

December 6, 2002

Mr. Mark Puett  
Manager, Environmental Affairs  
Mallinckrodt Chemical, Inc.  
Mallinckrodt & Second Streets  
P.O. Box 5439  
St. Louis, MO 63147

SUBJECT: NRC INSPECTION REPORT 04006563/2002-002(DNMS) - MALLINCKRODT

Dear Mr. Puett:

The Nuclear Regulatory Commission conducted an inspection of activities at the St. Louis, Missouri facility on September 20, 2002, with an emphasis on the final status survey of Survey Unit-2501-01. Additional review of final status survey results continued in the Region III office through November 19, 2002. The enclosed report presents the results of the inspection.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Overall performance during final status survey activities was good, and the Survey Unit was acceptable to be released for unrestricted use. All activities inspected were in compliance with the Decommissioning Plan. No violations of NRC requirements were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,  
*/RA/*  
Christopher G. Miller , Chief  
Decommissioning Branch

Docket No. 04006563  
License No. STB-401

Enclosure: IR 04006563/2002-002(DNMS)

cc w/encl: Eric Gilstrip, State of Missouri Department of Health  
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M. Puett

-2-

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 04006563  
License No. STB-401

Report No. 04006563/2002-002

Licensee: Mallinckrodt Chemical, Inc.

Location: Mallinckrodt & Second Streets  
P.O. Box 5439  
St. Louis, Missouri 63147

Dates: September 20, 2002  
November 19, 2002

Inspector: Peter J. Lee, Ph.D., CHP, Radiation Specialist

Accompanied by: J. Wade  
Missouri Department of Nature Resources

Approved by: Christopher G. Miller, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## **EXECUTIVE SUMMARY**

### **Mallinckrodt Chemical, Inc. NRC Inspection Report 04006563/2002-002(DNMS)**

This was an inspection to evaluate the licensee's final surveys for the Survey Unit 2501-1 located on the first floor of Building 250. The inspection focused on the following:  
1) performance of independent survey; 2) independent calibration and Quality Assurance and Quality Control checks of the on-site laboratory; and 3) review of the licensee's final survey plan and final survey results.

Overall performance during final status survey activities was good. Based on the results of the inspection, the Survey Unit 2501-1 had met the dose criteria of Subpart E, Section 20.1402, and can be released for unrestricted use.

## DETAILS

### 1.0 Background

Mallinckrodt was first issued License No. STB-401 on June 26, 1964, for processing ore to extract Columbium and Tantalum (C-T). The license authorized the possession of thorium and uranium in natural or synthetic ores in quantities of up to 30,000 kg of each. The licensee submitted a Decommissioning Plan (DP) for the C-T Decommissioning Project (CTDP) to the NRC on November 11, 1997. The licensee will submit the CTDP in two parts since the licensee will conduct the C-T decommissioning project in two phases. The licensee's phase one plan will consist of decommissioning the buildings and equipment. The licensee will release buildings and equipment for unrestricted use based on an industrial use scenario. Phase two will complete the decommissioning of the building slabs and foundations, paved surfaces, and all subsurface materials.

The licensee submitted a January 18, 2001, revision to its initial phase one submission. In addition to this routine inspection, the NRC conducted general discussions with the licensee and its consultants regarding the CTDP.

The NRC approved the licensee's Decommissioning of the C-T process phase one plan on January 10, 2002 with two revisions submitted on February 13, 2002 and March 8, 2002.

### 2.0 Confirmatory Measurements

#### 2.1 Independent Surveys

The survey included surface scans of about 30 percent of Survey Unit 2501-1. Scanning surveys were performed using Geiger Mueller detectors. The readings of the surface scans were indistinguishable from the background. Due to the different surface materials, the background readings varied from 40-80 counts per minute.

#### 2.2 QA/QC of Survey Instrumentation

The inspectors interviewed laboratory personnel, and evaluated the analytical and survey instruments calibration. The laboratory was equipped with scintillation detectors for wipe sample analyses and surface activities measurements. The inspectors conducted independent calibration and Quality Assurance and Quality Control checks. The analytical equipment, quality assurance, and analytical procedures were evaluated and were adequate.

#### 2.3 Independent Review of Final Survey Result

During the inspection, the inspectors observed the final status survey being conducted by the licensee's contractor, and found it to be adequate. The inspectors reviewed the final survey data of surface scans, direct surface measurements and smears. The reading from the scans and direct measurements did not indicate radioactivity above background radiation levels. The smear sample analyses did not indicate any removable contamination. Overall licensee performance during the Final Status Surveys was good. The Survey Unit 2501-1 had met the dose criteria of Subpart E, Section 20.1402, and can be released for unrestricted use.

### 3.0 Exit Meeting

The inspectors presented the preliminary inspection results to members of licensee management at the conclusion of the inspection on September 20, 2002. A final exit meeting by telephone was held with Mr. Mark Puett on November 19, 2002, to discuss the results of the final status survey.

#### Partial List of Persons Contacted

Mark Puett, Environmental Affairs Manager, Mallinckrodt Chemical, Inc.  
Tim Woodford, Radiation Safety Officer, Mallinckrodt Chemical, Inc.  
Harry Newman, NEXTEP Environmental

#### INSPECTION PROCEDURES USED

IP 87104: Decommissioning Inspection For Materials Licensees