DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
8945 LATTY AVENUE
BERKELEY, MISSOURI 63134

REPLY TO ATTENTION OF:

November 19, 2003

Formerly Utilized Sites Remedial Action Program

Subject: Draft C-T Phase II Decommissioning Plan dated May 15, 2003

Mr. John T. Buckley, Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Buckley:

The U.S. Army Corps of Engineers (USACE) has reviewed the Draft C-T Phase II Decommissioning Plan dated May 15, 2003. Although detailed comments are provided for your consideration, we want to take this opportunity to note that the USACE has serious reservations regarding characterization information presented for the sewers, soils; and assumptions regarding the source (MED/AEC v. CT) of contamination on adjacent properties.

The USACE continues to work with Mallinckrodt to delineate responsibility for areas to be remediated by our respective entities. Thank you for the opportunity to review this document. Please call if you have any questions.

Sincerely,

Sharon Cotner
FUSRAP Program Manager

CP: Mr. Jim Grant, Mallinckrodt Inc.

USACE COMMENTS ON THE DRAFT C-T PHASE II DECOMMISSIONING PLAN DATED MAY 15, 2003

No.	Page	Comment
1	General	The plan does not appear to adequately address investigation or remediation of soils adjacent to sewers to include both those contaminated by sewer leakage and those contaminated due to contamination migration in fill placed adjacent to sewers. This assessment should also specifically include sewers downstream from the "Wastewater Neutralization Basins". Further, there is no assessment noted that addresses contamination adjacent to sewer outfall(s) or transfer of contamination to the various vicinity properties in the area. (e.g. rail lines). Given storage and processing locations, the results of scabbling of street surfaces and C-T related roof contamination, it is clear that a certain amount of off-site contamination should be expected.
2	1-1	The Executive Summary should clearly define the DCGLs to be implemented and any limitations (e.g. depth) on such limitations.
3	1-1	In the License paragraph, Mallinckrodt Inc. (MI) acknowledges holding license STB-401 for the extraction of columbium and tantalum since 1961 and describes subsequent amendments to this license. In the Activities paragraph, the only C-T activities discussed are activities conducted under license R-226, which expired in 1960. Since the purpose of the decommissioning plan is to assure that residual radioactivity at the MI site is at a level that permits unrestricted use of the property so that license STB-401 may be terminated, the plan should contain specific information regarding the C-T processing activities that were conducted license STB-401 instead of limiting its discussion to activities conducted under the already terminated R-226 license. The Activities paragraph currently only discusses activities that took place during the four years MI held license R-226 and omits substantive discussion of any activities that were conducted during the more than 40 years MI held license STB-401.
4	1-2/7	MI states that the D&D will be "to assure that the potential radiological dose to people on the site will be less than 25 mrem/yr". Suggest that this be modified to clearly define the critical group and to summarize the technical basis for their designation as such.
5	1-2	Similar to the previous comments, MI makes broad conclusory statements regarding contamination at the MI facility that may be attributed to MED/AEC activities and provides minimal information regarding contamination from MI C-T activities in the Characterization paragraph. Since the purpose of the decommissioning plan is to assure that residual radioactivity at the MI as a result of C-T activities are at a level that permits unrestricted use of the property so that license STB-401 may be terminated, the plan should contain more information regarding the distribution of C-T contamination at the site, including areas at the MI facility other than Plant 5 and adjacent areas around the MI facility where contamination from C-T processing activities may be found. MI fails to provide a basis for not addressing contamination other than the contamination at Plant 5.

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6	2-1	In the last sentence on this page and throughout the document MI refers tpthe decommissioning of the C-T facility. In addition to addressing buildings used in support of C-T processes, the decommissioning plan should address all areas at the MI site and adjacent properties that have residual radioactivity as a result of MI C-T operations.
7	2-2	The C-T License Information section defines the areas of C-T operations much more narrowly than other historical documents. This disparity should be clearly explained. Further, drawings of areas used by both MED/AEC and MI for C-T operations should be clearly delineated irrespective of actual or perceived responsibility for cleanup. Such areas include significant additional portions of Plants 6 and 7 not currently noted.
8	2-6/4	MI states quantities of uranium and thorium processed by MED/AEC. Recommend that the basis for this estimate be stated especially with respect to "thorium isotopes".
9	2-8/4	MI states that "The USACE will remediate Plant 6 and 7 soils over the next several years." This should be changed to read "The USACE will remediate accessible MED/AEC contaminated soils within Plant 6 and 7 areas over the next several years." as other contaminated soils are beyond the authority of the FUSRAP program and environmental documentation has clearly defined limitations.
10	2-2	The last paragraph of section 2.2.1 identifies where radionuclides as a result of C-T operations may be present following the implementation of Phase I. This paragraph arbitrarily limits its discussion of C-T contamination to specific areas (in or on floor slabs, in subsurface sewers that served C-T operations, soils under or adjacent to C-T operations and sewers, and the wastewater neutralization basins) and fails to acknowledge the presence of C-T contamination in other areas at the MI facility or adjacent properties as a result of direct activities or migration. The decommissioning plan should address all areas on the MI property and on adjacent properties where C-T contamination is present before license STB-401 is terminated.
11	2-3	The first paragraph states that approximately 300 cubic yards of URO was buried in trenches in the western portion of Plant 6 in 1972 and 1973. More information regarding the method of burying the URO, including the type of containers, the location of the trenches, composition of URO, etc., should be provided. If this information is provided elsewhere in the document, it should be referenced.
12	2-3	Second paragraph states that buildings 200 and 201 were used to process non-radioactive materials. Were they also used in C-T production?
13	2-3	The eighth paragraph states that Building 25 will be addressed by FUSRAP. FUSRAP activities at the MI facility are being conducted in accordance with the *Record of Decision for the St. Louis Downtown Site* (ROD), executed in August 1998. The ROD only addresses contamination related to MED/AEC activities in accessible soils and groundwater. Specifically excluded from the scope of the ROD is any remedial activity to address contamination at Building 25. It is anticipated that Building 25 will be addressed in a future response action in

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		accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to the extent that it is contaminated as a result of MED/AEC uranium manufacturing or processing activities. FUSRAP response actions are limited to addressing wastes associated with MED/AEC uranium manufacturing or processing activities and other chemical or radiological wastes that have been mixed or commingled with wastes resulting from or associated with MED/AEC uranium processing activities at the St. Louis Downtown Site (i.e. MI facility). This statement should be corrected.
14	2-6	The text does not discuss Destrehan Street Plant decontamination activities that took place after uranium production for MED/AEC were transferred elsewhere. Decontamination activities began in 1960 and were completed in 1961. MI purchased facilities and equipment from Plants 6 and 7 in 1961, subject to decontamination to MI's satisfaction. This information should be included in the plan.
15	2-6	Section 2.3 provides history of activities conducted under various licenses, but fails to discus or even mention license STB-401 for which the decommissioning plan was developed. More information should be provided regarding the activities conducted pursuant to permit STB-401.
16	2-8	Text in first full paragraph overstates FUSRAP responsibility for addressing contamination at MI facility. The U.S. Government will conduct response actions to address all wastes resulting from or associated with MED/AEC uranium manufacturing or processing activities and any other chemical or radiological wastes that have been mixed or commingled with wastes resulting from or associated with MED/AEC uranium manufacturing or processing activities. If contamination located at MI facilities is not from or associated with MED/AEC uranium processing activities or commingled with wastes from or associated with MED/AEC uranium processing activities, the contamination will not be addressed under FUSRAP regardless of historical activities at the location. USACE does not accept MI's assessment of FUSRAP responsibility. This text should be corrected.
17	2-8	Text in first full paragraph discusses the FFA executed between DOE and EPA Region VII and incorrectly states that it has been amended to transfer responsibilities to USACE. The FFA has not been amended, but USACE has agreed to execute FUSRAP at St. Louis in accordance with the FFA. This text should be corrected.
18	2-8	The last sentence of the first full paragraph overstates FUSRAP responsibility. In accordance with the FFA, response actions will be conducted under FUSRAP to address wastes resulting from or associated with MED/AEC uranium manufacturing or processing activities conducted at the St. Louis Downtown Site and other chemical or radiological wastes that have been mixed or commingled with wastes resulting from or associated with MED/AEC uranium manufacturing or processing activities conducted at the St. Louis Downtown Site. USACE does not accept MI's assessment of FUSRAP responsibility. This text should be corrected.
19	2-8	The second and third full paragraphs attempt to define the areas for which FUSRAP is responsible for conducting response actions. MI's draft C-T Decommissioning Plan Phase II is not an appropriate document to identify FUSRAP responsibility and MI is not the appropriate

		entity to define FUSRAP responsibility. FUSRAP activities will be conducted at the St. Louis Downtown Site in accordance with executed CERCLA decision documents. As stated in previous comments, FUSRAP responsibility is limited to addressing wastes associated with MED/AEC activities and wastes that are commingled with MED/AEC wastes. USACE does not accept MI's statements of FUSRAP responsibility. These statements should be deleted.
20	2-9	Section 2.9 is intended to discuss the spread of C-T contamination throughout the MI facility as a result of spills. The last sentence in Section 2.9, however, makes a bold statement without any support that MED/AEC contamination is wide spread. USACE does not accept MI's assessment of the spread of MED/AEC contamination or the scope of responsibility to conduct response actions under FUSRAP. These statements should be deleted.
21	2-9	Text does not discuss other potential causes of spread of C-T contamination throughout MI facility including incineration and material transport. This information should be included.
22	Figure 2-1	USACE does not accept MI's assessment of FUSRAP responsibility. Response actions at the St. Louis Downtown Site will be conducted under FUSRAP in accordance with the terms of the FFA and executed CERCLA decision documents. This should be corrected.
23	Figure 2-3	USACE does not accept MI's assessment of FUSRAP responsibility. Response actions at the St. Louis Downtown Site will be conducted under FUSRAP in accordance with the terms of the FFA and executed CERCLA decision documents. This should be corrected.
24	4-10	In Section 4.8.5, the report claims "[t]hat C-T project pavement and subsurface material have been subjected to comprehensive radioactivity characterization investigations," however, the focus of the investigations discussed in the report were limited primarily to Plant 5. The report inadequately demonstrates the characterization of C-T contamination that may be haven deposited or may have migrated to other areas of the MI facility or adjacent properties and fails to demonstrate that C-T contamination is not present at these locations. This information should be included.
25	5-13 Table 5-1	Radionuclide DCGLs in soil appear highly excessive for an unrestricted use scenario (e.g., 30, 390 and 1944 pCi/g for Ra-226, Th-232 and U-238, respectively) and do not appear consistent with standards for tailings as defined in Title 10, Code of Federal Regulations, Part 40, Appendix A, Criterion 6 (6). DCGLs for U-238 and Th-232 are such that residual soils would appear to exceed criteria for unimportant quantities of source materials in that they would exceed 0.05% by weight.
26	6-1	In Section 6.1.1.2, the report states "[d]ue to the limited amount of contamination and the low specific activity of the contamination, no adverse effects would be anticipated off-site." As discussed in previous comments, the report does not contain adequate characterization of C-T contamination at locations other than Plant 5 at the MI facility or on adjacent properties. This information should be included.

27	6-2	In Section 6.1.1.4 the report acknowledges the potential for migration of C-T contamination if no action were taken, but the report fails to address the likely migration of C-T contamination in the past forty years. This information should be included.
28	6-2	In Section 6.1.2.1 the report states Alternative #2 will remediate C-T production and support areas. The scope of C-T remediation should be any location where C-T is located or consistently state that amendments for specific locations are pending and explain why they are pending. As discussed in previous comments, the report does not contain adequate characterization of C-T contamination at the MI facility or on adjacent properties. This information should be included.
29	6-4	The text on this page is limited to discussing Plant 5 and fails to discuss other areas at the MI facility or on adjacent properties that may be contaminated by MI C-T production activities. Before license STB-401 is terminated, additional decommissioning activities should be conducted at the MI facility and adjacent properties to assure that residual radioactivity as a result of MI C-T activities is at a level that permits unrestricted use. Additional information should be evaluated and included in this or a subsequent decommissioning plan.
30	6-5 though 6-9	Alternative 3 claims to adopt the criteria for remediating radioactive material as stated in SLDS ROD executed in August 1998. The text for this alternative is confusing because it quotes language from the ROD outlining responsibilities for remediation under CERCLA to address MED/AEC contamination under FUSRAP. As stated in previous comments, the scope of the ROD is limited and does not address areas that do not contain contamination from MED/AEC activities. Altherative 3 should be revised to identify activities MI will conduct if the alternative is selected to assure that residual radioactivity is a a level that permits unrestricted use.
31	6-7	Section 6.1.3.4 discusses the need for conducting Five-Year Reviews. USACE is conducting Five-Year Reviews in accordance with the NCP to assure protectiveness of the CERCLA remedies selected to address MED/AEC contamination. USACE Five-Year Reviews will not evaluate the protectiveness of any remedy selected to address MI C-T contamination. Does MI intend to conduct Five-Year Reviews in accordance with the NCP and be subject to EPA regulation if Alternative 3 is selected?
32	6-8	Section 6.1.3.4 discusses long-term groundwater monitoring that USACE may conduct as part of the remedy selected in the St. Louis Downtown Site ROD executed in August 1998 to address MED/AEC contamination. Any monitoring conducted by USACE will be limited to its responsibilities set forth in executed CERCLA decision documents under FUSRAP. USACE will not be conducting long-term groundwater monitoring to evaluate the protectiveness of any remediation conducted by MI to address C-T contamination. Does MI intend to conduct long-term groundwater monitoring if Alternative 3 is selected?
33	6-8	Section 6.1.3.4 goes on to state additional actions that will be conducted in accordance with the St. Louis Downtown Site ROD executed in August 1998 if monitoring demonstrates that a MED/AEC COC has significantly exceeded MCL or thresholds established by 40 CFR 192. USACE will not be monitoring C-T related materials and will not take additional actions if C-T contamination is found in groundwater

		wells. This discussion is irrelevant to a discussion of actions MI will initiate to protect groundwater from C-T contamination. This should be deleted from the text.
34	6-10	MI's preferred alternative is Alternative 2. Because CERCLA response actions are ongoing at the St. Louis Downtown Site under FUSRAP, remediation to the standards selected in the St. Louis Downtown Site ROD will provide a consistent remediation of the entire site. Before Alternative 3 can be rejected, Alternative 3 must be presented more clearly to identify the responsibilities MI will be conducting to address C-T contamination at the site.
35	8-1	In the second paragraph of section 8.1, the report limits Phase II decommissioning activities to areas within Plant 5 and wastewater neutralization basins located outside of Plant 5. As stated in previous comments, the report fails to address C-T contamination that may be present at other locations on the MI facility and on adjacent properties. Additional decommissioning activities should be conducted to assure that residual radioactivity as a result of C-T activities is at a level that permits unrestricted use of the property before license STB-401 is terminated.
36	8-1	The third paragraph claims that any C-T contamination outside of the Plant 5 area is commingled with MED/AEC material and is USACE responsibility under FUSRAP. USACE does not accept MI's assessment of FUSRAP responsibility. This text should be corrected.

37	8-4	The third paragraph of section 8.4.1 claims USACE is addressing contamination in the sewers systems. As discussed in previous comments, USACE responsibility and authority is limited. USACE does not accept MI's assessment of FUSRAP responsibility. This text should be corrected.
38	8-5 8.4.6	Recommend that all sewers be subject to the decommissioning plan to the extent that such sewers were used for licensed operations.
39	General	Recommend that MI cite all documents used to develop Decommissioning Plan. Figures and tables from other documents should include references to the documents from which they came.
40	Append A / 1.2	Page A-5, last paragraph. The "trough" is more likely due to fines in the soil than due to flow rates of river supply. Recommend correcting this in the document.
41	Append A 1.3	MI used data from 1997/1998 to report ground-water sampling and analytical results. Recommend MI use currently available data that has been provided by the USACE as calendar year environmental reports to incorporate the most recent available data. This same comment applies to section 4.7 on page 4-7 of the plan.
42	Append A 1.3	In this same section there is no mention of the issues identified in the USACE's Ground-water Remedial Action Alternatives Assessment – Phase I (GRAAA) and the sewer impacts on ground-water. Recommend citing the impact of sewers on groundwater and citing the contamination of the Mississippi Alluvial Aquifer (HU-B).