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DESCRIPTION:
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ENCLOSURES:
Proposed Change to Tech Specs for Nine Mile Point Unit No. 1

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ACKNOWLEDGED

PLANT NAMES: Nine Mile Point Unit No. 1

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NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD, WEST
SYRACUSE, N. Y. 13202

January 11, 1973

Mr. John F. O'Leary, Director
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. O'Leary:

RE: Nine Mile Point Unit No. 1 Docket 50-220

The attached report describes a proposed change for Nine Mile Point Unit No. 1 in accordance with paragraph 50.59 of 10CFR Part 50. It is proposed that an Access Platform be added to the refueling bridge structure to expedite the refueling operation and also enhance safety.

The platform will aid in the removal and replacement of the drywell and reactor vessel heads. It will also aid in the washing of the reactor cavity walls.

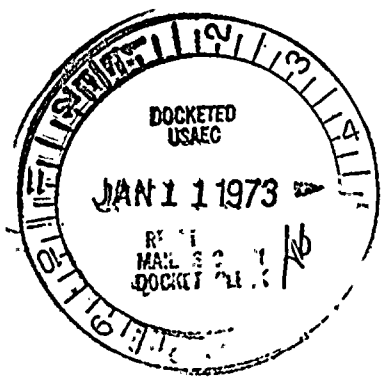
This modification has been reviewed and approved by the Site Operations Review Committee and the Safety Review and Audit Board.

Very truly yours,

T. J. Brosnan
Vice President and Chief Engineer

TJB/

Attachment



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I. Introduction

The Access Platform to be added to the refueling bridge structure will serve the following functions:

1. Removal and replacement of drywell and reactor pressure vessel heads and also the steam separator assembly.

2. Washing of reactor cavity walls

At the present time the above operations are carried out as follows:

1. Access is by means of portable ladder to the drywell and reactor vessel head levels.

2. Wall washing is accomplished by a man standing on a portable ladder using a hose.

The addition of this platform will expedite the refueling operation and also will enhance the safety with which the above are carried out.

II. Description

The Access Platform (as shown in Figure 1) for the Station consists of a main platform section with extendible sections at each end; two telescoping tube assemblies which attach the Access Platform to the refueling bridge structure; and two winch hoists, each of which can raise the Access Platform. With the extendible sections fully retracted, the overall length of the Access Platform is 18 feet (excluding any wall cleaning equipment). With the platforms fully extended the overall length of the Access Plaform is 36 feet. This length permits access of the walls of the reactor cavity at the greatest width. The design characteristics of the Access Platform are summarized in Table 1. Wall-washing assemblies are mounted on the extendible platforms and can be positioned and locked at any point on the curved section of the extendible platform railing. The high pressure spray nozzles are mounted on a vertical manifold assembly which will maintain the nozzles perpendicular to the wall and at the distance required for efficient cleaning.

Modifications to the refueling bridge structure will be made to obtain smooth bridge operation. These modifications include:

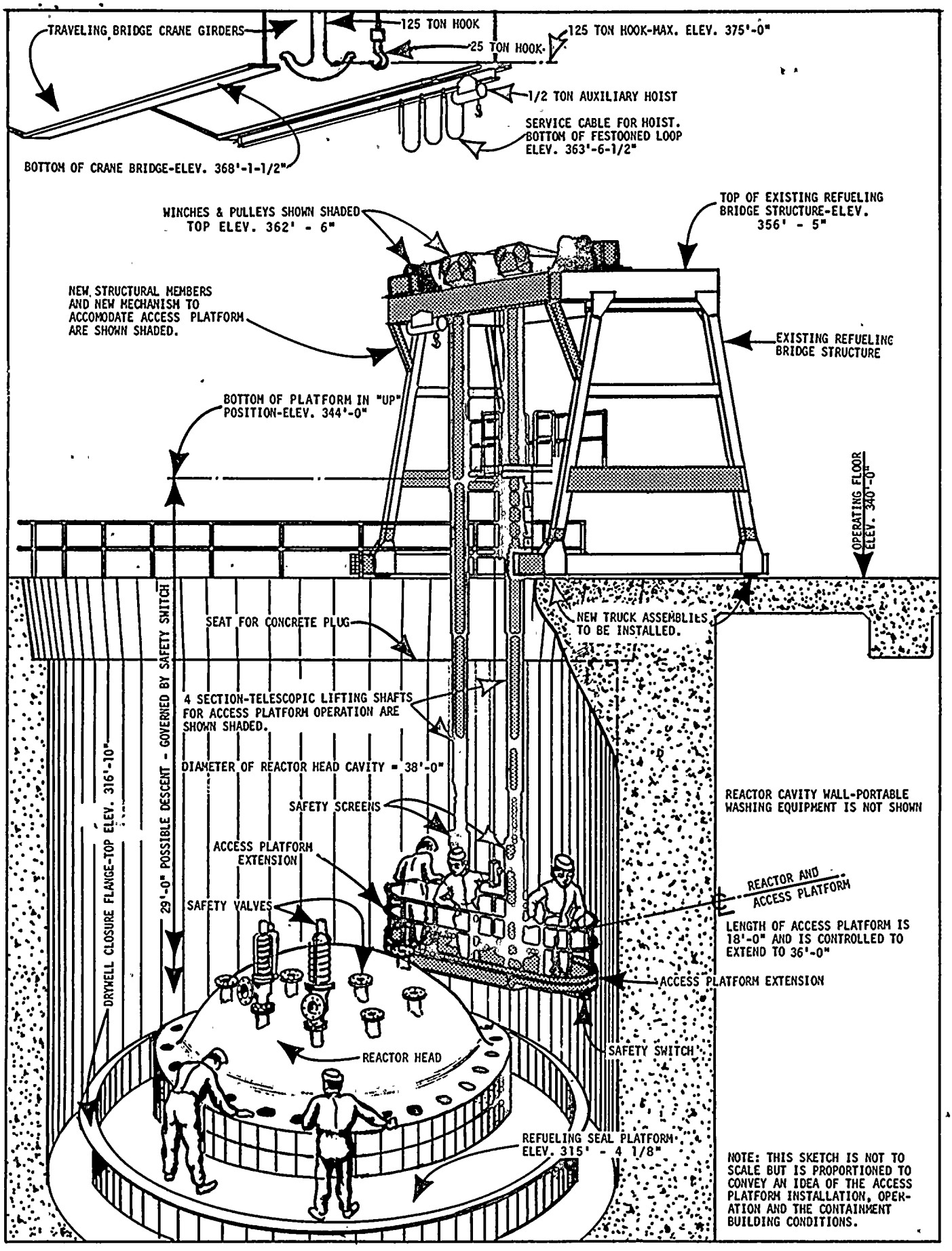
1. Floating the wheels on one platform truck to eliminate wheel binding caused by leg spread.

2. Replacement of the existing walkway with a significantly stiffer structure, so as to afford better distribution of loads due to addition of Access Platform.

3. Replacement of existing bridge dirve torque rods with stiffer torque tubes, eliminate wind up associated with current rods.

Some additional modifications to the refueling bridge structure are required to make it suitable for the addition of an Access Platform. These involve the addition of knee braces at each end of the upper structure, the addition of winch hoist mounting structure, the addition of a horizontal brace on each end frame, and the addition of decking above the monorail.beam bracing to provide access to the platform components.

FIGURE 1



ACCESS PLATFORM FOR ADAPTION TO REFUELING STRUCTURE

TABLE 1

1.	LOAD CAPACITY	
	Main Platform	50 lbs/sq. ft. or a concentrated load of 2000 lbs. of personnel and/or equipment.
	Extension Platform	600 lbs. for each extension platform.
2.	LIFT/STROKE	
	Lift	29 feet. (In the full "up" position the Access Platform is 4 feet above the refueling floor to permit unrestricted operation of the refueling bridge structure.)
	Extension Platform Stroke	9 feet.
3.	OPERATING SPEEDS	
	Lift/Lowering Speed	40 fpm.
	Extension Platform Travel Speed	20 fpm.
4.	DIMENSIONS	
	Main Platform	156" long x 33" wide.
	Extension Platform	30" long x 33" wide.
5.	CONTROLS	
	Access Platform Controls	Two control consoles: One is located on the Access Platform; the second is located on the refueling bridge structure. A selector switch determines which station is in control. Each console controls Access Platform operation, refueling bridge structure bridge motion, and extension platform operation (retraction only).
	Extension Platform Controls	Each extension platform has a control console to control extension/retraction motions.
6.	INTERLOCKS	- Up/down travel limit switches - Cable overload interlock - Slack cable interlock

TABLE 1 (Cont'd)

	- Extension/retraction travel limit switches - Extension platform travel interference switches - Access Platform travel interference switches
7. SAFETY FEATURES	- Control system interlocks - Dual hoist cables (each cable has a safety factor of 10 over its nominal load) - Each hoist is capable of raising the Access Platform at reduced speed for a limited time period (maximum of 2 to 3 minutes for motor operation with full load). NOTE: Single hoist capability is provided only to permit raising the Access Platform out of the reactor cavity in the event of a failure of one hoist winch and/or the associated controls.

III. Structural Analysis

Analyses have been performed to determine the effect of adding the Access Platform to the refueling bridge structure. These analyses investigated the response of the refueling bridge structure to static and dynamic loadings, using a finite element computer code FEABL. The FEABL program allows very detailed modeling of the platform structure and calculates the deflections, translation, bending moments, and loads for each structural member defined by the model. For the Nine Mile Point refueling bridge structure, the model consisted of 109 individual members interconnected of 71 model points. The Access Platform loads were applied to the refueling bridge structure at the locations where the telescoping tube assemblies would be attached. In the initial analysis it was assumed that only the monorail hoist beam carried the loads even though the columns were also attached to the refueling bridge structure walkway. Six cases were analyzed for both static and dynamic loading (three fuel hoist trolley locations at two walkway load conditions). The maximum deflection occurred for the case in which the hoist and walkway loads were concentrated at the center of the platform span. This assumption was made because the existing walkway is a relatively limber structure. The results of the analyses indicated that the monorail beam deflection for the severest loading case was approximately 1.6" producing a maximum stress of 14,000 psi which is below the maximum allowable stress of 22,000 psi for the beam. However, this stress value is above the design value that is normally used for structural design (approximately 12,000 psi for Type A36 steel when a design safety factor of 1.85 is applied).

Therefore a re-analysis was performed with the Access Platform loads distributed between the monorail beam and the new walkway in a manner which will keep the stress levels in both structures well below the A36 steel design value of 12,000 psi. The new walkway will be 2 feet wide and much stiffer than the old 3 feet walkway.

The structural analysis also established the leg spread that occurred for different static and dynamic loadings with the access platform installed. The maximum change in leg spread (less than 0.75 inches) will be accommodated by the floating wheel design which provides for a lateral motion of one (1) inch. With the wheels of one truck free to move laterally, the change in leg spread produced by the shifting or changing refueling platform loads cannot cause "crabbing" as the refueling bridge structure moves along the rails. Consequently smoother bridge operation will be obtained.

It has been calculated that the refueling bridge structure will not tip due to the deceleration forces produced by a sudden stop from the maximum operating speed of 20 fpm. If a sudden stop of the access platform produced deceleration forces in excess of 0.104 g a maximum lift of 3 to 4 inches could occur. To insure that the wheels will not lift off the tracks to the point where the wheel rims clear the track, the platform trucks will be extended about 4 feet on the equipment storage pit side. Clearance between the truck extension and the floor (or rail) will be controlled to limit the wheel lift. This extension also guarantees that the refueling bridge structure will not tip for the design horizontal seismic force of 0.4 g.

IV. Safety Analysis

Use of the Access Platform will generally enhance the safety of refueling operations by simplifing access to all areas of the reactor head cavity. Operational analyses have been made which assure that the addition of this equipment will not

IV. Safety Analysis (continued)

create interferences of any kind; eg: there will be no interference with the refueling grapple which is on the opposite side of the refueling bridge structure. Double winches and hoist cables are employed so that failure of one would not cause an accident. Each hoist is capable of raising the platform at reduced speed. Travel interference interlocks are also provided to prohibit motion of both the access platform and the refueling bridge structure, thus providing additional operational safety.

They are as follows:

1. Prohibit outward motion of extendible section if an obstruction is contacted.

2. Prohibit raising or lowering of the platform depending on condition.

3. A signal from either 1 or 2 above prohibits motion of the refueling bridge structure.

A Quality Assurance Program is established in accordance with the Ninth Supplement to the FSAR and ANSI 45.2. A Quality Control program is also being carried out by Niagara Mohawk to ensure that the system meets Niagara Mohawk's Class I requirements as outlined in the FSAR. Therefore, the addition of the Access Platform will be consistent with the design of the present refueling bridge structure.

To assure proper operation the platform will be shop tested before delivery to the field and will be pre-operationally tested at the site before use during actual refuelings.