March 22, 2012

Ms. Elizabeth Southerland, Director
Division of Assessment and Remediation
Office of Superfund Remediation
and Technology Innovation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code: 5204P
Washington, DC 20460

SUBJECT: MEMORANDUM OF UNDERSTANDING CONSULTATION ON THE DECOMMISSIONING OF THE UNITED STATES DEPARTMENT OF AGRICULTURE LOW LEVEL RADIOACTIVE BURIAL SITE, BELTSVILLE AGRICULTURAL RESEARCH CENTER, BELTSVILLE, MARYLAND

Dear Ms. Southerland:

This letter is intended to inform you of the decommissioning oversight actions that the U.S. Nuclear Regulatory Commission (NRC) has taken, and intends to take, for the U.S. Department of Agriculture's (USDA) Low Level Radioactive Burial Site at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland.

On October 9, 2002, the NRC and the U.S. Environmental Protection Agency (EPA) entered into a Memorandum of Understanding (MOU) on "Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites." Under the MOU, EPA agreed to continue its Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) deferral policy of not listing sites on the National Priorities List that are subject to NRC's licensing authority. The MOU provides that, unless an NRC-licensed site exceeds any of three trigger criteria contained in the MOU, EPA agrees to a policy of deferral to NRC decision-making on decommissioning without the need for consultation.

For sites that trigger the criteria in the MOU, NRC will consult with EPA at two points in the decommissioning process: (1) prior to NRC approval of the license termination plan or decommissioning plan (DP), which NRC terms Level 1 consultation; and, (2) following completion of the Final Status Survey (FSS), which NRC terms Level 2 consultation.

We are sending this letter to initiate our Level 1 consultation for the USDA BARC site. The NRC has reviewed the January 2012 USDA Revised Final DP and a supplementary Technical Final Memorandum (ADAMS Accession Nos. ML120600551 and ML120600526, respectively), and the staff is considering approving the DP for implementation. The DP includes derived concentration guideline levels (DCGLs) (cleanup values) for certain radionuclides that exceed the soil concentration values in MOU Table 1 – Consultation Triggers for Residential and Commercial/Industrial Soil Contamination. The USDA BARC DCGLs are presented in Enclosure 1.

The USDA BARC is also involved in a CERCLA action related to volatile organic compound (VOC) contamination in the soil and ground water in the Low Level Radioactive Burial Site. The EPA Region 3 Office is performing oversight of environmental studies and response actions related to the VOC contamination in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan under the requirements of CERCLA and the 1998 Federal Facility Agreement between the EPA Region 3 Office and the USDA BARC facility. No Record of Decision for buried waste, impacted soils, and groundwater has been established.

The USDA BARC Site

The USDA BARC Low-Level Radioactive Burial Site is a 5,700 m^2 (1.4 acre) area, located in Beltsville, Maryland, that was used to dispose of research related waste from 1949 to 1987. The site is permitted under the USDA's NRC License No. 19-00915-03. The burial pits were authorized by the Atomic Energy Commission regulations found in 10 CFR 20.304. These regulations have been superseded and this disposal method is no longer authorized. The licensee is seeking NRC approval to conduct decommissioning activities at the site including remediation to unrestricted use levels consistent with 10 CFR 20.1402, "Radiological Criteria for Unrestricted Use." It is important to note that the USDA's NRC license will not be terminated at this time.

Available records indicate that radioactively contaminated laboratory waste (including, but not limited to: gloves, paper, syringes, liquid scintillation vials and fluids, aqueous and organic bulk liquids, and decomposed animals) associated with research activities was disposed of in a series of 46 burial pits. The dimensions of the pits are approximately 3 meters wide by 4 meters long by 3 meters deep, with a cover of approximately 1.5 meters of clean fill.

The primary radiological contaminants identified from historical inventories of the waste, and from a waste characterization survey conducted in 2007, are hydrogen-3 (H-3 or tritium) and carbon-14 (C-14). Significantly lesser quantities of chlorine-36 (Cl-36), nickel-63 (Ni-63), strontium-90 (Sr-90), cesium-137 (Cs-137), lead-210 (Pb-210), and radium-226 (Ra-226) were also identified from the inventories and during site characterization. Waste in some of the burial pits includes sealed sources of tritium, Ni-63, and Ra-226. There are no contaminated structures or systems. Investigations at the burial site and in the vicinity of the burial site have included installing permanent monitoring wells, sampling and analysis of groundwater, sampling and analysis of nearby surface water and sediment, and tasks associated with modeling any residual radioactive contamination in soil and potential future impacts to groundwater.

The remediation actions in the USDA's DP for the BARC site call for excavation of radiologically contaminated soil and classifying, separating, packaging, and then transporting the wastes for offsite disposal or treatment at appropriate facilities. The USDA's ultimate plans for the site have not been specified. Therefore, the USDA performed their dose modeling assessment considering the most limiting scenario of a set of residential and worker exposure scenarios, and compared the DCGLs to the more conservative (residential soil concentration) MOU values.

Onsite monitoring wells have been sampled as part of an ongoing groundwater monitoring program since 1998. There have been historical sample results where the concentrations of tritium in some down-gradient groundwater monitoring wells have exceeded the EPA Maximum Contaminant Level (MCL) for that radionuclide (20,000 picoCuries/liter (pCi/l)), but concentrations since 2001 have been less than the tritium MCL, with the most recent available

sampling data from 2010 indicating a maximum concentration of 3,600 pCi/l. Because the current groundwater monitoring well concentrations are below the MCLs, we are not requesting a consultation on groundwater.

As can be seen from the enclosure, the DCGLs for Cl-36, Ni-63, and Cs-137 exceed the MOU soil concentration levels for the residential use scenario. However, based on the available information concerning the radionuclide inventory of the waste, the NRC staff believes that the inventory of these radionuclides is very limited, and therefore will not be present in sufficient quantities following remediation to result in a significant dose impact. In addition, the DCGLs in the USDA's DP represent the maximum levels for each radionuclide without considering the existence of other radionuclides. Thus, in applying the sum of fractions requirement, the actual cleanup values will be reduced such that the potential dose from all residual radioactivity at the site from all media is less than 25 millirem per year.

Before taking final action for the USDA BARC site, the NRC will need to determine if the radiation dose to the average member of the critical group at the site will be in compliance with NRC's criteria in 10 CFR Part 20, Subpart E, "Radiological Criteria for License Termination." The regulations in 10 CFR Part 20, Subpart E provide an all-pathways dose criterion of no more than 0.25 millisieverts per year (25 millirem per year) and that doses are as low as is reasonably achievable (ALARA). The dose criteria in the regulations are fully protective of the public health and safety, and were the result of a comprehensive rulemaking, including an accompanying generic environmental impact statement. Furthermore, individuals at a decommissioned site are expected to receive doses substantially below the constraint level because of ALARA, conservative dose modeling assumptions, and the nature of the cleanup process itself, which often reduces residual contamination levels significantly below site DCGLs.

Next Steps

In accordance with the MOU, the NRC is requesting EPA's views on the DP. To help expedite this Level 1 consultation, NRC staff is available to meet with you and representatives of your staff to present our technical findings in greater detail. We believe such a meeting can provide you with additional details concerning the USDA BARC decommissioning and answer any questions you or your staff may have. It is the NRC's objective to complete the USDA BARC decommissioning licensing action, including this consultation process, in the spring of 2012, which would enable the USDA to expedite decommissioning of the BARC site.

As part of the DP review and approval process, the NRC staff will prepare an environmental assessment (EA) to document how the remediation at the USDA BARC site would ensure protection of the public health and safety and the environment. The EA will be published in the *Federal Register.*

Following site remediation activities, the USDA will submit a FSS. NRC staff will review information in the FSS and will compare the remaining residual radioactivity to the MOU trigger levels. If the FSS measurements exceed the MOU values, in accordance with the MOU, a Level 2 consultation between the agencies will be initiated to identify and resolve any remaining issues.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions concerning the above, please contact Keith McConnell at (301) 415-7295 or via email at keith.mcconnell@nrc.gov.

Sincerely,

/RA/ by K. McConnell for

Larry W. Camper, Director
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 03004530
License No.: 9-00915-03

Enclosure:
USDA BARC Proposed Soil Cleanup Values

cc w/enclosure:
Stuart Walker, U.S. EPA
Heather Njo, U.S. EPA, Region 3
Dennis Orenshaw, U.S. EPA, Region 3
John Jensen, USDA

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DATE	03/19/12	03/19/12	03/15/12	03/15/12	03/15/12	03/19/12	03/21/12	03/22/12

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USDA BARC Proposed Soil Cleanup Values (DCGLs)

The USDA developed site-specific DCGLs for each radionuclide of concern identified from historical inventories of the waste and from a waste characterization survey conducted in 2007. Radionuclides that were listed on inventory records, but with relatively short half-lives compared to the time since the last burial (phosphorus 32 (half-life -14.3 days), mercury 203 (half-life - 46.9 days) and polonium 210 (half-life – 138.4 days)) have been excluded from the DCGL calculations. The USDA used the RESRAD computer code to develop a base case scenario that considered leaching of residual subsurface contamination and exposure of a resident farmer to various groundwater dependent pathways. USDA also considered alternate scenarios: acute exposure to a well driller, and chronic exposure to a resident dwelling on contaminated soils brought to the surface following well construction or basement excavation. The DCGLs were calculated based on compliance with NRC's criteria in 10 CFR Part 20, Subpart E, "Radiological Criteria for License Termination." The regulations in 10 CFR Part 20, Subpart E provide an all-pathways dose criteria of no more than 0.25 millisieverts per year (25 millirem per year). The most conservative DCGL of all of the scenarios evaluated was then selected for each radionuclide of concern. If contamination from more than one radionuclide of concern exists in any of the excavated areas, the sum of fractions approach will be used to demonstrate compliance and the maximum allowable remaining contamination would be less than listed in the table.

USDA BARC Proposed Soil Cleanup Values (DCGLs) (pCi/g)

Radionuclide	Cleanup Value (DCGL)	EPA MOU*
H-3	121	228
C-14	21	46
Cl-36**	13.2**	6
Ni-63**	77,954**	9,480
Sr-90	4.7	23
Cs-137**	16.9**	6
Pb-210	1.9	15
Ra-226	2.2	5

* Residential

** Values exceeding the EPA MOU Table 1 Triggers for Residential Soil

Enclosure