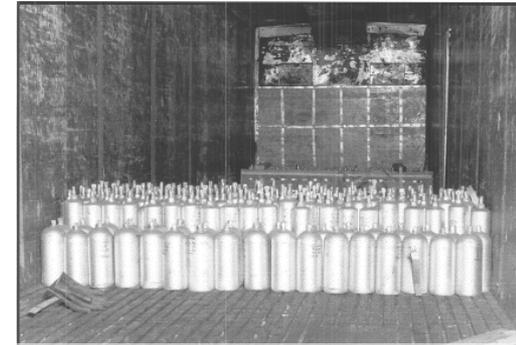


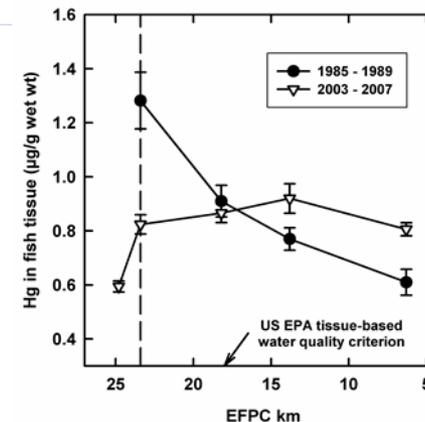
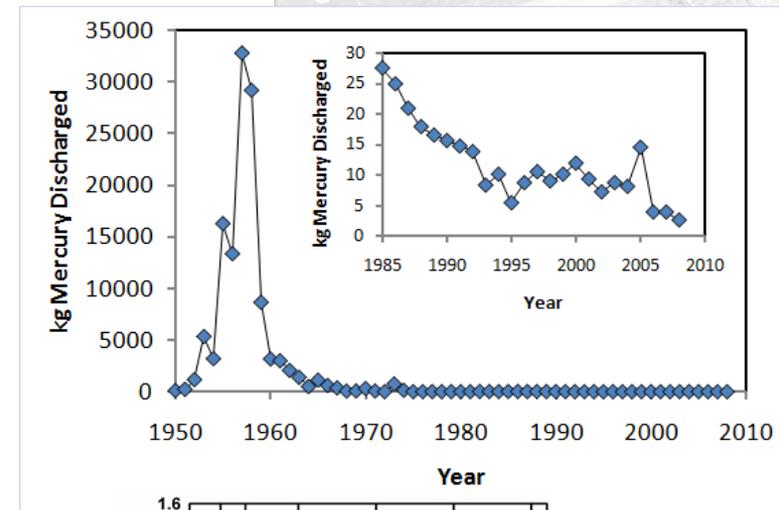
History of Mercury Use and Environmental Contamination at the Oak Ridge Y-12 Plant

Contact: Scott C. Brooks (brookssc@ornl.gov, 865-574-6398)
DOE/Office of Science/Biological & Environmental Research



Hg flasks arriving at Y-12 (1955)

- For the first time information on historical mercury use and contamination in East Fork Poplar Creek, remedial efforts, present day sources of mercury contamination, and biota response to improvements in water quality is presented in one publicly available document.
- Methylmercury concentrations in water and fish have not declined in response to improvements in water quality and mercury in fish tissue remains above regulatory criteria.
- These observations highlight a critical gap in understanding – improvements to water quality alone may not be sufficient to achieve remediation targets.
- The need exists for more detailed study into the mechanisms that control methylmercury formation and destruction in water for this creek.



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Between 1950 and 1963 approximately 11 million kilograms of mercury (Hg) were used at the Oak Ridge Y-12 National Security Complex (Y-12 NSC) for lithium isotope separation processes. About 3% of the Hg was lost to the air, soil and rock under facilities, and East Fork Poplar Creek (EFPC) which originates in the plant site. Smaller amounts of Hg were used at other Oak Ridge facilities with similar results. Although the primary Hg discharges from Y-12 NSC stopped in 1963, small amounts of Hg continue to be released into the creek from point sources and diffuse contaminated soil and groundwater sources within Y-12 NSC. Mercury concentration in EFPC has decreased 85% from ~2,000 ng/L in the 1980's. In general, methylmercury concentrations in water and in fish have not declined in response to improvements in water quality and exhibit trends of increasing concentration in some cases.

Brooks, S.C. and G.R. Southworth. 2011. History of mercury use and environmental contamination at the Oak Ridge Y-12 Plant. *Environ. Poll.* 159:219-228 (doi:10.1016/j.envpol.2010.09.009).