

Accidents and Breakdowns at Nuclear Power Plants and Nuclear Fuel Facilities

(April 2021 to March 2022)

Year	Date	Facility Name	Accident Overview	LR*
2021	Apr. 01	Rokkasho Reprocessing Plant	Loss of function of safety steam boiler A in pre-treatment building. A valve on the bypass line supplying pure water to safety steam boiler A was damaged. Valves upstream and downstream were closed due to the leakage of pure water.	
	Apr. 12	Mihama Unit 3	When a ground fault occurred involving a 77kV power line belonging to another company, a standby transformer shut down automatically making it temporarily impossible to receive power via the standby transformer.	
	Apr. 13	Mihama Unit 3	A curing sheet installed at the inspection port of the pressure suppression chamber was damaged and debris was found to have fallen into the pressure suppression chamber. This occurred due to an unexpected change in air flow occurring during a switch to a bypass line for the exhaust piping installed for ventilation in the pressure-suppression chamber and the reactor containment.	
	Apr. 28	Mihama Unit 3	When a ground fault occurred involving a 77kV power line belonging to another company, a standby transformer shut down automatically making it temporarily impossible to receive power via the standby transformer.	
	Apr. 29	Hamaoka	A portable test instrument installed in a security vehicle ignited. The vehicle was parked in the parking lot in the vicinity of the Unit 3 service building entrance.	
	May 11	Hamaoka Unit 5	The continual operation of emergency diesel generator A, undergoing 24-hour continual operation, was suspended when an expansion joint on the exhaust pipe was found to be damaged. When the fracture surface of the damaged expansion joint was examined, a blowhole (welding fault) was found on a welded part, with traces of fatigue damage nearby. This joint had been in use without replacement for 13 years.	
	May 12	Kashiwazaki-Kariwa Unit 7	Diesel fuel was seen to be dripping to the ground from the fuel drain pot of a gas turbine generator vehicle. (Around 960cc)	
	May 18	Shimane	A fire occurred in a floodlamp lithium-ion battery in the Information Office on the 2nd floor of the No.2 Management Office on the grounds of Shimane Nuclear Power Station.	
	May 19	Genkai Units 3 and 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, a defective method of installment of a smoke detector installed in a pull box in the seawater pipe trench area was pointed out. While the detector should be installed with an inclination of less than 45°, it was installed at an inclination of 90°.	
	May 19	Tsuruga	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that sampling by the dust sampler of the Urazoko Monitoring Post was inappropriate. The Urazoko Monitoring Post continually samples air inside offices, but was unable to sample to monitor the impact of radioactive substances in the surrounding environment.	
	May 19	Mihama Unit 3	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that there had been many instances of inappropriate management of controlled area entry times. There had been 57 cases from April 2020 to January 2021 of entries where people had failed to pass through the digital alarm dosimeter gate when entering the controlled area.	
	May 19	Takahama	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the air dose measurements at the border of the controlled area around Waste Storage Station A had exceeded the standard value. A value of 3.3μSv/h was confirmed, exceeding the standard value of 2.6μSv/h. Six drum cans with a surface dose rate of 0.3 to 1.4mSv/h had been placed in the vicinity of the excessive dose rates.	
	May 19	Takahama Units 3 and 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that there were deficiencies in fire impact reduction measures due to inappropriate cable laying in 52 locations, in 9 zones in Unit 3 and 53 locations in 9 zones in Unit 4. In both Units 3 and 4, this involved the electric auxiliary water pumps A and B, the containment external control air compressors A and B, the reactor auxiliary cooling water pumps A, B, C, D, and E, the turbine driven auxiliary water pump panels A and B, and safety system cables.	

May 19	Ohi Units 3 and 4	<p>In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that there were deficiencies in fire impact reduction measures due to inappropriate cable laying in 33 locations, in 9 zones in Unit 3 and 34 locations in 9 zones in Unit 4.</p> <p>In unit 3, this involved the control air compressors A and B, the boric acid pump B, the reactor auxiliary cooling water pumps C and D, the safety cable train A (low voltage, control, instrumentation), and the safety system cable train B (low voltage, control). In Unit 4, this involved control air compressors A and B, the reactor auxiliary cooling water pumps C and D, and the safety system cable trains A and B (low voltage, control).</p>	
May 21	Shika Unit 1	<p>Abnormal state of operation of freezer B in the ventilation and air conditioning auxiliary emergency cooling system, which adjusts the temperature of the Central Control Room and other locations.</p> <p>Freezer B was shut down and the system switched over to standby freezer D.</p>	
May 31	Kashiwazaki-Kariwa	Rust had appeared on the surface of 4 drum cans on the 1st floor of the Solid Waste Storage Facility Building No.3.	
Jun. 01	Hamaoka Unit 5	<p>A leakage of diesel fuel from the lid on the top of the fuel drain tank of emergency diesel generator A.</p> <p>Approximately 36 liters of leaked diesel fuel accumulated in the oil pan. The cause was that the power supply to the fuel drain pump control circuit was switched off without closing the fuel tank outlet valve in the inspection carried out on May 13.</p>	
Jul. 02	Mihama Unit 3	<p>During a regular test of a turbine driven auxiliary water supply pump, the test was stopped due to a rise in indicated level of the differential pressure gauge installed on the strainer in the pump inlet.</p> <p>The test was resumed after the strainer was cleaned.</p>	
Jul. 06	Shika Unit 2	When an abnormality was detected in the plant, an abnormality occurred in the control device for issuing the closure signal to the main steam isolation valve.	
Jul. 12	Onagawa Unit 2	Hydrogen sulfide emanating from the clothes washing waste fluid, etc., storage tank in the Unit 1 waste treatment building drifted into the Unit 2 control building causing 7 people to feel unwell in the entry/exit area, women's changing room, and other locations.	
Jul. 13	Kashiwazaki-Kariwa Unit 6	Corrosion occurred in the radiator of the input transformer on the variable frequency power supply device on the reactor coolant recirculation pump, causing insulation oil to drip to the floor.	
Jul. 19	Fukushima Daiichi	<p>Leakage of radioactive material originating from nuclear fuel from a notch tank stored in temporary storage area P.</p> <p>The notch tank contained material strongly contaminated with β-emitting radionuclides such as Sr-90 and Y-90. Rainwater flowing into the tank liquated out the radioactive material, overflowing from the temporary storage area P catch basin into the Jinbasawa River and there is a strong possibility that the radioactive material</p>	○
Jul. 23	Ikata Unit 3	<p>Drop in voltage of starter battery for an air-cooled emergency diesel generator.</p> <p>The starter motor charge mode switch was "off" and the battery was not being charged.</p>	
Jul. 28	Takahama Unit 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the position of the fire detector installed on the ceiling of the filling/high pressure injection pump piping room was inappropriate.	
Jul. 28	Takahama Unit 3	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the position of the fire detector installed in the passageway in front of the boric acid pump room in the reactor auxiliary building was inappropriate.	
Jul. 28	Ohi Unit 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the responses to problems associated with the fuel handling crane solenoid valve and degradation of the rubber O ring on the rotary joint were inadequate.	
Jul. 28	Tokai No.2	<p>In the results of a regulatory inspection by the Nuclear Regulation Authority, inadequacies were pointed out with the confirmation of the function of the ventilation and purification device in the emergency countermeasures room.</p> <p>The inspection of the booster fan had been planned and implemented, but the check of the function of the post-start-of-service filter unit had not been carried out.</p>	
Jul. 28	Fukushima Daiichi	<p>Inadequacies with the management of debris were pointed out by the Nuclear Regulation Authority.</p> <p>Of 85,469 containers in the temporary storage area, the contents of 4,011 were unclear and 548 were found to have corrosion abnormalities, etc. Additionally, in locations other than the temporary storage area, it was confirmed that in 803 locations there were containers, etc. with unknown contents or debris whose storage history was unclear.</p>	

Aug. 04	Ohi Unit 3	Drop in generator output due to seawater leakage from the vicinity of water circulation pipe vent valve A. A through hole of diameter approximately 4cm was discovered directly below the flange of a pipe joint between the vent valve and water circulation pipe. The pipe joint is made of carbon steel, diameter 17cm, length 13cm, and thickness 7mm. The pipe joint had rust all over and thinning had advanced to a considerable degree.	○
Aug. 18	Tsuruga Unit 2	Leakage of seawater from the flange of the emergency diesel generator B fuel valve cooler. The cause was that an O ring (used for the emergency diesel generator A) thinner than that originally specified for the flange had been fitted.	
Sep. 02	Tsuruga Unit 2	A cylinder lubricator (No.16) on emergency diesel generator A showed the faulty operation that the lubrication operated continually.	
Sep. 06	Kashiwazaki-Kariwa Unit 3	A fire occurred on the instrumentation compressed air dehumidification device on the lower 3rd floor of the turbine building.	
Oct. 04	Kashiwazaki-Kariwa Unit 6	Faulty operation of the Central Control Room external air intake damper A. The cause was found to be that the damper valve body had been fitted at the wrong angle to the valve drive.	
Oct. 06	Mihama Unit 3	In a regular test of an emergency diesel generator, an alarm sounded and the generator stopped automatically when it was started up. The cause was found to be a defective operation circuit in the power receiving circuit breaker causing the set value of the speed governing device to vary.	
Oct. 15	Hamaoka Unit 5	A metal filter was damaged in the dust removal facility (B-1) in the reactor auxiliary seawater cooling system heat exchanger system B.	
Oct. 20	Kashiwazaki-Kariwa	Leakage of liquid from one of the radioactive solid waste drum cans in the solid waste storage station.	
Oct. 24	Kashiwazaki-Kariwa Unit 1	A fire occurred in the terminal block and cables of a drainage pump in the main transformer area.	
Nov. 11	Kashiwazaki-Kariwa	Of the 9 monitoring posts set up in the surroundings of the nuclear power plant, 3 were indicating abnormal readings due to faulty setting of the data transmitting device.	
Nov. 11	Fukushima Daiichi Unit 5	Through fissures were discovered in the flange welding on the outlet of the turbocharger of emergency diesel generator A. As leakage of exhaust fumes and liquid were confirmed during a rest run following an inspection, when a liquid penetrant test was carried out, a through fissure, etc. of approximately 200mm in length was discovered.	
Nov. 16	Genkai Units 3 and 4	A fire occurred near an electrical cable reel drum situated at the construction site of a facility for handling specified serious accidents, etc.	
Nov. 17	Takahama Unit 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the main fire hydrant valve on the first floor of the Central Building was fully closed and was not ready for use (discovered on July 30).	
Nov. 17	Takahama	In the results of a regulatory inspection by the Nuclear Regulation Authority, inadequacies were pointed out in the diversity of data transmission from the surrounding monitoring equipment. In a problem in which cable mode data transmission to the Central Control Room central external monitoring board from monitoring post No.3 failed on July 30, wireless transmission also failed on August 6 due to inability to adjust the internal clock.	
Nov. 17	Takahama Unit 4	In the results of a regulatory inspection by the Nuclear Regulation Authority, inadequacies were pointed out in the checking of internal exposure in the bodily contamination that occurred during the reactor cavity decontamination work carried out on October 10, 2020. Despite 10,000 cpm being measured in a GM tube survey of a cotton swab 1 cm inside the decontaminated workers' nostril, confirmation of nuclide composition and evaluation of internal exposure were not performed.	
Nov. 17	Onagawa	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that correction of the method of maintenance of the Central Control Room ventilation and air conditioning system backflow prevention damper had not yet been implemented. When the problem that the Unit 3 backflow prevention damper could not be fully closed occurred in September 2019, it was decided, as a horizontal implementation, to also perform a regular check on the Unit 2 damper, but this was not carried out.	
Nov. 26	Sendai Unit 1	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the installed location of fire detectors in both the Safety Auxiliary Switchgear Room A and Control Rod Drive Mechanism Power Supply Room were inappropriate.	

	Nov. 30	Genkai Unit 3	Iodine concentration in in the primary coolant rose to 7 times the normal concentration. A leak was confirmed in one fuel rod of one uranium fuel assembly by an ultrasound test carried out during a regular inspection.	
	Dec. 10	Hamaoka Unit 5	A metal filter was damaged in the dust removal facility (C-2) in the reactor auxiliary seawater cooling system heat exchanger system C.	
	Dec. 10	Shika Unit 1	Leakage of cooling water from the turbine auxiliary cooling water system piping. It was discovered that cooling water was leaking from piping sending cooling water to the bearings of the motor of water circulation pump A, located outside the building.	
2022	Jan. 03	Fukushima Daiichi Unit 1	It was found that air was flowing into the non-controlled area from an electrical cable penetration hole in a controlled area due to degradation of sealing material inside the service building.	
	Jan. 06	Kashiwazaki-Kariwa Unit 6	Sparking occurred due to a short during cable connection work on the distribution switchboard for explosion-proof work inside emergency diesel generator room A.	
	Jan. 13	Tsuruga 2	Leakage of cooling water from a cylinder cooling water pump outlet pipe flange during a load test on emergency diesel generator A. The cylinder cooling water pump outlet pipe flange gasket was damaged. At the time when the problem occurred, emergency diesel generator B was not on standby due to undergoing inspection work, and since only a high-voltage power-supply vehicle was on standby, safety regulation operational limits were violated. The cause of the leak was that a low-strength gasket had been fitted.	
	Jan. 17	Mihama Unit 3	A problem occurred in which the spent fuel pit temperature was not displaying on the display device of the monitoring operation board used at the time of serious accidents. To inspect the power supply of the monitoring operation board, when the power supply switchover was implemented, the spent fuel pit temperature failed to display. The function was restored by restarting the display device.	
	Jan. 18	Kashiwazaki-Kariwa Unit 6	The exhaust pipe support under the emergency diesel generator A was corroded.	
	Jan. 27	Hamaoka Unit 4	Sparks and smoke emanated from the motor of the reactor room air supply fan C.	
	Feb. 09	Kashiwazaki-Kariwa Unit 1	Fire breakout in heat exchanger building area external lighting automatic flasher unit. When an inspection was carried out after a lighting breaker tripped on January 18, scorching was confirmed inside the external lighting automatic flasher unit.	
	Feb. 14	Kashiwazaki-Kariwa	It was found that records subject to safekeeping for 5 years under the safety regulations were not stored. It was found that FY2017 records on duties abilities, education and training of operators and workers, etc. were not kept in safekeeping.	
	Feb. 15	Kashiwazaki-Kariwa Unit 5	Faulty operation of inlet valve on emergency gas treatment system. When the switch was operated for a solenoid valve replacement work on the reactor building 4th floor emergency gas treatment system A system inlet isolation valve, it was confirmed that it did not open.	
	Feb. 16	Mihama Unit 3	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the installation position of a smoke detector in the container penetration area was inappropriate. Despite the installation position of smoke detectors under the Fire Defense Act being 60cm or more from walls and girders, it was confirmed that a smoke detector was installed at a position only 20cm from a cable tray covered with fire-resistant sheet, which should be recognized as a girder. (The confirmation was on October 8, 2021.)	
	Feb. 16	Mihama Unit 3	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that fire resistance work was insufficient on a power-driven auxiliary water supply pump cable. It was confirmed that no fire resistance work had been performed near the inlet of the power cable pipe for the power-driven auxiliary water supply pump A. (The confirmation was on November 16, 2021.)	
Feb. 16	Takahama Unit 1	In the results of a regulatory inspection by the Nuclear Regulation Authority, inappropriate operation and management of fire detectors that set off sprinkler extinguishing equipment was pointed out. Heat and smoke detectors that set off sprinkler extinguishing equipment for fire extinguishing of the main steam pipe monitor power supply were covered with plastic bags despite there being no work in progress in the vicinity, with a possibility that the automatic extinguishing equipment would not operate. (First confirmation in September 2021.)		

Feb. 16	Takahama Unit 4	It was pointed out in the results of a regulatory inspection by the Nuclear Regulation Authority that seal processing for fire resistance had not been performed on the electrical wiring tube penetration on the entrance door to the Central Control Room external reactor shutdown board room B. (First confirmation on October 1, 2021.)	
Feb. 16	Genkai Unit 3	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the indicated value of the primary coolant monitor R-70 was lower than usual. A lead panel had been installed between R-70 and the piping, causing inability to monitor the primary coolant sufficiently. (First confirmation on October 14, 2021.)	
Feb. 16	Tokai	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that the sampling method for total particulate matter from the ventilation system exhaust duct was inappropriate. It was confirmed that the sampling nozzle had been installed backwards, and that the installation position of the sampling nozzle was too close to the duct junction, and therefore inappropriate.	
Feb. 16	Sendai Unit 1	In the results of a regulatory inspection by the Nuclear Regulation Authority, it was pointed out that several valves that should have been under lock management to prevent mistaken operation were not locked and thus that prevention of mistaken operation was not carried out.	
Feb. 19	Kashiwazaki-Kariwa Unit 7	The motor power supply cable for the power-driven shutter in the turbine building large-item service hatch entrance area was damaged due to fire. On February 14, as the power-driven shutter in the turbine building large-item service hatch entrance area did not operate, when an inspection was carried out on 19th, scorching was discovered on the motor power supply cable.	
Mar. 01	Kashiwazaki-Kariwa Unit 4	Loose or missing bolts as well as traces of leakages were discovered on the exhaust pipe flexible joint of the high-voltage reactor core spray system emergency diesel generator. When an inspection of the exhaust pipe flexible joint of the high-voltage reactor core spray system emergency diesel generator, which had never been inspected since the construction of the plant, was conducted, loose or missing bolts as well as traces of leakages were discovered on the expansion joint flange.	
Mar. 02	Tomari Unit 3	Damage to the emergency diesel generator turbocharger turbine inlet case. Damage to the turbocharger turbine inlet case was discovered during an overhaul inspection of emergency diesel generator 3A.	
Mar. 16	Onagawa	Abnormalities occurred due to the Fukushima offshore earthquake (Mj7.3) that struck on March 16. Shutdown of Unit 1 spent fuel pool cooling pump. Shutdown of transformer pressure relief valve and water outlet radiation monitor. On May 1, 2022, fissures were discovered in 8 locations on the support pedestal on the traveling part of the Unit 1 ceiling crane.	
Mar. 16	Fukushima Daini	Abnormalities occurred due to the Fukushima offshore earthquake (Mj7.3) that struck on March 16. Shutdown of spent fuel pool cooling pumps (Units 1 and 3).	
Mar. 16	Fukushima Daiichi	Abnormalities occurred due to the Fukushima offshore earthquake (Mj7.3) that struck on March 16. Drop in water level in reactor containment (Unit 1). Drop in water level of spent fuel pool skimmer surge tank (Unit 2). Shutdown of land side impervious wall pump. Six containers in the temporary storage area A overturned. The position of 160 contaminated water tanks moved slightly.	
Mar. 16	Ohi Unit 4	An abnormality occurred where an instrument that measures the reactor water level during a severe accident was not displaying a value.	
Mar. 18	Ikata Unit 3	Iodine concentration in the primary coolant rose to three times the normal level.	
Mar. 18	Ikata Unit 3	Loss of function of spent fuel pit monitoring camera (infrared thermo camera). This occurred due to a fault in the spent fuel pit monitoring camera system control board server.	
Mar. 18	Kashiwazaki-Kariwa Unit 5	Wire break on a crane used to inspect equipment in the external water intake.	
Mar. 30	Takahama Unit 3	Damage to steam generator heat transfer capillaries. When an eddy current inspection was performed on all heat transfer capillaries in three steam generators, abnormal signals were noted in two capillaries in steam generator A and one capillary in steam generator B. The capillary in steam generator A was on the high temperature side tube plate and the signal appeared to show that there were cracks inside the capillary. The other capillary in steam generator A and the capillary in steam generator B showed signals that suggested thinning from the external surface near the tube support plate.	○

