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RELATED CORRESPONDENCE

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SEP 05 1984

DOCKET NUMBER  
PDR

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USNRC

Dr. Thomas E. Murley, Director  
Office of Inspection and Enforcement - Region I  
U. S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406  
SEP 10 11:42

Subject: Limerick Generating Station, Units 1 & 2  
Significant Deficiency Report No. 157 (Attachment 1)  
ASCO Solenoid Valves Installed on Velan Air  
Operated Valves  
NRC Construction Permit Nos. CPPR-106 and 107

Reference: Telecon - J. P. Evans (PECo) to Jane Grant (USNRC),  
dated 9/4/84

File: QUAL 2-10-2 (SDR No. 157)

Dear Dr. Murley:

In compliance with 10CFR50.55(e), we are submitting our  
Significant Deficiency Report concerning ASCO solenoid valves  
installed on Velan air operated valve assemblies.

We trust that this satisfactorily resolves the item. Please do  
not hesitate to contact us if further information is required.

Sincerely,

*John S. Kemp*

Copy to: Director of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Washington, DC 20555

S. Chaudhary, Resident NRC Inspector (Limerick)  
JNM/pd09048403y  
Attachment

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cc: Judge Lawrence Brenner	(w/enclosure)
Judge Peter A. Morris	(w/enclosure)
Judge Richard F. Cole	(w/enclosure)
Judge Christine M. Kohl	(w/enclosure)
Judge Gary J. Edles	(w/enclosure)
Judge Reginald L. Gotchy	(w/enclosure)
Troy B. Conner, Jr., Esq.	(w/enclosure)
Ann P. Hodgdon, Esq.	(w/enclosure)
Mr. Frank R. Romano	(w/enclosure)
Mr. Robert L. Anthony	(w/enclosure)
Ms. Maureen Mulligan	(w/enclosure)
Charles W. Elliott, Esq.	(w/enclosure)
Zori G. Ferkin, Esq.	(w/enclosure)
Mr. Thomas Gerusky	(w/enclosure)
Director, Penna. Emergency Management Agency	(w/enclosure)
Angus Love, Esq.	(w/enclosure)
David Wersan, Esq.	(w/enclosure)
Robert J. Sugarman, Esq.	(w/enclosure)
Martha W. Bush, Esq.	(w/enclosure)
Spence W. Perry, Esq.	(w/enclosure)
Jay M. Gutierrez, Esq.	(w/enclosure)
Atomic Safety & Licensing Appeal Board	(w/enclosure)
Atomic Safety & Licensing Board Panel	(w/enclosure)
Docket & Service Section	(w/enclosure - 3 copies))
James Wiggins	(w/enclosure)
Timothy R. S. Campbell	(w/enclosure)

Limerick Generating Station, Units 1 & 2  
Significant Deficiency Report No. 157  
Concerning Misapplication of ASCO Solenoid Valves

1.0 Introduction

This report concerns the improper application of ASCO Solenoid valves controlling air supply to Velan air operated valves in the Limerick Emergency Service Water System.

2.0 Description of Problem

The existing pilot solenoid valves (ASCO Model NP344A71E) are four way valves incorporating a design that provides the capability to control double acting valve operators (i.e. - ones not provided with spring return to a designated position). The air supply to these pilot solenoids does not ensure complete travel of the solenoid valve piston thus permitting partial venting to the atmosphere of the air supply to the valve operator. As a result, the subject valves occasionally do not stroke when called upon to do so, as was discovered during pre-operational testing.

3.0 Corrective Action to be Taken

The four way solenoid valves on all Emergency Service Water valves are being replaced by three way solenoid valves which will not be subject to the condition 'escribed above. The manual shutoff valves upstream of the pilot solenoid valves are also being replaced to increase air supply flow. The affected ESW valves will be tested to verify proper operation after the work is complete. This work will be complete by September 15, 1984.

4.0 Safety Implications

Failure of pilot solenoid valves to stroke the ESW valves could result in loss of emergency service water inventory and/or loss of the required cooling water to safety related ECCS heat exchangers.

PHILADELPHIA ELECTRIC COMPANY  
ENGINEERING & RESEARCH DEPARTMENT  
USNRC REPORTABILITY EVALUATION

Page 4

Rev. 0 11/14/80

Rev. 1 12/15/80

Project: ☒ LGS☐ PBAPSEvaluation No. SDR 157Reference: LGS QA Plan, Volume I, Appendix Z and Exhibits  
XXI and XXII

I. Description of Potential Defect, Noncompliance or Significant  
 Deficiency: ESW air operated valves did not not  
automatically function, as required.

II. Reference Documents (Attach As Appropriate):

FR-5-094 with attachments

III. 10CFR50.55(e) Evaluation

A. The problem represents a:

- Breakdown in the QA Program
- Deficiency in Final Design
- Deficiency in Construction
- Deviation from Performance  
Specifications

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Rationale: The valves did not operate as  
intended.

2840811790 2A  
III C. We consider the problem with the existing 4-way Asco solenoid valves to be significant. We will replace all these solenoid valves with new qualified Asco 3-way solenoid valves. The bypass leakage in the INVAR Operators was corrected by replacing the existing seals and gaskets. This problem is not reportable since there was no redesign, evaluation or extensive repair required. The problem with the disks sticking in the closed condition is being corrected by adjustments of the stem length and the spring pre-load. This problem is also not reportable since there was no redesign, evaluation or extensive repair required.



If above are all "No" stop. This is not reportable under 10CFR50.55(e). If any of above are "Yes", proceed to III.B.

- B. The problem could, if uncorrected, adversely affect the safety plant operation sometime during its life.

☒ Yes ☐ No

Rationale: The problem could result in loss  
of emergency service water.

If above is "No", stop. This is not reportable under 10CFR50.55(e). If "Yes", proceed to III.C.

- C. The problem is considered significant (will require extensive evaluation, redesign or repair to meet the requirements of the SAR or construction permit or to otherwise establish the adequacy of the item to perform its intended safety function) ☒ Yes ☐ No

Rationale: (see page 2A for rationale)

#### IV. 10CFR21 Evaluation

- A. The problem represents a deviation in a component, facility or activity relating to:

	Yes	No
- Assuring coolant boundary integrity	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- The ability to shut down the reactor and maintain it shut down	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- The ability to prevent or mitigate an accident	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Rationale: The problem could result in loss  
of Emergency Service water

If above are all "No" stop. This is not reportable under 10CFR21. If any of above are "Yes", proceed to IV.B..

- B. The Problem Relates to a:
- |   | Yes                                 | No                       |
|---|-------------------------------------|--------------------------|
| - Delivered Component   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| - Component that has been installed, used or operated         | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| - Facility offered for acceptance                             | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| - Condition that could contribute to exceeding a safety limit | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Rationale: The valves were found to malfunction during pre-op testing

If above are all "No" stop. This is not reportable under 10CFR21. If any of above are "Yes", proceed to IV.C.

- C. The problem could have created a substantial safety hazard

☐ Yes ☒ No

Rationale: The valves were found to operate improperly during pre-op Testing. Due to the nature of the problems, they could not have created a substantial safety hazard since they could not have proceeded past pre-op testing in their deficient condition.

If Above is "No", stop. This is not reportable under 10CFR21. If "Yes", a verbal report to the NRC is required within 24 hours (per QAP) and a written report within 5 days, unless there is information that the NRC has already been adequately informed. Is such information available?

☐ Yes ☐ No

If "Yes", record pertinent data concerning this prior NRC report (from, to, date):

V. Conclusion

Yes No

- Reportable under 10CFR50.55 (e)
- Reportable under 10CFR21

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

VI. Report (When Required)

Telecon to be made to NRC by: \_\_\_\_\_ (Date)

Responsibility for Telecon: \_\_\_\_\_

Report to be sent to NRC by: \_\_\_\_\_ (Date)

Responsibility for Report: \_\_\_\_\_

VII. ApprovalsEvaluator: J. N. Mollish Date: 9/1/84

Approved By:

Manager, QA G.R. Hunt for P.K. Pavlides Date: 9/4/84LGS Project Manager L. L. Luford Date: 9/5/84Others Walter Smith 9/1/84Copy to: QA Office Br. Head/Local File QUAL 2-10-2 (Eval. No. 157)

LGS Site QA Br. Head

LGS Proj. Mgr.

Others J. Moskowitz

Project File QUAL 2-10-2