

-Training Curriculum of Sodium Handling Technology (Draft)-

week-1: [sodium handling exercise, etc.]

Day	AM/PM	Training Items	Training Contents
11/15 (MON)	PM	-Arrive Kasai National Airport -Trip to Tsuruga C. Minami	-Arrive Tsuruga at Evening -Procedure for Accommodation (Company Apartment)

Day	AM/PM	Training Items	Training Contents
11/16 (TUE)	AM	-Opening Session and Introduction -Training Orientation M. Sawada	Current Status of FBR Development in Japan Feature of FBR Heat Transfer System Main Plant Specifications
		<Lecture> Outline of Prototype FBR Monju T. Aoki	
	PM	Small Tour of Monju T. Aoki	Visit to Monju Exhibition Hall Visit to Monju Plant Visit to In-Service Inspection (ISI) Facility Visit to Sodium Handling Training Facility & Maintenance Training Facility
		Reception	(Welcome Party at the Kushikawa Guest House)

Day	AM/PM	Training Items	Training Contents
11/17 (WED)	AM	<Lecture> Basic Knowledge about Sodium	-Chemical and Physical Properties of Sodium -Feature of Sodium Combustion and Effect to the body by Sodium Aerosol -Caution on Sodium Fire Extinguish -Reason of Using Sodium as a FBR Coolant
	PM	M. Sawada	

Day	AM/PM	Training Items	Training Contents
11/18 (THU)	AM	<Lecture> Fundamental Knowledge on Sodium Handling Working M.. Sawada	-Mechanism of Sodium Spontaneous Ignition -Caution Matters on Sodium Handling -Accident Examples on Sodium Handling Working

Day	AM/PM	Training Items	Training Contents
	PM	<Exercise> -Sodium Handling Working -Chemical Reaction between Sodium and Water -Chemical Reaction between Sodium and Insulator Demonstration of Accident Case K. Ozawa	-Observation of Sodium Spontaneous Ignition -Wiping or Removing Sodium on or inside of Complicated Structure -Treatment of Sodium Chemical Reaction between Sodium and Water under 2 cases (Air and Nitrogen Gas Atmosphere) -Observation of Chemical Reaction between Sodium and Insulator -Confirmation dangerousness in the case of Treatment for filled Sodium inside Small Piping by Alcohol Cleaning

Day	AM/PM	Training Items	Training Contents
11/19 (FRI)	AM	<Exercise> -Preparation of Sodium Piping Leak (For next week) K. Ozawa	-Assembling of Mock Sodium Leak Piping
	PM	(To be Continue) K. Ozawa	-Making Report (If Possible)

week-2: [sodium piping leakage]

Day	AM/PM	Training Items	Training Contents
11/22 (MON)	AM	<Lecture> Monju Sodium Leakage Accident and Its Safety Measures M. Sawada	-Outline of Monju Accident -Cause of Monju Accident and Its Safety Measures
	PM	(To be Continue) Corrosion Mechanism of Steel Plate by Leaked Sodium M. Sawada	-Corrosion Mechanism of Steel Plate by Leaked Sodium Sodium-Iron Double Oxidization Type & Molten Salt Type Corrosion

*Nov. 23 is a national holiday.

Day	AM/PM	Training Items	Training Contents
11/24 (WED)	AM	<Exercise> -Preparation of Sodium Piping Leak	-Working for Instrumentation and Electrical Wiring
	PM	T. Watanabe & K. Ozawa	

Day	AM/PM	Training Items	Training Contents
11/25 (THU)	AM	<Exercise> Preparation Operating for Sodium Piping Leakage T. Watanabe	-Study of Sodium Leak Amount -Preheating Operation -Sodium Charging Operation
	PM	<Exercise> Sodium Piping Leakage M. Sawada & T. Watanabe	-Valve Check of Sodium and Gas line -Confirmation of Preheating Data of Imitation Sodium Leakage Piping -Observation of Sodium Leakage Phenomenon from Piping -Sodium Draining Operation

Day	AM/PM	Training Items	Training Contents
11/26 (FRI)	AM	<Exercise> -Dismantling of Leaked Piping T. Watanabe & K. Ozawa	-Experience of Dismantling Working of Leaked Piping
	PM	<Exercise> To be Continue -Cleaning Up and Treatment of Sodium Chemical Compounds T. Watanabe & K. Ozawa	-Observation of Adhesion State of leaked Sodium inside Piping Insulator -Treatment Working of Sodium Chemical Compounds

week-3: [sodium loop operation & sodium fire extinguishing, etc.]

Day	AM/PM	Training Items	Training Contents
11/29 (MON)	AM	<Exercise> Preparation Lecture for Sodium Loop Operation T. Watanabe	-Learning of Outline of Sodium Loop System -Learning of Sodium Loop Control System
	PM	<Exercise> To be Continue -Preparation Lecture for Sodium Loop Operation -Assembling of Mock Sodium Leak Piping (Preparation for Sodium Piping Leak in Week -3) T. Watanabe & K. Ozawa	-Field Check (Sodium Components, Valves and Instruments) -Learning of Exhaust System -Experience of Assembling Working (Grasp of Structure of Mock Sodium Leak Piping)

Day	AM/PM	Training Items	Training Contents
11/30 (TUE)	AM	<Exercise> -Preheating Operation -Study for “How to charge sodium into the loop?” T. Watanabe	-Preheating Operation used Control System -Confirmation of Preheating Data -Discussing for Charging Operation by Trainee
	PM	<Exercise> Sodium Loop Operation for Charging & Draining T. Watanabe & K. Ozawa	-Charging Sodium Operation -Sodium Flow Meter Calibration based on Changing of Test Tank Level -Draining Sodium Operation Confirmation of Line Open Checking by Gas Pressure Changing

Day	AM/PM	Training Items	Training Contents
12/1 (WED)	AM	Visit to Fugen Power Station (ATR: Advanced Thermal Reactor) M. Sawada & K. Kihara	-Decommissioning Scheme of Fugen
	PM		

Day	AM/PM	Training Items	Training Contents
12/2 (THU)	AM	Visit to Monju Operation Simulator N. Koyagoshi	-Explanation of Outline of Monju Training Simulator System

	PM	<Exercise> -Sodium Fire Extinguishing -Treatment of Sodium Chemical Compounds T. Watanabe & K. Ozawa	-Wearing of Sodium Safety Suits and Oxygen Inhalation -Visibility under Sodium Aerosol Environment -Confirmation of Dangerousness when using General Extinguisher for Sodium Fire Extinguishing -Treatment of Sodium Chemical Compounds
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Day	AM/PM	Training Items	Training Contents
12/3 (FRI)	AM	<Lecture> Design and Feature of FBR Plant System Y. Matsuno	-Comparison between FBR and LWR for Plant system and its specifications -Structural Analysis Method of Sodium Components
	PM	<Lecture> Design and Feature of Sodium Components M. Kamei	-Design Feature of Main Sodium Components -Design Feature and Structure of Mechanical Sodium Pump -Structure of Its Mechanical Seal Part

week-4: [sodium loop purification operation & tour]

Day	AM/PM	Training Items	Training Contents
12/6 (MON)	AM	<Lecture> Sodium Corrosion Mechanism & Sodium Purification Control M. Sawada	-Material Corrosion Mechanism by Sodium -Measurement Theory of Plugging Meter -Control of Impurity in the Reactor Plant
	PM	<Exercise> -Sodium Loop Operation for Purification Control -Sodium Sampling Operation T. Watanabe & K. Ozawa	-Measurement Impurities in Sodium Loop used Plugging Meter -Charging Sodium into Sampling Tube and Its Freeze

Day	AM/PM	Training Items	Training Contents
12/7 (TUE)	AM	<Exercise> Sodium Sampling Operation (Continue) T. Watanabe & K. Ozawa	-Removing Sodium Sampling Tube -Cooling Operation Sampling Tube
	PM		-Sodium Sampling Line Draining Operation -Restoration of Sodium Sampling Tube Leak Check for Connection Part of Sampling Line

Day	AM/PM	Training Items	Training Contents
12/8 (WED)	AM	Visit to Takahama Power Station (PWR) M. Sawada & K. Kihara	-Takahama Power Station Visitor Hall of Kansai Electric Company (in Fukui)
	PM		

Day	AM/PM	Training Items	Training Contents
12/9 (THU)	AM	Trip to Oarai Engineering Center (OEC), JNC M. Sawada & K. Kihara	-Leave Tsuruga at Early Morning (By Sinkansen)
	PM	Visit to Experimental Fast Reactor JOYO M. Sawada & K. Kihara	-Field Trip in JOYO -Take Dinner with International Fellow from China (As a Plan) -Stay Guest House of OEC in Ibaraki Prefecture

Day	AM/PM	Training Items	Training Contents
12/10 (FRI)	AM	Visit to Development Facility for Sodium Treatment M. Sawada & K. Kihara	-Test Facility for Sodium-Water Reaction and Concrete Reaction
	PM	<u>Trip to Back Home</u> M. Sawada & K. Kihara	

week-5: [discussion, etc.]

Day	AM/PM	Training Items	Training Contents
12/13 (MON)	AM	<Lecture> Future Planning Related International Nuclear Engineer Training Program M. Nishida	-Explanation & Discussion
	PM	<Lecture> Current Situation and Future Program of Monju H. Ikeda	-Explanation & Discussion

Day	AM/PM	Training Items	Training Contents
12/14 (TUE)	AM	-Question and Answer -Making Report M. Sawada	
	PM	Preparation for Leaving C. Minami	-Room Cleaning Up (Company Apartment) -Farewell Party at Kushikawa Guest House

Day	AM/PM	Training Items	Training Contents
12/15 (WED)	AM	Leaving Tsuruga	