SUMMARY OF CONFERENCE CALL WITH AREVA-RICHLAND REGARDING OUTSTANDING ISSUES WITH REVISED RESPONSES TO REQUEST FOR ADDITIONAL INFORMATION ON THE SUPERCRITICAL CARBON DIOXIDE LICENSE AMENDMENT APPLICATION

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On December 15, 2009, the U.S. Nuclear Regulatory Commission (NRC) and AREVA-Richland (AREVA) staff held a conference call to discuss several outstanding issues in the areas of nuclear criticality and chemical safety on the supercritical carbon dioxide (CO_2) License Amendment Application review. The meeting was a follow-up to the letter from AREVA dated November 11, 2009, "Revised Responses to NRC Requests for Additional Information (RAIs) on AREVA NP Inc. Supercritical CO_2 System License Amendment"; where AREVA provided revised RAI responses, as requested in an NRC letter to AREVA dated October 6, 2009. During the call, AREVA discussed their interpretation of the definition of items relied on for safety (IROFSs) in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 70.4, and how IROFSs were implemented in the safety analysis. The following items were also discussed during the conference call:

a) <u>Outstanding Issue in Nuclear Criticality and Chemical Safety</u>

In the November 11, 2009, submittal, AREVA defined IROFS 0.21 for several accident sequences (e.g., 186-5, 186-17, 186-84, 186-86, etc.). IROFS 0.21 is called a "configuration control IROFS" and is defined as follows: "correct installation and functionality of the subject design features is confirmed prior to startup by initial inspection, verification, and/or appropriate testing." This "IROFS" is a one-time activity that occurs before the system is in operation and also serves the function of a management measures.

The NRC staff expressed concerns with the use of IROFS 0.21 because it contributes to the functionality of other IROFS used in the same accident sequences; IROFS 0.21 is not independent from the other IROFS. The NRC staff indicated that IROFS 0.21 will not be available and reliable at all times during the operation of the system to perform a safety function when needed. The NRC staff also indicated that because IROFS 0.21 is not implemented on a periodic basis, it would not detect any gradual deterioration of the system due to erosion, corrosion, etc. AREVA indicated that they did not expect such changes or system degradation to occur. The NRC staff inquired about the safety implications if this IROFS was not used in the accident sequences, and AREVA stated that the absence of IROFS 0.21 would not cause a spontaneous degradation of the system. There was no resolution to this issue.

b) <u>Chemical Safety</u>

In the November 11 submittal, AREVA identified over-pressurization events associated with the several feed pumps in the Integrated Safety Analysis (ISA) Summary. AREVA identified two IROFS for such accident sequences. One of these IROFSs was an interlock system. The NRC staff inquired about the safety function of this interlock system and AREVA described it. AREVA also discussed several assumptions used in the analysis of the high pressure system. AREVA

stated that they did not include such assumptions in the ISA summary. AREVA also described additional uncredited defenses for these accident sequences.

The NRC staff asked if AREVA considered other sources of over-pressurization (i.e., reaction heat, etc.) inside the vessels, besides those scenarios associated with the feed pumps. AREVA indicated that other scenarios were evaluated, but they did not result in a consequence of concern and were not included in the ISA Summary. AREVA described these other scenarios during the call and indicated that such information was available onsite for review.

The NRC staff indicated that AREVA's controls on the feed pumps indirectly prevent over-pressurization of the system, and that the process should have direct over-pressurization controls designated as IROFSs (e,g., pressure relief devices on the high pressure systems, etc.). AREVA indicated that there are such controls in the process, but they are not credited IROFS. There was no resolution to this issue.