RECORD #6

TITLE: Particulate Sampling Line Bend Radii

FICHE: 38300-003

0892/77

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

April 12, 1977

MEMORANDUM FOR: FRPS [redacted] Inspection Staff

FROM: James M. Allan, Chief, Fuel Facility and Materials Safety Branch

SUBJECT: PARTICULATE SAMPLING LINE BEND RADII [redacted] MEMORANDUM NO. F-55 (M-14)

Attached for your information and use is a Region III memo dated January 24, 1977, to Headquarters requesting guidance on the above subject and their response dated March 8, 1977.

James M. Allan

James M. Allan, Chief
Fuel Facility and Materials
Safety Branch

Attachment: As stated

AITS file

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

January 24, 1977

MEMORANDUM FOR: Leo B. Higginbotham, Chief, Safety and Environmental Programs Branch, Office of Inspection and Enforcement, Headquarters

THRU: J. M. Allan, Chief, Fuel Facility and Materials Safety Branch

FROM: W. L. Fisher, Chief, Fuel Facility Projects and Radiation Support Section

SUBJECT: PARTICULATE SAMPLING LINE BEND RADII

During a preoperational inspection at Davis Besse, Unit 1, several right angle bends were observed in an airborne sample line which leads to a particulate monitor.1/ In response to the deviation for failure to comply with FSAR (Section 11.4.2.1) requirements for representative sampling, the licensee stated that the right angle bends had been replaced with bends of radii equal to five times the line diameters.2/ The licensee further stated that the new line configuration was in conformance with ANSI N13.1-1969.

ANSI N13.1-1969 states "Elbows in sampling lines should be avoided if at all possible, but when they are required, the bend radius of the elbow should be as long as practical ..." (Section B5). Although the phrase "as long as practical" does not appear to be defined further in the narrative portion of ANSI N13.1, Section A3.4 and Figures A2 and A5 appear to give some credence to the R≥5D concept, at least for sampling probes. Section A3.4 does, however, contain the caveat that in "some probe configurations .... deposition may be significant ...."

What, from an inspection and enforcement perspective, should/will we accept to demonstrate conformance to the "representative sample" requirements of

1/ IE Inspection Report No. 050-346/76-13.
2/ Letter, Roe to Keppler dtd 8/30/76

Section 11.4.2.1 of the FSAR? If bend radius is to be used as a criterion, what minimum bend radius is acceptable?

W. L. Fisher

W. L. Fisher, Chief
Fuel Facility Projects and
Radiation Support Section

cc: L. R. Greger, IE:III
D. W. Hayes, IE:III
C. C. Williams, IE:III

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 8, 1977

MEMORANDUM FOR: W. L. Fisher, Region III

FROM: Leo Higginbotham, IE:Hq

SUBJECT: PARTICULATE SAMPLING LINE BEND RADII (AITS F30257H2)

In examining the installation of stack and vent sampling systems, we should accept a bend radius of $\geq$ 5 times the radius of the sampling line. However, some sort of an evaluation must be performed by the licensee to actually demonstrate that representative samples are being collected. As you know, this can sometimes be done by collecting special samples at the location of the sample probe and correlating the results with those obtained at the "remote" sample collector.

Please let me know if you need anything further.

Leo B. Higginbotham, Chief
Safety and Environmental Programs Branch
Office of Inspection and Enforcement

cc: J. M. Allan, RIII

CONTACT: L. B. Higginbotham
49-27347