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*File
Eff. Tech Specs.*

July 19, 1979

NOTE FOR: L. Barrett, Section Leader, EEB, DOR
FROM: W. C. Burke, Leader
Applications Section, ETSB, DSE
SUBJECT: COMMENTS ON DRAFT OF TABLE SHOWING CHARACTERISTICS
OF EFFLUENT MONITORS FOR OPERATING REACTORS

We have reviewed the undated draft of the table "Operating Reactor Noble Gas Effluent Monitor Data", which was provided to us on July 17, 1979. Our review indicates the presence of several mathematical or typographical errors in the table, principally in the column for maximum detectable concentration. In our review, we compared the values in the readout range and calibration factor columns. Making the assumption that these values were correct, we re-calculated the corresponding values in the maximum detectable concentration column. Our suggested corrections are shown in the enclosed comments.

We note that the table indicates that there is substantial variance in the calibration procedure employed at operating plants. Some plants calibrate to Xe-133, while other calibrate to a mixture of Xe-133 and Kr.85. Other plants calibrate to solid sources, such as Cs-137 or Sr-90. Since the Technical Specifications call for noble gas effluents to be determined relative to an equivalent of Xe-133, we suggest that it may be appropriate at this time to consider developing a requirement for standardization of calibration to a Xe-133 equivalent.

We appreciate the opportunity to review this table. It provides a convenient source of reference data which fills a recognized need.

W. C. Burke, Leader
Applications Section, ETSB, DSE

Enclosure:
ETSB Comments

cc: J. Collins
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P. Stoddard

ETSB COMMENTS ON TABLE OF OPERATING
REACTOR NOBLE GAS EFFLUENT MONITOR DATA

Oconee 1/2/3 - Unit vent monitor

Calibration factor listed as 250 cpm/uCi/cc, which is equated to a maximum detectable concentration of 4×10^3 uCi/cc. Looking at the alarm setpoint, we see that the alarm is set at 3.2×10^{-4} uCi/cc -- i.e., alarm is indicated at a fraction of 1 cpm. Either the calibration factor or the alarm setpoint is in error by a factor of about 10^5 and should be corrected.

Arkansas-1

Maximum detectable concentration should be 2.38E-02.

Big Rock Point

No calibration factor.

Calvert Cliffs

No calibration factors for item 5, containment atmosphere.

Item No. 9: Gaseous Waste Discharge, should read 1.5E-01 uCi/cc.

Dresden-3

Maximum detectable concentrations, items 1 and 2 should read:

1. Main stack - should be 9.2E-01 uCi/cc.
2. Off-gas - should be 1.01E+04 uCi/cc.

Farley

Noble gas monitors are shown as being calibrated against Sr-90, Ba-133, and Cs-137. Even if solid sources such as these are used, it is necessary to calculate equivalent calibration factors for the noble gases, since beta energies and the number of discrete gammas per disintegration are different. Also applies to Browns Ferry, Calvert Cliffs, Nine Mile Point, Oyster Creek, Robinson, Salem 1, Three Mile Island.

Kewaunee

Each value for maximum detectable concentration should have a separate value for Kr-85 and Xe-133. Depending on which is used, item 1 would be 3.6E+00 for Kr-85 and 5.0E+01 for Xe-133. See North Anna entries for correct format.

Monticello

Item 3, Reactor Building Vent, should read: 5.0E+02 uCi/cc.

Nine Mile Point

Values for maximum detectable concentration have been transposed. Item 1 should read: 3.0E+01 uCi/cc; Item 2 should read: 1.0E-02 uCi/cc.

North Anna

Item 2 - Aux Bldg - Error in calibration factor column - should read: 4.50E+07, not 4.50E+17. Item 4 - entry in calibration factor column should be +, not -.

Palisades

Item 1, Main stack, maximum detectable concentration, should read: 6.07E-02.

Pilgrim

Items 1 and 2, maximum detectable concentrations, should read: 6.0E-02 and 5.45E-02.

Salem-1

Capacity shown as 1980 MWe - this is listed as 1090 MWe in the docket file.

St. Lucie

Maximum detectable concentrations should be 2.8E-02 for item 1, 2.7E-02 for item 2.

Surry 1/2

Maximum detectable concentration for item 4 should read: 9.62E-02.

Three Mile Island

Capacity should read: 792 MWe Unit 1, 880 MWe, Unit 2, not 792,880 as shown.

Turkey Point 3/4

Maximum detectable concentration should read 7.1E-01 for item 2, 7.0E-03 for item 3.