**Section 406.240 Analytical Methodology**

a) The methods listed in the table in Section 141.25(a), "Analytical Methods for Radiocativity", 40 CFR 141, National Primary Drinking Water Regulations effective as of March 5, 1997, published at 62 FR 10173 - 10174 are to be used to determine compliance with this Part (see Agency Note in Section 406.25 of this Part).

b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section is required, the methods designated for water analysis in the following references are to be followed:

1) H. L. Krieger and S. Gold, "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," EPA-R4-73-014, U.S. Environmental Protection Agency, Cincinnati, Ohio (May 1973); or

2) John H. Harley, ed., "HASL Procedure Manual," HASL-300, Environmental Measurement Laboratory, New York, New York (1997).

c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent confidence level (1.96 sigma (s) where sigma (s) is the standard deviation of the net counting rate of the sample). The standards for detection limits of radioanalyses are as follows:

1) To determine compliance with maximum allowable concentration levels for radium-226 and radium-228, the detection limit shall not exceed 1 pCi/L.

2) To determine compliance with maximum allowable concentration levels for gross alpha activity (including radium-226, but excluding radon and uranium) the detection limit shall not exceed 3 pCi/L.

3) To determine compliance with maximum allowable concentration levels for beta-particle and photon radioactivity, the detection limits shall not exceed the following concentrations:

|  |  |
| --- | --- |
| Radionuclide | Detection Limit |
|  |  |
| Tritium | 1000 pCi/L |
| Strontium-89 | 10 pCi/L |
| Strontium-90 | 2 pCi/L |
| Iodine-131 | 1 pCi/L |
| Cesium-134 | 10 pCi/L |
| Gross beta | 4 pCi/L |
| Other radionuclidesa | 1/10 of the applicable limit |

AGENCY NOTE:

a As calculated from "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," National Bureau of Standards Handbook 69, August 1963, U.S. Department of Commerce.

d) To determine compliance with the applicable maximum contaminant levels, averages of data shall be used and shall be rounded to the same number of significant digits as stated in the maximum contaminant level established for the substance in question.

e) The Department may, upon written application, approve the use of an alternative analytical technique. An alternative analytical technique shall not be approved unless the Department determines that the technique is substantially equivalent to the prescribed test both in precision and accuracy as it relates to the determination of compliance with the applicable maximum contaminant level. Such approval shall be in writing and shall not be effective without the concurrence of the Administrator of the U.S. Environmental Protection Agency.