Indoor Air Quality Update for the Middle River Complex

November 2021

Indoor Air Quality

Lockheed Martin's investigation of soil vapor and indoor air in and around buildings at the Middle River Complex indicate that indoor air quality is safe from chemicals used historically, and that employees who work in buildings do not need to be concerned about the quality of their indoor air. In the late 1990s Lockheed Martin began environmental evaluations at the Middle River Complex to assess impacts from former industrial operations and disposal practices that were commonplace in industry more than a half-century ago. Since then, Lockheed Martin has been actively investigating groundwater, soil, sediments, surface water, subsurface soil vapor, and indoor air quality at the site.

The primary contaminants of indoor air being investigated are volatile organic compounds (VOCs), which can move from contaminated soil under buildings into the buildings themselves through cracks in foundations and basement foors, and throubeneath the buildings' foundational slabs and discharging the captured vapor into the atmosphere at roof level. This mitigation activity prevents the VOC vapors from moving from under the foor into indoor air.

Between 2006 and July 2021, Lockheed Martin tested air quality inside A-, B-, and C-Buildings 30 times, and also tested the vapor in soil directly beneath these buildings, to (MRC) is safe for workers. Sampling has been conducted generally twice a year to account for differences between summer and winter conditions, when heating, ventilation, and air conditioning can affect the rate at which subsurface soil vapors may be pulled into, blocked from entering, or pushed out of a building. Outside air is also monitored at locations around the buildings to measure any chemicals that might already be in outside air from other sources. This helps Lockheed Martin determine if any chemical vapors that might have been found inshem _ m ½te to be acceptable. Few instances were found where the primary contaminant of concern, trichloroethene (TCE), exceeded the screening level (established by the Maryland Department of the Environment) of 8.8 micrograms per cubic meter. The last exceedance of this screening level in the main working areas of A-, B-, and C-Buildings was in the A-Building former plating shop in February 2015. When sampled at the

infrequent. Because workers in the A-Building basement are typically exposed to air in the A-Building basement for only a short time, a basement-specifc TCE screening level of 35 micrograms per cubic meter was developed and approved by the Maryland Department of the Environment. This screening level assumes that a worker will be safe at this exposure concentration if they do not occupy the basement for more than an average of 2 hours per day, 250 days a year, over a 25-year career. TCE concentrations detected in indoor air in the A-Building basement have never exceeded this basement-specifc screening level.

Looking Ahead

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Sampling performed in A-Building basement identifed vapors coming from sumps as the source of indoor air contaminants. Consequently, the A-building sub-slab depressurization system (SSDS) was expanded to remove vapors from the active sump with the highest TCE levels in 2017. In 2020, Lockheed Martin permanently abandoned and sealed three sumps in the A-Building basement and anticipates that this should further improve indoor air quality in the basement. None of the indoor air samples taken in the August 2020 round (Round 29) or February 2021 round (Round 30) in the A-Building basement exceeded the more protective safe screening level of 8.8 micrograms per cubic meter. However, one A-Basement sample collected in August 2021 (Round 31) had a TCE concentration of 12 micrograms per cubic meter, which is still less than the A-Building basement screening level of 35 micrograms per cubic meter.

Treatment of the discharge from the A- and C-Building SSDSs will be discontinued because of the very low concentrations of contaminants found in the off-gas. At these low concentrations, which are far below regulatory standards, treatment is only marginally effective. The air coming out of the SSDSs is discharged above the roofline of A- and C-Buildings.

Drop Hammer Building

Over the past year and a half, Lockheed Martin has focused investigations on the former Drop Hammer Building, which is located to the west of A-Building. While elevated levels of volatile organic compounds (VOCs) have been found under the building slab, current sampling indicates that the air quality inside the building is acceptable for workers. However, in an abundance of caution, and ensuring its commitment to maintaining safe indoor air for employees, Lockheed Martin will be installing a new sub-slab depressurization system (SSDS) in the Drop Hammer Building in late 2021 to extract the vapors that have been found under the building. Semi-annual monitoring of indoor air and subsurface vapors will continue after the SSDS is installed.

Volatile organic compounds (VOCs) can move from contaminated soil under buildings into the buildings themselves through cracks in foundations and basement floors, and through sumps and utility openings via a process known as vapor intrusion.