



Portland General Electric Company

Bart D. Withers - Vice President

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August 10, 1982

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Mr. R. H. Engelken
Regional Administrator, Region V
U. S. Nuclear Regulatory Commission
Creekside Oaks Office Park
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Dear Mr. Engelken:

IE Bulletin No. 82-02:
Degradation of Threaded Fasteners in the RCPB

Information pertaining to IE Bulletin 82-02 is provided in the attachment to this letter. The information contained within the attachment addresses the present status of Action Item 1 of the IE Bulletin, and Portland General Electric's intent and schedule to complete this action item. The attachment also provides the information obtained through completion of Action Item 3 and completes the 60-day response required by Action Item 5. Should you have any questions concerning the information provided, please contact us.

Approximately 75 man-hours were required to prepare this response.

Sincerely,

Bart D. Withers
Vice President
Nuclear

Attachment

c: Mr. Lynn Frank, Director
State of Oregon
Department of Energy

Subscribed and sworn to before me this 10th day of August 1982.



Carole A. Hodgeson
Notary Public of Oregon

My Commission Expires: August 9, 1983
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Response to IE Bulletin No. 82-02
Dated June 2, 1982

The following are the responses of the Portland General Electric Company to the 60-day action items of IE Bulletin No. 82-02. The subject action items are restated in their entirety, followed by the PGE response.

Actions to be Taken by PWR Facilities Holding Operating Licenses:

The scope of action items listed below is limited to the RCPB. Included are the threaded fasteners (studs or bolts) in (1) steam generator and pressurizer manway closures, (2) valve bonnets and pump flange connections installed on lines having a nominal diameter of 6 in. or greater and (3) control rod drive (CRD) flange and pressurizer heater connections that do not have seal welds to provide leak-tight integrity. That is, CRDs having an omega seal weld design are excluded from this bulletin action. The reactor vessel head closure studs are also excluded for those PWR licensees committed to the provisions of Regulatory Guide 1.65, "Materials and Inspection for Reactor Vessel Closure Studs".

Action Item 1 is to be completed prior to the performance of the subsequent action items. Action Item 2 is to be performed within the next cycle, but no later than the completion of the next refueling outage that is initiated after 60 days from the date of this bulletin. The report requested by Action Item 3 is to be submitted within 60 days from the date of this bulletin.

Action Item 1:

Where procedures do not exist, develop and implement maintenance procedures for threaded fastener practices. These procedures should include, but not be limited to the following: (1) maintenance crew training of proper bolting/stud practices, tools application, specifications and requirements, (2) detensioning and retensioning practices (torque iteration), specified tolerances, and other controls for disassembly and reassembly of component closure/seal connections, (3) gasket installation and controls, and (4) retensioning methods and other measures to eliminate reactor coolant leakage during operations.

Quality assurance measures should also be established for proper selection, procurement, and application of fastener lubricants and injection sealant compounds to minimize fastener susceptibility to SCC environments.

Response to Action Item 1:

Portland General Electric is in the process of incorporating inspection hold points into Maintenance Procedures MP-5-1 for

pressurizer safety valve fasteners, MP-5-3 for steam generator primary manway fasteners, and MP-5-5 for RCP seal fasteners, to ensure that threaded fasteners identified within the scope of IE Bulletin 82-02 are inspected per IWA-2210 and IWA-2220 of the ASME Code Section XI while the fasteners are removed for maintenance of the component. These procedures will also be rewritten to include proper bolting practices as recommended by the manufacturers, retensioning techniques and alternative methods to prevent reactor coolant leakage during operations. In addition, for those fasteners that are not easily covered by an existing maintenance procedure, a new procedure is being developed which will cover fastener inspections as identified by IE Bulletin 82-02. This procedure will include proper bolting practices, as recommended by the manufacturers, for the SI and RHR check valves (6 in. and larger), the accumulator tank discharge valves, and the RHR inlet isolation valves. The new procedure will also include retensioning techniques and alternative methods to prevent reactor coolant leakage during operations, and an inspection hold point for the threaded fasteners. The results of the inspection will be noted on a Quality Control Inspection Report. These completed inspection reports will be reviewed and forwarded to the NRC within 60 days following an outage.

Formalized procedures will be completed prior to the 1983 refueling outage and inspection of fasteners will be performed per these procedures.

See response to Action Item 3 regarding fastener lubricants and sealant compounds.

Action Item 3:

NRC Information Notice Nos. 80-27 and 82-06, and similar INPO (Institute of Nuclear Power Operations) correspondence (with recommendations) have been issued in regard to corrosion problems associated with bolts/studs in RCPB closures (INPO/NSAC SOER 81-12). To assist the Nuclear Regulatory Commission in its ongoing review and assessment of the scope of the problem you are asked to provide the following information for closures and connections within the scope of this bulletin:

- a. Identify those bolted closures of the RCPB that have experienced leakage, particularly those locations where leakage occurred during the most recent plant operating cycle. Describe the inspections made and corrective measures taken to eliminate the problem. If the leakage was attributed to gasket failure or its design, so indicate.
- b. Identify those closures and connections, if any, where fastener lubricants and injection sealant materials have been or are being used and report on plant experience with their application particularly any instances of SCC of fasteners. Include types and composition of materials used.

Response to Action Item 3:

- a. A review of the RCPB bolted closures identified by IE Bulletin 82-02 was performed to identify previous leakage. A report of the review of the findings is as follows:

Steam Generator Primary Manways

No leakage has been experienced.

Pressurizer Manway

No leakage has been experienced.

Reactor Coolant Pump Seal No. 1 Housings

Pump P201A had leakage in 1978 due to a metal shaving in a O-ring groove preventing the O-ring from sealing. Metal was removed from the O-ring groove and a new O-ring installed. Cleaned boric acid crystals off of pump bo'ting.

Reactor Coolant Pump Seal No. 2 Housings

No leakage has been experienced.

Reactor Coolant Pump Seal No. 3 Housings

In 1978 pumps P201A and P201C had indications of leaking seal housings. Seal housings were *disassembled*, cleaned and reassembled with new gaskets.

Reactor Coolant Pump Flanges

No leakage has been experienced - rust removed from bolts on P201A and P201C pumps.

SI Check Valves 8949 A,B,C,D Bonnet Flanges

No leakage has been experienced.

SI Check Valves 8818 A,B,C,D Bonnet Flanges

No leakage has been experienced.

SI Check Valves 8948 A,B,C,D Bonnet Flanges

Check valve 8948A experienced leakage in 1977 due to a gasket leak. Bonnet gasket surface was machined and gasket mating surfaces cleaned. Reassembled valve with a new metal gasket sandwiched between two 1/64 in. fibre gaskets.

SI Check Valves 8956 A,B,C,D Bonnet Flanges

No leakage has been experienced.

RHR Discharge Check Valves 8736 A&B Bonnet Flanges

No leakage has been experienced.

Accumulator Tank Discharge Isolation Valves MO-8808
A,B,C,D Bonnet Flanges

MO-8808C experienced leakage due to body to bonnet interferences in 1976. Interferences were removed allowing closure of the body to bonnet joint. Valve was reassembled with new gasket.

RHR Inlet Isolation Valve MO-8701 Bonnet Flange

No leakage has been experienced.

RHR Inlet Isolation Valve MO-8702 Bonnet Flange

No leakage has been experienced.

Pressurizer Safety Valves PSV-8010 A,B,C Bonnet Flanges

No leakage has been experienced. Rust was removed from PSV-8010C.

- b. The only maintenance approved thread lubricant for bolted fasteners described by IE Bulletin 82-02 is Fel-Pro N5000, manufactured by Fel-Pro Incorporated. This compound has proven satisfactory for lubricating threaded fasteners in the primary system RCPB where the lubricant will not come in contact with the Reactor Coolant System. Fel-Pro N5000 has limited halogen, heavy metals, and sulfur content to minimize stress corrosion, and experience indicates no stress corrosion of fasteners as a result of the use of this compound.

Injection sealant materials have not been used for sealing leaks on the RCPB. Should a situation arise for using an injection sealant to seal RCPB leakage, one of the following sealants would be used:

Furmanite Fibre Cart-N	(70-1200°F)
Furmanite F-700	(70-1200°F)
Furmanite F-77N	(230-550°F)
Furmanite F-79X1N	(230-550°F)
Furmanite F-500N	(70-1200°F)
Leak Repair 1XR	(250-400°F)
Leak Repair 2XR	(350-700°F)

Leak Repair 16RT5	(300-750°F)
Leak Repair Omega 50/50	(70-700°F)
Leak Repair Alpha 200	(400-800°F)
Leak Repair Beta Composite	(200-350°F)

Action Item 5:

A written report signed under oath or affirmation under provisions of Section 182a, Atomic Energy Act of 1954 as amended, shall be submitted to the Regional Administrator of the appropriate NRC Regional Office within 60 days of the date of this bulletin. The report is to provide the information requested by Action Item 3.

Response to Action Item 5:

This submittal completes the requirements of Action Item 5. The submittal required by Action Item 4 on information gathered while completing Action Item 2 will be made within 60 days of the completion of the 1983 refueling outage.