

# Letter Health Consultation

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FORMER STELLA CARDWELL HOSPITAL  
STELLA, NEWTON COUNTY, MISSOURI

EPA FACILITY ID: MON000704954

MAY 22, 2008

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

FORMER STELLA CARDWELL HOSPITAL  
STELLA, NEWTON COUNTY, MISSOURI

EPA FACILITY ID: MON000704954

Prepared By:

Missouri Department of Health and Senior Services  
Under Cooperative Agreement with the  
U.S. Department of Health and Human Services  
Agency for Toxic Substances and Disease Registry



Missouri Department of Health and Senior Services

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**Jane Drummond**  
Director

September 14, 2007

Bill Alsop  
Village of Stella  
744 Ozark Street  
Stella, MO 64867

Dear Mr. Alsop:

In September of 2006, the Missouri Department of Health and Senior Services (DHSS), in conjunction with the federal Agency for Toxic Substances and Disease Registry (ATSDR), completed a health consultation for the former Cardwell Hospital site in Stella, MO. That health consultation focused on nearby residents' potential exposure to contaminants originating from the former Cardwell Hospital and made several recommendations regarding the site, including the proper removal and disposal of all asbestos containing materials (ACM). Part of the public health action plan committed to by DHSS and ATSDR in that document was to follow up and update that health consultation as needed (1). Since that time, the U.S. Environmental Protection Agency (EPA) has completed a clean up action at the former Cardwell Hospital site. This letter addresses public health implications of that clean up action and the elimination of the public health hazard posed by the site as a result of the clean up efforts of the EPA.

As you know, the former Cardwell Hospital building was built in 1920, and operated until the 1980's. Once closed, the building deteriorated and became subject to trespassers and vandalism. In addition to being a physical hazard, the site was also contaminated with hazardous substances, especially asbestos, which were being actively released from the site (1). Long-term exposure to asbestos by inhalation can increase the likelihood of lung cancer, mesothelioma (cancer of the lining of the lungs), and non-malignant lung conditions such as asbestosis (2). Such health effects could be expected after 40 years of occupational exposure to air concentrations of 0.125 to 30 fiber/cc. Air concentrations of asbestos fibers in ambient (typical) air are 0.00001 to 0.0001 f/cc.

In 2005, after several years of efforts by a group of dedicated local citizens and a few state and federal agencies, the EPA authorized federal Superfund monies to clean up the site. On July 5, 2006, EPA contractors began clean up of the site. All ACM were removed and disposed of properly. Materials removed included asbestos containing pipe insulation, floor tile and mastic, transite siding, boiler insulation, and linoleum flooring and window caulk. Approximately 24 tons of ACM were removed and disposed of properly during the project. Several other hazardous materials found throughout the building were also properly disposed of by EPA contractors during site clean up, including several PCB-containing Ballasts, mercury-containing

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fluorescent light bulbs, one 55 gallon drum of oil based hazardous material, and various other hazardous materials (3).

The EPA contractors took several steps to ensure that asbestos fibers or dust contaminated with lead based paint were not released from the site above levels of health concern during the clean up actions. Removal of ACM inside the building was primarily conducted within four constructed plastic enclosures under negative air pressure to ensure that asbestos fibers were not released outside of the building. Non-friable transite siding was kept wet and was carefully removed from the exterior of the building to minimize breaking. For the portion of the building that was structurally unsound, EPA contractors employed a wet-demolition technique to keep air emissions to a minimum. Finally, as the remainder of the building was demolished, a water spray was continually used to suppress fugitive dust (3). See Figure 3.

In addition to these removal techniques to prevent a release of asbestos fibers from the site, EPA contractors also conducted ambient air monitoring (Figure 4) to verify that asbestos or lead paint dust was not leaving the site above levels of health concern (3). The Occupational Safety and Health Administration (OSHA) has established a level of 0.1 fibers per cubic centimeter (f/cc) as the limit for workplace exposure to asbestos (2). EPA contractors took action to reduce asbestos levels in air if the concentration of asbestos rose above 0.01 f/cc (3). The EPA has established a residential health-based benchmark of 0.0009 f/cc in indoor air (4). However, this benchmark does not apply to the short exposure time potentially experienced by individuals at the former Cardwell Hospital site during clean up actions by EPA.

Air samples were collected during and after asbestos abatement activities and demolition of the building. A total of 9 air samples were collected at the perimeter of the site during asbestos abatement. The concentration of asbestos in one sample was reported by the laboratory as less than 0.03 f/cc, but all others were 0.01 f/cc or less. A total of 15 air samples were taken during asbestos abatement right at the work areas. The highest concentration of asbestos at these locations was one sample that showed 0.05 f/cc asbestos in air; the other sample results were 0.01 f/cc or lower. Finally, 18 air samples were also collected in areas of the building where abatement was complete to verify that asbestos did not remain in ambient air. Three of these samples were above 0.01 f/cc, including one sample at 0.21 f/cc. The remainder of the samples were all below 0.01 f/cc. The three samples above 0.01 f/cc were believed to be associated with removal of exterior asbestos-containing siding very near the interior sample collection point. Corresponding background air samples at the site perimeter that day showed asbestos levels of 0.004 f/cc or less, indicating that the exterior siding removal may have created localized elevations of asbestos concentrations, but did not contribute to significant levels of asbestos migrating off site (3).

Because of the presence of lead based paint throughout the building, ambient air dust samples were collected at the site perimeter throughout the demolition of the building. These samples were analyzed for lead to verify that lead was not leaving the site above levels of health concern. No lead was detected in any of the samples, although the laboratory method used to analyze the samples was not sensitive enough to detect very small levels of lead. Because the entire building demolition lasted only 19 days (from July 24<sup>th</sup> to August 11<sup>th</sup>), any exposure to lead in ambient air from this site is expected to have been below a level of health concern.

Another component of the clean up of the site was to address the asbestos contaminated soil identified in previous site investigations. The soils from these areas were excavated and disposed of properly with other ACM. Four surface soil samples were collected from these areas following excavation in approximately the same location as the previous samples. No asbestos was detected in any of the post-excavation samples (3).

The final phase of the site work was the restoration of the site. The basement of the building was filled with clean fill material and covered with clean soil. Finally the entire site was grass-seeded, watered and covered with straw. All clean up and restoration activities were completed at the site by August 30, 2006 (3). At the time of the last site visit by DHSS staff in the winter of 2006, a grass cover was well established over the site (Figure 5).

### **Conclusions:**

The previous health consultation by DHSS/ATSDR for the former Cardwell Hospital site considered the site a public health hazard (1). During July and August, 2006, EPA cleaned up the site by removing all ACM, demolishing the building, removing the debris and restoring the site to an open lot (3). The activities of the EPA contractors during that time did disturb and likely release some small amounts of lead and asbestos from the site. Any exposure to lead and asbestos at that time by area residents is expected to have been short-term and minimal, and we consider those activities to have been *No Apparent Public Health Hazard*. A no apparent public health hazard is assigned to sites where human exposure to contaminated media is occurring or has occurred in the past, but the exposure is below a level of health concern.

Today, as a result of EPA's clean up efforts, all ACM and other hazardous materials are removed from the site. In addition, the building itself, which was a physical hazard to anyone visiting, playing in, or working on the building, has been removed. The site is now a vacant grass-covered lot, with no surface or subsurface contamination remaining (3). See Figure 5. Because of these actions, the site no longer poses a threat to human health, and we consider the site *No Public Health Hazard*. This conclusion category is assigned to sites where no exposure to site-related hazardous substances exists.

We recognize that although the Cardwell Hospital building certainly became a health hazard to the local residents, it was also a significant piece of the community's history. We commend the efforts of the Village of Stella and the local citizens who helped to remove the public health hazard formerly posed by this site. All of the recommended actions in the September 2006 health consultation have been completed; no further action is recommended.

The Missouri Department of Health and Senior Services, or the federal Agency for Toxic Substances and Disease Registry, would be happy to address any community health concerns or questions you may have regarding the EPA clean up actions at this site. We can also provide health education and/or educational materials when requested. If you have questions or concerns, or would like to request health educational materials, please contact Jonathan Garoutte or Arthur Busch of my staff at (573) 751-6102 or toll-free at (866) 628-9891.

Sincerely,

Cherri Baysinger, Chief  
Bureau of Environmental Epidemiology

Cc: Dennis Stinson, MDNR  
David Williams, USEPA  
Ada Clymer, Stella Historical Society / Museum

CB:JG

## References

1. Agency for Toxic Substances and Disease Registry. Former Cardwell Memorial Hospital Health Consultation. Atlanta: US Department of Health and Human Services; 2006 September 30.
2. Agency for Toxic Substances and Disease Registry. Toxicological profile for asbestos. Atlanta: US Department of Health and Human Services; 2001 September.
3. U.S. Environmental Protection Agency. Project Report – Final: Asbestos Abatement, Building Demolition, and Site Restoration; Former Cardwell Hospital Site, Stella, Missouri. 2006 December. Contract No: EP-R7-06-05.
4. Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Task Force Working Group. (2003) World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks.

## CERTIFICATION

This former Cardwell Hospital Removal Action Letter Health Consultation was prepared by the Missouri Department of Health and Senior Services under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.



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Technical Project Officer, CAT, CAPEB, DHAC

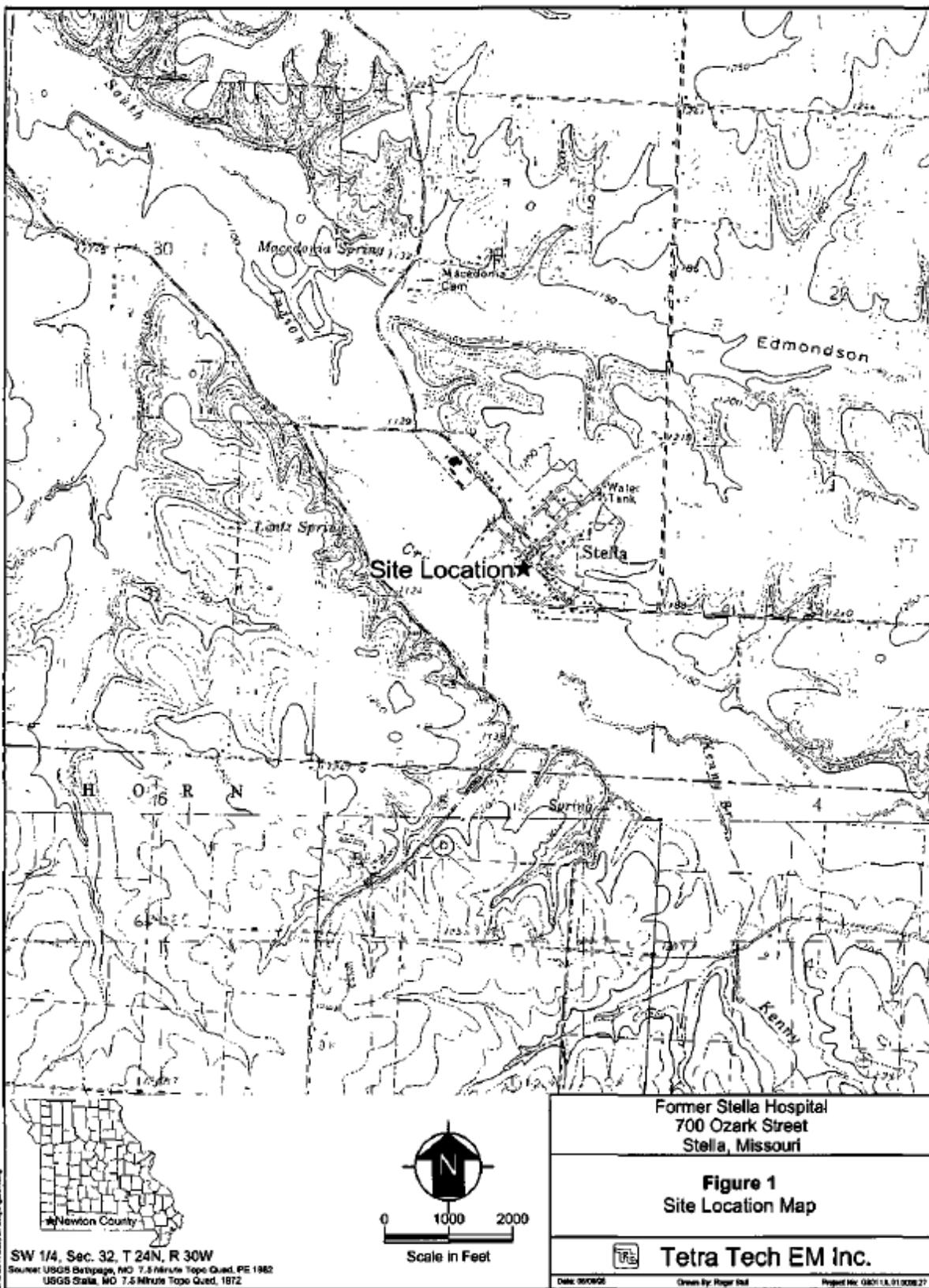
The Division of Health Assessment and Consultation (DHAC), has reviewed this health consultation and concurs with its findings.



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Team Lead, CAT, CAPEB, DHAC, ATSDR

**Figure 1**  
**Cardwell Hospital Site**  
**Stella, Missouri**



**Figure 2**  
Cardwell Hospital Building Before and During Demolition  
Cardwell Hospital Site  
Stella, Missouri



**Figure 3**  
Cardwell Hospital Building Demolition, Dust Suppression  
Cardwell Hospital Site  
Stella, Missouri



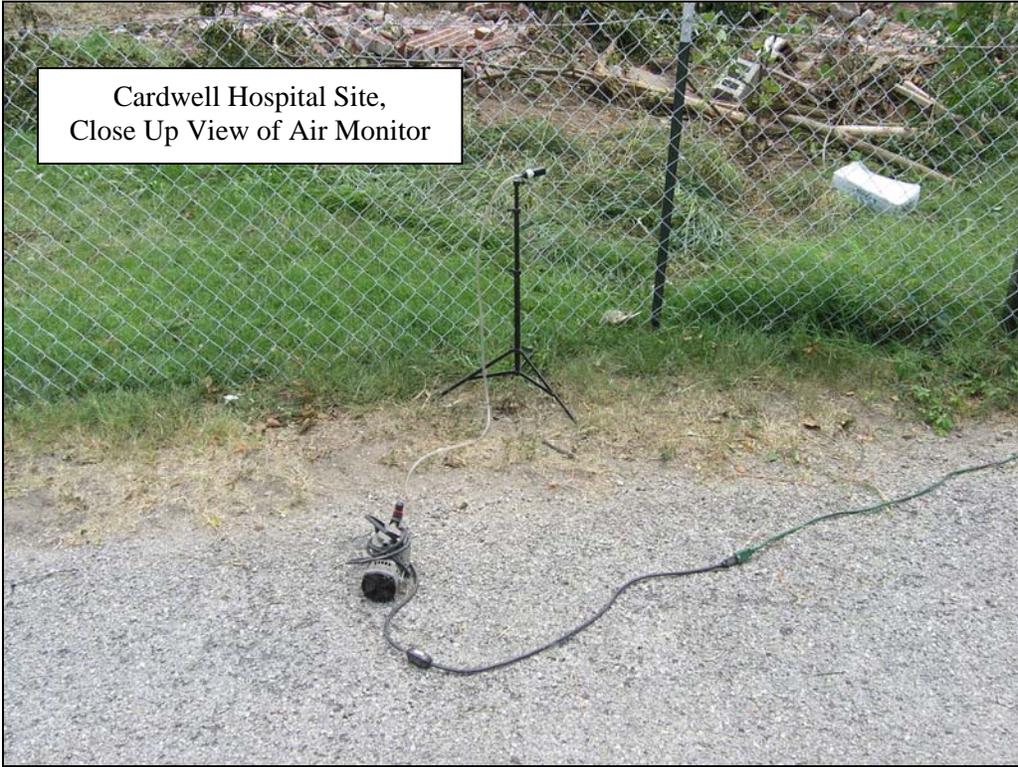
Cardwell Hospital Site,  
Dust suppression application.  
(circled in blue)



**Figure 4**  
Cardwell Hospital Building Demolition, Perimeter Air Monitoring  
Cardwell Hospital Site  
Stella, Missouri



Cardwell Hospital Site,  
Air Monitor at Site Perimeter



Cardwell Hospital Site,  
Close Up View of Air Monitor

**Figure 5**  
Cardwell Hospital Site, Restoration Complete  
Cardwell Hospital Site  
Stella, Missouri

