

October 26, 2006

Mr. David Everhart
U.S Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

**SUBJECT: PROPOSED CONFIRMATORY SURVEY PLAN FOR THE SENECA
ARMY DEPOT ACTIVITY (SEDA) IN ROMULUS, NEW YORK
(DOCKET NO. 040-08526; RFTA NO. 06-011)**

Dear Mr. Everhart:

SUC-1275

Enclosed is the proposed confirmatory survey plan for the survey activities to be performed at the Seneca Army Depot Activity (SEDA) in Romulus, New York. The survey is scheduled for the week of October 30, 2006. Comments you may have will be incorporated into the final survey plan.

If you have any questions, please direct them to me at 865.576.0065 or J. Scott Kirk at 865.574.0685.

Sincerely,

Wade C. Adams
Health Physicist/Project Leader
Survey Projects

WCA:ar

Enclosure

c: B. Watson, NRC/NMSS/TWFN T-7E18 E. Abelquist, ORISE
E. Knox-Davin, NRC/NMSS/TWFN 8A23 S. Kirk, ORISE
D. Condra, ORISE E. Bailey, ORISE
D. Herrera, ORISE T. Brown, ORISE
E. Montalvo, ORISE File/1710

Distribution approval and concurrence:	Initials	Date
Technical Management Team Member		

Voice: 865.576.0056

Fax: 865.241.3497

E-mail: AdamsW@orau.gov

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NUCLEAR MATERIALS-002

PROPOSED
CONFIRMATORY SURVEY PLAN FOR THE
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

INTRODUCTION AND SITE HISTORY

The Seneca Army Depot Activity (SEDA) facility was constructed in 1941, and until 1995, the facility's primary mission was the receipt, storage, maintenance, and supply of military items, including munitions and equipment. A portion of the supplies contained radioactive materials, such as depleted uranium (DU) munitions. The Depot's mission changed in 1995 when the Department of Defense (DOD) recommended closure of SEDA under its Base Realignment and Closure (BRAC) process. SEDA is currently in the process of completing the process to close the base and transfer the property. The site operated under U.S. Nuclear Regulatory Commission (NRC) license SUC-1275 (Docket No. 04-08526) held by the U.S. Department of the Army (DOA).

The license-related activities occurred in Buildings 5, 306, 612, 2073, S-2084, Warehouse 356 and a total of 121 ammunition storage bunkers (igloos). In addition to the buildings covered directly under the license, the entire site was evaluated by DOA to determine if the facility meets radiological criteria for license termination specified in 10 CFR 20.1402 and applicable State criteria. The evaluation included a review of each facility previously released for unrestricted use and any facilities or areas currently undergoing decommissioning. Historical records from previously released areas were also reviewed and evaluated to determine whether those areas met current release criteria. A review of these records indicated that periodic radiological surveys conducted by the Army in accordance with the licenses did not show any areas of concern (ANL 2003).

DOA contracted with Argonne National Laboratory (ANL) to prepare the license termination plan (LTP) and license release plan (LRP) and PARSONS to implement the final status survey plan (FSSP) and prepare the final status survey report (FSSR). Section 5 of the LTP describes the FSSP which follows the guidance in the *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM, NRC 2000). On the basis of the historical site assessments, areas under the license were divided into impacted and non-impacted areas as specified in MARSSIM. These impacted areas were further divided into Class 1, 2 or 3 areas based on the potential for residual radioactive material contamination.

The NRC's Headquarters and Region I Offices have requested that the Oak Ridge Institute for Science and Education (ORISE) perform confirmatory surveys of several buildings and ammunition bunkers at the SEDA facility in Romulus, New York.

SITE DESCRIPTION

SEDA is located about 64 kilometers [km (40 miles)] south of Lake Ontario, near Romulus, Seneca County, New York. Seneca County is located in the Finger Lakes Region in the center of the state. The facility consists of approximately 4,300 hectares [ha (10,587 acres)] and is located at 5786 State Route 96, Romulus, New York 14541-5001. The site lies east of Cayuga Lake and west of Seneca Lake. New York Highways 96 and 96A are to the east and west. The surrounding area is sparsely populated farmland (PARSONS 2004). The site also consists of several office and warehouse buildings, utilities and maintenance buildings and 121 ammunition bunkers (igloos).

OBJECTIVES

The objectives of the confirmatory survey are to provide independent contractor field data reviews and to generate independent radiological data for use by the NRC in evaluating the adequacy and accuracy of the licensee's procedures and FSSR. The purpose of this review is to ensure that the licensee adequately designed the FSS and fulfilled commitments contained in the LTP.

RESPONSIBILITY

Work described in this survey plan will be performed under the direction of Eric Abelquist, Program Director, Scott Kirk, Survey Projects Manager, and Wade C. Adams, Project Leader, with ORISE. The cognizant site supervisor has the authority to make appropriate changes to the survey procedures as deemed necessary. After consultation with the NRC site representative, the scope of the survey may be altered based on findings as the survey progresses and additional information provided by the licensee.

DOCUMENT REVIEW

ORISE will review the licensee's survey classification supporting documentation and the final radiological survey data for adequacy and appropriateness, taking into account commitments contained in the LTP which was approved by the NRC in 2003 (ANL 2003). Outlined in the LTP

are the release criteria for the site, along with documentation on how the release criteria were derived. ORISE will also review and evaluate the FSSP and FSSR in accordance with this plan and other referenced documents to ensure that FSS procedures and results adequately meet site LTP commitments (PARSONS 2004).

PROCEDURES

Confirmatory survey activities will be conducted in accordance with the ORISE Survey Procedures and Quality Assurance Manuals (ORISE 2006a and 2005). Deviations to the survey plan or procedures will be documented in the site logbook.

The following radiological survey procedures will be used by ORISE to conduct confirmatory survey activities on various building surfaces that have been evaluated by PARSONS and are to be released for unrestricted use. Specific survey units (SU) will be selected based on ANL's classification of the SUs and/or selected based on elevated measurements noted in PARSONS FSSR. Approximately 10% of the available SUs will be selected for confirmatory survey activities.

ANL divided areas into impacted and non-impacted areas as specified in MARSSIM. These impacted areas were further divided into Class 1, 2 or 3 areas based on the potential for residual radioactive material contamination. These classifications were based on the potential and extent of the area of origin's radiological hazards based on historical process knowledge (ANL 2003). ORISE will perform confirmatory surveys of the evaluated SEDA facilities; the percentage of confirmatory surveys conducted may increase or decrease based on findings as the confirmatory survey activities progress and/or at the discretion of the NRC site representative.

HEALTH AND SAFETY

A walkdown of the project area will be performed in order to evaluate the area for potential health and safety issues. Additionally, the proposed survey and sampling procedures will be evaluated to ensure that any hazards inherent to the procedures themselves are addressed in current job hazard analyses (JHAs). The procedures entail minimal potential hazards that are addressed in current ORISE JHAs. ORISE will also adhere to the SEDA/PARSONS health and safety requirements and will participate in PARSONS site-specific safety training. Confirmatory activities are expected to be conducted in areas that do not require radiation work permits or special dosimetric considerations.

Safety precautions will include the wearing of paper respirators and disposable gloves when within the ammunition bunkers (igloos) due to possible contact with animal carcasses.

REFERENCE SYSTEM

The reference grid systems established by PARSONS will be used where possible. Otherwise, measurement locations on ungridded surfaces will be referenced to prominent building features and SU maps as provided by PARSONS.

SURFACE SCANS

Alpha plus beta and gamma radiation surface scan coverage will be based on the ANL SU classification. Scan coverage in SUs selected for confirmatory surveys will be as follows: up to 50% of the structural surfaces in Class 1 Areas, up to 25% of the structural surfaces in Class 2 Areas, and up to 10% of the structural surfaces in Class 3 Areas. Particular attention will be given to cracks and joints where material may have accumulated. Scans will be performed using gas proportional, Geiger-Muller (GM), zinc sulfide (ZnS) and sodium iodide (NaI) scintillation detectors coupled to ratemeters or ratemeter-scalers with audible indicators. Any locations of elevated direct radiation detected by surface scans will be marked for further investigation—to include additional surface scans, as deemed necessary to delineate contamination boundaries.

SURFACE ACTIVITY MEASUREMENTS

Construction material-specific background measurements will be collected as necessary from an unaffected/non-impacted area of the site for correcting gross activity measurements performed on structural and system surface survey units. Initially, direct measurements of surface alpha and beta activity will be performed at any locations of elevated direct radiation identified by surface scans—to include additional direct measurements as deemed necessary to delineate contamination boundaries and to determine if residual activity levels meet the gross surface derived concentration guideline levels (DCGLs). The majority of the direct measurements will be performed using gas proportional detectors—GM and ZnS scintillation detectors will be used in areas that are inaccessible to the gas proportional detectors. Additional direct measurements will be performed at up to five judgmental locations in each survey unit that receives confirmatory surveys. All detectors will be coupled to ratemeters or ratemeter-scalers with audible indicators. Smear samples, for determining removable

gross alpha and gross beta activity levels, will be collected from selected direct measurement locations that exhibit elevated residual activity to determine removable activity levels. Wet smears, for determining tritium contamination, may be collected if deemed necessary.

Areas of residual activity, in excess of the site criteria, will be brought to the immediate attention of PARSONS and NRC site representatives. If additional remediation is performed during the ORISE survey, follow-up measurements will be performed.

SAMPLE ANALYSIS AND DATA INTERPRETATION

Samples and data will be returned to ORISE's laboratory in Oak Ridge, Tennessee for analysis and interpretation. Samples will be analyzed in accordance with the ORISE Laboratory Procedures Manual (ORISE 2006b). Smears will be analyzed for gross alpha and gross beta activity using a low-background proportional counter and for H-3 by liquid scintillation analysis. Direct measurement data and smear data will be converted to units of disintegrations per minute per 100 square centimeters (dpm/100 cm²).

The data generated will be compared with the approved LTP criteria established for the SEDA facility (ANL 2003). Results will be presented in a draft report and provided to the NRC for review and comment. Data and samples collected, as part of this survey, will be archived by ORISE.

SURFACE ACTIVITY RELEASE CRITERIA

The radionuclides-of-concern (ROC) are depleted and natural uranium, thorium, plutonium and tritium. As stated in the LTP, the total effective dose equivalent (TEDE) selected for the development of DCGLs at SEDA was the New York State Department of Environmental Conservation (NYSDEC) TAGM-4003 of 10 millirem per year (mrem/y). DCGLs are residual levels of radioactive material that correspond to allowable radiation dose standards (NRC 2000). Although the NRC allows a TEDE of 25 mrem/y, the NYSDEC TEDE was selected since it is the most conservative. The FSSR is to demonstrate that the site meets the NRC and NYSDEC release criterion (PARSONS 2004).

Two types of DCGLs were used in the license termination evaluation:

1. The DCGL_w (DCGL, wide area) is defined as the concentration of residual radioactivity distinguishable from background that, if uniformly distributed

throughout a survey unit, would result in a defined annual TEDE to an average member of the critical group.

2. The DCGL_{EMC} (DCGL, elevated measurement comparison) is the concentration of residual radioactivity limited to a small, localized area that is equivalent to the TEDE.

For building structural surfaces, ANL used the building occupancy scenario since it was the most conservative of all the potential reasonable scenarios even though the buildings and igloos associated with the license termination are located in an area designated for conservation/recreation. The applicable surface activity guidelines from the LTP and FSSR for the structural surfaces are as follows (ANL 2003 and PARSONS 2004):

DERIVED CONCENTRATION GUIDELINE LEVELS FROM SEDA LTP

Radionuclides	Surface DCGL _w (dpm/100 cm ²) ^a	
	Gross Surface DDGL _w	Gross Surface DDGL _{EMC}
Depleted Uranium	31,800	378,420
Tritium (H-3)	2.07 E8	NA ^b

^aDCGL values taken from the LTP and FSSR (ANL 2003 and PARSONS 2004).

^bNA = Not Applicable.

ORISE will review the FSS data/report and compare confirmatory results with the release criteria.

TENTATIVE SCHEDULE

Field Measurements	October 30 through November 2, 2006
Sample Analysis	November 2006
Draft Report	December 2006

A final report will be issued within 15 days of the receipt of the NRC comments on the draft report.

REFERENCES

Argonne National Laboratory (ANL). Seneca Army Depot Activity License Termination and License Release Plan. Argonne National Laboratory, Environmental Assessment Division, Argonne, Illinois; January 2003.

Oak Ridge Institute for Science and Education (ORISE). Quality Assurance Manual for the Environmental Survey and Site Assessment Program. Oak Ridge, Tennessee; July 28, 2005.

Oak Ridge Institute for Science and Education. Survey Procedures Manual for the Independent Environmental Assessment and Verification Program. Oak Ridge, Tennessee; August 7, 2006a.

Oak Ridge Institute for Science and Education. Laboratory Procedures Manual for the Independent Environmental Assessment and Verification Program. Oak Ridge, Tennessee; April 18, 2006b.

Parsons (Parsons 2004). NRC License Termination Report, Seneca Army Depot Activity, Romulus, New York. Boston, MA; June 2004.

U.S. Nuclear Regulatory Commission. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). NUREG-1575; Revision 1. Washington, DC; August 2000.