

Reference Material: Accidents and Breakdowns Occurring at Nuclear Power Plants and Nuclear Fuel-Related Facilities (FY2018)				
Year	Date	Facility	Accident Report	Report Classification
2018	April 9	Genkai Unit 4	When inspecting the function of the reactor containment vessel isolation valve, even when the isolation valve was fully closed at the location, it was not possible to confirm that the valve had been switched to fully closed on the central control room display. It was found that a misalignment had occurred in the limit switch that communicates the open-close state of the valve to the central control room.	
2018	May 3	Genkai Unit 4	When preparing to test run the primary coolant pump to inspect for primary coolant system leakages, alarms sounded from two system pumps (4B and 4D). Upon inspection, it was found that A pump also had the same abnormality. Seals were replaced on all pumps, including 4C pump, for which no abnormality had been discovered.	
2018	May 22	Tokai No.2 NPP	As a result of an inspection subsequent to the discovery of corrosion pitting in the central control room ventilation and air conditioning system duct at Shimane Unit 2 in December 2016, corrosion pits were found in two locations (sizes 9mm×4mm and 4mm×6mm) in the external air intake duct of the central control room ventilation and air conditioning system.	
2018	June 5	Hamaoka Unit 5	During a regular test of the emergency diesel generator B, gas was confirmed to be leaking from the region of the cylinder exit exhaust pipe. As a result of an inspection, the exhaust pipe bellow (flexible expansion joint) was found to be severely damaged, and the bellow was replaced with a new one. Chubu Power Company presumes that the damage to the bellow was caused by denting occurring during past replacement work, and thermal fatigue due to operation of the diesel generator thereafter.	○
2018	June 22	Takahama Unit 4	Abnormalities were discovered in two heat transfer capillary tubes in steam generator A during a regular inspection. These tubes were plugged to remove them from use. The percentage of plugged tubes in Takahama Unit 4 steam generators is now A:4.1%, B:4.0%, and C:3.6%.	○
2018	July 3	Hamaoka Unit 4	Vehicle A, one of two portable nitrogen gas generators, was found to have a breakage in the elbow of a copper air pipe on the air compressor capacity control system. Cracking was also found on a cap nut on an air pipe of the same system.	
2018	July 25	Fukushima Daiichi NPS	It became impossible to monitor the water level of the subdrain in the vicinity of the main processing building and the miscellaneous waste solids volume reduction treatment building from the seismic isolation building. Transfer of the water in the subdrain was therefore temporarily suspended.	
2018	August 19	Hamaoka 4	During a regular check, an alarm was sounded by a turbine auxiliary feed-water pump, the alarm being for low control oil pressure, and a patch of leaked oil, approx. 2 liters, was found on the floor. The packing in a joint on the oil supply was damaged.	
2018	August 20	Takahama Unit 4	During an onsite test following the final heatup (raising the temperature and pressure) during a regular inspection, steam was found to be escaping from the temperature gauge withdrawal pipe on the reactor vessel lid. KEPCO presumes that the cause is that some foreign matter was caught up in the joint when assembly work was carried out.	

2018	August 30	Kashiwazaki-Kariwa Unit 1	An abnormal sound was emitted from emergency diesel generator B during a regular test run, and as power output of the generator fell it was shut down manually. As a result of an inspection, it was found that the turbocharger shank had seized up. As a result of disassembly in the factory, it was found that one of the turbine blades on the right side turbocharger had fractured and the racing wire had ruptured. It was also found that one turbine blade and rotor on the left side turbocharger had fissures on the mount. TEPCO presumes that the cause of the drop in generator output was that the right side turbocharger blade fracture led to the seizing of the turbocharger shank.	○
2018	August 31	Fukushima Daini NPP	Chiller B shut down and an alarm sounded. It was confirmed that there was leakage from a copper pipe joint on the compressor B1 coolant line.	
2018	September 12	Takahama Unit 3	Abnormalities were discovered in a heat transfer capillary tube in steam generator C during a regular inspection. The tube was plugged to remove it from use. The percentage of plugged tubes in Takahama Unit 3 steam generators is now A:3.3%, B:4.0%, and C:3.5%. A thinning signal was seen in the external side (secondary side) of one heat transfer capillary tube in steam generator A, but mini-camera inspection showed that this was due to contamination by foreign material.	○
2018	October 6	Hamaoka Unit 4	When an inspection was carried out due to an alarm sounding, it was confirmed that the lubricating oil priming pump of emergency diesel generator B had stopped. Chubu Power Co. presumes that the cause was a fault in the electromagnetic contactor due to switching on and off of the power supply.	
2018	October 17	Hamaoka Unit 4	In the installation of the shear lag reinforcing plate on the reactor containment vessel, when a 1/2 layer penetrant examination was carried out as a welding business operator inspection pressure resistance substitute test, a linear indication (around 16mm) exceeding the 1mm test criterion was found on the welding line on one of the 8 reinforcing plates. Even after a retest some days later, linear indications exceeding the criterion were found anew at one separate location on the same reinforcing plate and, further, in 3 locations on the 4 welding pads.	
2018	October 17	Ohi Unit 3	When inspecting after an alarm had sounded, it was confirmed that the auxilliary oil pump on charging pump B, one of 3 charging pumps, this one being on standby. 7 of the 11 cooling fan blades on the auxilliary oil pump motor had fractured.	

2018	November 1	Kashiwazaki-Kariwa NPP	Fire broke out in the horizontal section of a shaft on the Arahama side of the NPP grounds. The fire broke out in the cable tunnel carrying the power supply cable from the vehicle-mounted gas turbine generator on the elevated area on the Arahama side to the Unit 7 high-voltage power panel (HVPP) by way of the Arahama side emergency HVPP. The cable was connected by a junction box, the fire occurring in the linear joint. This cable was installed in the cable tunnel in 2011 for the purpose of emergency power supply strengthening, but as the cable tunnel became deformed due to slippage in a nearby faultline in 2016, since it is possible that the cable might be damaged by stretching, the linear joint was added when work was carried out to give the cable more slack. TEPCO presumes that the fire broke out when a short occurred, giving rise to heat, due to misalignment of the cable sheath.
2018	November 8	Shika Unit 2	When the interior of the exhaust air treatment device was examined as part of an inspection of the reactor building and turbine building ventilation and air conditioning equipment, 3 of the 4 filter devices were found to be damaged. The filters in the interiors of other air intake and air exhaust treatment devices in Units 1 and 2 were also inspected and were replaced when damage was confirmed. Hokuriku Power Co. presumes that this happened because the filters were used without taking note of their degradation over time.
2018	November 9	Tomari Unit 3	Emergency diesel generator B failed to start when attempting to start it up during an inspection. One of the 2 connectors connected to the relay connector panel on the control panel was not fastened with a screw, causing it to become disconnected. Hokkaido Power Co. presumes that the connector, which had originally been loose, had fallen off during the manual inspection just prior to the inspection of the generator.
2018	November 21	Hamaoka Unit 3	During painting work on the main air exhaust duct, it was discovered that there was corrosion on the duct cover of the main air exhaust duct on the roof of the service building and it was found that air was escaping from the corroded area. Several corrosion pores and air leakage were confirmed on the duct joint. Work was carried out to close the corrosion pores.
2018	November 26	Rokkasho Reprocessing Plant	After completing water release prior to a disassembly inspection of the spent fuel reception and storage building pool cleaning system, as workers began the disassembly, water remaining inside the system overflowed from the bag for the pool water residue collection, leaking around 20 liters of water onto the floor of the water-retention area. Japan Nuclear Fuel Ltd. presumes that the cause was that the pool water had been unable to escape from the system due to the air release line being maintained at an insufficient height.
2018	December 7	Hamaoka Units 3 and 5	As a result of an inspection related to ventilation and air conditioning filter damage at Shika Unit 2 in November, damage (tearage) was found in the Unit 3 reactor room air exhaust bag filters (A, B, and C), turbine building air exhaust bag filters (A, B and C) and Unit 5 reactor room air exhaust bag filter A and turbine building air exhaust bag filters (A and B), and these were replaced.

2018	December 18	Tokai No.2 NPP	<p>A worker conducting work near the outdoor bushing area of the 275kV indoor switching station collapsed after receiving an electric shock and was later confirmed dead. (Bushing is an insulator preventing electricity flowing through the wall of the indoor switching station.) As external power sources, Tokai No.2 NPP has installed two 275kV circuits (Tokai nuclear energy lines No.1 and No.2) and one 154kV circuit. From November 12, to conduct an inspection of the 275kV indoor switching station equipment and so on, the two 275kV circuits were shut down and electricity was received through the 154kV circuit. At the time of the accident, Tokai nuclear energy line No.1 was being recharged and No.2 was shut down. A ground wire has been installed in the indoor switching station as a countermeasure against induction voltage from Tokai nuclear energy line No.1. Since the ground wire sometimes needs to be disconnected to carry out a task, a substitute ground wire and so on is installed. Japan Atomic Power Company presumes that for some reason the electrocuted worker disconnected the substitute ground wire, thus receiving an electric shock.</p>	○
2019	January 8	Fukushima Daini NPP	<p>To perform the operation of turning the unused Unit 2 condensate storage tank into a water source for injecting water into the Units 1-3 reactors, when switching over from the Unit 2 reactor water injection pump B to pump A, both of the pumps shut down. One minute later, pump A restarted. As a result of an examination of the cause, it was found that the water inlet strainer on pump B had blocked holes due to iron rust and other material.</p>	
2019	January 30	No.2 Plutonium Fuel Development Lab No.2, Nuclear Fuel Cycle Engineering Laboratories	<p>In the powder adjustment room (A-103) in the No.2 Plutonium Fuel Development Lab, when engaged in work to exchange the double-layered resin bags packed into two metal storage canisters (one aluminum and one stainless steel) for storing nuclear fuel materials, contamination was detected on the surface of the second-layer resin bag of the stainless steel canister. An α-particle air monitor α-8 (reading 3100 cpm) and α-10 (reading 1000 cpm) alarm sounded and a restricted entry zone was established. At the time the alarm sounded, there were nine workers in room A-103, all of whom were wearing half masks. The storage canister contained a mixed uranium-plutonium oxide (MOX) powder. After removing work overalls and half masks, a body contamination examination of the nine workers was implemented, showing that there was no skin contamination, and an intranasal smear test also showed that there was no internal exposure, according to a Japan Atomic Energy Agency (JAEA) judgment. JAEA presumes the following regarding the occurrence of the contamination. In the process of removing the stainless steel canister from the glovebox with its surface contaminated with nuclear fuel material (MOX powder), the first layer of the resin bag had a hole torn in it and that resulted in the contamination. The work was continued, the contamination test for the first layer in the stainless steel canister was omitted, and when the second layer packing was performed the contamination spread. It is reported that the cause of the contamination on the stainless steel canister was that the work was carried out in a contaminated glovebox. The cause of the tear on the first layer of the resin bag was not identified. The escaped α radiation was around 3 million Bq (equivalent to around 0.2mg of plutonium). The total contamination on the surface of the stainless steel canister was evaluated as the equivalent of around 30mg of plutonium.</p>	○

2019	February 6	Hamaoka Unit 3	Water leaked from a hole on the outlet side pipe of feed pump B. When measuring the thickness of the orifice downstream side pipe at the same location (recycling line return pipe) of the other two feed pumps, it was found that they were all below the minimum required thickness of 2.2mm.	
2019	February 16	Hamaoka Unit 5	A directly connected transformer blacked out and the regular generating line power source was switched to the subsidiary transformer. On examining the shock hydraulic relay, the connector box lid seal surface was found to be corroded and the packing had degraded. Chubu Power Co. presumes that the cause of the problem was water seeping into the interior of the connector box.	
2019	March 5	Kashiwazaki-Kariwa Unit 7	A problem occurred when the watertight door of the reactor auxiliary machine cooling system (A) room would not close. It was found that the shaft mechanism on the upper part of the watertight door had broken and ceased to function.	
2019	March 6	Hamaoka Unit 1	The fire alarm sounded in the containment vessel. At the site, a gas cutting machine was being used to cut the cover (flexible joint) of the main feed pipe where it passes through the wall of the containment vessel as part of the work on pipe seismic tolerance in the containment vessel. It was confirmed that at the time of cutting, fused lumps of metal splattered onto the gas hose causing a fire. The workers at the site extinguished the fire with a fire extinguisher.	