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 AUTH. NAME: AUTHOR AFFILIATION
 HUNTER, R. S. Indiana & Michigan Electric Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 DENTON, H. R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Follows up 821014 ltr re emergency request for relief from
 Tech Spec 3.5.2 on safety injection pump operability
 requirements. Repairs to south safety injection pump
 completed & pump returned to operable status on 821016.

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November 29, 1982
AEP:NRC:0746A

Donald C. Cook Nuclear Plant Unit No. 1
Docket No. 50-315
License No. DPR-58
REQUEST FOR RELIEF FROM TECHNICAL SPECIFICATION 3.5.2 - FEE

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: Letter No. AEP:NRC:0746, dated October 14, 1982

Dear Mr. Denton:

This letter is a follow-up letter to the above referenced letter regarding the emergency relief request from Technical Specification No. 3.5.2 of Unit 1 of the Donald C. Cook Nuclear Plant.

Please be advised that repairs and adjustments to the South Safety Injection Pump of Unit 1 were completed and the pump was returned to the operable status on October 16, 1982 following a satisfactory pump test.

A copy of the above referenced letter is attached for your information. Copies of the summary of repairs performed for both the North and South Safety Injection Pumps of Unit No. 1 are also attached as requested by your staff.

In accordance with 10 CFR 170.22, this request for Technical Specification relief is considered to constitute a Class III Amendment. A check in the amount of \$4,000.00 accompanies this submittal.

We thank you for your expeditious attention to our request.

A001
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\$ 4000.00

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PDR AD0CK 05000315
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Figure 6 shows the results of the regression analysis. The model explains 70% of the variance in the dependent variable ($R^2 = .70$). The adjusted R^2 value is .68. The F-value is 19.43, which is significant at the .001 level. The t-values for the independent variables are also shown. The t-value for the constant is 1.00, which is not significant. The t-value for the first independent variable is 1.00, which is not significant. The t-value for the second independent variable is 1.00, which is not significant. The t-value for the third independent variable is 1.00, which is not significant. The t-value for the fourth independent variable is 1.00, which is not significant.

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

[illegible]

1 2 3

[illegible]

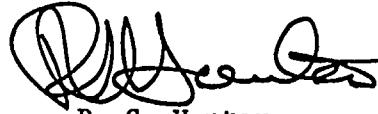
1. *Pharmaceutical industry* – The pharmaceutical industry is a major player in the healthcare sector, responsible for the development, production, and distribution of drugs. It is a highly regulated industry with significant research and development costs.

As a result of the above, the authors have concluded that the use of the proposed method is effective in the early diagnosis of the disease. The authors also believe that the proposed method can be used in the early diagnosis of other diseases.

[illegible]
$$x^{\frac{1}{2}} = \sqrt{x} = x^{0.5}, \quad x^{-\frac{1}{2}} = \frac{1}{\sqrt{x}}, \quad x^{\frac{1}{n}} = \sqrt[n]{x}, \quad x^{-\frac{1}{n}} = \frac{1}{\sqrt[n]{x}}$$

This document has been prepared following Corporate Procedures which incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,



R. S. Hunter
Vice President

/os

cc: John E. Dolan - Columbus
M. P. Alexich
R. W. Jurgensen
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
Joe Williams, Jr.
NRC Resident Inspector at Cook Plant

THE
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ALBANY

IN SENATE

REPORT
OF THE
COMMISSIONER OF
THE LAND OFFICE
FOR THE YEAR
1900

ATTACHMENT TO AEP:NRC:0746A

UNIT 1 NORTH SAFETY INJECTION PUMP REPAIRS

On August 15, 1982 the Unit 1 North Safety Injection Pump (Pacific Pump, Type JCTH) was started for a blackout test. The pump was shut down due to overheating and it was discovered that the shaft had broken between the 5th and 10th stages. The cause has been attributed to a failed closed check valve (SI-104N) on the recirc. line.

Disassembly of the pump was initiated and subsequent casing measurements revealed that the casing had been warped due to overheating. Pacific Pump recommended a vendor to perform the in-place machining.

It became apparent that the recommended vendor could not perform the required machining so the plant contracted a new vendor. The new vendor machined the casing to within specification within a 2 week period.

During the interim, a new shaft was procured, a new check valve was installed in the recirc line, all impellers were balanced, new O-rings were installed on the intermediate covers, and the rotating assembly was reassembled.

The pump was reassembled and a test run was made September 23, 1982. This test revealed low discharge pressure and high vibration at the bearings. Disassembly of the pump was initiated the same day.

The pump rotating element was found to be out of its hydraulic center. The element was centered and the pump was reassembled.

On September 24, 1982, another test was run. The discharge pressure was acceptable but the high vibration was still present. Disassembly of the pump was initiated the same day.

Following disassembly, all clearances were micrometer checked. This check revealed that five impellers had excessive clearances at the impeller -to- shaft bore. New impellers were procured and balanced. The shaft was found to be bowed and was subsequently straightened.

The rotating assembly was checked for runout and runout was found to be excessive. A series of lapping processes on the impeller spacer sleeves, shaft locknuts, and impeller hub faces were performed. This lapping process brought the runout readings to within specifications.

The pump was reassembled and motor alignment complete by 1300 hours on September 29, 1982. Subsequent testing revealed acceptable suction and discharge pressure, fluid temperatures, and vibration readings. The pump was declared operable at 1430 hours on September 29, 1982.

ATTACHMENT TO AEP:NRC:0746A

UNIT 1 SOUTH SAFETY INJECTION PUMP REPAIRS

On October 12, 1982 the Unit 1 South Safety Injection Pump was run for surveillance testing. Discharge pressure and fluid flow were normal, but vibration was found to be excessive. The pump was declared inoperable at 1704 hours the same day.

Following disassembly, micrometer readings were taken on all parts. All parts were found to be within specifications. The shaft was bowed and was subsequently straightened. All impellers were individually balanced.

A runout check revealed excessive runout on the rotating element. A series of lapping processes on the shaft locknuts, impeller spacer sleeves, and impeller hub faces were performed. The runout on the rotating assembly was brought into specifications by this process.

New O-rings, horizontal casing joint gasket, and bearing gaskets were installed. The rotating element was centered and the motor aligned.

The pump was test run at 1330 hours on October 16, 1982. All pressures, flows, temperatures, and vibrations were found to be acceptable and the pump was declared operable.

