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Mrs. David G. Frey
Sassafras Audubon Society
2625 S. Smith Road
Bloomington, Indiana 47401

Dear Mrs. Frey:

I am responding to your letter of June 21, 1982 in which you raised several questions regarding construction of the Marble Hill facility.

At this time I am providing you with some general information on each of the concerns you raised (see Attachment A). However, the staff has not begun its final safety review of the Marble Hill facility prior to operation. Thus, the information provided is of a generic nature and not based on our review of Marble Hill.

Our final review of Marble Hill will commence with the submittal of the utility's Final Safety Analysis Report, scheduled for December of this year. The staff's review will be documented in the Marble Hill Safety Evaluation Report (SER) which is scheduled to be published February 1985. You should refer to that SER and subsequent supplements, when published, for a complete evaluation of the topics raised in your letter. However, I can assure you that these concerns will be resolved, in a manner acceptable to the NRC, before Marble Hill is granted a license to operate.

I have also included the SER for the Byron Station (NUREG-0876) which contains our current positions on the unresolved safety issues (USI's) with which you are concerned. (See Appendix C of NUREG-0876).

Sincerely,

Original Signed by
Lester L. Kintner

for

B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing

Attachment:
As stated

cc: See next page

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*See previous yellow *MLC*

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DATE	9/13/82	9/13/82	9/ /82				

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LB#1 Reading (2)
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B. J. Youngblood, Chief
 Licensing Branch No. 1
 Division of Licensing

Attachment:
 As stated

cc: See next page

OFFICE	DL: LB#1	DL: LB#1	OELD				
SURNAME	EDoolittle/yt	JYoungblood	RLessy				
DATE	9/2/82	9/7/82	9/7/82				

no legal objection as noted

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Attachment A

Pressurized Water Reactor Steam Generator Tube Integrity (USI A-3)

Public Service of Indiana will install Westinghouse Model D-4 and D-5 steam generators in the Marble Hill units. These are the same models that will be installed in the Byron and Braidwood plants. Steam generator tube degradation in these units can be controlled with a coordinated program of secondary water chemistry control and periodic inspection of the steam generator internals.

Plants operating exclusively with the all-volatile method of steam generator water chemistry control, as recommended by Westinghouse, have not experienced wastage. Marble Hill will utilize this method of chemistry control.

Several design features which minimize the conditions for initiation of tube denting are employed in the Byron steam generators. These are discussed in the Safety Evaluation Report for Byron. The Safety Evaluation Report for Marble Hill will further address steam generator corrosion mitigation.

Thermal Shock/Embrittlement (USI A-26, A-11)

Resistance to brittle fracture, a rapidly propagating catastrophic failure mode for a component containing flaws, is described quantitatively by a material property generally denoted as fracture toughness. Fracture toughness has different values and characteristics, depending on the material being considered. For steels used in a nuclear reactor pressure vessel, three considerations are important: first, fracture toughness increases with increasing temperature; second, fracture toughness decreases with increasing load rates; and third, fracture toughness decreases with neutron irradiation.

In recognition of these considerations, power reactors are operated within pressure temperature restrictions imposed by the Technical Specifications in accordance with Appendix G to 10 CFR Part 50 during heatup and cooldown operations.

These restrictions assure that the reactor vessel will not be subjected to a combination of pressure and temperature that could cause brittle fracture of the vessel if there were significant flaws in the vessel materials. The effect of neutron radiation on the fracture toughness of the vessel material is accounted for in developing and periodically revising these Technical Specification limitations.

The results of our review of the specific material used in the Marble Hill reactor vessel will be presented in the SER.

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Seismic Design Criteria (USI A-40)

The United States Geological Survey Research along with the New Madrid Seismotectonic Study (NRC funded) are continuing, and new results are regularly evaluated to update our knowledge of earthquake hazards in New Madrid and adjacent areas of the midwest. The NRC staff position will be discussed in the DL SER. Currently, we see no new information that would adversely impact the seismic design input for the Marble Hill site.

The seismic qualification criteria for safety-related equipment is continually under review and is periodically revised. IEEE Standard 344 is currently being revised; however we do not expect any major changes to the 1975 revision.

We currently perform our seismic evaluation of support structures of steam generators, reactor coolant pumps, pressurizers and reactor vessels according to applicable sections of the NRC Standard Review Plan and Reg. Guides. We do not foresee a revision to these requirements for Marble Hill at this time.

In the period from 1970 to 1982 there have been 19 events reported of degradation of primary pressure boundary threaded fasteners, in 13 plants. In no case did these incidents lead to serious leakage. Indeed, some bolting failures may have been caused by overstressing bolting in an effort to stem leakage from some other cause. Others, such as the LaCrosse head stud failures occurred during detensioning when the load on the studs is greater than any anticipated operating load. (The use of hydraulic tensioning devices in addition to providing a very accurate means of preload, also provides a "proof test" of sorts at each tensioning or detensioning). Because failure rates vary from bolt to bolt, the use of multiplicity of bolts in the joints involved should lead to small leakage which would be detectable early in the failure sequence.

With respect to the NRC recommending or requiring bolting materials more resistant to corrosive environment and to stress corrosion cracking, this may indeed be the result of ongoing work being performed under contract at a national laboratory. In addition to material changes to reduce the likelihood of stress corrosion cracking, the result of the investigations might well lead to better control of preload to design requirements and to the use of thread lubricants with less deleterious elements than currently used thread lubricants. Also involved in this program are improved inservice inspection requirements.

The issue of threaded fasteners will be addressed during our review of the Marble Hill facility and reported in our forthcoming SER.

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Marble Hill Radioactive Waste Storage

The spent fuel storage facility at Marble Hill will be a seismic Category I structure and is being built with the same seismic design input as all other safety structures at Marble Hill. Our evaluation of the spent fuel storage facility will be included in the SER.

Environmental Qualification of Safety-Related Electrical Equipment

If there are deviations in the environmental qualification program with respect to the staff position in NUREG-0588, PSI will be required to commit to corrective action. If fuel loading occurs before complete qualification can be obtained, justification for operation until corrective actions are completed must be provided to and approved by the NRC.

Our evaluation of the environmental qualification program for Marble Hill will be included in the SER.

Seismic and dynamic qualification criteria for electric equipment has already been established. We currently perform our evaluation according to Regulatory Guide 1.100 which endorses IEEE Standard 344, 1975.

Marble Hill a Replicate of Byron

The study by EG&G Idaho, that you referred to, has been received in draft form by the staff. When the final report is received, the present plans are to publish it as a NUREG, which will be available to the public.

Construction of Byron Unit 1 is 83% complete. The Safety Evaluation Report and supplement have been issued and approved by the ACRS. Public hearings are expected to begin in early 1983.

Differences between Marble Hill and Byron will be identified in the Marble Hill FSAR. With the exception of site characteristics, conduct of operations and quality assurance program, Marble Hill will be very similar to Byron. Most importantly about 98% of the safety systems at Marble Hill will be replicates of those at Byron.

Geology and Seismology information concerning Byron is discussed in the Byron SER (NUREG-0876). Geology and Seismology information concerning Marble Hill will be discussed in the SER. Byron and Marble Hill have a very similar seismic design based on similar safe shutdown earthquake and operating basis earthquakes.

You should refer to 10 CFR 50.34(g)(2), which we sent to you in a letter dated July 14, 1982 for clarification of the new rule regarding the NRC requirements for evaluation of differences from the Standard Review Plan.

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