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U.S. Nuclear Regulatory Commission

ATTN: Document Control Desk

Washington, DC 20555-0001

Project No.: PROJ0798

Subject: Holtec International SMR, LLC Voluntary Response to Regulatory Issue
Summary (RIS) 2012-12, Licensing Submittal Information and Design
Development Activities for Small Modular Reactor (SMR) Designs

References: [1] RIS 2012-12 dated December 28, 2012

Dear Staff:

The referenced NRC RIS seeks information on the scheduling of application submissions related to SMR designs. SMR, LLC is happy to provide information related to our SMR-160 design program to support the NRC in developing pre-application, licensing, and project plans for the advanced reactor program.

The Enclosure contains our response to the information requested within the RIS.

If you have any questions, then please contact me at 856-797-0900, ext. 3876.

Sincerely,

A handwritten signature in black ink that reads 'Terry Sensue'. The signature is written in a cursive, flowing style.

Terry Sensue
Licensing Manager
Holtec International

cc: (via e-mail)

Stewart Magruder, USNRC
Michael Mayfield, USNRC
Jan Mazza, USNRC
Holtec Group I
SMR INT

Design and Licensing Submittal Information

Question (Q) 1: When (month and year) are applications planned for design-related applications and what NRC action will be requested (i.e., a CP, DC, DA, or ML, or a COL that does not reference a DC or DA)?

Response (R) 1: SMR, LLC is planning to submit a Design Certification Application (DCA) for the SMR-160 in the 4th quarter 2016 for NRC review and approval.

Q2: Will the applicants be organized into DCWGs? If known, what is the membership of the DCWG, and which party is the primary point-of-contact designated for each DCWG?

R2: A DCWG will be established at the appropriate time.

Q3: Have protocols been developed to provide coordinated responses for requests for additional information with generic applicability to a design center?

R3: Not Applicable

Q4: Which applicant that references the design will be designated as the reference COL applicant, or, alternatively, how will various applications (e.g., CP, DC, or COL applications) be coordinated to achieve the desired design-centered licensing review approach?

R4: Not Yet Established

Q5: When (month and year) will CP, COL, or ESP applications be submitted for review? In addition, what are the design, site location, and number of units at each site?

R5: Not Yet Established

Q6: Are vendors or consultants assisting in the preparation of the application(s)? If so, please describe their roles and responsibilities for the design and licensing activities.

R6: SMR, LLC is currently discussing support to the SMR-160 program with a wide variety of vendors and contractors.

Design, Testing, and Application Preparation

Q7: What is the current status of the development of the plant design (i.e., conceptual, preliminary, or finalizing)? Has the applicant established a schedule for completing the design? If so, please describe the schedule.

R7: SMR, LLC is currently working on the conceptual designs for the NSSS and the ESF systems. SMR, LLC has established a plan (see answer to question 1).

Q8: What is the applicant's current status (i.e., planning, in progress, or complete) for the qualification of fuel and other major systems and components? Has the applicant established a schedule for completing the qualification testing? If so, please describe the schedule.

R8: SMR, LLC is in the planning stages for qualification of the fuel and other major systems associated with the NSSS and ESF.

Q9: What is the applicant's status (i.e., planning, in progress, or complete) in developing computer codes and models to perform design and licensing analyses? Has the applicant defined principal design criteria, licensing-basis events, and other fundamental design and licensing relationships? Has the applicant established a schedule for completing the design and licensing analyses? If so, please describe the schedule.

R9: As a part of the conceptual design development, SMR, LLC is currently identifying the principle design criteria, licensing basis events and beyond design basis events, and also the principle design and analysis codes to be used. The SMR-160 reactor core analysis capability includes tools for reactor assessment that are applicable to LWRs with extensive validation behind them. The core neutronics design concept is being developed using the commercial reactor analysis code suite provided by Studsvik Scandpower.

Q10: What is the applicant's status in designing, constructing, and using thermal-fluidic testing facilities and in using such tests to validate computer models? Has the applicant established a schedule for the construction of testing facilities? If so, please describe the schedule. Has the applicant established a schedule for completing the thermal-fluidic testing? If so, please describe the schedule.

R10: SMR, LLC is in the planning stages of designing the thermal-fluidic testing facility to complete proof-of-concept tests and also to validate the computer codes.

Q11: What is the applicant's status in defining system and component suppliers (including fuel), manufacturing processes, and other major factors that could influence design decisions? Has the applicant established a schedule for identifying suppliers and key contractors? If so, please describe the schedule.

R11: A majority of the capital equipment required for the NSSS and ESF systems, as well as non-safety related systems, will be manufactured by Holtec, International – SMR, LLC's parent company (i.e., steam generators, reactor vessel, containment pressure vessel, air-cooled condensers, feed water heaters, etc.). Holtec currently holds an N-Stamp and has the capability to design and manufacture this equipment in our Manufacturing Division (HMD) in Pittsburgh, PA. Other equipment, such as valves, pumps, turbine generators, and reactor fuel, will be outsourced to other suppliers as this is not a part of Holtec's core business. SMR, LLC is currently in the process of identifying these suppliers and intendeds for this to be an ongoing process.

Q12: What is the applicant's status in the development and implementation of a quality assurance program?

R12: Holtec has a comprehensive QA Program that meets the requirements of 10 CFR Part 50 Appendix B and NQA-1 that is in use in its dry storage program and is the same QA Program that is implemented for our 10CFR50 Appendix B work which includes the design and manufacturing of fuel storage racks and ancillary equipment. This program will be adapted as necessary to cover the development of the SMR-160 under SMR, LLC.

Q13: What is the applicant's status in the development of probabilistic risk assessment (PRA) models needed to support applications (e.g., needed for Chapter 19 of safety analysis reports or needed to support risk-informed licensing approaches)? Does the applicant plan to use the PRA for any risk-informed applications (i.e., risk-informed technical specifications, risk-informed in-service inspection, risk-informed categorization and treatment, risk-informed in-service testing, etc.). What are the applicant's plans for using the PRA models in the development of the design? At what level will the PRA be prepared, and when will it be submitted in the application process?

R13: SMR, LLC will be introducing PRA into the design of the SMR-160 during the conceptual design phase. We expect to improve and refine our design through the use of PRA, so both will improve as the design matures.

Q14: What is the applicant's status in the development, construction, and use of a control room simulator?

R14: SMR, LLC has identified several candidate suppliers of Control Room Simulators and has held meetings with two of them.

Q15: What are the applicant's current staffing levels (e.g., full-time equivalent staff) for the design and testing of the reactor design? Does the applicant have plans to increase staffing? If so, please describe future staffing plans.

R15: The full-time equivalent (FTE) staffing levels have varied over the past year from 8 to 35. SMR, LLC has recently hired a new Vice President and Chief Nuclear Officer who is establishing a recruitment program to fully staff the SMR-160 program.

Q16: What are the applicant's plans on the submittal of white papers or technical and topical reports related to the features of its design or the resolution of policy or technical issues?

R16: SMR, LLC is establishing a plan for submittals of technical and topical reports and white papers.

Q17: Has the applicant established a schedule for submitting such reports? If so, please describe the schedule.

R17: SMR, LLC will request a pre-application meeting later this year to discuss future submittals.

Q18: Will ESP applicants seek approval of either "proposed major features of the emergency plans" in accordance with 10 CFR 52.17(b)(2)(i) or "proposed complete and integrated emergency plans," in accordance with 10 CFR 52.17 (b)(2)(ii)?

R18: Not Applicable at this time.

Q19: Describe possible interest in the use of the provisions in Subpart F, Manufacturing Licenses," of 10 CFR Part 52, instead of, or in combination with, other licensing approaches (e.g., DC or DA).

R19: No interest.

Q20: Describe the desired scope of a possible ML and what design or licensing process would address the remainder of the proposed nuclear power plant. For example, would the ML address an essentially complete plant or would it be limited to the primary coolant system that basically comprises the integral reactor vessel and internals?

R20: Not Applicable

Q21: Describe the expected combination of manufacturing, fabrication, and site construction that results in a completed operational nuclear power plant. For example, what systems, structures, and components are being fabricated and delivered? Which of these are being assembled onsite? Which of these are being constructed onsite?

R21: SMR, LLC is planning to maximize the amount of fabrication and pre-assembly work that can be performed off-site. For example, SMR, LLC plans to modularize the Primary Containment Vessel and Containment Enclosure Structure (CES), which are the two largest systems required for the SMR-160. These steel fabrications will be manufactured by Holtec and shipped to the site in large sections (after pre-fitting/testing in the shop). It is anticipated that this will significantly reduce the time for erection and field man-hours. SMR, LLC is also evaluating modularization options for other equipment with one or more 'packagers', in cases where the 'systems' are made up of components, possibly from multiple OEMs.