Junod, Rebecca

From: Lamoreaux, Richard W CIV (US) <richard.w.lamoreaux.civ@mail.mil>
Sent: Wednesday, February 26, 2014 8:45 AM
To: Kauffman, Laurie
Cc: Parks, Leah; HART, E J (Joe) CIV (US); Daniel Spicuzza; Melendez, Gerardo J SES (US); Glikerdas, Panagiotis G CIV (US); Chase, Harley E CIV USARMY ARDEC (US); Gabel, Ted B CIV (US); Vandyke, Henry J III CIV USARMY ARDEC (US); Finno, John W CIV (US); Vo, Nghi L CIV (US); Reed, John J CIV (US); McCullough, James; Kuryluk, April T CIV (US); Morrissey, Al J CIV (US); Borisky, Michael J CIV (US); Myers, Margaret C MAJ USARMY USAMC (US)
Subject: FOUO RE: Request for Additional Information regarding Department of the Army Picatinny Arsenal letter, dated July 23, 2013 FOUO (UNCLASSIFIED)
Attachments: Picatinny Work Plan Area 1222 Revision 4 1-30-2014 (complete).pdf

Classification: UNCLASSIFIED
Caveats: NONE

Good Morning Laurie,

Please find attached a response to the request for additional information regarding US ARMY RDECOM-ARDEC/Picatinny Arsenal letter, dated July 23, 2013 (radiological release of the Gorge). We have updated the release plan to incorporate comments provided by the both the NRC and NJDEP. The official package was mailed this morning, so please expect to receive a hard copy in the next few days. Please direct any additional comments/questions to me.

Thanks
Rich

Richard Lamoreaux
Safety Engineer/ARDEC Radiation Safety Officer RDAR-QES-F US ARMY RDECOM-ARDEC Picatinny Arsenal, NJ 07806
Phone: 973 724-8842 / DSN: 880-8842 / Mobile: 973 945-5717

-----Original Message-----
From: Kauffman, Laurie [mailto:Laurie.Kauffman@nrc.gov]
Sent: Tuesday, January 28, 2014 3:53 PM
To: Lamoreaux, Richard W CIV (US)
Cc: Parks, Leah
Subject: Request for Additional Information regarding Department of the Army Picatinny Arsenal letter, dated July 23, 2013

License No.: SUB-348

Docket No.: 04006377

Control No.: 581537

Dear Mr. Lamoreaux:

This is in reference to your letter dated July 23, 2013 requesting approval of your Final Status Survey and Sampling Work Plan (acknowledged as Decommissioning Plan (DP)). In order to continue our review, we need the following additional information:

1) Comment: The licensee should apply the sum of fractions approach for each radionuclide or calculate a new Gross DCGL for total uranium that results in a dose less than the limit in 10 CFR Part 20 Subpart E.

Basis: The DCGLW is equivalent to the concentration of a single radionuclide from a single source that would provide 0.25 mSv/y (25 mrem/y) total effective dose equivalent (TEDE). The dose from each radionuclide and source needs to be calculated and then added together. If a licensee only complied with the DCGLW for each radionuclide in each source, the resulting total dose could be as high as 0.25 mSv/y (25 mrem/y) multiplied by the number of radionuclides multiplied by the number of sources. The dose from all the radionuclides and sources must be equal to or less than the appropriate dose limit in Subpart E. The licensee has proposed using a DCGLW of 70 pCi/g for total uranium. The licensee determined this DCGL by summing the individual DCGLWs of 31, 6, and 33 pCi/g for U-234, U-235 and U-238 respectively. Because each DCGLW is equivalent to 0.25 mSv/y (25 mrem/y) the resulting dose could be as high as 0.75 mSv/y (75 mrem/y).

Path Forward: The licensee should either (i) apply the sum of fractions approach for each individual radionuclide, adhering to the individual limits for each uranium isotope of 31, 6 and 33 pCi/g, or (ii) calculate a new gross DCGLW for total uranium that will result in doses equal to or less than 25 mrem. Refer to Section 2.7 of NUREG-1757, Vol. 2, Rev. 1 for guidance on applying the sum of fractions approach. Note that Ra-226 will also need to be accounted for by applying the sum of fractions approach with either the individual uranium DCGLs or the total uranium gross DCGL.

A gross DCGL for uranium is calculated in the following manner:

Where Wi is the activity weighting factor. For all radionuclides present, the sum of Wi is equal to 1. For example, assuming the activity fractions typical for Depleted Uranium of 15.2% U-234, 1.1% U-235, and 83.7% U-238 (IAEA[1]) and applying the uranium isotopic DCGLs specified by the licensee, the equation would be the following:

Note that in order to use the gross DCGL approach, the licensee must support the activity based weighting factors with data collection from the site since changes in these factors would change the DCGLDU and could determine whether or not a site was in compliance.

The licensee should clarify if it intends to provide laboratory measurements for each uranium isotope, or if a surrogate approach will be used to estimate activities for each uranium isotope.

[1] Available at: http://www.iaea.org/newscenter/features/du/du_qaa.shtml#q3

2) Comment: Please provide additional justification for application of the DCGL of 3 pCi/g for Ra-226.

Basis: The licensee proposes to apply the State of New Jersey's residential use limit of 3 pCi/g for Radium-226 (Ra-226) as the DCGL for Radium-226. The NRC does not rely on State Regulations to enforce its own regulatory requirements. The DCGLW is equivalent to the concentration of a single radionuclide from a single source that would provide 0.25 mSv/y (25 mrem/y) total effective dose equivalent (TEDE). The licensee has not justified how the DCGL of 3 pCi/g for Ra-226 would provide a dose equivalent or less than 0.25 mSv/y (25 mrem/y).

Path Forward: Please provide additional justification for how the DCGL of 3 pCi/g for Ra-226 would provide a dose equivalent or less than 0.25 mSv/y (25 mrem/y).

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov <http://www.nrc.gov> ; select Nuclear Materials; Med, Ind, & Academic Uses; then Licensee Toolkits, see our toolkit index page. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region I Office and refer to Mail Control No. 581537. If you have any technical questions regarding this deficiency letter, please call me at (610) 337-5323.

Please note that you may not reply to this letter by return email. Your reply must be in writing by letter or facsimile (610-337-5269). If we do not receive a reply from you within 30 calendar days from the date of this email, we will assume that you do not wish to pursue your application.

Sincerely,

Laurie A. Kauffman

Health Physicist

Decommissioning and Technical Support Branch

Division of Nuclear Materials Safety

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Sent by the USNRC Notification Service

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[1] Available at: http://www.iaea.org/newscenter/features/du/du_qaa.shtml#q3

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Caveats: NONE