

June 24, 2009

APPLICANT: MITSUBISHI HEAVY INDUSTRIES, LTD.

APPLICATION: US-APWR STANDARD DESIGN CERTIFICATION REVIEW

SUBJECT: SUMMARY OF APRIL 13, 2009, PUBLIC MEETING WITH MITSUBISHI HEAVY INDUSTRIES TO DISCUSS UNITED STATES – ADVANCED PRESSURIZED WATER REACTOR GAS TURBINE GENERATOR RELIABILITY AND DIVERSITY AS AN ALTERNATE AC POWER SOURCE

On April 13, 2009, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Mitsubishi Heavy Industries, Ltd. (MHI) at the U.S. Nuclear Regulatory Commission, 21 Church Street, Rockville, Maryland. The purpose of this meeting was to discuss the reliability of the gas turbine generator (GTG) for the United States – Advanced Pressurized Water Reactor (US-APWR) Design Certification review. The meeting also discussed the use of the GTG as a diverse alternate AC power source. This meeting was a follow-up to these issues discussed in previous teleconference meetings conducted in March 2009. A list of attendees is provided as Enclosure 1.

A public meeting notice was issued and documented in the Agencywide Documents Access and Management System (ADAMS) under Accession Number ML090860370 which includes the meeting agenda.

MHI Presentation and Summary on GTG Reliability

MHI presented information to support the reliability of the GTG that will be used for safety related class 1E onsite AC for nuclear power plant application. There is a small sample of GTG data available for evaluating their use in nuclear power plants. An example of a nuclear power plant which uses GTGs as emergency power is the Tokia Daini nuclear power plant in Japan. Reliability data is not available on the GTGs listed at this plant, or for how long the GTGs have been in service at the plant mentioned. MHI is planning to use the GPS series fast start GTG manufactured by Kawasaki. The GTG data provided by MHI is based on operational experience in commercial applications. This data is shown in Table-3 of the MHI presentation (US-APWR Gas Turbine Generator used as Emergency Power Supply) dated April 13, 2009 (Enclosure 2). MHI also provided a reliability comparison between emergency diesel generators and GTGs. MHI used manufacturer's "fail to start" data based on operational experience for a similar size (4800KW-GPS6000) GTG as a way to verify reliability. The data for GPS4000 - GPS6000 series type GTG shows 1433 demands with 0 failures for a small sample of 4 GTGs. For more details see the MHI presentation material.

MHI proposed a reliability target of 0.95 minimum for safety-related GTGs to meet the guidance in Regulatory Guide 1.155 on station blackout (SBO). MHI will conduct 100 initial type tests with no failures per IEEE 387 to demonstrate with 95 percent assurance that the safety-related GTGs meet 0.95 reliability. GTG type testing is scheduled to be completed by November 2010, and testing data will be available after completion of testing.

MHI Presentation and Summary of GTG Diversity

MHI presented its rationale for using GTGs as alternate AC (AAC) power sources for meeting the SBO rule. The staff questioned the use of GTGs as onsite and AAC power sources in view of the NRC's guidance given in SECY 90-016 on diversity between onsite and AAC power sources. Based on the ensuing discussions between the staff and MHI during the meeting, MHI opted to defer their final resolution of this matter. MHI informed the staff that it will provide NRC with its diversity strategy at a later date after internal discussions.

Concluding Remarks

The staff thanked MHI for a detailed description of the US-APWR DCD Chapter 8 discussions on GTG reliability and diversity. Both NRC and MHI will have additional discussions to clarify the issues surrounding the GTG to establish a path for closure and completion of the Safety Evaluation Report.

List of Action Items

1. NRC needs to provide follow-up RAI questions to MHI so that issues discussed during March 2009 conference calls can be formally answered.
2. MHI to provide diversity strategy at later date after evaluation of GTG options.

Members of the public were in attendance.

Please direct any inquiries to Ngola Otto at 301-415-6695 or via e-mail at Ngola.Otto@nrc.gov.

/RA/

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Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-021

Enclosures:

1. Attendance Sheet
2. MHI Meeting Handout (ML091070326)

cc w/encls: See next page

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Meeting with Mitsubishi Heavy Industries (MHI) related to Gas Turbine Generator Reliability and
Diversity Attendance Sheet

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Futoshi Tanaka	MHI
Jenny Weil	McGraw-Hill
Yusuke Oka	TANE
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(Revised 04/01/2009)

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