

PUTNAM COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN



EXECUTIVE SUMMARY

07/10

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INTRODUCTION



Emergency management is based on a three-phase cycle of activities. Those phases are Preparedness, Response, and Recovery. Each of these phases, in turn, has its own set of priorities and activities. Emergency plans are developed and revised as a Preparedness activity – then used as a guideline by knowledgeable emergency managers to apply resources and direct activities in the Response and Recovery phases. Emergency plans must consider not only “what to do,” but “why, when, where and how to do.” Emergency plans may not eliminate the potential danger, but they provide ways to protect against the harmful effects.

Putnam County could be faced with any one or a combination of emergency situations that would pose a threat to the lives, health or safety of the County's residents. Among those potential hazards is the nuclear power generating facilities located at Indian Point in Westchester County.

These facilities have in effect many rigidly enforced safety features and programs associated with the handling of radioactive materials. It is nevertheless possible that a nuclear incident releasing radioactive material, seriously affecting public health and safety in Putnam County, could occur. Therefore, it is both prudent and appropriate to plan for such a contingency, through the effective use of the resources of the County and its political jurisdictions, in order to ensure the health and safety of the public.

SITUATION

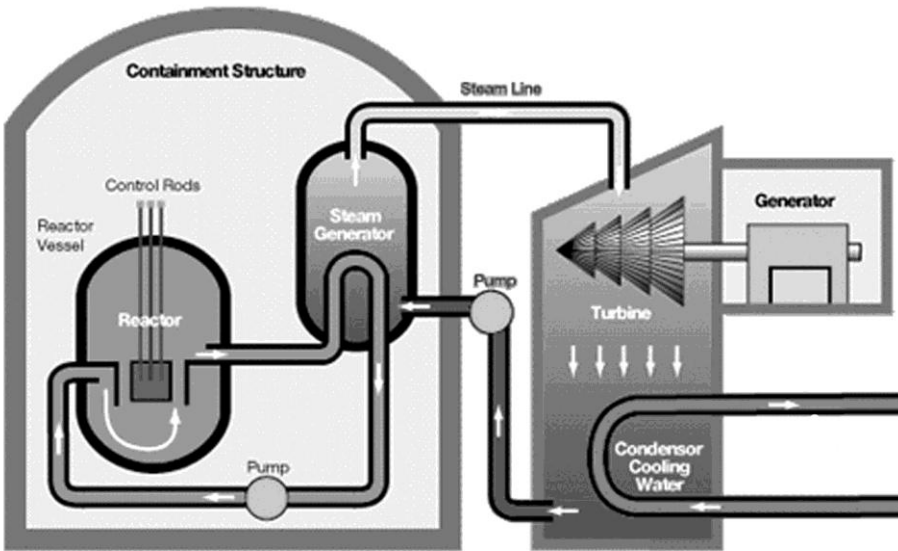
The Indian Point Energy Center (IPEC) is located on the east bank of the Hudson River about 24 miles north of New York City at Indian Point, Village of Buchanan, in upper Westchester County, New York State.

The IPEC contains two operating nuclear reactors. Unit 2 produces 1066 Megawatts of electricity and Unit 3 produces 1075 Megawatts of electricity. Unit 1 is not in operation and its fuel has been removed from the reactor. All fuel that has been removed from all three reactors is stored in a specially designed facility located at Indian Point.

Each of the operating power plants contains a reactor vessel with loops-of pressurized water and pumps within the containment structure to remove the heat

energy from the reactor core. This energy is transferred in the steam generator to the secondary water system, generating steam, which leaves containment to drive a turbine generator set and produce electric power.

The nature of the uranium fuel in the reactor cores at the IPEC precludes the possibility of a nuclear explosion (a weapon-type detonation). However, other types of accidents are possible. The reactor containment buildings are designed to prevent the



spread of any radioactive material from the reactor system. Nonetheless, an accidental release of radioactive materials to the off-site environment remains a remote possibility. If such a release should occur, the radioactive materials released would be comprised primarily of radioactive iodine, xenon and krypton gases.

PURPOSE and SCOPE of THE PLAN

The Putnam County Radiological Emergency Response Plan provides guidance for Putnam County government to

- Mitigate the effects of a radiological emergency that may be caused by an offsite release of radiation from the Indian Point site.
- Provide for preparedness and response activities to lessen or eliminate damage to life and property within the 10-mile emergency planning zone.
- Provide for recovery to normal conditions as quickly as possible.

The plan assigns duties and responsibilities to various local government, private, and volunteer agencies that have the capabilities to successfully protect life and property in the affected area.

The plan outlines a course of action for a coordinated planning and response effort by local officials to alleviate a radiological emergency situation, along with methods of obtaining supplemental assistance from other sources.

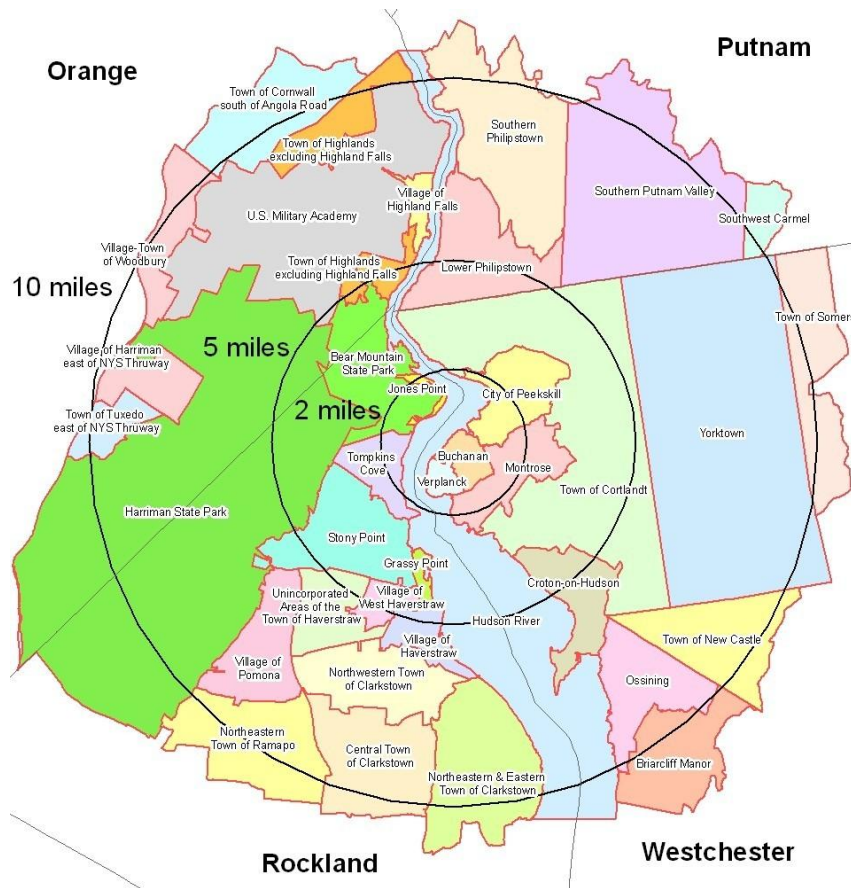
The plan provides for the early notification of responsible officials and agencies, the evaluation of the severity of the situation, the initiation of protective actions to safeguard life, health and property, the coordination of assistance furnished by all levels of government and the interface with all outside agencies to accomplish the purpose of the plan.

Federal guidance for the preparation of radiological emergency response plans is provided in the document entitled, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (NUREG-0654/FEMA-REP-1, Rev. 1). This document is issued jointly by the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA). It establishes planning standards to be addressed in local radiological emergency response plans. Items to be addressed by State and licensee response plans are similarly indicated.

This planning is also in accordance with Code of Federal Regulations (CFR), Title 10, Part 50, and Title 41, Part 350.

EMERGENCY PLANNING ZONES

Within the scope of the plan, there are two Emergency Planning Zones (EPZs): the Plume Exposure Pathway and the Ingestion Exposure Pathway.



These zones are defined as the areas for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accident. They have been designed in size to accommodate the need for actions in regard to the potential degree of radiological exposure.

The Plume Exposure Pathway is that area which is within approximately 10 miles of the Indian Point site. Although the radius for an EPZ implies a circular area, the actual shape depends upon the physical and demographic features within that zone. The principal exposure sources from this pathway are whole body external exposure to gamma radiation from the plume and from deposited material and inhalation exposure from the passing radioactive plume. The time of potential exposure within the Plume Exposure Pathway could range in length from hours to days.

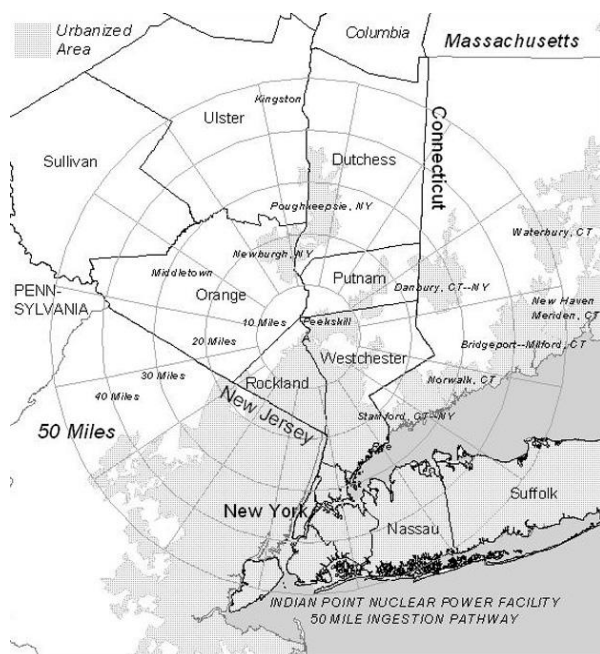
About 10 percent of the land area of Putnam County – the southern portions of the Towns of Philipstown and Putnam Valley and a small adjacent portion of the Town of Carmel – lies within the Plume Exposure Pathway. It is estimated that the population of the area to be just over 20,000.

Within the 10-mile EPZ in Putnam County, four distinct Emergency Planning Areas have been identified. These are generally bounded by town borders, highways and streets and other recognizable boundaries.

Protective action recommendations for the general public will be made by referring to emergency response planning area(s). If it is decided that any portion of an Area requires a protective action, then the entire Area will be involved in this protective action.

The Ingestion Exposure Pathway is that area which is within approximately 50 miles of the Indian Point site. It includes the 10-mile EPZ. The principal exposure in this pathway is from ingestion of contaminated water or foods such as milk, fresh

Vegetables or fish. The time of potential exposure could range in length from hours to months. The State of New York has the primary responsibility for developing emergency plans for the Ingestion Exposure Pathway.



The concept of these zones and their respective sizes represents a judgment on the kind and extent of planning which was done and on the appropriate types of response activities needed for the effective protection of the public health. In a given emergency, protective actions might be restricted to a small part of either or both EPZs.

The rationale for determining the two planning areas and defining their parameters can be found in NUREG-0396/EPA 520/1-78-016 entitled, "*Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants.*"

EMERGENCY CLASSIFICATIONS

A standardized set of descriptions has been established by the Nuclear Regulatory Commission for the Nuclear Facility Operator (NFO) to classify events at a nuclear plant in one of four emergency action levels. These action levels have been adopted by all local, State and Federal governments and are used by Putnam County.

When conditions for any of the four emergency classifications exist, the Nuclear Facility operator promptly notifies County, State and Federal officials. The following emergency classifications are used for such notification:

- **Unusual Event** - Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.
- **Alert** - Events are in progress or have occurred which involve an actual or potential substantial degradation in the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.
- **Site Area Emergency** - Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary.
- **General Emergency** - Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guidelines exposure levels offsite for more than the immediate site area.

CONCEPT OF OPERATIONS

A Putnam County Radiological Response Organization has been developed to provide a response to a radiological emergency at the Indian Point Energy Center and to protect the health and safety of the public. The Response organization's objective is to make timely and accurate protective action recommendations to the public and implement those actions, as necessary. The Radiological Emergency Response Plan details how the following activities fare to be taken in response to an emergency:

- Initial Notification and Mobilization

To begin a response to an emergency, the Radiological Response Organization must be notified and mobilized.

- Accident Assessment

To determine if protective actions must be taken for the public, an "accident assessment" must be conducted. In the first step of the assessment, plant and weather conditions are evaluated. In the majority of serious accidents, if a radiation release were to occur, it would not do so until 24 hours or more after the initiation of the accident. Radiological monitoring teams would be sent out to measure radiation levels. These teams will pass on data to the EOC, where it will be evaluated along with information from the plant. The evaluation consists of calculations to predict the effects of a radiation release on the public in the 10-mile EPZ. These predictions will be compared to Environmental Protection Agency's Protective Action Guides (PAGs) for emergency radiation levels. After receiving and evaluating all pertinent information, County officials must make a decision on what protective actions, if any, must be taken.

- Protective Actions

The Radiological Emergency Response Plan contains procedures for determining and implementing appropriate protective actions based on the comparisons discussed above. These actions include:

- Initial Precautionary Operations
- General Sheltering
- General Evacuation
- Administration of Potassium Iodide (KI)
- Isolation of Ingestion Pathways and Sources

If authorized by the County Executive, public notification will be accomplished by sirens, tone alert radios, route alerting, and messages on the Emergency Alert System.

Traffic control points will be established and potential impediments to evacuation will be removed by tow trucks or other heavy equipment.

The County Executive may recommend sheltering - staying indoors and limiting exposure to outside air - for designated Areas. Sheltering actions may be terminated when the likelihood of exposure to radiation levels in excess of the Protective Action Guidelines no longer exists.

The County Executive may also recommend that members of the general public leave specific Areas to limit or prevent their exposure to radioactive materials. Evacuation is the most serious, but least likely, action that could be recommended.

The recommendation for the general public in the affected area to take Potassium Iodide (KI) to block their intake of radioactive iodine will be made with the concurrence of state and local health officials.

People without transportation will be evacuated by buses that will follow the routes identified in the public information brochure which is distributed to the public living within the 10-mile EPZ. The evacuation of Special Facilities such as nursing homes and hospitals is also coordinated by the Radiological Response Organization.

Schools within the 10-mile EPZ will be directed to follow one of the following alternatives depending on the level of emergency and expected conditions:

- continue normal school operation until end of day,
- close schools for the duration of the emergency,
- shelter children in the school, or
- relocate children to pre-designated School Reception Centers. (Kent Primary School or Kent Elementary School)

The evacuation of Non-Institutionalized Mobility Impaired individuals is also coordinated by the Radiological Response Organization. The County has developed a list of these people from mail-in cards included in the public information brochure.

Public Reception Centers will be established (Carmel High School, George Fischer Middle School and Brewster High School) to provide registration and other assistance along with monitoring and decontamination of evacuees should these activities be required.

Congregate Care Centers will also be established to provide temporary housing, food, and first aid to displaced evacuees.

- Emergency Worker Protection

All Radiological Response Organization members who enter the 10-mile EPZ will be protected from over-exposure to radiation. Each worker in the field will be equipped with equipment to monitor, and thus control, their own exposure levels. An Emergency Worker Personnel Monitoring Center will be established to monitor and decontaminate a member should these activities be required.

- Public Education / Information

Effective response to a radiological emergency requires that the public be informed about procedures to be followed and actions that would be taken. Important to the overall effectiveness of the plan is public knowledge and understanding both before and during a radiological emergency at the Indian Point Energy Center. To accomplish this, Putnam County has developed a complete public information program for the public. This program involves:

- Public Education - Advance Information in case of an emergency at the Indian Point Energy Center. A Community Emergency Planning booklet for Indian Point is revised each year and mailed to all homes, schools and businesses in the 10-mile emergency planning zone.

Putnam County also provides information to residents, special facilities, and transients in the 10-mile EPZ on an ongoing basis through mailed brochures, telephone book inserts, stickers, media flyers and periodic news releases.

- Emergency Information

The County will advise the public of the status of any Indian Point emergency and of any recommended protective actions using the Emergency Alert System through the State NY-Alert system. Information will focus on the nature of the emergency and the recommended response, if any. The release of information will be coordinated with the appropriate Federal, State, and county authorities and Entergy, the owners of Indian Point.

GENERAL RESPONSIBILITIES

Responsibilities for preparedness for, response to and recovery from radiological emergencies are shared by all levels of government and the Nuclear Facility Operator. These responsibilities will be met at the local or county level until such time that the county's resources have been exhausted. At that point, in addition to technical guidance and evaluation, the County will request State and Federal Government resource assistance.

The County Executive has the authority to declare a "local state of emergency." This provides the County Executive with the command of all county and local government resources. Should the seriousness of the emergency warrant it, the County Executive has the authority to request the Governor to make a "State Emergency Declaration," which would make readily available the full resources of the State of New York. Upon declaration of the "State Disaster Emergency," Putnam County becomes an agent of the State's efforts to mitigate the effect the emergency may have on the health and safety of the public.

Additionally, the declaration of a "State Disaster Emergency" provides the opportunity for the State to request large scale Federal Government assistance for Putnam County. State resources such as airfields, command posts and communications will be made available to support the Federal response.

- County Responsibility

For Putnam County to meet its responsibility to its residents in a radiological emergency, it will be necessary to perform the following operations:

Monitor and assess the scope and magnitude of the incident;

Evaluate and decide what protective action response options should be initiated;

Implement the appropriate protective action response option which may be to take one or more of the following actions:

In addition to these actions, the successful implementation of this plan will depend on efficient and effective coordination with other emergency response organizations including Rockland, Orange, and Westchester Counties, New York State and the Nuclear Facility Operator (NFO).

- State Responsibility

State agencies are expected to provide necessary support to the local government. However, upon a State Declaration of Disaster Emergency by the Governor, the Disaster Preparedness Commission (DPC) assumes direction and control of emergency response activities through the local County Executive.

The Department of Health, as the State lead agency in radiological emergencies, and by order of the Commissioner of Health, under the auspices of the DPC, shall request necessary monitoring and activate assessment and evaluation personnel, equipment, and other resources.

Upon evaluation and after consultation with the local County Executive, the State Health Commissioner, will recommend appropriate protective action response options. The New York State Emergency Management Office, as liaison to the DPC, will deploy to the respective nuclear power plant Emergency Operations Facility (EOF), County Emergency Operations Center (EOC), the Joint Information Center (JIC), and the State EOC.

After a State Declaration of Disaster Emergency pursuant to Executive Law, section 24, the Commissioner will order appropriate protective actions. State agencies are responsible for support. Additionally, the State Emergency Management Office (SEMO), as staff to the DPC, is the State coordinating

agency of State and local operational resources and will perform this function from the State EOC.

There will also be an ongoing exchange of information between local and State agencies.

After the initial notification of an emergency, disaster preparedness response activities will be coordinated through the State Emergency Management Office. County Health Departments will continue ongoing communication with the State Health Department. County agencies will communicate through their ongoing State contacts and/or the SEMO liaison.

The State of New York has the responsibility to contact Federal organizations, coordinate their response and provide resources for the FRC and FRMAC, as needed. The needs of the Federal organizations expected to respond in a radiological emergency were incorporated into the New York State Radiological Emergency Preparedness Plan.

- Federal Responsibility

Management of the Federal response requires the coordination of a number of Federal agencies with each other and with the appropriate State and local authorities. The responsibility for the overall management of the Federal response will be shared by the Nuclear Regulatory Commission (NRC) and Federal Emergency Management Agency (FEMA).

The NRC will be responsible for the on-site technical direction of the Federal response. "Technical" refers to all aspects of radiological monitoring, evaluation, assessment and reporting, the application of sophisticated technology to control or predict the impact of radiological contamination and the use of all available instrumentation to develop recommendations for protective action measures.

In accordance with the Federal Radiological Emergency Response Plan, FEMA will serve as the primary point of contact for State officials and will coordinate and manage all non-technical aspects of the Federal response ("non technical" refers to all types of assistance to Federal and State/local organizations, such as transportation, communication and housing and assistance to State/local response activities).

At the direction of the State Commissioner of Health or his designee, the Department of Energy (DOE), through the Federal Radiological Monitoring and Assessment Plan (FRMAP) will coordinate all off-site monitoring, evaluation, assessment and reporting the activities of participating Federal agencies.

The NRC and DOE will coordinate their onsite and offsite data and will jointly advise the State Assessment Center on the Federal assessment and evaluation of the emergency and the availability of support.

The Operations Officer at the State Emergency Operations Center (EOC) is the designated State liaison to Federal agencies that have been requested to provide response support to the State. The U.S. Department of Agriculture has established USDA emergency boards in every State and county to coordinate USDA State or county disaster assistance efforts. All of the USDA agencies having major emergency responsibilities are represented on these boards. USDA emergency personnel are to establish continuing liaison with State and/or county agricultural agencies to insure coordination of assistance activities and damage assessments.

o Nuclear Facility Operator Responsibility

The operator of the nuclear plant involved in a radiological accident have a responsibility for declaring and assessing an incident at the plant, providing dose projections, protective action recommendations and taking immediate actions to mitigate or terminate the emergency. It is their responsibility to notify the State and local governments and the NRC. In addition to notification, they are responsible for onsite and offsite monitoring and sample collection. They must remain in contact with the State and local officials for consultation and assessments of the emergency's progression.

6. AUTHORITY

- a. Federal Civil Defense Act of 1950 (Public Law 920, 81st Congress) signed January 12, 1951

Established entire Civil Defense Program.

- b. Robert T. Stafford Public Law 93-288, as amended by PL 100-707

Provides for Federal disaster relief and emergency assistance.

- c. Atomic Energy Act of 1954

Requires that the Nuclear Regulatory Commission grant licenses only if the health and safety of the public is adequately protected.

- d. Title 10 Code of Federal Regulations, Part 50, Appendix E

Provides requirements for licensee emergency plans including onsite and offsite emergency preparedness measures for nuclear

reactors, fuel cycle facilities and other fuel cycle and materials licensees.

e. Title 44 Code of Federal Regulations Part 350

Established policy and procedures for review and approval of state and local emergency plans and preparedness for responding to the offsite effects of radiological emergencies at commercial nuclear power reactors by the Federal Emergency Management Agency.

f. NUREG-0654/FEMA REP-1 Rev. 1

Included by reference in both Titles 10 and 44, Code of Federal Regulations. Provides guidance and criteria for the preparation and evaluation of onsite and offsite radiological emergency response plans.

g. New York State Public Health Law, Section 201 and 206

Section 201 - Provides the Commissioner of Health the responsibility for public health aspects in the use of ionizing radiation.

Section 206 - Provides the Commissioner of Health broad authority for protecting the health and safety of the people of New York State.

h. New York State Sanitary Code, Part 16

Implements the Public Health Law. Requires actions to be instituted to correct and prevent unnecessary exposure due to the release of any radiation from any installation that contains radiation sources or materials that exceed acceptable dose limits.

i. New York State Executive Law, Article 2B

Provides for State and local natural and man-made disaster preparedness. Establishes the existence of the Disaster Preparedness commission and its powers and responsibilities. Provides the duties and responsibilities of local chief executives.

j. New York State General Municipal Law

Establishes local school districts as separate political subdivisions.

k. New York State Defense Emergency Act

Enacted in accordance with the Civil Defense Act to establish a Civil Defense Office in every county that also functions as the county disaster-coordinating agency. Provides for construction and warnings systems and the involvement of volunteer workers.

- I. Interstate Civil Defense and Disaster Compact, Chapter 2, Section 9231 Unconsolidated Laws

Provides mutual aid among contracting states in meeting an emergency.

- m. Agriculture and Markets Law, Article 17, Section 199-1 Prohibition as to Adulterated or Misbranded Food

Provides the Commissioner of Agriculture and Markets the ability to test food or foodstuffs for contamination.

- n. New York State Defense Law, Article 6, Section 9160 Closing or Restricting Use of Highways; Posting of Properties

- o. Putnam County Charter, adopted November 8, 1977

Establishes the positions and functions of the County Executive and constitutes the form of government for Putnam County.

- p. Executive Order No. III, September 12, 1988

Sets forth procedures to be followed by County Departments in the event of an emergency in Putnam County.

Provides the Commissioner of Transportation the authority to open or close highways, waterways, and railroads, et al.

- q. U.S. Department of Health and Human Services, Food and Drug Administration, December 2001

Provides Guidance for Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies