POLICY ISSUE
(NEGATIVE CONSENT)

August 28, 2003 SECY-03-0153

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations /RA/

SUBJECT: REMOVAL OF THE GENERAL SERVICES ADMINISTRATION WATERTOWN, MASSACHUSETTS, PROPERTY FROM THE SITE DECOMMISSIONING MANAGEMENT PLAN

PURPOSE:

To inform the Commission that the staff plans to remove the General Services Administration (GSA) Watertown, MA property from the Site Decommissioning Management Plan (SDMP) as it meets the radiological criteria for unrestricted use in 10 CFR 20.1402.

BACKGROUND:

The GSA property is located in Watertown, Middlesex County, MA, approximately 13 kilometers (8 miles) west of Boston. It was a parcel of the former Watertown Arsenal used by the U.S. Army for depleted uranium (DU) munition operations authorized under Atomic Energy Commission (AEC) License No. SUB-238. From 1955-1966, an area northeast of the Arsenal site (now identified as the GSA property) was designated for stabilization of DU scrap from Arsenal activities. Operations involved igniting DU fragments at a specific site location ("burn pit") to reduce volume, packaging the material in waste containers, and preparing shipments for offsite disposal. Contamination of soil resulted from spillage of the DU fragments and burned

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material during transport to and from the burn staging area. Portions of the Watertown Arsenal site and adjoining Mall property have been previously remediated and removed from the SDMP (SECY-97-128 and SECY-00-173, respectively).

In 1968, the parcel of property was transferred conditionally to the GSA, with the stipulation that the Army would remain responsible for site remediation of radiological contamination. In 1973, the Army performed site cleanup of outdoor concrete surfaces to AEC unrestricted use guidelines in effect at that time, and conducted a final radiation survey. Those standards were 10,000 disintegrations per minute per 100 square centimeters-alpha (dpm-alpha/100 cm^2) (total) and 1000 dpm-alpha/100cm^2 (removable) ("Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licensing for Byproduct, Source, or Special Nuclear Materials," April 22, 1970). Based upon results of the survey, the AEC determined that the property was suitable for release for unrestricted use in January 1974. The GSA has maintained control of the site, keeping the facility fenced and locked.

In 1981, under the U.S. Department of Energy Formerly Utilized Site Remedial Action Program, Argonne National Laboratory (ANL) performed a review of previous site decontamination efforts, and found that file documentation that led to release of the property for unrestricted use was insufficient. ANL conducted a follow-up radiological survey of the property that identified residual contamination in soil at the GSA site which exceeded the concentration-based guidelines published in the October 1981, Branch Technical Position ("Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations," 46 FR 52061, October 23, 1981). Additional chemical and radiological characterization surveys were also conducted by Chem-Nuclear Systems Inc.(CNSI) (CNSI, 1988) and Morrison-Knudsen and Scientific Ecology Group, Inc. (MK/SEG) (MK/SEG, 1996). Those surveys also confirmed DU in soil which exceeded the guideline limit (1.3 Becquerels per gram (Bq/gm) (35 picocuries per gram (pCi/g)) of the Branch Technical Position.

When the U.S. Nuclear Regulatory Commission (NRC) developed the SDMP, this site, although unlicenced, was placed on the list because of the levels of residual contamination, found during the ANL survey, that remained on the property. The site was also listed under the Massachusetts Contingency Plan, because of the presence of detectable quantities of residual hazardous materials, including chemicals, heavy metals, and DU. Highest concentrations of DU in surface and subsurface soil were found in the area where uranium wastes were burned. The U.S. Army Corps of Engineers (USACE), New England District, currently manages the site for the GSA.

DISCUSSION:

Remediation efforts at the site have included a site-wide excavation by the Army in 1967, and remediation of the burn pit area after the 1981, 1988, and 1996 surveys. As a result of these efforts, large amounts of DU-contaminated soil were removed and disposed.

With these remediation efforts complete, in 1999, the USACE opted to follow a decommissioning process analogous to that applicable to a licensed site. Specifically, the USACE decided to use the option provided by 10 CFR Part 20, Subpart E, the License Termination Rule (LTR), and apply this dose-based criterion for release of the site for unrestricted use. (Prior to the promulgation of the LTR, SDMP sites decommissioned to the

concentration-based criteria in the SDMP Action Plan (57 FR 13389). Licensees entering decommissioning since the promulgation of the LTR must meet the dosed-based criteria in 10 CFR Subpart E).

The USACE submitted Derived Concentration Guideline Levels (DCGLs) for DU in the soil to satisfy NRC's LTR dose criterion for unrestricted release in September 2001 (Final Derived Concentration Guideline Level Report). The USACE also considered Commonwealth of Massachusetts' criteria applicable to the site because of a contingency in the deed which would have the site revert to the Commonwealth at a future date (Note that this contingency is not a deed restriction, and was not used in the selection of the future land use scenarios). These criteria include the Massachusetts Department of Environmental Protection's (MADEP's) human health risk criterion of excess cancer risk of $< 1 \times 10^{-5}$, as well as the Massachusetts Department of Public Health's (MADPH's) dose-based radiation standard of 0.1 milliSievert/year (mSv/yr) (10 millirem/year (mrem/year)). Of the three release criteria -- MADEP's excess lifetime cancer risk of $< 1 \times 10^{-5}$, MADPH's radiation standard of 0.1 mSv/yr (10 mrem/yr), and NRC's 0.25 mSv/yr (25 mrem/yr) dose criterion in 10 CFR 20.1402 -- the MADEP risk criterion proved to be the most restrictive.

To establish a suite of credible future land-use scenarios, a panel of government officials and local stakeholders was convened. This panel included representatives of USACE, the Army Research Laboratory, GSA, MADPH, MADEP, the Massachusetts Metropolitan District Commission (MAMDC) as the local township development authority, and the town of Watertown. The panel concluded that the most credible future uses for the site fall within the broad categories of public or recreational use. More specifically, the panel concluded that, within these broad categories, the following scenarios should be considered: construction worker, occupational worker, recreational facility user, and community gardener. The panel considered other scenarios, such as full-time residency or exclusive use of the site for farming, to be either not consistent with the location of the property in a high-population-density area, or with the future development plans of the MAMDC and the municipality of Watertown.

The USACE used the probabilistic RESRAD dose modeling code, version 6.0, to generate DCGLs for each of these scenarios. External dose was the controlling pathway for all the scenarios. The calculated DCGL's for total uranium for the various public and recreational scenarios ranged from 12.6 Bq/g (340 pCi/g) to 192 Bq/g (5175 pCi/g). The USACE proposed the most restrictive DCGL of 12.6 Bq/g (340 pCi/g) as the cleanup criterion for the site.

NRC staff reviewed the scenarios presented by the USACE, and the resulting DCGLs. Given the uncertainties about future land uses for the site, particularly as they relate to future residential use, NRC required the USACE to assess an alternate scenario, to understand the robustness of the analysis. Specifically, an "urban resident" scenario was evaluated to assure that the proposed DCGLs would satisfy the NRC LTR dose criterion over a wide range of potential land uses. Using the NRC dose criterion of 0.25 mSv/yr (25 mrem/yr), this urban resident scenario resulted in a DCGL of 37.5 Bq/g (1010 pCi/g).

Because the DCGL proposed by the USACE was more restrictive than the DCGL to satisfy the NRC criterion for unrestricted release of the site, and after coordination with MADEP and MADPH, the NRC approved the use of a DCGL of 340 pCi/g in a letter dated May 10, 2001.

In an April 2003 report entitled “Evaluation of the Final Radiological Status (EFRS) of the Watertown GSA Site,” (Harding ESE, USACE contractor), the USACE requested unrestricted site release without further remediation. This request was based on an extensive examination of radiological data documented in the ANL, CNSI, and MK/SEG survey reports. The USACE submitted the EFRS as the final radiological survey report, supported by statistical analysis of data reliability.

The April 2003 EFRS Report was the primary document the staff used to determine whether the current site conditions at the GSA property are acceptable to release the site for unrestricted use. The USACE also provided significant detail on GSA site radiological conditions, background exposures, buildings, and groundwater in the Historical Site Assessment (October 2000); the September 2001 Report; and the Focused Uranium Tailings Investigation Report (August 2002). Staff review determined that information in those documents provided radiological sampling and site characterization in sufficient detail to evaluate the final survey data presented in the EFRS, with respect to the DCGL of 12.6 Bq/g (340 pCi/g). Staff concludes that the statistical analysis used to validate the quality of the consolidated survey data as presented in the EFRS was appropriate.

Staff also performed an independent analysis of the USACE site radiological dose assessment, took confirmatory measurements during an inspection conducted in May 2003, and reviewed the results of samples split with the Commonwealth of Massachusetts. Staff worked closely with MADEP and MADPH throughout this process.

The USACE sample results showed maximum concentrations throughout the site were below the DCGL, with low concentrations of residual DU-contaminated soil remaining at or near the surface. Detectable total uranium concentrations from groundwater samples were at, or near, background levels.

The NRC staff’s May 2003 confirmatory survey included exterior area scans and direct measurements, followed by measurements of DU concentrations in soil and groundwater. A total of 26 soil samples was taken, concentrated in the area of greatest concern (i.e., the burn pit area). Five groundwater samples were also taken, both upgradient and downgradient of the burn pit. Results of samples taken by the NRC staff and analyzed by the Oak Ridge Institute for Science and Education (ORISE) found no contamination in groundwater and confirmed that the residual soil contamination was significantly below the DCGL. Selected soil and water samples were split for analysis with MADPH. NRC sample results for total uranium in the burn pit area ranged between 0.2 to 1.6 Bq/g (5 to 43 pCi/g), or 1 to 12 percent of the DCGL, while results of samples taken throughout the site outside the burn area were less than 1 percent of the DCGL. Sample analyses by the MADPH agreed with the results of the NRC confirmatory survey.

Based on the USACE’s dose assessment, the site-specific information presented by the USACE relative to prior remediations, and staff’s independent analysis, the NRC staff concludes that the dose from the Watertown GSA site is well below the dose criterion in 10 CFR 20.1402 (0.25 mSv/yr or 25 mrem/yr). Staff agrees that no further remediation of the site is warranted, and that the site meets the conditions for release for unrestricted use. NRC has coordinated its regulatory activities with the USACE, GSA, MADEP, and MADPH throughout the decommissioning process.

The staff held a public meeting on August 11, 2003, in Watertown, MA, to discuss removing the Watertown, GSA site from the SDMP list. Approximately 25 individuals, including the Watertown Restoration Advisory Board, attended the meeting. Although numerous questions were posed about the site and the decommissioning process, no concerns were raised by meeting attendees. Following Commission approval, the NRC staff will inform the USACE, New England District, the U.S. Environmental Protection Agency (USEPA) and GSA of NRC's intent to release the Watertown, GSA site for unrestricted use. The attached Environmental Assessment provides a discussion of the USACE dose assessment, the staff's independent assessment and Finding of No Significant Impact (FONSI), and the technical basis for the action (Attachment 1). Draft letters and the Federal Register notice delisting the SDMP site are enclosed (Attachments 2-5).

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. Staff consulted with the Commonwealth of Massachusetts to solicit review of documents submitted by the USACE, and to perform on-site confirmatory split sample analysis. The Commonwealth of Massachusetts has expressed no objection to the action proposed in this Paper. Based on the staff's evaluation of the USACE and NRC staff surveys, the staff concluded that the residual radioactivity at this site does not exceed the criteria in the recently completed Memorandum of Understanding (MOU) with the USEPA. Therefore, the staff did not consult with USEPA on this site pursuant to the MOU.

RECOMMENDATION:

That the Commission note the staff's proposal to release the Watertown GSA site for unrestricted use and remove the site from the SDMP list. The staff requests action within 10 days. Action will not be taken until the SRM is received. We consider this action to be within the delegated authority of the Executive Director for Operations.

/RA by Samuel J. Collins Acting For/

William D. Travers
Executive Director
for Operations

Docket No. 040-02253

Attachments:
1. Environmental Assessment
2. Draft letter to USACE
3. Draft letter to GSA
4. Draft letter to USEPA
5. Draft FRN

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ML032270348 *See Previous Concurrence

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