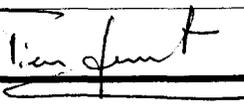


NRC FORM 699 (9-2003)		U.S. NUCLEAR REGULATORY COMMISSION		DATE
CONVERSATION RECORD				02/16/2010
				TIME
NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU		TELEPHONE NO.	TYPE OF CONVERSATION	
Michel Doucet, G. Romanet, F. Marvaud, Charlie Sanders		017-230-0201	<input type="checkbox"/> VISIT <input type="checkbox"/> CONFERENCE <input checked="" type="checkbox"/> TELEPHONE <input type="checkbox"/> INCOMING <input checked="" type="checkbox"/> OUTGOING	
ORGANIZATION		SUBJECT		
AREVA NP		Cristal Modular Criticality Code and its Validation		
SUMMARY (Continue on Page 2)				
NRC Attendees: Zhian Li, Pierre Saverot				
<p>In 2009, staff held two pre-application meetings with AREVA on the FCC-NG package and questions were raised by staff during each of those meetings on the benchmarking of the Cristal Criticality Code. This conference call was set up to clarify some concerns on the validation of the Cristal Code.</p> <p>AREVA explained the functional architecture of the Cristal modular code criticality package, as used in the FCC-NG safety analysis report, which consists of the APOLLO-2 code and the MORET 4 computer code. APOLLO is a spectral code with generates macroscopic cross-sections. Those cross-sections are directly linked with the 3D Monte-Carlo MORET-4 code which provides the capability to model simple or complex geometries. AREVA said that there is no energy condensation between the cross section processing and the Monte Carlo modules, and that there is a cell homogeneization.</p> <p>AREVA explained the validation of Cristal and the use of USLSTAT to determine uncertainties and upper safety limits, following the guidance in NUREG/CR-6361.</p> <p>Staff asked clarifications on (i) the cross sections library used on Monte-Carlo, (ii) microscopic inputs and macroscopic outputs for APOLLO-2, (iii) supercell cross sections generated code to get flux distributions, etc... In particular, AREVA explained that the fuel assembly is simulated by a single fuel rod with the exact moderation ratio of the fuel assembly. AREVA also clarified the code benchmarking issue: there are not 2 codes but 2 modules of the same criticality package.</p> <p>Staff stated that it was satisfied with those clarifications, pending the submittal of an application for the FCC-NG package.</p>				
Continue on Page 2				
ACTION REQUIRED				
None				
NAME OF PERSON DOCUMENTING CONVERSATION		SIGNATURE	DATE	
Pierre Saverot			02/17/2010	
ACTION TAKEN				
TITLE OF PERSON TAKING ACTION		SIGNATURE OF PERSON TAKING ACTION	DATE	