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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

November 2, 1978

Docket No. 50-244

MEMORANDUM FOR: D. G. Eisenhut, Assistant Director for Systems & Projects, DOR

THRU: D. K. Davis, Chief, Systematic Evaluation Program Branch, DOR

FROM: H. M. Fontecilla, Systematic Evaluation Program Branch, DOR

SUBJECT: VISIT TO GINNA NUCLEAR POWER PLANT

A team of SEP reviewers visited the Ginna Nuclear Power Plant site on September 6 and 7, 1978, to familiarize themselves with the facility and obtain additional information. We also visited the Rochester Gas & Electric corporate offices in Rochester, N.Y., on September 8, 1978. Lists of participants at these meetings are attached.

As part of the hydrological review of the site, we examined the following areas:

1. Shoreline revetment
2. Discharge channel
3. Water intakes in discharge channel
4. Pump house building
5. Revetment tie-outs
6. Small stream south of plant including its outlet into Lake Ontario
7. Emergency discharge structure
8. Building where diesel generators are housed

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During the visit we obtained the following information:

1. The intake structure in the lake and the alternate service water intakes in the discharge channel have not been evaluated as Seismic Category I.

2. There are no intakes classified as Seismic Category I at this plant.

3. There are two alternate intakes located in the discharge channel to bring cooling water to the pump house. The 8' x 10' intake is used for tempering ice effects in the discharge channel.

4. The emergency discharge pipeline and discharge structure located south of the plant have sufficient capacity to handle the service water discharge flow of about 30 cfs. This flow is discharged into the nearby small stream.

5. The shoreline revetment, which protects the plant from wave action in Lake Ontario, has an excavated toe filled with armor stones of about the same size as were placed on the revetment.

6. Additional armor stones were placed on top of the existing revetment to limit overtopping flows during the Probable Maximum Surge (PMS) event. These stones have a minimum elevation of 261 feet msl. The concrete wall immediately between the plant and the revetment has a minimum elevation of 257.

7. All intakes are designed to withstand the PMS.

8. The intake in the lake is heated such that ice has never presented a major problem to plant operation.

9. The most recent estimate of the PMS is about elevation 253.2 ft msl. Plant grade is 253.5 msl.

10. The electrical switches for the service water and circulating water pumps are located about 9" above the floor level of 253.5 in the pump house; all pumps will remain functional to a flood elevation of 254.25.

11. The pump house and the building which houses the diesel generators are further protected by an 18" metal wall which surrounds the buildings and provides flood protection to elevation 255' (253.5 + 1.5').

In addition, we obtained a set of 22 drawings identified in the attached list. The licensee has also indicated that they will provide us with a topographic map of the plant area in the near future. Other outstanding information include a determination of the design basis groundwater level (DBGWL) and any other information that the licensee may have regarding the PMF analysis for the small stream south of the plant.

With regard to the review in the areas of tornado and turbine missile protection, we inspected the location of most safety systems outside containment, and gathered the following information:

Auxiliary Building

The Auxiliary Building consists of 3 levels (basement, intermediate and operating floors). The basement and intermediate floors are below grade except for the upper 2 feet of the exterior walls surrounding the intermediate floor. The walls below the operating deck are constructed of 2' thick steel reinforced concrete except the walls of the spent fuel pool which are constructed of 6' thick steel reinforced concrete up to the top of the spent fuel pool. The operating floor and the intermediate floor are constructed of 18" steel reinforced concrete.

The structure of the building from the operating floor level to (and including) the roof consists of a steel superstructure covered with an insulated metal facade.

We were provided with elevated and level plant drawings of this structure.

Turbine Building

The Turbine Building consists of 3 levels (basement, mezzanine and operating floors). The basement floor is below grade on three sides and the fourth side is facing Lake Ontario and is above grade. The exposed wall of the basement floor is constructed of a steel super structure covered by a facade of insulated metal siding running for about two thirds the length of the building. The remaining third of the wall is adjacent to the diesel generator room and consists of steel reinforced concrete 18" thick.

Three of the four walls above the mezzanine floor are exterior walls constructed of a steel superstructure covered by a facade of insulated metal siding. The fourth wall is adjacent to the relay room (housed in the control room structure) and the intermediate building. The portion of the wall adjacent to the relay room and adjacent to the intermediate building is constructed of concrete blocks. The portion of the wall between the relay room and the intermediate building, fully exposed to the environment, is constructed of steel reinforced concrete of unknown thickness up to the first 2' above the operating floor.

Three of the four walls above the operating floor (exterior walls) up to and including the roof consists of a steel superstructure covered by a facade of insulated metal siding. The fourth wall is adjacent to the intermediate building up to elevation 339'. This wall is constructed of concrete blocks up 339'. From 339' up to and including the roof, the construction is steel superstructure covered by a facade of metal siding. The portion of this wall adjacent to the control room building is glass that was in the process of being covered by 3/8" steel armour plate up to elevation 310'. The remainder of the wall up to and including the roof is steel superstructure covered by a facade of metal siding. The portion of the wall between the control room building and the intermediate building consists partially of concrete block and steel super structure up to elevation 304' and the remainder from 304' to the roof consists of steel superstructure. The portions constructed of steel are covered by a facade of metal siding.

Control Room Building

The Control Room Building consists of 3 levels (battery room, relay room and control room). The battery room is in the basement and is below grade. The wall adjacent to the Turbine Building is in a direct line with the wall of the diesel generator room that is adjacent to the Turbine Building. The relay room has 3 exterior walls, two of which are constructed of 20" steel reinforced concrete and the third wall is constructed of concrete block. The interior wall adjacent to the Turbine Building is constructed of concrete blocks. The exterior walls of the control room is constructed the same as the relay room; however, the exterior wall of concrete block was being overlayed by 3/8" steel armour plate. The roof of the control room consists of 20" thick steel reinforced concrete and the floor of the control room and relay room consists of 14" thick steel reinforced concrete.

Diesel Generator Building

The Diesel Generator Building exterior walls are constructed of steel reinforced concrete 1' thick. The wall adjacent to the Turbine Building and the wall between the two diesel generator rooms are also constructed of steel reinforced concrete 1' thick. The exterior wall facing Lake Ontario has two steel rolling doors 10' wide and 7' - 2 1/4' high (leading into each diesel generating room). Each of the diesel generators is set back about 5 feet but directly in line with their respective doors. The intakes for the diesel generators are located in the upper corners of the exterior wall facing Lake Ontario. The diesel exhaust is located on the roof and protrudes about 8" above the roof line. The roof consists of 1 1/2" steel decking covered by 1 1/2" of insulation. The diesel generator oil storage tanks are buried below grade and covered by concrete slabs and are adjacent to the Bottle House. The fuel lines are below grade and run under the concrete structures adjoining the fuel tanks and the Diesel Generator Building.

Intermediate Building

The Intermediate Building is built around the containment with three of its four walls adjacent to the Turbine Building, Service Building and Auxiliary Building. The fourth wall is partially shadowed by the Control Room Building. The walls are constructed mostly of concrete block surrounded by a steel super structure covered by metal siding. The floors in the building consist mostly of steel reinforced concrete of unknown thickness.

Screenwell House

The Screenwell House is a steel superstructure with a facade of insulated metal siding. Each wall has several windows of narrow width that extend about 60% of the height of the walls. The building faces Lake Ontario and shadows the Diesel Generator Building from the Lake.

Service Building

The Service Building is a two level structure (basement and first floor) composed of steel reinforced concrete and concrete block. The basement is below grade and consists of steel reinforced concrete and concrete blocks. The first floor walls adjacent to the Auxiliary Building and Intermediate Building are 90% concrete block and 10% steel reinforced concrete about 18" thick. The front of the building is mostly glass where the offices and conference rooms are located.

In addition, the licensee agreed to provide us with the following information:

1. Elevation drawings of the Turbine Building, Intermediate Building and Screenhouse.

2. Concrete strength and rebar distribution for all poured concrete.

3. Confirmation of thicknesses of concrete flooring in Intermediate Building.

In the area of control room habitability, we gathered the following information:

1. Six 55-gallon drums and one 300-gallon tank of ammonia are stored onsite. The distance between these tanks and the control room air intakes is more than 100 ft.

2. There is a 20" concrete wall between the control room and the containment.

3. No paths for radiation streaming were observed between the control room and the containment.

4. There is one radiation monitor inside the control room.

5. The control room has a volume of 21600 ft^3.

6. The isolation damper closure time and the radiation monitor response time add up to 30 seconds.

7. The air recirculation flow rate is 16000 cfm of which 2048 cfm go through the charcoal filter. The charcoal filter with a 2-inch bed has 95% efficiency for elemental and organic iodides.

There is no outstanding information in this area.

Herbert M. Fontecilla
Systematic Evaluation Program Branch
Division of Operating Reactors

Enclosures:
As stated

LIST OF PARTICIPANTS

September 6, 1978

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T. Johnson (HMB)

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September 7, 1978

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GINNA NUCLEAR POWER PLANT

LIST OF DRAWINGS PROVIDED BY LICENSEE
IN AREA OF HYDROLOGY

Drawing No.	Drawing Title
33013-42	Storm Drainage North of Plant
33013-32	Lake Intake Tunnel - Lake Intake Elbow Concrete and Reinforcing Detail
1 (4/5/67)	Lake Water Intake
33013-64D	Screen House Mechanical Equipment
33013-146	Discharge Pipe Profile and Installation
33013-63G	Screen House Mechanical Equipment Plan at Elevation 253' 6"
33013-178	Discharge Canal-Structural Recirculating Weir Plan and Sections
33013-556	4" dia Force Sewer Main Plan and Profile
33013-555	4" dia Force Sewer Main Plan and Profile
33013-177	Discharge Canal-Structural South Wall - Sealwell to Screenhouse
33013-172	Dischage Canal-Structural Sections thru Sealwell
33013-109D	Mechanical Sections and Sluice Gate Details
33013-171	Discharge Canal Plan-Structural
33013-51E	Armor Stone Breakwall
33013-108B	36" Cast Iron Bypass Pipes A&B Detail
33013-66B	Screen House Mechanical Equipment Section A-4

Drawing No.	Drawing Title
SK 447-93	No Title
33013-352	Plot Plan . . .
33013-7	34 K.V. Street Lighting & Control Duct Installation
33012-68	Brookwood Information Center Domestic Sewage Disposal Facilities
33013-11	Brookwood Lake Intake Preliminary Soundings
542-1B-RG&E	OFFSHORE SOUNDINGS

MEETING SUMMARY DISTRIBUTION
Docket No. 50-244
~~NRC~~ PDR 50-244
Local PDR 50-244
SEP Reading
NRR Reading
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