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Subject: Requested NRC Action from Meeting with Westinghouse on April 12, 2006; Acceptance Criteria for Long-Term Core Cooling following Quenching and Reflooding of the Core; PWR Containment Sump Downstream Effects for Resolution of GSI-191.

Introduction:

On April 12, 2006 NRC staff met with representatives from Industry and Westinghouse to discuss a standard method for nuclear plant licensees to employ for evaluating the potential effects of debris that may potentially be ingested into the reactor vessel following the transition to sump recirculation in a post-LOCA environment. The purpose of this methodology is to assist licensees in addressing issues associated with GSI-191 PWR Sump Performance.

Issue Statement:

During the meeting, the requirements for long-term core cooling as identified in Title 10 of the Code of Federal Regulations (CFR) were discussed. The discussion centered on the requirements for long-term core cooling once the reactor core had been quenched and reflooded following a postulated Loss of Coolant Accident (LOCA). 10 CFR 50.46 Acceptance criteria for emergency core cooling systems for light-water reactors, subparagraph (b) (5) *Long-term cooling* states:

After any calculated successful initial operation of the ECCS, the calculated core temperature shall be maintained at an acceptably low value and decay heat shall be removed for the extended period of time required by the long-lived radioactivity remaining in the core.

Requested Action:

Clarification is requested on the requirements in Title 10 of the Code of Federal Regulations (CFR) in the following areas:

- 1) The acceptance criteria in 10 CFR 50.46 for core cooling was intended for evaluation of the initial quenching and reflooding of the core post-accident. The three specific criteria applicable to the

initial quenching and reflooding of the core post-accident are:

- 2200° F peak clad temperature
- 17% oxidation limit
- Hydrogen generation limits

The use of these three acceptance criteria to evaluate the downstream effects of debris ingestion into the reactor when the emergency core cooling system is realigned to recirculate fluid from the containment sump for GSI-191 may be overly restrictive, considering that the fuel has already quenched and reflooded.

It is requested that NRC provide clarification of the requirements and acceptance criteria for long-term core cooling once the core has quenched and reflooded. This clarification will be used by Westinghouse, and potentially the PWROG, in developing the GSI-191 debris ingestion evaluation method for reactor fuel.

- 2) The standard mission time employed for GSI-191 is 30 days. This mission time may not be appropriate for evaluation of nuclear fuel issues. The NRC staff is requested to provide clarification on this requirement and how it applies to evaluation of debris ingestion effects on reactor fuel. Westinghouse, and potentially the PWROG, will use this clarification in developing the GSI-191 debris ingestion evaluation method for reactor fuel.

Summary:

We respectfully request that NRC provide their response to this request for clarification to Westinghouse as soon as possible so that the response may be incorporated into our efforts as early in the evaluation process as possible.

Very truly yours,



J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

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