



# Missile Community Cancer Fact Sheet

## IDENTIFIED TOXIC HAZARDS IN MINUTEMAN ICBM FACILITIES

There are a range of documented toxic hazards in the Minuteman ICBM environment:

- Polychlorinated biphenyls (PCBs) used in power production, filtering, and electronic components within Minuteman Launch Control Centers (LCCs) and Launch Facilities (LFs)
  - Includes leaching of PCBs found in water samples from LCCs
  - Drying and airborne contamination from PCBs released from capacitors within the original Minuteman electronic components
  - Released during documented overheating and fires in electronic components
  - Residual exposures following initial cleanup/removal of PCB-laden equipment found by USAFSAM in 2023
- Venting of Dimethylformamide (DMF) used in REACT original Cathode Ray Tube (CRT) Visual Display Units (VDUs). These VDUs were replaced with Light Emitting Diode (LED) displays under the REACT Service Life Extension (RSLEP) program
- Burning of classified material in confined areas of Launch Control Centers (LCCs)
  - Special Biological-Chemical (NBC) resistant treated thermal paper
  - Tamper Detection Indicators (TDIs) produced by National Security Administration
  - NSA-produced cryptographic keying material
- Off-gassing and fumes produced by evaporation of ethylene glycol solutions used in cooling systems
- Radon present in 60-90 feet buried facilities across 4 Montana counties
- Airborne asbestos when disrupting floor tiles for inspections/equipment inventory
- Potassium Superoxide ( $KO_2$ ) present during handling/inspection of Oxygen Regeneration Units (ORUs). Replaced by the LCC Block Upgrade Program in 2023
- Exposure to gasses from sewage backups (often untreated for months) in LCCs
- Ozone produced by 1960-70s-era electronic components used in Minuteman facilities
- Sodium Chromate used in Minuteman weapon system cooling systems
- Routine painting and corrosion control performed by crewmembers and maintenance teams within the confined, below-grade spaces of Minuteman LCCs and LFs without respirators or other Personal Protective Equipment (PPE)
- Combined effects of long-term exposure of multiple hazards within confined spaces
  - 90% recycled breathing air provided to the LCC via the Minuteman Normal Environmental Control System (NECS)
  - 100% recycled air when operating on Emergency Air Conditioning Unit (EACU)



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## TOXIC HAZARD DOCUMENTATION:

- Department of Defense Inspector General (DoD IG) Hotline complaints 202212031532204408 and 202212101407491329
- The standard AF Form 55 (Employee Safety and Health Record)
- [Environmental Assessment /Minuteman III Deactivation Malmstrom AFB \(May 2007\)](#)
- [2001 Exposure Assessment of Missile Crew Members in 564<sup>th</sup> Missile Squadron, Malmstrom AFB, MT](#)
- Modification of Battery Chargers, Part Numbers 950300-1, 950300-5, and 9512608-10, to removed PCB capacitors and replace with non-PCB capacitors and apply torque requirement to capacitor terminals (29 July 2008)
- Maintenance Dispatch documentation maintained by Missile Wings and ICBM System Program Office (SPO)
- USAF Technical Order (T.O.) Warnings
  - TO 21M-LGM30G-1-24, including August 2023 changes identifying equipment with residual PCB hazards for which fire/overheat mitigation procedures are no longer performed and immediate evacuation of the LCC is directed
- Minuteman Missile Alert Facility (MAF) Warning Labels
  - Power Filters in Tunnel Junctions and Launch Control Center Equipment Building (LCEB)
  - Launch Control Power Array (LCPA)
  - Launch Control Distribution Box (LCDB)
  - LCC Switchboard No. 2 and Launch Control Equipment Building power generation/filtering equipment (unique to the WS-133B configuration in 564 MS)
  - Battery Chargers
  - Voltage Dividing Network (prior to REACT modification)
  - Capacitors and other components from original Minuteman power distribution, electronic processing, and display equipment
- Officer and Enlisted Performance Reports (OPR/EPR) of assigned personnel
- [AFGSC Town Hall Briefing Materials - Slide 10 \(11 May 2023\)](#)
- Personal narratives from ICBM mission veterans