NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 | LICENSEE CODE: FLTPS4 (2) | LICENSE NUMBER: 00-00000-00 (3) | LICENSE TYPE: 41111 (4) | CAT (5)

CON'T 01 | REPORT SOURCE: L (6) | DOCKET NUMBER: 05000251 (7) | EVENT DATE: 071382 (8) | REPORT DATE: 081282 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 On 7/7/82 Unit 4 was shut down to repair an estimated 5-10 gph tube leak in
03 "B" steam generator. A secondary side camera inspection of all three steam
04 generators was made. The inspections revealed foreign objects as well as
05 minor tube damage around the periphery of the steam generators. The
06 health and safety of the public was not affected. This is reportable
07 pursuant to T.S. 6.9.2.b.4. A similar event was reported as LER-250-79-39.
08

09

SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
CC (11)	B (12)	A (13)	ZZZZZZ (14)	Z (15)	Z (16)

(17) LER/RO REPORT NUMBER

EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
82	—	010	/	03	L	—	0

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
X (18)	X (19)	C (20)	Z (21)	0000	Y (23)	N (24)	Z (25)	Z999 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The inspection results indicated that the leak as well as the minor tube
11 damage were associated with foreign objects observed at or near tube sheet
12 elevations. A metal impact monitoring system has been installed on all
13 three steam generators. These generators are scheduled to be replaced in
14 October, 1982.

	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
15	G (28)	000 (29)	NA	C (31)	Steam Generator Inspection

	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
16	Z (33)	Z (34)	NA	NA

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION (39)
17	000 (37)	Z (38)	NA

PERSONNEL INJURIES

	NUMBER	DESCRIPTION (41)
18	000 (40)	NA

LOSS OF OR DAMAGE TO FACILITY (43)

	TYPE	DESCRIPTION
19	Z (42)	NA

PUBLICITY

	ISSUED	DESCRIPTION (45)	NRC USE ONLY
20	N (44)	NA	

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PDR ADOCK 05000251
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Additional Event Description and Probable Consequences

On July 6, 1982, existing primary to secondary leakage in steam generator B at Turkey Point Unit 4 began to show signs of increasing. Over the next approximately 36 hours, the rate of leakage increased from about 1.2 gallons/hour to an estimated 5 to 10 gallons/hour. Florida Power & Light Company elected to shut the plant down to locate and repair the source of leakage. Both visual inspection of the secondary side of the three steam generators and eddy current (EC) inspections in all three steam generators were made during this outage. Foreign material was located in each steam generator. The health and safety of the public was not affected. This is reportable in accordance with TS 6.9.2.b.4. A similar event was reported as LER 250-79-39.

Additional Cause Description and Corrective Actions

All three steam generators have been visually inspected on the secondary side utilizing fiber optic techniques. These techniques allow the inspection of the entire periphery of the tube bundle. The inspection results have catalogued and located foreign objects around the periphery of the steam generators. A list of the objects observed in each steam generator is provided in Table 1. These objects as well as observable tube damage have been documented with photographs. All loose objects have been removed. Three small foreign objects still remain wedged between tubes in the bundle. On the basis of their small apparent mass, these objects have been assessed as presenting no potential for tube damage in the event they may become dislodged. An eddy current inspection has been performed around the wedged foreign objects to determine the condition of the tubes adjacent to the foreign objects. A review of previous EC inspection tapes has been performed in an attempt to determine if wedged foreign objects are, in fact, wedged and have been in their present locations for a period of time.

The following actions were taken to assure the integrity of the steam generator tube during the next period of operation: (a) A conservative tube plugging program including preventative plugging and the use of sentinel plugs was developed during the foreign object retrieval operations as a contingency position in the event that the larger, more significant of these objects could not be removed. As the retrieval efforts continued, all of the significant objects were successfully removed. However, the planned plugging program has been implemented in full to maintain conservatism. All the tubes surrounding the wedged foreign objects have been plugged and sentinel plugs have been installed. Sentinel plugs are standard mechanical plugs with a small leak path built into the plug. The sentinel plug will alert the operator in the unlikely event that a tube has started to leak, will limit the postulated leak, and will allow the plant to respond to the situation in a normal controlled manner; (b) A metal impact monitoring system has been installed on the secondary side of each steam generator as a means of detecting wedged foreign objects which may become dislodged or any additional foreign objects which may intrude into the steam generators. The detection of significant impacts will allow the plant to undergo an orderly shutdown for steam generator inspection.

The proposed period of operation for the unit is until approximately mid-October, 1982 at which time it is planned to shutdown for steam generator replacement.

Completion of the above actions and the short operating interval allow operation of this plant without presenting undue risk to the health and safety of the public.

Unit 4 was back on the line on July 26, 1982. A Report of Steam Generator Inspection and Tube Repair was submitted to the NRC on August 9, 1982. (Letter L-82-336 from Dr. Uhrig to Mr. Eisenhut.)

TABLE 1

Inventory and Disposition of Foreign Objects Observed in Secondary Side of Turkey Point Unit No. 4 Steam Generators - July, 1982 Outage

Steam Generator	Item	Size	Location	Position	Removed
4A	1. Weld Rod	8" long	Outlet, R43-44, C33	Protruding from bundle	Yes
	2. Flat Bar	1" x 2"	Inlet R35-36, C18	Protruding from bundle	Yes
	3. Coiled wire or strip	Very Small Mass about 1/32"x1/4" x 2"	Originally R45 now unknown	Between Tubes	No
	4. Coiled Wire	Very Small about 1"long	Unknown, sighted first day of inspection only	Between tubes	No
4B	1. Bolt	0.375"x1.0"	Outlet, R42, C31-32	Wedged on Tubesheet	Yes
	2. Flat Stock	0.5"x2"x6"	Outlet, R43, C32-33	Wedged at an angle	Yes
	3. Stainless Steel Tube with wing nut	0.375"x6"	Inlet, R44, C57-58	Wedged between tubes	Yes
	4. Pin	1.0" diam x2" long	Inlet, R45, C48-50	Loose on tubesheet adjacent to tubes	Yes
	5. Weld Rod	8"	Inlet, R44-45, C53-54	Standing, adjacent to tubes	Yes
	6. "Glob"	1.0"	Inlet, R44, C55	Wedged on Tubesheet	No
	7. Flat Stock	0.375"x1.5" x 2"	Outlet, R43, C33-34	Between tubes	Yes
	8. Piece of metal/slag	.5" x 1.0"	Outlet, R42-43, C32-33	Between tubes	No
	9. Wire	0.32"x5" long	Inlet, R44,C56-58	Loose, on tubesheet	Yes
	10. Deepwell Socket	11/16" x 1/2" drive	Near manway side tube-lane blocking device	Loose, on tubesheet	Yes
4C	1. Pin	1" diam x 2" long	Inlet, R45, C50-54	Loose on tubesheet	Yes
	2. Weld Rod	8" long	Inlet, R45, C54-55	Standing between tubes	Yes
	3. Tapered Plug	1.0"x1.5"long	Outlet, R44, C34-35	Wedged, on tubesheet	Yes
	4. Piece of Metal	0.5" diam.	Outlet, R44, C55-56	Wedged on tubesheet	Yes
	5. Wire	3/16"x10"long	Inlet, R45,C53-54	Located in bundle	Yes
	6. Wire	App. 1/16" x 10" long	Inlet, R45, C53-54	Leaning into bundle	Yes