

007/10/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL

50-302

REC: REID B W
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DOCDATE: 07/07/78
DATE RCVD: 07/10/78

DOCTYPE: LETTER NOTARIZED: YES
SUBJECT:

COPIES RECEIVED
LTR 3 ENCL 40

RESPONSE TO NRC REQUEST OF 06/07/78... FURNISHING INFO RE DECAY HEAT PUMP
RELIABILITY AT SUBJECT FACILITY... NOTARIZED 07/07/78... W/ATT SUMMARY REPT
ADDRESSING RECENT SHAFT FAILURE ON DECAY HEAT PUMP-1A, AND INCLUDING
DRAWINGS.

PLANT NAME: CRYSTAL RIVER #3

REVIEWER INITIAL: YJM
DISTRIBUTOR INITIAL: *[Signature]*

***** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS *****

GENERAL DISTRIBUTION FOR AFTER ISSUANCE OF OPERATING LICENSE
(DISTRIBUTION CODE 0001)

FOR ACTION: CHIEF ORRM4 BC**W/7 ENCL

INTERNAL:

REG FILEW/ENCL**

TR**W/2 ENCL

HANAUER**W/ENCL

AD FOR SYS 3 PROJ**W/ENCL

REACTOR SAFETY BR**W/ENCL

EEB**W/ENCL

J. MCGOUGH**W/ENCL

NRC PDR**W/ENCL

OELD**LTR ONLY

CORE PERFORMANCE BR**W/ENCL

ENGINEERING BR**W/ENCL

PLANT SYSTEMS BR**W/ENCL

EFFLUENT TREAT SYS**W/ENCL

EXTERNAL:

LPDR/S

CRYSTAL RIVER, FL**W/ENCL

TIC**W/ENCL

NSIC**W/ENCL

ACRS CAT B**W/16 ENCL

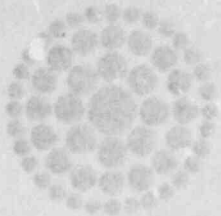
DISTRIBUTION: LTR 40 ENCL 39
SIZE 3P+9P

CONTROL NBR

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MA
GD

***** THE END *****

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**Florida
Power**
CORPORATION

July 7, 1978

Mr. Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Crystal River Unit No. 3
Docket No. 50-302
Operating License No. DPR-72

Dear Sir:

This is in response to your letter of June 7, 1978 requesting information regarding Decay Heat Pump (DHP) reliability at Crystal River Unit No. 3.

Attached for your information is a summary report which addresses the recent shaft failure on DHP-1A, some background information, as well as corrective action taken.

The following additional information is offered for completeness:

- A. Subsequent to the first DHP-1A shaft failure, several parameters were considered to be involved in the failure mode. These were 1) operation of the pump in a low-flow recirculation mode (approximately 85-100 gpm); 2) the possibility of improper heat treatment of the shaft material; and 3) the design of the shaft keyway. As a result, the shafts in both DHP-1A and 1B were replaced with shafts having documented correct heat treatment, with a modified keyway design, and operating restrictions were enforced to assure that pump operation in the low-flow recirculation mode would be limited to fifteen (15) minutes of continuous operation.

We still feel that these three items are contributory factors to pump shaft lifetime. However, based on recommendations from the pump supplier and manufacturer, the time restrictions for operation in the low-flow recirculation mode have been modified. Operation at low-flow is allowed for fifteen (15) hours continuously and up to eighty (80) hours total within the life of the pump.

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- B. Based on the successful operation of similar pumps at other reactor facilities, the specific nature of the problem identified in the attached report which caused the recent shaft failure on DHP-1A, and the successful operation of DHP-1B at CR-3 (over 3,000 hours of successful operation), we are confident that the current problem is limited to DHP-1A. Therefore, the corrective actions involving modification to the impeller hub and casing on DHP-1A are not necessary on DHP-1B.
- C. We are confident that the improved pump shaft design installed in both DHP-1A and 1B, the suitable low-flow operating restrictions, and the corrective action defined in the attached report for solving the specific impeller-casing interference problem on DHP-1A, will result in reliable operation of the pumps.

We appreciate your consideration. Feel free to notify us if further discussion or information is desired.

Very truly yours,

FLORIDA POWER CORPORATION

B.L. Griffin
Senior Vice President

BLG/ECS/emf 5/6a

File: 3-0-3-a-3

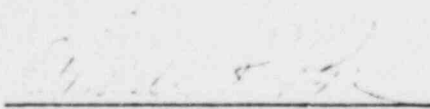
STATE OF FLORIDA

COUNTY OF PINELLAS

B.L. Griffin, Senior Vice President of Florida Power Corporation; states that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

B.L. Griffin

Subscribed and sworn to before me, a Notary Public in and for the State and County above named, this 7th day of July, 1978.



Notary Public

Notary Public, State of Florida at Large,
My Commission Expires: July 25, 1980