



# CITADEL EHS

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September 24, 2024

Ms. Kristina Strottman  
University Legal Counsel  
**CALIFORNIA STATE UNIVERSITY LOS ANGELES**  
5151 State University Drive  
Los Angeles, California 90032

**Re: CITADEL Project No. 1065.1011.0**  
**Testing Analysis & Opinion**  
**King Hall**  
**California State University Los Angeles**  
**5151 State University Drive**  
**Los Angeles, California 90032**

Ms. Strottman,

Citadel EHS (Citadel) was retained by California State University Los Angeles (CSULA) (Client) to review the sampling and analysis performed by Terra Environmental Services (Terra) related to concerns of asbestos dust in King Hall at CSULA. Citadel reviewed the following report prepared by Terra:

- "Asbestos Indoor Air Quality Assessment, California State University Los Angeles, King Hall, 5151 State University Dr., Los Angeles, CA 90032" Dated September 12, 2024. (the Terra Report)

This letter details Citadel's review of the Terra report and presents our professional opinion of their conclusions as well as Citadel's conclusions and recommendations.

- 1) Asbestos is an inhalation hazard. As such, the regulated exposure limits are airborne asbestos (or fiber) limits. This is the Cal-OSHA/OSHA Permissible Exposure Limit (PEL) of 0.1 fibers per cubic centimeter of air (f/cc). This is the limit that an employee can be exposed to during a standard work shift.

There is also the EPA re-occupancy criteria for releasing an asbestos abatement work area to occupancy by K-12 students and staff. This limit is 0.01 f/cc. Generally, in an academic or office setting, the industry standard is to apply the EPA re-occupancy criteria limit of 0.01 f/cc.

- a. All of the air samples collected and analyzed by Phase Contrast Microcopy (PCM), as reported in the Terra Report, were below the PEL and the re-occupancy criteria. These levels are acceptable for staff, students, and the public to occupy the areas tested.

2) There are no regulated limits for asbestos in surface dust, as measured by the method, or similar methods, used by Terra to analyze the surface dust samples.

a. However, there is some widely accepted industry guidance:

i. 1,000 s/cm<sup>2</sup> = "Low" concentration; 10,000 s/cm<sup>2</sup> = "Above Background" concentration; 100,000 s/cm<sup>2</sup> = "High" concentration (from Millette, J.R. and S.M. Hays, Settled Asbestos Dust Sampling and Analysis, Lewis Publishers, London, 1994. 'Millette and Hays'). This is the reference cited in the Terra report.

ii. 5,000 s/cm<sup>2</sup>

1. This is the standard used by EPA in Libby Montana as one of the criteria for determining to fund the decontamination of the interior of homes.<sup>1</sup>

2. This was also used, again by EPA, to determine funding for cleanup after the World Trade Center collapse.<sup>2</sup>

iii. The above are used to compare microvac results, however, this is a similar method to that Terra employed, and would be appropriate to compare their results to these standards. The Terra report mentions this.

b. The surface dust samples in King Hall ranged from below the limit of detection (LOD) of the laboratory method, as indicated by the "<" preceding the Concentration in structures per square centimeter (s/cm<sup>2</sup>), to 1,820 s/cm<sup>2</sup>.

A single sample (4027-07, Room A4027, East Shelf, 1,820 s/cm<sup>2</sup>) collected in King Hall exceeded 1,000 s/cm<sup>2</sup>. In all cases of the samples from King Hall, the LOD was below 1,000 s/cm<sup>2</sup>.

i. The sample results from King Hall were, in most cases, below the LOD of the analytical method; in all cases except one, were below 1,000 s/cm<sup>2</sup>; and, in all cases, were below 5,000 s/cm<sup>2</sup>.

Based on these results compared to the available standards quoted above, in all cases except one, these results would clearly be considered low and background levels. Even the single 1,820 s/cm<sup>2</sup> is below the 5,000 s/cm<sup>2</sup> standards and is below the 10,000 s/cm<sup>2</sup> standard which would categorize it as definitively Above Background.

3) Asbestos is present in our environment, both the built environment and the natural world.

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<sup>1</sup> LIBBY ASBESTOS SITE RESIDENTIAL/COMMERCIAL CLEANUP ACTION LEVEL AND CLEARANCE CRITERIA TECHNICAL MEMORANDUM, DRAFT FINAL - December 15, 2003: U.S. Environmental Protection Agency, Region 8

<sup>2</sup> LOWER MANHATTAN TEST AND CLEAN PROGRAM, Final Report, November 2008: United States Environmental Protection Agency, Region 2, New York City Response and Recovery Operations

- a. Chrysotile asbestos, the type identified in the sampling by Terra, is the most common type of asbestos found in nature in California <sup>3</sup> as well as in building materials.
  - b. The state rock of California is Serpentine, which is a chrysotile asbestos containing rock. <sup>3</sup>
  - c. Asbestos is naturally occurring in Los Angeles county, and has been mined in Los Angeles county historically. <sup>4</sup>
  - d. The Terra report identified that the asbestos-containing floor tiles were intact.
  - e. The presence of chrysotile asbestos in Terra's samples cannot be definitively linked to the asbestos containing building materials at King Hall.
- 4) The Terra report recommends cleaning of the interior surfaces and room contents of King Hall rooms A4026, A4027, A4025, and C4030.
- a. This is apparently based on Chrysotile being identified in the surface wipes in these areas, although in many cases the results are below the LOD, and in all except one case, below 1,000 s/mm<sup>2</sup>.
    - i. Citadel's opinion is that this recommendation is not supported by the data collected by Terra, nor is it supported by the reference (Millette and Hays) used by Terra, except, perhaps, in A4027 where the result of 1,820 s/cm<sup>2</sup> was collected.
      1. Citadel recommends requesting Terra provide justification for this recommendation.
  - b. Furthermore, the Terra report recommends the standard that the cleaning should achieve is none-detected. This (presuming similar LODs to prior testing) is well below any of the standards mentioned above.
    - i. Citadel's opinion is that this is unnecessary and exceedingly strict.
      1. It is well below the standards.
      2. No regulatory standard for asbestos is zero asbestos detected. The enforceable regulatory standards of 0.1 f/cc (the Cal-OSHA PEL) and 0.01 f/cc (the EPA re-occupancy criteria) don't set a zero standard, they set a standard where detected asbestos below the standard is acceptable.
      3. Citadel recommends requesting Terra provide justification for this recommendation.

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<sup>3</sup> California Environmental Protection Agency | CALIFORNIA AIR RESOURCES BOARD,  
Naturally-Occurring Asbestos General Information

<sup>4</sup> <https://www.cccarto.com/mines/losangeles/>

- c. There is no regulation that requires cleaning in these instances. As far as Citadel knows, there is no known and proven relationship between surface dust asbestos levels and airborne asbestos exposure levels. There is no regulation that limits the concentration of asbestos in surface dust, beyond a bulk sample of the material, which has not been performed and based on the information in the Terra report, would not be feasible or recommended, as they do not note any visible debris.
  - d. The OSHA General Duty clause: All employers provide a work environment "free from recognized hazards that are causing or are likely to cause death or serious physical harm." Might be interpretable to cover this situation, however, based on the lack of confirmation that this would constitute a recognizable hazard compared to the (unenforceable) standards, this seems highly unlikely.
  - e. Items a., b., and c. above notwithstanding, cleaning these areas is completely acceptable, and from an occupant comfort perspective, may be recommended.
    - i. If cleaning is employed, Citadel agrees with the Terra report that this should be performed by an asbestos contractor, and that post cleaning air sampling should be performed and compared to the EPA re-occupancy criteria. Citadel recommends either not performing wipe testing after this cleaning or limiting the wipe testing to A4027. If wipe testing is performed, Citadel recommends a conservative standard of 1,000 s/cm<sup>2</sup>.
- 5) Citadel agrees with the remaining Terra recommendations regarding the Administration Building, discontinuing settled dust sampling and replacing it with the enforceable and approved personal exposure monitoring (or ambient air monitoring), etc.
- 6) The wipe test results from the Administration Building do, in some cases, show levels of asbestos in settled dust that may be of concern.

If after your review of this letter, you have any questions or require additional information, please do not hesitate to telephone our office at (818) 246-2707.

Sincerely,  
**CITADEL EHS**

Kier DeLeo, CHMM, CAC  
Principal – Building Sciences