

300302-0605040003

CH2M HILL Mound, Inc.

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 **CH2MHILL**

SMO-132/06  
February 23, 2006

Mr. Don Pfister, Director  
Miamisburg Closure Project  
U. S. Department of Energy  
175 Tri-County Parkway  
Springdale, OH 45246

ATTENTION: Paul Lucas

SUBJECT: **Contract No. DE-AC24-03OH20152: Deliverable #36 Building Data Package; Section C.2.1.2 Facility Transfer; Public Fact Sheet T Building – Use of Dose Modeling and Institutional Controls, Public Review Draft**

Dear Mr. Pfister:

Paul Lucas of your office has authorized the release of the following document for public review:

- Public Fact Sheet T Building – Use of Dose Modeling and Institutional Controls, Public Review Draft

Public comment will be accepted through March 26, 2006.

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Dave Rakel at 937-865-4203.

Sincerely,



Michael D. Ebben  
Site Manager

JL/jg

Enclosures

cc: T. Fischer, USEPA, (1) w/attachments  
B. Nickel, OEPA, (4) w/attachments  
R. Vandegrift, ODH, (1) w/attachments  
J. Webb, ODH (1) w/attachments  
M. Wojciechowski, Tetra Tech, (1) w/attach  
G. Gorsuch, DOE/MCP, (1) w/attachments  
R. Tormey, DOE/OH, (1) w/attachments  
F. Bullock, MMCIC, (3) w/attachments  
Public Reading Room, (1) w/attachments  
C. Kline, CH2M Hill, (1) w/attachments  
K. Armstrong, CH2M Hill, (1) w/attachmemts

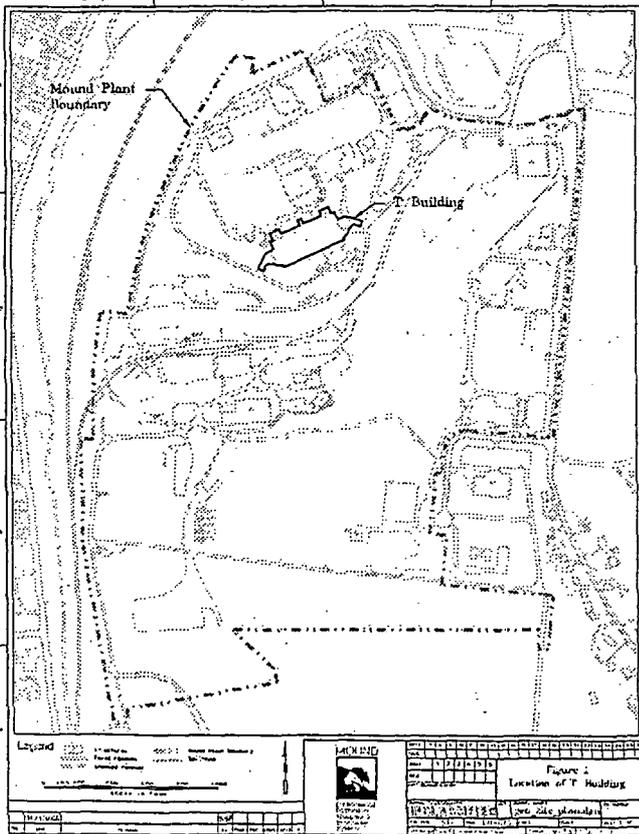
M. Sizemore, CH2M Hill, (1) w/attachments  
ER Records, CH2M Hill, (1) w/attachs  
DCC (1) w/attachments  
M. Ebben, CH2M Hill, w/o attachments  
D. Rakel, CH2M Hill, w/o attachments  
D. Kramer, CH2M Hill, w/o attachments  
MOAT Coordinator  
S. Barr, w/o attachments  
M. McDougal, w/o attachments  
file

# PUBLIC FACT SHEET

## T Building - Use of Dose Modeling and Institutional Controls

This Fact Sheet supplements the Action Memorandum Engineering Evaluation / Cost Analysis for the T Building Removal Action<sup>1</sup> (Final, June 2003) and discusses the need to use RESRAD Build dose modeling for the verification sampling of portions of T Building as per the Work Plan for Environmental Restoration of the DOE Mound Site, Mound 2000 Approach<sup>2</sup> (Mound 2000). Based on the modeling, additional protective measures may be taken to assure the building is protective for reuse.

**Background.** T Building is a heavily reinforced subterranean concrete structure located adjacent to the Central Operations Support (COS) Building near the center of the Mound Site. Construction was completed in 1948 at which time the facility was used to process radioactive polonium and other radionuclides. From 1949 to 1973, polonium programs included a processing and separation program, fuels research and development (R&D) program, neutron source program, and a variety of other polonium R&D and production programs. In the early 1980s, T Building underwent modifications to accommodate tritium-processing operations. Other activities conducted in T Building were nondestructive and environmental testing, gamma and mass spectroscopy, calorimetry, neutron activation analysis, and safeguards R&D.



Since the early 1990's, T Building has undergone extensive sampling and remediation activities in an attempt to achieve radiological contamination levels below free release criteria specified in the T Building Action Memorandum<sup>1</sup> and Mound 2000<sup>2</sup>.

**Characterization.** Isotopes such as cobalt-60, bismuth-207/210m, cesium-137 and americium-241, have been found as expected in areas of the building associated with the early polonium and radioactive source work. After extensive remediation, the majority of these areas have been verified to be free of volumetric contamination and below the surface contamination guidelines given in Appendix A of Mound 2000. However, some isolated areas contain volumetric contamination even after extensive remediation. A professional structural evaluation of the second floor of the building has shown that further remediation in these areas could render the building unsafe for reuse.

The Core Team (see Recommendation Page on page 2) has determined that a dose based approach (RESRAD-Build Computer Code, Argonne National Laboratories) can be used to verify that these areas are protective of human health under the re-use restrictions placed on the site (Industrial use only). The use of this code is outlined by the Mound 2000 process and is accepted by the Nuclear Regulatory Commission<sup>3</sup>. In addition, other restrictions such as institutional controls may be used to ensure that future site workers are not exposed to greater than 15 mrem per year. A dose of 15 mrem per year is protective of human health according to USEPA guidance "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" and "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Operating Licenses for Nuclear Reactors".

The Verification Sampling and Analysis Plan for T Building includes Survey Plan Forms detailing the approach to be taken for verification of the structure and utilities within the T Building. A new Survey Plan Form was generated using a dose based RESRAD-Build approach. This approach is a dose modeling method used by the DOE, NRC, and accepted by the Core Team. This method will be used to verify that future building occupants under conservative scenarios will not receive a dose greater than 15 mrem per year. Analysis of these areas may require additional protective measures such as a layer of cap and/or institutional controls to ensure the building is protective of human health. Institutional controls, if required, will be proposed in the Proposed Plan for Parcels 6, 7, and 8. Consistent with previous proposed plans, there will be a 30-day public review period.

**Schedule.** This Fact Sheet will be in public review for 30 days, ending March 29, 2006. Verification sampling is ongoing at the present time. A summary of the verification data will be included in the On-Scene Coordinator Report and placed in the public reading room after the conclusion of the verification sampling and approval by the Core Team.

Additional information can be found in the public reading room, or by contacting Paul Lucas at 513-246-0071.

1: Action Memorandum Engineering Evaluation/ Cost Analysis for the T Building, June 2003, Final

2: The Work Plan for Environmental Restoration of the DOE Mound Site, Mound 2000 Approach February 1999, Final

3: NUREG/CR-5512, PNL-7994, Vol. 1, Residual Radioactive Contamination from Decommissioning, Technical Basis for Translating Contamination Levels to Annual Total Dose Equivalent, Final Report.

# T Building & PRSs 213-233, & 339-344

