Attachment VI-1

"Report on the results of the seismic response analysis of the reactor building and equipment, and piping systems, which are important for seismic safety, of the Fukushima Daiichi Nuclear Power Station Unit No.2, using the seismic records observed at the 2011 Tohoku District - off the Pacific Ocean Earthquake (Outline)" dated June 17, 2011 and prepared by Tokyo Electric Power Company (Abstract)

1. (Dispensed)

2. Reactor building

To establish the condition of the reactor building during the earthquake, the seismic response analysis of the reactor building of Fukushima Daiichi Nuclear Power Station Unit No. 2 based on the 2011 Tohoku District - off the Pacific Ocean Earthquake was conducted using seismic records observed at the base mat of the building.

In the seismic response analysis, a model that could adequately represent the characteristics of the building and structures, and the ground was created (Fig. 1).

As a result of the seismic response analysis, the maximum shearing strain on the seismic-resistant walls was 0.43×10^{-3} (in the east-west direction, 5th floor), and it was confirmed that all seismic-resistant walls other than the one in the east-west direction on the 5th floor showed stress and distortion to the same or lesser extent than those of the first flexion point of the Skelton curve (Fig. 2, 3).

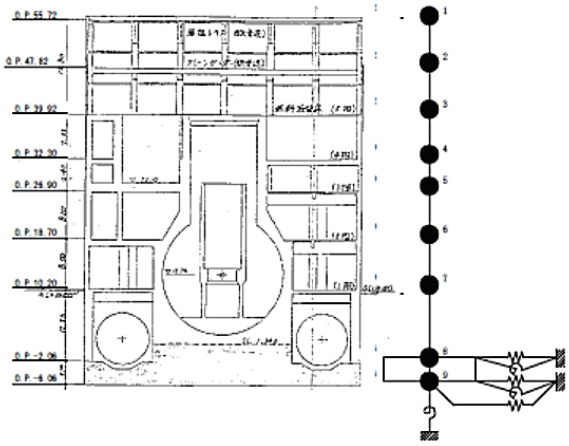


Fig. 1. Unit 2 Reactor Building (Model)

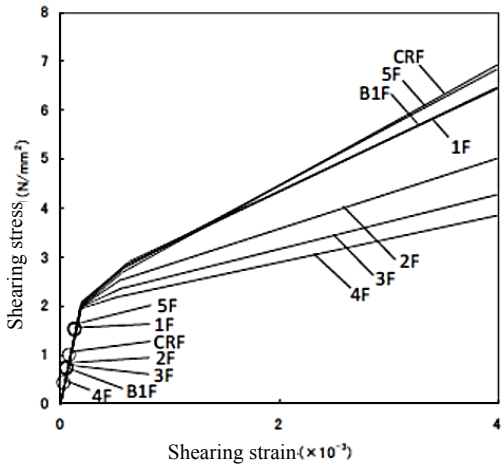


Fig. 2. Shearing Strain on the Seismic-resistant Walls (north-south direction)

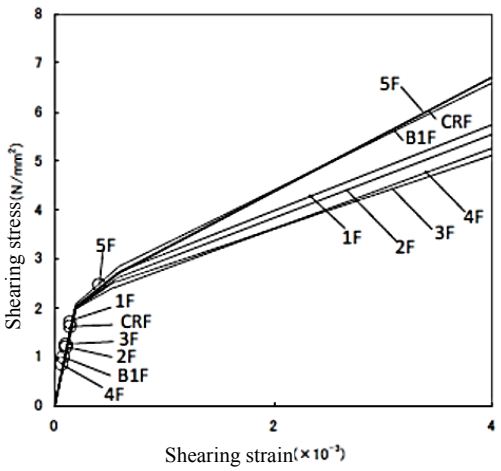


Fig. 3. Shearing Strain on the Seismic-resistant Walls (east-west direction)

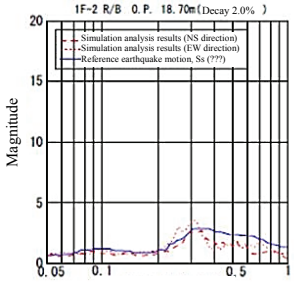
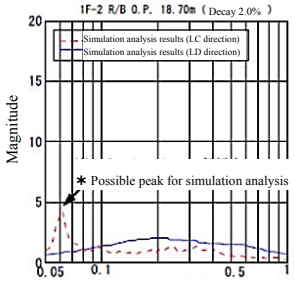
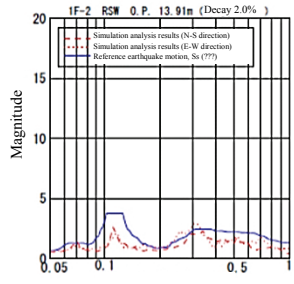
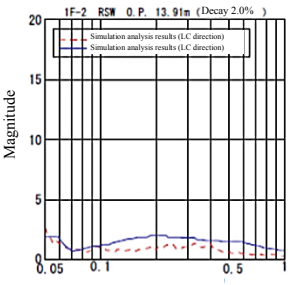
3. Equipment and piping systems important to seismic safety

The seismic response analysis based on seimic records observed of the Tohoku District - off the Pacific Ocean Earthquake was conducted on large components such as the reactor of the Fukushima Daiichi Nuclear Power Station Unit No. 2, and a comparison was made between the resulting seismic loads, etc. and those already obtained through the seismic safety evaluation with past reference seismic motion, Ss.

As a result of the comparison, the seismic loads, etc. due to the Earthquake partly exceeded those obtained through the seismic safety evaluation. However, through the seismic assessment of the main facilities that had functions important to safety related to the "shutdown" and "cooling" of the reactor and "confinement" of radioactive substances, it was confirmed that the calculated stress and others were below the evaluation criteria (Table-1). From the results, it is estimated that the main facilities that have functions important to safety were able to maintain the safety functions at the time of and right after the earthquake.

Table 1. Summary of the impact assessment on equipment and piping systems important to seismic safety
(Fukushima Daiichi Nuclear Power Station Unit 2)

Equipment, etc.		Seismic response load	Reference seismic motion, Ss	Results of Simulation analysis	Seismic assessment results
Seismic load, etc.	Reactor pressure vessel base	Shearing force (kN)	4960	5110	Reactor pressure vessel (foundation bolt) Calculated value: 29 MPa Evaluation criteria: 222 MPa
		Moment (kN・m)	22500	25600	
		Axial force (kN)	5710	4110	
	Reactor containment base	Shearing force (kN)	7270	8290	Reactor containment (dry well) Calculated value: 87 MPa Evaluation criteria: 278 MPa
		Moment (kN・m)	124000	153000	
		Axial force (kN)	3110	2350	
	Core shroud base	Shearing force (kN)	2590	3950	Core support structure (shroud support) Calculated value: 122 MPa Evaluation criteria: 300 MPa
		Moment (kN・m)	13800	21100	
		Axial force (kN)	760	579	
	Fuel subassembly	Relative displacement (mm)	16.5	33.2	Control rod (insertion performance) Evaluation criteria: 40.0 mm
Magnitude for assessment	Refueling floor	Magnitude (horizontal) (G)	0.97	1.21	Residual heat removal system pump (motor mounting bolt) Calculated value: 45 MPa Evaluation criteria: 185 MPa
		Magnitude (vertical) (G)	0.56	0.70	
	Base mat	Magnitude (horizontal) (G)	0.54	0.68	
		Magnitude (vertical) (G)	0.52	0.37	

Floor response spectrum (reactor building)	< Intermediate floor (O.P. 18.70 m) >  (Horizontal)  (Vertical)	Main steam piping Calculated value: 208 MPa Evaluation standard value: 360 MPa Residual heat removal system pipe Calculated value: 87 MPa Evaluation standard value: 315 MPa
Floor response spectrum (reactor shield wall)	< Reactor shield wall base (O.P. 13.91 m) >  (Horizontal)  (Vertical)	

Attachment VI-2

"Report on the analysis of seismic records observed at the Onagawa Nuclear Power Station during the 2011 Tohoku District - off the Pacific Ocean Earthquake and the results of the tsunami survey (Outline)" dated April 7, 2011 and prepared by Tohoku Electric Power (Excerpt)

1. Seismic records observed at the Onagawa Nuclear Power Station

The Tohoku District – off the Pacific Ocean Earthquake was one of the largest earthquakes ever to hit Japan. Some of the maximum acceleration values observed on each floor of Unit 1, 2, and 3 reactor buildings exceeded the maximum response acceleration spectrum in terms of reference earthquake ground motion, Ss, which had been developed based on the revised version of the Regulatory Guide for Reviewing Seismic Design. However, there was little difference among the values (see Table 1).

Table 1. Comparison between the earthquake seismic records observed and the maximum response acceleration spectrum in terms of reference earthquake ground motion, Ss

Observation location		Seismic records observed			Maximum response acceleration spectrum in terms of reference earthquake motion, Ss (gal)		
		Maximum acceleration value (gal)					
		N-S direction	E-W direction	Vertical direction	N-S direction	E-W direction	Vertical direction
Unit 1	Rooftop	2000(*)	1636	1389	2202	2200	1388
	Refueling floor (5th floor)	1303	998	1183	1281	1443	1061
	1st floor	573	574	510	660	717	527
	Base mat	540	587	439	532	529	451
Unit 2	Rooftop	1755	1617	1093	3023	2634	1091
	Refueling floor (3rd floor)	1270	830	743	1220	1110	968
	1st floor	605	569	330	724	658	768
	Base mat	607	461	389	594	572	490
Unit 3	Rooftop	1868	1578	1004	2258	2342	1064
	Refueling floor (3rd floor)	956	917	888	1201	1200	938
	1st floor	657	692	547	792	872	777
	Base mat	573	458	321	512	497	476

(*) Information only, as the acceleration scaled out the seismometer

"Summary of the analysis results of seismic records observed at the Onagawa Nuclear Power Station during The 2011 Tohoku District - off the Pacific Ocean Earthquake" dated April 7, 2011 and prepared by Tohoku Electric Power (Excerpt)

1. (Dispensed)

2. Seismic response analysis results using the observation records on the base mat

To roughly evaluate distortion in the seismic-resistant walls of the reactor buildings (the maximum response shearing strain) and the shearing force, which affected the seismic-resistant walls on each floor, a seismic response analysis was conducted using the seismic records observed on the base mat (Fig. 4).

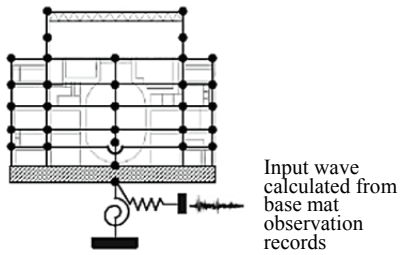


Fig. 4. Outline of the seismic response analysis using the observation records on the base mat

(1) Confirmation of the maximum response shearing strain

The results of the seismic response analysis confirmed that the maximum response shearing strain was below the evaluation criteria* (Table 2).

Table 2. The maximum response shearing strain on the seismic-resistant walls of the reactor buildings

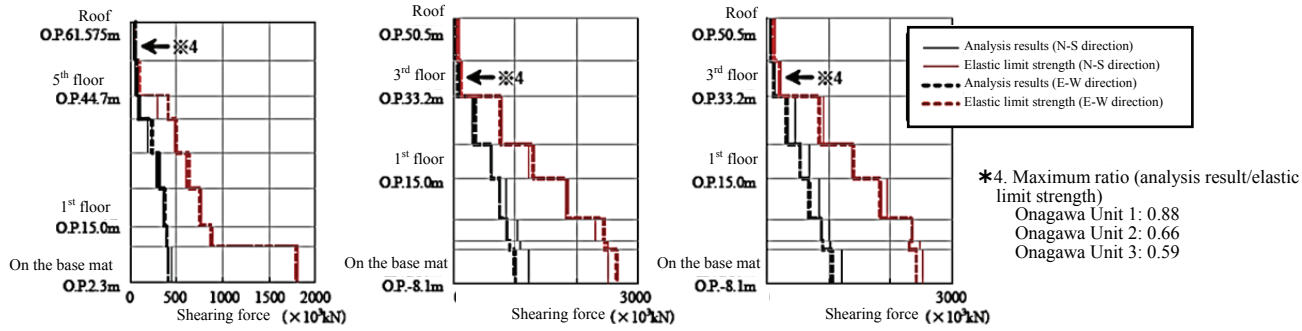
		Analysis results	Evaluation criteria*	(Ref.) Reference earthquake ground motion, Ss
Onagawa Unit 1	N-S direction	0.36×10^{-3}	2.0×10^{-3}	0.65×10^{-3}
	E-W direction	0.35×10^{-3}		0.56×10^{-3}
Onagawa Unit 2	N-S direction	0.49×10^{-3}		1.15×10^{-3}
	E-W direction	0.28×10^{-3}		0.55×10^{-3}
Onagawa Unit 3	N-S direction	0.81×10^{-3}		0.99×10^{-3}
	E-W direction	0.18×10^{-3}		0.41×10^{-3}

* The evaluation criteria is specified in the "Rules of Seismic Design Technology for Nuclear Power Stations (JEAC4601-2008)" by the Japan Electric Association. They are obtained by multiplying the safety factor of 2 on the final shearing strain of the ferroconcrete seismic-resistant walls.

(2) Confirmation of shearing forces affecting seismic-resistant walls on each floor

The results of the seismic response analysis confirmed that the shearing force, which had affected the seismic-resistant walls on each floor, was below the shearing force (elastic limit strength) that the reinforcement elastic range on each floor could bear (Fig. 5).

Fig. 5. Confirmation of shearing force affecting seismic-resistant walls on each floor of the reactor buildings



Onagawa Unit 1 Onagawa Unit 2 Onagawa Unit 3

Conclusion and future efforts

As a result of the analysis of the earthquake observation records obtained from the Onagawa Nuclear Power Station, some values exceeded reference earthquake ground motion, Ss. However, there was little difference among them. In addition, through the seismic response analysis using the observation records, it was confirmed that the functions of the reactor buildings were maintained during the earthquake as well.

Attachment VI-4

"Report on the analysis and evaluation of earthquake seismic records observed at the Onagawa Nuclear Power Station during the 2011 Tohoku District - off the Pacific Ocean Earthquake and the assessment of the impacts on the equipment important for seismic safety (Outline)" dated July 28, 2011 and prepared by Tohoku Electric Power (Excerpt)

1. Impact assessment of equipment important for seismic safety

Rough evaluations (evaluation of structural strengths and evaluation of the maintenance of dynamic functions) of the functions of the main equipment at the time of earthquakes, which "shut down" and "cool" the reactors and "confine" radioactive substances at the Onagawa Nuclear Power Station Units 1, 2, and 3 and are important for seismic safety, were conducted on the impacts of the Tohoku District – off the Pacific Ocean Earthquake on March 11, 2011 (the "March 11 Earthquake") and the Off-Miyagi Prefecture Earthquake on April 7, 2011 (the "April 7 Earthquake") based on the results of an analysis of the reactor buildings (reported on April 7 and 25, 2011, respectively) using the seismic records observed from each earthquake.

The results confirmed that the values generated by each piece of equipment during the March 11 Earthquake and the April 7 Earthquake were below the evaluation criteria for maintaining its functions (see Table 1 and Table 2).

Table 1. Structural strength evaluation results

Function	Equipment evaluated (areas covered)		Generated value (N/mm^2)		Evaluation standard value (N/mm^2)	Judgment
			March 11 Earthquake	April 7 Earthquake		
Shutdown	Core support structure (shroud support leg)	Unit 1	71	69	250	○
		Unit 2	85	111	209	○
		Unit 3	80	58	209	○
Cooling	Residual heat removal system pump (mounting bolt)	Unit 1	88	103	185	○
		Unit 2	22	21	444	○
		Unit 3	27	26	444	○
	Residual heat removal system pipe (pipe body)	Unit 1	140	151	363	○
		Unit 2	114	157	366	○
		Unit 3	204	213	324	○
Confinement	Reactor pressure vessel (foundation bolt)	Unit 1	62	71	222	○
		Unit 2	117	89	499	○
		Unit 3	72	73	499	○
	Reactor containment (sand cushion)	Unit 1	120	129	255	○
		Unit 2	0.34	0.41	1	○
		Unit 3	0.33	0.31	1	○
	Main steam piping (pipe body)	Unit 1	135	139	366	○
		Unit 2	157	207	375	○
		Unit 3	240	304	375	○

Table 2. Results of an evaluation of the maintenance of dynamic functions

Function	Equipment evaluated (areas covered)		Relative displacement (mm)		Evaluation standard value (mm)	Notes
			March 11 Earthquake	April 7 Earthquake		
Shutdown	Control rod (insertion performance) (relative displacement of fuel subassembly)	Unit 1	20.5	17.5	40.0	・At the time of the March 11 Earthquake: already confirmed that all control rods were inserted. ・At the time of the April 7 Earthquake: already confirmed that all control rods were inserted.
		Unit 2	13.9	10.2	40.0	
		Unit 3	12.2	9.5	40.0	

Existing and newly introduced accident management measures (Unit 1)

Function	Newly introduced accident management measures (Developed from March, 1994)	Existing accident management measures (as of March, 1994)
Reactor shutdown	X Alternative reactivity control (RPT and ARI)	X Manual scram X Manual operation of the water level controls and the standby liquid control system
Water injection into reactor and containment	X Alternative water injection measures (measures to inject water into the reactor and containment by the make-up water condensate and the fire protection system pump; and measures to inject water into the reactor by the shutdown cooling system from the containment cooling system)	X Manual startup of ECCS etc. X Manual depressurization of the reactor and operation of low pressure water injection X Alternative water injection measures (measures to inject water into the reactor by condensate and the feed water system and control rod drive hydraulic system)
Heat injection from containment	X Cooling container function * Alternative cooling using the drywell cooler and reactor water clean-up system * Restoration of the broken equipment of the containment cooling system * Pressure-resistant vent	X Cooling container function * Manual startup of the containment cooling system * Vent passing through the atmospheric control system and standby gas treatment system
Power supply system	X Power supply measures * Accommodation of power supply (480V of accommodation from an adjacent plant) * Restoration of the broken equipment of the emerging diesel generator * Dedicated use of the emerging diesel generator	X Power supply measures * Restoration of off-site power and manual startup of the emerging diesel generator * Interconnectivity of power supply (6.9kV of interconnectivity from an adjacent unit)

Compiled from the “Report on Development of Accident Management for Fukushima Dai-ichi NPS” (May, 2002) by

Attachment VI-5

Existing and newly introduced accident management measures (Units 2 to 5)

Function	Newly introduced accident management measures (Developed from March, 1994)	Existing accident management measures (as of March, 1994)
Reactor shutdown	X Alternative reactivity control (RPT and ARI)	X Manual scram X Manual operation of the water level controls and the standby liquid control system
Water injection into reactor and containment	X Alternative water injection measures (measures to inject water into the reactor container by make-up water condensate and the fire protection system pump X Automated depressurization of the reactor	X Manual startup of ECCS etc. X Manual depressurization of the reactor and operation of low pressure water injection X Alternative water injection measures (measures to inject water into the reactor by condensate and the feed water system and control rod drive hydraulic system†)
Heat injection from containment	X Cooling container function * Alternative cooling using the drywell cooler and reactor water clean-up system * Restoration of the broken equipment of the residual heat removal system * Pressure-resistant vent	X Cooling container function * Manual startup of the containment cooling system * Vent passing through the atmospheric control system and standby gas treatment system
Power supply system	X Power supply measures * Accommodation of power supply (480V of accommodation from an adjacent plant) * Restoration of the broken equipment of the emerging diesel generator * Dedicated use of the emerging diesel generator	X Power supply measures * Restoration of off-site power and manual startup of the emerging diesel generator * Interconnectivity of power supply (6.9kV of interconnectivity from an adjacent unit)

†: Not implemented at Unit 2

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO

Existing and newly introduced accident management measures (Unit 6)

Function	Newly introduced accident management measures (Developed from March, 1994)	Existing accident management measures (as of March, 1994)
Reactor shutdown	X Alternative reactivity control (RPT and ARI)	X Manual scram X Manual operation of the water level controls and the standby liquid control system
Water injection into reactor and containment	X Alternative water injection measures (measures to inject water into the reactor container by make-up water condensate and the fire protection system pump X Automated depressurization of the reactor	X Manual startup of ECCS etc. X Manual depressurization of the reactor and operation of low pressure water injection X Alternative water injection measures (measures to inject water into the reactor by the feed water system and control rod drive hydraulic system; measures to inject water into the reactor container by a seawater pump)
Heat injection from containment	X Cooling container function * Alternative cooling using the drywell cooler and reactor water clean-up system * Restoration of the broken equipment of the residual heat removal system * Pressure-resistant vent	X Cooling container function * Manual startup of the containment spray cooling system * Vent passing through the atmospheric control system and standby gas treatment system
Power supply system	X Power supply measures * Accommodation of power supply (480V of accommodation from an adjacent plant and 6.9kV of accommodation from the dedicated diesel generator for the high pressure core spray system) * Restoration of the broken equipment of the emerging diesel generator * Dedicated use of the emerging diesel generator	X Power supply measures * Restoration of off-site power and manual startup of the emerging diesel generator * Interconnectivity of power supply (6.9kV of interconnectivity from an adjacent unit)

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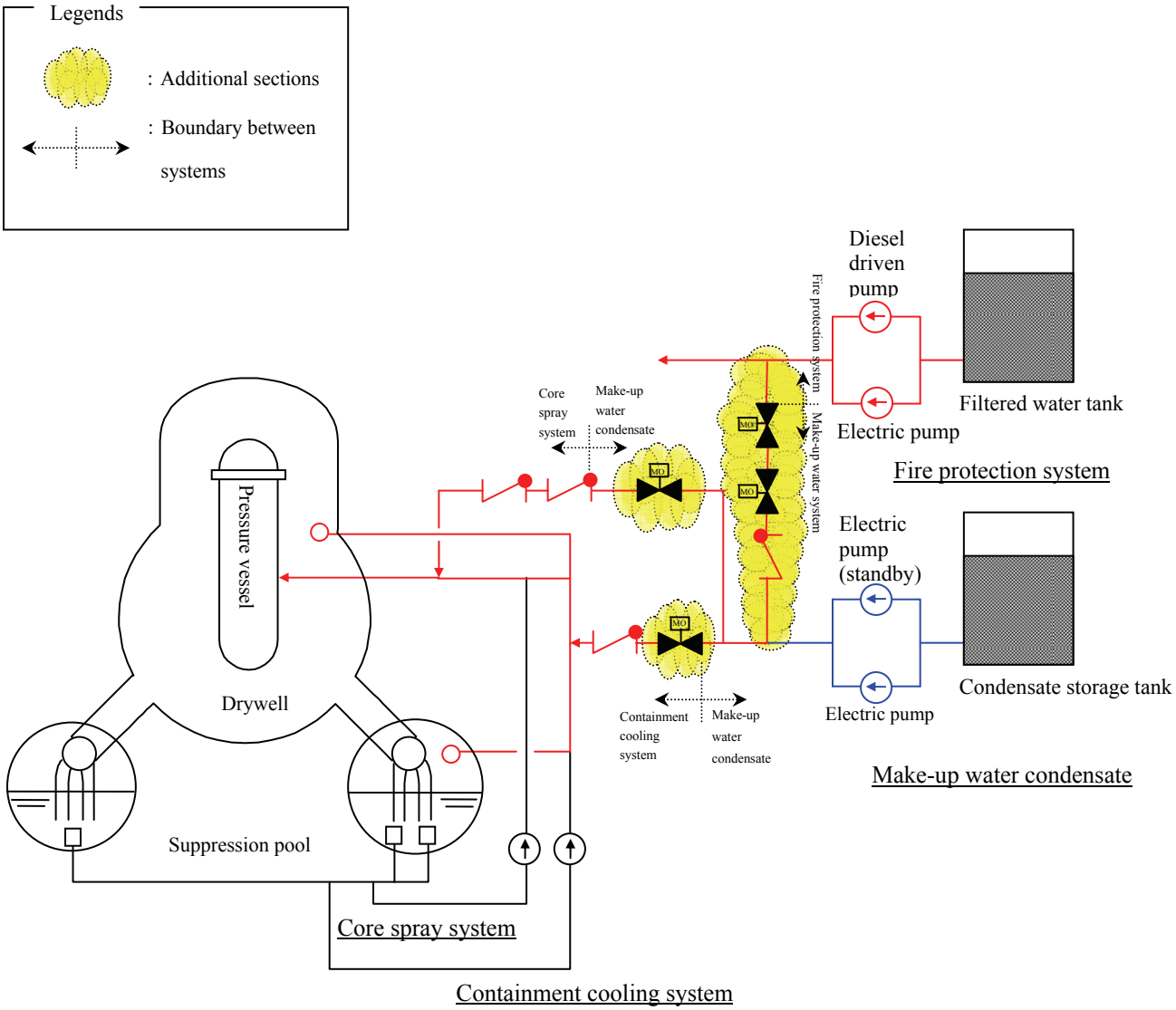
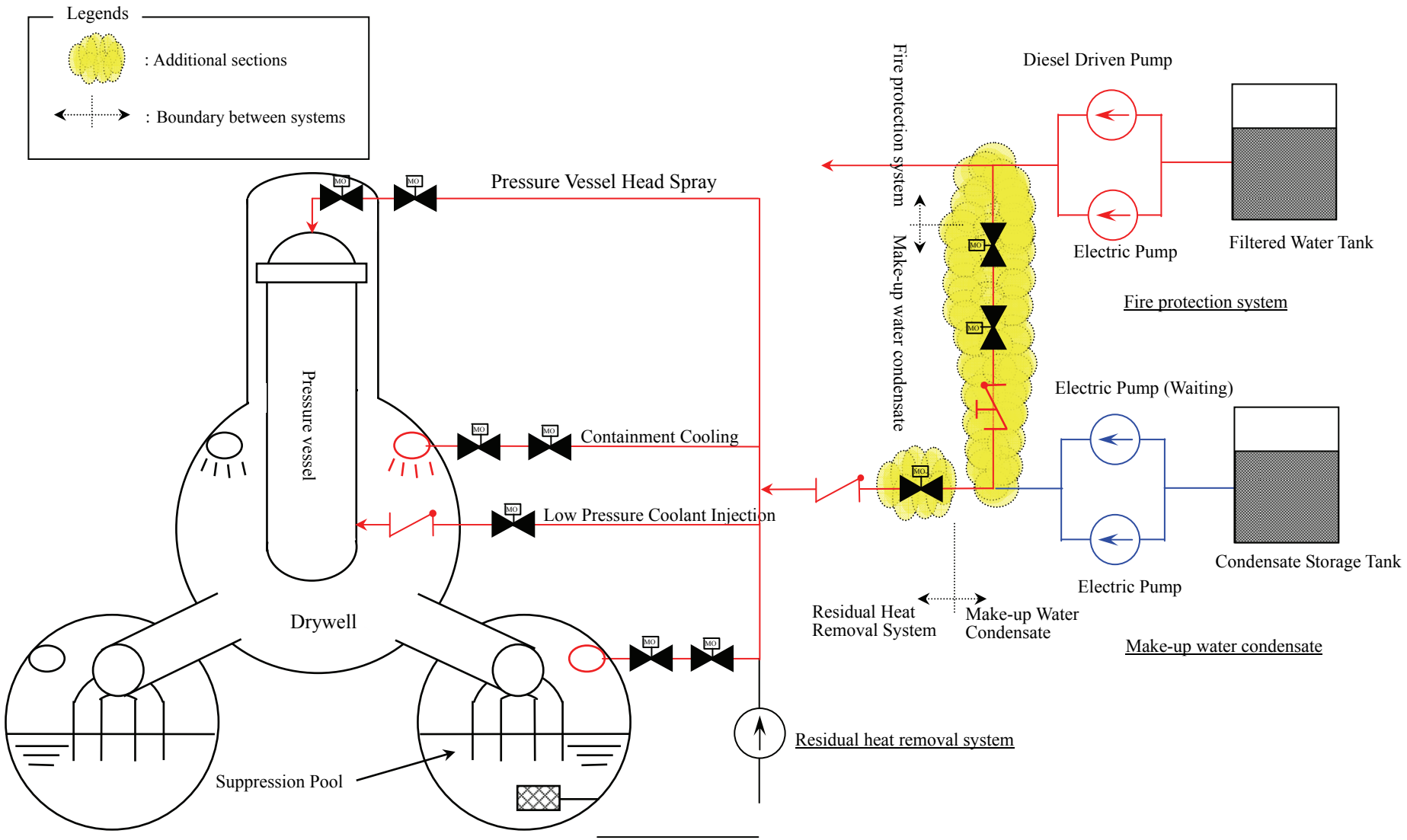
Attachment IV-6



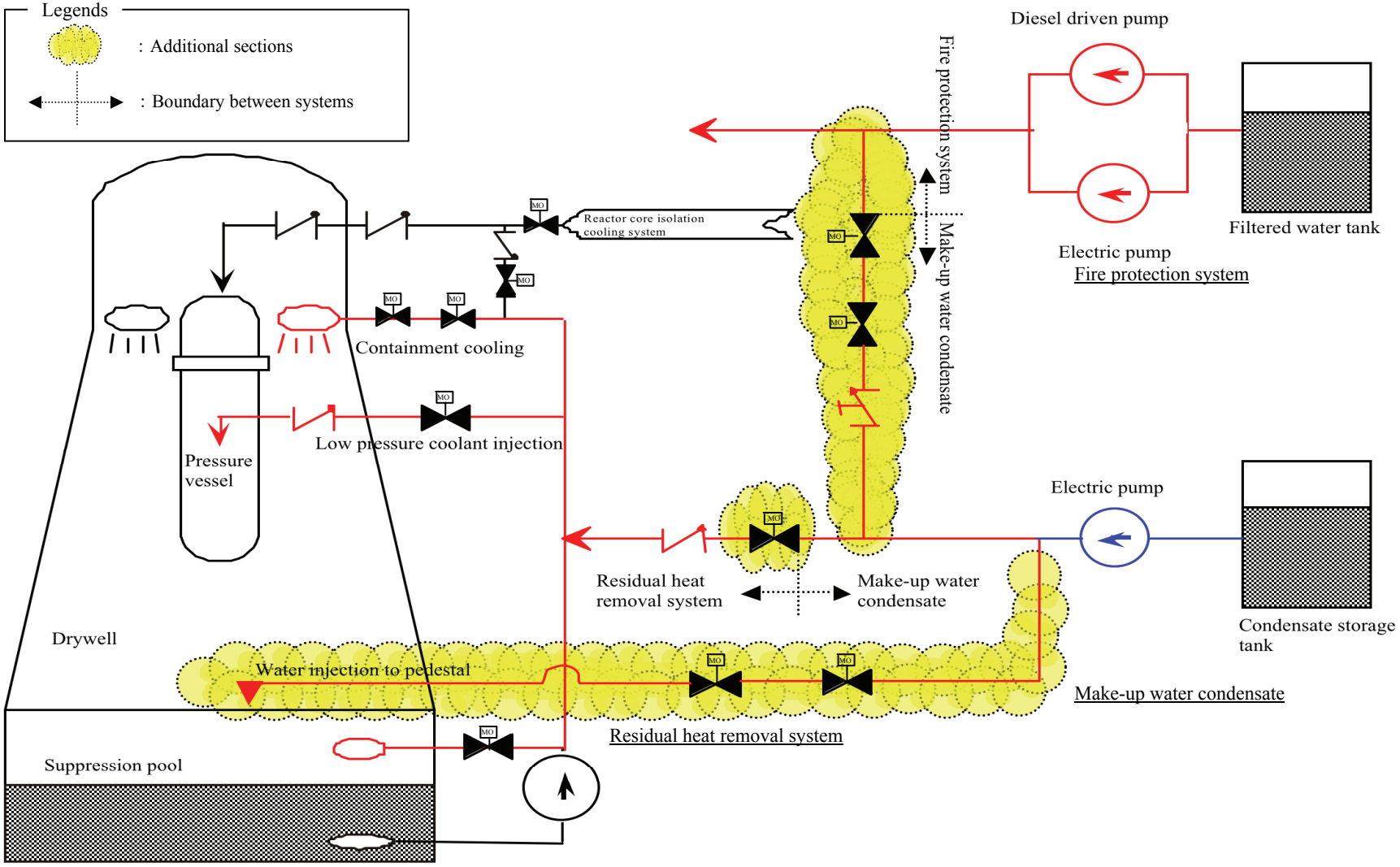
Conceptual diagram of alternative water injection facilities (Unit 1)

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO



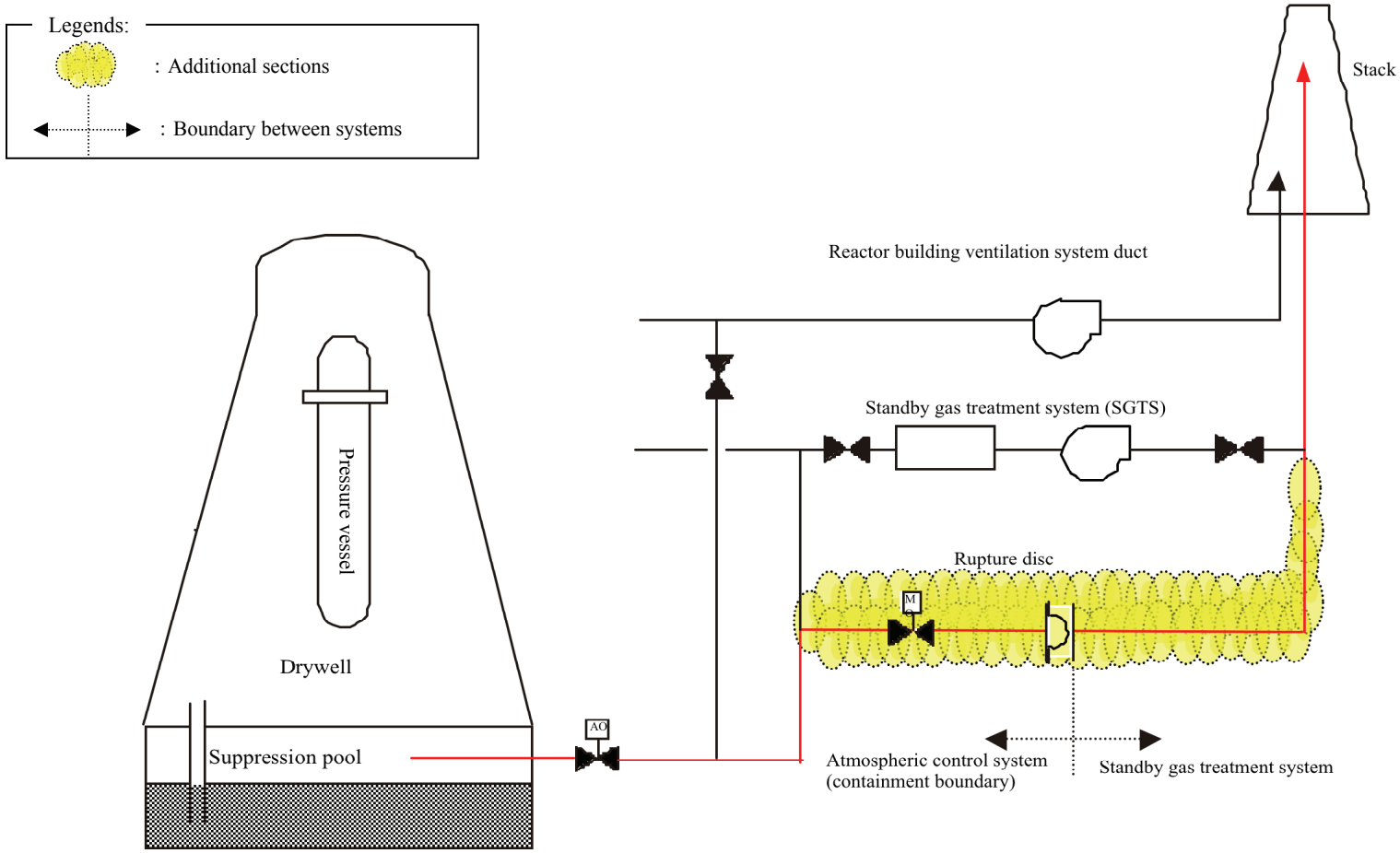
Conceptual diagram of alternative water injection facilities (Units 2 to 5)

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO



Conceptual diagram of alternative water injection facilities (Unit 6)

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO

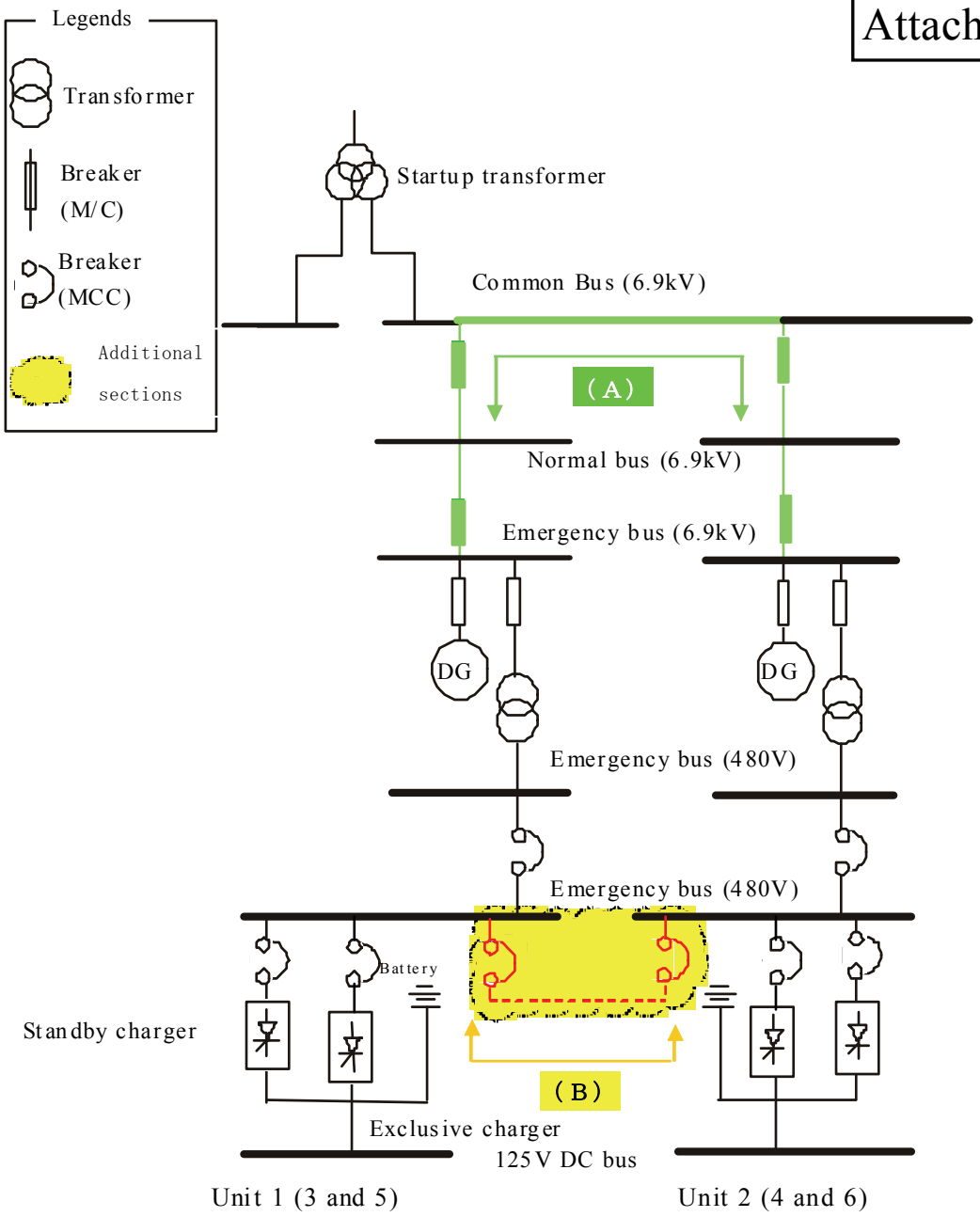


Attachment VI-7

Conceptual diagram of hardened vent system (Units 1 to 6)

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO

Attachment VI-8



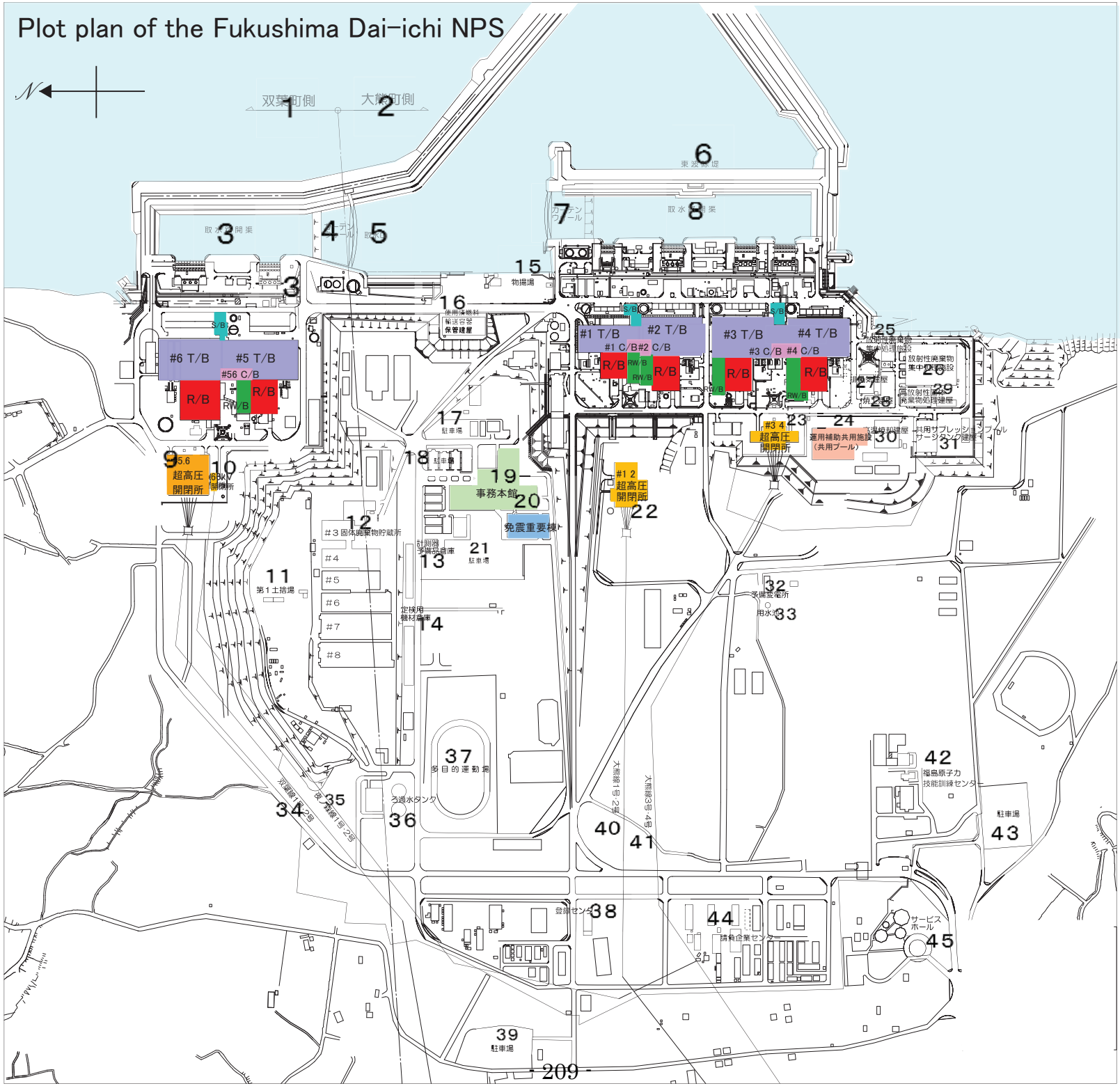
Route (A) : Capable of an AC power supply of 6.9kV.
Line for supplying high voltage AC power used until March 1994

Route (B) : Capable of an AC power supply of 480V.
Tie line for supplying low voltage AC power installed from June 1998 to August 2000

Conceptual diagram of the power supply interconnectivity (Units 1 to 6)

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO

Plot plan of the Fukushima Dai-ichi NPS



Explanatory note

- R/B Reactor building
- T/B Turbine building
- RW/B Reactor waste treatment building
- C/B Control building
- S/B Service building
- Common auxiliary facilities (shared pool)
- Ultrahigh voltage switchyard
- Main office building
- Seismic isolation building

Attachment VI-9

Based on data and documents by Tokyo Electric Power Company

福島第一原子力発電所　配置図：General layout of the Fukushima Daiichi NPS

図上部　左⇒右

①双葉町側：Futaba-machi
②大熊町側：Okuma-machi
③取水路開渠：Intake channel open ditch
④カーテンウォール：Curtain wall
⑤取水口：Water intake
⑥東波防堤：　East breakwater
⑦カーテンウォール：Curtain wall
⑧取水路開渠：Intake channel open ditch

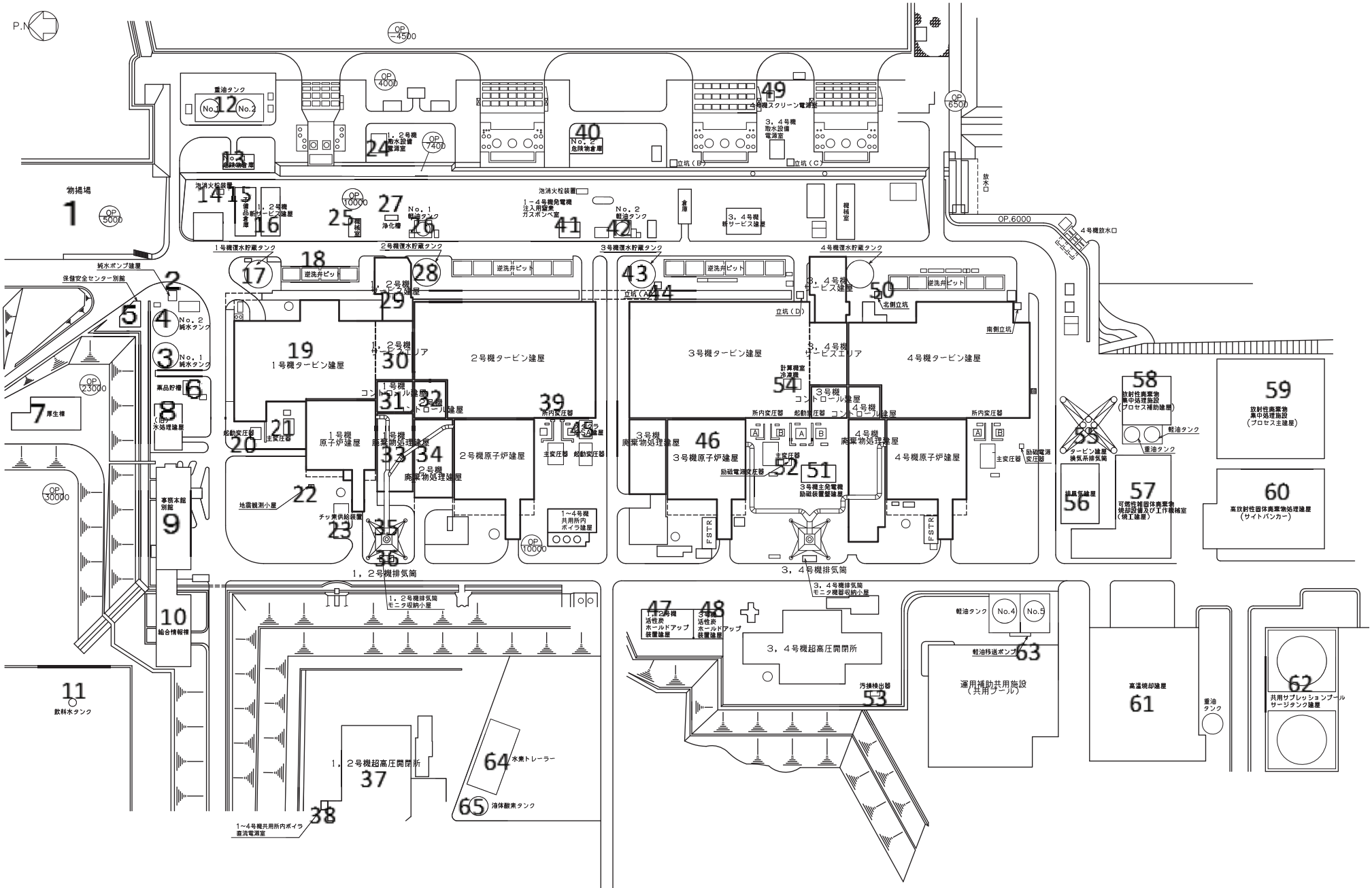
図中央部　左⇒右

⑨超高圧開閉所：Ultra high voltage switch yard
⑩６６ＫＶ開閉所：66 kV switching station
⑪第１土捨場：　Spoil bank No.1
⑫固体廃棄物貯蔵所：Solid waste storage
⑬計測器予備品倉庫：Storage for spare measurement equipment
⑭定検用機材倉庫：Storage for equipment used for periodic inspections
⑮物揚場：Shallow draft quay
⑯使用済燃料輸送容器保管建屋：Building for storing spent fuel transport
⑰駐車場：Parking lot
⑱駐車場：Parking lot
⑲事務本館：Administration building
⑳免震重要棟：Seismic isolation building
㉑駐車場：Parking lot
㉒超高圧開閉所：Ultra high voltage switchyard
㉓超高圧開閉所：Ultra high voltage switchyard
㉔運用補助共用施設(共用プール)：Auxiliary common facilities (common pool)
㉕放射性廃棄物集中処理施設：Centralized radioactive waste disposal facilitiy
㉖放射性廃棄物集中処理施設：Central radioactive waste disposal facilitiy
㉗排風気建屋：Exhaust building
㉘焼工建屋：Incinerator and machine building
㉙高放射性固体廃棄物処理建屋：High-radioactive solid waste disposal building
㉚高温焼却建屋：High temperature incinerator building

㉛共用サプレッションプールサージタンク建屋：Common suppression pool surge tank building
㉜予備変電所：Auxiliary substation
㉝用水池：Reservoir

図下部　左⇒右
㉞双葉線 1 号・2 号：Futaba Transmission Line, L1 and L2
㉟夜ノ森線 1 号・2 号：Yorunomori Transmission Line, L1 and L2
㊱ろ過水タンク：Filtered water tank
㊲多目的運動場：Sports ground
㊳登録センター：Registry center
㊴駐車場：Parking lot
㊵大熊線 1 号・2 号：Okuma Transmission Line, L1 and L2
㊶大熊線 3 号・4 号：　Okuma Transmission Line, L3 and L4
㊷福島原子力技能訓練センター：Fukushima Nuclear Skills Training Center
㊸駐車場：Parking lot
㊹請負企業センター：Contractor Center
㊺サービスホール：Service hall

Plant layout for Units 1 to 4 of the Fukushima Dai-ichi NPS



Based on data and documents by
Tokyo Electric Power Company

Attachment VI-10

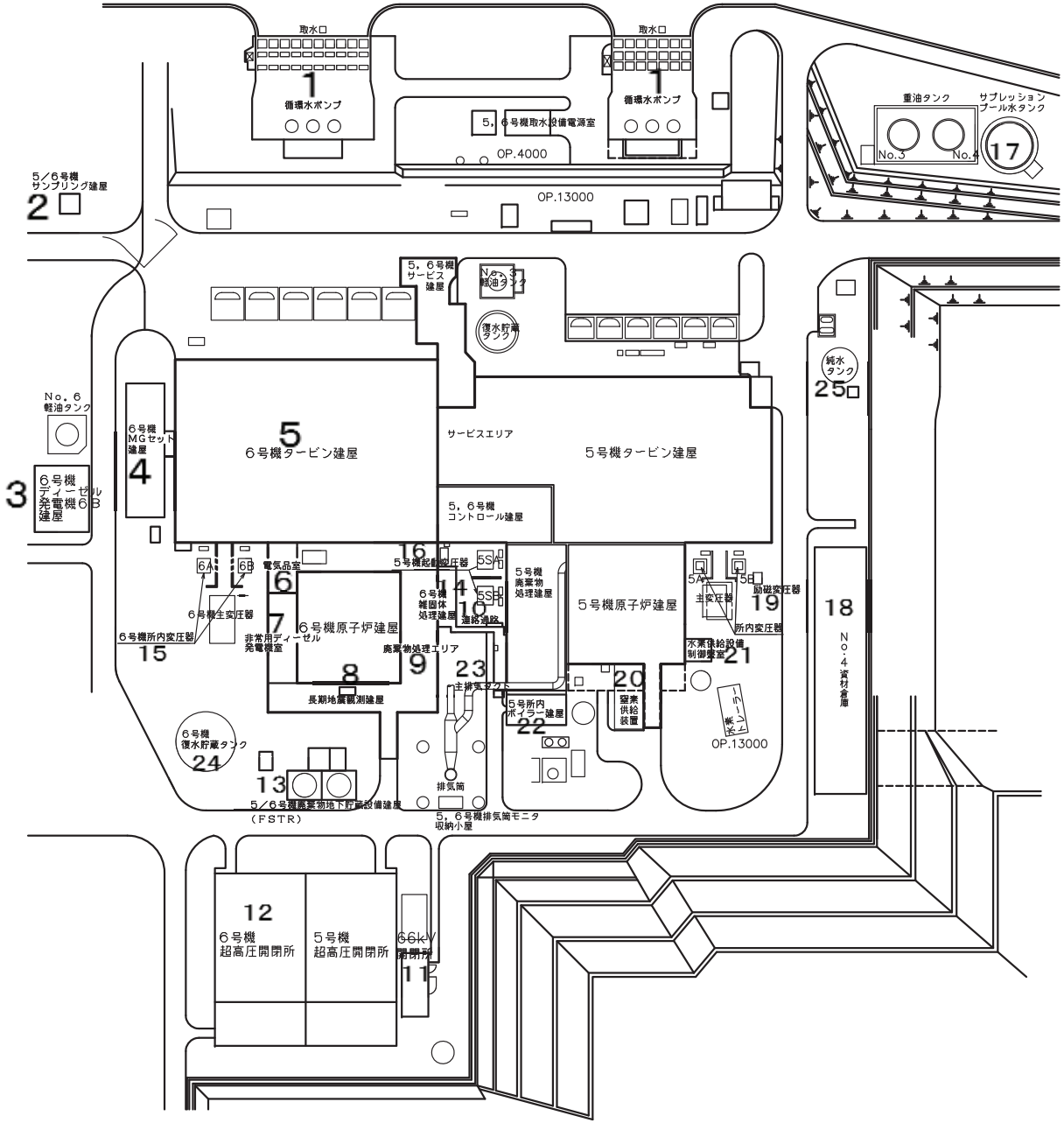
Attachment VI-10: Plant layout for Units 1 to 4 of the Fukushima Dai-ichi NPS

①物揚場：Shallow Draft Quay
②純水ポンプ建屋：Deionized water pump building
③No.1 純水タンク：Deionized water tank 1
④No.2 純水タンク：Deionized water tank 2
⑤保健安全センター別館：Health and Safety Center annex
⑥薬品貯槽：Chemical storage
⑦厚生棟：Welfare building
⑧（旧）水処理建屋：(Old) Water disposal building
⑨事務本館別館：Administration annex
⑩総合情報等：General information building
⑪飲料水タンク：Drinking water tank
⑫重油タンク：Heavy oil tank
⑬No.1 危険物倉庫：Hazardous materials storage 1
⑭消火栓装置：Foam fire extinguishing system
⑮予備品倉庫：Storage for spare items
⑯新サービス建屋：New service building for Units 1 and 2
⑰1 号機復水貯蔵タンク:Condensate storage tank for Unit 1
⑱逆洗弁ピット：Reversing valve pit
⑲1 号機タービン建屋：Turbine building for Unit 1
⑳起動変圧器：Startup transformer
㉑主変圧器：Main transformer
㉒地震観測小屋:Cabin for seismic observation
㉓窒素供給装置:Nitrogen supply equipment
㉔1，2 号機取水設備電源室:Power room for the water intake facility for Units 1 and 2
㉕機械室:Machinery room
㉖No. 1 軽油タンク:Light oil tank 1
㉗浄化槽:Water-purifier tank
㉘2 号機復水貯蔵タンク：Condensate storage tank for Unit 2
㉙1，2 号機サービス建屋:Service building for Units 1 and 2
㉚1，2 号機サービスエリア：Service area for Units 1 and 2
㉛1 号機コントロール建屋：Control building for Unit 1
㉜2 号機コントロール建屋：Control building for Unit 2
㉝1 号機廃棄物処理建屋：Radioactive waste disposal building for Unit 1
㉞2 号機廃棄物処理建屋：Radioactive waste disposal building for Unit 2

㉟1，2 号機排気筒：Exhaust stack for Units 1 and 2
㊱1，2 号機排気筒モニタ収納小屋：Cabin for monitoring the exhaust stack for Units 1 and 2
㊲1，2 号機超高圧開閉所　Ultra-high voltage switchyard for Units 1 and 2
㊳1～4 号機共用所内ボイラ直流電源室：DC power room for the common house boiler for Units 1 to 4
㊴所内変圧器：Unit auxiliary transformer
㊵No.2 危険物倉庫：Hazardous materials storage 2
㊶1～4 号機発電機注入用窒素ガスボンベ室：Nitrogen gas cylinder room for injection into the generator of Units 1 to 4
㊷No.2 軽油タンク Light oil tank 2
㊸3 号機復水貯蔵タンク:　Condensate storage tank for Unit 3
㊹立坑：Pit
㊺メタクラ２ＳＡ建屋：Metal-clad switchgear 2SA building
㊻3 号機原子炉建屋：Reactor building for Unit 3
㊼1, 2 号機活性炭ホールドアップ装置建屋: Building for activated carbon hold up equipment for Units 1 and 2
㊽３号機活性炭ホールドアップ装置建屋：Building for activated carbon hold up equipment for Unit 3
㊾4 号機スクリーン電源室：Power room for the Unit 4 screen
㊿北側立坑：North pit
(51)3 号機主発電機励磁装置盤建屋: Building for energizing the control panel of the main generator of Unit 3
(52)励磁電源変圧器：Exciter transformer
(53)汚損検出器：Pollution detector
(54)計算機室冷凍機：Cooling machine for the computer room
(55)タービン建屋換気系排気筒：Turbine building ventilation system exhaust stack
(56)排風気建屋：Exhaust building
(57)可燃性雑固体廃棄物焼却設備及び工作機械室（焼工建屋）：Incinerator for burnable solid waste and the machine tool room (incinerator and machine building)
(58)放射性廃棄物集中処理施設（プロセス補助建屋）：Central radioactive waste disposal facility (building for auxiliary processes)
(59)放射性廃棄物集中処理施設（プロセス主建屋）：Central radioactive waste disposal facility (building for main processes)
(60)高放射線性固体廃棄物処理建屋（サイトバンカー）：Highly radioactive solid waste disposal building (on-site bunker)
(61)高温焼却建屋：High temperature incinerator building

㊷共用サプレッションプールサージタンク建屋 : Common suppression pool surge tank building (common pool)
㊸軽油移送ポンプ：Light oil transfer pump
㊹水素トレーラー：Hydrogen trailer
㊺液体酸素タンク：Storage for liquid oxygen

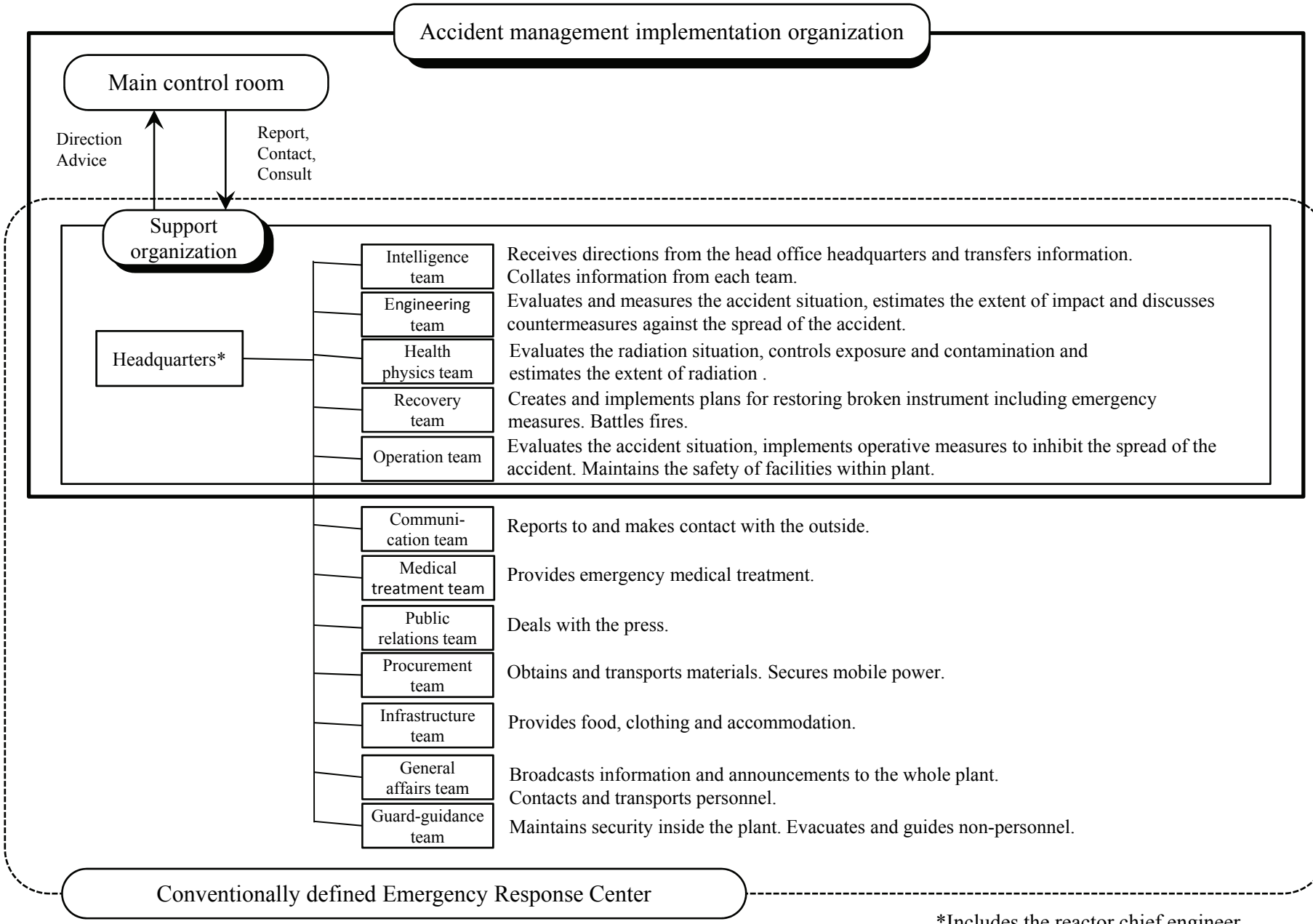
Plant layout for Units 5 and 6 of the Fukushima Dai-ichi NPS



Based on data and documents by
Tokyo Electric Power Company

Attachment VI-10: Plant layout for Units 5 and 6 of the Fukushima Dai-ichi NPS

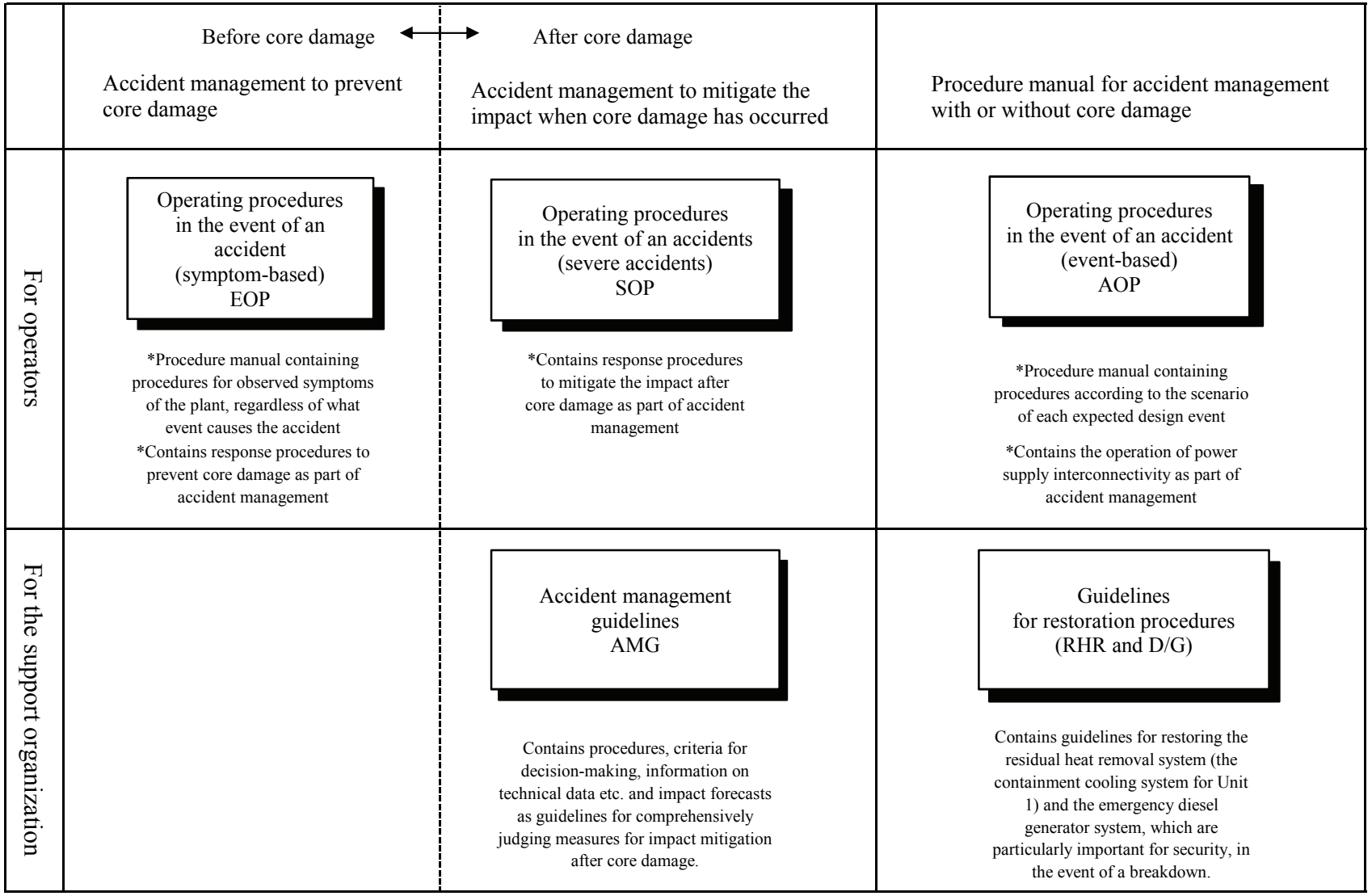
①循環水ポンプ: Water circulating pump
②5/6 号機サンプリング建屋: Sampling building for Units 5 and 6
③6 号機ディーゼル発電機建屋: Diesel generator building for Unit 6
④6 号機 MG セット建屋: Building for the MG set of Unit 6
⑤6 号機タービン建屋: Turbine building for Unit 6
⑥電気品室: Electrical items room
⑦非常用ディーゼル発電機室: Emergency diesel generator room
⑧長期地震観測建屋: Building for long-term seismic observation
⑨廃棄物処理エリア: Radioactive waste disposal area
⑩連絡通路: Passageway
⑪開閉所: Switchyard
⑫6 号機超高圧開閉所: Ultra-high voltage switchyard for Unit 6
⑬5/6 号機廃棄物地下貯蔵設備建屋: Underground storage for radioactive waste for Units 5 and 6
⑭6 号機雑固体処理建屋: Building for the disposal of solid waste for Unit 6
⑮6 号機所内変圧器: Unit auxiliary transformer for Unit 6
⑯5 号機起動変圧器: Startup transformer for Unit 5
⑰サプレッションプール水タンク: Suppression pool water tank
⑱No.4 資材倉庫: Material storage 4
⑲励磁変圧器: Exciter transformer
⑳窒素供給装置: Nitrogen supply equipment
㉑水素供給設備制御室: Control room for hydrogen supply equipment
㉒5 号所内ボイラー建屋: Building for the Unit 5 house boiler
㉓主排気ダクト: Main exhaust duct
㉔6 号機復水貯蔵タンク: Condensate storage tank for Unit 6
㉕純水タンク : Deionized water tank 1



Accident management implementation organization

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002) by TEPCO

Attachment VI-11



*AOP: Abnormal operating procedures

*SOP: Severe accident operating procedures

*EOP: Emergency operating procedures

*AMG: Accident management guidelines

Overview of the configuration of accident management procedures

Compiled from the "Report on Development of Accident Management for Fukushima Dai-ichi NPS" (May, 2002)

Attachment VI-12

Attachment VI-13

Method and frequency of accident management training programs

Training target		Content of training	Training method/frequency	
Support organization personnel	Personnel other than engineering team	Primary knowledge	Training method	Self-study Lectures by the Technical GM, etc.
			Frequency	Once while in the job
	The site superintendent, deputy site superintendent of the headquarters, and section chief, assistent section chief, and members of the engineering team	Primary knowledge, Advanced knowledge	Training method	Self-study Lectures by the Technical GM, etc.
			Frequency	Once while in the job
Operators	Shift supervisors and assistant shift supervisors	Primary knowledge, Advanced knowledge	Training method	Self-study Lectures by the Electricity Generation GM, etc.
			Frequency	Once while in the job
	Everyone under the senior operator	Primary knowledge	Training method	Self-study Lectures by the Electricity Generation GM, etc.
			Frequency	Once while in the job

NB: The operators in corresponding operations for accident management to fullest possible the extent are trained by the Full Scope Simulator at the BWR Operator Training Center.

Content of accident management training (an example)

Target	Content
Personnel of the support organization and all shift operators	Primary knowledge Overview of AM (what "AM" means) Overview of severe accidents (what "severe accident" means) Representative features of accident scenarios and their development An overview of the types of equipment for each function Positioning of accident management guidelines (AMG) etc.
Support organization: Site superintendent Deputy site superintendent Section chief of engineering teams Assistent section chief Members of engineering teams	Primary knowledge Overview of AM (what "AM" means) Overview of severe accidents (what "severe accident" means) Representative features of accident scenarios and their development An overview of the types of equipment for each function Positioning of accident management guidelines (AMG) etc.
Operators : Shift Supervisor Assistant Shift Supervisor	Advanced knowledge AMG etc. (flow guide) Development of representative accident scenarios and events at the plant Priorities corresponding to the plant's equipment for each function Overview of unknown events (metal-water reactions, etc.) Situation of the unknown event, method of confirmation and corresponding operations of unknown phenomena

NB: Te training methods, frequency and content are due to revision, as appropreate.

Compiled from the “Report on Development of Accident Management for Fukushima Dai-ichi NPS” (May, 2002) by TEPCO