Reference (2)

July 26, 2013
Tokyo Electric Power Company

Chronology of events concerning disclosure on the discharge of contaminated water into the bay

Date	Day	Event	Description	Issues raised by media at the head office's media conference	TEPCO's explanation
April 2, 2011	Sat	Discharge of contaiminated water from the area around the Unit 2 intake screen	TEPCO employees found that water measuring over 1,000mSv/h was pooled in the pit for storing power cables near the Unit 2 intake, and that the concrete on the side of the pit had cracks, discharging the water into the sea.	–	–
April 6, 2011	Wed	Suspension of the contaminated water discharge from the area around the Unit 2 intake screen	After the leak was identified, a series of measures was implemented including pouring concrete into the pit and introducing polymeric macromolecule, with no success. liquid glass was then injected around the pit on several occasions, and was subsequently confirmed that the discharge into the sea stopped.	–	–
May 11, 2011	Wed	Confirmed discharge from around the Unit 3 intake screen and subsequent halt of the discharge	It was found that contaminated water was discharged from the power cable pit in the Unit 3 screen pump room via a penetration section on the room's concrete wall. Sealing treatment was given on the same day, successfully stopping the discharge.	–	–
April -	–	Measures to prevent the discharge of contaminated water	Laying large sandbags: April 5 - April 8, 2011 Installing silt fences: April 11 - April 14, 2011 Installing steel plates (in front of Unit 2 screen): April 12 - April 15, 2011 Closing pits and other openings: April 2 - June 25, 2011 Introducing sliding timber weir to the screen rooms: June 12 - June 29, 2011 Using steel pipe sheet piles to seal the damaged parts of areas treated for permeation prevention at Units 1 - 4: July 12 - September 6, 2011 Installing water sheilding wall in the sea: October 28, 2011 - (to be completed in September 2014)	–	–
December 17, 2012	Mon	Report on the results of groundwater surveys at No.1～3	Observation results below detectable limit at all three locations （Measured on December 8 (No.1), December 8 (No.2) and December 12 (No.3)	–	–
May 24 and 31, 2013	Fri / Fri	Water sampling	Water sampled at full tide on May 24 → Tritium analysis results confirmed on May 31 Water sampled at low tide on May 31 → Tritium analysis results confirmed on June 11 Water sampled at full tide on June 7 → Tritium analysis results confirmed on June 14	–	–
June 18, 2013	Tue	No.1-1 observation pit work commenced	–	–	–
June 19, 2013	Wed	Point（1） Ad-hoc media conference	High concentration of tritium and strontium detected at No.1 observation pit	Any dispersion to the sea side? Any possibility of leakage into the sea? When and by whom was the high tritium level detected?	TEPCO believes there is no leakage at this stage. TEPCO believes there is no possibility of leakage into the sea.
		11th meeting of the Nuclear Regulation Authority	Following instructions were issued to TEPCO: ・Carry out dispersion assessment of radioactive materials and reinforce monitoring in the bay. ・Urgently implement measures for preventing radioactive materials from flowing into the sea side at the concentration above the official limit. ・Urgently formulate leakage prevention measures for the sea-side trench containing high-level contaminated water and implement / complete them ahead of other measures. NRA members highlighted TEPCO's delay in disclosing the measurement results at No.1 observation pit, and demanded that the company identify the mechanism of contamination underground.	–	–
		Regular press conference	High concentration of tritium and strontium detected at No.1 observation pit	Wasn't it possible to release the information sooner? When did the head office receive data? When did TEPCO share the data within the ocmpany?	There is a possibility that the contaminated water may be permeated to the sea. TEPCO will assess the possibilty of permeation to and from the sea. Seawater data does not show any impact.
June 24, 2013	Mon	Regular press conference	1,100Bq/liter of tritium detected at the north intake at Units 1-4 (highest level observed)	Any leakage to seawater?	TEPCO will carefully examine sampling results before making any judgment. TEPCO will continue to carefully observe the results of future samplings.

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June 26, 2013	Wed	12th meeting of the Nuclear Regulation Authority	NRA pointed out the possibility that seawater has been impacted with the contamination. NRA instructed TEPCO to carefully monitor monitoring results and urgently commence soil improvement work by grouting with liquid glass in the areas behind the seawall between the intakes for Units 1 and 2. NRA commissioners requested that thorough sampling be carried out as the site has seawater coming in at high tide, which could lead to lower concentration readings.	–	–
		Regular press conference	1,500Bq/liter of tritium detected at the north intake at Units 1-4 (possibly blocked with the impervious walls installed). Observation points at the north intake relocated TEPCO announced the reinforcement of its monitoring plan both on the ground and in the bay.	Show measurement results in a graph. Isnt' it possible to accelerate analysis pace?	TEPCO will make an assessment after accumulating more data. (In response to NRA) TEPCO will examine the situation closely before offering more explanation.
		Work on No.1-2 observation pit commenced	–	–	–
June 27, 2013	Thu	Drilling work on No.1-1 observation pit completed	–	–	–
June 28, 2013	Fri	Work on No.1-4 observation pit commenced	–	–	–
June 29, 2013	Sat	Announcement of observaton pit analysis results	3,000Bq/liter of total beta radioactivity observed at No.1-1 observation pit (highest level observed) 430,000Bq/liter of tritium observed at No.1-1 observation pit (highest level observed)	–	–
July 1, 2013	Mon	Point (2) Regular press conference	3,000Bq/liter of total beta radioactivity observed at No. 1-1 observation pit (highest level observed) 430,000Bq/liter of tritium observed at No.1-1 observation pit (highest level observed)	Isn't it reasonable to assume that there is leakage into the sea? In what situation would TEPCO accept that there is leakage?	No solid conclusion can be drawn at this stage. It is necessary to continue accumulating data. There has been no change in data collected on the sea side. TEPCO will urgently implement seawall improvement. TEPCO wishes to examine data trend before making judgment.
July 2, 2013	Tue	Work on No.1-3 observation pit commenced	–	–	–
July 3, 2013	Wed	Drillnig work on No.1-2 observation pit completed	–	–	–
July 5, 2013	Fri	Regular press conference	900,000 Bq/liter of total beta radioactivity observed at No.1-2 observation pit (highest level observed)	Are you not changing your stance even after obtaining the reading as high as 900,000 Bq/liter in total beta radioactivity?	No data change on the sea side. TEPCO is not changing its stance.
July 6, 2013	Sat	Drilling work on No.1-4 observation pit completed	–	–	–
July 7, 2013	Sun	Announcement of observation pit analysis	600,000Bq/liter of tritium observed at No.1-1 observation pit (highest level observed) 380,000Bq/liter of tritium observed at No.1-2 observation pit (highest level observed)	–	–
July 8, 2013	Mon	Regular press conference	Soil improvement work commenced at seawall between the intakes for Units 1 and 2.	Judging from the flow of groundwater, isn't it only natural to assume that the rise of tritium at No.1-1 and No.1-2 indicates discharge into the sea? Leakage into the sea cannot be ruled out, can't it? Aren't you just trying to put off drawing a conclusion?	The fact that a high level has not been detected from samples from the sea side makes it impossible to draw a conclusion. TEPCO wishes to accumulate more data for careful analysis. TEPCO will continue to investigate the matter without prejudice.
July 9, 2013	Tue	Video released on TEPCO website	Video showing the status of the soil improvement work was released online.	–	–
		Point (3) Meeting among the SC Office, Corporate Communications Department, Plant Siting & Regional Relations Department and the Nuclear Power Division	Participants of the meeting agreed to release an update at the mid/long term progress briefing based on the outcome of the internal expert meeting on July 23 even if there was no change of tritium concentration on the sea side. They also agreed that, if there is a sudden increase in tritium concentration on the sea side, the possibility of leakage into groundwater should be made public wthout delay.	–	–
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July 10, 2013	Wed	14th meeting of the Nuclear Regulation Authority	NRA pointed to the strong possibility that water contaiminated at high concentration leaked and was spreading into the ocean. NRA instructed swift completion of countermeasures including soil improvement work of grouting with liquid glass, installation of water shielding wall in the sea side and draining of sea-side trenches. Commissioners highlighted the need to collect basic data concerning tide levels and groundwater levels. NRA chairman said, "We believe contamination has reached the ocean to some extent. The worst contamination occurred at the time of the accident, but contamination must have continued for the past two years since then."	–	–
		Regular press conference	High concentraton of cesium (11,000Bq/liter of cesium 134 and 22,000Bq/liter of cesium 137) observed at No.1-2 observation pit Change of radioactive concentration due to the filtration of No.1-2 observation pit	What is your position of the comments made by NRA executives? How is it that you and NRA come up with different views when using the same data? Have you asked experts to make an assessment? What conditions do you have to have before accepting that there has been leakage?	(In response to NRA comments) TEPCO will continue investigating the matter thoroughly and address it in good faith. No comment on leakage into the sea as TEPCO does not have enough data to make specific comments. TEPCO will make a judgment based on various analysis results. TEPCO will continue to accumulate data and provide thorough information on status.
July 11, 2013	Thu	Drilling work on No.1-3 observation pit completed	–	–	–
July 12, 2013	Fri	Questions from NRA to TEPCO	NRA presented five questions: ・Locations in the sea-side trench that could allow water to flow in or out ・Scope and effect of water sealing treatment at Unit 2 intake screen and pits ・Behavior of groundwater in the bay area based on the actual measurement or simulation of groundwater movements Information especially on the fluctuations of groundwater level and their correlation with tidal movements, if any ・Structure and intake method of groundwater observation pits and their underground structure on the bay side ・Explanation on tidal movements in the bay	–	–
July 17, 2013	Wed	Regular press conference	The progress of the investigation into the intake power cable trench was explained.	Why don't you release the water level in the observation pits? When do you release assessment results?	TEPCO will check if the water level has been measured. TEPCO has not reached a final assessment, with impact on the sea still unknown. Experts' opinions will be referred to in continuing the assessment.
July 18, 2013	Thu	Meeting among the Nuclear Power Division, Corporate Communications Department, etc.	The results of water level measurement from additional drilling were confirmed. In the course of examining the availability of data for No.1 to No.3 observation pits, data concerning tide levels and groundwater levels was found.	–	–
		Briefing NRA	TEPCO explained the structure of the sea-side trench, water stopping measures taken in past leakage for contaminated water, behaviors of groundwater in the bay area, as well as information on groundwater sampling, seawater cooling systems for Units 5 / 6, and tide movements in the bay.	–	–
		Ad-hoc media conference （Steam from Fukushima Daiichi Unit 3）	–	Shouldn't you be measuring the water level in observation pits?	TEPCO measures the water level in the observation pits.
July 19, 2013	Fri	Meeting among the President, SC Office, Nuclear Power Division, Plant Siting & Regional Relations Department and Corporate Communications Department	Discussions on the release of data It was decided to swiftly release data before the briefing for fisheries representatives scheduled for July 23 and 24.	–	–
		Point (4) Regular press conference	Concentration of radioactive materials in groundwater and sea water on the east side of the turbine building Results of detailed analysis in the bay, around discharge outlets and seawall	Isn't the contaminated water coming from the land side? Isn't contaminated water coming from the buildings? Can't you release raw data on the water level in observation pits, as measured on site?	TEPCO must continue investigating and examining the sources of contamination to reach any conclusion. Data on the level of groundwater is to be released after close examination, which is currently underway.

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July 20 and 21	Sat / Sun	Meeting among the Nuclear Power Division, Plant Siting & Regional Relations Department and Corporate Communications Department	Materials for public release compiled	–	–
July 22, 2013	Mon	Briefing for government offices, prefectural / municipal authories and fisheries representatives	Advance explanation of public release contents	–	–
		Regular press conference	TEPCO announced that it believes groundwater, which contains contaminated water, flowed into open channels.	Does that mean you admit the discharge of contaminated water? Why did you make the announcement today? Have you been waiting for the end of the Uppwer House elections? Why have you decided to make the information public despite the fact that you have been measuring the water level for some time.	There seems to be some flow of water into and out of the open channels. TEPCO has made the announcement today as soon as the information was compiled.
July 31, 2013	Wed	Soil improvement work of grouting with liquid glass (1st row) scheduled to be completed	The site work was commenced on June 26, with chemical injection having started on July 8.	–	–
August 10, 2013	Sat	Soil improvement work of grouting with liquid glass(2nd row) scheduled to be completed	Same as above	–	–

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