

ORAB EVENT TRACKING SHEET

No Sort Specified

QUERY> "HODGE" & Assigned To & Assigned Date >= 01/19/96 & Assigned Date <= 01/19/96

Plant: INFO NOTICE AUTHO

Unit:

Engineer: HODGE V.

Event: 11/06/95

Morning Report:

Briefing:

50.72#: 0

LER#: 050000009600000

PN#:

Other Notification: DRAFT IN FR REGION 2 (1/11/96)

System:

Component:

OPERATING MODE

- 1 - Operation
- 2 - Startup
- 3 - Hot Standby
- 4 - Hot Shutdown
- 5 - Cold Shutdown
- 6 - Refueling
- 7 - Other 06 testing

SIGNIFICANCE

- A - Reactor Protection System
- B - Safety-Related Cooling System
- C - Fuel Cladding
- D - Reactor Coolant Pressure Boundary
- E - Containment
- ☒ F - Plant Power
- G - Unexpected Plant Performance
- H - Other:

CAUSE

- ☒ 1 - Equipment Failure
- 2 - Design or Installation Error
- 3 - Operating Error
- 4 - Maintenance Error
- 5 - External
- 6 - Other _____

EVENT TYPE

- SIG - Significant Event
- EOI - Event of Interest
- x TBD - To Be Determined
- OTH - Other

OTH-2 per Panel
Don't issue
Info Notice

POTENTIAL AO:

Criterion: _____

Proposed By:

HODGE V.
Engineer

C. Homan Dodge 030896

Approved:

A. Chaffee
Section Leader

3/27/96

NRC FIRE CENTER COPY

A. Chaffee
Branch Chief

EVENTS ASSESSMENT PANEL

First Screening:

Closure:

Significance Description:

96 29

DEF 2/1

REGION DRAFT INFORMATION NOTICE DISCUSSES SERIES OF DIFFICULTIES AT ST. LUCIE 2 WITH SQUARE D SERIES 8501 KPD-13 RELAYS INSTALLED IN RS11 SOCKETS. THESE PROBLEMS IMPACTED DIESEL GENERATOR OPERABILITY DURING TESTING.

G116

L-4-1, PT 21C

9605300137

4pb

xp

ASSIGNMENT SHEET

PANEL -- ☒ YES ☐ NO

ASSIGNMENT DATE: 1/19/96
ASSIGNED TO: V. HODGE
PLANT & UNIT: ST. LUCIE UNIT 2
EVENT DATE: 11/6/95
50.72 REPORT NO: _____
MR NO: _____
OTHER SOURCE REPORT: DRAFT IN FROM REGION II (1/11/96)
RELATED REPORTS: _____
SPECIALTY CODE: _____

EVENT/CONDITION SUMMARY

REGION DRAFT INFORMATION NOTICE DISCUSSES SERIES OF DIFFICULTIES AT ST. LUCIE 2 WITH SQUARE D SERIES 8501 KPD-13 RELAYS INSTALLED IN RS11 SOCKETS. THESE PROBLEMS IMPACTED DIESEL GENERATOR OPERABILITY DURING TESTING.

SPECIFIC FOLLOW-UP ASSIGNMENT

DETERMINE DETAILS, EVALUATE SAFETY SIGNIFICANCE AND GENERIC IMPLICATIONS. IN ADDITION, ADDRESS THE FOLLOWING SPECIFIC CONCERNS:

PREPARE PANEL PRESENTATION TO DETERMINE IF IN ISSUANCE IS WARRANTED.

PREPARE TO BRIEF: ☐ YES ☐ NO

TARGET CLOSEOUT SCHEDULE:

INITIAL SCREENING BY PANEL

REGULATORY ASSESSMENT:

EVENT/CONDITION SAFETY SIGNIFICANCE: ☐ OTH ☐ EOI ☐ SIG ☐ AO

REMAINING OR ADDITIONAL FOLLOW-UP ITEMS:

CLOSEOUT TEXT

REGULATORY ASSESSMENT: (Abstract of Closeout/Findings)
Region II submitted a draft information notice describing diesel generator testing difficulties at St. Lucie 2 with electrical contacts of Square D Series 0501 KPD-13 relays installed in RS11 sockets. The vendor MKW Power Systems submitted a Part 21 report on a contact rating change and a contact failure at Point Beach for the same relay about six months earlier. The contact failure was caused by licensee modification of the circuit to admit a current 3 times the contact rating. The events assessment panel closed the Part 21 report at that time because of minimal safety significance and lack of

generic implications. A survey of event notifications the past two years and of the list of generic issues revealed no other concerns similar to the St. Lucie event. A similar subject, stamping rather than machining or soldering socket contacts in digital instrumentation circuit boards, was treated in IN 94-04. Though the problem at St. Lucie needed to be corrected, issuance of the draft information notice is not warranted.

CLOSEOUT/FINDINGS:

On January 11, 1996, Region II submitted a draft information notice to PCEB discussing a series of difficulties at St. Lucie 2 with Square D Series 0501 KPD-13 relays installed in RS11 sockets. These problems affected diesel generator operability during testing. The licensee conducted a contact resistance program over several years and concluded that two socket failures were related to support of the socket on the circuit board being based on soldered connections, an inadequate amount of solder on the failed terminals, and mechanical cycling of the solder joints because of relay removals and replacements.

On April 24, 1995, MKW Power Systems submitted a Part 21 report to the NRC (designated as Pt21 95122) about a contact failure of a Square D class 0501, type KPD relay used in a diesel generator control panel at Point Beach. PCEB learned from MKW that the burnt contact was apparently the result of a misapplication by the licensee for Point Beach because the licensee had modified a relay actuation circuit to include an indication resistance, increasing the current to about 3 times the contact rating. MKW decided to issue a Part 21 report to alert the NRC to a concomitant decrease in the Square D type KPD contact rating. The vendor stated that all of their nuclear customers except Point Beach and Turkey Point have over 10 years of operating experience and Point Beach is the only plant to have a problem with the contacts.

The generic implications of the Part 21 report are minimal. The difference between the original and actual make/break current ratings of the Square D type KPD relays is small. It is not likely that this difference would significantly impact the circuits in which they are typically used. Years of problem free operating experience support this view.

On July 26, 1995, the events assessment panel considered Pt21 95122 and closed it as an other event with no generic implications.

A survey of events reported the last 2 years (search words included socket, solder) shows:

Plant	Date	Event
Braidwood Byron	960130	Solder defects in edg Amerace relays w commercial add-on board to suppress coil deenergization transient
Pt Beach 2	950304	Blown fuse in 125 vdc ctrl power because of shorted indicating light and socket
St Lucie 2	951120	Broken socket solder connections in 5 edg relays
Diablo 1	940426	Shorted phase potential light on startup feeder brkr
Brunswick 1	940513	Blown fuse for cooling valve ctrl power when unlit

Turkey Pt 4 940924 bulb blew out of socket on removal of bulb cover
 Unguarded bulb for shutdown rod off bottom light
 shorted when touched by operator, overloading
 120v internal power supply and tripping a fast-
 acting 10 amp brkr at the vital instrument power
 bus

Mill 1 2 940624 Manufacturing defect (possible cold solder joints) in
 Bussman Type KTK, 120 vac, 5 amp fuses installed in
 vital ac inverters

The event at St. Lucie 2 in November 1995 is the only one related to the draft information notice, which describes circumstances at St. Lucie 2 in October and November 1995.

Concerning electrical contacts in sockets, on January 14, 1994, NRC issued IN 94-04: "Digital Integrated Circuit Sockets with Intermittent Contact," to all NRC licensees except licensed operators. This notice dealt with sockets manufactured by Augat, Inc., an international supplier of interconnections systems for the computer, automotive, and telecommunications industries. The NRC learned about this recurrent problem during an analog-to-digital process instrumentation inspection at Cook. The contact portion of these sockets were produced by a stamping process rather than by a machining process.

An electronic search of NUREG 0933 did not reveal any generic issues on this subject.

Based on this information, the draft IN from Region II describes a moderately safety-significant problem that is not generic. This draft information notice should not be authorized for issuance by the panel.

FINAL PANEL ASSESSMENT:

The panel considered the significance of this to be insufficient to merit issuance of an information notice. It was judged not to be generic.

EVENT/CONDITION SAFETY SIGNIFICANCE: ☒ OTH _ EOI _ SIG _ AO

BASIS: _ RISK _ PROGRAMMATIC _ MARGIN _ N/A

GENERIC FOLLOW-UP ACTION RECOMMENDED: YES _ NO ☒ PRIORITY (1,2,3,4)¹
 _ IN _ BUL _ GL
 _ NUREG _ REG GUIDE

FILE: G:\vern\socket.it.ets

BRIEF # _____

1. Priority and notes:

PRIORITY 1: Immediate assignment of resources (e.g., for highly risk-significant safety concerns)
 PRIORITY 2: Near-term action (e.g., significant safety issues not warranting immediate action)
 PRIORITY 3: Long-term action (e.g., issues of moderate to low safety significance)
 PRIORITY 4: Resource dependent action (e.g., items that can be deferred)