

Docket 40-6563  
License STB-401

MAR 29 1994

Mr. Robert F. Boland  
Environmental Program Manager  
Mallinckrodt, Inc.  
16305 Swingley Ridge Drive  
Chesterfield, MO 63017

Dear Mr. Boland:

SUBJECT: CHARACTERIZATION PLAN REVIEW COMMENTS (TAC NO. L21479)

This refers to your letter of January 12, 1994, and the enclosed Columbian-Tantalum Plant Characterization Plan.

Our review of your site characterization plan has identified additional information that is needed before final action can be taken. The additional information, specified in the enclosure, should be provided within 45 days of the date of this letter. Please reference the above TAC No. in future correspondence related to this request.

If you would like to meet to discuss any of these comments or have any questions concerning them, please contact me at (301) 504-2649.

Sincerely,

ORIGINAL SIGNED BY

Charles E. Gaskin  
Senior Licensing Project Manger  
Division of Fuel Cycle Safety  
and Safeguards, NMSS

Enclosure: As stated

Distribution: (Control No. 150E)

Docket No. 40-6563	PDR	NRC File Center	Region III
JRoth, FCOB	FCLB r/f	NMSS r/f	FCSS r/f
EKeegan	FCLSI r/f		

OFC	FCLB	FCLB	E	FCLB <i>SSD</i>	E	
NAME	CEGaskin: cw	CAHoadley		CWEmeigh		
DATE	03/26/94	03/21/94		03/29/94		

C = COVER

E = COVER & ENCLOSURE

N = NO COPY

OFFICIAL RECORD COPY

G:\MAL0112.94

9403310243 940329  
PDR ADOCK 04006563  
C PDR

NRC FILE CENTER COPY

*NFA7*

Comments of  
DIVISION OF LOW-LEVEL WASTE MANAGEMENT AND DECOMMISSIONING  
Decommissioning and Regulatory Issues Branch  
on  
COLUMBIUM-TANTALUM PLANT CHARACTERIZATION PLAN  
MALLINCKRODT, INC. ST. LOUIS, MISSOURI PLANT  
January 10, 1994

Although the Plan submitted for review contains extensive information on contamination related to activities of the Manhattan Engineer District and the Atomic Energy Commission (MED-AEC), and also contains information in the Health and Safety Plan which is related to requirements of the Occupational Health and Safety Administration (OSHA), the comments below are limited to decommissioning issues associated with the Columbiu-m-Tantalum Plant and to radiation safety.

1. p. 33, Section 3.2

The Plan notes that C-T support areas in Plants 1, 6, and 7 also contain widespread MED-AEC contamination arguably subject to DOE remediation under the FFA and FUSRAP. Please provide a definitive commitment of responsibility from DOE in order to prevent any areas from becoming "orphans" if they are not remediated by Mallinckrodt and responsibility for them is subsequently rejected by DOE.

2. p. 34, Section 3.3

C-T process areas are listed in Table 2-2 and the C-T areas to be addressed by Mallinckrodt are listed in Table 3-3. The areas cited below are listed in Table 2-2 but not in Table 3-3. In some cases, the text of this section indicates that surrounding storage areas will be tested, but the extent of intended testing is not always clear. For those areas which will not be tested, Mallinckrodt's reasons for believing they are free of radioactive contamination should be specifically justified.

Location

Use

Plant No. 1 Areas

Building 25

Laboratory; also used by MED-AEC; proposed to be addressed by FUSRAP

Plant No. 5 Areas

Building 235 Yard

Drummed feed material/URO storage east of building

Building 245 Yard

Ore staging area southeast of building

<u>Location</u>	<u>Use</u>
<u>Plant No. 6 Areas</u>	
Building 116	Receipt/unloading of Cb-Ta ore
Building 116 Yard	Storage of feed material and URO
Building 117	URO drum preparation and staging

Plant No. 7 Areas

Building 700	Storage of tin slag feed material
Building 700/708 Yard	Storage of tin slag feed material
Building 704	URO drum storage
Building 705	Cb-Ta ore storage
Building 706	Cb-Ta ore storage
Building 708	Storage of tin slag feed material

Radioactive contamination may also be found in the soil and groundwater around and beneath the URO burial cells, sewers, and the wastewater basins. How does Mallinckrodt intend to characterize these areas? Mallinckrodt should plan to characterize any of the areas where DOE has not made a firm commitment to undertake their characterization.

Notwithstanding Mallinckrodt's reasons for not characterizing the groundwater beneath the site, the groundwater in the vicinity of the URO burial cells in Plant 6 should be characterized to allow for remediation, if necessary, to concentration levels acceptable for unrestricted access.

3. p. 39, Section 4.1.2

Six surface contamination samples taken from each building will not determine the extent of contamination in the buildings. We recommend that scans be used to generally determine the extent of contamination and direct measurements taken at the locations of highest scan activities to determine the range of concentrations. Special attention should be paid to corners, the junctions of walls and floors, and cracks and joints in the flooring.

4. p. 41, Section 4.1.2

Mallinckrodt staff states that they will use 10 uR/hr above background at one meter as the exposure rate guideline for surfaces. The appropriate exposure rate guidelines for unrestricted release should be 5 uR/hr above background at one meter for building and equipment surfaces and 10 uR/hr above background at one meter for soils.

5. p. 41, Section 4.2

The Characterization Plan states that unaffected areas are those areas having a low likelihood of contamination or where previous survey have shown that activities are less than 25 percent of the guideline values.

For the purposes of termination surveys, an unaffected area is an area that is not expected to have any residual contamination above background. Any area that is expected to have residual contamination, even though measurements show that the levels are less than 25 percent of the guideline values, should be classified as an affected area.

6. p. 41, Section 4.2.1

See previous comments relating to Sections 4.1.2 relating to determining the extent of contamination and Section 4.2 defining areas as affected areas. Note that roof drains, floor drains, building sumps, ventilation and scrubber exhaust points, loading docks, and storage areas should also be surveyed. How will subfloor soils be surveyed? Note that contamination can seep through cracks and joints in the building floors and contaminate soils below the building.

7. p. 42, Section 4.2.2

Note previous comment relating to Section 4.2 defining areas as affected areas. Note the roads, pads, parking lots, buildings, etc., that have been constructed since activities, involving uranium and thorium, were initiated, may cover contamination. These areas should be investigated.

8. p. 42, Section 4.2.3

Note previous comment relating to Section 4.2 defining areas as affected areas.

9. p. 42, Section 4.2.4

Building roofs and roof drains adjacent to the C-T incinerator in Plant 6 should be surveyed. Any other locations where incinerators of C-I process wastes were used should also be surveyed.

10. p. 43, Section 4.2.6

How will biased and systematic sampling be determined?

11. Section 4.2, General

How will the URO burial areas be characterized?

12. p. 45, Section 5.1.3

Any result greater than the "critical level" as defined in:

Currie, L. A. (1968). "Limits for qualitative detection and quantitative determination - application to radiochemistry," Anal. Chem. 40, 586

should be reported as positive.

13. p. 46, Section 5.2.1

This section appears inconsistent with the statement in Section 4.1.2 that six samples will be taken in each building. Please explain the apparent inconsistency.

14. Section 5.2, General

It is unclear why additional surveys will not be conducted in all buildings as presented in Table 5-3. Are these buildings and areas considered unaffected areas or have other surveys been completed that adequately characterize the extent and nature of the contamination?

Scans should be considered for determining the extent and nature of the contamination on building surfaces, equipment, and in outside areas. We assume that in Table 5-3, "Alpha/Beta/Gamma" refers to direct measurements of alpha, beta, and gamma activity and not to scans. This table could be more clear if it indicates the percent area to be scanned and the frequency of direct measurements.

For unaffected areas, we suggest using the protocol for the termination surveys in NUREG/CR-5849. If no activity is found, this may result in not having to repeat the surveys for the final survey program.

We suggest combining, for clarity, the discussions in Section 4.2 with those of Section 5.2.

15. p. 50, Section 5.3

The spread of spoils during geotechnical drilling is unavoidable; to limit inadvertent spread of contamination, drill rigs should be evaluated for radiological contamination before moving between drill sites. The possible need for a ring of straw bales or a sediment fence around each drilling site should also be evaluated. Formal well completion reports should be prepared for each boring and well.

16. p. 50, Section 5.3.1

How will the locations for soil sampling be determined?

17. p. 52, Section 5.3.2

How were the locations for subfloor soil sampling determined? Why are subfloor samples being taken only in Buildings 238, 246B, 247A and 247B? Cracks and joints in buildings where liquids were present should also be surveyed. If cracks or joints have contamination, subfloor soil samples should also be taken.

18. p. 59, Section 5.6.2

The wet well, pumps, force main and interior surfaces of the wastewater lift station should also be tested for radioactivity.

## APPENDIX C - HEALTH AND SAFETY PLAN

19. p. C-3, Section 3.1

The external administrative limits should be expanded to include all of the requirements of Subpart C (§§ 20.1201-20.1208) of 10 CFR Part 20 - Occupational Dose Limits. Section 20.1201(d) is especially important inasmuch as one of the radioactive hazards cited in this section arises from the presence of radioactive materials in airborne dust.

Attachment A - TMA/Eberline Procedure 2B.2, Personnel Monitoring

20. p. 3, Section C. Alpha Survey

Although subparagraph 2. refers to "the stringent release criteria," such criteria for any form of emission - alpha, beta or gamma - are not explicitly stated.