FPL Energy Duane Arnold, LLC
3277 DAEC Road
Palo, Iowa 52324

FPLEnergy.

Duane Arnold Energy Center

January 26, 2007

NG-07-0006
10 CFR 21.21

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Duane Arnold Energy Center
Docket 50-331
License No. DPR-49

10 CFR 21 Notification – Identification of Defect

Pursuant to 10 CFR 21.21(d)(3)(ii), FPL Energy Duane Arnold is providing the required written notification of the identification of a defect. This information was initially reported to the NRC Operations Center on January 3, 2007. The NRC assigned event number 43071 to this notification.

The enclosure to this letter provides the information requested by 10 CFR 21.21 (d)(4). In addition, the enclosure discusses the relevance of this issue to FPL Energy Duane Arnold. This issue is considered to be of no significance with respect to the health and safety of the public.

This letter contains no new commitments or changes to any existing commitments.

If you have any questions regarding this matter, please contact S. Catron at (319) 851-7234.

Gary Van Middlesworth
Site Vice President, Duane Arnold Energy Center
FPL Energy Duane Arnold, LLC

Enclosure

CC: Administrator, Region III, USNRC
B. Burgess, Region III, USNRC
Resident Inspector, DAEC, USNRC
Project Manager, DAEC, USNRC

IE19

ENCLOSURE
FPL ENERGY DUANE ARNOLD
NOTIFICATION PER 10 CFR 21.21(D)(3)(II)

This notification follows the format of and addresses the considerations contained in 10 CFR 21.21(d)(4)(i) – (viii).

(i) Name and address of the individual or individuals informing the Commission.

Gary Van Middlesworth
Site Vice President, Duane Arnold Energy Center
FPL Energy Duane Arnold, LLC
3313 DAEC Road
Palo, IA 52324-9646

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Facility:

FPL Energy Duane Arnold
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

Basic Component

Hydraulic Fluid, Silicon (General Electric (GE) SF 1154 snubber fluid). Supplied by Shaw A/DE, Inc as a basic component in March 2003 under purchase order P021018.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains the defect.

Supplied by (dedicating entity):

Shaw A/DE, Inc (now doing business as Fronek Anchor Darling Enterprises)
86 Doris Ray Court
Laconia, NH 03246-2541

Manufactured by:

General Electric. Batch Number AD965

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

Nature of the defect:

The specific defect is foreign materials identified in GE SF 1154 snubber fluid, which was supplied by Shaw A/DE, Inc (now known as Fronek Anchor Darling Enterprises, Inc) as a basic component in 2003. The fluid has been identified as a part of GE batch number AD965 and was manufactured in June 2001. The foreign material had the appearance and texture of paraffin wax, which analysis determined to be silicone.

Safety hazard which could be created by such defect:

FPL Energy Duane Arnold has postulated that the foreign material could restrict fluid flow through the bleed orifices in a snubber, potentially reducing the flow through the snubber control valve to zero. This may cause the snubber to remain locked following activation. The resulting locked snubber would prevent the function of allowing for some piping movement associated with normal system movement.

Fronek Anchor Darling Enterprises, Inc has conducted a preliminary evaluation of the fluid's behavior in snubbers from the fluid sample returned to them. They have informed FPL Energy Duane Arnold that the above postulated failure was observed in its smallest size snubber. Thus far, they have conducted Performance Testing on their two smallest size snubbers (the 3 Kip and the 2-1/2" bore 10 Kip) where the control valve bleed orifices are among the smallest. Only the 3 Kip snubber loaded, in the extension direction has sporadically demonstrated the behavior described above (i.e., zero bleed rate) and only if the load remains continuously applied in that direction. They report that any load reversal on the 3 Kip after it has become locked in the extension direction, no matter how slight, returns the extension control valve to its normally open state.

Fronek additionally states that of the behavior observed thus far, results are consistent with the fact that Fronek's 3 Kip Extension bleed orifice also happens to be its smallest, having a nominal cross section dimension of 0.005". By comparison, the dimensions of the orifices in the 3 Kip Compression, 10 Kip Extension and 10 Kip Compression directions are 0.007", 0.006", and 0.009", respectively. They have witnessed only occasional partial blockages in the larger orifices and that the likelihood of these partial blockages becomes even more infrequent as the orifice size increases.

Fronek has stated that their testing completed thus far is very conservative, using fluid with a higher concentration of the particulate than originally found in the contaminated sample. They are also running the bleed portion of the test for a much longer duration (nearly full stroke) than is typically performed. All of the observed behavior leads Fronek to assert that snubbers containing this fluid will remain unaffected with regard to their intended seismic function.

(v) The date on which the information of such a defect or failure to comply was obtained.

The hydraulic fluid was supplied under purchase order PO21018, dated 02/05/2003. The order was accepted by a receipt inspection dated 03/31/2003.

On 11/30/06, it was recognized that contaminants were noted in the bottom of a one gallon container of new GE SF 1154 snubber fluid. Further investigation of the empty container revealed a substantial amount of white colored flakes having a consistency of paraffin wax in the container. A second unopened gallon container from the same supplier with the same lot number was opened revealing the same contamination. The GE batch number is AD965 and was manufactured in June 2001.

On 12/28/06, the condition was determined to be reportable under Part 21. The responsible officer subject to the regulations (Site Vice President) was notified on 12/28/06. The NRC notification was made by phone (with follow up e-mail of supporting files in lieu of a fax), at 1014, January 3, 2007. The NRC assigned event number 43071 to this notification.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part.

Procurement records were reviewed for all snubber fluid purchases made from year 2000 to present. Only two gallons purchased from Shaw A/DE, Inc as safety related material on purchase order P021018 were from GE batch number AD965. The location/use of both gallons has been determined. One gallon was emptied into a snubber feed and bleed tank in the snubber rebuild room on 11/29/06. This fluid was used to rebuild snubber DA-398 on Preventative Work Order (PWO) 1136218. The other gallon was unopened and returned to Fronek on 12/29/06.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

Corrective actions taken:

- Drained and flushed the feed and bleed tank in the snubber rebuild room.
- A second rebuild of snubber DA-398 was completed on 12/13/06.
- The full container of contaminated snubber fluid has been returned to the vendor.
- A sample of the snubber oil contaminates were sent to Herguth Laboratories for analysis. An oil analysis report was received on 12/18/06. The report indicated that the solid contaminant is silicone. Silicone based oils are generally very stable and the analysis does not indicate how, or

why, they came out of solution. FPL Energy Duane Arnold's Oil & Vibration Analyst discussed this issue with the Laboratory performing the analysis. The laboratory stated that likely causes for the silicone to separate could have been from a bad batch, a contaminant could have been introduced, or from some form of reaction with the plastic container.

- Confirmed that the remaining GE 1154 fluid in-stock was procured from a different vendor with a different lot number.

Shaw A/DE, Inc (now doing business as Fronek Anchor Darling Enterprises, Inc) was contacted on 12/22/06 to discuss FPL Energy Duane Arnold's findings. The site's Snubber Program Owner talked to Walter Paszul, Chief Engineer/General Manager, and provided him with a copy of the procurement package and the oil analysis report via e-mail.

On 12/27/06 Dave Brown of Lake Engineering contacted FPL Energy Duane Arnold Program Engineering with additional information concerning GE SF 1154, batch number AD965. Mr. Brown has since located a quantity of the same batch number of SF 1154. Upon visual examination, that batch exhibited similar contaminants as the fluid received by FPL Energy Duane Arnold.

Individual or organization responsible for the action:

Ken Kleinheinz, Program Engineering Manager – 319-851-7231.

Length of time that has been or will be taken to complete action:

As stated above, all actions required by FPL Energy Duane Arnold are complete.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

Since FPL Energy Duane Arnold has no information on the extent of condition with respect to other licensees supplied with Hydraulic Fluid, Silicon (GE SF 1154 snubber fluid), supplied by Shaw A/DE, Inc, FPL Energy Duane Arnold has not generated any advice for other purchasers or licensees.