

Case Study - Cement Additive - Winter Pour (Ammonia)

Project Description: Odor Investigation at High Rise Apartment Building.

Scope of Services: Accredited Environmental Technologies, Inc. (AET) was contracted to identify the source of a foul odor at a 23 floor high rise apartment building constructed on a remediated Delaware Hazardous Waste Cleanup Site. The apartment building was built on a slab (on-grade) due to historic VOC and metal contamination in the soil.

Easy answer... The State of Delaware hired an environmental consultant which assumed the odors were the result of vapor intrusion from the previous hazardous waste operations. Air samples were collected using summa canisters which confirmed low levels of VOC's (ppb range) and concluded air quality was within OSHA limits. However, building occupants continued to complain.

Right answer... Immediately upon entering the building, AET's CIH investigator noted a strong ammonia odor. Interviews with building management found the middle floors of the building were constructed during the coldest part of the winter. Complaints of foul odors occurred in May, 2 months after the construction was complete. AET's experience is that various additives (plasticizers and other chemicals) are mixed with the concrete mixture in the winter months to keep the concrete from hardening too quickly. Additional research found the concrete mixture was manufactured in Mexico and contained urea as an impurity.

AET's Investigative Approach/Tools

1. Concrete cores were collected from the floors and walls of the building which confirmed ammonia was being released.
2. Air samples were collected at various points in the building which confirmed airborne ammonia levels ranging from 2-7 ppm at these locations.
3. Site reconnaissance the building HVAC system was recycling ammonia odors throughout the building.



Final Solution

HVAC modifications were made in the building. Ammonia levels dissipated over time due to the continued curing of the concrete and were verified by air sampling measurements. A substantial settlement was reached with the construction firm.

When you need professional help or advice, email Alan Sutherland, CIH, CHMM at a.sutherland@aetinc.biz or call 610-891-0114. We provide nationwide services; phone consultations are free. Check out the full range of environmental contracting/consulting services we provide at our website www.aetinc.biz.

Accredited Environmental Technologies, Inc.