

App 1a

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Forwards "New solidification & Assoc Waste Handling Equip." rept for sys capable of solidifying, storing & loading radioactive waste for shipment w/ or w/o vol reduction. Mod does not involve unreviewed safety questions.

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

November 30, 1978

Director of Nuclear Reactor Regulation
Attention: Mr. Thomas Ippolito, Chief
Operating Reactors Branch #3
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit #1
Docket No. 50-220 DPR-63

Gentlemen:

Niagara Mohawk Power Corporation plans to install a radioactive waste solidification and handling system at Nine Mile Point Unit 1. This system will replace the existing solidification and handling equipment and will improve reliability. It will meet, and is consistent with, keeping radiation exposures as low as reasonably achievable. The solidification and handling system will be housed in a building adjacent to the existing waste building on the northeast side of the plant. It has been determined by the Site Operations Review Committee and Safety Review and Audit Board that this modification does not involve an unreviewed safety question as defined in 10CFR50.59(a). Therefore, this report is provided for your information.

The solidification and handling system described in Attachment A will be capable of solidifying, storing, and loading radioactive waste for shipment with or without volume reduction. A separate report will describe the use of the radioactive waste volume reduction system.

The new building will be designed to the same Class I seismic criteria as the existing radwaste building. Ground breaking is expected to take place in February, 1979. The solidification and handling system is expected to be operational by October, 1980.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Donald P. Dise
Donald P. Dise
Vice President - Engineering

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Attachments

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ATTACHMENT A

NEW SOLIDIFICATION AND ASSOCIATED WASTE HANDLING EQUIPMENT FOR NINE MILE POINT UNIT #1

I. Introduction

This report discusses the new solidification and handling system which will be installed at Nine Mile Point Unit 1. The purpose of this modification is to replace the existing solidification equipment to improve reliability. This system will be housed in a new seismic Class I building located on the northeast corner of the existing plant. The new solidification and handling system is planned to be an integral portion of the radioactive waste volume reduction system. However, the solidification system can operate with or without the radioactive waste volume reduction system. Niagara Mohawk plans to construct the new building and install the new solidification and handling system at this time. The radioactive waste volume reduction system will be installed in the same building at a future date, after Nuclear Regulatory Commission approval. This system will be discussed further in a separate report.

II. Summary

The new solidification and handling system and new building has been analyzed in accordance with 10CFR50.59(a). It has been concluded by the Site Operations Review Committee and Safety Review and Audit Board that the system and building modifications do not present an unreviewed safety question and do not introduce any new environmental effects. Also, construction effects have been analyzed and will be minimal. Measures (such as administrative controls) will be taken to insure that safety related structures and equipment are not damaged due to construction activities.

III. System Description

The new solidification and handling system will consist of dry cement storage and handling equipment, 55-gallon barrel filling equipment, mixing equipment, and settling-decant tanks. The equipment will be installed in a new seismic Class I building. The building will be approximately 75 feet by 270 feet. An overhead crane will be installed for transporting barrels from the mixing station to storage and subsequent loading onto trucks for shipment and offsite burial. This equipment will be of the same basic design as that installed at Dresden II and III Nuclear Stations, and also of the same basic design selected for the LaSalle County Stations I and II.

The system will meet Branch Technical Position ETSB No. 11-1 (revision 1) with regard to design. It will also meet ETSB No. 11-3 with regard to solidification criteria and storage capacity.

Existing wastes, such as filter sludges, spent resins and evaporator bottoms will be solidified directly or will be volume reduced prior to solidification. These wastes, if solidified directly, will be settled and decanted to the desired concentration. They will then be mixed with a pre-measured amount of cement in a 55-gallon barrel. Representative samples of batches will be obtained to insure that the mixture results in a solid matrix with no free water.

The 55-gallon barrels will then be transported by a crane to the storage area. A barrel-grab mechanism located on the crane and equipped with TV cameras will be used to pick up and locate the barrels in the storage areas. This equipment will be used whether wastes are volume reduced or not. The storage areas will be inaccessible to personnel during use, and the entire operation will be remotely operated. Adequate shielding will insure that radiation levels in normal plant access areas are as low as reasonably achievable. The building will be constructed to insure acceptable radiation levels outside the building. The barrel storage area is being designed to handle approximately 4500 barrels. This will provide approximately one year of storage based on the present waste generation rate and assuming no volume reduction.

Controls for the system as well as alarms and monitoring equipment important for the operation of the system will be located in a control room in the new building. Each barrel in storage will have a number. Other information concerning each barrel will also be recorded, such as radiation level and date placed in storage.

A block flow diagram, Figure 1, shows the entire system and its interfaces with the existing radwaste system. Solidification is presently accomplished by a urea formaldehyde system. A Dow polymer solidification system is planned to be installed. This system will be used to solidify wastes until the proposed cement solidification system becomes operational. Afterwards, the Dow solidification system will serve as a backup. The proposed cement solidification system described herein provides a long-term solution to the high maintenance required on the existing barrel handling system and provides acceptable product solidification.

IV. Effects of Construction

Procedural use of cranes and other heavy equipment during construction will control travel and include restrictions to preclude damage to existing safety related structures.

V. Analysis

The proposed system provides improvements to the existing system since cement is expected to be a superior solidification agent. The solidification process will be very closely controlled. Procedures will be developed to preclude "free water" and insure complete solidification.

The Stock Equipment Company barrel handling equipment is expected to be much more reliable than the existing system. Existing barrel handling equipment has experienced frequent breakdowns and resulted in excessive maintenance and radiation exposure to plant personnel. The Stock Equipment Company has designed and tested this equipment specifically for radwaste handling applications and to meet "as low as reasonably achievable" criteria. The system will be functionally tested prior to shipment. Once installed, the system will be pre-operationally tested.

The radwaste materials are the same as those handled by the existing system. Additional hazards or accidents different from those evaluated for the existing system cannot occur.

There is minimal hazard due to the handling of cement, since the storage and associated equipment will be totally enclosed. In addition, adequate ventilation will be available in all areas where the cement is to be used. The cement presents no flammability hazard.

The proposed system and building have been evaluated relative to 10CFR50.59(a). It has been concluded that the system and building modifications do not involve an unreviewed safety question since:

- (1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report will not increase. None of the proposed equipment is important to safety, and
- (2) the possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report will not be created. The system will have the same radwaste input as the present system.
- (3) The margin of safety as defined in the basis for any technical specification will not be reduced. No technical specifications have been affected due to these modifications.

VI. Conclusion

The modification does not involve an unreviewed safety question. The new building and equipment will not have any new significant environmental impact. The effects of construction are not significant, and will be controlled through the administrative methods. The operation of the new equipment is expected to provide better waste solidification, maximum equipment reliability, and minimum radiation exposure to operating and maintenance personnel.

Since the system does not involve an unreviewed safety question or significant environmental impact, Niagara Mohawk Power Corporation plans to begin construction commencing in February 1979.

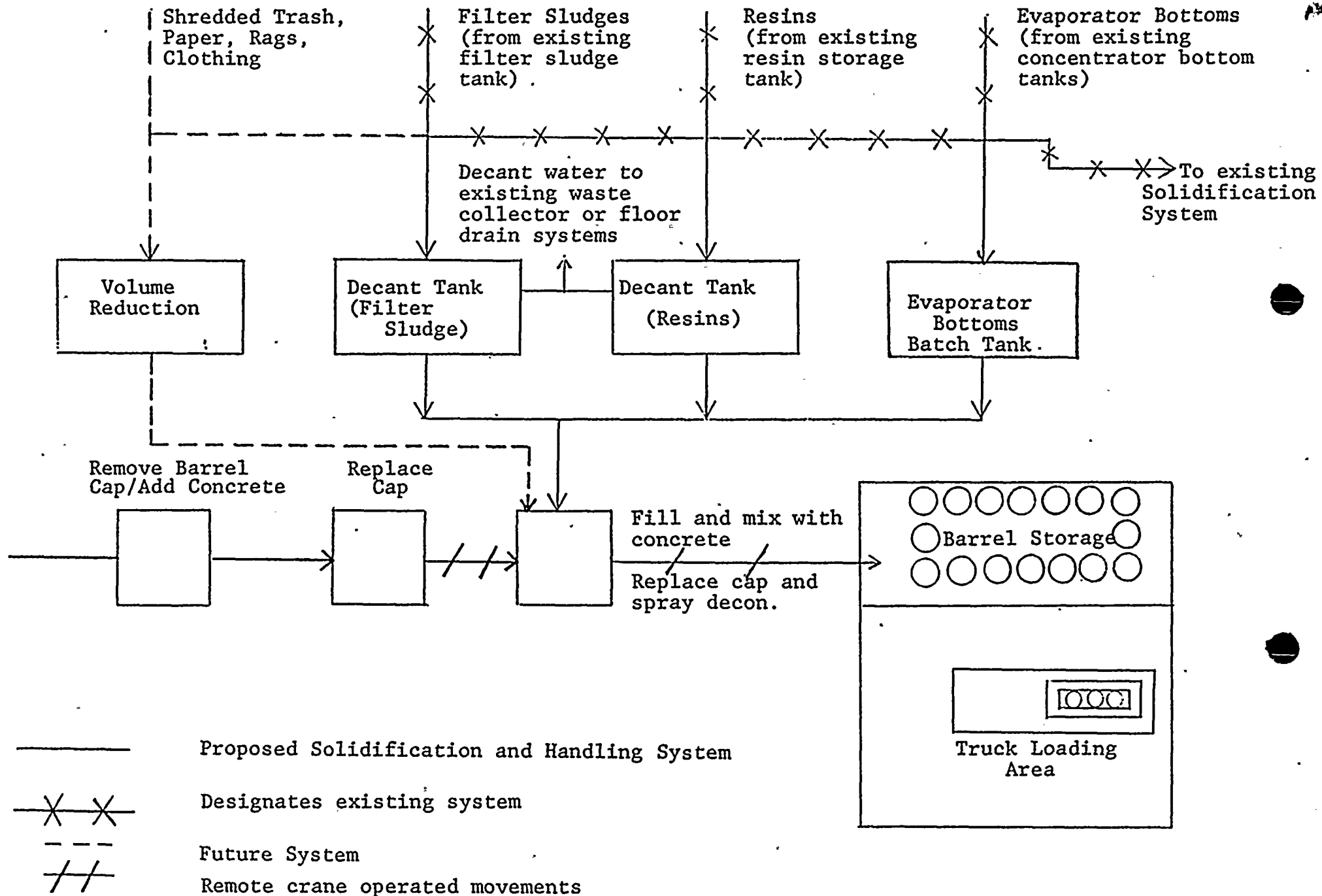


FIGURE 1

