| NRC Form 366 (9-83) | CLEAR REGULATORY COMMISSION PROVED OMS NO. 3150-0104 (PIRES: 8/31/85 | | | | | | | | |
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| Perry Nuclear Power Plant Unit TITLE (4) | | | | 0 5 0 0 | 0 4 4 4 0 | 1 OF 013 | | | |
| Control Rod Drive HCUs Not Instal | lled per EQ 1 | Report Due | to Lack | of Inform | nation Fro | om Vendor | | | |
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| 20.402(b) | 20.406(c) | - | 50.73(a)(2)(iv) | | 73.71(b) | | | | |
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| Paul Russ, Compliance Engineer, E | xt. 6472 | | | 2116 | 215 9 1-1 | 3 17 1317 | | | |
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| ABSTRACT (Limit to 1400 gases (a. approximately fifteen single space) On May 4, 1986 a hold down bo Control Unit (HCU) was found with hold down bolts not in a investigation revealed that a torque values differing from Environmental Qualification H HCU bolts and was completed M brackets were observed to be seismically qualified with th design change was completed M box brackets such that they w Although the reason for the m indeterminate, the cause of H to specify the correct HCU in Environmental Qualification H branch junction box upper bra is continuing for further eva actions. A supplemental repo investigation. 8606180253 860613 DBR ADUCK 05000440 | typewritten lines (16) olt on a Con to be missis contact with all of the H the requires Report. Work day 22. Dur attached to nese junction (ay 23 which were not supp missing and both incorrect stallation Report. All ackets reloca- iluation of ort will be | trol Rod I ng. Four the HCU f CUs had be ments of t k commence ing this w 16 HCUs. n boxes at relocated ported by loose HCU ct install requiremen the HCU k ated. The the cause issued det | Drive Syst other HCC Frame. Or een instal the seismin ed on May work, bran The HCUs ttached to the HCU f hold down ations want as iden polts have and resul- tailing th | tem Hydrau Js were oh May 15, Hed with ic testing 16 to ref hch juncts s had not o the HCU er branch frames. h bolts is as a failu htified by a been ref pation of Hant corn he outcome | ulic bserved further bolt g in the torque the ion box been frame. I junction s ure of GE y the torqued an this even rective a of this | nđ nt | | | |
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NRC Form 366 (9-83) LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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On May 4, 1986 a hold down bolt on the Control Rod Drive (CRD)[AA] System Hydraulic Control Unit (HCU)[HCU] location 34-27 was found missing. Four other HCUs were also observed with hold down bolts not in contact with the HCU frame (34-19, 50-15, 54-15, and 38-27). At the time of discovery, the plant was in Operational Condition 5 (Refuel) prior to initial criticality, no core alterations were in progress, reactor coolant temperature was approximately 90 degrees and reactor vessel pressure was atmospheric.

An investigation was initiated to identify the cause of the discrepancies and to determine proper actions to correct the problem. Included in this investigation was a review of construction activities. No work since original installation was identified that would have affected the hold down bolts. A Work Order was issued to rework the affected HCUs and an engineering evaluation was initiated to determine how the operability of the 5 HCUs was affected from a safe shutdown earthquake standpoint.

On May 13, an inspection discovered that greater than 10 HCUs were affected by discrepancies pertaining to the hold down bolts. The problem was discussed with on site General Electric (GE) personnel and HCU installation documents were reviewed. From this review it was discovered that the HCUs were installed in 1981 with the base plate bolts tightened to "firm contact with the HCU frame tube" and attached to the beam support frames with bolts installed "snug tight". The installation drawing that had been supplied by GE specified the mounting configuration, including the types of bolts to use, but did not include the torque values. The HCU bolts were torqued in accordance with engineering practice at the time. The basis for the "snug tight" specification included a GE letter. An on site GE engineer was contacted for the "firm contact" specification.

The Environmental Qualification (EQ) Report, NEDC-30208, October 1983, for the Hydraulic Control Unit (issued after the HCU installation) specifies that the HCU was installed on the test fixture utilizing the normally provided attachment hardware with an installation torque of 50 ft-lbs for the base plate bolts and 20 ft-lbs for the beam support bolts.

GE was officially questioned on May 15, 1986 about the operability of the HCUs. GE responded the same day stating that the HCUs would probably meet their design function but they could not substantiate the long term seismic qualification if not installed in accordance with the Environmental Qualification Report. The HCUs were then declared inoperable. Work commenced on May 16 to repair all the discrepancies noted and retorque all the HCU bolts to the torque required by the Environmental Qualification Report. Work on the HCUs was completed May 22.

During the retorquing work, it was noticed that branch junction boxes were attached to some of the HCU frames. The branch junction boxes were installed

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in accordance with a GE drawing but were not included on the test HCU during the Environmental Qualification. There were 16 HCUs affected. A design change was completed May 23 to correct this design by relocating the upper brackets such that they were not supported by the HCU frames.

The HCUs were installed in 1981 during the construction phase of the plant. The cause of the discrepancies regarding the missing and loose HCU hold down bolts is indeterminate. The cause of the incorrect installations was a failure of GE to specify the correct installation requirement for the HCUs as identified in the Environmental Qualification Report.

The control rod drive system controls changes in core reactivity by incremental positioning neutron absorbing control rods within the reactor core in response to manual control signals. It is also required to quickly shut down the reactor (scram) in emergency situations by rapidly inserting withdrawn control rods into the core in response to a manual or automatic signal from the reactor protection trip system (RPS).

Initial fuel load had been completed prior to the discovery of the problem. During Operational Condition 5, Technical Specifications require all control rod scram accumulators (which are mounted to the HCUs) to be operable for at least each withdrawn control rod. However, during Operational Condition 5, the one-rod-out interlock is also required to be operable which prevents withdrawing more than one control rod. Since the core is designed to meet shutdown requirements with the highest worth rod withdrawn, the core would have remained subcritical had the RPS/CRD system been called upon to function.

A GE evaluation provided June 13, 1986, concluded that had this problem not been detected prior to power operation, the HCUs with the branch junction modules and hold down bolts torqued to lower preload will always remain operable and capable to perform their scram function for a reduced service life equivalent to at least one Perry unique faulted event (Safe Shutdown Earthquake, Safety Relief Valve actuatior and Loss of Coolant Accident).

All the HCU hold down bolts have been properly retorqued and branch junction box upper brackets relocated. The GE Site Engineering Manager has reported this event to the GE home office for further evaluation. The investigation of this event is continuing for further evaluation of the cause and resultant corrective actions. A supplemental report will be issued detailing the outcome of this investigation.

No previous similar events wer identified.

Energy Industry Identification System Codes are identified in the text as [XX].



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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MURRAY R. EDELMAN VICE PRESIDENT NUCLEAR

> June 13, 1986 PY-CEI/NRR-0481 L

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

> Perry Nuclear Power Plant Docket No. 50-440 LER 86-014-0

Dear Sir:

Enclosed is Licensee Event Report 86-014-0 for the Perry Nuclear Power Plant.

Very truly yours,

an you

Murray R. Edelman Vice President Nuclear Croup

MRE:njc

Enclosure: LER 86-014-0

cc: Jay Silberg, Esq. John Stefano (2) J. Grobe

> U. S. Nuclear Regulatory Commission 799 Roosevelt Road Glen Ellyn, IL. 60137