

Lower Technical Specification Limit of Detection for Liquid Effluents

HPPOS-171

PDR-9111220193

Title: Lower Technical Specification Limit of Detection for Liquid Effluents

See the memorandum from L. J. Cunningham to W. D. Shafer dated December 7, 1987. Technical Specification requirements on lower limits of detection in effluents apply to the sampling and analysis systems (equipment and procedures), not individual samples.

It was found that a licensee's procedures were designed to detect cesium-134 at the required level in distilled water, not in a normal effluent sample. This did not meet the intent of the licensee Technical Specifications on lower limits of detection for radio-active liquid effluents. Attempts were made to clarify the requirements on lower limits of detection (NUREG / CR-4007) but these are still ambiguous.

The requirements are on the sampling and analysis system (equipment and procedures) rather than requirements for individual samples. Licensees are required to have equipment and procedures that attain the specified lower limit detection under normal conditions. Therefore, an occasional failure of an analysis to achieve the specified lower limit of detection with an actual sample is not a failure to comply. Repeated failures to achieve the specified lower limit of detection, however, are indicative of a system deficiency and do constitute a violation of the Technical Specifications (TS).

To perform the required measurements, licensees must account for the presence of various nuclides in the samples. This may require measures such as increasing the counting time and/or the use of up-to-date software to resolve peaks with similar energies. This is indicated in the TS by requiring the use of "blank samples as appropriate" for determining the background count rate.

Regulatory references: Technical Specifications

hpos171.txt at www.nrc.gov

Page 2 of 2

Subject codes: 6.8, 7.3

Applicability: Reactors