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RECORD #122

TITLE: Clarification of Regulatory Guide 1.21, Section C.10,
"Sensitivity"

FICHE: 38282-328

0899/7



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

October 13, 1977

FRPS
MEMORANDUM FOR: ██████████ Inspection Staff
FROM: W. L. Fisher, Acting Chief, Fuel Facility and
Materials Safety Branch
SUBJECT: CLARIFICATION OF REGULATORY GUIDE 1.21,
SECTION C.10, "SENSITIVITY"
██████████ MEMORANDUM NO. **F-7**)

Attached for your information and use is a Headquarters memo dated October 5, 1977, which addresses the above subject and answers specific questions raised by J. T. Sutherland, Region II. For the present time, until Reg. Guide 1.21 is revised by SD, we can use this guidance as applicable.

W. L. Fisher

W. L. Fisher, Acting Chief
Fuel Facility and Materials
Safety Branch

Attachment:
Memo dtd 10/5/77



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

#122

OCT 5 1977

1	MP		
2	GWR	✓	2
3	RJS	✓	8
4	DTS	✓	9
5			
6	JAH	✓	
7	CEN	✓	File

MEMORANDUM FOR: J. T. Sutherland, Chief, Fuel Facility and Material Safety Branch, Region II

FROM: L. K. Cohen, Division of Fuel Facilities and Materials Safety Inspection, IE: HQ

SUBJECT: CLARIFICATION OF REGULATORY GUIDE 1.21, SECTION C.10, "SENSITIVITY"

For your information, Reg. Guide 1.21 has been scheduled to be revised by the Office of Standards Development (SD). The specific questions you raised in your memo of April 8, were forwarded to SD for consideration in the next revision.

For the present time, guidance on your questions, is provided in the enclosure.

This closes track item F21469H3.

L. K. Cohen
Division of Fuel Facilities and
Materials Safety Inspection
Office of Inspection and Enforcement

Enclosure: As stated

cc: L. B. Higginbotham
All Regions, Branch Chiefs

CONTACT: L. K. Cohen
49-28188

OCT 7 1977

GUIDANCE ON REG. GUIDE 1.21
SECTION C.10 "SENSITIVITY"

Provided below are questions and answers on Section C.10 of Reg. Guide 1.21, which states:

"...it may be more appropriate to calculate releases of such radionuclides to those radionuclides which are routinely identified and measured. Measurements should be made periodically to establish and assure the continued validity of the ratios used. Any reported data determined by this method should be clearly identified."

QUESTION:

1. Should the nuclides to be considered include all 10 CFR 20 Table II nuclides?

ANSWER:

No. This statement was inserted in Reg. Guide 1.21 to cover situations during routine analyses, where a particular radionuclide or radionuclides predominated a mixture or had a gamma energy spectrum which interfered with other gamma energies. Under these circumstances, it would be difficult to measure certain radionuclides which are known to be present from more detailed extensive analyses. The techniques depends upon having a data base of detailed, thorough analyses, perhaps performed with better sensitivity and resolution. For example, periodically, the licensee should make a long measurement on a sample with GeLi system. Information from these analyses would be then used to generate ratios and calculate other radionuclides unresolved in the NaI spectrum.

QUESTION:

2. Should the nuclides to be ratio'd be based upon the isotopic inventory of a composite batch (weekly, monthly, quarterly, yearly) or single batch (preceeding batch, or reference batch to be selected by licensee)?

ANSWER:

The makeup of the composite to determine ratio's depend upon the variability of the isotope mixture and ratios observed in the past data. If the mixture is stable, then quarterly composited samples may be sufficient, if not, then more extensive sampling and analyses may be necessary.

QUESTION:

3. If a reference batch, selected by the licensee, is acceptable - what documentation requirements are required?

ANSWER:

The licensee must provide documentation to demonstrate that the batch is representative of the effluent streams being analyzed. The licensee must also provide and document a series of analyses over a reasonable length of time to demonstrate the stability of the isotopic mixture.

QUESTION:

4. Where should the ratio based sample be obtained (primary coolant, secondary systems)?

ANSWER:

The sample should be collected from an effluent stream that assures a representative sample. It is meaningless to calculate ratios from isotopic mixtures of the primary coolant for determining airborne effluents.