

ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

JSP-0276-90
April 16, 1990
10CFR21.21

Docket No. 50-461

Mr. A. B. Davis
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: 10CFR21 Defect 21-90-01:
Deviations in Air-Start Motor Parts Supplied by Stewart
& Stevenson Services and POW-R-QUIK and Dedicated for
Use on Divisions I and II Diesel Generator Engines

Dear Mr. Davis:

On February 26, 1990, Illinois Power Company (IP) identified a potential 10CFR21 defect concerning the failure of Stewart & Stevenson Services and POW-R-QUIK to provide accurate information of changes to air-start motor shafts, shaft end bearings, and the vendor procedures used in rebuilding the air-start motors of the Divisions I and II emergency diesel generator engines at Clinton Power Station (CPS). Prior to purchasing the shafts and bearings, IP asked Stewart & Stevenson Services if any changes had been made to the parts that IP intended to purchase; Stewart & Stevenson Services indicated that no changes had been made. IP later discovered that the shafts and shaft end bearings, and the vendor procedure requirements for installing these parts had changed. During the sequence of discovering the changes to parts, IP contacted POW-R-QUIK, the supplier of the parts to Stewart & Stevenson Services, several times and they also provided inaccurate information regarding the changes to parts. Based on an evaluation of this matter, IP is providing the following information to the Nuclear Regulatory Commission (NRC) in accordance with the requirements of 10CFR, Part 21.21(b)(3). Region III of the NRC was verbally notified of this defect on April 11, 1990.

- (i) J. S. Perry, Vice President of Illinois Power Company, Clinton Power Station, Post Office Box 678, Clinton, Illinois, 61727, is informing the NRC of a 10CFR21 defect by means of this report.

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- (ii) The basic components involved in this reportable defect are vendor procedures used in rebuilding air-start motors, replacement air-start motor shafts and shaft end bearings. The procedures and replacement parts are used in rebuilding the air-start motors (POW-R-QUIK model number DS-60) of the Divisions I and II emergency diesel generator engines. IP purchased the replacement parts as commercial grade items based on the model number of the air-start motors installed in the plant. Following receipt, IP dedicated the replacement parts for use on the Divisions I and II emergency diesel generator engines.
- (iii) The air-start motor replacement parts and the vendor procedures for rebuilding the motors were purchased from Stewart & Stevenson Services and manufactured by POW-R-QUIK.
- (iv) The defect is the failure of Stewart & Stevenson Services and POW-R-QUIK to provide accurate information on changes to the replacement parts and the procedures used to rebuild the air-start motors. Prior to purchasing the replacement parts, IP asked Stewart & Stevenson Services if any changes had been made to parts; Stewart & Stevenson Services indicated that no changes had been made to any parts. IP discovered after receipt and dedication of the parts that POW-R-QUIK had made changes to the air-start motor shaft length, the shaft end bearing, and the procedures used in rebuilding the air-start motors. POW-R-QUIK had shortened the length of the air-start motor shaft (part number 8-105, 8-104), changed the shaft end bearing from a sealed bearing (part number 24-113) to a cup bearing (part number 24-116) and changed procedures for rebuilding the motors to accommodate the changes in parts. During the sequence of discovering the changes to parts, IP contacted POW-R-QUIK several times and they also provided inaccurate information regarding the changes to the parts.

IP has concluded that if these defects had gone undetected and had been installed in the plant, they could have caused the air-start motor Bendix spring to jam and prevent the motor from operating. Assuming a common mode failure, the failure of the air-start motors to operate would result in the failure of Divisions I and II emergency diesel generator engines to start on demand. This would result in a loss of emergency electrical supply.

The defects were identified prior to the required operability checks because of the significant detail in CPS procedures for rebuilding the air-start motors. Therefore, the detail of the procedures including two

required operability checks that are made prior to installation of the motors provide adequate assurance that these defects could not have been installed at CPS.

- (v) IP technicians discovered the deviation in the shaft end bearing on January 26, 1990, while they were preparing to install a new air-start motor (assembled by POW-R-QUIK). The technicians noted that the new motor had a different type of shaft end bearing from the type of bearing installed in previously used air-start motors. Stewart & Stevenson Services was contacted regarding this bearing change and they suggested contacting POW-R-QUIK. IP contacted POW-R-QUIK and they indicated that they overlooked identification of the change. POW-R-QUIK was asked if any other parts or maintenance/repair procedures had changed and they indicated that none had changed. Based on POW-R-QUIK's response, IP allowed the use of the POW-R-QUIK assembled motor.

IP technicians discovered the deviation in the air-start motor shaft length while they were attempting to rebuild air-start motors between February 15 and February 20, 1990. The technicians noted in some cases that the new shaft end bearing was pushed out of the motor housing one-eighth to one-fourth of an inch. The rebuild procedure did not address the amount of bearing exposure allowed. POW-R-QUIK was contacted regarding exposure of the bearing and they informed IP that exposure of the bearing was solved by shortening the shaft.

An additional deviation in the shaft length was identified on February 23, 1990, as new rebuild kits were inspected. This inspection identified some kits containing shafts that were shorter than the POW-R-QUIK specified length tolerance for the newer shafts. This deviation resulted in the shaft end bearing engaging the shaft by only 87.25 percent of the bearing length.

- (vi) IP received and accepted eight rebuild kits (part number 3-119) with the cup bearings. The eight kits have been correctly used to rebuild air-start motors in accordance with the disposition of Condition Reports (CRs) 1-90-02-058 and 1-90-01-080 (further discussed in item (vii) below). Six air-start motors rebuilt using these kits are installed in the plant and two are located in stores. The CRs provide resolutions for the changed parts and provide the procedure changes necessary for correctly installing these parts.

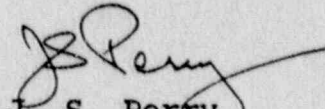
- (vii) Upon discovery of the deviations in the shafts and bearings, IP initiated Condition Reports 1-90-02-058 and 1-90-01-080, respectively, to provide resolutions for the parts deviations. IP's resolution in these condition reports authorizes the use of the cup bearing, increases the tolerance for shaft length and authorizes the procedure changes required to correctly install the changed parts. Therefore the rebuild kits with changed parts are now acceptable for use at CPS.

Additionally, IP has determined that the method used to qualify Stewart & Stevenson Services for supply of the air-start motor rebuild kits should be investigated for adequacy. IP Quality Assurance will perform this investigation which is scheduled to be completed by July 2, 1990.

- (viii) Per discussions with Morrison-Knudsen, the qualified supplier of the Divisions I, II, and III emergency diesel generator engine spare parts, IP is the only nuclear utility using POW-R-QUIK air-start motors. IP has no additional advice or information to provide to other purchasers or licensees regarding this defect.

IP's evaluation of this reportable defect is available for your review at our offices. I trust this letter provides sufficient information for your review and assessment of this reportable defect.

Sincerely yours,



J. S. Perry
Vice President

RSF/csm

cc: NRC Resident Office
Director, Office of Nuclear Reactor Regulation
INPO Records Center
Illinois Department of Nuclear Safety
Stewart & Stevenson Services
POW-R-QUIK