

August 9, 2007

Mr. Christopher M. Crane
President and Chief Nuclear Officer
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION, UNIT NO. 1 - REQUEST FOR ADDITIONAL
INFORMATION RELATED TO REACTOR PROTECTION SYSTEM
INSTRUMENTATION SCRAM DISCHARGE VOLUME LEVEL
INSTRUMENTATION SURVEILLANCE REQUIREMENTS FOR THE CLINTON
POWER STATION, UNIT NO. 1 (TAC NO. MD4111)

Dear Mr. Crane:

By letter to the Nuclear Regulatory Commission (NRC) dated January 26, 2007, AmerGen Energy Company, LLC submitted a request to modify Technical Specification 3.3.1.1, "Reactor Protection System Instrumentation," scram discharge volume level instrumentation surveillance requirements, for the Clinton Power Station, Unit No. 1.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on June 27, 2007, it was agreed that you would provide a response by no later than August 20, 2007, in order to support the current schedule for completion of the NRC staff review .

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-3154.

Sincerely,

/RA/

Stephen P. Sands, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure:
Request for Additional Information

cc w/encl: See next page

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Clinton Power Station, Unit No. 1

cc:

Senior Vice President - Operations Support
via e-mail

Illinois Emergency Management
Agency
Division of Disaster Assistance &
Preparedness
1035 Outer Park Dr
Springfield, IL 62704

Chairman of DeWitt County
c/o County Clerk's Office
DeWitt County Courthouse
Clinton, IL 61727

J. W. Blattner
Project Manager
via e-mail

Director - Licensing and Regulatory Affairs
via e-mail

Manager Licensing - Dresden, Quad Cities
and Clinton
via e-mail

Manager Regulatory Assurance - Clinton
via e-mail

Vice President - Regulatory Affairs
via e-mail

Document Control Desk - Licensing
via e-mail

Site Vice President - Clinton Power Station
via e-mail

Plant Manager - Clinton Power Station
via e-mail

Senior Vice President - Midwest Operations
via e-mail

Resident Inspector
U.S. Nuclear Regulatory Commission
RR 3, Box 229A
Clinton, IL 61727

Associate General Counsel
via e-mail

REQUEST FOR ADDITIONAL INFORMATION

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

In reviewing the AmerGen Energy Company's (AmerGen's) submittal dated January 26, 2007, related to your request to modify Technical Specification 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," scram discharge volume (SDV) level instrumentation surveillance requirements, for the Clinton Power Station, Unit No. 1 (Clinton), the NRC staff has determined that the following information is needed in order to complete its review:

1. On Attachment 1 (page 4) of the submittal it was stated that the Clinton probabilistic risk assessment (PRA) model and documentation has been maintained current and is routinely updated to reflect the current plant configuration. NUREG-1560 shows Clinton's individual plant examination (IPE) core damage frequency (CDF) to be $\sim 2.7 \text{ E-5}$ and large early release frequency (LERF) $\sim .8 \text{ E-6}$, while page 5 of the submittal shows CDF and LERF to be as low as 6.47 E-6 and 1.65 E-7 respectively. Discuss the major factors that led to this reduction in internal events risk.
2. With regard to both the IPE and individual plant examination of external events (IPEEE) confirm that plant improvements identified in the IPE and IPEEE have been implemented or do not impact the proposed SDV level switch 24-month surveillance interval evaluation.
3. The current revision of the Clinton PRA is identified as CL06B. Identify any plant changes (i.e., modifications, technical specification changes, procedures, etc.) not yet incorporated. Provide justification that these changes do not impact the proposed 24-month SDV level float switch surveillance interval risk impact.
4. External Events: On page 5 of Attachment 1, it is stated that external events are addressed qualitatively. However, no discussion of external events is presented in the submittal. Please provide this discussion.
5. Fires: The IPEEE NUREG-1742 showed Clinton's fire induced CDF to be 3.64 E-6 , which is not negligible compared to that reported for Clinton's internal events. Has the Clinton IPEEE fire PRA been updated? What are the current updated results? Potential adverse impacts should be discussed (e.g.; impact on relevant cables and instrumentation, compressed air system, and SDV valves).
6. Seismic: Potential adverse impact of seismic events on SDV system (leak sizes, failure of valves, and clogging or failure of piping) was not discussed in the submittal. The rationale for neglecting this aspect should be provided.
7. PRA Quality: Pages 5 of Attachment 1, and 3 of Attachment 4 have a brief discussion of PRA quality.

Enclosure

- What was the rationale for concluding that the PRA quality is sufficient for this application?
 - Is Clinton's PRA in compliance with published standards (e.g.; as referenced in RG 1.200)?
 - Provide the results of the Clinton PRA independent peer review including the status of the peer review A, B, and C facts and observations (F&Os), and date of certification. Discuss the F&O applicability to the proposed SDV float level switch 24-month completion time.
 - Reference procedures/documentation for maintaining and updating the PRA including revision history.
8. Given the Clinton SDV design details, how significant is the likelihood of control rod drive severe seal leakage into the SDV, exceeding the SDV drain valves capacity? What is the estimated impact on the time available for action in this case? See Attachment A, page A2 of the license amendment request.
 9. What information (instrumentation, or alarms) related to SDV level exists in the control room?
 10. Data used in the assessment (Ref. 3, Attachment 1 and Ref. 4, Attachment 4) are more than 10 years old. Were there any efforts to incorporate updated data? Would more current data change the results?
 11. Section 4.1, "Surveillance History," discusses the maintenance history for the scram discharge float switches and states that surveillance test results for the last 12 quarters have met the surveillance test acceptance criteria. However, the discussion does not provide information on the impact the extended surveillance interval may have on level switch performance and reliability. Specifically, the NRC staff is concerned that the proposed 24-month interval may introduce additional failure mechanisms, since the mechanical level switches will no longer be exercised quarterly and no active output is available from the level switches (channel check) over the proposed 24-month level float switch surveillance interval. Discuss how the level float switch failure probabilities used in the submittal reflect this concern, and how the uncertainty in this area is addressed in the submittal.
 12. In addition, the proposed surveillance interval as stated in the submittal is 24 months. Discuss how the failure probabilities used in the submittal account for an allowable 1.25 times the interval specified in the TS 3.0, "Surveillance Requirement (SR) Applicability," SR 3.02.
 13. Section 1.0 of the submittal refers to the amendment request as "risk based," but references Regulatory Guides (RG) 1.174, which describes a risk-informed approach, acceptable to the U.S. Nuclear Regulatory Commission, for licensees to assess the nature and impact of proposed permanent licensing basis changes by considering engineering issues and applying risk insights. The implementation of risk-informed decisionmaking is expected to meet a set of five key principles as described in RG 1.174, Section 2, "An Acceptable Approach to Risk-Informed Decisionmaking."

1. The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
2. The proposed change is consistent with the defense-in-depth philosophy.
3. The proposed change maintains sufficient safety margins.
4. When proposed changes increase core damage frequency or risk, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.
5. The impact of the proposed change should be monitored using performance measurement strategies.

Specifically address the five key principles including the implementation and monitoring program for the proposed 24-month SDV float level switch.