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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING DRAFT
GROUNDWATER MONITORING PLAN FOR RADIONUCLIDES NSY PORTSMOUTH ME
7/21/1998
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

July 21, 1998

Mr. Jeffrey Brann
Director, Radiation Health
Portsmouth Naval Shipyard
Portsmouth, N.H. 03804-5000

Re: Draft Groundwater Monitoring Plan for Radionuclides
Portsmouth Naval Shipyard
Kittery, Maine

Dear Jeff:

The United States Environmental Protection Agency (EPA) has reviewed the draft Groundwater Monitoring Plan for Radionuclides at Portsmouth Naval Shipyard in Kittery, Maine. The Plan was dated June 8, 1998.

This Monitoring Plan was reviewed by personnel in EPA's National Air and Radiation Environmental Laboratory (NAREL), as well as in Region 1. EPA's comments on the Plan are provided in Attachment I to this letter.

If you have any questions regarding these comments, please contact me at (617)573-5785.

Sincerely,

A handwritten signature in black ink that reads "Meghan F. Cassidy". The signature is written in a cursive style.

Meghan F. Cassidy
Remedial Project Manager

Enclosure

cc: Marty Raymond/PNS
Fred Evans/NORDIV
Iver McLeod/ME DEP
J. Michael Smith/NAREL
James Cherniack/EPA Region 1
Carolyn Lepage/Lepage Environmental
RAB Members

ATTACHMENT I

The following are EPA's comments on the draft Monitoring Plan for Radionuclides at Portsmouth Naval Shipyard in Kittery, Maine. This Monitoring Plan was dated June 8, 1998.

General

1. The Monitoring Plan frequently refers to procedures discussed in the "Historical Radiological Assessment" (HRA). The detailed PNS procedures for sampling and radiological analysis did not appear to be included in the HRA and therefore were not reviewed by EPA.

Section 2

2. It is indicated that Ra-226 will be quantified by gamma spectrometry. Gamma spectrometry may give erroneously high results due to interference of the 186 keV gamma peak (the primary Ra-226 gamma energy) from decay of U-235, another metal which will be present in water. Also, depending upon detector efficiencies and count times, the minimum detectable activity (MDA) may be too high to detect Ra-226 in most, if not all samples. Using the Pb-214 and Rn-222 daughters of Ra-226 should not be done for water samples unless sufficient decay time (21 days) is allowed for Rn-222 to decay to equilibrium levels with RA-226. This is because radon gas is typically present in much higher quantities than radium due to the high solubility of radon gas in water. Even if Pb-214 and Rn-222 daughters are used to quantify Ra-226, the detection limits may not be sufficiently low to quantify Ra-226 at the desired levels.

3. Below, EPA recommends analyzing water samples for tritium. Samples for tritium analysis are packaged separately from other water samples because they are not acidified. If tritium analyses are performed, our recommendation is to collect samples for tritium analysis in glass containers.

Section 3

4. (Section 3.d) In sampling the ponds, we recommend taking sediment and water samples (and biota samples, as available) at several more locations across the area of the ponds to have representative samples from the entire area of the ponds.

5. (Section 3.e) If the samples are to be dried or ashed, sufficient samples must be collected to have an adequate volume for analysis after processing. This is particularly important for the biota sample since there is typically a significant reduction with the drying and ashing process.

6. There should be provisions in the contractor's sampling procedure for decontamination of sampling equipment between samples and for measuring water depth in the well at the time of collection.

7. The contractor should have procedures for evaluating the degree of suspended solids in the water samples. If a significant amount of sediment is present in the water samples, EPA recommends filtering the sample before acidification. The filter (suspended solids) and filtrate

(dissolved solids) should be analyzed separately in determining the total radioactivity in the sample. This may not be an issue for the groundwater samples, but could be for the surface water samples from the pond.

8. EPA recommends including tritium in the list of analyses for the water samples. This would require adding a description of the PNS liquid scintillation counting system in Section 2.

Section 4

9. (Section 4.e) The samples should be secured with tape at the time of collection both for sample loss and chain of custody.

10. Provide information regarding how long samples will be held before being processed and counted.

Section 5

11. Along with the WRS statistical test discussed in Section 5, the results should be plotted on a map of the site to determine if an area is abnormally elevated over other areas, but not to the point where the WRS test fails. The WRS test may be insensitive to hot spots since it is not a magnitude specific test, but simply a ranking test (i.e., the highest sample concentration receives a value of 1, regardless of whether the concentration is 1 pCi/L or 1000 pCi/L).

Section 7

12. (Section 7.g) Clarify whether this section is referring to the Environmental Measurements Laboratory (EML) quality assurance program or verification under separate agreement with a DOE laboratory.