evacuation.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	North Rockland High School reported that 86 buses would be needed to evacuate the school. The Rockland County plan states that the school only needs 46, leaving the possibility for a shortage.		November 15, 2000	Determine the correct numbers of buses needed to evacuate and ensure resources are available.	The principal confirmed on November 29, 2000, that the correct number of buses was 46.		
FEMA Narrative	Rockland County School	North Rockland High School		November 15, 2000	The school should review its plans	It was confirmed		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Report for Indian Point 3 Nuclear Power Station	interviews	indicated that the students would be boarding the same buses they take to school (instead of boarding by class) during an evacuation.			and procedures for an evacuation in light of federal guidance on the subject.	that the school district would use the same evacuation procedures for a radiological emergency as are used for winter storm dismissal.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	No guarantee that teachers would accompany students on buses during evacuation. This could be a contractual issue.		November 15, 2000	Teachers should be asked of their willingness to board buses with their classes, and if most are unwilling, an alternative procedures should be determined.	The principal confirmed that teachers would ride the school buses.		
FEMA Narrative Report for Indian Point 3 Nuclear Power Station	Rockland County School interviews	School officials were only able to provide estimated travel times to reach the school reception center and were unfamiliar with the evacuation		November 15, 2000	Review the plan to ensure that the evacuation time estimate of North Rockland High School is 1 hour.	Principal confirmed the 1-hour time period on November 29, 2000.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		time estimate.						
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station Ingestion Pathway Exercise	New York State Emergency Operations Center	Implementation issues associated with relocation and re-entry were not adequately communicated to the staff or public, and were not fully coordinated with other organizations.		May 25-27, 1999	A recorder should be designated to ensure that key information is successfully communicated from command and control to staff and the public.	No corrective action noted.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station Ingestion Pathway Exercise	New York State Emergency Operations Center	Implementation of protective actions were not fully coordinated with other organizations, such as the affected counties (re-entry policy).		May 25-27, 1999	No recommendation noted.	No corrective action noted.		
FEMA Final Exercise Report for Indian Point 2 Nuclear	New York State Joint News Center	Cellular telephone used by State Sampling Teams did not operate properly.		May 25-27, 1999	An improved communications system should be used for the field teams.	The cellular telephones issued to the three New York State Sampling Teams sent		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Power Station Ingestion Pathway Exercise						into the field during the May 1999 Ingestion Exercise operated without malfunction.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Putnam County Traffic Control Points	Putnam Valley Police Officer stated he would take one Potassium Iodide tablet upon arrival to the traffic control point.		June 24, 1998	Putnam Valley Police Officers should be given additional training on Potassium Iodide procedures.	Putnam Valley Police Department no longer exists.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Putnam County Emergency Worker Decontamination Station	Monitors were unfamiliar with the minimum reporting levels for contamination on vehicles. Various reports were given.		June 24, 1998	Provide additional training on contamination levels.	ARCA to be corrected during the next biennial exercise.		
FEMA Final Exercise Report for Indian Point 2 Nuclear	Rockland County Emergency Operation Center	Inaccurate monitoring location descriptions. Three out of four sites assigned for		June 24, 1998	All procedures in the radiological emergency response plan which reference monitoring locations should be	The monitoring location descriptions were revised and are now accurate.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Power Station		monitoring could not be identified			checked to ensure that the descriptions are accurate. Each site should be visited for description verification.			
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Rockland County Emergency Operation Center	Area personnel dosimeter monitors at the Rockland Emergency Operations Center were not read in accordance with the plan, which includes a prescribed schedule for jurisdictions within the 10-mile Emergency Planning Zone. Outside air ventilation was not closed off as required for a facility within the 10-mile Emergency Planning Zone.		June 24, 1998	Additional training is required to ensure that area personnel dosimeter monitors are read per prescribed schedules and that building air ventilation systems are isolated from sources of outside air when there is potential for exposure.	Radiological monitoring personnel were assigned to provide continual monitoring of the facility and to ensure that area dosimeters were read throughout the exercise.		
FEMA Final	Rockland County	The Emergency Operations		June 24, 1998	The Rockland County Plan	No corrective		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Exercise Report for Indian Point 2 Nuclear Power Station	Emergency Operation Center	Center Director did not adequately advise schools to evacuate during the emergency phase. He waited until the Site Area Emergency ECL to being evacuation of certain schools.			should be revised to allow for evacuation of schools prior to the declaration of the Site Area Emergency ECL.	action noted.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Rockland County Field Monitoring Teams	Team member was unfamiliar with instrument operability checks. His actions could not be guaranteed to provide adequate test of instrument operability		June 24, 1998	Team members should be given additional hands-on training on each of the instruments that they are expected to check and use. Then each team member should perform all steps to ensure thorough knowledge of operability procedures.	Field monitoring team members demonstrated complete knowledge of the use of the instrumentat-ion.		
FEMA Final Exercise Report for Indian	Rockland County Field Monitoring Teams	Team unfamiliar with air sampling and counting instrumentation.		June 24, 1998	Team members should be given additional hands-on training on each of the instruments	Team members demonstrated familiarizat-		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Point 2 Nuclear Power Station					that they are expected to check and use.	ion with the air sampling instruments and procedures for taking air samples and obtaining field monitoring data.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Rockland County Congregate Care Center	Rockland County did not demonstrate the ability to provide congregate care for evacuees following an incident.		June 24, 1998	Congregate care provisions should be demonstrated during the week of February 8, 1999	No corrective action noted.		
FEMA Final Exercise Report for Indian Point 2 Nuclear Power Station	Westchester County School Interviews	An Ossining Bus driver was not familiar with the reporting requirements for contamination. He reported 100R—not 1, 3, and 5R.		June 24, 1998	Provide additional training on emergency worker exposure control.	This Area Requiring Corrective Action was cleared by providing additional training on emergency worker exposure control and during a		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
						subsequent interview of another bus driver on July 24, 1998.		
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	New York State Joint News Center	The Joint News Center has very little ventilation and air conditioning is limited. Extreme heat caused increasingly unhealthy working conditions. The Westchester County Commissioner of Health declared that the building be closed after staff experienced adverse health effects.		April 10, 1996	Correct the ventilation and the air conditioning problems.	A total of 18 new air conditioners have been installed in all the working rooms. Also, a powered roof vent has been installed in the main media briefing room.	A new Emergency Operations Center is being built for Westchester County.	
FEMA Exercise Report for Indian Point 3 Nuclear	Orange County Field Monitoring Teams	The radiological staff demonstrated insufficient familiarity with the use of the		April 10, 1996	Additional training may be needed for field team personnel.	The radiological monitoring staff demonstrated a	There was no reference date for when the corrective action	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Power Station		instrumentation by misinterpreting range settings and by using a calibration source without removing a shielding cover.				thorough understanding in the use of instrumentation in the performance of field activities related to field team monitoring operations.	occurred.	
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	Rockland County Emergency Operation Center	The Bergen County Emergency Operations Center was not given information on the decision to terminate the exercise. The Bergen County Liaison was released from the Bergen County Emergency Operations Center at 1415 and was not replaced.		April 10, 1996	No recommendation noted.	Rockland County staff person serving as Rockland County Liaison to Bergen County remained at the Bergen County Emergency Operations Center until the end of the exercise.		
FEMA	Rockland	Workers in		April 10,	No	Vehicle		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Exercise Report for Indian Point 3 Nuclear Power Station	County Emergency Worker Personnel Monitoring Center	emergency worker monitoring and decontamination were aware of their dose limits of 1R, 3R and 5R, but vehicle monitors were unsure of dose limits and the units mR versus R.		1996	recommendation noted.	monitors were aware of dose limits. Signs and personal cards also listed exposure limits.		
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	Rockland County Emergency Worker Personnel Monitoring Center	Vehicle monitors did not monitor the wheel wells in order to determine if contamination existed in the wheel well area.		April 10, 1996	No recommendation noted.	Vehicle monitors correctly filled out the vehicle contamination report form.		
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	Westchester County Field Monitoring Teams	Field monitoring Team 1 did not always read their dosimeters every 30 minutes		April 10, 1996	No recommendation noted.	Field Team HD-1 scrupulously read their dosimeters every 15 minutes and recorded all information		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	Westchester County Reception Center and Congregate Care Center	There were four trained monitors; however, two monitors took an extreme amount of time monitoring the evacuees.		April 10, 1996	No recommendation noted.	Portal Monitors monitored evacuees in 1- seconds and once contamination was found, handheld instruments were used to scan.		
FEMA Exercise Report for Indian Point 3 Nuclear Power Station	Westchester County Emergency Worker Personnel Monitoring Center	Vehicle monitors rested their hands on the contaminated tire then continued to monitor the vehicle causing the potential contamination of worker and monitoring equipment.		April 10, 1996	No recommendation noted.	Monitors followed proper procedures while conducting vehicle monitoring.		

Table G2: Areas Requiring Corrective Action Noted in FEMA Exercise Reports for Millstone

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
FEMA Narrative Report for Millstone Power Station	Fishers Island EOC		The Superintendent of the Fishers Island School District stated during the interview at the EOC that she felt the evacuation plan for Fishers Island school children is totally inadequate. She also stated that if the order to evacuate is given, she may not accompany school children to the host community.	May 1, 2002	If the School Superintendent has any recommendations or concerns about the evacuation plans, she needs to address them to Town of Southold Emergency Management Officials. The Superintendent may not have all the information she needs on the evacuation plan.		Other Officials with authority would accompany school children on the ferry to the host community. School children on Fishers Island would be evacuated at the same time as the general population.	
FEMA Narrative Report for Millstone Power Station	Fishers Island EOC		The Town of Southold Emergency Management official is giving Fishers Island EOC staff EAS messages verbally over the telephone and not using the pre-scripted PARs that are included in the plan. To avoid any misinformation that may result in the translation of writing	May 1, 2002	If the Town of Southold wants Fishers Island to activate their siren before the Connecticut Area IV Coordinator starts the call down siren activations, they must provide EOC staff with a pre-scripted PAR. It may be best to			

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
			down important information over the phone, it is best to have the Communications Officer at the EOC to read from pre-scripted messages from the plan. This also results in Fishers Island in activating their siren before the Area IV Coordinator starts the call down activation of the other municipalities' sirens which could lead to confusion.		wait for the Area IV Coordinator to start the call down and have Fishers Island do it in sequence with the others and this way they assure themselves of receiving the proper pre-scripted PAR chosen for EAS broadcast. This will also eliminate any confusion that may result in having Fishers Island activate their siren well ahead of everyone else.			
FEMA Exercise Report for Millstone Power Station	State of Connecticut State Emergency Operations Center	The State OEM and the towns did not coordinate effectively, e.g., implementing the same precautionary activities and protective actions. This had the		May 1, 2002	The State OEM Director must reinforce to State agencies that all direction given to towns be coordinated through the Director's office. The State must ensure that towns are compliant with its direction and do		These issues will need to be corrected by additional planning, further training in local and State coordination protocols and, possibly,	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		potential to negatively impact public safety.			not take independent actions once a Declaration of a State of Emergency has been made.		some changes in procedures.	
FEMA Exercise Report for Millstone Power Station	State of Connecticut OEM Area IV, Colchester	Area IV staff did not inform the State EOC of early dismissal of schools in the Town and City of Groton		May 1, 2002	Conduct training on the need to pay more attention to incoming messages and ensure the messages are distributed to appropriate staff members for proper action. Change the plan to reflect a requirement for the Area IV Coordinator to advise the State EOC of any actions taken by EPZ communities.		This prevented the Director and the State Media Center from providing information to the public as to the status of the school children in the Groton School District. The lack of information about the Groton School District would have brought undue stress and concern to the parents who	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
							have children in these schools.	
FEMA Exercise Report for Millstone Power Station	Connecticut State Transportation Staging Area		The Radiological Officer did not brief emergency workers concerning potential allergic reactions to ingesting Potassium Iodide. However, the information packets did contain the caution in a conspicuous location where the workers should see it as they filled out information on their "Potassium Iodide (KI) Report."	May 1, 2002	Include a statement in the briefing that persons who are allergic to iodine should not ingest KI.	The Radiological Officer successfully redemonstrated the briefing and included the warning to emergency workers.		
FEMA Exercise Report for Millstone Power Station	State of Connecticut State Emergency Operations Center	A new pager system from Millstone for use by key personnel was used throughout the exercise. The system generally reached one of several pagers, but was unreliable for all key persons		March 15, 2000	Determine the problem of erratic readouts on pagers and correct these problems in order to obtain accurate and complete pager messages. Demonstrate at next scheduled exercise.	During the May 2002 exercise, no failures of the pagers or garbled messages were reported.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		to receive messages. Typically, out of five pagers, one would receive a complete message, and the other pagers received garbled messages, if received at all.						
FEMA Exercise Report for Millstone Power Station	Joint Media Center	Although the EAS messages and press releases generally provided clear, thorough, and consistent emergency information for the public, several statements in Press Release #7 regarding precautionary protection of food, milk, and water supplies were unclear		March 15, 2000	The wording of statements in press releases should be carefully reviewed for clarity and specificity prior to release to minimize the possibility of misinterpretation by the public. Demonstrate at next scheduled exercise.	During the May 2002 exercise, all EAS messages and press releases were well written and provided clear, thorough, and consistent emergency management information for the public and news media.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		and subject to misinterpretation.						
FEMA Exercise Report for Millstone Power Station	Joint Media Center	The Status Board at the Joint media Center was not consistently maintained nor updated in a timely manner beyond the Site Area Emergency ECL. Media representatives were not being consistently apprised of the status at the plant.		March 15, 2000	The Status Board should be consistently and regularly updated to reflect current conditions. Each press briefing should begin with an update of the current status detailing conditions at the plant and the current emergency classification level. Demonstrate at next scheduled exercise.	During the May 2002 exercise, the staff consistently updated the status board to reflect the emergency conditions of the incident. The media briefings provided the current status of conditions and public information staff were available in between briefings to answer questions in further detail or provide access to program area specialists.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
FEMA Exercise Report for Millstone Power Station	Connecticut State Transportation Staging Area (TSA)	KI was not issued with dosimetry; therefore, if KI is recommended after the emergency driver leaves the TSA, it could not be taken until the KI was issued.		March 15, 2000	One option would be to change procedure to include issuance of KI to drivers going into the 10 mile EPZ. Demonstrate at next scheduled exercise.	During the May 2002 exercise, the TSA issued KI to drivers when they picked up their dosimetry packets and received a briefing on dosimetry and KI.		
FEMA Exercise Report for Millstone Power Station	Connecticut Department of Environmental Protection (DEP)	The DEP did not estimate a projected dose based on a projected time of release when source term information was first made available. Previously they made protective action recommendations based on plant conditions only, with		August 21, 1997	DEP procedures should be revised to include preparing timely estimates of the projected dose as part of a complete accident assessment. The State plan should contain a default projected time of release for use when the Utility does not provide a definitive value.	Resolved during March 2000 exercise.	While this DEP procedure is an acceptable, timely and conservative protection of public health, accident assessment is not complete without also making timely dose projections to assure that the recommend-	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		further considerations based on field team, dose rate information.					ed protective actions are adequate and to give a full picture of accident conditions.	
FEMA Exercise Report for Millstone Power Station	Connecticut Department of Environmental Protection (DEP)	The current ADAM dose projection code (v1.2) does not directly estimate the total effective dose equivalent (TEDE) as required by the State Plan. Rather it gives the deep dose equivalent (DDE).		August 21, 1997	The ADAM code should be upgraded or replaced. The new code should provide estimates of the projected dose (TEDE) and the committed thyroid dose equivalent (CDE). Both values are needed for comparison with PAGs to evaluate need for Protective Actions.	Resolved during May 2000 exercise using ADAM and the IDA computer programs.	This means that it does not include adequate consideration of the radiation dose due to inhalation of radionuclides and for radiation dose due to radionuclides on the ground. In addition, the code does not directly and easily estimate a projected dose due to a source term that could continue for	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
							extended periods.	
FEMA Exercise Report for Millstone Power Station	Joint Media Center	EAS message #1 stated that "the Governor has not recommended any actions by the public" when, in fact, he had ordered the closure of state parks and placing farm animals on stored feed. Moreover, a related news release (#3) added advisory topics, including harvested crops, milk supplies, and water cisterns, which had not been included in the Governor's precautionary measures.		August 21, 1997	Steps should be taken to ensure that the content of EAS messages and news releases accurately reflect the decisions of the Governor or his designee. Demonstrate at the next scheduled exercise.	During the March 2000 exercise, the press releases accurately reflected the precautionary and protective action decisions of the Governor and State agency officials.		
FEMA	Joint Media	The issue of		August 21,	Clarify the use of	During the		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
Exercise Report for Millstone Power Station	Center	what to leave behind when evacuating was not mentioned in media briefings, news releases or printed materials for the public. In briefings the term precautionary action was used, while visual aids used the term protective actions. News release #5 includes inaccurate information, stating that the Governor upgraded the situation. During the 1330 news briefing the Millstone NPS presenter did not have visual aids present. It was apparent		1997	terminology, specifically the terms "precautionary action" versus "protective action". Provide a visual status board with current information about the incident in progress. Have graphic displays readily available or pre-set for presenters. Hold pre-briefings before the actual media briefing to ensure consistency of message by participating organizations and to anticipate media questions. Demonstrate at the next scheduled exercise.	March 2000 exercise, visual aids were available and used to clarify presented topics. Prior to the briefing, all participating organizations coordinated the material to be presented to ensure consistency and clarity. Care was taken to ensure all terms were used appropriately and correctly.		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		that spokespersons had not coordinated their information prior to the news briefings.						
FEMA Exercise Report for Millstone Power Station	Joint Media Center	The brochure containing agricultural information was deemed inappropriate for distribution by state officials and yet was not withdrawn from the Media Center.		August 21, 1997	Steps should be taken to ensure that only accurate and appropriate informational materials are available for distribution to the public. Demonstrate at a future exercise.		No note in future exercise reports of when or how this issue was resolved.	
FEMA Exercise Report for Millstone Power Station	Connecticut State Department of Health (DHS) Laboratory	Procedures used for monitoring for contamination on persons were not adequate to detect levels of contamination in excess of FEMA guidance. The		August 21, 1997	The plan for operation of the radiation laboratory should be modified either to be specific about radioactive contamination monitoring procedures for persons, samples, and equipment, or		Plans for the radiation laboratory operations do not include monitoring procedures for portable instruments, but procedures	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		distance from the probe to the surface of about four to six inches was too great, the path width of about six inches was too wide and the probe speed of about two feet/second was too fast for the instrument/detector (CD-V 700) being used.			to reference other parts of the plan where these procedures are provided. Laboratory staff responsible for radioactive contamination should receive training on this topic.		are included in Attachment 11 to Section CTAP-4.3 of the State Plan. This document includes specifications for probe distance of one-half inch and probe speed of six inches per second. No note in future exercise reports of when or how this issue was resolved.	
FEMA Exercise Report for Millstone Power Station	Connecticut State Department of Health (DHS) Laboratory	Contamination control for surfaces was not apparent for the exercise. However, the spread of contamination to the		August 21, 1997	The State Plan should be revised to include contamination control procedures for laboratory operations as discussed in FEMA REP-14, Section D.25-2. However,		No note in future exercise reports of when or how this issue was resolved.	

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		<p>Chemistry and Industrial Hygiene Laboratory and the Radiation Laboratory could seriously delay the determination of appropriate protective actions. No temporary coverings were provided for the floor at the reception area, the hot sample storage area, or the wheel-carts at the reception area. No provisions were made to add another plastic bag to "hot" samples or to smear them to determine whether the measured radiation might be coming from contamination</p>			<p>they are not discussed in the State Plan for laboratory operations. Demonstrate at a future exercise.</p>			

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
		on the exterior surfaces.						
FEMA Exercise Report for Millstone Power Station	Connecticut State Compensatory Plan	There was no precautionary briefing prepared for any female troopers that may have assisted with emergency worker duties.		August 21, 1997	A briefing for women emergency workers must be given to warn of the radiological issues of someone who is pregnant or thinks she might be. Include in the briefing a signature card for the woman to sign that states that she has had the briefing and understands its contents. Demonstrate at a future exercise.	During the March 2000 exercise report, it was noted that new procedures and forms have been developed for female troopers. Precautionary briefing was not demonstrated other than discussion on the new procedures to handle female troopers that may assist in emergency worker duties. Female troopers now sign a		

Report	Jurisdiction	Area Requiring Corrective Action	Other Significant Finding	Date of Exercise	Stated Recommendation	Corrective Action	Additional Comment	IEM Recommendation
						Declaration of Pregnancy.		
FEMA Exercise Report for Millstone Power Station	Connecticut State Compensatory Plan	Electrical leakage check dates were not available for any DRD.		August 21, 1997	Provide the dates. Demonstrate at a future exercise.		No note in future exercise reports of when or how this issue was resolved.	

Appendix H: Nuclear Regulatory Commission Inspection Report Findings

Table H-1: Nuclear Regulatory Commission Inspection Reports Summary for Indian Point

The table below lists the reports that IEM used in data collection. Only the findings relevant to emergency preparedness are included in the table. Mitigation of the accident, although usually a part of the emergency management system, is not included in the table.

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
50-247/02-03	May 11, 2002	Licensee implemented changes to the accountability process that decreased the effectiveness of the Emergency Plan.	Changing commitments in the E-Plan without prior approval impacts the Nuclear Regulatory Commission's ability to perform its regulatory function and potentially creates an ineffective response to a radiological emergency. The consequences of this change were minimal because it did not preclude the function of accountability from being performed, albeit delayed.	No Color
50-247/02-02	March 30, 2002	Licensee completed site wide accountability in 38 minutes for this first-time site wide accountability drill. The Nuclear Regulatory Commission concluded that the intent of planning standard contained in 10CFR 50.47(b)(10) was met for this untimely accountability.		

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
50-286/01-09	November 17 2001	Failure to conduct triennial hydrostatic tests on self-contained breathing apparatus (SCBA) air cylinders.	"This finding is greater than minor because, if left uncorrected, inadequately tested respiratory equipment could have been used by personnel in the event of an emergency. This finding is of very low safety significance because unqualified equipment was not actually used, all of the affected air cylinders displayed proper air pressure indicating that the cylinders maintained the requisite integrity, and a sufficient supply in excess of requirements was available for use."	GREEN—Non Cited Violation
50-286/01-09	October 31 2001 ("Off Year" Annual Emergency Preparedness Exercise)	Operators declared a General Emergency for a weather event because of lack of sufficient control by exercise controllers.	No additional detail available	No finding of significance
50-286/01-09	October 31, 2001	Joint News Center objectives not met.	No additional detail available	No finding of significance
50-286/01-09	October 31, 2001	Weaknesses in the Simulator Crew	No additional detail available	No finding of significance
50-286/01-09	October 31, 2001	I&C and Ops personnel did not adhere to the accountability process	No additional detail available	
05000247/ 2001-007	June 25, 2001	Indian Point facility did not conduct a bi-weekly silent test of the siren system.	"This was considered to be more than minor because of a delay in identifying and repairing sirens that would have been utilized to notify portions of the public in the	GREEN—Very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			event of a radiological emergency. However, there have been no significant problems with the sirens, the test results are in the green band for the siren testing performance indicator, and route alerting was available to compensate for any inoperable sirens.”	
05000247/ 2001-007	June 25, 2001	When the sirens were tested on December 18, 2000 and January 9, 2001 some sirens (3 and 5 respectively) were found to be inoperable.	This issue affects the emergency planning cornerstone and was determined to be more than minor because there was a delay in detection and repair of the sirens. The Performance Indicator for the Alert and Notification system remained in the GREEN band (99.1% average) for the year 2000. The Nuclear Regulatory Commission also determined that route alerting remained available to compensate for the inoperable sirens.	
05000247/2001-002	January 16—February 9, 2001	The Emergency Response Data System (ERDS) was found inoperable during an exercise in November 2000 and again during a test conducted in the first quarter of 2001. The system engineer stated that the cause of the failure was that the modem assigned to the ERDS had been borrowed and reconfigured prior to both tests.	This issue is determined to be of very low safety significance because the licensee retained capability to communicate via the telephone system.	GREEN

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		The system functioned during this inspection. But, there were no procedures for the activation of the backup system, if needed.		
05000247/2001-002	January 16—February 9, 2001	Licensee could not locate Emergency Operations Facility inventory records.		GREEN
05000247/2001-002	January 16—February 9, 2001	Licensee not able to produce third quarter records for operational check of the emergency communications link between facilities and could not verify that tests had been conducted.	Determined by Nuclear Regulatory Commission to be of very low safety significance because licensee had installed spare operable telephone lines.	GREEN—Failure to conduct and/or document quarterly communications test is a non-cited Violation
05000247/2001-002	January 16—February 9, 2001	Ten individuals assigned to the offsite and onsite monitoring teams had let their respirator qualifications lapse.	There was confusion between the Emergency Preparedness and Health Physics organizations regarding the necessity for maintaining respirator qualifications for emergency responders. Deemed to be very low safety significance because sufficient responders with respiratory qualifications available to fill positions.	GREEN—non cited Violation
05000247/2001-002	January 16—February 9, 2001	Licensee not effective in diagnosing underlying causes for problems to prevent recurrence.	Several problems found in exercises were to be corrected with additional exercises, post-exercise critique and lessons learned sessions with ERO emergency facility leads. But, this process did not include an assessment of the effectiveness of training in resolving these	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			issues, qualifications of responders, or lessons learned from discussions with affected individuals.	
05000247/2001-002	January 16—February 9, 2001	Drills conducted in the past two years consistently identified problems with the site Public Address System. A contingency measure finally established to use bullhorn in areas determined to be inaudible.	Workaround did not fix the system weakness of the Public Address System. This was eventually fixed with a new system design, implementation, and testing.	
05000247/2001-002	January 16—February 9, 2001	Number of discrepancies found with equipment inventories. Facility inventories are to be conducted on a quarterly basis. Licensee could not provide inventory records not verify that those inventories were actually conducted.	<p>Five radiological instruments were out of calibration at the Emergency Operations Facilities.</p> <p>The Monthly inspection of full-face respirators was not conducted in April and June 2000.</p> <p>A radiological instrument located in one of the field kits had low batteries, and no batteries were found in the kit.</p> <p>Expired calibration sticker on a meter was not replaced when calibrated the previous month.</p> <p>Inventory lists were not updated to reflect the addition of several radiological check sources.</p>	GREEN—Very low safety significance as sufficient resources available to respond in case of an emergency.
05000247/2001-002	January 16—February 9, 2001	Training program issues	Training program procedure did not describe if a drill or exercise was needed for initial qualification or re-qualification.	GREEN—very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			<p>Training program procedure lacked specificity in tracking of findings from training exercises.</p> <p>Critiques from classroom training indicated confusion with terminology, questions on activation, request for additional practice for making classifications, and confusions about which procedures are current.</p> <p>No formal method for reviewing critiques and documenting their resolution.</p> <p>Classes addressing problems found during exercise included the facility leads only and not the organization as a whole.</p>	
05000247/2001-002	January 16—February 9, 2001	Exercise program issues	<p>The corrective actions were general, simply indicating that more exercises were needed and lessons learned should be discussed with the facility leads.</p> <p>There was only one additional exercise as a follow-up and lessons learned were not gathered until November 2000.</p> <p>The condition reports did not capture the findings in the Joint News Center.</p> <p>Corrective actions were only generally described and not pertinent to all the significant</p>	GREEN—very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			<p>issues.</p> <p>Licensee did not retain any original player or controller comments, or trend and assess exercise performance.</p> <p>Emergency Planning organization noted that significant improvement had been accomplished but these were not recognized by other facility personnel. The Emergency Planning organization did not take actions to raise confidence with other facility personnel.</p>	
05000286/ 2000-006	September 30, 2000	Emergency plan did not contain any details regarding the training of emergency response organization (ERO) members contrary to the requirements of 10 CFR 50 Appendix IV.F.1.	This issue was more than minor because if left uncorrected could result in dilution of ERO training commitments and would affect the emergency planning cornerstone.	GREEN—non-cited violation
050000247/ 2000-006	May 15—June 2, 2000	Equipment reliability problems with the ERO notification systems were identified by the licensee in CR 199909377 during monthly notification drills on November 30, 1999 and December 17, 1999. As of the June 1, 2000 exercise, some problems with the notification systems remained uncorrected. The problems as described in section 1EP3 were not only related to equipment reliability but also to the adequacy of procedures and related training for personnel		GREEN—very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		responsible for activating the notifications systems. The 10 CFR 50.47(b)(14) requires in part that findings identified as a result of exercises or drills will be corrected.		
050000247/ 2000-006	May 15—June 2, 2000	Two problems reflected decreases in the effectiveness of the E-Plan per 10 CFR 50.54(q) which were not approved by the Nuclear Regulatory Commission. One change removed several ERO position descriptions and another change removed the ERO training program description. These two changes were decreases in effectiveness, because these descriptions are required by 10 CFR 50 Appendix E IV.A.2 and IV.F.1. In response to all 19 problems, the licensee initiated Condition Report (CR) 200003878 (a related CR is 199905877).		GREEN—very low safety significance
050000247/ 2000-006	May 15—June 2, 2000	The description of the Joint News Center was inadequate in that roles, responsibilities and the facilities were insufficiently described. A more detailed description was in the Media Relations Emergency Plan but this document was not considered an E-Plan implementing procedure per 10 CFR 50, Appendix E, section V. Also, if changes were	The inspection team identified procedural and related training problems. The licensee's Emergency Preparedness staff did not ensure that the Joint News Center activities met the commitments stated in the E-Plan for the overall maintenance and operation of the Joint News Center, because the Media Relations Emergency Plan was	GREEN—very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		made regarding the function of the Joint News Center, the change would not be subject to a review for a decrease in the effectiveness of the IP2 E-Plan.	not an E-Plan Implementing Procedure. In addition, the licensee did not adequately describe the function of the Joint News Center or the roles of the Joint News Center staff in the E-Plan as required in 10 CFR Appendix E (section 1EP4). Further, changes made to the Media Relations Emergency Plan were not reviewed to ensure the changes did not decrease the effectiveness of the commitments made in the E-Plan.	
050000247/ 2000-006	May 15—June 2, 2000	Siren testing equipment, used to verify siren operability, was not sufficiently described in the IP2 E-Plan.		GREEN—very low safety significance
050000247/ 2000-006	May 15—June 2, 2000	Decrease in the effectiveness of the E-Plan because descriptions of some onsite Emergency Response Organization and the training program.		GREEN—non-cited violation
050000247/ 2000-006	May 15—June 2, 2000	Failure to correct Emergency Response Organization notification findings as a result of drills or exercises as early as November 1999.	Problems with the notification process still existed as demonstrated during the event of February 15, 2000, and as late as June 1, 2000, as evidenced by equipment reliability problems and inconsistent activation by assigned personnel.	GREEN—non-cited Violation
050000247/	May 15—June 2, 2000	Failure to conduct off-hour exercises at the required	E-Plan Section 8.1.3, Drills and Exercises, commits the licensee	GREEN—non-cited

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
2000-006		frequency.	to conduct an off-hours exercise once every six years. Prior to the February 15, 2000, event, the last off-hours exercise was conducted in 1993 and thus exceeded the six year periodicity.	violation
050000247/ 2000-006	Response to ALERT on February 15, 2000	<p>Failure to augment the Emergency Response Organization within 60 minutes of the declaration of the Alert contrary to the Indian Point 2 emergency plan.</p> <p>Full staffing and activation did not occur because notification of the Emergency Response Organization and site access was delayed.</p> <p>Although licensee had conducted monthly pager/Community Alert Notification System tests prior to the event, they did not have a mechanism in place to review the data to determine if the pagers and CANS were operating properly. During the event, some pagers did not activate and the CANS did not notify all responders.</p> <p>Several procedure and related training problems were underlying causes as to why the licensee did not meet the augmentation times within the required 60 minutes. The licensee's procedues stated that before the pagers were</p>	<p>The Technical Support Center was supporting the event by 90 minutes after the Alert was declared; and was not fully staffed until 2 hours and 51 minutes after Alert was declared. This was attributed to the inability to staff core physics engineer, electrical and mechanical engineers.</p> <p>The OSC was not fully staffed until 1 hour and 46 minutes after Alert declared because of the inability to staff Health Physics positions.</p> <p>The EOF was not fully staffed until 1 hour and 46 minutes after the Alert was declared due to the inability to staff the onsite and offsite monitoring teams.</p> <p>The Joint News Center was not staffed until 2 to 2.5 hours from Alert declaration. No activation or staffing requirements were listed in the Media Relations Emergency Plan for the facility.</p>	WHITE -Low to moderate safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		<p>activated, the activator needed to fill out a questionnaire sheet for gathering facts about the event. This effort took approximately 15-20 minutes.</p> <p>Also, when the activator went to activate the CANS, he found the outgoing message to be incorrect and they had to record a different message prior to sending out the signal.</p> <p>There are no procedure or related training describing the duties of security guards (once the main entrance has been secured) regarding how to allow access for the Emergency Response Organization personnel for onsite response to the ERFs. As a result, security personnel were uncertain as to where to send responders for accountability and facility assignments. Some responders were also unfamiliar with where to report.</p>		
050000247/ 2000-006	Response to ALERT on February 15, 2000	Failure to account for onsite radiation workers within 30 minutes of initiation contrary to the IP2 E-Plan and implementing procedure.	The licensee was not able to complete its accountability process until 138 minutes after the initiation of the accountability process. Accountability is the initial action to ensure that a range of protective actions for	WHITE -Low to moderate safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			<p>emergency workers is properly taken.</p> <p>Initially, accountability was considered completed in 75 minutes when apparently all personnel had been located. However, about that time, it was realized that accountability of individuals had not been maintained as individuals had entered and left the protected area while the accountability was being performed. The accountability process was performed a second time and completed 138 minutes after initiation.</p> <p>The accountability procedure and training were inadequate for describing the accountability process and when accountability was considered to be accomplished.</p> <p>Once accountability was complete, access was to be controlled. The Unit 3 gate, which is also an entrance to the Unit 2 owner controlled area, was not guarded until midnight and not locked until 3:00am on February 16, 2000. This permitted Emergency Response Organization staff to bypass the main gate and enter from the Unit 3 side which contributed to the</p>	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			delay in response personnel manning their ERF stations and to delay in accounting for personnel. There was no security procedure in place for ensuring the owner controlled area was secured.	
050000247/ 2000-006	Response to ALERT on February 15, 2000	<p>Failure to properly disseminate information about the Alert conditions.</p> <p>There was confusion in the public domain about whether there was a radiation release and its magnitude, and one official was not notified in accordance with a pre-arranged agreement. This was contrary to the IP2 E-Plan.</p>	During the event, problems were identified in the operation of the Joint News Center. There was an apparent lack of coordination of information from the licensee to the counties and state prior to issuance to the general public, which resulted in the issuance of conflicting information regarding the radiological release. In addition, a local official was not notified of the event in accordance with Appendix 5 of the Media Relations Emergency Plan, because of an incorrect telephone number.	WHITE -Low to moderate safety significance
050000247/ 2000-006	February 15, 2000	During the event, several equipment problems were observed in the Technical Support Center. Specifically, the Emergency Data Display System (EDDS) had been removed from the facility and the Nuclear Regulatory Commission required Emergency Response Data System (ERDS) was not made operable until about 3:00 a.m. on February 16, 2000 (approximately seven and one-half hours after the	Part 10 CFR 50.72(a)(4) requires that ERDS be activated as soon as possible but not later than one hour after declaring an emergency class Alert or higher.	GREEN—very low safety significance

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		Alert declaration). The ERDS problem was due to an inoperable telephone line that had been previously identified, but uncorrected, by the licensee.		
050000247/ 2000-006	February 15, 2000	At approximately 2:00 a.m. on February 16, 2000 the licensee stopped the continuous staffing of the ENS line apparently due to shift relief without a replacement. At 7:00 a.m., on February 16, 2000, the Nuclear Regulatory Commission requested that a communication link be established and continuously manned. At about 9:00 a.m. on February 16, 2000, the licensee established a mutually agreeable communication link.	10 CFR 50.72(c)(3) requires that licensees maintain an open, continuous communication channel with the Nuclear Regulatory Commission Operations Center upon request by the Nuclear Regulatory Commission.	
050000247/ 2000-006	February 15, 2000	During the event, there were several examples where the technical support staff was narrowly focused or failed to implement timely and effective corrective actions to resolve problems which complicated the event response.	During this inspection, it was determined that the licensee re-organized the TSC and added personnel to provide additional support for an emergency. The licensee had been conducting drills regularly since the event. During the June 1, 2000 exercise, drill participants demonstrated pro-active thinking when addressing simulated malfunctions and degrading plant conditions.	
050000247/	September 22, 1999	Shift Manager did not properly implement Emergency Action	EAL Training problem.	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
99012	exercise	Levels for the Alert classification when sufficient information was available. The controller had to prompt the Shift Manager to make the classification.		
05000247/ 99012	September 22, 1999 exercise	Following the General Emergency classification, the Emergency Director gave a briefing to the State and County agencies. The briefing was not adequate because it did not contain correct radiological information, the basis for the protective action recommendation and the Emergency Director did not refer to the dose assesment staff for correctly answering the state's questions.	Based on discussions with the Emergency Director, the inspectors determined that this was a player stimulation problem that appeared to be isolated to that one briefing.	
05000247/ 99012	September 22, 1999 exercise	The Licensee conducted facility facility debriefs with the players to solicit their input for feedback regarding the facilities, equipment, procedures, and ERO performance. The Nuclear Regulatory Commission's observations were that CON Edison's critique of the TSC and OSC was not sufficiently self-critical.		
05000247/ 99012	September 22, 1999 exercise	The licensee found one individual in a key ERO position (radiation protection coordinator) that was not qualified.	This type of finding was also identified during Nuclear Regulatory Commission program inspection (50-247/96-07). Licensee representatives	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			acknowledged weak administrative controls in this area and documented this issue in CR's 1999-06868 and 07449.	
50-286/98-09	December 30, 1998 partial participation exercise and inspection	Minor simulator glitches impacted the final declaration transitioning from a site area emergency to a general emergency; however, emergency preparedness drill facilitators took control to keep the exercise focused on drill objectives.		non-cited Violation
50-247/98-07	June 22 - 26, 1998 inspection	In the Appendix containing forms for the Implementing Procedures, the forms were inconsistently labeled.	Some forms referenced the applicable procedure, some had revision dates, and some forms had neither.	
50-247/98-07	June 22 - 26, 1998 inspection	The licensee's Central Information Group uses a procedure to notify and mobilize the Emergency Response Organization. This procedure was not considered by the licensee to be an implementing procedure and therefore has not been subject to effectiveness reviews.	This procedure is important to the licensee's response to an off-hour emergency.	
	June 22—26, 1998 inspection	Disagreement between the Plan and the Implementing Procedure as to whether the facility is activated at an alert or site area emergency.		
50-247/98-07	June 22 - 26, 1998	Implementing Procedure on On-Site Medical Emergency was	The procedure has sections for "Precautions and Limitations" and	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
	inspection	inconsistent and incomplete.	"Equipment and Materials" which provide no information. However, precautions and equipment are stated in other parts of the procedure. Further, there is no guidance to contact human resources (to notify the next of kin for an injured person) not guidance to contact public affairs to disseminate information about the injury or accident.	
50-247/98-07	June 22—26, 1998 inspection	Frequency of review of Implementing Procedures is not adequate	Implementing Procedure cover sheets show a biennial review date. Implementing procedures are to be reviewed every year.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	Procedural implementation at the TSC was weak.	<p>Controlled drawings were not relocated to the TSC.</p> <p>The noble gas monitor was not initially set up.</p> <p>The required radiological surveys were not performed at the required 30 minute intervals and documented on Forms 9, 10, and 20.</p> <p>At facility closeout and watch changeover all forms were to be collected, marked as record and summarized. This was not done.</p>	
50-247/98-07	June 23, 1998 biennial full-participation exercise	A repair team was dispatched while a simulated radiological release was in progress without their knowledge.	Consistent information flow and display was lacking in the Technical Support Center. Command and control by the	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			Technical Support Center Manager was weak. The delay of information, in conjunction with the weak command and control, resulted in the faulty dispatch.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	Licensee critique of the OSC and Technical Support Center was not sufficiently critical to result in improvements in those facilities.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	The Technical Support Center layout and the positioning of the Technical Support Center staff were not efficient or effective for command and control by the Technical Support Center.	The Technical Support Center is divided by partitions and has separate rooms and therefore impacts communications. Also, the positioning of the telephones required the Technical Support Center to reach over his desk to the communicator's desk to receive incoming calls.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	When the pagers were activated for the notice of Unusual Event, the pagers mistakenly indicated a code informing Emergency Responses Organization members to report to their assigned facilities.	Some of the pagers also did not activate. The inspectors recognized that pager performance is affected by location and structures. However, the licensee's decision to not announce plant conditions or emergency classifications over the plant public address system, combined with weak communications and sporadic pager performance can result in uninformed Emergency Response Organization members.	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
50-247/98-07	June 23, 1998 biennial full-participation exercise	Accountability of individuals in the Technical Support Center was not maintained. All non-essential personnel were to be evacuated as soon as possible following a Site Area Emergency. When the Site Area Emergency was declared, the inspectors did not hear the site evacuation alarm nor heard an announcement in the Technical Support Center of the evacuation of non-essential personnel.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	Problems were identified with the flow of information to the Technical Support Center and the display of information within the Technical Support Center. The inspectors observed several occasions during which the Technical Support Center staff experienced delays in being made aware of changes in critical plant conditions or parameters.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	The white board titled "Priority Work" was actually a sequential listing of tasks to be accomplished. Completed tasks were not removed from the list. The board was not used as a tracking mechanism or to prioritize tasks. There was no indication in the Technical Support Center that repair teams had been dispatched		

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		or of the status of the tasks.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	The licensee's event board contained insufficient information to reconstruct the event scenario or provide comprehensive information to Technical Support Center staff.	At 3:50 PM, the only information on the board was: loss of power, General Emergency, and MOV 859B shut. No times were given for the events.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	A weakness exists in the licensee's process of dispatching teams if respirator qualifications are checked after the teams are formed and briefed.	The inspectors noted that it took about one hour from the time a team is formed until it is dispatched. An unnecessary delay in performing the assigned task would be created by a team member's expired respirator qualification being discovered at the control point.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	During initial activation, the OSC manager (OSCM) received a briefing on plant status from the POM; however, this information was not passed along to the repair teams in the OSC.	The first two repair teams were dispatched to the Technical Support Center for their assignments without knowing the status of the plant.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	The OSCM did not receive a beeper page for declaration of the Site Area Emergency or general emergency, nor was this information relayed from the Technical Support Center or Emergency Operations Facility.		

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
50-247/98-07	June 23, 1998 biennial full-participation exercise	The inspectors observed that immediately following the exercise termination, there were no facility debriefs conducted with the players. Without input from the players, the licensee missed a valuable source of feedback regarding the facilities, equipment, and the Implementing Procedures.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	Inspectors determined that the licensee's critique of the OSC and Technical Support Center was not sufficiently self-critical to result in improvements in those facilities.		
50-247/98-07	June 23, 1998 biennial full-participation exercise	During the exercise, the inspectors observed several occurrences of casual controller interaction with the players. In the Technical Support Center, the HP controller continuously engaged in personal conversation with the exercise players. Neither the HP controller nor the controller accompanying the repair teams took notes during the exercise.	A review the controller training lesson plan indicated that it consisted of only one page with "eight subject highlights" that was used to train the controllers. The lesson plan lacked detail and did not communicate the Emergency Preparedness department's expectations to the controllers.	
50-247/98-07	June 23, 1998 biennial full-participation exercise	Inconsistencies were noted in radiological and meteorological data in the first submittal of exercise scenario. Post accident sample system data and offsite contamination data were missing from the scenario packages.	There were numerous discrepancies identified by the inspectors with the scenario package. Many typographic errors were present in the scenario narrative and time line. Specific examples were provided to the licensee who made	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			<p>corrections in those instances. However, the subsequent scenario package submittal still contained other typographical errors.</p>	
50-247/98-07	June 23, 1998 biennial full-participation exercise	<p>Inspectors found several areas where EP programmatic controls were lacking. Instead of good programmatic controls, the licensee's EP program is dependent upon the EP staff's memory and the trust that supporting organizations are performing their duties.</p>	<p>No documentation of completion of shared offsite responsibilities with Indian Point 3 EP personnel. Each licensee maintained documentation that their own assignments had been completed and communicated verbally to the other.</p> <p>The practice of annual and biennial procedures reviews, as stated in Section P.3.b, is inefficient and weak.</p> <p>Also, the EP department has no ownership of the procedure that notifies and mobilizes the ERO during off-hours. Therefore, the EP department does not perform effectiveness reviews of a procedure that implements the Plan.</p> <p>In addition, there was no procedure to direct the EP trainer to notify ERO members that their qualifications are going to expire.</p> <p>Related to this, there was no procedure directing the EP staff to inform those responsible for updating the Community Alert Network system (the system used</p>	

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			<p>to notify ERO members of emergencies) regarding changes to ERO members' qualification status. The inspectors determined that the licensee does not require respirator qualification to be a prerequisite for being in the Emergency Response Organization.</p> <p>The Emergency Preparedness department does not verify the status of respirator qualifications for maintenance personnel who are in the ERO. This would result in non-respirator qualified individuals responding to an event for which they may need to don respirators.</p>	
50-286/98-02	May 18, 1998	Licensee determined that the status of 21 tone alert radios, distributed within the 10-mile emergency planning zone, was unknown.	The licensee has no formal procedure in place to monitor the status of the tone alert radios but committed to formalize a process by which the tone alert radios are controlled. The tone alert radios supplement the primary notification system (the sirens) in areas where sirens are less effective.	

Table H2: Regulatory Commission Inspection Reports Summary for Millstone

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	The testing process in place for the ANS biases the ANS PI data.	No additional detail available.	No finding of significance.
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	EPZ siren testing and maintenance procedures require clarity.	No additional detail available.	No finding of significance.
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	Second quarter EPZ siren system PI data submitted incorrectly.	No additional detail available.	No finding of significance.
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	ERNS system stopped working during monthly communication drill.	No additional detail available.	No finding of significance.
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	Conflicting priorities during emergency events.	No additional detail available.	No finding of significance.
50-336/01-07 and 50-423/01-07	August 12—September 29, 2001	Missed opportunities to improve SERO performance based upon the results from the monthly call-in communication tests.	<p>The inspector noted that the licensee did not fully utilize the ENRS test data to assess the SERO's capability to respond and activate the emergency response facilities within 60 minutes of event notification.</p> <p>The inspector trended the ETAs provided by the SERO responders and found that in every test conducted in 2000 and 2001 to date, the licensee would have had an average of 5-6</p>	This issue is considered an unresolved item (URI) pending the licensee's review of the data entered into the ERNS. Once that information is received, the NRC will review the issue and assess its potential safety significance.

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
			minimum staffing positions not filled within 60 minutes.	
05000336/2000-006 and 05000423/2000-006	February 15—April 1, 2000	The licensee's corrective action system identified concerns and critique items from past emergency preparedness exercises or drills. Actions taken by the licensee were effective in minimizing the potential for recurrence. However, in many instances, the licensee repeatedly changed due dates and took approximately 6 to 12 months to resolve and close condition reports.		No finding of significance.
05000336/2000-006 and 05000423/2000-006	February 15—April 1, 2000	There was an inadvertent activation of the SERO pagers in January 2000 apparently due to procedural and human errors. The vendor continues to troubleshoot the problem.	Since January 2000, the licensee has continued to perform pager tests to identify operational problems and ensure the adequacy and dependability of the system. Should the pager system fail, the licensee maintains two backup methods for ensuring immediate notification to SERO and offsite officials.	No finding of significance.
05000336/2000-006 and 05000423/2000-006	February 15—April 1, 2000	The licensee conducted emergency response training as required. However, the EP staff identified continual problems with SERO members not following administrative emergency response procedures for keeping EP apprised of changes to the SERO (i.e., additions,	Senior management expressed concern with this finding and stated that they intend to provide support and oversight to the emergency response program in resolving this issue.	Non-Cited Violation

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
		terminations, etc.)		
50-245, 336, 423/97-81	August 20—September 8, 1997, biennial full-participation exercise.	Failure to maintain emergency preparedness facilities. An apparent violation was identified concerning control of information, documents, and equipment in emergency response facilities and for the failure to inventory equipment following use.	Maps, status boards, diagrams, and the “Minimum Staffing Chart” were not controlled. Inadequate back-up telephone directory for the Utility. The reference library contained uncontrolled drawings and documents. Lack of control for lockers containing inventoried equipment in that they may be accessed by licensee personnel not directly involved in the emergency response program.	NRC Violation
50-245, 336, 423/97-81	August 20—September 8, 1997, biennial full-participation exercise.	Improper implementation of dose assessment standards, EPA-400, and 10CFR20 requirements.	The combination of the misuse of the term TEDE, lack of a rapid means to compute TEDE, mathematical errors, complex options, questionable assumptions, and typographical human factors problems in the dose assessment procedures warrants a complete review and upgrade program. Inability to perform dose assessment in a timely manner to provide protective action recommendation upgrades.	NRC Violation
50-245, 336, 423/97-81	August 20—September 8, 1997, biennial full-participation exercise.	Decrease in effectiveness of the emergency plan without prior NRC approval.		NRC Violation
50-245, 336, 423/97-81	August 20—September 8, 1997, biennial full-	Inadequacy of oversight review of 10CFR50.54(t) and oversight requirements, such as evaluation		NRC Violation

Inspection Report No.	Date(s) of Inspection/Drill/Exercise	Finding	Additional Comments	Rating
	participation exercise.	for adequacy of emergency preparedness program capabilities and procedures.		

Appendix I: 2002 Indian Point Practice and Full-Scale Exercise Observations

There are five primary management processes that make up an emergency response system when viewed using the P3A framework (discussed in Chapter 10):

- Communication
- Coordination
- Resource Management
- Command and Control
- Personnel Management

The table below lists the raw observations made by the James Lee Witt Associates/IEM team during the September 2002 practice exercise and full-scale exercise conducted at Indian Point. The observations are grouped according to the type of observation based on the statement of work for this study (the category column) and the P3A management process that the type observation corresponds with. The jurisdiction column either lists “General,” which means the same observation applied to more than one REP stakeholder, or the individual stakeholder is listed. The Description column contains the actual observation.

Exercise	Jurisdiction	Management Process	Category	Description
Full-Scale	General	Coordination	Emergency Operations Management	Counties and State did not communicate regarding Dose Assessment
Full-Scale	General	Command and Control	Protective Action Decision-Making	Dose was not factored into Protective Action Decision-making
Practice	Indian Point	Command and Control	Field Measurement and Analysis	(9) the ED did not acknowledge early enough that a release was in progress (19 minutes later than it should have been acknowledged).

Exercise	Jurisdiction	Management Process	Category		Description
Practice	Indian Point	Communication	Support / Operations / Facilities		(1) The RECS line did not work properly.
Practice	Indian Point	Communication	Emergency Operations Management	Emergency Management Notification	(10) There were a couple of phone numbers used for notification of offsite agencies that were not correct (primarily fax numbers).
Full-Scale	Indian Point	Communication	Emergency Management Notification		(2) Site Area Emergency was declared, but there was no announcement, so word was not spread within the Indian Point Emergency Response Organization; This is especially important although SAE is not a release offsite, precautionary protective actions are taken at this stage. These could be delayed as a result of not getting this information.
Full-Scale	Indian Point	Communication	Emergency Management Notification	Support / Operations / Facilities	Rockland, State, Orange could not get EOF on phone when protective action recommendations were revised emergency response and planning area 31 decision, etc.

Exercise	Jurisdiction	Management Process	Category	Description
Practice	New York State	Resource Management	Protective Action Decision-Making	<p>Field Measurement and Analysis</p> <p>In addition, observers documented discrepancies with dose assessment. Dose assessment was analyzed and evaluated by the State Department of Health. There were times when the scenario data and Indian Point EOF data were different, and the health officials chose plant data over the scenario data because, they said, conservative methods were used to do the dose assessments. When the data was finally evaluated, the initial reading was off by a factor of 10, and the stack reading from Indian Point was possibly off by another factor of 10. The met data given to the Command Center and to the Assessment and Evaluation personnel were different. These complications caused problems with running dose assessment and protective action recommendation decisions.</p>

Exercise	Jurisdiction	Management Process	Category		Description
Full-Scale	New York State	Command and Control	Emergency Management Notification		No effective communication plan within the Assessment and Evaluation group structure, both up and down lines of authority to disseminate field data so that decisions could be made quickly with that data.
Full-Scale	New York State	Coordination	Protective Action Implementation	Public Information	Distribution and storage of potassium iodide (KI) as well as relocation for captive populations was not considered during the exercise as well as those employees at the Prison facilities. There was no mention of congregate care facilities for captive populations as well.
Practice	Orange County	Command and Control	Protective Action Decision-Making		A single coordination management issue was noted. The decision to issue potassium iodide (KI) to the general public was not in accordance with state guidance. This decision was based upon guidance given to the county executives from the Director of Public Health. The

Exercise	Jurisdiction	Management Process	Category		Description
					Director of Public health did not coordinate with State Health before offering advice in this matter.
Full-Scale	Orange County	Coordination	Protective action decision-making		There is still work to do on West Point involvement, according to observers.
Practice	Orange County	Communication	Emergency Management Notification		A general announcement to the EOC staff was not made when the event escalated from Alert to Site Area Emergency. A placard stating this was posted at the front of the EOC in a predominant location, but some personnel were unaware of the SAE until it was announced during an EOC staff update briefing. This is especially important although SAE is not a release offsite, precautionary protective actions are taken at this stage. These could be delayed as a result of not getting this information.
Full-Scale	Orange County	Coordination	Emergency Operations Management	Protective Action Decision-Making	Conflict with Rockland Co. on home rule of emergency response and planning area 39—who had

Exercise	Jurisdiction	Management Process	Category		Description
					decision-making authority
Full-Scale	Putnam County	Communication	Protective Action Implementation		(4) No one observed or announced set-up access control, and the Sheriff's Department brought it to attention.
Practice	Rockland County	Resource Management	Field Measurement and Analysis		The radiological dosage calculations provided by Indian Point were in error by a dangerous amount.
Full-Scale	Rockland County	Coordination	Emergency Operations Management		Conflict with Orange Co. on home rule of emergency response and planning area 39—who has decision-making authority.
Practice	Westchester County	Coordination	Protective Action Decision-Making	Protective Action Decision-Making	Coordination management issues were documented in two areas: protective action decision-making and school protective actions. It was noted that there seemed to be little sense of urgency as the counties and State discussed the utility protective action recommendation. As a result, 40 minutes elapsed between receipt of the utility protective action

Exercise	Jurisdiction	Management Process	Category	Description
				<p>recommendation by the counties and public receipt of the protective action decision. Given that the release began 27 minutes after public broadcast of the protective action decision, those 40 minutes would have significantly reduced the number of people evacuating through the plume.</p>
Practice	Westchester County	Coordination	Protective Action Decision-Making	<p>There was also no discussion of whether the licensee evacuation protective action recommendation could be completed prior to a release, or of sheltering as an option.</p>
Practice	Westchester County	Command and Control	Protective Action Implementation	<p>In regard to the school protective actions issue, Westchester County officials made the decision to delay sirens and EAS after an Alert was declared because they were concerned that parents would rush to the schools to get their children, and thus cause traffic congestion. When they finally did decide to move the schools, it was done mainly</p>

Exercise	Jurisdiction	Management Process	Category	Description
				<p>because of that concern and less because of the actual risk to the children. Further, the decision was made for all schools not affected by the evacuation protective action decision to dismiss normally, even though the commuter train service had been suspended. There was no discussion observed about elementary or middle school children being sent home to empty houses, although a school representative told the IEM observer upon questioning that schools would only send children home where they knew a caregiver was present; how they determine the presence of a caregiver is unknown.</p>
Full-Scale	Westchester County	Coordination	Protective Action Decision-Making	<p>(2) Personnel also did not talk about hazard arrival time when making protective action decision.</p>
Full-Scale	Westchester County	Coordination	Protective Action Implementation	<p>(4) Sirens sounded before schools were informed of the event. This is a significant issue due to increased traffic congestion</p>

Exercise	Jurisdiction	Management Process	Category	Description
				around schools after sirens are sounded might reduce the potential for an expedient evacuation of the school (which should get priority under current plans).
Full-Scale	Westchester County	Communication	Protective Action Implementation	(1) EOC personnel did not talk about traffic control points (TCPs) in Command Center.
Full-Scale	Westchester County	Resource Management	Protective Action Implementation	Issue about shutting down trains right away—traps workers that relied on that mode of transportation to get to work.
Practice	Indian Point	Communication	Public Information	(5) The ED got backed-up in getting press releases out through the Joint News Center.
Practice	Indian Point	Communication	Public Information	(6) The Executive Director did not document Phase B condition.
Practice	Indian Point	Communication	Emergency Operations Management	(6) There was a miscommunication when an EOF Communicator thought he had sent one team into the field and discovered later that the team had not been dispatched.

Exercise	Jurisdiction	Management Process	Category	Description
Practice	Indian Point	Communication	Public Information	(7) Perhaps protocols for radio talk should be instituted since the public can listen.
Practice	Indian Point	Communication	Emergency Management Notification	(11) The EOF Communicator #2 had to deliver Part 2 (of form) information telephonically-the information is usually faxed because it contains much technical information.
Practice	Indian Point	Coordination	Emergency Management Notification	(1) The Emergency Director's procedure indicates that Institute for Nuclear Power Operations (INPO) and American Nuclear Insurers (ANI) should be notified, but notification did not occur.
Practice	Indian Point	Coordination	Emergency Management Notification	(2) The liaison bridge did not work for New York State, Rockland, and Orange, which made obtaining information on the counties more time-consuming.
Practice	Indian Point	Resource Management	Field Measurement and Analysis	(1) MRPDAS did not operate properly until late in the day, and it had bad data at one point.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(3) The executive conference phone did not work.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(4) Facsimiles to counties via the group fax machine did not work.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(9) Two alternate fax machines broke down.
Practice	Indian Point	Personnel Management	Emergency Operations Management		(1) The EOF Manager should identify specifically who should be manning security at the EOF, including what standards they are to follow and what training is required (volunteers manned security at the practice exercise).
Full-Scale	Indian Point	Resource Management	Support / Operations / Facilities		The following resource management issue was documented: the phone number to Peekskill was not reliable and caused complications when sending facsimiles.
Full-Scale	Indian Point	Personnel Management	Public Information		(1) Rumor control; for example, a citizen called a plant official regarding a news story on CNN and no one was sure what actions to take.

Exercise	Jurisdiction	Management Process	Category	Description
Practice	Indian Point	Communication	Emergency Operations Management	(2) The ED did not use the correct turnover form when he assumed the role from the Control Room Supervisor; This is a logging issue.
Practice	New York State	Communication	Emergency Management Notification	(2) RECS notices were placed on the table in the Command Center and were, on occasion, reviewed, but they were not date-and-time stamped as they were received, and at times, the notices could not be immediately located.
Practice	New York State	Communication	Support / Operations / Facilities	(3) The executive coordination telephone system was partially non-functioning, and the backup system did not have speakerphone capability; problems with the telephone system included (a) the ring on the phone lines in the Command Center was so weak that at times, no one noticed the ring, (b) projections were not changed in the Ops Center or in the Command Center on a regular basis, and (c) counties were dropped off of the phone bridge network

Exercise	Jurisdiction	Management Process	Category		Description
					frequently.
Practice	New York State	Communication	Emergency Management Notification		(4) There was no debriefing in any form after the exercise.
Full-Scale	New York State	Coordination	Protective Action Decision-Making		Only Westchester County seemed to notice that Emergency Action Level (EAL) 2.2.2 meant that two of three fission product barriers were lost, and they revised protective action decisions to evacuate. This is a coordination effort because the other jurisdictions did not act.
Full-Scale	New York State	Resource Management	Protective Action Decision-Making		(3) The State RECS data did not get where it should have been (dose assessment).
Practice	Orange County	Resource Management	Support/ Operations/ Facilities		Technological difficulties were observed throughout the exercise, including problems with the copier, video-conferencing equipment, LAN hookup for the County Attorney's laptop, executive conference telephone line,

Exercise	Jurisdiction	Management Process	Category		Description
					and the PA system.
Full-Scale	Orange County	Resource Management	Emergency Management Notification	Support / Operations / Facilities	We observed communication problems, including video-conferencing with the executive hotline.
Full-Scale	Orange County	Personnel Management	Emergency Operations Management		The County Health Official was not willing to make decisions and had to defer to State.
Practice	Putnam County	Communication	Emergency Operations Management	Emergency Management Notification	(3) The communication between EOC support staff was generally adequate, with the exception of the director not knowing about the release immediately after notification.
Practice	Putnam County	Communication	Support / Operations / Facilities		(4) The executive hotline had several problems: (a) Putnam County was dropped from the call several times, (b) New York SEMO was difficult to hear, (c) only one person could use the backup phone system at a time, and (d) an individual had to relay information to others in the EOC when the backup system was in-use.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	Putnam County	Communication	Support / Operations / Facilities		(5) The radio system used by the EOC to communicate with its field teams was jammed during the exercise, and the radio operator was able to switch to the Westchester County system to re-establish communications; many EOC personnel seemed to think the jammed repeater was intentional but had no evidence to support this claim.
Practice	Rockland County	Communication	Support / Operations / Facilities	Emergency Management Notification	Poor communication management with telephone systems, dedicated lines (RECS and executive hotline), conference back-up (commercial lines), and the lack of use of the available RACES Teams were notable communication issues.
Practice	Rockland County	Coordination	Emergency Operations Management		There was very little coordination with State Emergency Management Office (SEMO) and no mention of FEMA or Nuclear Regulatory Commission at Rockland County or over the executive hotline

Exercise	Jurisdiction	Management Process	Category		Description
					(when it was operational).
Practice	Westchester County	Communication	Support / Operations / Facilities		The executive coordination telephone system was inoperable, and the backup system did not have speakerphone capability. This hindered the ability of others in the command group to hear and understand what other counties and the State were trying to communicate. In addition, volume fluctuated and some messages were garbled.
Full-Scale	Westchester County	Resource Management	Support / Operations / Facilities		(1) there were problems with the executive hotline; Putnam could only be contacted via backup system.
Full-Scale	Westchester County	Communication	Protective Action Implementation		Westchester County not catching dismissal of SIP schools to emergency response and planning area's that were evacuating (latch-key kids) until after dismissal.
Practice	Indian Point	Communication	Protective Action Decision-Making	Protective Action Implementation	(2) Missing and unavailable data on key plant parameters made the technical liaison's work

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Exercise	Jurisdiction	Management Process	Category		Description
					more difficult.
Practice	Indian Point	Communication	Field Measurement and Analysis		(12) There were discrepancies between Reuter/Stokes, dose projections, and field data. The observer recalled that this was an artifact of the exercise scenario, not error on part of Indian Point.
Practice	Indian Point	Communication	Emergency Operations Management		(1) Activation of the EOF was not announced as procedure dictates.
Practice	Indian Point	Communication	Emergency Management Notification		(3) The ED was not prepared to answer JNC's question about how many people were released from the plant.
Practice	Indian Point	Communication	Protective Action Implementation		(4) The ED did not make an announcement using the words "release non-essential personnel," as required by procedure.
Practice	Indian Point	Communication	Emergency Operations Management		(8) The ED never signed into the EOF sign-in board.
Practice	Indian Point	Communication	Emergency Management Notification	Emergency Operations Management	(3) The Dose Assessment Coordinator would like to have done more frequent briefings to state and county liaisons because

Exercise	Jurisdiction	Management Process	Category		Description
					field data was getting through the JNC. but not to the state and county liaisons.
Practice	Indian Point	Communication	Field Measurement and Analysis		(4) The Dose Assessment Coordinator caught a notification form with the wrong wind direction on it and corrected it in time.
Practice	Indian Point	Communication	Emergency Management Notification		(8) The radiological field teams requested laminated cards featuring the phonetic alphabet.
Practice	Indian Point	Resource Management	Field Measurement and Analysis		(2) Simulator information errors were an annoyance to exercise play.
Practice	Indian Point	Communication	Support / Operations / Facilities		(5) One county and New York State were assigned the same phone number in the EOF, but a work-around was set-up for the exercise.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(6) The executive hotline is for county executive use, but it rang three times in the EOF, and each time was being used to transmit radiological data.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(7) The personal computer that is labeled "EOF Manager" does

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Exercise	Jurisdiction	Management Process	Category		Description
					not meet current station standards.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(8) The SAS/Proteus Operator procedure is obsolete now.
Practice	Indian Point	Resource Management	Support / Operations / Facilities		(10) MS2 cable was identified as defective a couple of months ago and remains so.
Practice	Indian Point	Personnel Management	Emergency Operations Management		(2) There should be two technical liaisons to state/counties to provide adequate support.
Full-Scale	Indian Point	Communication	Protective Action Decision-Making		(3) The protective action recommendation status board was updated long after ORAD flagged the need to change protective action recommendations.
Practice	New York State	Communication	Support/ Operations/ Facilities	Emergency Management Notification	(7) Hourly briefings were not carried out on-time, and sometimes no at all, in the case of the met data; some briefings were mock, and some were delayed because of technical difficulties.
Practice	New York State	Communication	Emergency Management Notification		(8) Policy dictates that the utility makes an updated notification using the RECS phone every 30 minutes, but a “report by

Exercise	Jurisdiction	Management Process	Category	Description
				exception” process would be faster and less cumbersome, allowing fewer individuals to be involved and therefore speeding-up the decision-makers’ communication process.
Practice	New York State	Personnel Management	Training	Training more specific to radiation emergencies and fast-breaking events (including terrorism) is recommended.
Full-Scale	New York State	Communication	Emergency Operations Management	(1) The flow of information in the Operations Center was adequate once the staff switched to a paper system.
Full-Scale	New York State	Communication	Emergency Operations Management	(3) The County Department of Health (DOH) and State DOH did not communicate.
Full-Scale	New York State	Communication	Emergency Operations Management	(4) The Emergency Director told FEMA that all four counties had been notified but did not verify the information until 40 minutes later.
Full-Scale	New York State	Coordination	Public Information	In addition, the Governor’s office declared a “State of Disaster Emergency” without a clear explanation of

Exercise	Jurisdiction	Management Process	Category	Description
				what that term meant.
Full-Scale	New York State	Resource Management	Protective Action Decision-Making	(2) The form the State sent to the EOF with protective action recommendations/ protective action decisions did not show changes, and the EOF had to send it back to the State four times.
Full-Scale	New York State	Resource Management	Support / Operations / Facilities	(4) The speakerphone with JNC was unplugged until 0934 hours.
Full-Scale	New York State	Resource Management	Field Measurement and Analysis	(5) MRPDAS had bad data at State initially and had to reload.
Full-Scale	New York State	Communication	Emergency Operations Management	Proper documentation at the EOC (State) for complex and even minor incidents is a must and was very limited during this exercise
Practice	New York State	Personnel Management	Emergency Operations Management	Organizational charts should in some way reflect shift changes that may occur or can be anticipated.
Full-Scale	New York State	Personnel Management	Emergency Operations Management	Organizational charts should in some way reflect shift changes that may occur or can be anticipated

Exercise	Jurisdiction	Management Process	Category		Description
Practice	Orange County	Coordination	Support / Operations / Facilities		Likewise, the main RAD Monitor was new to the position and was not particularly aggressive in offering an opinion.
Practice	Orange County	Personnel Management	Emergency Operations Management		The only exception to CADEMO's successful leadership was that EMO personnel made the decision to delay the initiation of computer call-down of EOS staff 20 minutes as initial notification was concurrent with the morning commute. This resulted in the EOC not being fully-staffed until 1 hour and 20 minutes after event notification.
Full-Scale	Orange County	Resource Management	Support / Operations / Facilities		The only other resource management issue was that the facility is small (particularly the executive decision room).
Practice	Putnam County	Communication	Emergency Management Notification		(6) There was a lack of EOC briefings, perhaps attributable to the "separate" exercises being conducted-the out-of-sequence play and the real-time play; EOC staff were not even

Exercise	Jurisdiction	Management Process	Category		Description
					briefed regularly during out-of-sequence play (see coordination issues below).
Practice	Putnam County	Coordination	Emergency Operations Management		The EOC was fully staffed until 1200 hours, and after 1200 hours, only dose assessment, public information, and executives continued to play. This caused the exercise to be played out-of-sequence for about half of the players, which created some confusion for players continuing in real-time.
Practice	Putnam County	Resource Management	Support / Operations / Facilities		Small technical problems, like printer and copy machine failure, were handled quickly.
Practice	Putnam County	Resource Management	Support/ Operations/ Facilities		It was also noted that the Putnam EOC facility is confined, which makes multiple conversations a distraction.
Full-Scale	Putnam County	Resource Management	Support / Operations / Facilities		(2) The EOC facility, including floor space and acoustics, are not optimal.
Full-Scale	Putnam County	Resource Management	Support / Operations / Facilities		(2) The executive hotline did not work, but the secondary system did.

Exercise	Jurisdiction	Management Process	Category		Description
Full-Scale	Rockland County	Communication	Support / Operations / Facilities		Communication was without problems, except for issues concerning the executive hotline.
Full-Scale	Rockland County	Coordination	Emergency Operations Management		The SEMO representative disagreed with his post assignment in the operations room as opposed to the command room. He spent his time in the command room and left messages with another player to take messages and contact him if necessary.
Full-Scale	Rockland County	Resource Management	Support / Operations / Facilities		Projectors may be more effective than televisions to share GIS, transportation information, etc.
Full-Scale	Rockland County	Resource Management	Support / Operations / Facilities		RACES was under-utilized; it can send picture data via cameras, but no personal computer in the EOC could accept the data.
Practice	Westchester County	Communication	Emergency Management Notification		It was also documented that policy dictates that the utility makes an updated notification using the RECS phone every 30 minutes, but a “report by exception” process would be faster and less

Exercise	Jurisdiction	Management Process	Category	Description
				cumbersome.
Practice	Westchester County	Resource Management	Support / Operations / Facilities	(2) The EOC complex is antiquated and small for the size of the EOC staff. The ceiling is too low to allow for any type of overhead projection system, and the acoustics are poor.
Full-Scale	Westchester County	Coordination	Emergency Operations Management	Because a school representative showed up late, county transportation back-filled the school for the first hour, which is a coordination management issue.
Full-Scale	Westchester County	Resource Management	Support / Operations / Facilities	(2) The EOF could only be reached on primary system.
Full-Scale	Westchester County	Resource Management	Support / Operations / Facilities	(3) The phones were placed in the middle of the facility; the County Executive may want to consider moving the phones in the future.
Full-Scale	Westchester County	Personnel Management	Emergency Operations Management	The County Executive and deputy could have displayed a better working knowledge of basic radiological concepts.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	Indian Point	Communication	Field Measurement and Analysis		(5) The communication with field data teams went well
Practice	Indian Point	Communication	Emergency Management Notification		(9) The EOF Communicator #2 got notification/update forms out in a timely manner
Practice	Indian Point	Command and Control	Emergency Operations Management		We did not document any command and control management issues for the practice exercise
Full-Scale	Indian Point	Communication	Emergency Operations Management		(1) Regular, timely briefings provided adequate summaries of current conditions
Full-Scale	Indian Point	Coordination	Emergency Operations Management		We did not document any coordination management issues
Full-Scale	Indian Point	Communication	Emergency Management Notification		Key EOF staff (Emergency Director and ORAD) did a good job of communicating directly with State and county liaisons
Full-Scale	Indian Point	Personnel Management	Field Measurement and Analysis	Support / Operations / Facilities	(2) Indian Point field teams were active and well-coordinated throughout the exercise

Exercise	Jurisdiction	Management Process	Category		Description
Full-Scale	Indian Point	Personnel Management	Emergency Operations Management		(3) The EOF staff stayed active after release, until the end of play
Practice	New York State	Communication	Support / Operations / Facilities		(1) The utility tech representatives were knowledgeable and explained the physical plant problems
Practice	New York State	Coordination	Emergency Operations Management		The State EOC showed excellent coordination with the counties, despite technical difficulties with the executive hotline. For example, school administrators were given notice to evacuate before any public notification through respective counties. No other coordination management issues were noted for the State EOC
Practice	New York State	Resource Management	Support / Operations / Facilities		(1) The EOC installed plasma screens to project information in the Command Center and Ops Center on large-projection televisions
Practice	New York State	Resource Management	Support / Operations / Facilities		(2) There were computers at every station, and the machines seemed to function well

Exercise	Jurisdiction	Management Process	Category		Description
Practice	New York State	Resource Management	Support / Operations / Facilities		(3) The GIS group provided excellent maps
Practice	New York State	Command and Control	Protective Action Decision-Making		The Assistant Director was helpful and knowledgeable about his roles and duties. He relied little on his emergency managers and agency representatives when making decisions, but did rely on them for information and assistance
Practice	New York State	Personnel Management	Emergency Operations Management		The State EOC took this practice drill seriously-the EOC was fully staffed, and participants were serious and attentive
Full-Scale	New York State	Communication	Emergency Operations Management		(2) Agency briefings were good-on-time and thorough
Full-Scale	New York State	Resource Management	Support / Operations / Facilities		(1) There was a good back-up plan for phones when they went down
Full-Scale	New York State	Command and Control	Emergency Operations Management		No command and control management issues were noted
Full-Scale	New York State	Personnel Management	Emergency Operations Management		No personnel management issues were observed

Exercise	Jurisdiction	Management Process	Category	Description
Practice	Orange County	Communication	Emergency Operations Management	<p>Effective communication on the part of EOC personnel was documented. Of particular note is that EOC personnel who were assigned to specific situations (i.e., fire, schools, etc.) reported to the executive decision area, in a separate room, to be briefed on incidents and engage in further discussion if necessary. This helped keep noise in the main EOC to a minimum and effectively targeted specific personnel to deal with a problem without outside distraction.</p> <p>Another communication management issue was that periodic EOC updates contained necessary information but were concise, allowing personnel to proceed with response activities</p>
Practice	Orange County	Resource Management	Support / Operations / Facilities	<p>Available resources were effectively utilized by EOC personnel: the main entrance, JNC, and break areas were reconfigured from the existing floor plan (secondary</p>

Exercise	Jurisdiction	Management Process	Category		Description
					entrance used as main entrance, office equipment relocation, etc.) to minimize traffic flow and distractions
Practice	Orange County	Resource Management	Emergency Operations Management		Resources at the EOC were "adequate." Almost all EOC staff, including administrative assistants, were from other county offices. In some cases, personnel did not have experience in the EOC, but experienced staff provided guidance and direction to newcomers
Practice	Orange County	Command and Control	Emergency Operations Management		We did not observe any command and control management issues at the Orange County EOC
Practice	Orange County	Personnel Management	Emergency Operations Management		Observers noticed strong leadership from EOC staff, particularly CAD Emergency Management Office (EMO).
Practice	Orange County	Personnel Management	Emergency Operations Management		Additional taskings/injects were dealt with in an effective manner and did not detract from "main REP issues." The County Executive Officer, who was

Exercise	Jurisdiction	Management Process	Category		Description
					the main decision-maker, had confidence in his personnel and deferred to their expertise when appropriate
Full-Scale	Orange County	Communication	Emergency Management Notification		We did not note any communication management issues
Full-Scale	Orange County	Command and Control	Emergency Operations Management		Delegation of tasks in command and control was appropriate
Practice	Putnam County	Communication	Protective Action Decision-Making		(1) Protective action decisions at the county level were timely
Practice	Putnam County	Communication	Protective Action Implementation		(2) No problems were apparent in the implementation of protective actions
Practice	Putnam County	Resource Management	Support / Operations / Facilities		According to the EOC director, a new facility is scheduled to begin construction soon
Practice	Putnam County	Command and Control	Protective Action Decision-Making		The County Executive and the EOC Director showed aggressiveness in decision-making, and although they remained relatively isolated from the rest of the EOC, they appeared to be well-informed.

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Exercise	Jurisdiction	Management Process	Category	Description
Practice	Putnam County	Personnel Management	Emergency Operations Management	We did not notice any personnel management issues during this practice exercise
Full-Scale	Putnam County	Communication	Emergency Operations Management	(1) Inter-EOC communication was adequate
Full-Scale	Putnam County	Communication	Emergency Operations Management	(2) Regular briefings from command room to Operations Center seemed effective
Full-Scale	Putnam County	Communication	Protective Action Decision-Making	(3) Briefing to dose assessment field team was thorough
Full-Scale	Putnam County	Coordination	Emergency Operations Management	No coordination management issues were observed
Full-Scale	Putnam County	Resource Management	Protective Action Implementation	(1) Traffic control set-up was done well
Full-Scale	Putnam County	Command and Control	Emergency Operations Management	No command and control management issues were documented by
Full-Scale	Putnam County	Personnel Management	Emergency Operations Management	We did not observe any personnel management issues
Practice	Rockland County	Resource Management	Support / Operations / Facilities	(1) The facility for Command and Control and EOC is very usable; it has been remodeled recently, and with the exception of a few mechanical glitches, worked

Exercise	Jurisdiction	Management Process	Category		Description
					well for team-type interaction
Practice	Rockland County	Resource Management	Support / Operations / Facilities		(2) The staff was creative in recovering from equipment problems and remained calm
Practice	Rockland County	Command and Control	Emergency Operations Management		The Command and Control element worked well with EOC staff, and information-sharing was excellent
Practice	Rockland County	Command and Control	Emergency Operations Management		The Chief Executive was prepared and willing to listen to staff; he was not hesitant about making tough decisions
Practice	Rockland County	Personnel Management	Field Measurement and Analysis		It was noted that the Radiological Monitoring Team was well-equipped to handle their duties
Full-Scale	Rockland County	Communication	Support / Operations / Facilities		The staff rebounded well from hotline problems, however
Full-Scale	Rockland County	Command and Control	Emergency Operations Management		The County Executive, Chief of Staff, and Operations Chief worked well as a team, discussed information, and then the Executive made decisions.

Exercise	Jurisdiction	Management Process	Category	Description
Full-Scale	Rockland County	Personnel Management	Emergency Operations Management	The EOC Manager was an effective leader; he kept his staff motivated and was involved with injects, primarily law enforcement.
Practice	Westchester County	Resource Management	Support / Operations / Facilities	(1) The EOC is initiating an e-mail-based messaging system that will end reliance on multi-part message forms and automatically build a message log. The new system seemed to work well after some initial set-up issues.
Practice	Westchester County	Command and Control	Emergency Operations Management	It was noted that the Assistant County Executive who was in charge reported that it was his first time filling that role. He was knowledgeable about his duties and relied on his emergency managers and agency representatives (especially the schools) for information and advice on which to base decisions.
Practice	Westchester County	Command and Control	Emergency Operations Management	Also, we found the command group staff to be experienced in REP and anticipated

Exercise	Jurisdiction	Management Process	Category	Description
				escalation rather than adjusting only when situations changed.
Practice	Westchester County	Command and Control	Support / Operations / Facilities	In addition, the utility tech reps were considered knowledgeable. One of them in particular is an active volunteer fire and hazmat responder as well as an Entergy engineer, and was clearly well-respected and seen as a trusted agent by County decision-makers.
Practice	Westchester County	Personnel Management	Emergency Operations Management	We did not note any personnel management issues for the Westchester County EOC.
Full-Scale	Westchester County	Command and Control	Emergency Operations Management	IEM observers did not note any command and control management issues.
Exercise	Jurisdiction	Management Process	Category	Description
Practice	General	Coordination	Public Information	Upon arrival at JNC, staff did not know the protocol for getting the keys to the building, which delayed entry.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	General	Coordination	Public Information		The start up of the JNC was slow. Registering all of the staff was problematic and a little unorganized.
Practice	General	Coordination	Public Information		The JNC will not declare itself operational until all staff has signed in. It did not seem like the staff was aware of this since many were present for awhile before signing in or had to be reminded.
Practice	General	Communication	Public Information		Most of the counties were having trouble with the phones and computers. Email was not working.
Practice	General	Coordination	Public Information		Unable to synchronize clocks in work rooms.
Practice	General	Communication	Public Information		Agency liaison did not keep counties up-to-date about change in emergency status, For example, a general emergency was declared at 1250 and as of 1310, counties still had not gotten any information regarding the general emergency.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	General	Communication	Public Information		Status posters in work rooms were not being changed.
Practice	General	Communication	Public Information		Status reports from plant were not given often enough.
Practice	General	Communication	Public Information		Agency liaison did not utilize the bell when he went to work rooms to deliver news; therefore, many in the room were not aware of his presence.
Practice	General	Communication	Public Information		Public inquiry did not know about change from Site Area Emergency to General Emergency.
Practice	General	Communication	Public Information		Since email was down, counties were delayed in putting out press releases. For approval they had to fax to county office and then manually input any changes.
Practice	General	Communication	Public Information		The fax machines were backlogged, which caused a further delay of the press releases getting to county offices in a timely manner.

Exercise	Jurisdiction	Management Process	Category		Description
Practice	General	Communication	Public Information		The distribution of press releases to the county rooms was erratic and slow.
Practice	General	Communication	Public Information		Distribution of press releases for people outside JNC was also very slow or they were not receiving any at all.
Practice	General	Communication	Public Information		The public inquiry room was not receiving some press releases.
Practice	General	Communication	Public Information		The first press briefing did not take place until an hour and half after the first press release was sent out. There did not seem to be any sense of urgency.
Practice	General	Communication	Public Information		In many cases, the spokespeople told the media they would get back to them on certain questions. At the next briefing they usually addressed the questions; however, it seemed like too much information for a trivial question and took up too much time. Some of the questions addressed in the

Exercise	Jurisdiction	Management Process	Category	Description
				follow up seemed like they were moot points.
Practice	General	Communication	Public Information	The second press briefing was too long. The length of all the briefings was not realistic.
Practice	General	Communication /Coordination	Public Information	Important events are unfolding while spokespeople are in media briefings. A staff member should either be coming up to inform spokespeople of changes or telling them they have to stop the briefing because press releases are giving out contradictory or inaccurate information.
Practice	General	Communication	Public Information	Spokespeople could have explained certain terms more clearly. For example, there was no clear explanation of a protective action versus a precautionary action.
Practice	General	Communication	Public Information	Spokespeople did not let the media know what documents (background

Exercise	Jurisdiction	Management Process	Category		Description
					information) or experts were available. Counties need to make it easier for the press.
Practice	Entergy	Communication	Public Information		Entergy spokesperson was a little belligerent towards the press. It makes him seem less credible.
Practice	General	Communication	Public Information		Counties do not give media any idea when next briefing will take place.
Practice	General	Communication	Public Information		Rumors were being addressed in briefing but media outlets were not being called to correct rumors.
Practice	General	Coordination	Public Information		The security in the media room was lax as media was able to get into unauthorized areas of the building.
Practice	General	Communication	Public Information		A special news bulletin that further explained the EAS announcements was sent out 43 minutes later. This happened on two occasions.

Exercise	Jurisdiction	Management Process	Category		Description
Full-Scale	General	Coordination	Public Information		For the start-up of JNC, staff arrived quickly after page was sent. Registration was efficient.
Full-Scale	General	Coordination	Public Information		Most staff knew to sign in on the main board, but some had to be reminded to check in.
Full-Scale	Orange County	Coordination	Public Information		The JNC was delayed in declaring itself operational because it could not establish the video link with Orange. They finally decided to go ahead without link.
Full-Scale	General	Communication	Public Information		As of 0922, there was no posting in the Utility Room about the emergency.
Full-Scale	General	Communication	Public Information		The Agency Liaison kept the counties abreast of all news from the plant as well as changes to the status of the emergency.
Full-Scale	Orange County	Communication	Public Information		Orange County was not getting updates about the plant.
Full-Scale	Putnam County	Communication	Public Information		Putnam County heard about the

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					release from their health department 10 minutes before the state announced the release.
Full-Scale	General	Communication	Public Information		Phone numbers on press releases were incorrect or did not list a number for further information.
Full-Scale	Putnam and Orange Counties	Communication	Public Information		Putnam and Orange did not have a number to contact for further information
Full-Scale	Orange County	Communication	Public Information		Orange County was missing multiple press releases from the other counties.
Full-Scale	General	Communication	Public Information		Three press releases had significant mistakes.
Full-Scale	General	Communication	Public Information		There seemed to be some inconsistency between the information the counties would say they were going to address at the briefing and what they actually said at the briefing. It was mostly in reference to questions reporters asked and filling in holes from the previous briefing.

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Full-Scale	General	Communication	Public Information		Press briefings were too long for the media.
Full-Scale	General	Communication	Public Information		There was a delay in announcing the General Emergency. Once there is a status change the counties should report to the media promptly.
Full-Scale	Putnam County	Communication	Public Information		At the first briefing the only press release available was Putnam County's.
Full-Scale	General	Communication	Public Information		When spokespersons were interrupted by media questions they said they would go back and answer their question at the end of the briefing. When it was time for questions, the spokespersons often did not address the earlier questions.
Full-Scale	General/Outside media	Communication	Public Information		The questions asked by the media were too easy. Media would not be that forgiving during a real emergency.
Full-Scale	Orange County	Communication	Public Information		The Orange County video link was not operational until the 5 th press briefing around 0300. In the morning, they said

					they would try to get Orange County into the press briefings by phone; however, nothing was done. They seemed to forget about it. During the exercise the reporters at the JNC had no way to ask Orange County any questions. The State was updating for Orange.
Full-Scale	General	Communication	Public Information		Wind direction/Wind speed posters need to be posted so the media can see what the spokespeople are referring to.
Full-Scale	General	Communication	Public Information		Plant status posters might also be helpful.
Full-Scale	General	Communication	Public Information		It would be helpful for someone who is aware of the current situation to remain in the press briefing room to answer basic questions from the media (i.e. explaining the plume).
Full-Scale	General	Communication	Public Information		The timing of press releases to the briefing room was erratic. The counties need to coordinate and make sure that the releases get up in a timely manner.

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Full-Scale	Putnam County	Communication	Public Information		The first Putnam County press release was up too early.
Full-Scale	General	Communication	Public Information		The EAS message was not upstairs until 44 minutes after announcement.
Full-Scale	Entergy	Training	Public Information		While the county spokespeople did a good job handling the media, the Entergy spokesperson might benefit from media training. Some of his answers to the media were curt and he was ignoring some questions. He also promised to get back to important questions but then did not.
Full-Scale	General	Communication	Public Information		The first EAS came out at 1004 but was not brought up to the media room until 1048.
Full-Scale	General	Communication	Public Information		Two of the four EAS messages went out while the counties were briefing. In a real situation, this would create problems since the media could not cover the live press briefing while the EAS message is being aired.

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Full-Scale	General	Communication	Public Information		The second EAS went out without knowledge of the change to a General Emergency.
Full-Scale	General	Communication	Public Information		EAS #3 said there was a release in plant, however at that time there had been no release.
Full-Scale	General	Communication	Public Information		At the 5 th press briefing, it was announced that all ERPA were sheltered, where in fact they were evacuated.
Full-Scale	General	Communication	Public Information		At the 5 th press briefing, spokesperson announced that briefing #3 was incorrect, which occurred one and half hours earlier.
Full-Scale	General	Communication	Public Information		Overall, many of the briefings were out of sync with what was occurring at the plant. Many times the information was not updated immediately but at the next briefing, which sometimes occurred more than an hour later.

Appendix J: Advocacy Issues

In the summary that follows, and in the report generally, “advocacy groups” is a non-pejorative term of convenience, and is meant to encompass environmental and public health groups and individuals who share and vocalize a concern for the adequacy of the Radiological Emergency Preparedness plans at Millstone and/or Indian Point. They include Indian Point Safe Energy Coalition, Riverkeeper, STAR, Citizens Awareness Network, citizens, and many other citizen organizations. That the term is broad is evident from the fact that some it is meant to encompass emphasize that they are not against nuclear energy per se. That the term is only for convenience is evident from the fact that many who are responsible for portions of the plan(s) have also expressed reservations about some of its more salient aspects.

After the 9/11 attacks, Richard Brodsky, Chairman of the Standing Committee on Environmental Conservation, requested an inquiry into the Indian Point Emergency Evacuation Plan.¹ A hearing called by Chairman Brodsky, Chairman of the Committee on Energy Assemblyman Paul Tonko, and Chairwoman of the Committee on Government Operations Rosanne Destito, was assembled in White Plains, New York, on December 20, 2001. The committees heard testimony from state and county officials, Entergy, and the public. The committees expressed concern about a number of issues:

- The evacuation plan relied on assumptions that were “clearly inconsistent with experience, evidence, and expert opinion, and, until corrected, remove the [p]lan from reality and practical ability to actually protect the public health and safety” (for example, the plan assumes that people outside the recommended areas will not evacuate);
- The plan assumes that parents will evacuate without picking up children from school. Parents are expected to meet their children at designated places outside the area at risk. Children who live inside the risk area, but are at school outside the risk area during an emergency will be picked up by their parents as they are evacuating the area;
- Planning assumes that emergency officials can give evacuation information to the public, and that the information will enable certain populations (like school children) to be evacuated earlier than other populations;
- The Indian Point emergency plans fails to consider radiation release from spent fuel pools;
- Planning assumes that emergency workers will return to the risk area during a radiation emergency;
- Planning appears to assume that there will be a significant amount of time between notification of government officials of the need to evacuate and the actual radiation release;
- Planning assumes that sheltering-in-place is adequate protection in the event of a sudden release of radiation;
- The plan relies on objective data (such as population estimates) that is outdated and incorrect;

¹ Brodsky, Richard and Paul Tonko. *Interim Report on the Evacuation Plan for the Indian Point Nuclear Facility*. February 20, 2002.

- Planning for the evacuation of the transit-dependent population is suspect—the plan assumes that 50% of the transit-dependent will evacuate in the cars of others;
- The number and availability of buses for a general evacuation (both of school children and the general population) is unclear;
- There are no planned alternatives for contaminated water supply;
- Protection of pre-school children is inadequate;
- Potassium iodide is provided only for emergency workers;
- Evacuation plans for colleges apparently do not exist; and
- Evacuation plans remain untested.

Advocacy groups often recommend increasing the area to be evacuated in an emergency. Currently, evacuation plans cover only areas within a 10-mile radius of the facility. Also, there is concern about the protection of special populations, such as people dependent on public transportation, people confined to their homes for a variety of reasons, hospitalized patients, and people in institutional settings.

Additionally, advocacy groups note that the worst-case scenario assumed by the Indian Point emergency plan is not a “meltdown,” but instead, a gradual release of radiation. Other concerns include the capacity of area hospitals to treat workers and citizens in the event of an emergency at Indian Point. Concern has also been expressed that medical personnel may not report to hospitals and medical centers in case of a radiation emergency. Although evacuated citizens are expected to go to reception centers, many are concerned that reception centers are too close since they are not much farther than 10 miles from the Indian Point facility.

Advocacy groups have also concentrated on Indian Point’s vulnerability to an act of terrorism in light of the events of September 11, 2001. There is concern that terrorists could create “dirty bombs,” from radioactive spent fuel rods. A number of groups have raised issues regarding the level of security at Indian Point and the increased probability of terrorist strikes against the plant. A congressionally-sponsored document called “Security Gap,” which was released in March 2002,² raises the concern that the current plan to handle a radiological emergency at Indian Point does not account for the heightened risk of terrorist attacks. The congressman adds that “the [Nuclear Regulatory Commission] has historically failed to adjust security regulations to meet the evolving threat [of terrorism] and has not permanently revised security regulations following the events of September 11.” Other general concerns of advocacy groups include maintenance and upkeep of Indian Point,³ and the safety of the water supply of New York residents.

Unlike Indian Point which is located amidst functioning communities, a large body of water separates the Millstone plant from Long Island, and there are no population centers within ten miles of the plant. Accordingly, the debate surrounding the threat the Millstone plant poses to New York communities is less intense and there seems to be a lower level of general awareness.

² “Security Gap” is a summary of NRC responses to correspondence from a United States Representative, Member, Energy and Commerce Committee. The document was made public on March 22, 2002.

³ According to the source “Rating Upgrade Not Reassuring,” a leak of highly flammable hydrogen was discovered inside the Indian Point 2 reactor on August 31, 2002, and Entergy did not repair the leak until October.

Nevertheless, many elements of the Millstone and Indian Point debates are virtually identical, including rejection of the relevance of the 10-mile emergency planning zone, concern for the inadequacies of the roadways, large populations just outside the 10-mile emergency planning zone who perceived themselves at risk and lacking effective protective action strategies, and cynicism and distrust of the nuclear industry and of government planning. Also, advocacy groups near Millstone can easily remember the success with Shoreham. As with Indian Point, there are locally elected officials who have made opposition to Millstone a major component of their official political stance. A telling argument advocacy groups use is that the area derives no benefit from the plant, but is placed at risk by its existence.