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FACIL:50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220
50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
AUTH.NAME AUTHOR AFFILIATION
MANGAN,C.V. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards certificate re pollution control facilities,for NRC signature,per Internal Revenue Svc requirements.Info re radwaste solidification & storage & bldg,radioactive solid waste & spent fuel storage encl for approval.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

August 21, 1984
(NMP2L 0136)

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: Nine Mile Point Units 1 and 2
Dockets 50-410 and 50-220

Dear Mr. Denton:

Niagara Mohawk Power Corporation is preparing a tax exempt bond financing for pollution control facilities at its Nine Mile Point station. The Internal Revenue Service requires that a federal, state or local agency exercising jurisdiction certify that the facility to be financed with tax exempt bonds is in furtherance of the purpose of abating or controlling atmospheric pollutants, or contaminants, or water pollution.

For radioactive pollution control, the agency with jurisdiction is the Nuclear Regulatory Commission. We have prepared a form of certificate (attached herewith) which will meet the Internal Revenue Service's requirements. In addition, we have included a description of the pollution control equipment we wish to be covered by the certificate. We understand that you have received and approved this type of certificate for several utilities.

Please review the attachments, and if you agree, sign and return the certificate to Niagara Mohawk and send a copy to the following address:

New York State Energy Research and Development Authority
Agency Building #2
Empire State Plaza
Albany, New York 12223

Very truly yours,

CVMangan

C. V. Mangan
Vice President
Nuclear Engineering & Licensing

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1/1

NLR:ja
Attachments
xc: Project File (2)

CERTIFICATE

NINE MILE POINT UNITS 1 & 2

POLLUTION CONTROL FACILITIES

The Nuclear Regulatory Commission hereby certifies as follows:

(a) that it has examined exhibits, attached hereto, which describe certain facilities which have been constructed, which are under construction or which are to be constructed at the Nine Mile Point Unit 2, a nuclear electric power generating plant located on Lake Onterio in Scriba, New York, undivided interests in which plant are owned by Niagara Mohawk Power Corporation, New York State Electric and Gas Company, Rochester Gas and Electric Corporation, Long Island Lighting Company and Central Hudson Gas and Electric Corporation and at Nine Mile Point Unit 1, a nuclear electric power generating plant located on Lake Ontario in Scriba, New York owned by Niagara Mohawk Power Corporation; and

(b) that such facilities, as designed, are in furtherance of the purpose of abating or controlling atmospheric pollutants or contaminants or water pollutants resulting from the generation of electricity at the Nine Mile Units 1 and 2.

For the Nuclear Regulatory Commission

Date: ______________________

Nine Mile Point Unit No. 1

Radwaste Solidification and Storage System and Building

Concentrated wastes are to be transferred to a recently completed building which is dedicated to the solidification of concentrated wastes in drums filled with cement, the temporary storage of drums, and the loading of the drums onto trucks for off-site burial. The building is made of reinforced concrete and includes or contains waste holding tanks, a drum cement filling station with a drum filling and staging conveyor, a drum filling control station, a crane for the movement of filled drums both prior to and after the solidification of their contents, a solidified drum monitoring station, two solidified drum storage vaults, a solidified drum staging area, a solidified drum truck, a loading bay, and other equipment necessary for the loading of the drums onto trucks. The building also includes support systems, i.e., drainage, heating, ventilation, air conditioning, service air, fresh air, service water, instrument air, radiation protection and monitoring equipment and fire protection equipment.

In operation, concentrated waste solutions will enter the drumming station from concentrated waste tanks or a decant tank. In the drumming station, the solutions will be mixed with cement in 55 gallon drums. The drums will be transported by the drum handling crane to either of the two vaults for temporary storage. One vault can store approximately 4,500 drums of solidified waste, and the other can store approximately 7,500 drums. Drums will be taken from these two vaults using the drum handling crane to the truck bay, where they are to be loaded onto transport casks and trucks for ultimate disposal. In the truck bay, the drums may be placed in a small staging area which is to be used for temporary storage. The drums may also be routed to a monitoring station and a decontamination station in the truck bay.

Radioactive Solid Wastes (WSS) FSK 31-3.0

The solid radioactive waste treatment system consists of equipment and instrumentation necessary for disposal of radioactive solids resulting from the operation of the condensate polishing system, the reactor water cleanup system, the liquid radwaste system and the miscellaneous radioactive debris resulting from normal operation and maintenance of the plant. Wet solid wastes consisting of spent demineralizer resins, evaporator bottoms and filter sludges will be combined with cement to form a solid matrix and sealed in shipping containers. Dry solid wastes consisting of ventilation air filters, contaminated clothing and paper and miscellaneous items such as tools will be compacted into steel drums.

The dry waste compactor is equipped with a shroud to prevent the escape of radioactive materials during the compaction process. Airflow in the vicinity of the baler is exhausted by a fan through a HEPA filter.

Onsite storage facilities for solidified wastes are capable of accommodating at least 30 days' waste.

The solid waste system will consist of collection, solidification and packaging facilities. This system will handle filter sludges, demineralizer resin wastes, evaporator bottoms and dry material wastes (i.e., rags, tools, paper). The system equipment will consist of:

One extruder/evaporator with drive and lube oil system

One 1,500-gallon waste sludge tank

One 9,000-gallon asphalt tank

Two duplex asphalt strainers

Two 20-gpm asphalt transfer pumps

Two 0.6-gpm asphalt metering pumps

One 50-gpm waste concentrates transfer pump

One 0.9-gpm waste concentrates metering pump

One 50-gpm waste sludge transfer pump

Two 0.9-gpm decant pump

One distillate collection system

One swipe station

One fill station with ventilation system and turntable

One auxiliary boiler

TV monitoring equipment for remote handling

One remotely operated capping station

One compactor

One container handling mechanism

Spent Fuel Storage

The spent fuel storage facility is a steel lined pool which contains racks to support fuel assemblies which have been removed from the reactor core. The racks and assemblies are completely submerged in water. The facility is commonly called the "spent fuel pool."

The spent fuel pool provides storage capability for approximately 3,500 fuel assemblies (458 percent of the full core fuel load).

The design of the spent fuel storage racks provides for a subcritical effective multiplication factor k_{eff} less than 0.95 for both normal and abnormal storage conditions.

Normal conditions exist when the fuel storage racks are located in the pool and are covered with a normal depth of water (about 23 ft. above the top of stored fuel) and with the fuel assemblies in their design storage positions. The spent fuel is covered with water at all times by a minimum depth required to provide sufficient shielding. The spent fuel pool is designed to prevent any inadvertent drainage and siphoning of water. There are no drains below the height of the fuel in the spent fuel pool.

Spent Fuel Pool Cooling and Cleanup System

The spent fuel pool cooling and cleanup (SFC) system is designed to remove the decay heat released from the spent fuel elements and maintain a specified fuel pool water temperature, water clarity, and water level by:

1. Filtering fuel pool water to minimize corrosion product buildup and control fuel pool water clarity.

2. Filtering and demineralizing fuel pool water to minimize fission product concentration. This minimizes the release of fission products from the pool to the reactor building environment.

3. Monitoring fuel pool water level and providing makeup water to maintain an adequate height of water above the fuel. This provides required shielding for fuel storage and fuel handling operations and ensures adequate cooling.

4. Maintaining the fuel pool water temperature at or below 125°F under normal operating conditions and below a maximum fuel pool design temperature of 146°F under all other conditions.

The cooling sections can operate independently from the cleanup section. Spent fuel pool water flows over adjustable weirs into the spent fuel pool surge tanks. Each spent fuel pool circulation pump takes suction from one of the surge tanks and circulates the spent fuel pool water through one of two heat exchangers, where it is cooled by the reactor building closed loop cooling water (RBCLCW) system, and then returns the water to the spent fuel pool through spargers located on two sides at the bottom of the spent fuel pool.

The return spargers are located on the side of the pool opposite the overflow weirs, thus ensuring spent fuel pool water flow upward and across the spent fuel pool to the overflow weirs to maintain uniform spent fuel pool water conditions. Both sparger lines are equipped with check valves and siphon breakers to prevent siphoning of the spent fuel.pool water and uncovering of the spent fuel in the event of a pipe break. The spent fuel pool circulating pumps can circulate the water through one or two filter deminerlizers arranged in parallel and return it to the spent fuel pool through the diffusers associated with the spent fuel pool cooling system.

The spent fuel pool cooling section is nuclear safety related and consists of redundant 100-percent capacity circulating pumps, 100-percent capacity heat exchangers and spent fuel pool surge tanks, complete with necessary piping, valves and instrumentation. All equipment, piping and valves are manufactured to the applicable codes. All SFC system equipment is located in the reactor building.

Normal spent fuel pool heat loads for up to 13 refuelings (one-third of a core, 288 hr. after reactor shutdown every 18 months) are accommodated by use of one pump and one heat exchanger. Greater than normal heat loads, such as loads due to transfer of a full core to the pool 180 days after reactor startup following a normal refueling outage, can be accommodated by supplemental cooling from an RHR heat exchanger, or from an additional SFC heat exchanger. The use of an RHR heat exchanger for supplemental cooling for the additional full core heat load is permissible because of the availability of both RHR heat exchangers when there is no fuel in the reactor pressure

vessel. The quantity of spent fuel to be stored in the spent fuel pool is based on an 18-month refueling cycle, wherein the maximum anticipated amount of fuel that will be removed from the vessel for any one refueling is not expected to exceed one-third of a core.

The spent fuel pool cleanup portion of the system is classified as Safety Class 4, non-Category I. The cleanup system is designed to remove 100 percent of 6-micron and larger particulate matter while maintaining the conductivity of the water below 1.0 umho/cm at 25°C. The system consists of two 100-percent capacity filter demineralizers and necessary piping, valves and instrumentation. The spent fuel pool filter demineralizers are located in the reactor building. Cleanup requirements of the spent fuel pool water volume are accommodated by the use of one filter demineralizer. Cleanup requirements of the refueling water volume are accommodated by the use of both filter demineralizers.

Reactor water cleanup requirements during refueling are augmented by the use of the reactor water cleanup (RWCU) system filter demineralizer units. Additional cleanup capabilities are included for use during refueling operations by providing connections from the reactor internals storage pit and the bottom of the reactor head cavity to the suction line of the spent fuel pool cleanup circulating pumps. During refueling operations, a portion of the spent fuel pool cleanup system return flow is diverted to the refueling volume spargers located in the reactor head cavity. Spent demineralizer resins are backwashed to the liquid radwaste system for disposal.

Normally, makeup water for the spent fuel pool is automatically provided to the spent fuel pool surge tanks from the condensate storage tank via the condensate makeup and drawoff system. Emergency makeup water to the spent fuel pool is available from the Category I portion of the service water system.

Provisions are made to supply service water in lieu of reactor building closed loop cooling water to the spent fuel pool heat exchangers for long-term cooling considerations if the RBCLCW is unavailable.

As previously described, sufficient redundancy and design flexibility are provided in the spent fuel pool cooling system to safely accommodate faulted conditions. Safety requirements of the system are long term in nature, and, as such, the spent fuel pool cooling circulating pumps do not start automatically from the diesel generators on loss of offsite power. Power to the pumps is supplied manually from the diesel generator, when required.

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