



Federal Emergency Management Agency

Washington, D.C. 20472

28 JUL 1982

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MEMORANDUM FOR: Brian Grimes, Director
Division of Emergency Preparedness
U.S. Nuclear Regulatory Commission

FROM: *Richard W. Krimm*
Richard W. Krimm
Assistant Associate Director
Office of Natural and Technological Hazards

SUBJECT: Status Report on Offsite Radiological Emergency
Planning and Preparedness at the Byron Nuclear
Power Station

Attached is a report on offsite radiological emergency planning and preparedness accomplishments by governmental units around the Byron Nuclear Power Station. The ten mile Emergency Planning Zone (EPZ) surrounding Byron includes Ogle and Winnebago Counties, Illinois, and the fifty mile EPZ includes fifteen counties in Illinois, four counties in Wisconsin, and two counties in Iowa.

The State of Illinois has submitted to the Federal Emergency Management Agency (FEMA) the State General Plan, Volume I, of the Illinois Plan for Radiological Accidents. This document is the plan from which all site-specific plans are developed to integrate local offsite planning. The State generic plan has been reviewed by FEMA Region V and the Regional Assistance Committee (RAC) and has been exercised and found to be adequate for public protection in conjunction with other sites in Illinois. The State of Illinois has indicated that the Byron site-specific offsite plans for Ogle and Winnebago Counties will not be furnished to FEMA Region V before late April 1983. The plans will then be reviewed by Region V and the RAC and will be exercised in mid 1983.

Attachment
as stated



Federal Emergency Management Agency

Region V 300 South Wacker, 24th Floor, Chicago, IL 60606 (312) 353-1500

JUN 30 1982

MEMORANDUM FOR: Assistant Associate Director, Office of Natural and Technological Hazards

FROM: Chairman, Regional Advisory Committee

SUBJECT: Interim Report - Byron Nuclear Power Station

In response to your request, attached is the Interim Findings of State and local readiness for off-site radiological emergency preparedness for the Byron Nuclear Power Station, Byron, Illinois.

An evaluation of planning will be conducted by the RAC Region V, once the site-specific plans have been received in the Region. It is anticipated the Byron site-specific off-site plans for Ogle and Winnebago Counties will be received in FEMA Region V late April 1983.

The State will be notified of a 30-day period from receipt of the RAC plan review and the post-exercise evaluation in which to comment on any deficiencies.

Edwin W. Hakala
Edwin W. Hakala

Attachment

INTERIM FINDING

Byron Nuclear Power Station Byron, Illinois

Introduction

This interim finding is a report on off-site Radiological Emergency Preparedness of governmental units around the Byron Nuclear Power Station and the physical and social pattern of the area brought into perspective.

The Byron Nuclear Power Station is located 3.7 miles south-southwest of the city of Byron in the geographic center of Ogle County, on German Church Road, 2.2 miles east of the Rock River. The facility site is the highest elevation in Ogle County. Commonwealth Edison Company is the owner-operator who also operates the Dresden, LaSalle, Quad Cities and Zion Nuclear Power Plants. Twenty miles to the northeast is Rockford, the second largest city in Illinois (second only to Chicago), population 151,000. Twenty miles to the southwest is Dixon, Illinois, population 18,200. Several large metropolitan Chicago suburbs lie approximately 50 miles to the east of the Byron Nuclear Power Station.

Ogle County is bordered to the north by Stephenson and Winnebago Counties. These two Counties form a part of the Illinois/Wisconsin State line.

Facility Description

Byron Station occupies approximately 1288 acres of land. This area includes the main site area and the transmission and pipeline corridor to the Rock River. The main site area occupies approximately 904 acres, and the corridor occupies the remaining 384 acres.

The plant consists of two identical pressurized water reactor (PWR) nuclear steam supply systems (NSSS) and turbine-generators furnished by Westinghouse Electric Corporation. Each nuclear steam supply system is designed for a power output of 3425 MWT. The equivalent warranted gross and approximate net electrical outputs of each unit are 1175 MWe and 1120 MWe, respectively. Cooling for the plant is provided by two natural draft cooling towers for nonessential service cooling water, and by mechanical draft cooling towers for essential service cooling water.

Byron Station has two release points for gaseous radioactive effluents, the two Auxiliary Building ventilation stacks. The top of each stack rises 200 feet above the grade elevation. Byron Station has one release point for liquid radioactive effluents, the Rock River. With both reactors operating, the natural draft towers have a water evaporative loss of approximately 40,000 gallons per minute. The draw from the Rock River is approximately 60,000 gallons per minute. Therefore, the return to the river is about 20,000 gallons of water per minute.

Liquid radioactive wastes are stored and sampled prior to release to the Rock River. A radiation monitor in the discharge line will automatically terminate releases if radioactivity levels exceed predetermined values.

Emergency Planning Zones

The 10-mile Emergency Planning Zone (EPZ) includes the central heart of Ogle County and a minute corridor in extreme southwest Winnebago County. Within the 10-mile EPZ are several small villages; the largest, Oregon (population 3,500), second largest Mt. Morris (population 3,200), followed by Byron (population 2,000), and Stillman Valley (population 2,000).

The Low Population Zone (LPZ) 3 mile radius encompasses some significant attractions. The Byron Motor Dragway, 3 miles north of the station site, Mount Morris Boat Club on the Rock River, 2.5 miles northwest, River Road Camping and Marina, 2.5 miles west-southwest, Weld Memorial Park 3 miles east, and Motorsport Park adjacent to the northern perimeter of the station site.

The 50-mile EPZ includes the Illinois Counties of Boone, Bureau, Carroll, Daviess, DeKalb, Henry, Kane, Kendall, LaSalle, Lee, McHenry, Ogle, Stephenson, Whiteside, and Winnebago; Wisconsin Counties of Green, Lafayette, Rock, and Walworth; Iowa Counties of: Clinton and Jackson. Several cities of moderate size and a significant number of small villages are within this circle.

The topography consists of low level glacial knolls with slight gradual grades. In between the knolls, the natural drainage forms small creeks which meander across grassy meadows. The creeks are the many tributaries which feed the area rivers. This region is a part of the vast expanse of prairie which once was the summer home of hundreds of thousands of North American Bison. Today this is a productive agricultural area. Agri-business predominates commerce. Small villages which are no farther apart than the grain elevator storage tanks on the horizon dot the area. The villages of Paynes Point, Honey Creek, Leaf River, Chana and others are commerce centers for the rural community around the station. The villages are composed of dry goods and food stores, petroleum depots, seed and fertilizer and agricultural equipment sales, banks, small family owned businesses, and most generally a grain elevator. The goods, services and exchange of news of rural America focuses here.

Cultivated agricultural crops are primarily soybeans and corn. The grazing of animals is not foremost, however, the production of hay ranks with the grain and seed production. Pork, beef and dairy production constitutes the principal animal husbandry practice. The "family farm" is the backbone of commerce in this area. Farm size ranges from 300 to 800 acres.

Unique considerations for this particular site are the following:

1. Recreational Area

Within and just outside the 10-mile EPZ are several recreational facilities and sightseeing attractions. Within sight of the cooling towers are: Lowden State Park, Castle Rock State Park and White Pines Forest State Park. The three parks combined offer camping, boating, fishing, picnicking, hiking, etc. The sightseeing attractions are:

the John Dewey Home, Lincoln State Memorial, and President Ronald Reagan's Boyhood Home. These attractions bring in many travelers during the summer months and particularly between May and September.

2. Agri-Business

Crops which predominate the area are soybeans, corn and hay. In addition to seeds, grains and forage crops, pork, beef and dairy production are the principal animal husbandry practices.

This is truly a rural setting dominated with expansive crop acreage and "family farms" composed of several buildings for storage and family living.

3. Transportation Systems

State Route 72 and 64 are the east-west arteries which enter the 10-mile EPZ. State Route 2 follows the Rock River along the west bank on the floodplain. Several rural back roads form a travel network across the 10-mile and 50-mile EPZ. Two major railways, the Milwaukee, and Burlington Northern cross the EPZ east-west to the north and south of the Station. The Rock River, a favorite spot for many anglers, flows from the northeast to the southwest of the 10 and 50-mile EPZs.

4. Local Emergency Resources

Due to the area's demographic structure, four villages dominate the 10-mile EPZ; Oregon, Mt. Morris, Stillman Valley, and Byron. Their combined populations total 10,700. Many emergency response organizations are volunteer and/or part-time as are many of the elected officials' positions. Emergency equipment is sufficient to meet the every day emergency needs of the communities but is considered limited to meet a technological emergency such as a significant radiological accident at a nuclear power station.

Status of Planning

The State of Illinois has submitted to the Federal Emergency Management Agency the State General Plan, Volume I of the Illinois Plan for Radiological Accidents. This document is the plan from which all site-specific plans are developed to integrate local off-site planning. The State agencies involved in radiological emergency preparedness are the Illinois Emergency Services and Disaster Agency and the Illinois Department of Nuclear Safety. Because of the significant number of operating and potential operational nuclear power plants in the State, Illinois has devised an organized approach to the development of radiological emergency plans which is: five months prior to the approval date for a joint on-site/off-site exercise, the State assigns a team of radiological emergency planners to a temporary duty station within the 10-mile EPZ to develop, in coordination with local government officials, the radiological emergency plans site-specific to the licensee's nuclear power station. While plan development proceeds, a total impact training program is implemented. The Illinois ESDA and DNS provide

in-depth training for local officials and emergency responders. Prior to the exercise, training is completed and the newly developed plan is provided the Federal Emergency Management Agency Region V and the Regional Advisory Committee. Therefore, the receipt of the Byron Nuclear Power Station off-site site-specific radiological emergency plan can be expected approximately thirty days prior to the exercise.

The State plan has been reviewed by FEMA Region V and the Regional Advisory Committee for other sites in Illinois. The several exercisings of that plan have demonstrated that the Illinois plan is adequate to provide the protection necessary to safeguard the health and safety of the public. The Illinois plan for Radiological Accidents (State General Plan, Volume I) was transmitted to FEMA National with the Illinois Plan for Radiological Accidents (LaSalle Volume III) and recommended for conditional approval. FEMA National found the plans adequate to protect the public health and safety conditioned on the adequacy of an operational Prompt Alerting and Notification System. (Federal Register/Vol. 47, No. 116/Wednesday, June 16, 1982/Notices/page 26024). Should the development of the Byron off-site plan for Ogle and Winnebago Counties be consistent in quality as the Dresden, LaSalle, Quad Cities and Zion off-site plans, it is believed the State plan is adequate in its present form to encompass the Byron off-site plan when it is developed.

Other than the Illinois State Plan, the only Byron Nuclear Power Station related material available in FEMA Region V are documents relating to the contentions filed on behalf of the contenders, DeKalb Area Alliance For Responsible Energy/Sinnissippi Alliance For the Environment (DAARE/SAFE) and the Rockford League of Women Voters.