

NORTH ANNA ENVIRONMENTAL COALITION

P.O. BOX 3951
CHARLOTTESVILLE, VIRGINIA 22903
(804)293-6039

Dr. David Okrent, Chairman
North Anna Subcommittee
Advisory Committee on Reactor Safeguards
U. S. Nuclear Regulatory Commission
1717 H Street Room 1046
Washington, D. C.

May 5, 1977

Dear Dr. Okrent:

Although the ACRS letter on North Anna was written on January 17, 1977, we trust that the Committee is still concerned and open to the consideration of new information on the VEPCO power station in Mineral, Virginia. Further, the North Anna Environmental Coalition believes that Advisory Committee on Reactor Safeguards should consider withdrawing its Operating License approval for North Anna in the light of the following serious and still unresolved safety problems:

1. Continued abnormal and differential settling.

NRC's April CONSTRUCTION STATUS REPORT notes as a construction deficiency at North Anna "sections of the service water piping between the service building and Unit 2 main steam valve house were overstressed.

"Overstresses caused by differential settlement of access road. Sections of affected pipe will be cut out and replaced."

Although the ACRS letter of October 26, 1976, states that "future settlement...should be modest," it would appear that the settlement situation is not yet under control and cannot be accurately or safely predicted.

2. Unknown characteristics of saprolite-halloysite.

Because the NRC had "little or no data on the cyclic response of a saprolite" (underlying many structures at North Anna) it requested saprolite analysis by the Army Corps of Engineers on May 26, 1976.

That report was not received by the NRC until this past March 11 — almost two months after the ACRS letter. Surely the Committee should study a report on a key factor in the "unexpected" settlement at North Anna: compressibility and questionable bearing capacity of the saprolite.

8508220489 850722
PDR FOIA
BELL85-363 PDR

3. Remedial drainage required for excessive groundwater.

In all six supplements to NRC's SAFETY EVALUATION REPORT of June 1976, groundwater control (necessary because of a 14' prediction error) was listed as an "outstanding item" requiring a system of well points.

Well points have proved unsuccessful, and horizontal drains are planned for installation by September 1, 1977. That would mean fuel-loading is planned almost 2 months prior (July 8, 1977) to this experimental safety system to help control still continuing abnormal and differential settling with consequent over-stressed piping.

The monitoring of groundwater levels, proposed in VEPCO's letter of April 15, 1977, is certainly no safety solution for an operating plant. The record of settlement monitoring at the Surry plant (See RO Reports Nos. 50-280/75-1 and 50-281/75-1) gives no basis for confidence in the efficacy of careful monitoring at North Anna.

We believe the ACRS should question the basis for VEPCO's choice of a groundwater level of 285' as the "threshold value for continued operation of the unit." VEPCO's original analysis used a level of 256' and its correction of March 15, 1976 only "determined that it was possible for groundwater elevations to be as high as elevations +265.00' to +270.00' within the station area."

What is the significance of the additional 15'?

As you well know, the Coalition's safety concerns regarding North Anna are not limited to the above problems. We believe that fuel pool capacity and projected increase raise serious questions along with those matters put before you by the Coalition in August and October of 1976.

Nevertheless, for the purposes of today's letter, we shall stop here, but include for your consideration and that of the entire committee the Coalition's letter of April 20 to Mr. Ernst Volgenau, Director of the NRC Office of Inspection and Enforcement.

Thank you for your professional interest.

Sincerely,

June Allen (Mrs. Phillip M.)
President, NADC

Enc.

11

February 11, 1977

NORTH ANNA ENVIRONMENTAL COALITION

P.O. BOX 3951

CHARLOTTESVILLE, VIRGINIA 22903
(804)293-6039

VEPCO REACTORS 40% DEFICIENT IN DESIGN

North Anna Reactors #1 and 2 lack by 40% the minimum margin of safety *2-11-77*
in seismic design now recommended by the Advisory Committee on Reactor
Safeguards (ACRS).

In its January 17 letter to NRC Chairman Marcus Rowden, the ACRS consultants

"recommended that, in view of the uncertainties of knowledge concerning the sources of earthquakes in the Eastern United States, a minimum safe shutdown earthquake (SSE) of 0.2g acceleration should be utilized for new plants for which construction permit applications are submitted in the future."

North Anna's SSE design is only 0.12g, just 60% of that recommended for future construction. Despite the acknowledged 40% deficiency, the ACRS letter found "the current design bases acceptable for the already constructed North Anna plants."

Testimony at the January meeting of the ACRS, however, reveals some uneasiness about North Anna's design:

Dr. Page: I really think that in the future those (g) values should be larger... I think that we would all feel a little bit better if the g values were initially set higher... (pages 136-137 of 1/5/77 transcript)

Dr. Okrent: ...with regard to auditing seismic design, I would myself rest less well-assured...that there are no seismic design errors. I don't know how you find them experimentally without the earthquake... (p. 182)

Dr. J. Carl Stepp, NRC seismologist, admitted that the Housner spectra used in the design of North Anna Units #1 and 2 was "not corrected for Eastern U.S."

VEPCO SUSPECTED DESIGN DEFICIENCY IN 1969

To make a reactor earthquake-resistant is expensive. VEPco was worried in 1969 that the then AEC might require that North Anna's g level be raised from 0.12 to 0.15. Notes of a VEPco meeting of August 20, 1969 reveal the utility's concern and proposed strategy:

"The AEC is postulating for the Design Basis Earthquake at least a strong Intensity VII (Modified Mercalli) near the site.

C/2

~~SECRET~~

VEPCO 8/20/69 meeting notes (cont.)

"For an earthquake of that intensity close in to the site, the Housner response spectra now being used for seismic design of the station could underestimate the response to earthquake ground motion of some structural components.

"Since the DRL has questioned the use of the Housner spectra, we should be cautious in our discussions with the AEC with regard to seismic design values and procedures...

"...it might be advisable to accept, somewhat reluctantly, the higher values of .08 and .15g and avoid discussion of the applicability of the Housner response spectra..." NX-16, S.C. 3/74

Despite VEPCO's "reluctant" consideration of higher g values, they were never implemented as indicated by the ACRS letter of January 17, 1977.

DESIGN DEFICIENCY IN NORTH ANNA REACTOR #3

It has been known for some years now that all 4 North Anna reactors are constructed astride a wet clay-filled fault. That fact may have a bearing upon the "Design/Fabrication Error" cited by the NRC in Unit #3:

"Design deficiency. Lack of adequate safety margin for earthquake forces and uplift forces due to water under structure. Rock anchors added to integrate foundation with rock.

"A design deficiency of the containment auxiliary foundations would not prevent, with adequate safety margin, the movement of the containment auxiliary structures with respect to the containment structure during a design basis earthquake, causing a possible bread (sic) (breach? break?) of containment. A similar problem existed with service water intake structure." (NRC/LEH Output, May 20, 1976)

The Coalition believes that the presence of water in the foundation for Unit #3 raises questions about the conditions beneath Units #1 and 2. NAEC raised this issue before the Atomic Safety and Licensing Board in Charlottesville on November 30, 1976, at the first session of the Operating License hearing, and will ask for an answer when the hearing reconvenes.