Final Thoughts Speech
Presented by Joelle Starefos
August 17, 2007 – Beidaihe, China

Title Slide

Good Morning and Thank You for this opportunity to wrap up a two week AP1000 training seminar and the first NNSA/NRC Cooperative exchange under the Memorandum of Cooperation signed between our agencies in May of this year.

This has been a very exciting opportunity for us to visit China and meet our safety counterparts nearly half way around the world. And we look forward to future interactions here and in the United States.

Today, I plan to briefly revisit our journey one that started nearly two weeks ago. If I haven't had a chance to meet you during our visit let me introduce myself. I'm Joelle Starefos, a Senior Project Manager with the Office of New Reactors at the NRC.

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On day 1 you met our team and heard opening remarks from Mr. Jack Ramsey who shared the importance of this and future interactions between the NRC and NNSA. Then we discussed an overview of what the next two weeks had in store. Mr. Patrick Madden told you about our Commission, the NRC safety goals policy, and Licensing. Mr. Scott Egli began the AP1000 Overview Course with an introduction and Chapter 1, the plant overview.

Mr. Egli noted that gray rods don't have as much neutron absorption material as a regular control rod. And that gray rods are used to change power levels with minimal effect on power distribution. We discussed the reactor coolant pumps and noted that the new design doesn't require a seal cooling system. We found the refueling water storage tank was inside containment on the AP1000. And that safety injection flow injects directly into the vessel. We discussed three barriers to fission product release: the fuel clad; the RCS; and the containment. And we discussed the passive containment cooling system and its ability to cool containment during a design basis accident.

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On day 2, Mr. Egli covered chapters 2, 3, and 4: the reactor core and vessel design; the reactor coolant system; and the passive core cooling system. Mr. Egli noted that three components inject through the direct vessel injection (or DVI) line. Who remembers what those components are? (Pause) Core makeup tank (CMT), the accumulators and the in-containment refueling water storage tank. Excellent!

We discussed the passive residual heat removal heat exchanger and pointed out that it transfers its heat to the IRWST. Remember our discussion on the automatic depressurization system – ADS 1, 2, 3 discharging through the sparger to the IRWST and ADS 4 discharging to the containment atmosphere?

And finally the CMT. We said that the core makeup tanks remained at RCS pressure during normal operation because of the equalizing line from the CMT to the cold leg. And we noted the two operating processes for the core makeup tanks.

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On Day 3, Mr. Egli covered a lot of ground. Containment and containment systems, auxiliary systems, and secondary plant systems. Let's see if you remember this one – which auxiliary system purifies the RCS? (Pause) Right! The CVCS – chemical and volume control system.

We discussed the possibility of an inter-system LOCA in the RHR system from over pressurization and breaks in the piping of that system. We talked about CCS or Component Cooling Water System cooling the spent fuel heat exchangers. And we noted that the main control room emergency habitability system air storage tanks are sized to deliver air to the control room for 72 hours.

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Day 4 was Mr. Egli's last day to teach. He finished up with instrumentation and controls and electrical systems. We noted that the pressurizer high-pressure reactor trip could not be blocked. And that there are two ESF actuation signals for passive containment cooling activation. Who remembers them? (Pause) 1. Manual initiation. 2. high-2 containment pressure. We talked about the turbine bypass system and its capacity at 40% of full load.

After day 4 we had a nice two day break and traveled from the lovely and historic Fragrant Hills to this beautiful training facility in Beidaihe.

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On class day 5, Mr. Jerry Wilson discussed the NRC's regulations on New Reactor Licensing. Mr. Wilson noted that a design certification is good for 15 years, while an early site permit could be good for up to 20 years maximum. We noted that an early site permit addresses: site safety issues, environmental protection issues, and an emergency preparedness review. We stated that ITAAC could be completed before the combined license is issued. And that ITAAC is Tier 1 information.

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On day 6, you met Dr. Bajorek who revisited the passive safety systems with a design focus. He also discussed the AP1000 plant response to postulated accidents. Dr. Bajorek covered the non-safety related passive autocatalytic recombiners that are used to address hydrogen in containment during a design basis accident. We also revisited the core makeup tank and noted that at 67% level, or more precisely 67.5% level, ADS 1, 2, 3 is actuated. And at 20% CMT level, ADS4 is actuated.

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Day 7 was a fascinating day. We heard about the AP600/AP1000 test programs. How many really enjoyed Dr. Bajoreks test program lecture? (Pause) Good, I did too. Who remembers what test facilities were used by the NRC for emergency core cooling integral effects tests? (Pause) Okay, 1. ROSA-AP600 and 2. APEX. What test facility data was useful in validating the safety codes for the passive RHR heat exchanger? Remember ROSA had the C-Shaped heat exchanger?

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On day 8 we were on the home stretch. Dr. Bajorek completed his presentations on the NRC review of AP1000 analytical codes and test programs and the NRC confirmatory testing and analysis. We discussed the two major types of tests addressed by the APEX facility – small break LOCA, and long term cooling.

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Yesterday, Dr. Thadani shared a historical perspective of risk. Now for the last question: who remembers the equation that Dr. Thadani used to describe the most widely accepted definition of risk? (Pause) Risk = Frequency x Consequence

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With that, we're here today. We have learned together, studied together, and developed a friendship. We hope our presentations were beneficial and will help to establish a foundation for defining areas of future cooperation.

Together, we will provide the oversight and assurance needed to protect the health and safety of our citizens while enabling our countries to meet their future energy needs.

Final Slide

We would like to thank you all for your warm welcome and your gracious hospitality.

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