



The Indiana Sassafras Audubon Society

of Lawrence, Greene, Monroe, Brown, Morgan & Owen Counties

July 12, 1983

50-546/547

TO: NUCLEAR REGULATORY COMMISSION
LICENSING BRANCH NO. 1,
B. J. YOUNGBLOOD, CHIEF

RE: ENVIRONMENTAL CONCERNS ASSOCIATED WITH
MARBLE HILL'S OPERATION

Sassafras Audubon appreciates the opportunity of a public meeting (July 12, 1983) to express environmental concerns at the beginning of the NRC's environmental impact review of the Marble Hill application for operating licenses.

MARBLE HILL'S CAPABILITY TO WITHSTAND A SEVERE ACCIDENT

The quality of Marble Hill's construction and component parts, and the quality of the day-to-day operation and maintenance of the plant, will determine the severity of Marble Hill's impact on the human and natural resources of the region in which it is situated from radioactive emissions.

The location of Marble Hill in a region of seismic activity adds a further dimension to the risks associated with its operation, as does the physical nature and drainage system of the site, which could heighten the consequences of radioactive releases.

While concerned about the intermittent release of radiation into the environment as a consequence of small-scale accidents, our principal concern is whether Marble Hill has been and is being constructed to withstand rare catastrophic accidents such as earthquakes, a core-melt accident of the type that occurred at TMI-2, and a Class 9 accident.

The NRC informed Public Service Indiana (PSI) on August 3, 1980 that Environmental Reports submitted by applicants for construction permits and operating licenses on or after July 1, 1980 should include a discussion of the environmental risks associated with the more severe kinds of very low probability accidents (Class 9 accidents) and that PSI should present analyses of these accidents in the ER regarding Marble Hill.

The trend of the present Nuclear Regulatory Commission is to trade-off safety in terms of cost, and to use Probabilistic Risk Assessment (PRA) for judgments on the overall risk posed by a nuclear plant. The Commission has stated in their severe accident policy statement that "Considering the low probability of core-melt accidents, the Commission does not intend to require the use of conservative design criteria and analysis methods of the sort that have been applied to engineered safety features (safety related equipment) required by NRC regulations for design basis accidents." (48 Fed. Reg. 16020).

This we cannot accept. The ACRS has noted that the NRC has not even attempted to define what it means by a core melt, and that core melt may be incapable of quan-

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tification. Commissioner Asselstine, in his additional views on the Commission's severe accident policy, said that he could not support the Commission's approach for resolving severe accident questions for existing plants and those under construction, or the judgments in the proposed policy statement on the likely outcome of the Commission's evaluation's of severe accidents. Commissioner Gilinsky shares Commissioner Asselstine's concerns and those of the Advisory Committee on Reactor Safeguards (ACRS).

We ask that Marble Hill's capability to withstand a severe accident (core melt) be evaluated in the ER in terms of the quality of Marble Hill's construction and consequence mitigation features.

A QUALITY ASSURANCE PROGRAM FUNDAMENTAL TO SAFE CONSTRUCTION OF A NUCLEAR PLANT

The establishment of a Quality Assurance Program by Public Service Indiana was a basic requirement of a construction license for Marble Hill. Region III NRC has asserted that the "basic elements" of a Quality Assurance (QA) Program were in place when a construction license was granted PSI in 1978. PSI, however, failed to execute a QA Program, which is also a basic requirement. This failure resulted in stoppage of safety-related construction (for a 20-month period) in 1979 because of faulty concrete construction and failure of PSI to conform to ASME codes and procedures.

The Proceedings of the November 27 and 28, 1979 Hearings on Marble Hill before the Subcommittee of Environment, Energy, and Natural Resources, entitled CONSTRUCTION PROBLEMS AT MARBLE HILL NUCLEAR FACILITY: NUCLEAR REGULATORY COMMISSION OVERSIGHT document the poor-quality concrete construction of Marble Hill, and the QC-QA problems of PSI which resulted in the substandard construction.

The failure of the NRC to take effective action to remedy the QC-QA failure at Marble Hill until literally forced to do so is also documented. The NRC regulatory process was criticized at the Proceeding because of its reliance on inspection of utility records as opposed to independent verification of the quality of the construction.

The public received a number of assurances after resumption of construction of Marble Hill of the high-quality of PSI's performance. In December 1982, Nunzio Palladino, Chairman, NRC, publicly referred to Marble Hill's recent construction as above average. It was shocking, therefore, to learn soon after Palladino's assessment, that Public Service Indiana had failed to establish an adequate QC-QA program for electrical construction.

The NRC CONFIRMATORY ACTION LETTER sent to PSI in early February, and the NRC NOTICE OF VIOLATION sent to PSI on April 25, 1983 attest to the extent and severity of PSI's violations. Considering the severity of the violations and the fact that this was a second offense failure on the part of PSI to establish an acceptable QC-QA Program for a vital part of Marble Hill's construction,

Sassafras Audubon wishes to register an objection to the manner in which Region III NRC handled the electrical construction work-stoppage and the lifting of the stop work order, without the opportunity for public scrutiny of the results of the investigation, and type and extent of remedial work needed.

A PSI-NRC news release of June 29, 1983 informed the public that the NRC had found the allegations on electrical welds unsubstantiated and that the NRC had lifted the Stop Work Order.

Disturbing questions remain as to the significance of the electrical work-stoppage. It is worth noting that PSI, in their letter to the NRC of May 24, 1983, reported that they would not be in full compliance with VIOLATION E until July 31, 1983, and VIOLATION B until August 31, 1983. Both VIOLATIONS involve material traceability problems.

The NRC, in their report of January 24-28 and February 24-25 inspections, noted on page 20 that:

"On April 23, 1982, PSI reported that all evidence indicated that CLJV Category I activities were rapidly approaching an out of control condition. On June 4, 1982, CLJV issued a Stop Work Order (SWO), stopping Category I installations. This SWO was lifted on July 28, 1982, (Reference - PSI status report dated August 9, 1982). (emphasis added)

In the report of Nunzio J. Palladino, Chairman, NRC, of May 26, 1983 to Lee H. Hamilton, Representative, 9th District, Indiana, on REGULATORY EXPERIENCE AT MARBLE HILL, it is noted that:

"The NRC resident inspector reviewed the stop work order and the corrective measures being taken and found them to be adequate. An inspection September 1982 by a Region III electrical specialist revealed no problems with traveler control or material traceability"

Since the NRC observed in their NOTICE OF VIOLATION that:

"...the licensee and the electrical contractor failed to take prompt corrective action to resolve material traceability problems identified in April, 1982 on MCAR003. The material traceability problems have been transferred from a Management Corrective Action Report (MCAR) to an NCR, etc. The material traceability problems still existed on January 29, 1983." (emphasis added),

the failure of the NRC resident inspector and Region III electrical specialist to detect the severity of the failure of PSI's QC-QA Program, is another example of the NRC "looking but not seeing." The question must be asked whether the NRC would have been guilty of looking without seeing in January 1983 were it not for a worker's allegations?

The NRC issued a Systematic Assessment of Licensee Performance (SALP) report on September 30, 1982, which concluded that Marble Hill ranked as one of the best construction projects in NRC Region III, which is unfortunate under the circumstances. It is ^{particularly} reprehensible that there has been no public accounting of the significance of the electrical work stoppage (prior to lifting of the SWO) at a time when PSI and the Indiana Public Service Commission is trying to make PSI ratepayers help pay for construction of Marble Hill (CWIP).

PSI's lack of commitment to a QC-QA Program was seen for a number of years in their failure to provide adequate storage and maintenance of materials. An NRC NOTICE OF VIOLATION of January 15, 1980 was accompanied by a lengthy list of storage and maintenance nonconformances of vital parts of the plant, e.g. a neutron detector positioning device assembly had been stored outdoors, rather than indoors as required by Westinghouse for 18 months without maintenance; and motor operated main steam isolation valves were stored outdoors rather than the required indoors (level B) for at least 10 months when detected, although accept tags indicated Level B storage. Shipping containers were noted to be wet internally. Lack of an adequate

materials quality control program was identified by the NRC in 1978.

The poor record and poor attitude of PSI toward development and implementation of a Quality Assurance Program for construction of Marble Hill, and the storage and maintenance of vital parts prior to their installation in the plant, raises doubt not only on Marble Hill as a quality product, but whether PSI can be trusted to operate Marble Hill safely and reliably.

RECOMMENDATION OF MARBLE HILL FOR QUALITY ASSURANCE PILOT PROGRAM

The Quality Assurance Branch of the NRC recently announced its intent to institute studies of Quality Assurance Programs for construction of nuclear power plants and to select two nuclear plant sites at which major quality control-quality assurance deficiencies have been identified in the past for their pilot program.

Sassafras Audubon asked on May 5, 1983 that Marble Hill be considered a candidate for the QC-QA pilot program. No reply has been received to this request.

CONTAINMENT STRENGTH OF MARBLE HILL

The NRC is emphasizing the importance of containment strength, as well as the inherent energy and radionuclide absorption capabilities of the containment design, in mitigating core-melt consequences.

The Commission has stated (Proposed Policy Statement on Severe Accidents) that core-melt accident evaluations and containment failure evaluations should continue to be performed for a representative sample of operating plants and plants under construction and for all future plant designs, the analyses to be as realistic as possible and to include dynamic and static loadings from steam and non-condensibles, basemat penetration by core-melt materials, and effect of aerosols on engineered safety features. We ask that such evaluations be made of Marble Hill's containments.

Concrete construction of Marble Hill prior to the work-stoppage of 1979 was sub-standard, with batches of concrete poured under unsatisfactory conditions, and vibration practices insufficient to insure even distribution of concrete around reinforcement bars. What portion of the containments at Marble Hill had substandard construction? What portion of this construction was quality-tested for soundness? How reliable the methods employed? Could portions of the containment be deeply flawed and go undetected? Could Marble Hill's containment withstand a core-melt accident?

The containment liner was subjected to a serious accident. While repaired, is it inherently as strong as before?

ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED ELECTRICAL EQUIPMENT

Sassafras Audubon is concerned with what will be considered "safety-related" or "non-safety related" electrical equipment at the Marble Hill plant, and as a consequence what will be environmentally qualified and what will not.

General Design Criterion 4, 10 CFR Part 50, Appendix A, requires that all equipment important to safety be qualified to survive accident conditions during which it is called upon to function for the life of the plant (40 years or 32 full-power years). This qualification criterion is based on the premise that safety systems

are worthless unless they can withstand extreme stress.

During the TMI-2 accident equipment not considered "important to safety" was used to mitigate the accident and prevent core meltdown. The Lessons Learned Task Force concluded that:

"all systems and components which can cause or aggravate an accident or can be called upon to mitigate an accident must be identified and classified as components important to safety and required to meet safety-grade equipment."

The present Commission has been guilty of weakening rather than strengthening the requirements for environmental qualification of electrical equipment. We ask that the NRC staff use the Lessons Learned Task Force conclusion as the basis for designating components important to safety and required to meet safety-grade equipment at Marble Hill.

WESTINGHOUSE STEAM GENERATORS GENERICALLY DEFECTIVE

Steam Generator Tube Integrity is an unresolved safety issue (USI) of the Nuclear Regulatory Commission. The Westinghouse Steam Generator D-4, D-5 models to be installed at Marble Hill are subject to vibration-induced tube wear and cannot be operated at full power. Westinghouse has proposed a "technological fix" but it has not been adequately tested. What will constitute adequate testing? How long at full-power operation?

Is there convincing proof that the fully-rolled tubes of the D-4, D-5 models will prevent or reduce wastage in the time frame that it might take for such problems to develop? Is it possible that stresses machined into the roll could make the tubes more susceptible to cracking in the long run? Has the effectiveness of the new tube support, designed to reduce wastage, been adequately tested under full-power operation?

PRESSURIZED THERMAL SHOCK

Neutron irradiation of reactor pressure vessel weld and plate materials decreases the fracture toughness of the materials, and makes it more likely in a severe pressurized overcooling event of vessel failure.

Marble Hill's reactor pressure vessel is composed of materials similar to those of operating reactors whose pressure vessels have become embrittled and are not expected to safely operate the design-life of the plant.

Have any design-modifications been made at Marble Hill to lessen neutron radiation embrittlement? Is Marble Hill likely to achieve 32-years of full-power operation?

SEISMIC QUALIFICATION OF MECHANICAL AND ELECTRICAL EQUIPMENT AT MARBLE HILL

The New Madrid rift represents a high risk earthquake area where another major quake is overdue. An impact of 6.0 on the Richter scale is estimated to have occurred in the Marble Hill area from the New Madrid earthquake. Will the equipment required to safely shutdown the Marble Hill plant, as well as equipment whose function is not required for shutdown, but whose failure could result in adverse con-

ditions which might impair shutdown functions, be environmentally qualified to withstand the effects of an earthquake of 6.0 on the Richter scale?

Another concern is whether the spent fuel storage facility is on the same quality rock foundation as the reactor containment building? What is the seismic category of construction of the spent fuel storage facility?

Yours sincerely,

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