

LICENSEE EVENT REPORT

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

01 N J O C P 1 2 0 0 - 0 0 0 0 0 - 0 0 3 4 1 1 1 1 4 5
 7 8 9 14 15 25 26 30 57 CAT 58

CON'T
 01 REPORT SOURCE L 6 0 5 0 0 0 2 1 9 7 1 1 3 0 7 8 8 1 2 2 8 7 8 9
 7 8 60 61 68 69 74 75 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)
 02 On November 30, 1978, while conducting a diesel generator auto actuation
 03 test, #1 diesel generator engine started but the generator failed to excite
 04 and pick up load. In addition, #1 service water pump failed to trip
 05 on undervoltage and restart in the proper sequence. #2 service water
 06 pump also failed to trip and restart on a similar test on the #2 diesel.
 07 Both service water pumps started when the generator breaker closed. #1
 08 Rx building closed cooling water pump did not start within T.S. limits.

09 SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE
 7 8 9 10 11 12 13 14 15 16
 E E 11 E 12 A 13 E N G I N E 14 Z 15 Z 16
 17 LER/RO REPORT NUMBER EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.
 7 8 9 21 22 23 24 25 26 27 28 29 30 31 32
 7 8 9 0 3 1 0 3 L 0
 ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPRD-4 FORM SUB PRIME COMP. SUPPLIER COMPONENT MANUFACTURER
 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
 A 18 Z 19 C 20 Z 21 0 0 0 0 Y 23 Y 24 N 25 X 9 9 9 26

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)
 10 The failure of #1 diesel generator to excite was caused by an unused tar-
 11 get mechanical linkage in relay FFCO binding in the target window. The
 12 unused targets were removed. The failure of the service water pumps is
 13 attributed to binding in the trip mechanism. Both pump breakers were
 14 lubricated. The closed cooling water time delay was reset to T.S. limits.

15 FACILITY STATUS % POWER OTHER STATUS (30) METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 H 28 0 0 0 29 NA B 31 Diesel Auto Actuation Test
 16 ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 Z 33 Z 34 NA NA
 17 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 0 0 0 37 Z 38 NA
 18 PERSONNEL INJURIES NUMBER DESCRIPTION (41)
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 0 0 0 40 NA
 19 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43)
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 Z 42 NA

20 PUBLICITY ISSUED DESCRIPTION (45) NRC USE ONLY
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 Y 44 Weekly news release - January 3, 1979

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OYSTER CREEK NUCLEAR GENERATING STATION
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Licensee Event Report
Reportable Occurrence No. 50-219/78-31/3L-0

Report Date

December 28, 1978

Occurrence Date

November 30, 1978

Identification of Occurrence

Failure of diesel generator #1 to assume load during loss of power test and improper load sequencing on diesel generator #2. This event is considered to be a reportable occurrence as defined in the Technical Specifications, paragraph 6.9.2.b.2.

Conditions Prior to Occurrence

The plant was in a refueling shutdown.

Reactor coolant temperature - 159°F.
Mode switch in refuel.

Description of Occurrence

On November 30, 1978, while conducting a diesel generator automatic actuation surveillance test (loss of power test), #1 diesel generator engine started but the generator failed to excite and pick up load. In addition, #1 service water pump failed to trip on undervoltage and restart in the proper sequence. No. 2 service water pump also failed to trip and restart during a similar test on diesel generator #2. Both service water pumps started when the diesel generator breaker closed. No. 1 reactor building closed cooling water pump started at 240 seconds vs. the Technical Specification limit of 166 ± 24.9 seconds.

Several days of trouble shooting and retesting of #1 diesel generator followed with several malfunctions identified as described below.

Apparent Cause of Occurrence

The failure of #1 diesel generator to excite during the test on November 30, 1978, was caused by an unused target mechanical linkage in relay "FFCO",

field flashing relay, mechanically binding in the target window. This target had been flipped out of use shortly after initial plant startup. The target mechanism was found to, on occasion, catch on the window, preventing operation of its normally closed contacts.

During testing following repair to the above relay, the diesel engine tripped on overspeed prior to picking up load. This problem was identified as a malfunction of the EGB-10 actuator, which contains the engine governor.

The failure of both service water pumps to trip was attributed to mechanical binding in the breaker trip mechanism for each pump. The undervoltage relays functioned but could not actuate the trip bar.

The late start of #1 reactor building closed cooling water pump is attributed to instrument setpoint drift in the time delay relay.

Analysis of Occurrence

No. 1 diesel generator provides emergency power to the "C" 4160-V bus during loss of offsite power conditions. The station is designed and analyzed for failure of one (1) emergency diesel generator for all accident conditions. Failure of #1 diesel generator represents a loss of redundancy.

The failure of #1 and #2 service water pumps to trip when required has little safety significance. The purpose of the undervoltage trip and sequential start is to prevent simultaneous starting of multiple high horsepower motors which may overload the diesel generator. Both #1 and #2 diesel generators, however, demonstrated the ability to start with the connected service water pump breaker closed.

The late start of #1 reactor building closed cooling water pump is of little safety significance. This is the last load added to the diesel generator by automatic sequencing and would not have started simultaneously with any other load. A delay of 40 seconds in starting this pump would not seriously affect any equipment cooled by reactor building closed cooling water under loss of power conditions. In addition, #2 reactor building closed cooling water pump started within the specified time.

Corrective Action

The unused targets were removed from the "FFCO" relay on both diesel generators and also from all other similar relays on both diesel generators.

The EGB-10 actuator on #1 diesel generator was replaced with a rebuilt spare obtained from the manufacturer. The diesel generator was then thoroughly tested and required adjustments and venting were completed. At the manufacturer's recommendation, the engine overspeed trip was raised. Two complete diesel generator automatic actuation tests were performed following repairs.

Both service water pump breakers were cleaned, lubricated and tested.

The #1 reactor building closed cooling water load sequencing time delay was reset and tested.

Failure Data

Diesel Generator: Electro-Motive Division
General Motors Corporation
LaGrange, Illinois

FFCO Relay: Westinghouse
Style: 1876094
Type: SV voltage relay
120 Volts 60 Cycles

Circuit Breakers: General Electric
Type AK-2A-25-1

Time Delay Relay: Agastat
Model: 2414 PE 10-200 seconds