

**SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION**

1. LICENSEE/LOCATION INSPECTED: Great Lakes Naval Training Center Great Lakes, IL		2. NRC/REGIONAL OFFICE REGION III US NUCLEAR REGULATORY COMMISSION 801 WARRENVILLE ROAD LISLE IL 60532-4351	
REPORT NUMBER(S) 04008306/2003-002			
3. DOCKET NUMBER(S) 040-08306, 040-08680	4. LICENSE NUMBER(S) SMC-01207, SUC-01332	5. DATE(S) OF INSPECTION 12/9/2003	
6. INSPECTION PROCEDURES USED 87104	7. INSPECTION FOCUS AREAS Decommissioning Status/Update; Site Tour and Security		

**LICENSEE:**

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

- 1. Based on the inspection findings, no violations were identified.
- 2. Previous violation(s) closed.
- 3. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, NUREG-1600, to exercise discretion, were satisfied.

\_\_\_\_\_ non-cited violation(s) were discussed involving the following requirement(s):

\_\_\_\_\_

\_\_\_\_\_

- 4. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements and are being cited. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.

*CM 1-2-04*

**STATEMENT OF CORRECTIVE ACTIONS**

I hereby state that, within 30 days, the actions described by me to the Inspector will be taken to correct the violations identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested.

TITLE	PRINTED NAME	SIGNATURE	DATE
LICENSEE			
NRC INSPECTOR	Eugenio A. Bonano	<i>Eugenio A. Bonano</i>	12-9-03

**MATERIALS DECOMMISSIONING INSPECTION FIELD NOTES**  
Region III

Inspection Report No.: 040-08306/2003-002

License No.: SMC-01207, SUC-01332

Docket Nos.: 040-08306, 040-08680

Non-Licensee: Great Lakes Naval Training Center

Contact: Pat A. Hayworth

Telephone No: 757-887-4692

Date of Amendment:

Last Amendment No.:

Program Code:

Date of Last Inspection: October 8, 2003

Date of This Inspection: December 9, 2003

Date of Next Inspection: TBD (dependent on progress of Phase III project)

Type of Inspection:     Announced                     Unannounced  
                                  Routine                             Special  
                                  Initial Decomm.                 Reinspection of Decomm.  
Level of Inspection:     Normal                             Reduced                             Extended

**Brief Description of the Site/Project:**

In 2000 NRC inspectors identified radiological contamination in the form of monazite sand, a thorium-bearing material, at the Great Lakes Naval Training Center. As a result, the U.S. Army Joint Munitions Command (AJMC) contracted Cabrera Services, Inc. (Cabrera) to remediate the monazite sand and conduct a final status survey (FSS) of soils located within the boundaries of the Great Lakes Naval Training Center. This site was formerly used by the Defense Logistics Agency as a storage area for strategic quantities of monazite sands, a thorium-bearing material. The Navy, who is the site owner, assumed responsibility for the cleanup and the AJMC agreed to support the Navy in the cleanup of the site and disposal of the waste.

Region III decommissioning staff have reviewed the Navy's remediation plans, and conducted several onsite inspections. Remediation activities have involved a number of phases. In the first phase Cabrera performed characterization surveys in March 2000, and identified radiological concentrations of Thorium-232 ranging from 0.93 picocuries per gram (pCi/g) to 64.31 pCi/g with an average concentration of approximately 17 pCi/g. The monazite sand encompasses an area of approximately 90,000 square yards (yds) (300 yds x 300 yds) in a former tank farm area. The majority of the residual contamination to be remediated resides along a north fence line, in locations surrounding and between the former storage tanks. A small area in a parking lot and picnic area are cordoned off and also designated for cleanup. Due to the relatively insoluble nature of the thorium, ground-water impact is not a concern. The second phase involved a FSS of a construction zone, characterization of a perimeter area, and the characterization of an excavated soil pile {(3000 y<sup>3</sup>) or (100 ft x 50 ft x 16 ft)}. Phase II was completed in 2000 and 2001. The third phase is currently in progress and is due to be completed by the Spring of 2004. In this phase, Cabrera will remediate and conduct a FSS of the north fence area and the excavated soil pile. The completion date for the final phase is pending.

**Brief Description of Inspection Activities:**

The NRC inspector toured the site to observe radiological postings and site security. The inspector and the site owners (non-NRC licensees) discussed the status and time table for completion of the current project and the Great Lakes site cleanup in its entirety.

**Brief Description of Findings and Actions:**

The Navy is meeting all requirements under 10 CFR Part 20, Subpart J, Paragraph 1902, "Posting requirements," and Subpart I, "Storage and Control of Licensed Material." No problems were noted.

The Phase III Project USN 2000-003, Modification I (remediation and final status surveys) to release the north fence area and excavated soil pile for unrestricted use was put on hold to await for additional funding. The needed funding will allow for additional remediation of the north fence area. In the north fence area, Cabrera identified additional contamination under one to two feet deep of grading soil. Several sections (in one-foot depth lifts) have been removed from the soil pile; only one section remains. The Navy will provide additional funding to complete the current project in the spring of 2004. The completion date for the final phase is pending. The Navy has agreed to provide to the NRC, in the first quarter of 2004, a letter addressing the schedule (time line) and financial assurance to complete the cleanup at the Great Lakes Training Center.

**Summary of Findings and Action:** NRC Inspectors did not identify any violations or weaknesses in site security or radiological postings.

- (x) No violations cited, regional letter issued
- ( ) Violation(s), clear NRC Form 591 issued
- ( ) Violation(s), regional letter issued
- ( ) Follow up on previous violations Not applicable

Inspector: Eugenio J. Mans

Date: 1-7-04

Approved: Christopher G. Miller

Christopher G. Miller, Chief, Decommissioning Branch

Date: 1-8-04

I. **SUMMARY OF DECOMMISSIONING STATUS**

- A. Operational program ceased. (x) Y ( ) N
- B. Final survey required (x) Y ( ) N
- C. NRC confirmatory survey required. (x) Y ( ) N
- D. NRC closeout inspection required. (x) Y ( ) N
- E. Non-licensee actively remediating site. (x) Y ( ) N
- F. Non-licensee completed site remediation. ( ) Y (x) N

Description of Facility Status:

The site is maintained and secured on the Great Lakes Naval Base with fencing, walls, and security guards. The Phase III Project USN 2000-003, Modification I (remediation and final status survey) to release the north fence area and soil pile for unrestricted use was put on hold. In the north fence area, Cabrera identified additional contamination under one to two foot deep of grading soil. Several one foot lifts have been removed from the soil pile with one lift remaining. The non-licensee indicated that the Navy will provide additional funding to complete the current project in the spring of 2004 and to complete the entire project by the summer of 2005.

II. **INSPECTION OF KEY DECOMMISSIONING ACTIVITIES**

A. **ACTIVITIES INSPECTED BEFORE DISMANTLEMENT**

- 1. Licensed material used during operations has been removed from site. (x) Y ( ) N
- 2. Site security and control of contaminated material being maintained in compliance with 1801 and 20.1802. (x) Y ( ) N
- 3. Support systems and services (e.g., lighting, water supply) are in place (x) Y ( ) N
- 4. Non-licensee is conducting site remediation in accordance with applicable radiation protection procedures. (x) Y ( ) N

B. **ACTIVITIES INSPECTED DURING DECONTAMINATION, DISMANTLEMENT, AND SITE REMEDIATION**

- 1. Site security and control of contaminated material being maintained in compliance with 10 CFR Part 20. (x) Y ( ) N
- 2. Decontamination/remediation of soil is being performed consistent with sound industry practice. (x) Y ( ) N

III. INSPECTION OF STANDARD HEALTH AND SAFETY AREAS FROM THE OPERATIONAL INSPECTION PROGRAM

A. GENERAL OVERVIEW

1. Describe the non-licensee's decommissioning organizational structure:

The site cleanup is project managed for the Navy by: Ms. Pat Hayworth, Radiological Affairs Support Organization, NAVSEADET RASO, NWS PO Drawer 260 Yorktown, VA 23691-0260

At the base level, the site is managed by: Mark R. Schultz, Head, Environmental Department, ACOS Installation & Environment, Environmental Department, Code N45, 201 Decatur Avenue, Great Lakes, IL 60088-5600

The contractor is Cabrera Services, 2216 Troy Road, Suite 282, Edwardsville, IL 62025 hired by the U.S. Army Joint Munitions Command (POC: Michael Styvaert), Rock Island, IL who is responsible for cleanup and waste disposal.

B. FACILITIES

1. Describe, from field observation, the identified facilities and outdoor areas to be decommissioned: Residual contamination to be remediated are along the north fence line, in locations surrounding tanks H, L, and K, and in locations between tanks H, L, and K (see attached Figure 3 from the Cabrera Services Phase III work plan). A small area in a parking lot and picnic area are cordoned off and designated for cleanup.
2. All essential systems and services (e.g., electrical power, water supply, communications systems) are in place and functional for the planned decommissioning activities (x) Y ( ) N

C. EQUIPMENT AND INSTRUMENTATION

1. Survey instruments are applicable to contaminants of interest. (x) Y ( ) N
2. Use of survey instruments appropriate for site. (x) Y ( ) N

Basis for Findings: The NRC inspector observed work performed by the contractor and determined that instrumentation was used correctly.

D. MATERIALS

1. Radioactive materials licensed during operations have been removed offsite. (x) Y ( ) N
2. Security and control of licensed materials, including contaminated areas, is being maintained. (x) Y ( ) N

Basis for Findings: The NRC inspector observed radiological postings and site security. The licensee is meeting all requirements under 10 CFR Part 20, Subpart J, Paragraph 1902, "Posting requirements", and Subpart I, "Storage and Control of Licensed Material".

#### E. TRAINING

1. Licensee has developed training program for new decommissioning activities (e.g., demolition of structures, excavation of soil); program is adequate. ( ) Y ( ) N
2. Training program being effectively implemented. ( ) Y ( ) N

Basis for Findings: THIS SECTION NOT EVALUATED DURING THIS INSPECTION.

#### F. AREA RADIATION SURVEYS AND CONTAMINATION CONTROL

1. Area surveys are being performed in areas being decommissioned (x) Y ( ) N
2. Where active remediation (e.g., demolition of structures, excavation of soil) is being performed, radiation levels in unrestricted areas do not exceed 2 mrem in any one hour. (x) Y ( ) N

Basis for findings: The NRC inspector observed work performed by the contractor and determined that surveys met NRC regulations.

#### G. RADIATION PROTECTION

1. Site security and control of contaminated material are in compliance with 10 CFR 20.1801 and 20.1802. (x) Y ( ) N

Basis for Findings: Based on observations.

#### H. RADIOACTIVE WASTE MANAGEMENT/EFFLUENTS/ENVIRONMENTAL MONITORING

1. Offsite disposal of decommissioning wastes conforms to free release criteria and disposal site requirements. (x) Y ( ) N
2. All new effluent releases conform to DP and applicable regulations. (x) Y ( ) N
3. The licensee's environmental monitoring program is being implemented in conformance with the DP and all applicable limits are being met. (x) Y ( ) N
4. Temporary storage/staging areas for radioactive wastes from building demolition, equipment dismantlement, soil excavation, etc., are adequately posted and protected. (x) Y ( ) N

Basis for Findings: The NRC inspector observed work performed by the contractor. The non-licensee's work plan for the Phase III project is used in lieu of a DP.

I. RECORD KEEPING FOR DECOMMISSIONING

- 1. Copies of the licensee's decommissioning cost estimates and funding methods are on file. ( ) Y ( ) N
- 2. Licensee has adequate records for decommissioning activities performed (e.g., for decontamination and dismantlement of structures; decontamination and remediation of soil, sediment, surface waters, groundwater; surveys of remediated facilities). (x) Y ( ) N
- 3. Licensee's financial assurance conforms with the financial assurance requirements of NRC-approved possession limits and NRC regulations. ( ) Y ( ) N

Basis for Findings: Item 2 was based on record review at the site and documentation received at the regional office. Item 1 and 3 was not evaluated during this inspection.

J. TRANSPORTATION

- 1. Describe the licensee's program to package and ship decommissioning waste materials:  
Contractor placed contaminated soil from individual lifts into intermodals for disposal to burial sites.
- 2. Licensee's program meets all applicable 10 CFR and 49 CFR requirements for marking labeling, placarding, and shipping paper requirements for radioactive waste shipments. (x) Y ( ) N

Basis for Findings: Section evaluated from observations and record reviews.

K. POSTING AND LABELING

- 1. All contaminated areas, waste processing areas, and waste handling areas are posted in conformance with regulations. (x) Y ( ) N

Basis for Findings: Based on observations..

L. OCCUPATIONAL HEALTH AND SAFETY

- 1. Describe the occupational health and safety observations made at the licensee's facilities:  
Non-licensee's contractor took all necessary precautions and followed regulatory requirements to ensure safe work practices were adhere to.

Basis for Findings: Based on observations.

IV. VIOLATIONS, NON-CITED VIOLATIONS, FOLLOWUP ITEMS, AND OTHER ISSUES

Briefly state (1) the requirements and (2) how and when the licensee violated the requirement. For non-cited violations, indicate why the violation was not cited. Briefly describe follow-up items and other issues.

NONE