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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PORTLAND GENERAL ELECTRIC COMPANY, et al.	)	Docket No. 50-344
	)	
(Trojan Nuclear Plant)	)	(Control Building)

ORDER ESTABLISHING REVISED SCHEDULE
(July 26, 1979)

The following schedule is hereby adopted by the Licensing Board to govern the course of Phase II of this proceeding:

September 7, 1979	-	SER issued by Staff.
September 21, 1979	-	Written testimony filed.
"	-	Last date for filing discovery requests on Staff's SER.
October 10, 1979	-	Evidentiary hearing commences.

It is so ordered.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Marshall E. Miller

Marshall E. Miller, Esq. Chairman

Dated at Bethesda, Maryland
this 26th day of July 1979.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

July 16, 1979

Honorable Joseph M. Hendrie
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: BAILLY GENERATING STATION, NUCLEAR 1

Dear Dr. Hendrie:

During its 231st meeting, July 12-14, 1979, the Advisory Committee on Reactor Safeguards reviewed the design of the pile foundations for the Bailly Generating Station, Nuclear 1, being constructed by the Northern Indiana Public Service Company (NIPSCO). This matter was considered by an ACRS Subcommittee at a meeting held in Portage, Indiana, near the site, on July 9, 1979. During its review, the Committee had the benefit of discussions with representatives and consultants of NIPSCO and of the NRC Staff. The Committee also had the benefit of the documents listed below and of statements received from members of the public.

In your letter dated June 8, 1979, you made the following request:

> "The Commission requests the Committee to identify and address the significance (if any) of the engineering and safety issues arising from use of the shorter pilings as opposed to the longer pilings. In particular: (1) is the use of shorter pilings a significant design change from the standpoint of engineering, and would it require significant alteration of other aspects of the design of the facility; (2) what differences, if any, would there be in the safety of the facility depending on whether longer or shorter pilings are used?"

The Committee heard reports on the experience to date relating to the driving of piles at the site, including the exploratory driving of the longer piles to the till or rock, the extensive exploratory driving of the shorter piles into the interbedded sand and clay layer, and the various borings and pile load tests that have been made over the past few years. The Committee also heard reports on analyses relating to the factors of safety to be provided against various loading combinations and to the expected settlements of the structures supported on piles.

The Committee has identified only two potential safety issues arising from the use of the shorter piles as opposed to the longer piles, and has concluded that neither of these will have any effect on the safety of the facility if the procedures proposed by NIPSCO or required by the NRC Staff are followed.

The first of these results from the fact that some of the exploratory longer piles were installed with the aid of high pressure water jets which resulted in disturbance of the soil (chiefly the sand) in the interbedded layer. This disturbance is limited to only a small portion of the foundation area at four locations. Unless remedial measures are taken, the shorter piles driven in these areas might be deficient in load-bearing capacity.

NIPSCO has proposed the use of "compaction piles" in the areas of disturbed soil to densify the disturbed soil so that it will be able to provide support equivalent to that in the other areas. The NRC Staff believes that this procedure is acceptable, and the Committee agrees, subject to compliance with the following procedures:

1. Exploration by borings or by penetration devices to determine the vertical and horizontal extent of the disturbed areas.

2. Compaction of the disturbed material by driving compaction piles.

3. Verification by borings or by penetration devices that all of the disturbed soil has been compacted.

4. Performing a compression load test on at least one production pile in each disturbed area to verify its load-carrying capacity and load-deformation characteristics.

NIPSCO has agreed to these procedures.

The second issue resulting from the use of the shorter piles is the potential settlement of the supported structures. The settlement after construction would have been expected to be essentially zero for the longer pile foundation. For the shorter piles, the settlement has been estimated by NIPSCO to be on the order of two inches. Settlement of this magnitude is not unusual for a nuclear plant and would have no significance to safety. The Committee has recommended to the NRC Staff, however, that the method of calculating the settlement be reviewed to assure that it has been done conservatively.

In addition, NIPSCO has proposed a program to measure settlement at numerous locations on the structures during operation of the plant, and the NRC Staff has stated that such measurements will be required by the Technical Specifications and that suitably conservative limits on permissible settlements will be established. In view of these commitments, the Committee believes that potential settlements, even if greater than those now predicted, would not represent a hazard to the public.

The NRC Staff is continuing its review of the foundation design, and the Committee believes that the remaining foundation-related issues, not related to the use of shorter piles, can be resolved by the Staff.

In direct response to the questions raised by your request, the ACRS believes that:

1. The use of shorter piling is not a significant design change from the standpoint of engineering.

2. The use of shorter piling would not require significant alteration of other aspects of the design of the facility.

3. There will be no difference in the safety of the facility depending on whether longer or shorter pilings are used if the matters referred to above are treated as now proposed.

Sincerely,

Max W. Carbon
Chairman

References:

1. Preliminary Safety Analysis Report on Bailly Generating Station, Nuclear 1.
2. Design Analysis and Installation of Driven H-Piles Foundation, Report SL-3629, submitted on March 8, 1978.
3. NIPSCO's Responses to NRC Staff Questions, submitted on July 14, 1978.
4. Indicator Pile Program, submitted by NIPSCO to NRC on September 26, 1978.
5. Supplementary Information on Driven H-Pile Foundation, NIPSCO, December 4, 1978.
6. Letter, D. B. Vassallo, NRC, to H. P. Lyle, NIPSCO, June 28, 1979.
7. Bailly Generating Station, Nuclear 1 Construction Permit, May 1, 1974.
8. Request by the Porter County Chapter of the Izaak Walton League of America, Inc., February 27, 1979.
9. Letter, E. M. Shorb, NIPSCO, to D. B. Vassallo, NRC, June 28, 1979.