

Sodium Handling Technology Training Course for Sandia National Laboratories/USA

September 1, 2008
INITC/JAEA

[First Week]

Date	Training Items	Training Contents
8/31(Sun)	Arriving at Tsuruga Station (19:30)	- Pick up by Mr. Irie - Stay at hotel
9/1(Mon)	✓Residence Procedure for JAEA Company Apartment ✓Guidance of Tsuruga City	- Escort by Mr. Irie (or Miss Masuda)
	Move to INITC from Tsuruga City ➤Orientation of the Course ➤Formalities for Entering Monju M. SAWADA	
9/2(Tue)	<Site Tour> ✧ Monju Site Tour including Explanation of Outline of Monju I. SHIBAHARA	- Site Tour of Monju* (approach into inside of Monju) *Prototype FBR - Tour of visitor pavilion (MC Square)
	<Site Tour> ✧ Site tour for Training Facilities M. SAWADA	
9/3(Wed)	<Lecture> ◆ Fundamental Knowledge on Sodium Handling M. SAWADA	- Sodium fire fighting - Treatment way of sodium compounds - Risk of sodium spontaneous ignition - Risk of alcohol cleaning - Disposal way of contaminated sodium wastes - Handling of sodium extinguishers and wearing sodium fire-fighting suits - Visibility experience under sodium aerosol - Extinguishing sodium fire - Risk of general extinguishers against sodium fire
	<Exercise> ◆ Sodium Fire Fighting T. WATANABE & Others	
9/4(Thu)	<Lecture> ◆ Sodium Properties as a FBR Coolant M. SAWADA	- General Items and features of sodium - Advantage and disadvantage points as a coolant (Chemical & physical properties of sodium, etc.) - Measurement of density, melting point, viscosity, surface tension, and specific heat of sodium
	<Exercise> ◆ Measurement of Sodium Physical Properties A. MIYAMOTO & Others	
9/5(Fri)	<Site Tour> ✧ Mihama & Ooi N.P.P of KEPCO (Kansai Electric Power Co. INC.) M. SAWADA	- Pick up by SAWADA at company apartment (9:00)
9/6(Sat)		

[Second Week]

9/7(Sun)		
9/8(Mon)	<p><Special Event> ✧ Participation to “Tsuruga Summer Institute on Nuclear Energy 2008” M.SAWADA</p>	<ul style="list-style-type: none"> - Pick up by KOHORI at apartment (9:50) - Move to Wakasa-wan Energy Research Center - Explanation of the manual for “English Discussion” with students (10:30-11:10)
	<p><Special Event> ✧ Join to English Discussion in the Tsuruga Summer Institute M.SAWADA</p>	<ul style="list-style-type: none"> - <u>Discussion Theme</u> “Public Acceptance on Nuclear Energy”
	<p><After 5> ✓ Welcome Party of “Tsuruga Summer Institute”</p>	<ul style="list-style-type: none"> - Wine Party (18:30-20:30) (At Kushikawa Guest House)
9/9(Tue)	<p><Exercise> ◆ Sodium Handling Work A. MIYAMOTO & Others</p>	<ul style="list-style-type: none"> - Wiping sodium off - Demonstration of sodium spontaneous ignition - Demonstration of risk when doing alcohol cleaning treatment
	<p><Exercise> ◆ Chemical Reaction of Sodium A. MIYAMOTO & Others</p>	<ul style="list-style-type: none"> - Observation of sodium water reaction in the air and inert gas - Observation of reaction with Insulator board - Sodium compounds cleaning treatment
9/10(Wed)	<p><Exercise> ◆ Observation of Reaction between Sodium and Concrete A. MIYAMOTO & Others</p>	<ul style="list-style-type: none"> - Pouring sodium onto concrete - Observation of chemical reaction between sodium & concrete - Sodium compounds treatment
9/11(Thu)	<p><Lecture> ◆ Safety Measure of FBR (Monju) M. SAWADA</p>	<ul style="list-style-type: none"> - Basic scheme of FBR safety measures - Safety measure against sodium leak accident - Safety measure against water leak at SG
	<p><Lecture & Exercise> ◆ In-service Inspection Technology (ISI) of Monju O. MIHALACHE</p>	<ul style="list-style-type: none"> - Outline of Monju ISI devices - Theory of Eddy Current Test (ECT) device - Demonstration of ISI devices
	<p><After 5> ✧ Joint to the Collaborative Event of “Tsuruga Summer Institute”</p>	<ul style="list-style-type: none"> - Barbecue party at car parking area of INITC (17:50-20:30)
9/12(Fri)	<p><Preliminary Lecture> ◆ Outline of Monju Operating Simulator</p>	<ul style="list-style-type: none"> - Outline of Monju Operation Training Simulator - Learning “How to operate MARS”
	<p><Exercise> ◆ Experience of Critical Approach Operation & Operation Corresponding to Abnormal Conditions N. KOYAGOSHI</p>	<ul style="list-style-type: none"> - Critical approach operation - Operation corresponding to some abnormal conditions ✓ Secondary pump trip, Secondary sodium leak ✓ Water leak at steam generator (SG)
9/13(Sat)		

[Third Week]

9/14(Sun)		
9/15(Mon)	National holiday	
9/16(Tue)	<Preparatory Lecture> ◆ Preparatory Lecture for Overhaul of Sodium Pump Shaft Sealing Part H. Saitou & Others	- Principal and structure of pump
	<Exercise> ◆ Overhaul of Sodium Pump Shaft Sealing Part H. Saitou & Others	- Dismantling of sodium pump shaft sealing part
9/17(Wed)	<Exercise> ◆ Overhaul of Sodium Pump Shaft Sealing Part H. Saitou & Others	- Assembling sodium pump shaft seal part - Restoration working
	<Preparation for Exercise> ◆ Preparation for Sodium Loop Operation A. MIYAMOTO & Others	- Outline of Sodium Loop facilities - Instruction of operating control board - Instruction for on-site and operation
9/18(Thu)	<Exercise> ◆ Sodium Loop Operation ✓ Sodium Charge & Drain Operation ✓ Sodium Purification Operation A. MIYAMOTO & Others	- Preheating operation (temperature control) - Review for the sodium charging methods - Sodium charging operation (valve operation, and system gas pressure control) - Sodium draining operation (valve operation, flow confirmation of cover gas) - Preheating operation (temperature control) & sodium charging - Purity measurement of sodium (plugging meter) - Operation for sodium draining
9/19(Fri)	<Lecture> ◆ Sodium Corrosion and Purity Control M. SAWADA	- Mechanism of metal corrosion with sodium - Impurity measurement of sodium (plugging meter) - Sodium purity control method for SFRs
	<Summarization> ➤ Midway Making Report ➤ Question & Answer M. SAWADA	
9/20(Sat)		

[Fourth Week]

9/21(Sun)		
9/22(Mon)	<Special Item> Meeting with Dr. Yamaguchi, Professor of Osaka University	-Move to Osaka
9/23(Tue)	National holiday	
9/24(Wed)	<Lecture> ◆ Monju Leak Accident and Its Safety Measures M. SAWADA	-Outline of accident -Cause of the accident -Safety measures against the accident -Liner corrosion mechanism (Comparison between Molten Salt Type Corrosion and Na-Fe Double Oxidization Type Corrosion)
	<Exercise> ◆ Sodium Piping Leakage T. WATANABE & Others	- Melting sodium in a charging tank - Charging sodium into a simulation leak pipe - Observation of sodium leakage phenomenon from piping
9/25(Thu)	<Exercise> ◆ Sodium Piping Leakage T. WATANABE & Others	- Dismantling the leaked pip - Observation of residual sodium in the leaked pip (between an insulator and a pipe)
	<Lecture> Cleaning Methods A. BERJON	- Cleaning process of sodium compounds - Approach to hydrogen risk
	<Summarization> ➤ Question & Answer ➤ Making Report	- Question & Answer with SAWADA
	<After 5> ➤ Farewell Party	- Kushikawa guest house (18:00-21:00)
9/26(Fri)	<Summarization> ➤ Making Report ➤ Awarding of Completion Certificate	- Training completion ceremony - Submitting training report
	✓ Procedure for leaving from Company Apartment	- Leave from INITC (anytime in afternoon) - Checking room by personal affairs section
9/27(Sat)	Leaving from Tsuruga	