

The Fukushima Nuclear Disaster

Timeline

February 2014

This fact sheet highlights some of the many significant events that have happened in Japan since the disaster that destroyed three reactors at the Fukushima Daiichi nuclear plant began in March 2011.

These highlights are divided into themes: TEPCO; Greenpeace; Governments; Nuclear and Other Agencies; People's Health; and Fukushima Reactors – Leaks, Debris, ALPS. A full timeline of the events of the Fukushima disaster, with full references, is available at:

<http://www.greenpeace.org/international/Global/international/briefings/nuclear/2014/Fukushima-3rd/TimelineLong.pdf>

TEPCO

TEPCO (the Tokyo Electric Power Company) owns the destroyed reactors at the Fukushima site and is the largest energy company in Japan.

March 2011

Cooling systems at the three operating reactors at Fukushima Daiichi fail, meltdowns happen within days; hydrogen explosions cause the second biggest release of radioactive materials in history (after Chernobyl in 1986).

April 2011

TEPCO admits radioactive water is leaking into the ocean, and dumps 11,500 tonnes of radioactive water into the sea – despite protests. Radioactive iodine 131 measured at 7.5 million times the legal limit.

May 2011

TEPCO finally admits core meltdown at reactor #1 began five hours after loss of coolant, and also occurred in reactors #2 and #3.

December 2011

An interim TEPCO report says employees made no errors in handling the disaster. A government panel says TEPCO and the nuclear agency directly contributed to the crisis.

March 2012

Tests show conditions at Fukushima reactor #2 are much worse than previously thought.

June 2012

- TEPCO admits it studied the effect of a 13.5 metre tsunami on the plant in 2006 and knew all power would be lost. TEPCO did nothing: Upgrades would have cost \$25m US dollars.
- TEPCO admits it was poorly prepared but says it couldn't have predicted the tsunami.

October 2012

TEPCO turnaround; now admits the nuclear disaster could have been avoided if it had prepared for tsunamis.

December 2012

TEPCO's most open admission of guilt; internal TEPCO reform task force admits a "lack of safety culture and bad habits", as well as "collusion" with the nuclear industry, led to the Fukushima nuclear disaster.

March 2013

A rat causes cooling of the spent fuel pools to fail for reactors #1, #2 and #3 for 29 hours.

June 2013

TEPCO reluctantly agrees to install a \$470m system to create an ice barrier to freeze the soil and prevent contaminated water leaking into the reactor buildings.

October 2013

TEPCO says its priority is stopping the leaking of contaminated water. The area's Governor doubts it.

November 2013

TEPCO announces it will permanently shut down reactors #5 and #6 at Fukushima.

Greenpeace

March 2011

- Within two weeks of the disaster, a Greenpeace analysis shows the radiation released hit Level 7, highest level on the International Nuclear Events Scale (INES), equal to the Chernobyl rating.
- Greenpeace begins independent measuring of radiation in the contaminated region, finds levels high enough to call for expanding evacuations. The Japanese government rejects the findings: the International Atomic Energy Agency (IAEA) confirms them two days later.

April 2011

- Greenpeace expands monitoring; again shows the need to expand evacuation zone, evacuate pregnant women and children from high-risk areas.
- Food Greenpeace tests in Fukushima City found above official limits.
- Staff on *Rainbow Warrior* carry out the first independent monitoring for marine contamination, levels are far above allowable limits for human consumption.

June 2011

Greenpeace monitoring finds very high contamination in Fukushima City, an area not evacuated, and calls for more protection for highly vulnerable people and for allowing them to evacuate voluntarily.

August 2011

- Greenpeace finds high radiation dose rates in Fukushima City, and calls on government not to allow schools to reopen until they are properly decontaminated.
- Greenpeace monitoring of seafood prompts AEON, Japan's largest retailer, to announce its food products will have zero radiation contamination.

December 2011

Greenpeace monitoring nine months after the start of the disaster finds radioactive hotspots and the official decontamination programme inadequate.

January 2012

Greenpeace makes a submission to the OSPAR Commission's Radiation Substances Committee, sharing monitoring and warning against the ongoing contamination of ocean from the leaking Fukushima plant.

February 2012

Greenpeace releases its *Lessons from Fukushima* report, which shows the disaster was caused by human failures – the failure to enforce nuclear standards.

October 2012

New Greenpeace monitoring in Fukushima City and Iitate shows 30+ of 40 government radiation monitoring posts have lower readings than immediate surroundings; levels within 25 metres of posts are up to six times higher than at posts.

February 2013

- A new Greenpeace report – *Fukushima Fallout* – shows how the nuclear industry evades responsibility for its failures and how it is largely protected from the financial liability for the Fukushima accident.
- Greenpeace also criticises the World Health Organisation for downplaying the health impacts of the Fukushima nuclear disaster.

June 2013

Greenpeace draws attention to TEPCO's ongoing mismanagement of contaminated waters at Fukushima at the London Convention and Protocol's consultative meeting.

October 2013

Greenpeace monitoring in Tamura City finds high radiation levels despite government decontamination. Reports had indicated the government was to reopen the city, but calls it off.

Governments

March 2011

Japan declares a 20km evacuation zone around the Fukushima plant; later expands the zone. 150,000 people evacuate.

April 2011

- Japan finally admits the disaster was Level 7, highest on the INES scale.
- Government admits levels too high in Iitate and other areas, urges residents to evacuate. Greenpeace called for this a month earlier.

July 2011

- Then Prime Minister Kan calls for a nuclear-free Japan; later under pressure he says it is his own view. The more pro-nuclear PM Noda soon replaces him.
- Government bans cattle shipments from Fukushima after cows eat contaminated straw. Eventually the country's beef industry is ruined.

August 2011

Government says it cannot vouch for the safety of its food exports. Rice, a staple, is found contaminated.

October 2011

Japan admits for the first time that decommissioning the melted down reactors will take 40 years. In May TEPCO said the plant would be shut down for only six months.

December 2011

PM Noda announced the Fukushima reactors are in cold shutdown, a politically motivated announcement. Members of his party say it is "a fiction".

January 2012

- Only three of Japan's 50 reactors are operating, no signs of problems supplying people with electricity.
- PM Noda says Japan's reliance on nuclear power should be reduced to the "maximum extent".

April 2012

Japan lifts no-entry ban in three Fukushima-area municipalities; people can't stay overnight.

May 2012

Last operating reactor is shutdown; Japan is nuclear free for the first time in 42 years.

June 2012

- Government agrees to set up a new, independent nuclear regulator – the Nuclear Regulatory Commission (NRC).
- Anti-nuclear activists submit a petition with 7.48 million signatures to the Speaker of the Lower House and call for the end of nuclear power in Japan.

July 2012

Two reactors at the Oi power plant are allowed to restart.

August 2012

- Government injects ¥1 trillion yen (\$12.78bn) into TEPCO, effectively taking it over, to prevent bankruptcy. Government provides another ¥2.5tn for victim compensation.
- No power blackouts even though only two of 50 reactors are now operating.

September 2012

- Government announces plans to end nuclear by 2030 and won't begin building any new plants in that period.
- The Okuma town assembly declares its town, home to the Fukushima plant, off limits for five years.

November 2012

- 10,000+ join a criminal lawsuit against TEPCO and government officials claiming professional negligence caused the disaster.
- Government declares 96% of Okuma, home to the Fukushima plant, uninhabitable for the foreseeable future.

December 2012

Pro-nuclear Shinzo Abe elected prime minister.

January 2013

- The mayor of Futaba says residents won't be able to return home for at least 30 years.
- PM Abe commits the government to a big role in decommissioning at Fukushima, allocating an extra ¥156.4bn. Government also gives TEPCO an extra ¥696.8bn (\$7.5bn) for victim compensation.

May 2013

New information shows the widespread influence of the yakuza crime gangs on the trillion-yen decontamination industry.

June 2013

Government injects another ¥660bn into TEPCO; total cost of disaster to taxpayers so far is \$38bn.

August 2013

Government says it will take the lead in dealing with the ongoing crisis of contaminated water.

September 2013

- Japan is again nuclear free as the Oi reactors go offline for routine maintenance.
- Japan announced as host of the 2020 Summer Olympics.

October 2013

Government apparently accepts TEPCO's refusal to pay the costs of the Fukushima clean-up.

November 2013

Temporary housing built for nearly 30,000 Fukushima evacuees is deteriorating, with cold entering through gaps in walls.

Nuclear and Other Agencies

June 2011

Japan's Nuclear Industrial Safety Agency (NISA) announces the releases of radioactive caesium and iodine from the Fukushima accident were more than double their original estimate.

August 2011

Outgoing head of NISA says nuclear regulation in Japan is inadequate, says he knew already on March 12 that the nuclear fuel at Fukushima reactors might have been damaged.

September 2011

Japan Atomic Energy Agency (JAEA) scientists report the Fukushima disaster may have released three times more radiation into the ocean than TEPCO reported.

October 2011

Japan's Nuclear Safety Organisation (JNES) reveals that NISA officials secretly acknowledged possibility of a full meltdown on March 25, when both NISA and TEPCO were saying the reactors were "slightly damaged".

March 2012

Independent panel report says TEPCO's "systematic negligence" made "light of the culture of nuclear safety", leaving it unprepared for a severe accident.

May 2012

NISA and TEPCO admit they knew in 2006 that a power loss leading to a blackout caused by flooding from a tsunami was possible. They didn't do anything.

People's health

February 2012

Japan's Nuclear Safety Commission (NSC) reveals that the government concealed the exposure of children's thyroid glands to radiation in March 2011.

July 2012

A study of children between birth and seven years shows 141 urine samples contained up to 17.5 Becquerels/kg of caesium. Children with highest radiation were eating home-grown fruits and vegetables from Fukushima. Another study showed 1,080 children in Fukushima Prefecture have been exposed to an average of 12 mSv (and maximum of 42 mSv) of lifetime dose of radiation to their thyroid glands.

August 2012

Concerns about worker safety as reports reveal subcontractors hid radiation doses to workers.

September 2012

Fukushima Prefecture promises lifetime thyroid tests for 360,000 people 18 or younger at the time of the disaster.

November 2012

New government study shows TEPCO has monitored radiation doses to workers poorly.

December 2012

A study shows children in Fukushima Prefecture have the highest obesity rates in Japan, most likely due to a lack of outdoor exercise.

January 2013

TEPCO employees reveal the company did not monitor exposure to radiation for arms, legs and heads of workers; some worked in highly contaminated areas.

March 2013

A government investigation reveals that records for 63 workers under reported radiation they received between November 2011 and October 2012.

April 2013

TEPCO admits 14 workers dealing with highly radioactive water didn't wear dosimeters

June 2013

A non-profit group in Tokyo offers thyroid tests for children from Fukushima Prefecture because government tests are inadequate.

July 2013

The government says radiation exposure records for 452 workers are inaccurate, under reporting exposure. TEPCO says the number of workers facing potential health impacts because of significant radiation exposure is nearly 2,000.

December 2013

A special report by Reuters finds that labour recruiters are signing up homeless people to work on cleanup operations at the Fukushima plant, and that criminal gangs are also heavily involved in supplying workers.

Fukushima Reactors (Leaks, Debris, ALPS etc...)

April 2011

TEPCO admits radioactive water is leaking into the ocean from a crack in a pit near reactor #2. TEPCO also dumps 11,500 tonnes radioactive water into the ocean.

September 2011

Japan Atomic Energy Agency report says the Fukushima disaster may have released more than three times the radiation into the ocean than initially reported by TEPCO.

March 2012

- Experts estimate 10,000 tons of radioactive water leaks from the damaged Fukushima reactors every month. In January and February 28 leaks were found. The Meteorological Research Institute estimates twice the original estimate of radioactive caesium was released than originally thought – 40,000 trillion Becquerels.
- New tests on reactor #2 show conditions worse than thought, water levels in the containment vessel are only 60cm not three metres, fatally high radiation levels also found.

April 2012

- TEPCO detects another leak, 12 tons of radioactive water this time – much of it likely ran into the ocean.
- A study by a university research team shows Fukushima radiation was distributed around the world within 40 days of the disaster.

June 2012

Japan struggles to cope with four million tons of radioactive debris, 90% awaits disposal.

September 2012

Stiff opposition from local communities to government plans to dispose of 42,000 tons of radioactive waste.

October 2012

Broadcaster NHK reveals hundreds of thousands of bags of radioactive soil on 1,500 properties not properly disposed of.

December 2012

Government announces more than 80% of 100,000 homes across Fukushima Prefecture still contaminated.

January 2013

- Asahi Shimbun newspaper reveals contractors dumped radioactive waste in forests and rivers and didn't store it properly.
- TEPCO says a fish caught near the plant has 2,540 times the legal limit of radiation. Company also says it still plans to dump contaminated water into the ocean, after reducing radiation to legal limits.

February 2013

Government says it will remove 183,000 tons of radioactive waste and other debris from Minamisoma in Fukushima prefecture – an area off-limits because of high radiation levels.

March 2013

TEPCO reports a fish caught off Fukushima has about 5,000 times the legal limit of radioactive caesium.

April 2013

Contaminated water crisis worsens. About 400 tons a day of contaminated water is produced by the cooling operations needed to keep fuel from overheating at the plant.

May 2013

Groundwater enters damaged reactor buildings at rate of almost 300 litres a minute and becomes highly contaminated. Storage tanks cover 42 acres of land. An earthquake causes water to overflow from a tank.

June 2013

- Levels of radioactive tritium found in ocean water near Fukushima intakes are highest recorded from accident.
- ALPS (Advanced Liquid Processing System), used to remove radioactive contaminants from water cooling reactors, is leaking, and later in month is out of operation.
- Highest levels yet of radioactive strontium, caesium and tritium found in contaminated groundwater. TEPCO and government can't figure out how to stop leaks to prevent contamination.

July 2013

TEPCO admits for first time that radioactive water is leaking into the sea.

August 2013

- TEPCO announces 300 tons of highly radioactive water leaks from storage tank, likely into ocean. 80% of storage tanks now full.
- TEPCO admits 20 – 40 trillion Becquerels of radioactive tritium has leaked into ocean since disaster began. Government estimates 300 tons of radioactive water flows into ocean daily.

September 2013

- More leaks from storage tanks. Radiation levels near tanks capable of killing a person in four hours. 800 to 1,000 tons of groundwater now estimated to flow through plant every day. More than 1,000 storage tanks now on site.
- TEPCO forced to dump 1,130 tons of low-level radioactive water into ocean after heavy rainfall, just days after being ordered to reduce flow of contaminated water.

October 2013

- Heavy rain causes more leaks from storage tanks into ocean.
- Radiation levels in seawater samples from just off coast of reactors hit highest level in two years.
- ALPS system down again.
- 340 million litres of contaminated water now stored on site.

November 2013

- TEPCO says it doesn't know how to deal with 2,700 tons of radioactive rainwater stored in tanks after October typhoons.

- TEPCO confirms for first time that contaminated water is leaking from the primary containment at reactor #1.
- ALPS shut down again.

December 2013

TEPCO finds radioactive contamination at 36,000 times permissible level in water in observation well.

January 2014

- ALPS down again.
- Water leaking from reactor #3 measures 2.4 million Becquerels per litre of radioactive caesium and 24 million for strontium. Regulatory authority asks TEPCO to address rising radiation levels at plant boundaries.

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