

BRAIDWOOD DIESEL GENERATOR FAILURE REPORT

The 2A DG was taken out of service at 0519 hours on December 28, 1995, for preplanned maintenance. Work performed included the replacement of four control relays, fuel filter/strainer replacement and inspection of both governor drive assemblies for proper lube oil flow. Following completion of this maintenance work, the 2A DG was started for performance of 2BwOS 8.1.1.2.a-1, Unit Two 2A Diesel Generator Operability Monthly (Staggered) and Semi-Annual (Staggered) Surveillance. The time from 2A DG start to attaining rated speed and voltage was measured by Operations personnel at 10.28 sec. Systems Engineering personnel timed the engine start at 8.28 seconds. Per surveillance 2BwOS 8.1.1.2.a-1, the allowable start time is 10 seconds. Exceeding the surveillance acceptance criteria constituted a failure of the 2A DG.

At 1650 the 2A DG was restarted for a troubleshooting run. System Engineering personnel monitored the engine during the start attempt. The 2A DG started and reached rated speed and voltage in a time of 7.27 seconds with no problems noted by Systems Engineering. The 2A DG was subsequently started for performance of the operability surveillance. The time from 2A DG start to attaining rated speed and voltage was measured by Operations personnel at 7.38 seconds.

Root cause of the event is believed to be a timing error on the part of Operations personnel. Listed below are facts that support this:

- There has been no history of slow start problems on the 2A DG. Review of start time trending data shows start times consistently less than 8 sec.
- Systems Engineering personnel timed the engine start at 8.28 seconds.
- The work performed on the 2A DG would not have had any impact on the start time of the DG.
- The troubleshooting start and the operability surveillance start were less than 8 seconds, and no equipment problems could be found by Systems Engineering.

After successfully completing the troubleshooting runs and the Tech Spec operability surveillance run, the 2A DG was declared operable at 2149 on December 28, 1995. The 2A DG was unavailable for a total of 16 hours and 30 minutes.

This failure was conservatively considered valid because it occurred during the monthly operability run. Regulatory Guide 1.108, Section C.2.e. allows a failure to be considered invalid if the failure "can definitely be attributed to operating error." In this case, an operator timing error is suspected, but the demand will conservatively be classified a valid failure.

There have not been similar valid failures of this nature on the other DG at Braidwood Station. This failure of the 2A DG has been determined to be a valid failure in accordance with Regulatory Guide 1.108, Section C.2.e. The 2A DG remains on a monthly test frequency.

As of January 23, 1996, the 2A DG has had one valid failure in the last 100 valid Braidwood Unit 2 demands.