

Progress of Investigation of the Accident and the Emergency Condenser at Unit 1 of Fukushima Daiichi Nuclear Power Station

< Reference >

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Tokyo Electric Power Company

[Background]

Based on the suggestions, etc. received from the external committee in response to the nuclear accident, continuous investigation and consideration are being carried out. The following new findings have been revealed.

[New findings]

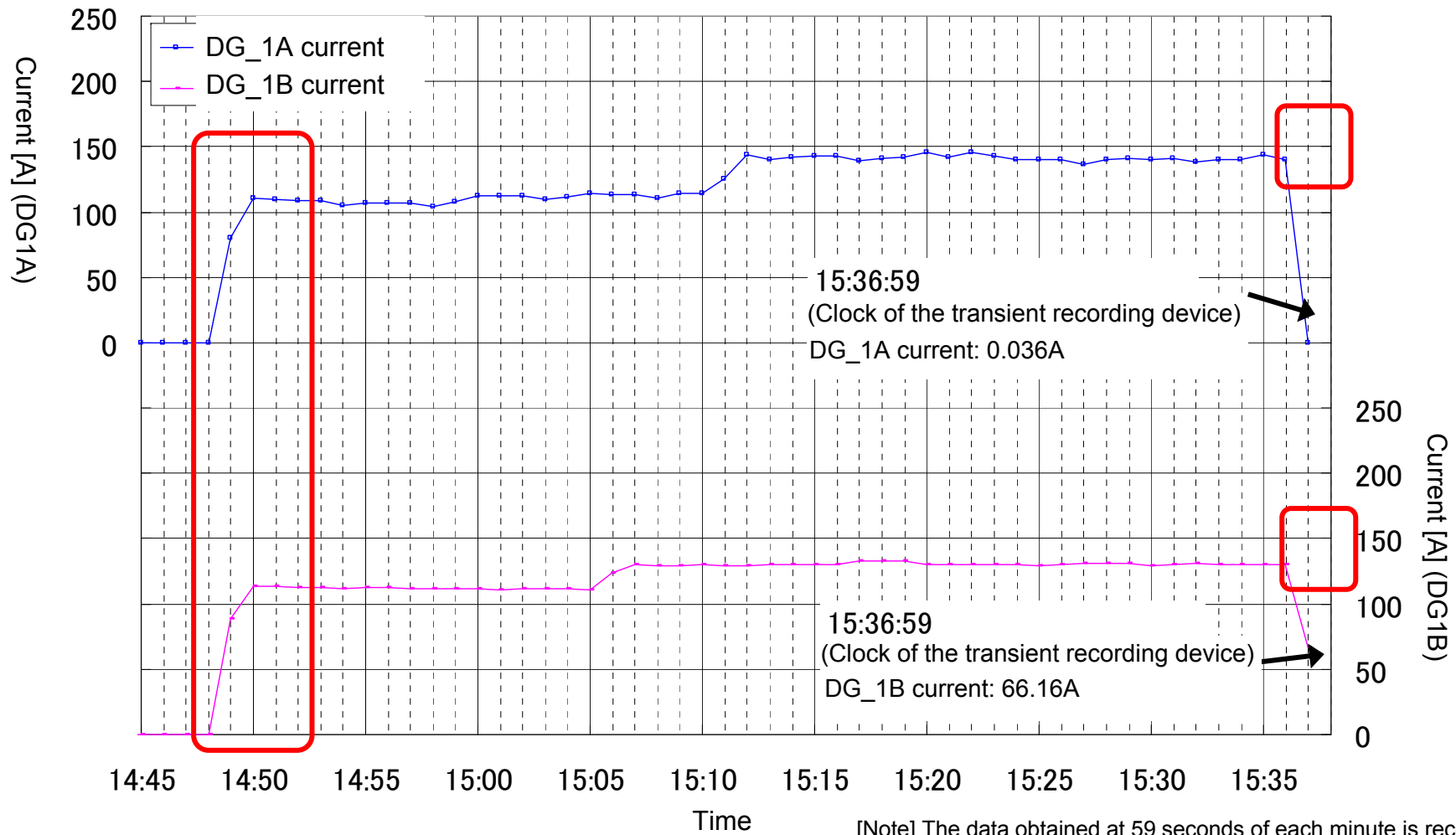
- Unit 1 emergency diesel generators (A) and (B) and the alternate current main lines (C) and (D) (connected to Unit 1 emergency diesel generators (A) and (B))
 - The data on Unit 1 emergency diesel generators and the alternate current main lines have not been announced as the timing of suspension was based solely on verbal evidence and operation log.
 - It was found that the alternate current main line (C) failed first (the voltage was zero during the period from 3:36 PM to 3:37 PM on March 11, 2011) and then the alternate current main line (D) failed.
 - It was found that the alternate current main line (C) failed before the emergency diesel generator (A) at Unit 1.
 - ◆ Unit 1 emergency diesel generator (A) had never failed before the alternate current main line (C) failed due to an earthquake.
- Statuses (open/closed) of the valves inside the PCV (1B and 4B) of Unit 1 emergency condenser (B)
 - The statuses (open/closed) of valves 1B and 4B of Unit 1 emergency condenser (B) were unknown.
 - There is a high possibility that the drive power supply (AC power supply) of the inside valves (1B and 4B) of Unit 1 emergency condenser (B) had failed before the isolation (close) signal was sent.

[Data used for investigation/consideration]

- Data obtained in the interval of 1 minute by the transient recording device from 11:00 AM on March 3, 2011 to 3:36:59 PM on March 11, 2011*.

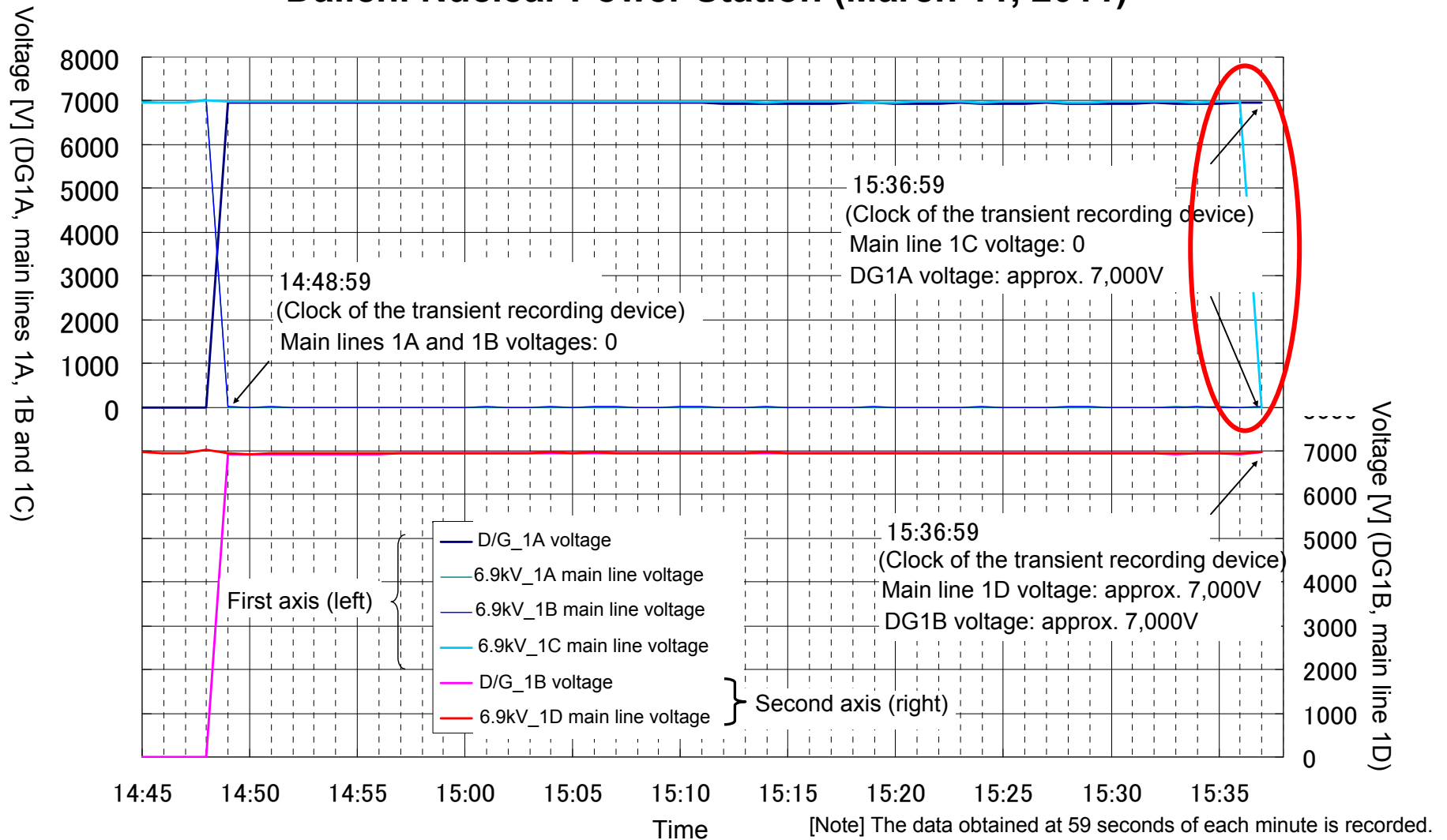
*The transient recording device was installed for the purpose of acquiring detailed data (in the unit of millisecond) in response to the occurrence of abnormality (the data has already been announced). The data used for investigation this time was obtained in a wider time interval (in the unit of minute) compared to usual.

Data of the emergency diesel generator current at Unit 1 of Fukushima Daiichi Nuclear Power Station (March 11, 2011)



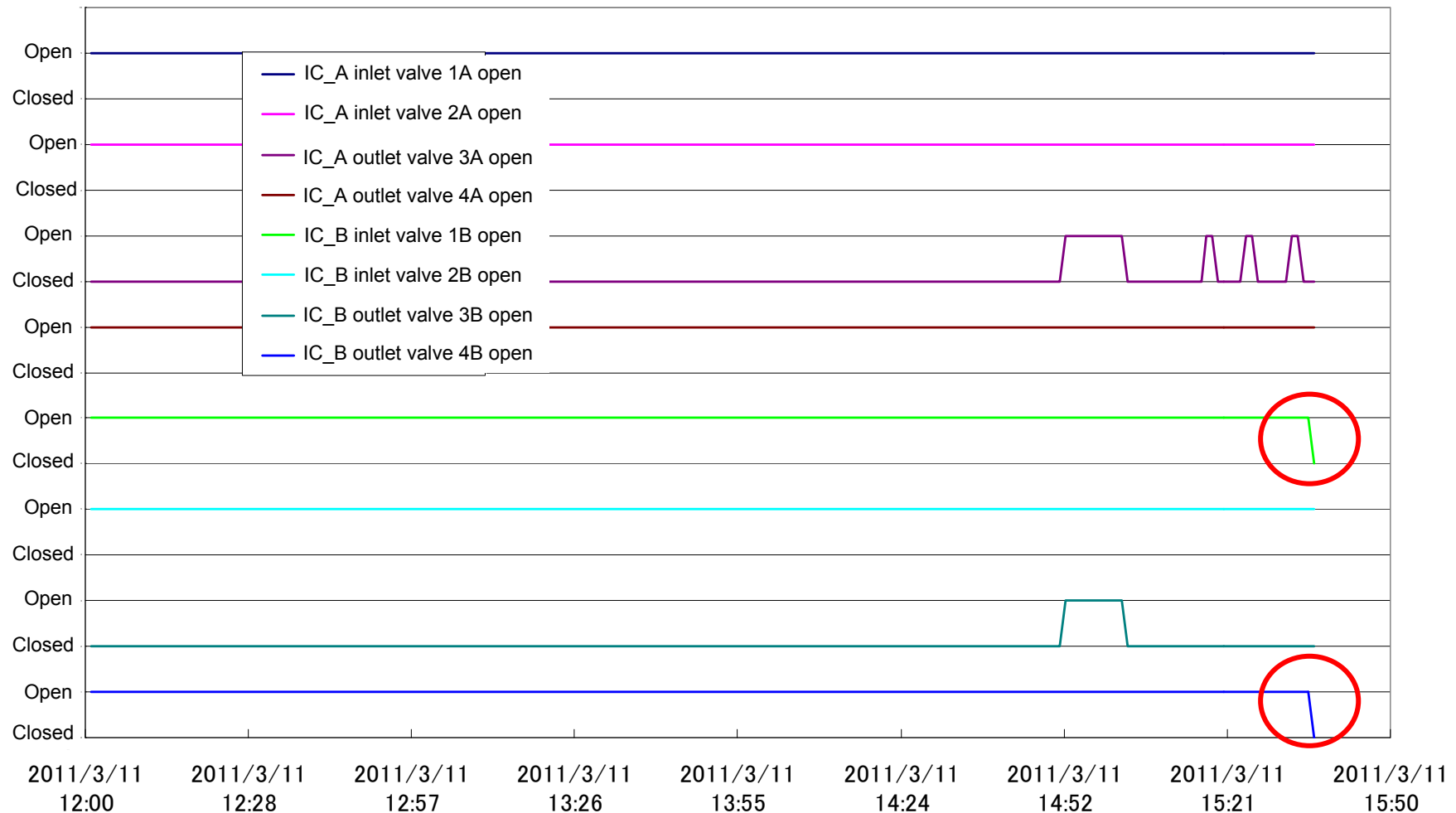
- The emergency diesel generators (1A) and (1B) were started at the same timing.
- The load systems (equipment and power panels) receiving power from the emergency diesel generators (1A) and (1B) started to fail within one minute.

Data of the emergency diesel generator voltage at Unit 1 of Fukushima Daiichi Nuclear Power Station (March 11, 2011)



- The emergency diesel generator (1A) voltage (D/G 1A voltage) was maintained though the system voltage (6.9kV 1C main line voltage) became zero. It is considered that the diesel generator (A) was operating when the Tsunami reached the power station.

Statuses (open/closed) of the valves of the emergency condenser at Unit 1 of Fukushima Daiichi Nuclear Power Station (March 11, 2011)



- As for the emergency condenser (B), it is indicated that the valves inside the PCV 1B and 4B (AC power supply (main line 1C)) failed (the above does not indicate that the valves were closed). There is a high possibility that the drive power supply (AC power supply) of the inside valves (1B and 4B) had failed before the isolation (close) signal was sent.

[Reference] Structure Overview of the Emergency Condenser

