Vepco

VIRGINIA ELECTRIC AND POWER COMPANY, RICHMOND, VIRGINIA 23261

August 13, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. O. D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No. 569
PSE&C/DLP:mac:wang

Docket Nos. 50-404
50-405

Dear Mr. Denton:

Our letter, Serial No. 030 of February 6, 1979, advised you of our intentions to inform you continually of Company positions which are not in accordance with individual Regulatory Guides. This letter advises you of the Company position on Regulatory Guide 1.138, Laboratory Investigation of Soils for Engineering Analysis and Design of Nuclear Power Plants, Revision 0, dated April 1978, for the North Anna 3 and 4 Units.

Company Position

North Anna Units 3 and 4 are in compliance with Regulatory Guide 1.138 with the following exceptions and clarifications:

Paragraph C.1.c: "Standards traceable of the National Bureau of Standards should be used for recalibration and should be at least four times as accurate as those required of the working instrument." Standards that are being used to calibrate laboratory test equipment are more accurate, rather than at least four times more accurate, than the working instrument. We feel that certain physical properties of soils and rocks are affected by sampling and by preparation for testing in the laboratory. Therefore, calibrating geotechnical laboratory test equipment to higher standards than currently in use would not significantly improve the accuracy of the results.

Paragraph C.1.d: "In general, all soils and rocks sampled at the site should be first identified and classified using appropriate index and classification tests." Our Engineers' procedure is to perform index and classification tests on representative samples to confirm their visual-manual classification. We feel that having to perform index and classification tests on all soil and rock samples would be an unnecessary requirement in that both procedures would yield the same conclusion.

Paragraph C.2: "Moisture seals should be periodically checked and renewed as needed." When tube samples are received in the lab, they are inspected for any obvious leakage. When a tube sample has been selected for testing, the moisture seals are inspected in greater detail and the sample

is examined for any evidence of drying in the tube. Any evidence of drying is noted on the sample description log and samples that appear to have dried are not tested. A periodic inspection and replacement of moisture seals would be time consuming and in our opinion would not provide any better protection than we currently have for testing samples whose water content have changed.

Paragraph C.2: "The duration of storage before testing should be recorded for each sample test." The duration of storage is not specifically reported for each test, but can be calculated from the boring logs where the sampling date is given, and the laboratory test data sheets where the date of testing is reported.

Paragraph C.3.a. "Test specimens should be representative of each discrete soil or rock unit to be tested and should be accurately described on the basis of classification tests to permit establishment of the soil and geologic profiles." Visual-manual techniques are the primary means used by our Engineers in classifying soil and rock samples. Index and classification tests are performed on representative samples to confirm their visual-manual classification. Therefore, we do not feel that it is necessary to perform classification tests on all undisturbed samples of soil or rock.

Paragraph C.3.a.3: "The net length and weight of the sample and the results of other control tests should not have changed during shipment, storage, and handling of the sample." Our Engineers' procedure is to visually inspect undisturbed samples as they are opened and extruded to determine whether there has been any change in sample length within the tube or if there are any signs of sample disturbance. The results of these inspections are reported on the sample description log. Also, the laboratory test results are examined for possible indications of sample disturbance. We believe that these two procedures are sufficient to determine whether sample disturbance has occurred.

Paragraph C.3.b: "Scalping procedures should be explained together with reasons for expecting results to be valid." A discussion of the validity of test results on scalped materials is not presented as part of our Engineers' laboratory test data. However, the laboratory test results indicate which portion of the sample has been scalped. A trained reviewer of the test results would understand the effect of scalping on the results of specific tests.

Paragraph C.4.a.2: "The minimum acceptable B value is considered to be 0.95." Our Engineers have found that for very stiff or hard clays, it may not be possible to achieve a B value of 0.95. However, if the results of such a test were used, the B value would be reported and the probable effect on results of the test could be evaluated by a trained reviewer.

Paragraph C.5.a: "All laboratory test results and soil and rock identifications and descriptions should be documented in detail in a manner that permits independent verification and analysis of data. All test data including seemingly anomalous test results should be included."

We believe the only way to provide for an independent review of all soil and rock would be to provide the samples to a reviewer, without testing them. We feel that the current practice of recording sample descriptions and determining index properties of representative samples is consistent with good engineering practice. Anomalous test data caused by sample disturbance or equipment malfunction are not reported by our Engineers because the data do not reflect the true properties of the material in the field. However, the records of such tests are maintained as part of their laboratory records.

Appendix B, Relative Density: "In vibration table testing, both amplitude and frequency should be adjusted to values that yield greatest density." The frequency of our Engineers' vibratory table cannot be adjusted. We are in compliance with The Standard Test Method for Relative Density of Cohesionless Soils (ASTM D2049) which refers only to an amplitude variable with a fixed frequency of 3600 vibrations per minute.

This position will be placed on file and will be included in the final safety analysis report for these units.

We would be pleased to discuss this position with you at your convenience. Should you wish to meet with us to discuss this position, or if you have any questions, please contact us.

Very truly yours,

Sam C. Brown, Jr.
Senior Vice President - Power Station
Engineering & Construction