Subpart H-National Emissions Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities

Information Brief by DOE's Office of Radiation Protection (AU-22)

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Office of Environment, Health, Safety and Security

NESHAPs Information Brief

- Background
  - National Emission Standards for Hazardous Air Pollutants Or NESHAP.
  - 40 CFR Part 61, Subpart H regulates DOE operations with potential to emit radionuclides to air. The dose criteria is 10 mrem/yr EDE to a member of the public.
- Purpose
  - Provides guidance from to DOE site staff involved in Subpart H compliance reporting and on program updates.
  - Provides information on program related items such as: software upgrades, environmental surveillance, and commonly used terms.
  - Compiles all relevant program updates into one reference document.
  - Promotes consistency and uniformity amongst reports, something EPA HQ supports and encourages
  - Document is not intended to supersede or replace requirements of 40 CFR Part 61, Subpart H or facilities/regulator agreements.

Outline of NESHAP Info Brief

- Annual Compliance Reporting-MOU Item
- Annual Compliance Reporting
- Collective Dose Reporting
- Use of Modeling Software
- Subpart H Dose Reporting
- Subpart H Meteorological Data
- Environmental Measurements
- Summary of AU-22 Recommendations
- Commonly Used Terms

NESHAPs Information Brief

- Annual Compliance Reporting-MOU
  - Radon-220 and 222 emissions
  - Subparts Q and T
  - Stack/Vent Listing
- Annual Compliance Reporting
  - Submittal to EPA by June 30
  - Use of special units mrem, Ci, or person-rem
  - Consistent with other public site reports (e.g. ASER)
  - Disclose computer code used to estimate dose and risk (e.g. CAP-88 or COMPLY)
  - Signed certification statement by corporate officer or public official in charge

Collective Dose Reporting

- The sum of the total effective dose to all persons in a specified population received in a specified period of time. For clearance of property the collective dose refers to the population potentially exposed to the cleared property.
- Required by DOE O 458.1 and as recommended by ASER guidance 231.1b
- Within the Info Brief AU-22 recommends sites include the following information when reporting collective dose in annual compliance reports:
  - Maximum distance of population assessed (50-mile calculation preferred)
  - Total population
  - Year that the population data reflects
  - Citation for source of the population data
  - Describe method used to calculate
  - Keep consistent calculation method is preferred and sites should note any changes to calculation method if results are significantly different from prior years.

Use of Modeling Software

- Subpart H Dose Reporting Recommendations
  - Utilize the most recent code versions for Subpart H compliance when CAP-88 PC or COMPLY software is used.
  - Report dose results as mrem/yr EDE, as recommended by EPA, when CAP-88 PC Version 3.0 and 4.0 is used for modeling.
- Subpart H Met Data Recommendations
  - Utilize meteorological data associated with the emission year for dispersion modeling of Subpart H emissions, per DOE 458.1 (4.e.3); if an alternative data set is used include a brief summary in annual compliance report.
  - Notes information within an EPA guidance, published in May 2019 that provides work arounds to data conversion issues between CAP-888 Version 3 and 4.

Environmental Measurements

- Ambient air sampling
  - Some sites may be required to implement an ambient air surveillance program for certain emissions from major emission units and/or for diffuse emission sources.
  - AU-22 recommends that ambient air sampling results for significant radionuclides are presented in Subpart H reporting when these results are used as a basis for compliance.
- Critical receptor locations
  - Environmental surveillance locations must reflect critical receptor locations based on atmospheric dispersion modeling and potential public receptor locations.
  - This guidance comes from DOE-HDBK-1216, *Environmental Radiological Effluent Monitoring and Environmental Surveillance*.

Summary of AU-22 Recommendations

- Summary table that groups all AU-22 recommendations into one place.
- Categories include: Annual Compliance Reports, Compliance Software Items, and Other.
- Provides a comprehensive overview of many changes and updates that have taken place over the years as related to NESHAP.

Commonly Used Terms

- List of commonly used terms within the Information Brief as well as the NESHAP compliance documents.
- Improves the understanding of the requirements, particularly for members of the public.
- Provides the field with insights on how HQ program office defines various technical terms and which sources HQ utilizes.

Next Steps

- Next steps for the NESHAP Information Brief
  - Publication and distribution week of February 3.
  - Document will be available of the AU-22 public website.
  - Website to find Information Brief and additional NESHAP resource documents: https://www.energy.gov/ehss/downloads/national-emission-standards-hazardous-air-pollutants-neshap-compliance-monitoring
  - HQ NESHAP POC: Alicia Williamson, Alicia.Williamson@hq.doe.gov, 202-586-7272 and Sandra Snyder, PNNL, Sandra.Snyder@pnnl.gov.

Office of Environment, Health, Safety and Security

Office of Public Radiation Protection (AU-22)

Information Brief

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Subpart H—National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities

Introduction

Radionuclide releases to the air are subject to the Clean Air Act National Emissions Standards for Hazardous Air Pollutants (NESHAPs). For U.S. Department of Energy (DOE) sites, the U.S. Environmental Protection Agency (EPA) regulates radionuclide emissions to air, other than radon, under Subpart H of 40 CFR Part 61. Subpart H requires DOE operations, which have the potential to emit radionuclides to ambient air, to issue an annual compliance report to EPA to demonstrate site compliance with the dose standard of 10 mrem per year effective dose equivalent (EDE) to a member of the public. While Subpart H-regulated emissions accounts for radioactive material released to ambient air, the dose standard recorded within the regulation applies to exposure from all subsequent pathways (inhalation, ingestion, external dose) resulting from these emissions.

Background and Purpose

DOE staff or DOE contractors operating DOE sites across the complex may engage in radiological activities that can expose the public or environment to ionizing radiation. The Subpart H standard is 10 mrem per year to a public receptor from radionuclide emissions to the ambient air from DOE facilities. EPA established this annual dose-based standard at a level that would not be expected to have a discernable impact on an individual's health over a lifetime of exposure. The dose standard is very small -- far below levels so even a generally healthy person's natural protective defenses would not be