

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Report No. 040-08936/94-001 Program Code 11300  
Docket No. 040-08936  
License No. STB-1505 Priority 3 Category E  
Licensee: Butkin Precision Manufacturing Corporation  
83 Erna Avenue  
Milford, Connecticut 06460  
Facility Name: Butkin Precision Manufacturing Corporation  
Inspection At: 6 Roberts Drive  
North Adams, Massachusetts  
Inspection Conducted: January 12, 1994

Inspectors: Betsy Ullrich 3/9/94  
Betsy Ullrich, Senior Health Physicist date

Approved by: M. Shanbaky 3/10/94  
Mohamed M. Shanbaky, Chief date  
Research and Development Section

Inspection Summary: Routine, Announced Confirmatory Inspection Conducted  
January 12, 1994. (Report No. 040-08936/94-001)

Areas Inspected: Organization and scope of licensed activities; instruments used in  
surveys; radiation surveys; removable contamination surveys; residual materials; and records.

Results: No violations were identified.

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## DETAILS

### 1. Persons Contacted

- \* Halide Caine, Radiation Safety Officer, Butkin Precision Manufacturing Corporation
- \* Mary Richardello, building owner

\* denotes those present at exit interview

### 2. Organization and Scope of Licensed Activities

Butkin Precision Manufacturing Corporation (Butkin) has been authorized since April 1987 to possess and use up to 500 kilograms of thorium alloy for precision machining of magnesium-thorium castings in Milford, Connecticut and in North Adams, Massachusetts. The licensee never possessed more than 200 kilograms of magnesium-thorium alloy in North Adams, and all magnesium-thorium alloy was transferred from the facility in April, 1993. The licensee requested that the facilities be released for unrestricted use, and submitted documentation of their close-out surveys of the North Adams facility.

The licensee representative stated that magnesium-thorium alloy was usually possessed as bulk material for machining. Most work on the thorium alloy castings was performed in the lathe area and in the benching area. The licensee provided Attachment A, "Mag-Thor Inventory/North Adams, 1989 through 1993". According to the graph, the monthly inventory contained approximately 150-200 kilograms of magnesium-thorium alloy in 1989, but possession of the material in North Adams decreased after that time. Since April, 1990, less than 30 kilograms of the alloy were possessed in North Adams. The licensee representative stated that all work with the material ceased in 1992.

### 3. Instruments Used in Survey

Radiation level measurements were performed using a Ludlum Model 19 microR meter, Serial No. 019634, last calibrated in October, 1993. This instrument is sensitive to gamma radiation at environmental levels. The radiation level from natural background measured with this survey meter was 8 to 10 microrentgen per hour (uR/h). Radiation level measurements were also performed using a Ludlum Model 14C survey meter with a thin-end window GM probe, Serial No. 009662, last calibrated in October, 1993. This instrument is sensitive to beta and gamma radiation. The radiation level from natural background measured with this instrument was less than 0.05 millirem per hour (mrem/h).

Wipes taken to test for removable contamination were counted at the Region I laboratory using a Tennelec gas-flow proportional counter. The lower limit of detection of this instrument for alpha is 5 disintegrations per minute (dpm) and the lower limit of detection for beta is 8 dpm.

3. Radiation Surveys

A survey inside the entire facility was performed using the micrR meter. Surveys were performed along the outside wall of all areas; in the center of the small rooms; and along the grid lines shown on the facility diagram included as Attachment B. No radiation levels greater than background were detected.

Radiation level surveys were also performed using the GM survey meter, around the areas from which wipe tests for removable contamination were performed. No radiation levels exceeding background were detected.

No surveys were performed outside of the facility due to snow cover.

No safety concerns were identified.

4. Removable Contamination Surveys

Thirteen wipes were taken at the locations noted on the facility diagram in Attachment B. Dry filter paper discs were used to wipe floor areas. Wipes covered approximately 200 square centimeters. No removable contamination exceeding the lower limit of detection for alpha or beta was detected.

No safety concerns were identified.

5. Residual Materials

All equipment has been removed from work areas and office areas at the Butkin facility at 6 Roberts Avenue in North Adams, Massachusetts. The facility appeared to be free of debris, and no evidence of magnesium-thorium alloy bulk material or turnings were observed. No residual radioactive material was detected during surveys.

No safety concerns were identified.

7. Records

The licensee representative stated that surveys were performed of work areas and personnel at the end of the day using a Ludlum Model 2 survey meter with Model 44-9 probe. Wipe surveys were performed monthly, and counted on a Ludlum Model 1000 scaler. Monthly wipe survey records were reviewed during the inspection. Records were complete. No monthly surveys were performed after 1991, since no work was performed with licensed materials. Records of surveys performed following transfer of remaining magnesium-thorium alloy to the Connecticut facility were submitted with the request for release of the facility for unrestricted use.

Records of surveys performed of personnel were reviewed for the period of 1988 through 1991. No fixed contamination was identified. The licensee representative stated that, occasionally, contamination in the form of a magnesium-thorium turning was identified in a pants cuff or the sole of a shoe, which was easily removed and discarded properly.

Records of survey meter and scaler calibrations for the period of 1988 through 1993 were reviewed. Instruments were calibrated as required according to the procedure approved in the license.

No safety concerns were identified.

8. Exit Interview

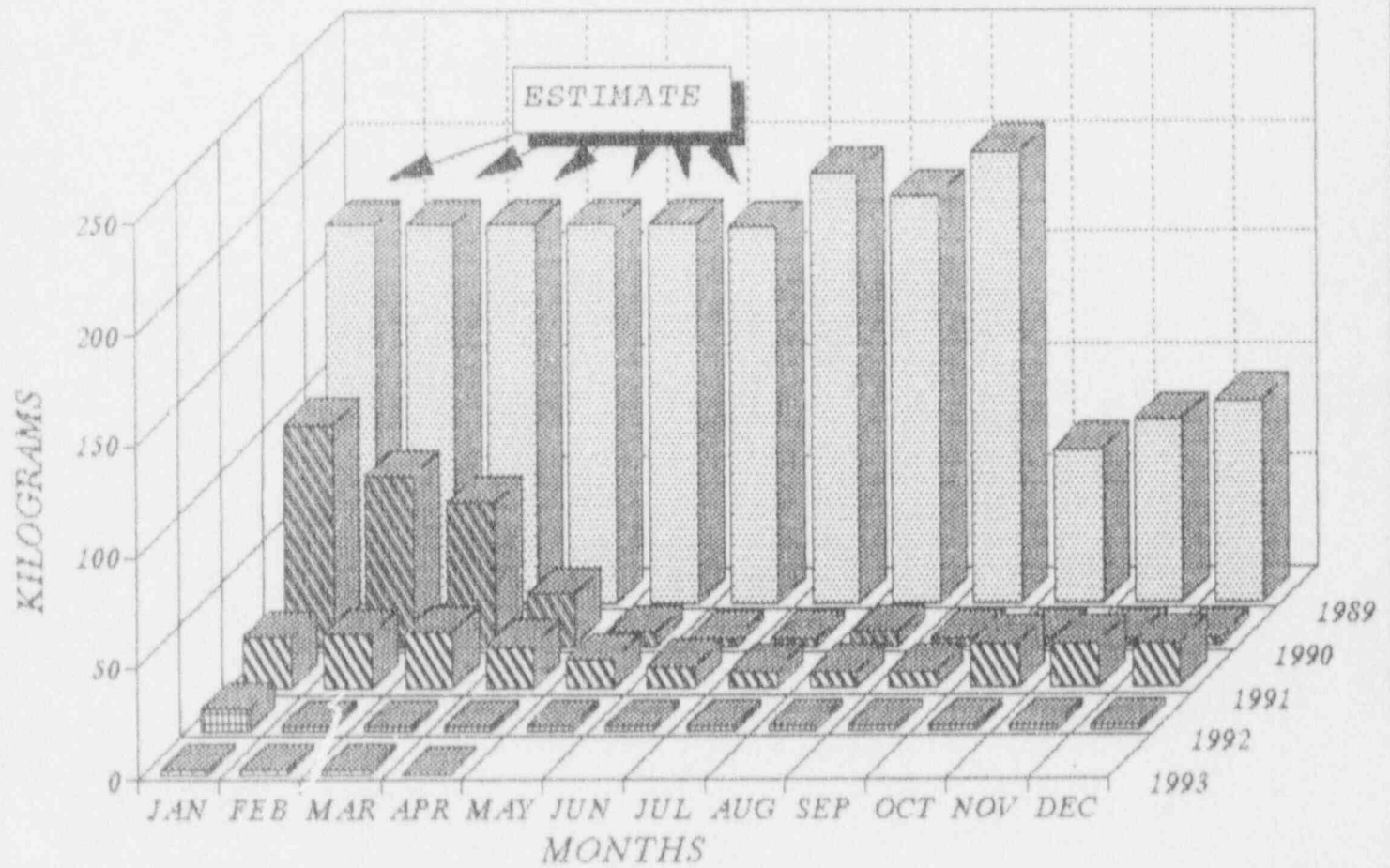
Results of the inspection were discussed with the individuals listed in Paragraph 1. The inspector explained that a confirmatory inspection report will be issued, and that the license reviewer will issue an amendment to release the facility for unrestricted use in a separate mailing, provided no additional information is required. Also, the inspector confirmed that a copy of the inspection report will be sent to the owner of the building.

Attachment A

Mag-Thor Inventory, North Adams

# MAG-THOR INVENTORY/NORTH ADAMS

## 1989 THRU 1993



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Attachment B  
Facility Diagram

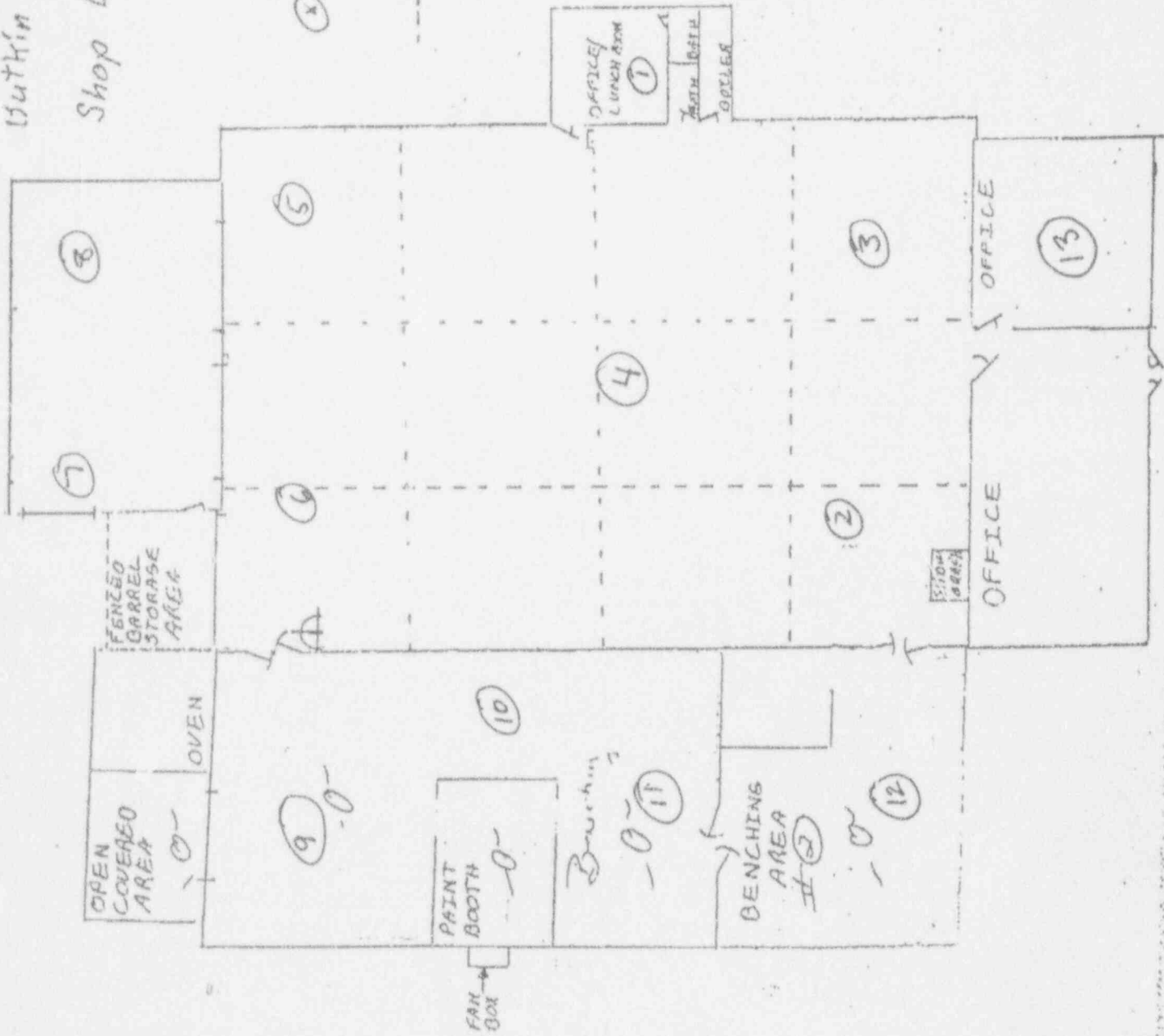


Within Precision N.A.

# Shop Layout

Not to Scale

⊗ INDICATE WIPE TEST LOCATIONS  
--- SURVEY GRID



SHEO



Butkin Precision N.A.

# Shop Layout

Not to Scale

