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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

OCT 30 1980

Those on Attached Address Listing:

This IE Information Notice No. 80-38 is forwarded to provide a notification of a potential source of degradation that might occur in a safety related component over long term operation. No specific action or written response is required at this time. If you have any questions related to this matter, please contact this office.

Sincerely,

James G. Keppeler
James G. Keppeler
Director

Enclosure: IE Information
Notice No. 80-38

cc w/encl:
Mr. D. W. Kane,
Sargent & Lundy
Reproduction Unit NRC 20b

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RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-341

The Detroit Edison Company
ATTN: Mr. Edward Hines, Assistant
Vice President and Manager
Quality Assurance
2000 Second Avenue
Detroit, MI 48226

cc w/encl:

Central Files

Director, NRR/DPM

Director, NRR/DOR

AEOD

Resident Inspector, RIII

~~PDR~~

Local PDR

NSIC

TIC

Ronald Callen, Michigan Public

Service Commission

Eugene B. Thomas, Jr.,

Attorney

Docket No. 50-461

Docket No. 50-462

Illinois Power Company
ATTN: Mr. W. C. Gerstner
Executive Vice President
500 South 27th Street
Decatur, IL 62525

cc w/encl:

Central Files

Director, NRR/DPM

Director, NRR/DOR

PDR

Local PDR

NSIC

TIC

Mr. Dean Hansell, Office of
Assistant Attorney General

Mr. Gary N. Wright, Chief
Division of Nuclear Safety

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

SSINS No.: 6835
Accession No.:
8008220180
IN-80-38

October 30, 1980

Dupe

IE Information Notice No. 80-38: CRACKING IN CHARGING PUMP CASING CLADDING

Description of Circumstances:

In January 1980 Commonwealth Edison Company (CECo) reported to the NRC that a radiographic examination had revealed crack indications in the cladding on the suction end plate of the 1A charging pump at Zion Unit 1. This centrifugal charging pump 1A is one of two pumps installed in Zion Unit 1 for high head safety injection of borated water to the reactor loops. These pumps are additionally utilized as charging pumps during normal operation. ASME Section XI inservice inspection rules referenced in the plant technical specification requires pump examination only once during the 10 year service interval and this pump had been in service about 7 years.

The pumps are 2-1/2 inch, 11 stage, Type IJ manufactured by the Pacific Pumps Division of Dresser Industries. The pump casing end assembly in the area of interest, Figure 1, consists of a suction end plate of A515 grade 60 carbon steel plate welded to the casing barrel forging of A266 class 1 carbon steel using an Inconel weldment. The entire inner surface is clad with type 308 stainless steel applied by submerged arc welding.

An in-situ ultrasonic examination conducted in late April confirmed clad cracking indications at the barrel case to end plate inner radius for approximately 330 degrees around the circumference and that the cracking possibly extended into the pump base material in the bottom 180 degrees of the assembly. A review of the original radiographs revealed crack like indications in the clad overlay, however, not to the extent observed during this examination.

Subsequently, the entire suction end of the pump was removed and cross sections metallographically examined to further evaluate the nature and extent of the cracking. It was determined that initiation and propagation of the clad cracks probably resulted from stress concentration and dilution effects in the initial corner bead pass due to the difficult access and bead sequencing required by the fairly sharp corner geometry. Extension of the cracks at the base metal-clad interface ranged to a depth of 1/16 inch maximum in the 1-1/2 inch thick base material. These crack tip areas were well blunted and slightly cavitated from corrosion effects due lengthy exposure to the localized boric acid attack. Examination of the crack morphology revealed that the clad cracking essentially arrested at the base metal-clad interface and that base metal corrosion progressed at a relatively slow rate.

The 1A charging pump was replaced with a new pump provided with a casing constructed entirely of stainless steel. The licensee is currently developing improved NDE procedures for examination of the three remaining pumps at the next refueling outage. Further, the licensee and pump manufacturer are developing repair procedures in the event cracks are discovered in the remaining pumps.

A corrosion evaluation provided CECO by Westinghouse indicates the corrosion rate of carbon steel subject to environmental conditions typical of the installed pumps is on the order of 2-1/2 to 4 mils per month. Additionally, a stress analysis of the pump casing by the manufacturer using ASME Section III, Subsection NC rules, indicates that at design conditions a flaw with depth of 0.763 inches could be tolerated.

Based on the available information no immediate safety concern is indicated. However, the observed conditions reveal a potential source of pump degradation over long term operations. Therefore, to assure maximum availability, it appears prudent to perform a nondestructive examination of this pump type at the earliest practical time during the first code required in-service inspection interval and if cracking is confirmed, take appropriate corrective actions per the rules of ASME Section XI BP&V Code.

This Information Notice is provided as a notification of a potential source of degradation of a safety related component that is still under review by the NRC staff. It is expected that recipients will review the information for possible applicability to their facility. No specific action or response is requested at this time. If you have any questions regarding this matter, please contact the director of the appropriate NRC Regional Office.

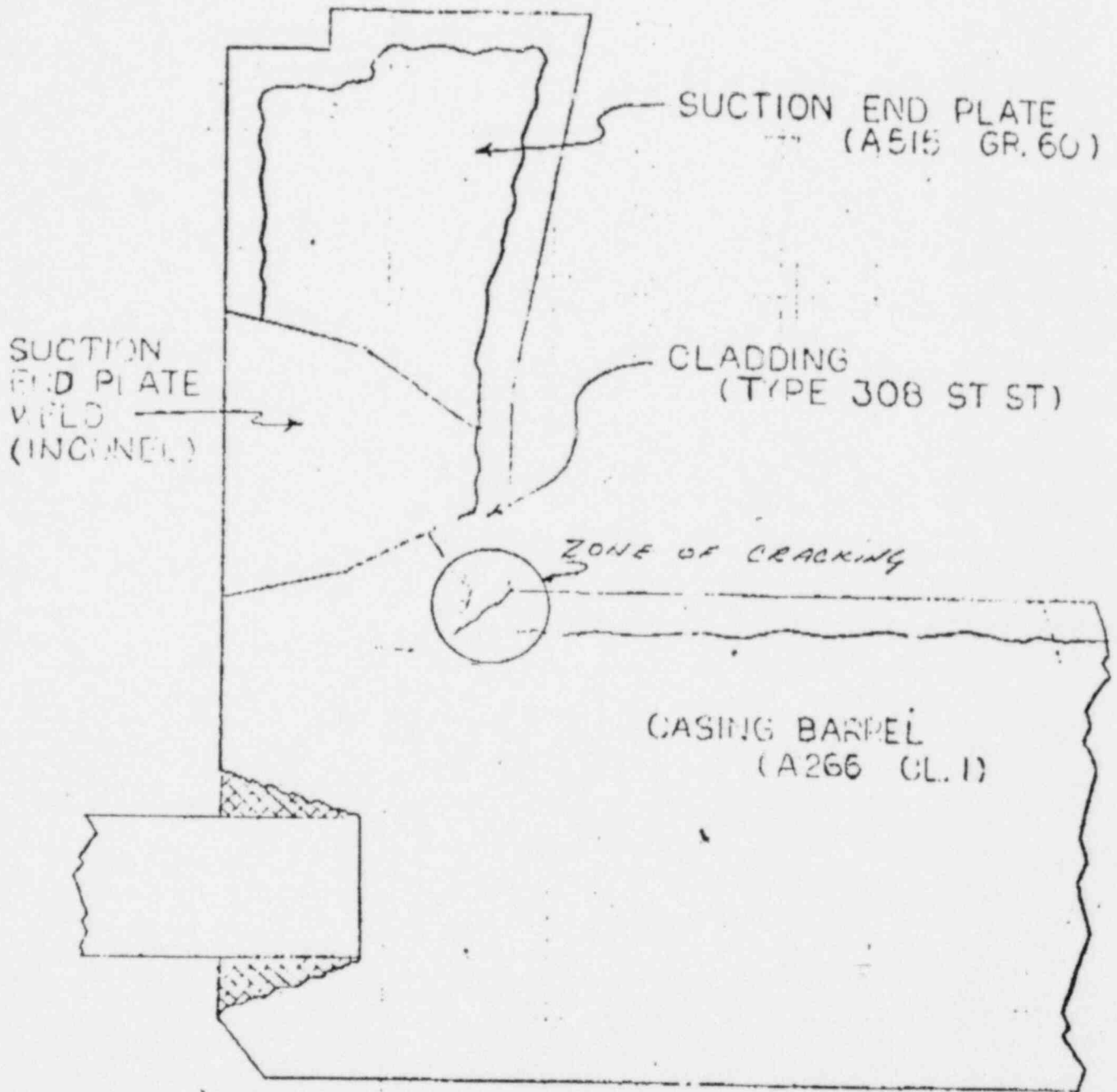
Enclosure:
Figure 1

RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
80-37	Containment cooler leaks and reactor cavity flooding at Indian Point Unit 2	10/24/80	All nuclear power facilities holding power reactor OLs or CPs
80-36	Failure of Steam Generator Support Bolting	10/10/80	All nuclear power reactor facilities holding power reactor OLs or CPs
80-35	Leaking and dislodged Iodine-124 implant seeds	10/10/80	All categories G and G1 medical licensees
80-34	Boron dilution of reactor coolant during steam generator decontamination	9/26/80	All pressurized water reactor facilities holding power reactor OLs
80-33	Determination of teletherapy timer accuracy	9/15/80	All teletherapy (G3) licensees
80-32	Clarification of certain requirements for Exclusive-use shipments of radioactive materials	8/12/80	All NRC and agreement state licensees
80-31	Maloperation of Gould-Brown Boveri Type 480 volt type K-600S and K-DON 600S circuit breakers	8/27/80	All light water reactor facilities holding OLs or CPs
80-30	Potential for unacceptable interaction between the control rod drive scram function and non-essential control air at certain GE BWR facilities	8/19/80	All boiling water reactor facilities holding power reactor OLs or CPs.
80-29	Broken studs on Terry turbine steam inlet flange	8/7/80	All light water reactor facilities holding power reactor OLs or CPs*

* Operating Licenses or Construction Permits

FIGURE 1



POOR ORIGINAL

RIII'S CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION
PERMIT HOLDERS (BWR's and PWR's)

Docket No. 50-315

Docket No. 50-316

American Electric Power Service
Corporation
Indiana and Michigan Power Company
ATTN: Mr. John E. Dolan
Vice Chairman
Engineering and Construction
2 Broadway
New York, NY 10004

cc w/encl:

Mr. D. V. Shaller,
Plant Manager
Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD
Resident Inspector, RIII
PDR
Local PDR
NSIC
TIC
Ronald Callen, Michigan
Public Service Corporation

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-266
Docket No. 50-301

Wisconsin Electric Power Company
ATTN: Mr. Sol Burstein
Executive Vice President
Power Plants
231 West Michigan
Milwaukee, WI 53201

cc w/encl:
Mr. G. A. Reed, Plant
Manager
Central Files
Director, NRR/DPM
Director, NRR/DOR
Timothy Colburn, ORB/NRR
AEOD
Resident Inspector, RIII
PDR

Local PDR
NSIC
TIC
Sandra A. Bast, Lakeshore
Citizens for Safe Energy
Mr. John J. Duffy, Chief
Boiler Inspector
Mr. Peter Anderson, Wisconsin's
Environmental Decade

Docket No. 50-305

Wisconsin Public Service
Corporation
ATTN: Mr. E. R. Mathews
Vice President
Power Supply and
Engineering
P. O. Box 1200
Green Bay, WI 54305

cc w/encl:
D. C. Hintz, Plant
Superintendent
Mr. W. Sayles, Chief
Engineer
Central Files
Director, NRR/DPM
Director, NRR/DOR

AEOD
Resident Inspector, RIII
PDR
Local PDR
NSIC
TIC
Mr. John J. Duffy, Chief
Boiler Inspector

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket Nos. 50-10, 50-237, 50-249;
50-254, 50-265; 50-295, 50-304; 50-373,
50-374; 50-454, 50-455; 50-456 and 50-457

Commonwealth Edison Company
ATTN: Mr. Cordell Reed,
Vice President
Post Office Box-767
Chicago, IL 60690

cc w/encl:

Mr. J. S. Able, Director of Nuclear Licensing	Mr. Gunner Sorensen, Site Project Superintendent
Mr. D. J. Scott, Station Superintendent	Mr. R. Cosaro, Project Superintendent
Mr. N. Kalivianakis, Station Superintendent	Mr. J. F. Gudac, Station Superintendent
Mr. K. Graesser, Station Superintendent	Central Files Director, NRR/DPM
Mr. L. J. Burke, Site Construction Superintendent	Director, NRR/DOR AEOD
Mr. T. E. Quaka, Quality Assurance Supervisor	Resident Inspectors, RIII PDR
Mr. R. H. Holyoak, Station Superintendent	Local PDR NSIC
Mr. B. B. Stephenson, Project Manager	TIC
Mr. V. I. Schlosser, Project Manager	Mr. Dean Hansell, Office of Assistant Attorney General
Mr. R. E. Querio, Station Superintendent	Myron M. Cherry, Chicago

Docket No. 50-358

Cincinnati Gas and Electric
Company
ATTN: Mr. Earl A. Borgmann
Senior Vice President
Engineering Services
and Electric Production
139 East 4th Street
Cincinnati, OH 45201

cc w/encl:

Mr. J. R. Schott, Plant Superintendent	Local PDR
Central Files	NSIC
Director, NRR/DPM	TIC
Director, NRR/DOR	Harold W. Kohn, Power Siting Commission
AEOD	Citizens Against a Radioactive Environment
Resident Inspector, RIII PDR	Helen W. Evans, State of Ohio

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-440
Docket No. 50-441

The Cleveland Electric Illuminating
Company
ATTN: Mr. Dalwyn R. Davidson
Vice President - Engineering
P. O. Box 5000
Cleveland, OH 44101

cc w/encl:
Central Files
Director, NRR/DPM
Director, NRR/DOR
PDR
Local PDR
NSIC
TIC
Harold W. Kohn, Power
Siting Commission
Mr. Daniel D. Wilt,
Attorney
Helen Evans,
State of Ohio

Docket No. 50-155
Docket No. 50-255

Consumers Power Company
ATTN: Mr. R. B. DeWitt
Vice President
Nuclear Operations
212 West Michigan Avenue
Jackson, MI 49201

cc w/encl:
Mr. D. P. Hoffman, Nuclear
Licensing Administrator
Mr. C. J. Hartman,
Plant Superintendent
Mr. R. W. Montross, Manager
Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD

Resident Inspectors, RIII
PDR
Local PDR
NSIC
TIC
Ronald Callen, Michigan
Public Service Commission
Myron M. Cherry, Chicago

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-329

Docket No. 50-330

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

cc w/encl:

Central Files

Director, NRR/DPM

Director, NRR/DOR

PDR

Local PDR

NSIC

TIC

Ronald Callen, Michigan

Public Service Commission

Myron M. Cherry, Chicago

Docket No. 50-409

Dairyland Power Cooperative
ATTN: Mr. F. W. Linder
General Manager
2615 East Avenue - South
La Crosse, WI 54601

cc w/encl:

Mr. R. E. Shimshak,

Plant Superintendent

Central Files

Director, NRR/DPM

Director, NRR/DOR

AEOD

Resident Inspector, RIII

PDR

Local PDR

NSIC

TIC

Mr. John Duffy, Chief

Boiler Inspector

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-331

Iowa Electric Light and Power
Company

ATTN: Mr. Duane Arnold
President

IE Towers
P. O. Box 351
Cedar Rapids, IA 52406

cc w/encl:

D. Mineck, Chief
Engineer

Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD

Resident Inspector, RIII

PDR

Local PDR

NSIC

TIC

Docket No. 50-367

Northern Indiana Public Service
Company

ATTN: Mr. Eugene M. Shorb
Senior Vice President

5265 Hohman Avenue
Hammond, IN 46325

cc w/encl:

Central Files
Director, NRR/DPM
Director, NRR/DOR
PDR

Local PDR

NSIC

TIC

Mr. Dean Hansell, Office of
Assistant Attorney General

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-263
Docket No. 50-282
Docket No. 50-306

Northern States Power Company
ATTN: Mr. Dennis E. Gilberts
Vice President
Power Production and System
Operation
414 Nicollet Mall
Minneapolis, MN 55401

cc w/encl:

Mr. W. A. Shamla,
Plant Manager
Mr. F. P. Tierney, Jr.,
Plant Manager
Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD

Resident Inspectors, RIII
PDR
Local PDR
NSIC
TIC
John W. Ferman, Ph.D.,
Nuclear Engineer, MPCA

Docket No. 50-546
Docket No. 50-547

Public Service of Indiana
ATTN: Mr. S. W. Shields
Senior Vice President
Nuclear Division
Post Office Box 190
New Washington, IN 47162

cc w/encl:

Mr. Steve J. Brewer, Nuclear
Safety and Licensing Supervisor
Central Files
Director, NRR/DPM
Director, NRR/DOR
PDR
Local PDR
NSIC

TIC
LeBoeuf, Lamb, Leiby & MacRae
Mr. Dave Martin, Office of the
Attorney General
Mr. John R. Galloway, Staff
Director, Environment, Energy
and Natural Resources Subcommittee

RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-346

Toledo Edison Company
ATTN: Mr. Richard P. Crouse
Vice President Nuclear
Edison Plaza
300 Madison Avenue
Toledo, OH 43652

cc w/encl:

Mr. T. Murray, Station
Superintendent
Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD
Resident Inspector, RIII
PDR
Local PDR
NSIC
TIC
Harold W. Kohn, Power
Siting Commission
Helen W. Evans, State
of Ohio

Docket No. 50-483

Docket No. 50-486

Union Electric Company
ATTN: Mr. John K. Bryan
Vice President - Nuclear
P. O. Box 149
St. Louis, MO 63166

cc w/encl:

Mr. W. H. Weber, Manager,
Nuclear Construction
Central Files
Director, NRR/DPM
Director, NRR/DOR
PDR
Local PDR
NSIC
TIC
Region I & IV
Ms. K. Drey
Mr. Ronald Fluegge, Utility
Division, Missouri Public
Service Commission