November 1, 2012
Tokyo Electric Power Company

Investigation Results of Smoke Coming out from Electric Motors in the Cesium Absorption Tower Temporary Storage Facility at Fukushima Daiichi Nuclear Power Station

1. Outline (Previously announced)

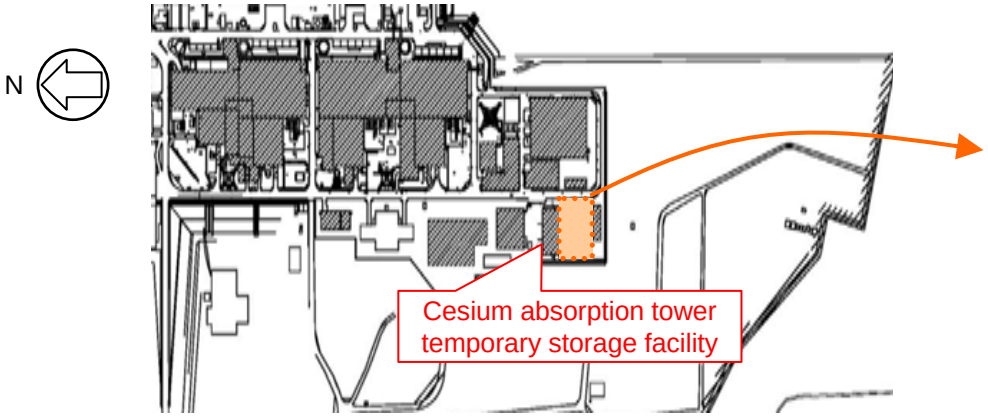
On August 14 and October 2, 2012, smoke came out from the electric motor of the absorption tower ventilation pump at the outdoor cesium absorption tower temporary storage facility located in the south of the central environment facility.

August 14 (G pump)

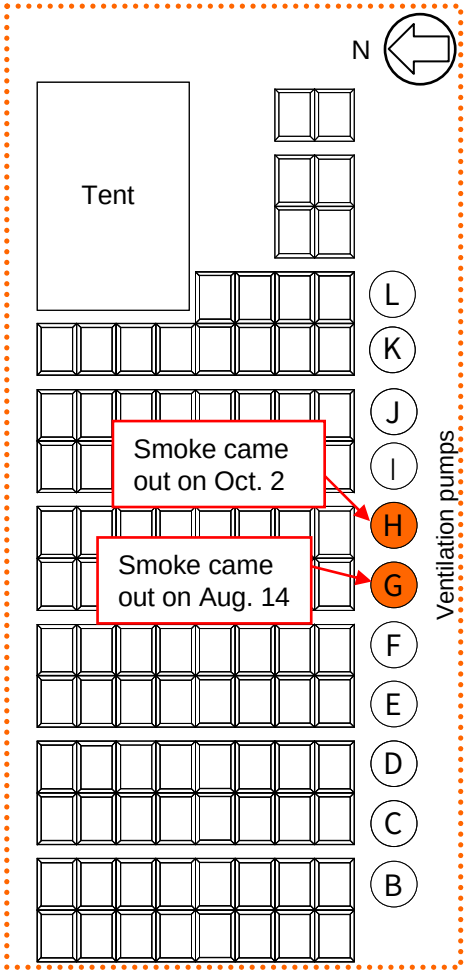
Time: At around 8:30 AM
The smoke stopped coming out at 8:40 AM after the fire was put out by a fire extinguisher. Operation was restarted at 2:50 PM on the same day after the pump was replaced with a new one.

October 2 (H pump)

Time: At around 9:40 AM
The smoke stopped coming out after the pump was promptly turned off.
Operation was restarted at 3:50 PM on the same day after the pump was replaced with a new one.



Location where the incident occurred



2. Investigation Results

1) Appearance inspection after the smoke stopped coming out

[August 14 (G pump)]
Discoloration (assumed to be due to heat) was found on the outer panel of the electric motor. Black soot was found on the corrugated panel on the left surface of the housing near the edge of the electric motor.
[October 2 (H pump)]
No deterioration by heat was found.

Appearance after the smoke stopped coming out (August 14)

Appearance after the smoke stopped coming out (October 2)

2) Measurement of insulation resistance and winding resistance

[August 14 (G pump)]
The measurement was not performed due to the major damage of the coil inside.
[October 2 (H pump)]
The insulation resistance was 0.001MΩ in some area (Though an insulation breakdown was about to occur in the coil in this area, only a small amount of smoke came out and the smoke stopped coming out right after the pump was turned off since it was not a short circuit)

2. Investigation Results (Cont'd)

3) Inspection of the inside of the electric motor

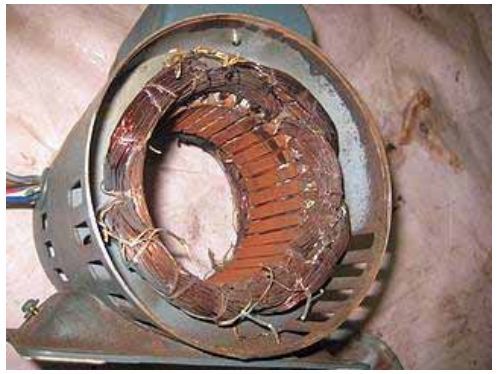
[August 14 (G pump)]
- The coil inside the electric motor was damaged by heat and the insulator was carbonized and powdery.
- The stator was burnt and stuck to the inside of the motor.
- The axes of the pump and the motor were able to be twisted by hand, no problem was found with the sliding portion such as the bearing.
- The cumulative operation hours of the motor was approx. 9,700 hours.

Inside the electric motor of G pump (rotor)

Inside the electric motor of G pump (stator)

[October 2 (H pump)]
- Discoloration was found on the enamel covering on the stator coil.
- Rust was found on the inner surface of the stator and the outer surface of the rotor.
- No soot was found in the inside.
- The axes of the pump and the motor were able to be twisted by hand, no problem was found with the sliding portion such as the bearing.
- The cumulative operation hours of the motor was approx. 10,800 hours.

Inside the electric motor of H pump (rotor)



Inside the electric motor of H pump (stator)

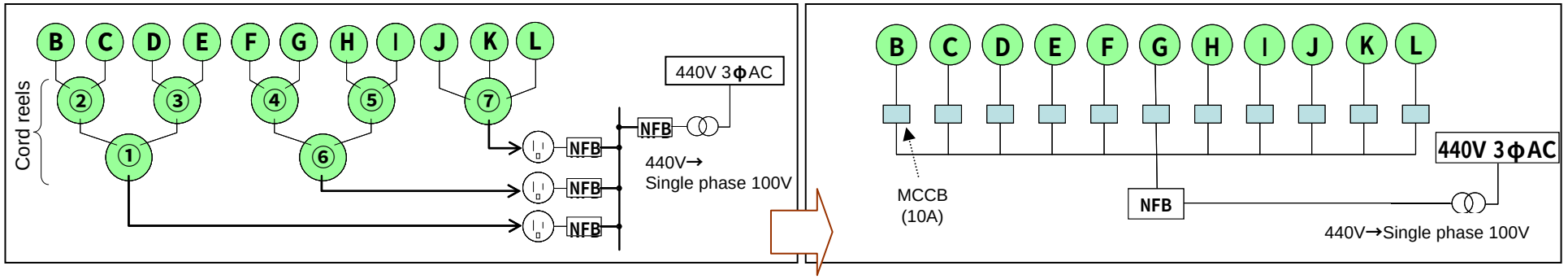
As a result of investigation, it was assumed that dust and salt accumulated inside the electric motor over a long of period of continuous operation has caused a insulation failure.

3. Assumed cause

In both cases, the dust and salt accumulated inside the electric motor seem to have caused a micro discharge in some area of the stator coil, an insulation degradation of the enamel wire and a short circuit between the coils in the area.

4. Recurrence prevention

1) In response to the incident on August 14, we started replacing the pumps which had been used for over a year. After the incident on October 2, the pump replacement was done more quickly and all the pumps have been replaced on October 3. From now on, regular pump replacement will be done after 5,000 cumulative operation hours or about six months.
2) When the incident occurred on August 14, the circuit breaker of the cord reel was turned on though it was off before the incident (since it was wrongly assumed that the wiring on the cord reel was wrong, not that of the motor). In order to prevent a mistake like this, the reliability of the electric wiring has been enhanced by changing its connection on October 11.



Structure before connection was changed

Structure after connection was changed