



Portland General Electric Company

Stephen M. Quennoz  
Trojan Site Executive

February 24, 1997

VPN-015-97

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Dear Sirs:

Fuel Building Crane Load Testing and Certification for LCA-240 and 237, Revision 1

Following the submittal of License Change Application (LCA) 240 and LCA 237, Revision 1 on January 16, 1997, PGE has developed the planned testing and certification methodology for the Fuel Building Crane. This information is being provided consistent with PGE's stated commitment in LCA 237 that new information would be provided, consistent with the regulations and PGE's commitment to the safe operation of the Independent Spent Fuel Storage Installation (ISFSI).

This letter transmits an Attachment which contains background information and inspection and testing plans for the Fuel Building Crane, in preparation for the loading of spent fuel into the ISFSI transfer and storage casks in the fuel building as described in LCA 237.

Sincerely,

Stephen M. Quennoz  
Trojan Site Executive

Attachment

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## **Fuel Building Load Testing and Certification**

### **Background**

The fuel building crane is a 125 ton (main hook), 25 ton (auxiliary hook) bridge crane unit manufactured by Crane Manufacturing and Service Corporation in 1972 in accordance with specification M56. The crane was installed in 1973 during original plant construction. The unit was load tested at 156 tons (125 percent of rated capacity) with travel testing performed at 125 tons (rated capacity) in accordance with the original test procedure. The crane bridge spans 62 feet, the width of the Fuel Building. The crane rails are set on crane runway girders which are in turn supported by the Fuel Building structural steel columns. The rails extend 175 feet, the full length of the Fuel Building. The crane has been in use throughout plant operations and decommissioning activities. The majority of the lifts made by this crane have utilized the auxiliary hook. Heavy loads lifted by the main hook include Reactor Coolant Pump Motors, Reactor Coolant Pumps, casks, and spent fuel pool racks. The crane and its rail support structures have not been altered, modified or extensively repaired during their service life.

PGE has contracted the original equipment manufacturer, Crane Manufacturing, to prepare a crane inspection and load test procedure. Crane Manufacturing will also provide technical representatives to perform the crane inspection and direct the load testing procedure under PGE supervision. After the successful completion of the inspection and load testing, Crane Manufacturing will issue a test certification stating that the crane meets the applicable ANSI B30.2 requirements. Although load testing is not a code requirement at this time, it is being performed to ensure that the structural, mechanical, and electrical components of the equipment have been maintained in a safe and serviceable condition and are functioning properly according to the original equipment manufacturer's specifications. It is the purpose of the load test to ensure, by actual loading, that the equipment is capable of safely lifting and moving the rated load (125 tons) through all designed motions. The rated load (125 tons) is greater than the maximum load (approximately 108 tons) to be lifted during the planned ISFSI transfer and storage cask loading operations described in LCA 237.

### **Pre-Test Procedures**

This involves a review of the maintenance history of the Fuel Building crane, and review and approval of Crane Manufacturing's inspection and test procedures. During this same time frame an ultrasonic inspection will be performed on the crane rails, the rails will be surveyed and a structural inspection will be conducted on the crane rail support steel. A pre-job conference will be conducted to review the test procedure, rigging, safe load paths, and communication between the Operator, Riggers and the test Director.

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### **No Load Testing and Crane Inspection**

This phase will include an inspection of the crane in accordance with Crane Manufacturing approved inspection procedure(s). Particular attention will be paid to the structural elements of the crane which will be subjected to stress during the load testing procedure. The crane will be operated during the inspection with no load to insure correct operation, reeving, limits, brake operation, speed controls and setting of upper and lower limits.

### **Load Test at 63 Tons (50 Percent Rated Load)**

If the wire rope on the main hoist is replaced, PGE will perform a series of lifts and moves to stretch the new wire rope and seat it in the sheaves and drum grooves. If the wire rope is not replaced, the load testing at 125 tons will be performed instead of a 50 percent load test.

### **Load Test at 125 Tons (Rated Load)**

This test will consist of lifting the 125 ton load just off the floor, stopping the load and testing the brakes. We will then raise the load at various speeds to test the controls. The load will then be lowered at various speeds to test load control and the use of brakes during stopping. The test load will be raised from the 45 foot elevation to the 93 foot elevation of the Fuel Building and traversed across the bridge through the majority of the accessible width of the Fuel Building to simulate the load travel of the trolley that will be used when moving the fuel transfer casks. The test will also traverse the north end of the 93 foot elevation of the Fuel Building (not near the spent fuel pool) with the trolley carrying the rated load near the mid-span of the bridge. Additional travel of the trolley within the accessible areas of the Fuel Building (not near the spent fuel pool) may be specified by Crane Manufacturing as part of the test procedure. There are no safety related equipment under the planned test load paths.

### **Proof Load Testing at 125 Percent of Rated Load**

The 125 percent of rated load (approximately 156 tons) will be raised and held approximately 6 inches off the floor. The load is held for 5 minutes and verified that the load does not move.

### **Post Test Inspection**

After the tests are complete, a thorough examination will be conducted to ensure that the crane has satisfactorily withstood the tests.