EDO Principal Correspondence Control

FROM: DUE: 02/02/11 EDO CONTROL: G20110002
DOC DT: 01/02/11
FINAL REPLY:

Barry Quigley
Rockford, Illinois

TO:

Borchardt, EDO

FOR SIGNATURE OF : ** GRN ** CRC NO:

Leeds, NRR

DESC:

2.206 - Exelon Nuclear: Byron Unit 2
(EDATS: OEDO-2011-0002)

ROUTING:

Borchardt
Weber
Virgilio
Ash
Muessle
OGC/GC
Satorius, RIII
Burns, OGC
Mensah, NRR
Scott, OGC
Kotzalas, OEDO

DATE: 01/03/11

ASSIGNED TO: CONTACT:

NRR Leeds

SPECIAL INSTRUCTIONS OR REMARKS:

Template: EDO-001

E-RIDS: EDO-01

EDATS

Electronic Document and Action Tracking System

EDATS Number: OEDO-2011-0002 **Source:** OEDO

General Information

Assigned To: NRR
OEDO Due Date: 2/2/2011 11:00 PM
Other Assignees:
SECY Due Date: NONE
Subject: 2.206 - Exelon Nuclear: Byron Unit 2
Description:

CC Routing: RegionIII; OGC; Tanya.Mensah@nrc.gov; Catherine.Scott@nrc.gov
ADAMS Accession Numbers - Incoming: NONE
Response/Package: NONE

Other Information

Cross Reference Number: G20110002
Staff Initiated: NO
Related Task:
Recurring Item: NO
File Routing: EDATS
Agency Lesson Learned: NO
OEDO Monthly Report Item: NO

Process Information

Action Type: 2.206 Review
Priority: Medium
Sensitivity: Sensitive Related
Signature Level: NRR
Urgency: NO
Approval Level: No Approval Required
OEDO Concurrence: NO
OCM Concurrence: NO
OCA Concurrence: NO
Special Instructions:

Document Information

Originator Name: Barry Quigley
Date of Incoming: 1/2/2011
Originating Organization: Citizens
Document Received by OEDO Date: 1/3/2011
Addressee: R. W. Borchardt, EDO
Date Response Requested by Originator: NONE
Incoming Task Received: Letter

January 2nd, 2011

Subject: 2.206 Petition for Byron Unit 2 (Docket 50-455)

Dear Mr. Borchardt,

This is a request under 10 CFR 2.206 for enforcement action regarding untimely corrective actions and failure to follow procedures at Exelon Nuclear's Byron Unit 2.

Background

High temperatures downstream of a Byron Unit 2 Pressurizer safety valve (2RY8010A) were noted in June of last year. High temperature alarms occurred over the summer but the tailpiece alarm has been in solid since late October[1]. In September I[2] had begun questioning when the valve would be replaced but was unable to get a clear answer. As I looked into the issue further, I became concerned with the safety valve operability. On 10/24/10, I wrote IR 1130085, *Concerns with 2RY8010A Operability.* The key points of the IR were:

> The Byron pressurizer safety valve installation is referred to as a heated loop seal with a temperature of approximately 300°F. Any seat leakage must be replaced by hot fluid from the pressurizer; this could result in loop seal temperatures higher than tested. If the safety valve then lifted, the hotter loop seal could take longer to purge due to choked flow of the flashing hot water. This could delay the time before the safety valve was effective in reducing RCS pressure.
>
> Safety valves are known to experience setpoint changes with changes in temperature. The leaking steam could cause internal temperature changes and result in valve lift pressures outside the allowable band.

I was assigned to perform the Operability Evaluation for IR 1130085 using procedure OP-AA-108-115 (which closely parallels NRC RIS 2005-020). The evaluation was completed on 10/29/10 under EC 381932 and addressed the concerns raised in IR 1130085. I selected a corrective action due date of 11/29/10 based on guidance in OP-AA-108-115 which states the corrective action dates should be commensurate with the safety significance of the component. For the following reasons, I concluded that the safety valves were very important and a short date was appropriate:

1. One measure of the importance of the pressurizer safety valves is their role in maintaining the RCS safety limit of 2735 psig.
2. All three safety valves are required to function to maintain RCS pressure below the safety limit, i.e., there is no single failure "allowance".
3. Another indicator for the appropriate timeliness is the LCO duration. TS 3.4.10 requires that an inoperable safety valve be restored to operable within 15 minutes or the unit shutdown.
4. A review of pressurizer safety valve LERs since 1980 found no examples where a leaking safety valve was challenged to perform its overpressure function *while installed.*

[1] The 2RY8010A leakage is currently somewhat steady at 0.10 gpm.

[2] Petitioner is on the Design Engineering staff and held an SRO license for 14 years.

Therefore there is no valid operating experience regarding the capability of a safety valve to fulfill its Tech Spec function while leaking.

5. In some cases safety valves (at other plants) that leaked during a cycle were found out of tolerance when bench tested, in other cases the valves lifted within specification. This uncertainty supports minimizing the "exposure time" to a degraded safety valve.

The due date of 11/29/10 was originally not accepted by management; only after I refused to sign the Op Eval was the date accepted.

In mid-November, I learned that the due date for 2RY8010A replacement had been changed to 2/7/11, in part based on OTDM 2010-10 (Operational and Technical Decision Making). On 11/23/10, I wrote IR 1144179, *Disagree with 2RY8010A Op Eval CA Extension.* In the IR I stated:

> My signature on the op eval was contingent on a repair date of 11/29/10. Although there is no real process, I will withdraw my signature[3] on the Op Eval at midnight on 11/29/10.

Currently Exelon's plan for resolution of my concerns is by using the concept of "Differing Professional Opinion". I lack faith that this informal process has the necessary horsepower to shutdown a 1200 MWe unit.

Since completion of the Op Eval, additional concerns[4] have been identified:

1. The possible presence of two-phase leakage may alter the valve lift pressure since the flow characteristics in the huddling chamber will not be as designed. Currently it is thought that such leakage could cause the valve to lift early, outside the Tech Spec allowable band.
2. The continuous operation of the pressurizer backup heaters on unit 2 increases the pressurizer vapor space hydrogen concentration. The presence of increased non-condensable gasses reduces heat transfer and could be preventing reformation of the loop seal.

Potential Consequences

1. 2RY8010A fails to open as designed. Concern would be failure of the RCS pressure boundary, increased RCS leakage or extensive analyses required prior to restart.
2. 2RY8010A opens early when RCS pressure rises following a turbine trip. The normal valve blowdown could reduce RCS pressure enough to cause a Safety Injection. A water-solid pressurizer could then result.

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[3] As of 1/2/11, the operability section of IR 1144179 has not been completed, contrary to the 24 hour procedural requirement to do so.

[4] These new concerns have not been entered in CAP consistent with the unwritten management expectation that Issue Reports not be written until assurances can be provided to Operations that the components are operable.

Request of NRC

1. Issue the appropriate level of violation for failure to comply with 10 CFR 50 Appendix B Criterion XVI as it applies to 2RY8010A leakage.
2. Issue the appropriate level of violation for failure to document operability for IR 1144179.

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/s/
Barry Quigley