



**Florida  
Power**

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

July 5, 2000  
3F0700-09

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Report Required by Environmental Protection Plan

Dear Sir:

The Crystal River Unit 3 (CR-3) Environmental Protection Plan (EPP), Appendix B of the CR-3 Operating License, establishes reporting requirements related to the National Pollutant Discharge Elimination System (NPDES) Permit. Section 3.2.1 of the EPP requires that violations of the NPDES permit shall be reported to the NRC by submittal of copies of the reports originally mailed to the permitting state agency, the Florida Department of Environmental Protection (FDEP).

The attached report on the Amertap condenser cleaning system was provided to the FDEP on June 30, 2000. If you have any questions regarding this submittal, please contact Mr. Sid Powell, Manager, Nuclear Licensing at (352) 563-4883.

Sincerely,

S. L. Bernhoft  
Director, Nuclear Regulatory Affairs

SLB/smg

Attachment

xc: Regional Administrator, Region II  
Senior Resident Inspector  
NRR Project Manager

COO1

**FLORIDA POWER CORPORATION  
CRYSTAL RIVER UNIT 3  
DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72**

**ATTACHMENT**

**NPDES PERMIT NUMBER FL0000159 -  
AMERTAP BALL COLLECTION SYSTEM UPSET**



June 30, 2000

Ms. Wanda Parker-Garvin  
Industrial Wastewater Section  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Dear Ms. Parker-Garvin:

Re: Amertap Ball Collection System Upset  
Florida Power Corporation Crystal River Unit Three  
NPDES Permit Number FL0000159

Florida Power Corporation (FPC) is providing the attached written report containing additional information on the above referenced event that was verbally reported to FDEP. This report satisfies the requirement for a 5-day written report as requested by you during our telephone conversation on June 22, 2000.

Please contact me at 727-826-4283 if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Kent D. Hedrick", is written over a faint, larger version of the same signature.

Kent D. Hedrick, PE  
Manager, Environmental Programs

Enclosure

cc: Jeff Hilton, FDEP South West District

Bcc: Steve Garry

File: Crystal River Nuclear NPDES Correspondence

# NPDES FL 000159 Report on Upset Condition

## Description of Upset Condition

Crystal River Unit 3 (CR-3) utilizes an Amertap condenser tube cleaning system to ensure condenser cleanliness by removing fouling that deposits in the condenser tubes. Elastomeric sponge rubber balls that are oversized with respect to the condenser tube inner diameter are injected into the cooling water stream at the condenser inlet. The differential pressure between the inlet and discharge of the condenser forces the sponge rubber balls through the condenser tubes.

A strainer section is installed on the condenser discharge line to funnel the balls into a recirculation pump. The recirculation pump returns the rubber balls to the condenser inlet, completing the loop.

The use of the CR-3 Amertap condenser cleaning system is authorized under the NPDES permit. The NPDES permit requires that CR-3 establish a Best Management Practices/Pollution Prevention Plan (BMP3) to minimize losses and monitor the use and operation of the Amertap system.

Occasionally, some of the balls escape the strainer section and enter the discharge canal. Recent monitoring of the Amertap system has identified an abnormal condition where Amertap ball losses were occurring from one of the condenser water boxes (D water box). This was promptly reported to FDEP on June 16<sup>th</sup> in accordance with the NPDES permit. Subsequently, the A water box strainer failed and this was reported to FDEP on June 22<sup>nd</sup>. Repairs (adjustments) were quickly performed on the A and D water boxes strainer sections. The ball losses from A water box were successfully minimized and significantly reduced to minimal loss levels. However, the adjustments were unsuccessful in stopping the ball losses from the D water box.

The apparent cause for the strainer section failure is damage caused by either erosion, structural support failure, or holes in the strainer. The exact cause can not be determined until the plant reduces power and strainer system disassembly and evaluation can be completed.

Amertap balls that escape the strainer section are released to the discharge canal. A boom collection system associated with the Unit 1&2 SIDTEC condenser cleaning system is in place immediately downstream of CR-3. This boom collection system collects both SIDTEC plugs and Amertap balls, conveying them to an on-shore filtering system for reuse. The SIDTEC system is fully capable of handling simultaneous collection of both Amertap balls and SIDTEC plugs.

Following the upset resulting in the loss of Amertap balls, an environmental inspection was performed by the CR-3 Supervisor, Environmental Compliance and the Manager, Natural Resources. The initial survey of the discharge canal area found that released balls not being collected by the SIDTEC system were primarily deposited along the banks of the discharge canal near CR-3 (between the plant and the end of the discharge canal inside the end of canal buoys.) A minor amount of balls were visible in public

areas immediately beyond the point of discharge (POD) buoys at the end of the discharge canal.

Balls were not found on the outer banks and adjacent islands during this inspection. Apparently, most balls were being washed up onto the shores of the discharge canal and the area immediately outside the mouth of the discharge canal by onshore wind and wave action.

The balls along the discharge canal and adjacent area have been manually collected. Since SIDTEC plugs were also identified during this manual collection process, it was determined that an improved level of maintenance on the SIDTEC boom collection system was needed (in-canal booms and collection baskets replaced). In addition, new booms were added to ensure Amertap balls released from CR-3 were directed into the SIDTEC boom collection system.

Follow up inspections have determined improved performance of the SIDTEC collection system, with only a minimal number of balls or plugs remaining on the banks and even fewer in public areas. These routine environmental inspections and manual collection will continue as appropriate during the time that the SIDTEC boom collection system is being relied upon to collect Amertap balls which escape the Amertap strainer system and the SIDTEC in-canal boom collection system.

The environmental inspections have also shown that there has been no apparent or visible environmental damage or impact to fish or other marine life. The manual collection has been successful in minimizing the number of balls remaining in the environment. Therefore, there is no public or environmental impact at this point in time due to the benign nature of the balls and mitigation actions taken by plant staff.

### **Period of Upset**

The "D" waterbox strainer collection system gradually began losing its ability to collect balls in mid-April, 2000. In June, the amount of balls increased and the upset was reported to FDEP. This upset condition is continuing, however, the impact has been mitigated by the use of the SIDTEC boom collection system, complemented by environmental inspections and manual collection as needed.

On Monday, June 19<sup>th</sup>, the A water box began losing some of its collection ability. Adjustments were promptly made to the A water box strainers, and normal Amertap strainer collection was achieved on Thursday, June 22<sup>nd</sup>.

### **Mitigation Steps To Minimize Losses**

Several steps have been taken to mitigate and minimize ball loss. These include:

- 1) Evaluation of equipment operability;
- 2) Adjustment of the equipment to minimize ball loss (strainer adjustment);
- 3) Environmental inspections to evaluate potential for environmental harm;
- 4) Increased maintenance of the SIDTEC boom collection system to increase collection efficiency;

- 5) Installation of additional in-canal floating booms to direct CR-3 balls to the SIDTEC collection system;
- 6) Manual collection of balls along the discharge canal and in public areas; and
- 7) Procurement and use of new balls with highly buoyant characteristics to help ensure that the balls are being collected by the SIDTEC system, thus minimizing ball loss.

A permanent repair can not be performed until the condenser cooling system is taken out of service. This would require a significant reduction in plant output. Meanwhile, the Amertap balls are being effectively collected with the in-canal SIDTEC system and manual collection as needed.