RECORD #4

TITLE: Definition of Waste Gas Storage Tank Radioactivity Limits

FICHE: 03731-124

AUG 2 5 1980

SSINS 9197

MEMORANDUM FOR: J. P. Stohr, Chief, FFMS Branch, Region II

FROM: J. S. Bland, Division of Fuel Facility and Materials Safety Inspection, IE

SUBJECT: DEFINITION OF WASTE GAS STORAGE TANK RADIOACTIVITY LIMITS (AITS F02600022H08)

Your memorandum (copy enclosed) of July 2, 1980, requested a definition and/or determination method for radioactivity limits for waste gas storage tanks. Currently, there does exist inconsistent wording between the Standard Technical Specifications (STS) which presents a "considered as Xe-133" limit and the STS Guidance document (NUREG-0133) which describes the limit as a "Xe-133 equivalent." Based on discussions with NRR (J. Boegli, ETSB), we have determined that the curie limit in the STS should be interpretated and applied as a gross noble gas activity limit; no isotopic breakdown and analysis is necessary.

The wordings, "Xe-133 equivalent" and "considered as Xe-133," were included for the purpose of identifying to licensees the applicable use of area radiation monitor readings in determining an approximate tank radioactivity inventory. The intent of the STS requirement was not to require daily isotopic analysis of the WGDT inventories. Instead, the licensee is allowed to use area radiation monitor readings coupled with a calculational method to approximate tank inventories. Realizing that isotopic distributions change with increasing storage times, licensee must demonstrate the applicability of any calculational method employed for this purpose.

In determining the curie limit during licensing, NRR evaluates the expected radionuclide distribution and conservatively establishes a limit such that under accident conditions (decay tank rupture) offsite dose will be less than 0.5 rem. The limit as presented is a cumulative sum of the total radionuclide distribution evaluated during licensing. Therefore, considering the inventory limit as a gross activity limit is consistent with the formulation of the limit and the STS Bases.

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This interpretation should be used by IE inspectors for evaluating licensee's compliance with Technical Specification limits on waste gas storage tank inventories. This guidance is being provided to the other Regional Offices by a copy of this memorandum. Also by copy of this memorandum, we are requesting NRR to clarify the wording of the Technical Specification requirement and Bases to avoid any future misinterpretations.

J. S. Bland
Division of Fuel Facility and
Materials Safety Inspection, IE

Enclosure: As stated

cc: G. Smith, RI
A. Davis, RIII
G. Brown, RIV
H. Book, RV
W. Gammill
L. Barrett
J. Boegli
G. Troup, RII

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MEMORANDUM FOR: J. P. Stohr, Chief, FFMS Branch, Region II

FROM: J. S. Bland, Division of Fuel Facility and Materials Safety Inspection, IE

SUBJECT: DEFINITION OF WASTE GAS STORAGE TANK RADIOACTIVITY LIMITS (AITS FG26000C22h08)

Your memorandum (copy enclosed) of July 2, 1980, requested a definition and/or determination method for radioactivity limits for waste gas storage tanks. Currently, there does exist inconsistent wording between the Standard Technical Specifications (STS) which presents a "considered as Xe-133" limit and the STS Guidance document (NUREG-0133) which describes the limit as a "Xe-133 equivalent." Based on discussions with NRR (J. Boegli, ETSB), we have determined that the curie limit in the STS should be interpretated and applied as a gross noble gas activity limit; no isotopic breakdown and analysis is necessary.

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J. S. Bland
Division of Fuel Facility and
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

JUL - 2 1980

MEMORANDUM FOR: J. H. Sniezek, Director, Division of Fuel Facility and Materials Safety Inspection, IE

FROM: J. Philip Stohr, Chief, Fuel Facility and Materials Safety Branch, RII

SUBJECT: DEFINITION OF WASTE GAS STORAGE TANK RADIOACTIVITY LIMIT (AITS F02600022H08)

Background

NUREG-0472, Radiological Effluent Technical Specifications for PWR's, Section 3.11.2.6 limits the amount of radioactivity in each waste gas storage tank to (x) curies of noble gas. Section 3.11.2.6 further states that the activity shall be "considered as Xe-133". However, neither Section 3.11.2.6/4.11.2.6 nor Section 1.0 provide a definition of "considered as XE-133" or provide any information as to how this determination is to be made.

Several interpretations of "considered as Xe-133" are possible; for instance, (1) only Xe-133 need be considered, or (2) a correlation between other isotopes (principal gamma emitters) and Xe-133 based on the air or skin dose factors contained in Regulatory Guide 1.109 could be determined which would establish a "dose equivalent Xe-133". In the absence of a formal definition, each licensee may apparently develop his own definition for "considered as Xe-133". The purpose of NUREG-0472 was to provide standardization of the effluent specifications; this is not achieved if each licensee determines what is meant by "considered as Xe-133."

Action Requested

a. Provide the regions with the definition and/or method of determining "considered as Xe-133" values for waste gas storage tanks.

b. Forward to NRR the definition for inclusion in the Technical Specifications for those plants which will be issued an O.L. in the near future and for inclusion in the next revision of NUREG-0472.

J. Philip Stohr, Chief
Fuel Facility and Materials
Safety Branch

bcc: L. J. Cunningham, FFMSI, IE:HQ

CONTACT: G. L. Troup
242-5607