



October 4, 1988

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Senior Vice President
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U. S. Nuclear Regulatory Commission
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Gentlemen:

ULNRC- 1839

CALLAWAY PLANT
DOCKET NUMBER 50-483
WIDE RANGE GAS MONITOR
ISOKINETIC SAMPLING

During our NUREG-0737 post-implementation compliance review, we have identified an issue which requires clarification by Union Electric and your concurrence.

This issue involves the sizing of the normal vent flow/high radiation sample flow isokinetic nozzle and its inability to collect an isokinetic sample per ANSI N13.1-1969 guidelines. This requirement is referenced in NUREG 0737, Section II.F.1, Attachment 2, Clarification 3.

The Callaway Plant unit vent wide range gas monitor (WRGM) uses four sample lines with associated isokinetic nozzle assemblies for sample collection. Two sample lines are provided to allow collection of unit vent samples at low radiation activities. These lines are fitted with nozzle assemblies for collecting isokinetic samples at normal and accident unit vent flow rates. Two additional sample lines are provided to allow collection of unit vent samples at high radiation activities. These lines are also fitted with nozzle assemblies for collecting isokinetic samples at normal and accident unit vent flow rates.

The isokinetic nozzle assemblies associated with the WRGM were designed by G. A. Technologies per ANSI N13.1-1969, except for the normal vent flow/high radiation sample isokinetic nozzle. In this case the single nozzle ID is too large to allow the nozzle velocity to be approximately equal to the unit vent velocity. This causes non-isokinetic and non-representative sampling per ANSI N13.1-1969 guidelines.

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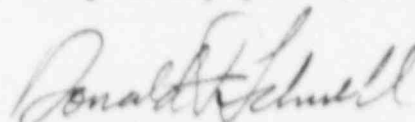
G. A. Technologies standard design practice for low flow, high radiation sampling systems has been to use a minimum nozzle ID of 0.150 inches because of the potential for plugging at smaller ID's. If a single nozzle is used, most calculated nozzle ID's are less than 0.150 inches with some as small as 0.070 inches. If an increased number of nozzles were selected per ANSI N13.3-1969 guidelines, nozzle ID's as small as 0.020 inches result. Therefore, a single 0.150 inch ID nozzle is used on most WRGM low flow sampling systems. For vents with a well developed turbulent flow (such as at Callaway), a single nozzle sampling point pulls a well-mixed, nearly representative sample.

When the vent flow has been filtered upstream of sampling as in the case at Callaway, only smaller particles are being sampled. In this case, the effect of non-isokinetic sampling is minimized and, because nozzle velocity is less than unit vent velocity, the sample collected by the nozzle will have a higher particulate concentration than the unit vent. Therefore, the sample collected would be biased in the conservative direction.

Based on the above discussion, Union Electric is requesting a variance from the requirements as referenced in NUREG 0737, Section II.F.1, Attachment 2, Clarification 3. We propose to use the normal vent flow/high radiation sample isokinetic nozzle as designed. We believe that the nozzle is sized to create a practical nozzle ID for sampling particulates in our unit vent. Redesign of the nozzle to meet ANSI N13.1-1969 guidelines would produce an impractical "hypodermic needle" type nozzle which would be easily damaged or plugged causing this sample path to be less reliable.

If you have any questions regarding this request or if additional information is required, please let me know.

Very truly yours,



Donald F. Schnell

BFH/skn

STATE OF MISSOURI)
) S S
CITY OF ST. LOUIS)

Donald F. Schnell, of lawful age, being first duly sworn upon oath says that he is Senior Vice President-Nuclear and an officer of Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By Donald F. Schnell
Donald F. Schnell
Senior Vice President
Nuclear

SUBSCRIBED and sworn to before me this 5th day of October, 1988.

Barbara J. Peaff
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NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 22, 1989
ST. LOUIS COUNTY.

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