

SNUPPS

Standardized Nuclear Unit
Power Plant System

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February 18, 1983

SLNRC 83-008

FILE: 0491.10.2

SUBJ: Significant Deficiency Report (SDR)
83-03 re Design and Installation of
U-Bolt Restraints

Mr. James G. Keppler
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Mr. John T. Collins
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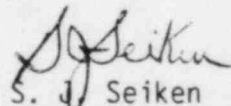
Docket Nos. STN 50-482 and STN 50-483

Gentlemen:

On January 27, 1983, NRC Region III representatives were informed by Union Electric of deficiencies at Callaway Site involving the omission of locking devices on seismically-designed, U-bolt restraints. These omissions were subsequently judged to be reportable under 10CFR50.55(e) criteria. Similar omissions were also found at Wolf Creek Site and reported by Kansas Gas and Electric to Region IV on January 31, 1983. On the basis of a follow-on review, the deficiencies were determined to be generic and involved deficiencies in both design and installation practices. Details pertaining to these deficiencies, as well as corrective actions initiated by the Architect-Engineer and by each Site Constructor, are described in the enclosed generic report. This report is being furnished as a final report on behalf of the SNUPPS Utilities; i.e. Union Electric Company and Kansas Gas and Electric Company.

If additional information or clarification is required, please feel free to contact the undersigned.

Very truly yours,


S. J. Seiken

Manager, Quality Assurance

SJS/dck/11b17

Enclosure: Significant Deficiency Report (SDR) 83-03

cc: Page Two

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Page Two

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Page Two

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SDR 83-03
Significant Deficiency Report (10CFR50.55e)
on the
Design and Installation of
U-Bolt Restraints
for
SNUPPS Projects

1.0 Description of Reportable Deficiency

In the course of project review of generic design drawing and specification changes and the impact of such changes upon completed construction at the SNUPPS jobsites, it was determined that a number of U-bolt restraints required for use on small piping systems; i.e. <2 inches, had been installed at Callaway site without the double-nut locking mechanism specified by the Bechtel design drawings. Details of the required installation for small piping are reflected in Attachment A. The restraints involved are mostly nonsafety-related; however they have been seismically designed and analyzed so as to protect piping systems located in areas above or adjacent to safety-related items. Consequently, these restraints...referred to as "II/I" items, are required to maintain the integrity of the piping system during a seismic event. In addition, U-bolt restraints of this design are used in seismically-designed, nonsafety-related systems which are connected to safety-related systems. The integrity of these nonsafety-grade systems (to the first anchor point) is required to maintain the integrity of connecting safety-grade items under seismic conditions.

A number of safety-related and nonsafety-related, but seismically-analyzed U-bolt restraints (61 total) have been released by the designer for installation on both small and large piping systems without the required double-nut mechanism or other positive locking mechanism required by design. Of these, the 13 small pipe restraints have been corrected by design drawing revision. The remaining 48 (all involving large pipe restraints) are in process of revision.

2.0 Background and Cause of Deficiency

The problem was initially created by a conflict between two design drawings prepared by Bechtel in early 1979, both of which are required for installation of small piping U-bolt restraints. One drawing, which contains pipe support configurations, pictorially depicts a double nut arrangement on the underside of the U-bolt to function as a positive locking mechanism. Another drawing, called out on the first drawing as a reference for installation details, indicated only a single nut on the underside of the bolt. The

Constructor at both jobsites utilized the second drawing for field installation with the result that only a single nut was provided. This conflict in design detail with the seismically designed, non-safety-related restraints required for small piping systems was identified in mid-1982 and necessary design document changes were made last September to eliminate the conflict and to bring both design documents into conformance with the approved design basis. Revised design details providing for a double-nut locking arrangement for required II/I and seismically-designed, nonsafety-related, small piping system restraints were released to both jobsites at that time.

The small pipe support restraints previously installed and accepted at Callaway and Wolf Creek sites on the basis of approved design details in effect at time of installation and inspection were not reworked to reflect the revised design details. Further, the change in installation detail was not incorporated into subsequent seismically-designed, nonsafety-related installations at Callaway; this change was correctly identified at Wolf Creek with the result that small pipe support restraints of this configuration were subsequently installed in compliance with the revised design.

Subsequent designer-initiated review identified another 48 seismically-designed, safety and nonsafety-related U-bolt restraints required for large piping systems which have been released to both jobsites without the double-nut locking mechanism. As previously indicated, these restraints are in process of revision.

3.0 Analysis of Safety Implications

As previously indicated, U-bolt restraints specified in item 1.0, above, are seismically designed to maintain the integrity of the piping system during a seismic event and to avoid damage to safety-related equipment and piping systems located in areas adjacent or contiguous to the piping system. The absence of a locknut on both the safety-related and seismically-designed, nonsafety-related units could result in a compromise to the restraint and piping system

during an earthquake with possible adverse safety consequences. On the basis of a potential hazard, positive corrective actions will be taken to correct the described deficiency.

4.0 Corrective Action

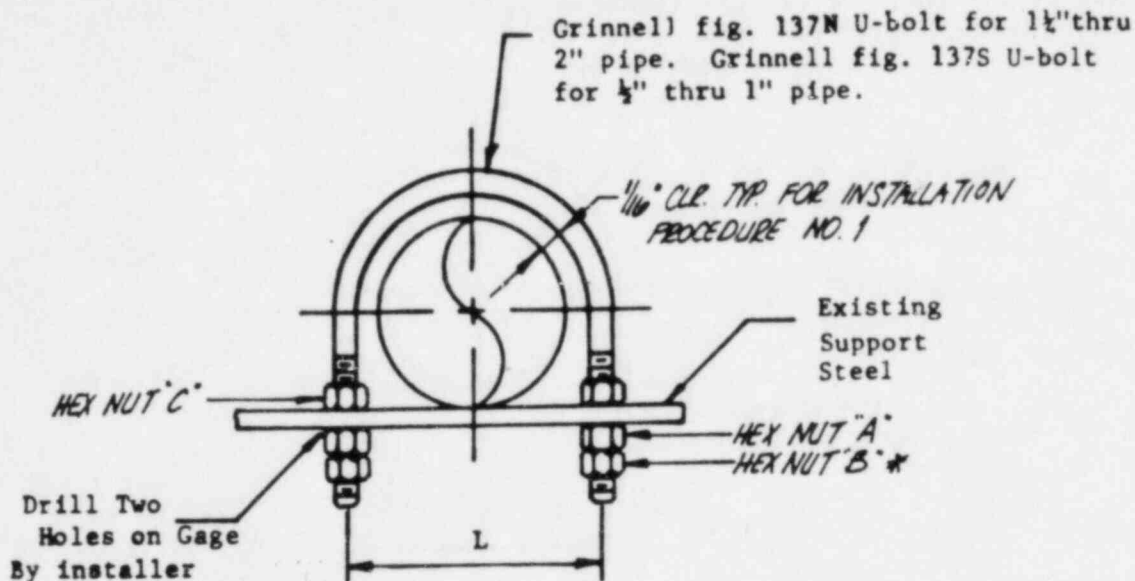
Measures are being initiated at both jobsites to identify all seismically-designed U-bolt restraints requiring a double nut locking mechanism, and to install the additional nut (jam nut) where required. This effort will be completed on a prioritized basis consistent with current construction schedules. In addition, installation procedures for Callaway Site have been corrected to call out the jam nut. The large pipe restraints with incorrect design features are in process of revision and will be reissued by the end of February, 1983. All other supports utilizing the U-bolt restraint mechanism have been examined by the Architect-Engineer and are verified to be of correct design.

Efforts are underway at both sites to identify and examine design document changes for impact on prior construction. This effort is proceeding with the support of the architect-engineer and is scheduled to be completed by June 30, 1983.

Attachment A: SGN-2, Small Pipe Standard Supports

SJS/10b26

This drawing and the design it covers is the property of the Utilities. It is loaned on the basis of a written agreement that it will not be reproduced, copied, loaned, exhibited, or used except in the limited way and private use permitted by written consent given by the SNUPPS Utilities to the borrower.



Pipe Size	Rod Size	Hole Size	L
1/2"	3/8"	7/16"	1-5/16"
3/4"	3/8"	7/16"	1 1/2"
1"	3/8"	7/16"	1-3/4"
1 1/4"	3/8"	7/16"	2-1/16"
1 1/2"	3/8"	7/16"	2-3/8"
2"	3/8"	7/16"	2-13/16"

* NUT B REQUIRED FOR "Q" AND SEISMIC SUPPORT APPLICATIONS ONLY.

INSTALLATION PROCEDURE: NO. 1

1. INSTALL NUTS 'A' & 'C' ON BOTH SIDES OF EXIST. SUPPORT STEEL & U-BOLT. HAND TIGHTEN UP TO SUPPORT STEEL.
2. INSTALL NUT 'B' AND LOCK IN PLACE. (WHEN APPLICABLE)

ATTACHMENT A

SNUPPS



SMALL PIPE STANDARD SUPPORTS

SGN-2

Pg 1 of 3

JOB NO. 10466

BECHTEL DWG NO.

REV

MS-25

3

DWG APPLICABLE TO UNITS

1 2 3 4 5 6 7 8

SNUPPS

Standardized Nuclear Unit
Power Plant System

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May 31, 1983

Nicholas A. Petrick
Executive Director

SLNRC 83- 0032 FILE: 0491.10.2
SUBJ: Westinghouse EMD Gate Valve
Position Indication Issue;
50.55(e) Final Report 83-01

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Docket Nos.: STN 50-482 and 50-483

Reference: SLNRC 83-03, Westinghouse EMD Gate Valve Position Indication
Issue; 50.55(e) Interim Report 83-01, dated 1/21/83

Gentlemen:

The above reference provided information to the Nuclear Regulatory Commission, Regions III and IV Offices of Inspection and Enforcement, regarding a potential deficiency of the Westinghouse EMD gate valve position indication.

The issue involves the valve position indication for certain Westinghouse manufactured gate valves. An indication of "closed" could occur prior to the valve disc fully isolating flow. If the valve should stall or bind following the premature closure indication being given, the operator would have an inaccurate indication of true valve position.

A geared limit switch rotor is set to provide an electrical bypass of the OPEN torque switch at the beginning of the opening stroke. On a closing stroke, this switch changes state before the flow path is completely blocked. As a result, it is likely that monitor and/or indicator lights also operated by that rotor will indicate valve closure slightly before the flow path is completely shut off. If the valve were to stop between this setpoint and the full shut off position, flow path through the valve could exist even though a CLOSED indication had been achieved.

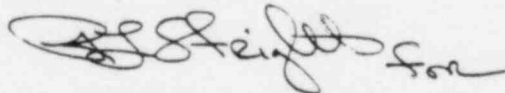
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A review of the applications of all the Westinghouse gate valves has been conducted to determine those valves for which adjustments or modifications may be needed to preclude erroneous "closed" indications and which could adversely affect safety of operations. The attachment provides a listing of those valves. This listing is based on those valves that could mask or compound another failure based upon a premature CLOSURE indication or a proper CLOSURE is required to provide correct indications in the event of multiple failures. The modification, if required, involves the addition of jumper wires to an alternate rotor so that the CLOSE signal can be obtained independently of the OPEN torque switch bypass setpoint.

Valve modifications and adjustments will be performed according to Westinghouse Field Change Notices SAPM-10605 and SCPM-10602 for the Wolf Creek and Callaway plants, respectively. All valve modifications will be performed prior to fuel load.

This letter constitutes the SNUPPS final position report on the Westinghouse EMD gate valve position indication issue.

Very truly yours,



Nicholas A. Petrick

JOC/nld5b6
Attachments

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ATTACHMENT

Westinghouse EMD Gate Valves For Which Adjustments or Modifications May Be Needed

EM-HV 8802A	BB-HV 8037A	BN-LCV 112D*
EM-HV 8802B	BB-HV 8037B	BN-LCV 112E*
EM-HV 8835	BB-HV 8812A	EP-HV 8808A*
EJ-HV 8809A	BN-HV 8812B	EP-HV 8808B*
EJ-HV 8809B	EJ-HV 8811A	EP-HV 8808C*
EJ-HV 8840	EJ-HV 8811B	EP-HV 8808D*
EM-HV 8807A		BG-HV 8105 *
EM-HV 8807B		BG-HV 8106 *
EM-HV 8923A		BB-HV 8000A*
EM-HV 8923B		BB-HV 8000B*
EM-HV 8924		EM-HV 8821A*
EJ-HV 8716A		EM-HV 8821B*
EJ-HV 8716B		EM-HV 8801A*
EJ-HV 8701A		EM-HV 8801B*
EJ-HV 8701B		EJ-HV 8804A*
BB-PV 8702A		EJ-HV 8804B*
BB-PV 8702B		EM-HV 8803A*
EJ-FCV 610		EM-HV 8803B*
EJ-FCV 611		BN-HV 8806A*
BG-LCV 112B		BN-HV 8806B*
BG-LCV 112C		

* Design drawings show that the wiring configuration on these valves do not require modification. These valves will be adjusted to control CLOSURE indication with a limit switch.

NOTE: The installed wiring configuration of all the listed valves will be confirmed as part of the rework in accordance with the Field Change Notice. Valves requiring modifications will be modified. The remainder will be adjusted to control CLOSURE with a limit switch.